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November 10, 2025

VIA: ELECTRONIC FILING

Mr. Adam J. Teitzman
Commission Clerk
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850

Re: FPSC Docket No. 2025____ Application for Limited Proceeding

Dear Mr. Teitzman:

Sunshine Water Services Company is filing the Prepared Direct Testimony and Exhibit of Sean Twomey, Exhibit ST-01, and Exhibit ST-02 regarding Application by Sunshine Water Services Company for Limited Proceeding.

Thank you for your assistance in connection with this matter.

Sincerely,

Virginia L Ponder

VLP/dh
Attachments

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that a true copy of the foregoing Testimony and Exhibits, filed on behalf of Sunshine Services Water Company, has been furnished by electronic mail on this 10th day of November 2025 to the following:

Office of the General Counsel
Florida Public Service Commission
2540 Shumard Oak Boulevard
Tallahassee, FL 32399-0850
discovery-gcl@psc.state.fl.us

Walt L. Trierweiler
Charles J. Rehwinkel
Office of Public Counsel
111 West Madison Street – Room 812
Tallahassee, FL 32399-1400
trierweiler.walt@leg.state.fl.us
rehwinkel.charles@leg.state.fl.us

ATTORNEY

BEFORE THE FLORIDA PUBLIC SERVICE COMMISSION

In re: Application by Sunshine Water Services Company for Limited Proceeding	)) /	Docket No.

DIRECT TESTIMONY

OF

SEÁN TWOMEY

on behalf of

Sunshine Water Services Company

BACKGROUND

Q. Please state your name, address, occupation, and employer.

A. My name is Seán Twomey. My present position is Senior Vice President, Nexus Water Group Inc., and I am President of Sunshine Water Services Company ("SWS" or the "Company"). My business address is 200 Weathersfield Ave., Altamonte Springs, Florida, 32714.

Q. State briefly your educational background and experience.

A. Please see Exhibit ST-1 attached hereto.

Q. Have you previously appeared and presented testimony before any regulatory bodies?

A. Yes, I have presented testimony in multiple dockets before the Nevada Public Utilities Commission, and before the Florida Public Service Commission ("Commission") in Docket No. 20240068-WS.

Q. What is the purpose of your direct testimony?

A. The purpose of my testimony is to describe the Mid-County Wastewater Treatment Plant ("WWTP") project (the "Mid-County WWTP Project" or the "Project") and its associated costs.

Q. Did you prepare any exhibits in support of your prepared direct testimony?

A. Yes. I am sponsoring the following exhibits that were prepared under my direction and supervision. The contents of my exhibits were derived from the business records of the Company and are true and correct to the best of my information and belief.

Exhibit ST-1. Resume of Seán Twomey

Exhibit ST-2. Mid-County WWTP Project

THE MID-COUNTY WWTP PROJECT

Q. Please describe the current wastewater treatment plant for the Mid-County system.

A. The Mid-County WWTP is located at 2299 Spanish Vistas Drive, Dunedin, Florida. The facility treats wastewater from a service area consisting of primarily commercial, single and multi-family residential properties along U.S. Highway 19 from State Road 580 to the intersection of County Road 39 and County Road 95. The Mid-County WWTP is currently permitted for 0.900 million gallons per day ("MGD") annual average daily flow ("AADF"). The facility is permitted to discharge 0.900 MGD AADF into Curlew Creek (Water Body ID 1538A), a Class III freshwater body. Prior to any work at the facility, the Mid-County WWTP was an advanced wastewater treatment facility with high level disinfection.

Q. Please describe the history of the Mid-County WWTP facility.

A. The facility has been the subject of compliance issues over the past several years. The Florida Department of Environmental Protection ("DEP") completed an inspection of the Mid-County WWTP in March 2018. A review of the discharge monitoring reports indicated permit limits were exceeded, and the aging facility was no longer able to meet its permit requirements. The Company, then operating under the name Utilities Inc. of Florida, entered into a consent order with DEP in November of 2018. DEP closed the consent order on July 30, 2019, via an In-Kind Completion and Case Closure.

The Company engaged Kimley-Horn and Associates, Inc. ("KH") in November 2019 to complete an Engineering Analysis (the "2019 Engineering Analysis") to determine the next steps for the Mid-County facility improvement. KH examined equipment and installation alternatives for the master lift station, headworks, biological treatment process, disinfection, and sludge handling along with membrane biological reactors ("MBR") system alternatives. KH evaluated each alternative based on capital cost, operation and maintenance requirements,

constructability, reliability, and compatibility with an MBR system.

The 2019 Engineering Analysis recommended upgrading the facility's primary method of treatment from a conventional extended aeration system to a MBR system. Additionally, KH noted the master lift station required replacement independent of downstream improvements and recommended the Company design and construct a new master lift station as soon as possible. Accordingly, SWS designed and installed a new master lift station in March 2021. SWS also decided to design and install a new Headworks (screen) and Grit Removal system for three reasons. First, the old static screen only provided coarse screening, the screen often caused reduced capacity due to screen "blinding." Second, the old screen required a lot of maintenance. Finally, the screen was not rated for the new capacity of the master lift station. SWS completed this work in June 2022.

In July 2021, SWS entered into a consent order with DEP (the "2021 Consent Order"") regarding unauthorized discharges of 1,143,600 gallons of partially treated wastewater that bypassed the denitrification filters on September 11, 2020, November 12, 2020, and July 6, 2021. DEP acknowledged that the Company completed the requirements and closed out the consent order on June 15, 2022.

Based on the outcome of the 2019 Engineering Analysis, the Company decided to move forward with the recommended plant upgrades to continue to provide safe and reliable service to our customers and remain compliant with our DEP permit. SWS contracted with KH on January 22, 2021, to provide design, permitting, bidding, and construction phase services for the Mid-County WWTP Improvements.

Also in early 2021, the Company prepared to reapply for the Mid-County WWTP permit which was set to expire in August 2021. The application required a Capacity Analysis Report and an Operations and Maintenance Performance Report**.** In response to a DEP data request, the Company also submitted a Preliminary Design Report ("PDR") that recommended the

WWTP utilize a 5-stage MBR process designed for advanced nutrient removal with the ability to meet effluent discharge parameters within the existing plant footprint. The recommended improvements were intended to increase the plant's hydraulic capacity, maintain permitted effluent limits, address existing process and operational inefficiencies, and provide increased overall plant reliability within the existing plant footprint. DEP issued the current permit in July 2022.

SWS entered into a consent order in July 2024 (OGC File No.: 24-1932) regarding unauthorized discharges of 3,200 gallons of raw wastewater in the Mid County Collection System. The Company completed the requirements and DEP closed out the consent order in April 2025.

SWS has dealt with compliance issues at the facility for many years and upon review of the 2019 Engineering Analysis determined it was best to move forward with a complete plant upgrade and refurbishment to remain complaint with the 2022 DEP-approved permit.

Q. Does the Company have any open Administrative Orders or Consent Orders for the Mid-County wastewater system at the time of this filing?

A. No.

Q. Has the Commission addressed any Quality-of-Service issues at the Mid County Facility in previous rate case orders?

A. Yes, the Commission noted Quality of Service issues at the facility in Order No. PSC-2007-0134-PAA, issued on February 16, 2007, and Order No. PSC-2017-0361-FOF-WS, issued on September 25, 2017, and made a downward adjustment to the Company's return on equity on the entire rate base included in each rate case.

Q. **Does the upgrade to the Mid-County WWTP address concerns raised by the Commission?**

A. Yes, with the right operations and leadership in place, the capital improvements made from 2021 through 2025 will enable the company to remain complaint with the facilities permit.

Q. Please describe the scope and major cost components of the Mid-County WWTP Project.

A. The scope of the project was to replace an extended aeration WWTP with new and more robust Membrane BioReactor (MBR) process while using the existing footprint and tankage due to the site constraints. The MBR process requires less footprint and enabled the project team to complete this conversion without having to take the existing plant offline. The MBR cassettes, auxiliary equipment, and installation make up the majority of the project costs. The Company also had a Dewatering Package installed as part of the project which will reduce operational costs now and into the future. A detailed breakdown of the Project can be found in Exhibit ST-02.

Q. Did the Company solicit bids for the Mid-County WWTP Project?

A. Yes, the Company solicited six companies to bid on the Mid-County WWTP Project under KH's oversight. Only two companies responded. SWS selected Vogel Bros. Building Co. ("Vogel Bros.") as the preferred vendor based on price.

Q. When did the Mid-County WWTP Project start?

A. Engineering work began on the Mid-County WWTP Project in January 2021. The Company paused the project for approximately nine months as it assessed the progress of Senate Bill 64 which was enacted into law and became effective on June 29, 2021. Senate Bill 64 created a

timeline and plan to eliminate nonbeneficial surface water discharge and thus impacted any construction the Company was currently contemplating on the Mid-County WWTP.

KH provided oversight for the construction phases and work initiated at the site on March 20, 2023. In the summer of 2025, the new MBR equipment started treating 100 percent of the flows. Vogel Bros. completed a comprehensive upgrade and rehabilitation of the wastewater treatment facility, including converting the South Treatment Train into an MBR facility, refurbishing concrete tanks, and installing equipment for the MBR process. Additional upgrades completed by Vogel Bros. include new solids dewatering equipment and electrical enhancements with a SCADA system for improved process control.

Q. What is the current status and estimated in-service date of the Mid-County WWTP Project?

A. In March 2025, the new MBR equipment started treating effluent and in August 2025, the 4 MBR process trains were treating 100 percent of the flows and the new dewatering equipment was online. Vogel Bros. is currently rehabilitating the chlorine and dichlorination chambers, constructing a new storage building (expected to be completed January 2026), and completing site work involving yard piping, utilities, concrete work, and grading. The Project is expected to be placed in-service in April 2026.

Q. When will the Company retire the previous WWTP for the Mid-County system?

A. The Company will retire the previous facility on its books when the upgraded facility is permanently online and providing service to customers. This is estimated to be the same date as the in-service date.

Q. Does the Company expect any changes in O&M expenses related to the implementation

of the Project?

A. Yes. The Company expects the implementation of the Project to create a net expense savings. The MBR setup will require an increase in Micron-C chemical purchases; however, this cost will be offset by an improved dewatering process to handle sludge output from the facility. While the treatment process itself is being modified, the overall permitted capacity and estimated flow rates are unchanged.

Q. Please describe the benefits of implementing the Project?

A. Implementation of this Project improves the ability of SWS to provide safe, reliable, and environmentally sound wastewater treatment services to its customers and the local community in accordance with applicable rules and permit requirements. Without the Project's implementation, the Company would have been at greater risk of environmental violations due to the state of the current facility.

Q. What is the resulting change in wastewater rates for the Mid-County WWTP Project?

A. As shown on Company Witness DeStefano's Exhibit DMD-1, the project results in a revenue requirement increase of $4,548,775, or a 13.31% increase over existing annualized wastewater revenues. Mr. DeStefano's Exhibit DMD-1, Schedule 1 reflects the changes in current wastewater tariff rates.

Q. Does this conclude your direct testimony?

A. Yes, it does. I reserve the right to update, supplement, or amend my testimony should relevant information come available in the future.

SEÁN TWOMEY, MBA, P.ENG

626 Longmeadow Circle | Longwood, Florida | 407-312-1815 | seantwomey324@gmail.com |

UTILITY AND ENVIRONMENT LEADER

OPERATIONAL LEADERSHIP | BUSINESS MANAGEMENT | STRATEGIC PLANNING

Trusted leader and strategic manager who acts as the critical link between operations and executive leadership. Positively influences company success through the leadership of people, sound business strategies, operational efficiencies, financial accountability, and environmental awareness.

"Mr. Twomey is a very driven individual, I believe that he has the potential to achieve great success in his business career.....I am not easily impressed but, I can assure you that I was continuously taken back by his abilities and most importantly his unwavering commitment to the success of everyone on the team."

- Jack T. Bray, Vice President, Lark Construction

LEADERSHIP AND MANAGEMENT EXPERTISE

Core Competencies:

Operational Effectiveness
Environmental Awareness
Water and Wastewater Utilities
Engineering Consultation
Utility Economic Regulation
Team Leadership
Strategy Development
Employee Engagement
Performance Management
Stakeholder Relations
Continuous Improvement
Support Services Engagement
Business Development
Project Management
Financial planning/budgeting
Change Management

- **Partnered with senior leaders on multiple projects and corporate initiatives,** advising on operational aspects of the project on how it will affect day to day operations now and in the future.
- **Managing staff across** six geographical regions and keeping turnover of staff under industry average by focusing on culture and team engagement
- **Developed regulatory strategies** to consolidate rates and make filings more efficient and cost effective.
- **Developed influential relationships** in order to lead without authority, effectively managing multi-disciplined teams on corporate initiatives.
- **Managed to double the return** on capital investment over four years by changing the team culture and improving operational effectiveness.

PROFESSIONAL EXPERIENCE

Sunshine Water Services **Dec 2023- Present**
Senior Vice President
Provide visionary and strategic leadership and direction to all functions of the Business Unit to achieve customer, investor, regulator and employee satisfaction. Responsible for all facets of the business including culture, operations, finance, business development, health, safety, and environmental compliance, legislative and regulatory matters, brand improvement, stakeholder relationships, and customer engagement and experience.

Corix Group of Companies – Reno, Nevada **Aug 2020- Present**
BU President Great Basin Water Company (NV), Bermuda Water Company (AZ) and Canadian Water Utilities
Provide visionary and strategic leadership and direction to all functions of the Business Unit to achieve customer, investor, regulator and employee satisfaction. Responsible for all facets of the business including culture,

SEÁN TWOMEY, MBA, P.ENG | PAGE 2

operations, finance, business development, health, safety, and environmental compliance, legislative and regulatory matters, brand improvement, stakeholder relationships, and customer engagement and experience.

PROFESSIONAL EXPERIENCE, CONTINUED…

Corix Utilities Inc. – Calgary, Alberta **June 2018 – Aug 2020**
Vice President, Operations – Canadian Water Utilities
Responsible for all aspects of Corix owned water and wastewater utilities and 50+ contract utility operations in Canada. Manage critical relationships with regional utility regulators and ensuring the owners get their allowed return on equity invested in the utilities. Managing capital and operating budgets to meet and exceed budget expectations - $35MM annual operating budget and $60MM of assets. Develop a team of accountable managers that translates all the ways to the front line staff. Develop and present team updates to senior management at quarterly meetings. Remain Heath and Safety focused while driving team efficiencies across the different regions.

Corix Utilities Inc. – Calgary, Alberta **2016 – 2018**
General Manager, Western Canadian Utilities
Oversee a team of regional managers, engineer's and administration staff across six different geographical regions in Western Canada. Preparing annual operating and capital budgets and with a team of 85 staff operating up to 70 different facilities. Responsibilities also include identifying opportunities that align with the business strategies, analyzing concept and design options and measuring potential risks for all stakeholders involved. Managing an annual operating budget of $35MM and Capital assets with a value of $60MM.

Corix Utilities Inc. – Calgary, Alberta **2014 – 2016**
General Manager, Alberta and Kootenay Operations
Took over an operations team that was dysfunctional and demoralized, over worked, and understaffed. Several staff members were disgruntled with management and spread rumours creating a poisonous environment to work in. Through improved communication, staff empowerment and strong leadership and decision making turned an unprofitable department into a financially viable business unit with improved culture.

- **Reduced staff turnover** by 100%, before taking over as GM the team was fatigued and demoralized, through focus on reducing staff workload, improving compensation and team bonding events the turnover of staff dropped dramatically.
- **Improved operating margins** by using a disciplined approach in reviewing all operating contracts – terminating contracts and developing new business resulted in the team doubling profits
- **Improved support services relationships** – commitment to regularly attending meetings in the corporate head office resulted in improved relationships broke down the "them versus us" mentality
- **Regulatory Body Relationships** – reached out to the environmental regulatory bodies to better understand their roles and requirements of our company and how we can play a bigger part in the industry

Corix Utilities Inc. – Calgary, Alberta **2013 – 2014**
Project Manager – Special Projects
Managed capital projects across Western Canada leaning on the experienced gained from the Dawson City WWTP Project. Worked with operation teams on operational excellence initiatives. Took the lead on regulatory approvals and amendments for plants that Corix owns and/or operates in Alberta and British Columbia.

- **Furthered my understanding** of the operational and regulatory requirements of operating Water and Wastewater facilities.

Corix Water Systems – Dawson City, Yukon Territories **2011 – 2012**
Project Manager – Dawson City WWTP

SEÁN TWOMEY, MBA, P.ENG | PAGE 3

Responsible from 2011 to the completion of the project in 2014 for the Design, Build and Operations of a $25MM Wastewater Treatment Plant in Dawson City (Yukon Territories). Duties included:

PROFESSIONAL EXPERIENCE, CONTINUED…

- **Ensuring** compliance with safety principles applicable to the project;
- **Coordinating** all design engineering, procurement, and construction activities;
- **Managing** up to fifteen different contracting companies;
- **Assuming** responsibility for all contracts and invoicing, budgeting and forecasting, and scheduling;
- **Managing** up to seventy tradesmen on site;
- **Working in** remote location and during the winter month severe weather conditions

Corix Water Systems – Vancouver, B.C. **2008 – 2011**
Project Engineer – Water and Wastewater Treatment

- **Designed Engineered Packages** such as lift stations, booster stations and PRV chambers
- **Managed the full life cycle of the package** from sales through procurement to fabrication, shipping and commissioning in the field.
- **Project management skills refinement:** dealing with many stakeholders such as clients, procurement group, legal, fabrication shop, finance (A/P & A/R) and management

Alps Electric – Furukawa City, Miyagi Province, Japan **2005 – 2007**
Research and Development Engineer in Training
Worked as part of a research and development team for a Multi-National manufacturing company, roles and responsibilities included:

- **Troubleshooting** – Identifying manufacturing problems and liaising with various manufacturing groups;
- **Research Project Management** - Planning, implementation and reporting;
- **Continuous** improvement of Japanese communication skills – all work was through Japanese.
- **Analysis** and identification of production problems;
- **Planning** and execution of pilot plant experiments; and,
- **Problem** solving meetings with group members and application of results in manufacturing.

EDUCATION AND PROFESSIONAL DEVELOPMENT

Masters of Business Administration (MBA)
University of Calgary, Haskayne School of Business, 2015

Bachelor of Engineering, Process and Chemical Engineering
University College Cork, Ireland, 2005

Membership/Committees:
Association of Professional Engineers – Yukon Territories, 2011
Association of Professional Engineers – Alberta, 2013
Member of Corix Group of Companies RRSP Committee

Training and Course Topics:

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Leadership for Safety Excellence Course (LSE)
Utility Finance And Accounting for Professionals (Financial Accounting Institute)
Leadership Effectiveness Analysis (LEA) 360 (LHH Knightsbridge)
Managing Essentials (LHH Knightsbridge)
Alberta Occupational Health & Safety Legislation Awareness (LEG)
First Aid

Sunshine Water Services

MID-COUNTY WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT

The Mid-County Wastewater Treatment Plant ("WWTP") is located at 2299 Spanish Vistas Drive, Dunedin, FL. The facility treats wastewater from a service area consisting of primarily commercial, single family residential, and multi-family residential properties along U.S. Highway 19 from State Road 580 to the intersection of County Road 39 and County Road 95. An exhibit of the Mid-County service area showing the sanitary sewer system is included in **Appendix A.** The sanitary sewer system is owned and operated by Sunshine Water Services Company ("SWS" or the "Company") with some private lift stations discharging into the collection system.

The Mid-County WWTP is currently permitted for 0.900 million gallons per day ("MGD") annual average daily flow ("AADF"). The facility is permitted to discharge 0.900 MGD AADF into Curlew Creek ("WBID 1538A"), a Class III freshwater body.

Prior to the facility improvements, the facility consisted of the following components:

- Static screen
    - Static screen is currently being replaced with the following improvements:
        - (2) Fine Drum Screens
        - Grit Removal System
- (1) 200,000-gallon surge tank
- (1) Flow splitter box
- (1) 0.300 MGD treatment train:
    - 349,000 gallons of aeration
    - (1) 92,000-gallon clarifier
- (1) 0.600 MGD treatment train:

Sunshine Water Services

  - 600,000 gallons of aeration
  - (1) 98,000-gallon clarifier
- (4) 5,000-gallon clarified effluent dosing tanks
- (3) Denitrification filters (367 square feet of total surface area)
- (1) 16,000-gallon filtered effluent holding tank
- (1) 34,000-gallon disinfection tank
- (1) 3,400-gallon de-chlorination chamber
- (1) 41,000-gallon sludge holding tank
- (1) 43,500-gallon sludge holding tank
- (1) 37,400-gallon sludge dewatering box

The Mid-County WWTP serves approximately 1,600 acres of commercial, single family residential, and multi-family residential properties with approximately 2,276 wastewater connections within unincorporated Pinellas County. Wastewater connections were verified using Pinellas County billing data.

According to the Pinellas County Property Appraiser, there are approximately 4,984 tax parcels within the service area. Many of the wastewater connections are master metered and receive flow from a private lift station. According to the existing land use parcel data, approximately 89 parcels are vacant. This indicates that the Mid-County service area is nearly built-out. The Pinellas County Comprehensive Plan dated November 22, 2016, details the future land use of the Mid-County service area. A review of both the existing zoning and the future land use maps shows that there is only a potential small increase in flows to the Mid-County WWTP.

Facility History

The Florida Department of Environmental Protection ("DEP") completed an inspection of the Mid-County WWTP in March of 2018, and a review of the discharge monitoring reports

Sunshine Water Services

indicated permit limits were exceeded. The Company, then operating under the name Utilities Inc. of Florida, entered into a consent order (OGC No. 18-1197, **Appendix B**) with DEP in November 2018. The Company submitted the deliverables and DEP issued an In-Kind Completion and Case Closure for this consent order on July 30, 2019 (**Appendix C**).

SWS engaged Kimley-Horn and Associates, Inc. (KH) in November 2019 to complete an Engineering Analysis (the "2019 Engineering Analysis") to determine the next steps for the facility improvement. KH performed a facility evaluation and analyzed potential improvements to the Mid-County WWTP to maintain permitted nutrient removal levels, address process and operational deficiencies, and to provide increased treatment reliability and redundancy. The 2019 Engineering Analysis (**Appendix D**) examined alternatives for each component of the treatment plant. Specifically, KH examined equipment and installation alternatives for the master lift station, headworks, biological treatment process, disinfection, and sludge handling along with membrane biological reactors ("MBR") system alternatives. KH evaluated each alternative based on capital cost, operation and maintenance requirements, constructability, reliability, and compatibility with an MBR system.

The 2019 Engineering Analysis recommended upgrading the facility's primary method of treatment from a conventional extended aeration system to an MBR system. KH also noted that the master lift station required replacement independent of downstream improvements and recommended the Company design and construct a new master lift station as soon as possible. SWS accordingly designed and installed a new master lift station in March 2021. SWS also decided to design and install a new Headworks and Grit Removal System for three reasons. First, as the old static screen only provided coarse screening, the screen often caused reduced capacity due to screen "blinding." Second, the old screen required a lot of maintenance. Finally, the screen was not rated for the new capacity of the master lift station. SWS completed this work in June 2022.

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SWS entered into a consent order with DEP (OGC File No.: 21-0663 **Appendix E**) in July 2021 regarding unauthorized discharges of 1,143,600 gallons of partially treated wastewater that bypassed the denitrification filters on September 11, 2020, November 12, 2020, and July 6, 2021. DEP acknowledged that the Company completed the requirements and closed out this consent order on June 15, 2022 (**Appendix F**).

Based on the outcome of the 2019 Engineering Analysis, the Company decided to move forward with the recommended plant upgrades to continue to provide safe and reliable service to our customers and remain compliant with our DEP permit. SWS contracted KH to provide design, permitting, bidding, and construction phase services for the Mid-County WWTP Improvements (**Appendix G**).

Also in early 2021, the Company prepared to reapply for the Mid-County WWTP permit which was set to expire in August 2021. The application required a Capacity Analysis Report (**Appendix H**) and Operations and Maintenance Performance Report (**Appendix I**). The Company also submitted a Preliminary Design Report (PDR) (**Appendix J**) in response to a DEP Data request that recommended the WWTP utilize a 5-stage MBR Bardenpho process designed for advanced nutrient removal with the ability to meet effluent discharge parameters within the existing plant footprint. The proposed improvements were intended to increase the plant's hydraulic capacity, maintain permitted effluent limits, address existing process and operational inefficiencies, and provide increased overall plant reliability within the existing plant footprint. The current permit was issued in July 2022.

SWS entered into a consent order with DEP in July 2024 (OGC File No.: 24-1932, **Appendix K**) regarding unauthorized discharges of 3,200 gallons of raw wastewater in the Mid County Collection System. The Company completed the requirements and DEP closed out the consent order in April 2025 (**Appendix L**).

Sunshine Water Services

The Company has addressed all compliance issues over the past several years and currently has no open Administrative Orders or Consent Orders.

Facility Improvements

KH provided oversight for the bidding and construction phases of the Mid-County WWTP Project. Following a request for bids from six general contractors, two firms submitted pricing for the project. These bids were then reviewed by the SWS Capital Projects Review Team.

The submitted bids were:

- **Vogel Bros. Building Co.:** $22,090,018
- **TLC Diversified, Inc:** $23,164,000

SWS opted to choose Vogel Bros. Building Co. as the General Contractor for the project due to price and qualifications. The Company executed the construction contract on October 22, 2022 (**Appendix G**) and began work at the site on March 20, 2023.

The improvement contract for Mid-County WWTP includes treatment technologies designed to provide effluent quality that meets or exceeds the existing permitted effluent limits. The WWTP will have a high degree of reliability and safeguards designed to provide consistent quality under the full range of flow conditions. Proposed treatment process components include:

- Master Lift Station (complete)
- Headworks Structure (complete)
    - Fine Screening System
    - Screening Washing and Compaction
    - Grit Removal

Sunshine Water Services

  - Grit Classification
- Flow Equalization
- 5-Stage MBR Bardenpho Biological Treatment
- Membrane Filtration (Immersed Membrane Bioreactors)
- High Level Disinfection
- Aerated Sludge Holding
- Biosolids Dewatering

The site plan is shown in **Appendix M** and provides an overview of the plant improvements. The process flow diagram shown in **Appendix N** provides an overview of the major treatment components. The preliminary hydraulic profile is shown in **Appendix O.**

The project has progressed well since March 2023. The new MBR equipment started treating effluent in March 2025 and by August of 2025 the 4 MBR process trains were treating 100 percent of the flows (**Appendix P**: Notification of completion of Construction for Wastewater Facilities or Activities). Vogel Bros. completed a comprehensive upgrade and rehabilitation of the wastewater treatment facility which included converting the South Treatment Train into an MBR facility, refurbishing concrete tanks, and installing equipment for the MBR process. In addition, they completed the rehabilitation of the North Treatment Train, which includes the installation of new equipment and the application of a protective coating to the tanks. Other upgrades completed include new solids dewatering equipment, electrical enhancements, and a new SCADA system for improved process control.

The remaining work includes the chlorine and dichlorination chambers being updated with new chemical feed systems and coatings and the construction of a new storage building (expected to be completed January 2026), and extensive site work involving yard piping, utilities, concrete work, and grading. All project contracts and purchase orders for the remaining work have been executed and are included in project costs package Appendix G.

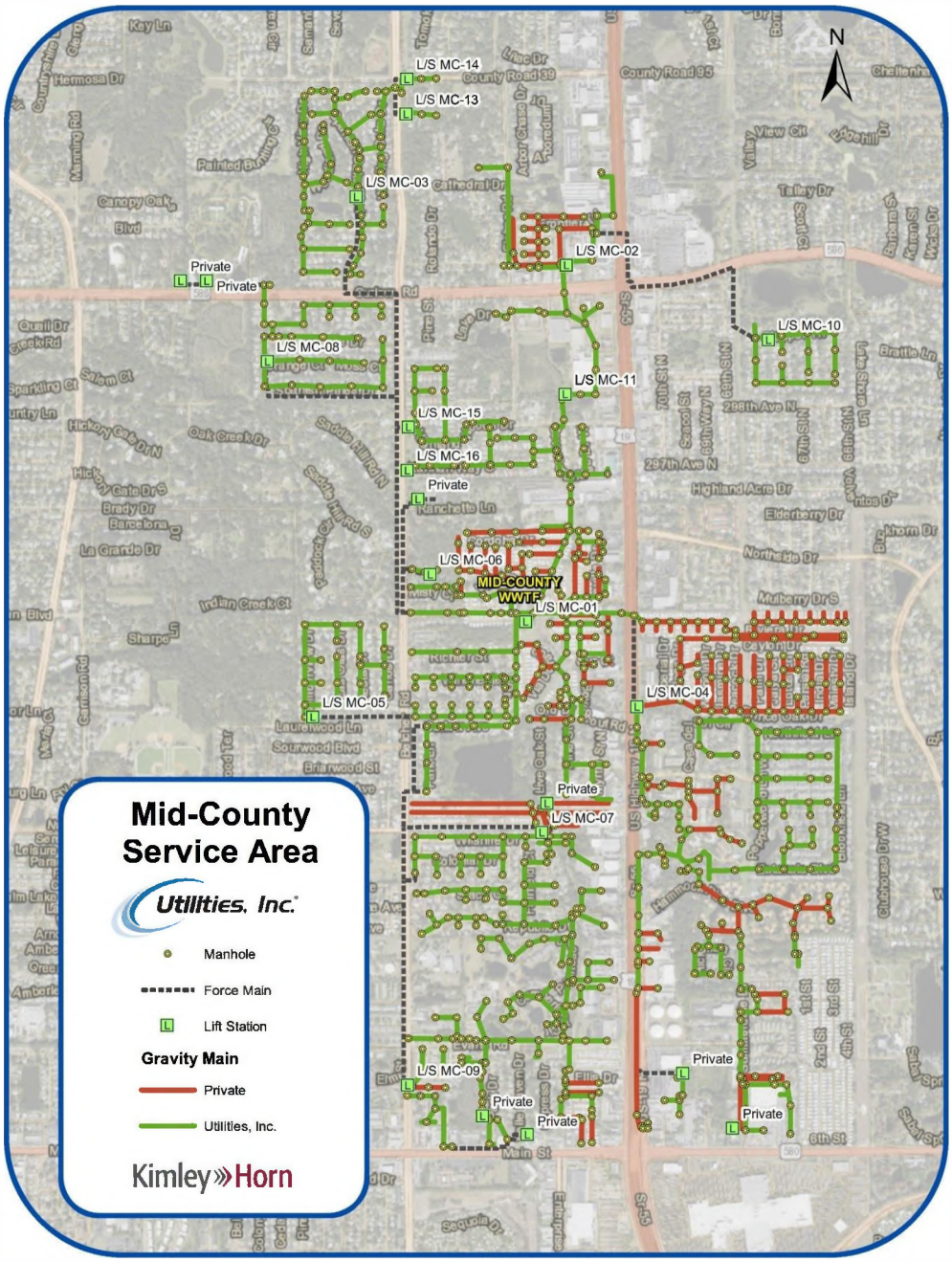
Sunshine Water Services

Senate Bill 64 Compliance

On June 29, 2021, Senate Bill 64 (SB 64) was enacted into law and became effective. SB 64 amended section 403.064, Florida Statutes, to create a timeline and plan to eliminate nonbeneficial surface water discharge within 5 years. Under the newly amended section 403.064, Florida Statutes, SWS was required to prepare and submit to DEP a Surface Water Discharge Elimination Plan for the Mid-County facility by November 1, 2021, with elimination of surface water discharge by January 1st 2032. DEP approved the Company's Discharge Elimination Plan on March 8, 2022 (**Appendix Q**).

Appendix A: Mid-County Service Area Map

Figure 1: Mid-County Service Area Map



Appendix B: 11.19.2018 Mid-County Executed Consent Order #18-1197

FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Noah Valenstein
Secretary

November 19, 2018

Patrick C. Flynn
Vice President of Operations
Utilities, Inc.
200 Weathersfield Ave.
Altamonte Springs, FL 32714
pcflynn@uiwater.com

Re: Executed Consent Order OGC File No. 18-1197
Mid-County Services, Inc. WWTF
Facility ID No. FL0034789
Pinellas County

Dear Mr. Flynn:

Enclosed please find the executed Consent Order OGC No. 18-1197 regarding the above referenced facility. The effective date of the Order is the filing date entered by the designated Department Clerk on the signature page.

Should you have any questions, please contact Mr. Lance Kautz at (813) 470-5903, or via e-mail: Lance.Kautz@floridadep.gov. Thank you for your cooperation.

Sincerely yours,

Kelley M. Boatwright for:

Mary E. Yeargan, PG
Southwest District Director
Florida Department of Environmental Protection

MEY/lk

cc: Seyd Matteson, UI Water, SJMatteson@uiwater.com
Mike Wilson, UI Water, MAWilson@uiwater.com
William Lee Neal, UI Water, wlneal@uiwater.com
Scotty Haws, UI Water, SLHaws@uiwater.com

John Hoy, UI Water, JPHoy@uiwater.com
Lea Crandall, DEP, Lea.Crandall@floridadep.gov
Adrienne Pennington, DEP, Adrienne.Pennington@floridadep.gov
Lance Kautz, DEP-SWD, Lance.Kautz@FloridaDEP.gov
Erica Peck, DEP-SWD, Erica.Peck@FloridaDEP.gov
Steve Thompson, DEP-SWD, Steve.Thompson@FloridaDEP.gov
Kelley Boatwright, DEP-SWD, Kelley.M.Boatwright@FloridaDEP.gov

Enclosures: Executed Consent Order, OGC File No. 18-1197
Exhibit 1 - Interim Discharge Monitoring Report
Exhibit 2 - In-Kind Project

BEFORE THE STATE OF FLORIDA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	)	IN THE OFFICE OF THE SOUTHWEST DISTRICT
v.	)	OGC FILE NO. 18-1197
MID-COUNTY SERVICES, INC. DBA UTILITIES INC. OF FLORIDA	)	

CONSENT ORDER

This Consent Order (Order) is entered into between the State of Florida Department of Environmental Protection (Department) and Mid-County Services, Inc. DBA Utilities, Inc. of Florida (Respondent) to reach settlement of certain matters at issue between the Department and Respondent.

The Department finds, and Respondent admits the following:

1. The Department is the administrative agency of the State of Florida having the power and duty to protect Florida's air and water resources and to administer and enforce the provisions of Chapter 403, Florida Statutes (Fla. Stat.), and the rules promulgated and authorized in Title 62, Florida Administrative Code (Fla. Admin. Code). The Department has jurisdiction over the matters addressed in this Order.

2. Respondent, Mid-County Services, Inc. dba Utilities, Inc. of Florida, is a Florida Profit Corporation with its principal place of business located at 200 Weathersfield Avenue, Altamonte Springs, Florida 32714.

3. Respondent is a person within the meaning of Section 403.031(5), Fla. Stat.

4. Respondent is the owner and is responsible for the operation of the Mid-County WWTF, an existing 0.90 million gallons per day (MGD) Annual Average Daily Flow (AADF), Type I, advanced

wastewater treatment facility with high-level disinfection with an existing 0.90 MGD AADF surface water discharge into the Class III fresh waters of Curlew Creek and eventually to Clearwater Harbor, a Class III marine water (Facility). The Facility is operated under Wastewater Permit No. FL0034789 (Permit), which was issued on August 5, 2016 and will expire on August 4, 2021. The Facility is located at 2299 Spanish Vista Drive, Dunedin, Florida 34698-9438, in Pinellas County, Florida (Property). Respondent owns the Property on which the Facility is located.

5. Permit Condition I.A.1. Reclaimed Water and Effluent Limitations and Monitoring Requirements sets effluent limitations for the following parameters: Total Nitrogen; BOD, Carbonaceous 5 day, 20C; Solids, Total Suspended; and Coliform, Fecal.

6. The Department finds that the following violations occurred:

a) A review of the discharge monitoring reports (DMRs) for the period of August 1, 2015 to September 30, 2018 indicated the Permit limits were exceeded, as shown in Table 1, below:

Table 1 – DMR Exceedances

Date	Parameter	Result	Limit	Units	Statistical Base
8/31/2018	Nitrogen, Total	2.67	2.12	ton/yr	AD – Annual Total
7/31/2018	Nitrogen, Total	2.60	2.12	ton/yr	AD – Annual Total
6/30/2018	Nitrogen, Total	2.56	2.12	ton/yr	AD - Annual Total
5/31/2018	Nitrogen, Total	2.50	2.12	ton/yr	AD - Annual Total
4/30/2018	Nitrogen, Total	2.25	2.12	ton/yr	AD - Annual Total
3/31/2018	BOD, Carbonaceous 5 day, 20C	8.53	6.25	mg/L	MK - Monthly
3/31/2018	BOD, Carbonaceous 5 day, 20C	15	10.0	mg/L	MB - Maximum
3/31/2018	Nitrogen, Total	2.14	2.12	ton/yr	AD - Annual Total
2/28/2018	Nitrogen, Total	2.20	2.12	ton/yr	AD - Annual Total
1/31/2018	BOD, Carbonaceous 5 day, 20C	6.34	6.25	mg/L	MK - Monthly
1/31/2018	BOD, Carbonaceous 5 day, 20C	14	10.0	mg/L	MB - Maximum
1/31/2018	Nitrogen, Total	2.20	2.12	ton/yr	AD - Annual Total
12/31/2017	Solids, Total Suspended	24	5.0	mg/L	MB - Maximum
12/31/2017	Nitrogen, Total	18	6.0	mg/L	MB - Maximum
12/31/2017	Nitrogen, Total	8.1	3.75	mg/L	MK - Monthly
12/31/2017	Coliform, Fecal	48	25.0	#/100	MB - Maximum

12/31/2017	Nitrogen, Total	2.17	2.12	ton/yr	AD - Annual Total
11/30/2017	BOD, Carbonaceous 5 day, 20C	19	10.0	mg/L	MB - Maximum
11/30/2017	BOD, Carbonaceous 5 day, 20C	7.8	6.25	mg/L	MK - Monthly
7/31/2017	Solids, Total Suspended	18	5.0	mg/L	MB - Maximum
6/30/2017	Solids, Total Suspended	18	5.0	mg/L	MB - Maximum
5/31/2017	Solids, Total Suspended	9.2	5.0	mg/L	MB - Maximum
10/31/2016	Coliform, Fecal	32	25.0	#/100	MB - Maximum
7/31/2016	Coliform, Fecal	58	25.0	#/100	MB - Maximum
3/31/2016	Nitrogen, Total	9.6	6.00	mg/L	MB - Maximum
3/31/2016	Nitrogen, Total	4.5	3.75	mg/L	MK - Monthly
8/31/2015	Solids, Total Suspended	6.2	5.0	mg/L	MB - Maximum

b) The exceedances in Table 1, above, are violations of Rule 62-4.160, Fla. Admin. Code, which states that it is a violation to fail to comply with the terms, conditions, requirements, limitations, and restrictions set forth in the Permit. These exceedances are also violations of Rule 62-600.410(1), Fla. Admin. Code, which states that it is a violation to fail to operate and maintain the domestic wastewater treatment plant in accordance with the applicable provisions of this chapter and to attain, at a minimum, the effluent quality required by the operation criteria specified in this chapter.

Having reached a resolution of the matter Respondent and the Department mutually agree and it is

ORDERED:

7. Within 90 days of the effective date of this Order, Respondent shall retain the services of a professional engineer, registered in the State of Florida, to complete and submit a report to the Department for review and approval of the following:

a) A preliminary design review (PDR) to evaluate the Facility, including the effluent disposal system and associated collection system, to discover the cause or causes of the noncompliance.

b) An updated Operation and Maintenance Performance Report which meets the requirements of Rule 62-600.735, Fla. Admin. Code.

c) An updated Capacity Analysis Report for the Facility meeting the requirements of Rule 62-600.405, Fla. Admin. Code.

8. Upon the first day of the month following the effective date of this Consent Order and lasting through December 31, 2019, the Facility's effluent discharge to Curlew Creek shall meet the following interim limits, as identified in Table 2, below:

Table 2 – Interim Limits

Parameter	Interim Limit	Units	Statistical Base
Nitrogen, Total	2.75	ton/yr	AD - Annual Total
Nitrogen, Total	20	mg/L	MB - Maximum
Nitrogen, Total	10	mg/L	MK - Monthly
BOD, Carbonaceous 5 day,	20	mg/L	MB - Maximum
BOD, Carbonaceous 5 day,	10	mg/L	MK - Monthly

9. A copy of the Discharge Monitoring Report ("DMR") to be used for reporting the interim limit values is incorporated herein and attached as Exhibit I. Sampling, analysis and reporting of the aforementioned parameters shall be in accordance with the permit. These interim limits do not act as a State of Florida Department of Environmental Protection wastewater permit effluent limitation or modified permit limitation, nor does it authorize or otherwise justify violation of the Florida Air and Water Pollution Control Act, Part I, Chapter 403, Florida Statutes, during the pendency of this Consent Order.

10. Within 90 days of Department approval of the report referenced in Paragraph 7, the Respondent shall submit a complete application for a Department wastewater permit to construct any design modifications of the Facility, effluent disposal system, and/or collection systems, as designed by a professional engineer and as recommended in the PDR, if such modifications require a permit. A professional engineer shall be responsible for completing the following:

a) Design modifications of the Facility, effluent disposal system, and collection systems to ensure the Facility and effluent disposal system will function in full and consistent compliance with all applicable rules of the Department.

b) Oversee the construction of any modifications to the Facility, effluent disposal system, or collection system.

c) Submit to the Department a "Notification of Completion of Construction for Wastewater Facilities or Activities" (Form 62-620.910(12), Fla. Admin. Code), and if applicable, "Request For Approval To Place A Domestic Wastewater Collection/Transmission System Into Operation", (Form 62-604.300(8)(b), Fla. Admin. Code) , prepared and sealed by a professional engineer registered in the State of Florida, stating that modifications to the Facility, effluent disposal system, and collection system have been constructed in accordance with the provisions of the Permit.

11. In the event the Department requires additional information to process the permit application described in paragraph 10, above, the Respondent must provide a written response containing the information requested by the Department within 30 days of the date of the request.

12. If any modifications listed in the PDR submitted per Paragraph 7a **do not** require a permit, the Respondent shall provide written notification, to the Department, of completion of any operational changes, updates to the Operating Protocol, or modifications to the plant, within 45 days of accomplishment.

13. Every calendar quarter after the effective date of this Order and continuing until all corrective actions have been completed, Respondent shall submit to the Department a written report containing information about the status and progress of projects being completed under this Order, information about compliance or noncompliance with the applicable requirements of this Order, including construction requirements and effluent limitations, and any reasons for noncompliance. These

reports shall also include a projection of the work Respondent will perform pursuant to this Order during the 12-month period which will follow the report. Respondent shall submit the reports to the Department within 30 days of the end of each quarter.

14. Notwithstanding the time periods described in the paragraphs above, Respondent shall complete all corrective actions required by Paragraphs 7-13 by December 31, 2019 and be in full compliance with the current domestic wastewater permit and applicable rules of Chapter 62-600, Fla. Admin. Code., regardless of any intervening events or alternative time frames imposed in this Order.

15. Within 30 days of the effective date of this Order, Respondent shall pay the Department $8,500.00 in settlement of the regulatory matters addressed in this Order. This amount includes $8,000.00 for civil penalties and $500.00 for costs and expenses incurred by the Department during the investigation of this matter and the preparation and tracking of this Order. The civil penalty in this case includes four (4) violations that each warrant a penalty of $2,000.00 or more.

16. Respondent agrees to pay the Department stipulated penalties in the amount of $1,000.00 per day for every day Respondent fails to timely comply with any of the requirements of paragraphs 7-13 of this Order. The Department may demand stipulated penalties at any time after violations occur. Respondent shall pay stipulated penalties owed within 30 days of the Department's issuance of written demand for payment and shall do so as further described in paragraph 17, below. Nothing in this paragraph shall prevent the Department from filing suit to specifically enforce any terms of this Order. Any stipulated penalties assessed under this paragraph shall be in addition to the civil penalties agreed to in paragraph 15 of this Order.

17. Respondent shall make all payments required by this Order by cashier's check, money order or on-line payment. Cashier's check or money order shall be made payable to the "Department of Environmental Protection" and shall include both the OGC number assigned to this Order and the

notation "Water Quality Assurance Trust Fund." Online payments by e-check can be made by going to the DEP Business Portal at: http://www.fldepportal.com/go/pay/. It will take a number of days after this order is final and effective filed with the Clerk of the Department before ability to make online payment is available.

18. In lieu of making cash payment of $8,000.00 in civil penalties as set forth in paragraph 17 above, Respondent may elect to off-set this amount by implementing an in-kind project, which must be approved by the Department. An in-kind project must be either an environmental enhancement, environmental restoration or a capital/facility improvement project. The Department may also consider the donation of environmentally sensitive land as an in-kind project. The value of the in-kind penalty project shall be one and a half times the civil penalty amount, which in this case is the equivalent of at least $12,000.00. If Respondent chooses to implement an in-kind project, Respondent shall notify the Department of its election either electronically or by certified mail within **15 days** of the effective date of this Consent Order. **Notwithstanding the election to implement an in-kind project, payment of the remaining $500.00 in costs must be paid within 30 days of the effective date of the Consent Order**.

If Respondent elects to implement an in-kind project as provided in paragraph 20, then Respondent shall comply with the requirements and time frames in Exhibit 2 entitled In-Kind Projects.

19. Except as otherwise provided, all submittals and payments required by this Order shall be sent to Lance Kautz, Domestic Wastewater Program, Department of Environmental Protection, Southwest District Office, 13051 North Telecom Parkway, Suite 101, Temple Terrace, Florida 33637, Lance.Kautz@FloridaDEP.gov.

20. Respondent shall allow all authorized representatives of the Department access to the Facility and the Property at reasonable times for the purpose of determining compliance with the terms of this Order and the rules and statutes administered by the Department.

21. In the event of a sale or conveyance of the Facility or of the Property upon which the Facility is located, and if all of the requirements of this Order have not been fully satisfied, Respondent shall at least 30 days prior to the sale or conveyance of the Facility or Property(a) notify the Department of such sale or conveyance, (b) provide the name and address of the purchaser, operator, or person(s) in control of the Facility, and (c) provide a copy of this Order with all attachments to the purchaser, operator, or person(s) in control of the Facility . The sale or conveyance of the Facility or the Property does not relieve Respondent of the obligations imposed in this Order.

22. If any event, including administrative or judicial challenges by third parties unrelated to Respondent, occurs which causes delay or the reasonable likelihood of delay in complying with the requirements of this Order, Respondent shall have the burden of proving the delay was or will be caused by circumstances beyond the reasonable control of Respondent and could not have been or cannot be overcome by Respondent's due diligence. Neither economic circumstances nor the failure of a contractor, subcontractor, materialman, or other agent (collectively referred to as "contractor") to whom responsibility for performance is delegated to meet contractually imposed deadlines shall be considered circumstances beyond the control of Respondent (unless the cause of the contractor's late performance was also beyond the contractor's control). Upon occurrence of an event causing delay, or upon becoming aware of a potential for delay, Respondent shall notify the Department by the next working day and shall within seven calendar days notify the Department in writing of (a) the anticipated length and cause of the delay, (b) the measures taken or to be taken to prevent or minimize the delay, and (c) the timetable by which Respondent intends to implement these measures. If the parties can agree

that the delay or anticipated delay has been or will be caused by circumstances beyond the reasonable control of Respondent, the time for performance hereunder shall be extended. The agreement to extend compliance must identify the provision or provisions extended, the new compliance date or dates, and the additional measures Respondent must take to avoid or minimize the delay, if any. Failure of Respondent to comply with the notice requirements of this paragraph in a timely manner constitutes a waiver of Respondent's right to request an extension of time for compliance for those circumstances.

23. The Department, for and in consideration of the complete and timely performance by Respondent of all the obligations agreed to in this Order, hereby conditionally waives its right to seek judicial imposition of damages or civil penalties for the violations described above up to the date of the filing of this Order. This waiver is conditioned upon Respondent's complete compliance with the terms of this Order.

24. This Order is a settlement of the Department's civil and administrative authority arising under Florida law to resolve the matters addressed herein. This Order is not a settlement of any criminal liabilities which may arise under Florida law, nor is it a settlement of any violation which may be prosecuted criminally or civilly under federal law. Entry of this Order does not relieve Respondent of the need to comply with applicable federal, state, or local laws, rules, or ordinances.

25. The Department hereby expressly reserves the right to initiate appropriate legal action to address any violations of statutes or rules administered by the Department that are not specifically resolved by this Order.

26. Respondent is fully aware that a violation of the terms of this Order may subject Respondent to judicial imposition of damages, civil penalties up to $10,000.00 per day per violation, and criminal penalties.

27. Respondent acknowledges and waives its right to an administrative hearing pursuant to sections 120.569 and 120.57, Fla. Stat., regarding the terms of this Order. Respondent also acknowledges and waives its right to appeal the terms of this Order pursuant to section 120.68, Fla. Stat.

28. Electronic signatures or other versions of the parties' signatures, such as .pdf or facsimile, shall be valid and have the same force and effect as originals. No modifications of the terms of this Order will be effective until reduced to writing, executed by both Respondent and the Department, and filed with the clerk of the Department.

29. The terms and conditions set forth in this Order may be enforced in a court of competent jurisdiction pursuant to sections 120.69 and 403.121, Fla. Stat. Failure to comply with the terms of this Order constitutes a violation of section 403.161(1)(b), Fla. Stat.

30. This Consent Order is a final order of the Department pursuant to section 120.52(7), Fla. Stat., and it is final and effective on the date filed with the Clerk of the Department unless a Petition for Administrative Hearing is filed in accordance with Chapter 120, Fla. Stat. Upon the timely filing of a petition, this Consent Order will not be effective until further order of the Department.

31. Respondent shall publish the following notice in a newspaper of daily circulation in Pinellas County, Florida. The notice shall be published one time only within 15 days of the effective date of the Order. Respondent shall provide a certified copy of the published notice to the Department within 10 days of publication.

STATE OF FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

NOTICE OF CONSENT ORDER

The Department of Environmental Protection (Department) gives notice of agency action of entering into a Consent Order with UTILITIES, INC. OF FLORIDA pursuant to section 120.57(4), Florida Statutes. The Consent Order addresses the operation of the domestic wastewater treatment

facility, including the associated sewer collection transmission system, and permit limit exceedances at Mid-County WWTP. located at 2299 Spanish Vista Drive, Dunedin, Florida 34698-9438. The Consent Order is available for public inspection during normal business hours, 8:00 a.m. to 5:00 p.m., Monday through Friday, except legal holidays, at the Department of Environmental Protection, Southwest District Office, 13051 N. Telecom Parkway, Suite 101, Temple Terrace, Florida 33637-0926.

32. Persons who are not parties to this Consent Order, but whose substantial interests are affected by it, have a right to petition for an administrative hearing under sections 120.569 and 120.57, Florida Statutes. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition concerning this Consent Order means that the Department's final action may be different from the position it has taken in the Consent Order.

The petition for administrative hearing must contain the following information:

a) The OGC Number assigned to this Consent Order;

b) The name, address, and telephone number of each petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding;

c) An explanation of how the petitioner's substantial interests will be affected by the Consent Order;

d) A statement of when and how the petitioner received notice of the Consent Order;

e) Either a statement of all material facts disputed by the petitioner or a statement that the petitioner does not dispute any material facts;

f) A statement of the specific facts the petitioner contends warrant reversal or modification of the Consent Order;

g) A statement of the rules or statutes the petitioner contends require reversal or modification of the Consent Order; and

h) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Consent Order.

33. The petition must be filed (received) at the Department's Office of General Counsel, 3900 Commonwealth Boulevard, MS# 35, Tallahassee, Florida 32399-3000 within 21 days of receipt of this notice. A copy of the petition must also be mailed at the time of filing to the District Office at the Department of Environmental Protection, Southwest District Office, 13051 N. Telecom Parkway, Suite 101, Temple Terrace, Florida 33637-0926. Failure to file a petition within the 21-day period constitutes a person's waiver of the right to request an administrative hearing and to participate as a party to this proceeding under sections 120.569 and 120.57, Florida Statutes. Before the deadline for filing a petition, a person whose substantial interests are affected by this Consent Order may choose to pursue mediation as an alternative remedy under section 120.573, Florida Statutes. Choosing mediation will not adversely affect such person's right to request an administrative hearing if mediation does not result in a settlement. Additional information about mediation is provided in section 120.573, Florida Statutes and Rule 62-110.106(12), Florida Administrative Code.

34. Rules referenced in this Order are available at https://softlive.dep.state.fl.us/ogc/ogc/content/rules

FOR THE RESPONDENT:

Patrick C. Flynn
Vice President of Operations

November 19, 2018
Date

DONE AND ORDERED this 19 day of November 2018, in Hillsborough, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Kelley N. Boatwright for:
Mary E. Yeargan, P.G.
Southwest District Director
Florida Department of Environmental Protection

Filed, on this date, pursuant to section 120.52, Fla. Stat., with the designated Department Clerk, receipt of which is hereby acknowledged.

Rhonda Hughes
Clerk

November 19, 2018
Date

Copies furnished to:

Lea Crandall, Agency Clerk
Mail Station 35 DW_CO (REV. 06/09)

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When completed mail this report to: Department of Environmental Protection, Wastewater Compliance Evaluation Section, MS 3551, 2600 Blair Stone Road, Tallahassee, FL 32399-2400

PERMITTEE NAME: Mid-County Services, Inc.
MAILING ADDRESS: 200 Weathersfield Avenue, Altamonte Springs, Florida 32714-4027
FACILITY: Mid-County WWTP
LOCATION: 2299 Spanish Vista Drive, Dunedin, FL 34698-9438
COUNTY: Pinellas
OFFICE: Southwest District

PERMIT NUMBER: FL0034789-013-DW1P/NR
OGC No. #18-1197
LIMIT: INTERIM
CLASS SIZE: MI
MONITORING GROUP NUMBER: D-001
MONITORING GROUP DESCRIPTION: Discharge of treated effluent., with Influent
RE-SUBMITTED DMR: ☐
NO DISCHARGE FROM SITE: ☐
MONITORING PERIOD From: _____ To: _____

REPORT FREQUENCY: Monthly
PROGRAM: Domestic

Parameter		Quantity or Loading		Units	Quality **or Concentration**			Units	No. Ex.	Frequency of Analysis	Sample Type
Flow	Sample Measurement										
PARM Code 50050 Y Mon. Site No. FLW-01	Permit Requirement		0.90 (An.Avg.)	MGD						Monthly	Calculated
Flow	Sample Measurement										
PARM Code 50050 1 Mon. Site No. FLW-01	Permit Requirement		Report (Mo.Avg.)	MGD						5 Days/Week	Flow Totalizer
BOD, Carbonaceous 5 day, 20C	Sample Measurement										
PARM Code 80082 Y Mon. Site No. EFD-01	Permit Requirement					5.0 (An.Avg.)		mg/L		Monthly	Calculated
BOD, Carbonaceous 5 day, 20C	Sample Measurement										
PARM Code 80082 1 Mon. Site No. EFD-01	Permit Requirement					10.0 (Mo.Avg.)	20.0 (Max.)	mg/L		Weekly	16-hr FPC
Solids, Total Suspended	Sample Measurement										
PARM Code 00530 Y Mon. Site No. EFD-01	Permit Requirement					5.0 (An.Avg.)		mg/L		Monthly	Calculated
Solids, Total Suspended	Sample Measurement										
PARM Code 00530 1 Mon. Site No. EFD-01	Permit Requirement					6.25 (Mo.Avg.)	10.0 (Max.)	mg/L		Weekly	16-hr FPC

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.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE NO	DATE (mm/dd/yyyy)

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

000030

DMR EFFECTIVE DATE: 1st day of the 2nd month following effective date of permit

DEP Form 62-620.910(10), Effective Nov. 29, 1994

SUNSHINE WATER SERVICES COMPANY
APPENDIX B TO EXHIBIT ST-2
WITNESS: SEÁN TWOMEY
PAGE 17 OF 28

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Mid-County WWTP MONITORING GROUP NUMBER: D-001 PERMIT NUMBER: FL0034789-013-DW1P/NR

MONITORING PERIOD From:_____ To:_____ INTERIM

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Solids, Total Suspended	Sample Measurement										
PARM Code 00530 P Mon. Site No. EFB-01	Permit Requirement						5.0 (Max.)	mg/L		4 Days/Week	Grab
Nitrogen, Total	Sample Measurement										
PARM Code 00600 Y Mon. Site No. EFD-01	Permit Requirement					3.0 (An.Avg.)		mg/L		Monthly	Calculated
Nitrogen, Total	Sample Measurement										
PARM Code 00600 1 Mon. Site No. EFD-01	Permit Requirement					10.0 (Mo.Avg.)	20.0 (Max.)	mg/L		Weekly	16-hr FPC
Phosphorus, Total (as P)	Sample Measurement										
PARM Code 00665 Y Mon. Site No. EFD-01	Permit Requirement					1.0 (An.Avg.)		mg/L		Monthly	Calculated
Phosphorus, Total (as P)	Sample Measurement										
PARM Code 00665 1 Mon. Site No. EFD-01	Permit Requirement					1.25 (Mo.Avg.)	2.0 (Max.)	mg/L		Weekly	16-hr FPC
pH	Sample Measurement										
PARM Code 00400 1 Mon. Site No. EFD-01	Permit Requirement				6.0 (Min.)		8.5 (Max.)	s.u.		5 Days/Week	Meter
Coliform, Fecal, % less than detection	Sample Measurement										
PARM Code 51005 A Mon. Site No. EFA-01	Permit Requirement				75 (Min.Mo.Total)			percent		Monthly	Calculated
Coliform, Fecal	Sample Measurement										
PARM Code 74055 A Mon. Site No. EFA-01	Permit Requirement						25 (Max.)	#/100mL		4 Days/Week	Grab
Chlorine, Total Residual (For Disinfection)	Sample Measurement										
PARM Code 50060 A Mon. Site No. EFA-01	Permit Requirement				1.0 (Min.)			mg/L		5 Days/Week	Meter
Chlorine, Total Residual (For Dechlorination)	Sample Measurement										
PARM Code 50060 1 Mon. Site No. EFD-01	Permit Requirement						0.01 (Max.)	mg/L		Weekly	Grab

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Mid-County WWTP MONITORING GROUP NUMBER: D-001 PERMIT NUMBER: FL0034789-013-DW1P/NR

MONITORING PERIOD From: _____ To: _____ INTERIM

Parameter		Quantity or Loading		Units	Quality **or** Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Oxygen, Dissolved (DO)	Sample Measurement										
PARM Code 00300 1 Mon. Site No. EFD-01	Permit Requirement				5.00 (Min.)			mg/L		5 Days/Week	Grab
Nitrogen, Total	Sample Measurement										
PARM Code 00600 A Mon. Site No. EFD-01	Permit Requirement		Report (Mo.Total)	ton/mth						Monthly	Calculated
Nitrogen, Total	Sample Measurement										
PARM Code 00600 P Mon. Site No. EFD-01	Permit Requirement		2.75 (An.Total)	ton/yr						Monthly	Calculated
7-DAY CHRONIC STATRE Ceriodaphnia dubia (Routine)	Sample Measurement										
PARM Code TRP3B P Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		Semi-Annually; twice per year	24-hr FPC
7-DAY CHRONIC STATRE Ceriodaphnia dubia (Additional)	Sample Measurement										
PARM Code TRP3B Q Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		As needed	As required by the permit
7-DAY CHRONIC STATRE Ceriodaphnia dubia (Additional)	Sample Measurement										
PARM Code TRP3B R Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		As needed	As required by the permit
7-DAY CHRONIC STATRE Pimephales promelas (Routine)	Sample Measurement										
PARM Code TRP6C P Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		Semi-Annually; twice per year	24-hr FPC
7-DAY CHRONIC STATRE Pimephales promelas (Additional)	Sample Measurement										
PARM Code TRP6C Q Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		As needed	As required by the permit
7-DAY CHRONIC STATRE Pimephales promelas (Additional)	Sample Measurement										
PARM Code TRP6C R Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		As needed	As required by the permit

DMR EFFECTIVE DATE: 1st day of the 2nd month following effective date of permit

DEP Form 62-620.910(10), Effective Nov. 29, 1994

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Mid-County WWTP MONITORING GROUP NUMBER: D-001 PERMIT NUMBER: FL0034789-013-DW1P/NR

MONITORING PERIOD From:_____ To:_____ INTERIM

Parameter		Quantity or Loading		Units	Quality **or** Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Flow	Sample Measurement										
PARM Code 50050 P Mon. Site No. FLW-01	Permit Requirement		0.9 (An.Avg.)	MGD						Monthly	Calculated
Flow	Sample Measurement										
PARM Code 50050 Q Mon. Site No. FLW-01	Permit Requirement	Report (Mo.Avg.)	Report (3Mo.Avg.)	MGD						5 Days/Week	Flow Totalizer
Percent Capacity, (TMADF/Permitted Capacity) x 100	Sample Measurement										
PARM Code 00180 G Mon. Site No. INF-01	Permit Requirement						Report (Mo.Avg.)	percent		Monthly	Calculated
BOD, Carbonaceous 5 day, 20C (Influent)	Sample Measurement										
PARM Code 80082 G Mon. Site No. INF-01	Permit Requirement						Report (Mo.Avg.)	mg/L		Monthly	16-hr FPC
Solids, Total Suspended (Influent)	Sample Measurement										
PARM Code 00530 G Mon. Site No. INF-01	Permit Requirement						Report (Mo.Avg.)	mg/L		Monthly	16-hr FPC

DMR EFFECTIVE DATE: 1st day of the 2nd month following effective date of permit

DEP Form 62-620.910(10), Effective Nov. 29, 1994

000033

SUNSHINE WATER SERVICES COMPANY
APPENDIX B TO EXHIBIT ST-2
WITNESS: SEÁN TWOMEY
PAGE 20 OF 28

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When Completed mail this report to: Department of Environmental Protection, Wastewater Compliance Evaluation Section, MS 3551, 2600 Blair Stone Road, Tallahassee, FL 32399-2400

PERMITTEE NAME: Mid-County Services, Inc.
MAILING ADDRESS: 200 Weathersfield Avenue
Altamonte Springs, Florida 32714-4027

FACILITY: Mid-County WWTP
LOCATION: 2299 Spanish Vista Drive
Dunedin, FL 34698-9438

COUNTY: Pinellas
OFFICE: Southwest District

PERMIT NUMBER: FL0034789-013-DW1P/NR

LIMIT: Final
CLASS SIZE: MI
MONITORING GROUP NUMBER: RMP-Q
MONITORING GROUP DESCRIPTION: Biosolids Quantity
RE-SUBMITTED DMR: ☐
NO DISCHARGE FROM SITE: ☐
MONITORING PERIOD From: _____ To: _____

REPORT FREQUENCY: Monthly
PROGRAM: Domestic

Parameter		Quantity or Loading		Units	Quality **or Concentration**			Units	No. Ex.	Frequency of Analysis	Sample Type
Biosolids Quantity (Transferred)	Sample Measurement										
PARM Code B0007 + Mon. Site No. RMP-1	Permit Requirement		Report (Mo.Total)	dry tons						Monthly	Calculated
Biosolids Quantity (Landfilled)	Sample Measurement										
PARM Code B0008 + Mon. Site No. RMP-2	Permit Requirement		Report (Mo.Total)	dry tons						Monthly	Calculated

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.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE NO	DATE (mm/dd/yyyy)

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DMR EFFECTIVE DATE: 1st day of the 2nd month following effective date of permit

DEP Form 62-620.910(10), Effective Nov. 29, 1994

DAILY SAMPLE RESULTS - PART B

Permit Number: FL0034789-013-DW1P/NR Facility: Mid-County WWTP
Monitoring Period From: _____ To: _____

	Flow (MGD) (D-001)	CBOD5 (MG/L)	TSS (MG/L)	TSS (MG/L)	Nitrogen, Total (as N) (MG/L)	Phosphorus, Total (as P) (MG/L)	pH (Min)	pH (Max)	Fecal Coliform Bacteria (#/100ML)	TRC (For Disinfect.) (MG/L)	TRC (For Dechlor.) (MG/L)
Code	50050	80082	00530	00530	00600	00665	00400	00400	74055	50060	50060
Mon. Site	FLW-01	EFD-01	EFD-01	EFB-01	EFD-01	EFD-01	EFD-01	EFD-01	EFA-01	EFA-01	EFD-01
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
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20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
Total											
Mo. Avg.											

PLANT STAFFING:

Day Shift Operator Class: _____ Certificate No: _____ Name: _____

Evening Shift Operator Class: _____ Certificate No: _____ Name: _____

Night Shift Operator Class: _____ Certificate No: _____ Name: _____

Lead Operator Class: _____ Certificate No: _____ Name: _____

DEP Form 62-620.910(10), Effective Nov. 29, 1994

DAILY SAMPLE RESULTS - PART B

Permit Number: FL0034789-013-DW1P/NR Facility: Mid-County WWTP
Monitoring Period From: _____ To: _____

	Oxygen, Dissolved (DO) (MG/L)	Flow (MGD) (Total Plant)	CBOD5 (MG/L)	TSS (MG/L)							
Code	00300	50050	80082	00530							
Mon. Site	EFD-01	FLW-01	INF-01	INF-01							
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
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27											
28											
29											
30											
31											
Total											
Mo. Avg.											

PLANT STAFFING:

Day Shift Operator Class: _____ Certificate No: _____ Name: _____

Evening Shift Operator Class: _____ Certificate No: _____ Name: _____

Night Shift Operator Class: _____ Certificate No: _____ Name: _____

Lead Operator Class: _____ Certificate No: _____ Name: _____

DEP Form 62-620.910(10), Effective Nov. 29, 1994

INSTRUCTIONS FOR COMPLETING THE WASTEWATER DISCHARGE MONITORING REPORT

Read these instructions before completing the DMR. Hard copies and/or electronic copies of the required parts of the DMR were provided with the permit. All required information shall be completed in full and typed or printed in ink. A signed, original DMR shall be mailed to the address printed on the DMR by the 28th of the month following the monitoring period. Facilities who submit their DMR(s) electronically through eDMR do not need to submit a hardcopy DMR. The DMR shall not be submitted before the end of the monitoring period.

The DMR consists of three parts--A, B, and D--all of which may or may not be applicable to every facility. Facilities may have one or more Part A's for reporting effluent or reclaimed water data. All domestic wastewater facilities will have a Part B for reporting daily sample results. Part D is used for reporting ground water monitoring well data.

When results are not available, the following codes should be used on parts A and D of the DMR and an explanation provided where appropriate. Note: Codes used on Part B for raw data are different.

CODE	DESCRIPTION/INSTRUCTIONS
ANC	Analysis not conducted.
DRY	Dry Well
FLD	Flood disaster.
IFS	Insufficient flow for sampling.
LS	Lost sample.
MNR	Monitoring not required this period.

CODE	DESCRIPTION/INSTRUCTIONS
NOD	No discharge from/to site.
OPS	Operations were shutdown so no sample could be taken.
OTH	Other. Please enter an explanation of why monitoring data were not available.
SEF	Sampling equipment failure.

When reporting analytical results that fall below a laboratory's reported method detection limits or practical quantification limits, the following instructions should be used, unless indicated otherwise in the permit or on the DMR:

1. Results greater than or equal to the PQL shall be reported as the measured quantity.
2. Results less than the PQL and greater than or equal to the MDL shall be reported as the laboratory's MDL value. These values shall be deemed equal to the MDL when necessary to calculate an average for that parameter and when determining compliance with permit limits.
3. Results less than the MDL shall be reported by entering a less than sign ("<") followed by the laboratory's MDL value, e.g. < 0.001. A value of one-half the MDL or one-half the effluent limit, whichever is lower, shall be used for that sample when necessary to calculate an average for that parameter. Values less than the MDL are considered to demonstrate compliance with an effluent limitation.

PART A -DISCHARGE MONITORING REPORT (DMR)

Part A of the DMR is comprised of one or more sections, each having its own header information. Facility information is preprinted in the header as well as the monitoring group number, whether the limits and monitoring requirements are interim or final, and the required submittal frequency (e.g. monthly, annually, quarterly, etc.). Submit Part A based on the required reporting frequency in the header and the instructions shown in the permit. The following should be completed by the permittee or authorized representative:

Resubmitted DMR: Check this box if this DMR is being re-submitted because there was information missing from or information that needed correction on a previously submitted DMR. The information that is being revised should be clearly noted on the re-submitted DMR (e.g. highlight, circle, etc.)
No Discharge From Site: Check this box if no discharge occurs and, as a result, there are no data or codes to be entered for all of the parameters on the DMR for the entire monitoring group number; however, if the monitoring group includes other monitoring locations (e.g., influent sampling), the "NOD" code should be used to individually denote those parameters for which there was no discharge.
Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Sample Measurement: Before filling in sample measurements in the table, check to see that the data collected correspond to the limit indicated on the DMR (i.e. interim or final) and that the data correspond to the monitoring group number in the header. Enter the data or calculated results for each parameter on this row in the non-shaded area above the limit. Be sure the result being entered corresponds to the appropriate statistical base code (e.g. annual average, monthly average, single sample maximum, etc.) and units. Data qualifier codes are not to be reported on Part A.
No. Ex.: Enter the number of sample measurements during the monitoring period that exceeded the permit limit for each parameter in the non-shaded area. If none, enter zero.
Frequency of Analysis: The shaded areas in this column contain the minimum number of times the measurement is required to be made according to the permit. Enter the actual number of times the measurement was made in the space above the shaded area.
Sample Type: The shaded areas in this column contain the type of sample (e.g. grab, composite, continuous) required by the permit. Enter the actual sample type that was taken in the space above the shaded area.
Signature: This report must be signed in accordance with Rule 62-620.305, F.A.C. Type or print the name and title of the signing official. Include the telephone number where the official may be reached in the event there are questions concerning this report. Enter the date when the report is signed.
Comment and Explanation of Any Violations: Use this area to explain any exceedances, any upset or by-pass events, or other items which require explanation. If more space is needed, reference all attachments in this area.

PART B - DAILY SAMPLE RESULTS

Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Daily Monitoring Results: Transfer all analytical data from your facility's laboratory or a contract laboratory's data sheets for all day(s) that samples were collected. Record the data in the units indicated. Table 1 in Chapter 62-160, F.A.C., contains a complete list of all the data qualifier codes that your laboratory may use when reporting analytical results. However, when transferring numerical results onto Part B of the DMR, only the following data qualifier codes should be used and an explanation provided where appropriate.

CODE	DESCRIPTION/INSTRUCTIONS
<	The compound was analyzed for but not detected.
A	Value reported is the mean (average) of two or more determinations.
J	Estimated value, value not accurate.
Q	Sample held beyond the actual holding time.
Y	Laboratory analysis was from an unpreserved or improperly preserved sample.

To calculate the monthly average, add each reported value to get a total. For flow, divide this total by the number of days in the month. For all other parameters, divide the total by the number of observations.
Plant Staffing: List the name, certificate number, and class of all state certified operators operating the facility during the monitoring period. Use additional sheets as necessary.

PART D - GROUND WATER MONITORING REPORT

Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Date Sample Obtained: Enter the date the sample was taken. Also, check whether or not the well was purged before sampling.
Time Sample Obtained: Enter the time the sample was taken.
Sample Measurement: Record the results of the analysis. If the result was below the minimum detection limit, indicate that. Data qualifier codes are not to be reported on Part D.
Detection Limits: Record the detection limits of the analytical methods used.
Analysis Method: Indicate the analytical method used. Record the method number from Chapter 62-160 or Chapter 62-601, F.A.C., or from other sources.
Sampling Equipment Used: Indicate the procedure used to collect the sample (e.g. airlift, bucket/bailer, centrifugal pump, etc.)
Samples Filtered: Indicate whether the sample obtained was filtered by laboratory (L), filtered in field (F), or unfiltered (N).
Signature: This report must be signed in accordance with Rule 62-620.305, F.A.C. Type or print the name and title of the signing official. Include the telephone number where the official may be reached in the event there are questions concerning this report. Enter the date when the report is signed.
Comments and Explanation: Use this space to make any comments on or explanations of results that are unexpected. If more space is needed, reference all attachments in this area.

SPECIAL INSTRUCTIONS FOR LIMITED WET WEATHER DISCHARGES

Flow (Limited Wet Weather Discharge): Enter the measured average flow rate during the period of discharge or divide gallons discharged by duration of discharge (converted into days). Record in million gallons per day (MGD).
Flow (Upstream): Enter the average flow rate in the receiving stream upstream from the point of discharge for the period of discharge. The average flow rate can be calculated based on two measurements; one made at the start and one made at the end of the discharge period. Measurements are to be made at the upstream gauging station described in the permit.
Actual Stream Dilution Ratio: To calculate the Actual Stream Dilution Ratio, divide the average upstream flow rate by the average discharge flow rate. Enter the Actual Stream Dilution Ratio accurate to the nearest 0.1.
No. of Days the SDF > Stream Dilution Ratio: For each day of discharge, compare the minimum Stream Dilution Factor (SDF) from the permit to the calculated Stream Dilution Ratio. On Part B of the DMR, enter an asterisk (*) if the SDF is greater than the Stream Dilution Ratio on any day of discharge. On Part A of the DMR, add up the days with an "*" and record the total number of days the Stream Dilution Factor was greater than the Stream Dilution Ratio.
$CBOD_5$: Enter the average $CBOD_5$ of the reclaimed water discharged during the period shown in duration of discharge.
TKN: Enter the average TKN of the reclaimed water discharged during the period shown in duration of discharge.
Actual Rainfall: Enter the actual rainfall for each day on Part B. Enter the actual cumulative rainfall to date for this calendar year and the actual total monthly rainfall on Part A. The cumulative rainfall to date for this calendar year is the total amount of rain, in inches, that has been recorded since January 1 of the current year through the month for which this DMR contains data.
Rainfall During Average Rainfall Year: On Part A, enter the total monthly rainfall during the average rainfall year and the cumulative rainfall for the average rainfall year. The cumulative rainfall for the average rainfall year is the amount of rain, in inches, which fell during the average rainfall year from January through the month for which this DMR contains data.
No. of Days LWWD Activated During Calendar Year: Enter the cumulative number of days that the limited wet weather discharge was activated since January 1 of the current year.
Reason for Discharge: Attach to the DMR a brief explanation of the factors contributing to the need to activate the limited wet weather discharge.

Exhibit 2

In-Kind Projects

I. Introduction

An in-kind project

a. Within 60 days of the effective date of this Consent Order, Respondent shall submit, electronically or by certified mail, a detailed in-kind project proposal to the Department for evaluation. The proposal shall include a summary of benefits, proposed schedule for implementation and documentation of the estimated costs which are expected to be incurred to complete the project. These costs shall not include those incurred in developing the proposal or obtaining approval from the Department for the in-kind project.

b. If the Department requests additional information or clarification due to a partially incomplete in-kind project proposal or requests modifications due to deficiencies with Department guidelines, Respondent shall submit, electronically or by certified mail, all requested additional information, clarification, and modifications within 15 days of receipts of written notice.

c. If upon review of the in-kind project proposal, the Department determines that the project cannot be accepted due to a substantially incomplete proposal or due to substantial deficiencies with minimum Department guidelines; Respondent shall be notified, in writing, of the reason(s) which prevent the acceptance of the proposal. Respondent shall correct and redress all of the matters at issue and submit, electronically or by certified mail, a new proposal

within 30 days of receipt of written notice. In the event that the revised proposal is not approved by the Department, Respondent shall make cash payment of the civil penalties as set forth in paragraph 17 of the Consent Order, within 30 days of Department notice.

d. Within 120 days of the effective date of this Consent Order, Respondent shall obtain approval for an in-kind project from the Department. If an in-kind project proposal is not approved by the Department within 120 days of the effective date of this Consent Order, then Respondent shall make cash payment of the civil penalties as set forth in paragraph 17 of the Consent Order, within 30 days of Department notice.

e. Within 180 days of obtaining Department approval for the in-kind proposal or in accordance with the approved schedule submitted pursuant to paragraph 2(a) above, Respondent shall complete the entire in-kind project.

f. During the implementation of the in-kind project, Respondent shall place appropriate sign(s) at the project site indicating that Respondent's involvement with the project is the result of a Department enforcement action. Respondent may remove the sign(s) after the project has been completed. However, after the project has been completed Respondent shall not post any sign(s) at the site indicating that the reason for the project was anything other than a Department enforcement action.

g. In the event, Respondent fails to timely submit any requested information to the Department, fails to complete implementation of the in-kind project or otherwise fails to comply with any provision of this paragraph, the in-kind penalty project option shall be forfeited and the entire amount of civil penalties shall be due from the Respondent to the Department within 30 days of Department notice. If the in-kind penalty project is terminated and Respondent timely

remits the $8,000.00 penalty, no additional penalties shall be assessed for failure to complete the requirement of this paragraph.

h. Within 15 days of completing the in-kind project, Respondent shall notify the Department, electronically or by certified mail, of the project completion and request a verification letter from the Department. Respondent shall submit supporting information verifying that the project was completed in accordance with the approved proposal and documentation showing the actual costs incurred to complete the project. These costs shall not include those incurred in developing the proposal or obtaining approval from the Department for the project.

i. If upon review of the notification of completion, the Department determines that the project cannot be accepted due to a substantially incomplete notification of completion or due to substantial deviations from the approved in-kind project; Respondent shall be notified, in writing, of the reason(s) which prevent the acceptance of the project. Respondent shall correct and redress all of the matters at issue and submit, electronically or by certified mail, a new notification of completion within 15 days of receipt of the Department's notice. If upon review of the new submittal, the Department determines that the in-kind project is still incomplete or not in accordance with the approved proposal, the in-kind penalty project option shall be forfeited and the entire amount of civil penalty shall be due from the Respondent to the Department within 30 days of Department notice. If the in-kind penalty project is terminated and Respondent timely remits the $8,000.00, no additional penalties shall be assessed for failure to complete the requirements of this paragraph.

Appendix C: In-Kind Project Completion Letter CO#18-1197

FLORIDA DEPARTMENT OF Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

July 30, 2019

Patrick C. Flynn
Vice President of Operations
Utilities, Inc.
200 Weathersfield Ave.
Altamonte Springs, FL 32714
pcflynn@uiwater.com

Re: In-Kind Project Completion
Mid-County Services, Inc. WWTF
Facility ID No. FL0034789
OGC File Number: 18-1197
Pinellas County

Dear Mr. Flynn:

Thank you for your letter dated June 25, 2019 transmitting the final status report for the In-Kind Project(s) performed under Consent Order OGC File No. 18-1197. Please allow this letter to serve as acknowledgement that the requirements of Exhibit 2 of the Order have been completed. As all the conditions of the Consent Order have been met, the Department is closing this case file.

The Department appreciates your efforts to identify and participate in an environmental enhancement project. If you have any questions, please contact Lance Kautz at (813) 470-5903 or via e-mail at Lance.kautz@FloridaDEP.gov

Sincerely,

Kelley M. Boatwright for:

Mary E. Yeargan, P.G.
Director
Southwest District
Florida Department of Environmental Protection

Enclosure: Mid-County WWTF – June 25, 2019 Letter

ec: Erica Peck, DEP, Erica.Peck@FloridaDEP.gov
Steve Thompson, FDEP, Steve.Thompson@FloridaDEP.gov
Kelley Boatwright, FDEP, Kelley.M.Boatwright@FloridaDEP.gov
Adrienne Pennington, FDEP, Adrienne.Pennington@FloridaDEP.gov

Seyd Matteson, UI Water, SJMatteson@uiwater.com
Mike Wilson, UI Water, MAWilson@uiwater.com
William Lee Neal, UI Water, wlneal@uiwater.com
Scotty Haws, UI Water, SLHaws@uiwater.com
John Hoy, UI Water, JPHoy@uiwater.com
Lea Crandall, DEP, Lea.Crandall@floridadep.gov

Utilities, Inc.

June 25, 2019

Mr. Lance Kautz
Domestic Wastewater Program
FDEP – Southwest District Office
13051 North Telecom Parkway, Suite 101
Temple Terrace, FL 33637

RE: Mid-County WWTF
Facility ID# FL0034789
OGC Case # 18-1197
Quarterly Report, Q2 2019

Dear Mr. Kautz:

Pursuant to the reporting requirement identified in the above referenced Consent Order, the following items are noted at the end of the 2nd quarter of 2019.

The Mid-County Wastewater Facility is operating in compliance with the terms and conditions stated in its operating permit.

The Public Notice of the Consent Order was posted in the Tampa Bay Times on November 29, 2018 in conformance with item 31 of the Consent Order. The certification of posting was forwarded to the Department on December 4, 2018.

The administration fee of $500.00, check #1650, was forwarded to the Department on November 27, 2018 in conformance with item 18 of the Consent Order.

An in-kind project consisting of a sanitary sewer project to reduce inflow and infiltration within a portion of the Mid-County collection system was submitted to the Department on November 26, 2018 and approved on December 3, 2018. This project has been completed. Please see the attached cost documentation that shows the Utility has spent in excess of $95,000 in improvements to the collection system in Spanish Acres. The terms of the Consent Order require that the in-kind project investment be at least $12,000.

Our Contract Engineer, Kimley-Horn and Associates, Inc., forwarded a preliminary design review (PDR), item 7(a) of the Consent Order, to the Department on February 15, 2019 along with an updated Operation and Maintenance Performance Report and Capacity Analysis Report, items 7(b) and 7(c) of the Consent Order.

With respect to item 10 of the Consent Order, Kimley-Horn determined that no modifications to the treatment plant, effluent disposal system or collection system components are warranted or recommended at this time. Instead, the engineer identified various operational changes that the Utility should complete, which will ensure the facility

will comply with the requirements of the current Operating Permit. Therefore, the Utility does not intend to make application for any modifications to the wastewater treatment process.

The Utility tasked De Nora, the successor to Tetra Filters, with conducting an evaluation of the deep bed filters to determine their condition and performance and then to identify a list of recommendations that will improve filter performance. The Utility implemented each of De Nora's those recommendations.

In addition, the Utility will continue to assess the condition of the collection system to identify and address deficiencies in gravity mains, manholes, wet wells and service laterals on an ongoing basis. Also, the Utility will continue to communicate with the owners of private systems within our service area, primarily mobile home parks, to quantify any excess inflow and infiltration generated from those connections as determined from data generated from open channel flow monitoring at critical locations within the collection system.

All requirements of the above referenced Consent Order have been addressed, therefore the Utility requests that the Consent Order be closed.

If you should have any questions or require further information, please do not hesitate to contact me directly at 321.972.0362 or via email at slhaws@uiwater.com.

Sincerely,

UTILITIES, INC. OF FLORIDA

Scotty L. Haws
Compliance & Safety Manager

EC: John Hoy, President
Patrick C. Flynn, Vice President
Mike Wilson, Regional Manager

30057266

Batch 328893

Doc 1041267

Invoice

Date	Invoice #
2/20/2019	8272

Altair Environmental Group

Altair Environmental Group LLC
710 South Milwee St
Longwood, Florida 32750

Bill To
Mid-County Utilities 200 Weathersfield Ave. Altamonte Springs, FL 32714-4027

P.O. No.	Terms	Project
305545 Lee Neal 250 100	Net 30	18321 - Spanish Acres

Quantity	Description	Rate	Amount
	Re: Spanish Acres; Clearwater, Florida		
1	To Provide Labor, Equipment, and Materials for Pipeline Rehabilitation by Chemical Grout Injection and Cured-In-Place Sectional Liners	89,509.92	89,509.92
1	Mobilization	1,500.00	1,500.00
5	Additional Manholes	800.00	4,000.00

RECEIVED
MAR 13 2019

Thank you for your business	**Balance**	$95,009.92

Phone #	Fax #	E-Mail	Web Site
407-339-7134	407-339-6618	mbrown@altairenvironmental.com	www.altairenvironmental.com

Spanish Acers

Dunden , Florida

Job No. 18225

Line Segment Information			Distance	Observations	Clock Position	Rehabilitation Technique	Cost
From MH-3151	PIPE TYPE	VCP	0.0'	Manhole-3151			
	PIPE SIZE	8"	144.9'	Service Connection	9		
	PIPE LENGTH	231.2'	144.9'	Crack in service connection	2	Grout Completed 02/14/2019	
To MH-2174			231.2	Manhole- 2174			
From MH-3140	PIPE TYPE	VCP	0.0'	Manhole-3140			
	PIPE SIZE	8"	17.4'	Joint Offset	12-12	Cipp Sectional Completed 02/6/2019	
	PIPE LENGTH	207.3'					
To MH-2179							
			207.3'	MH-2179			
From MH-3137	PIPE TYPE	VCP	0.0'	Manhole-3137			
	PIPE SIZE	8"	171.2'	Crack	9	Cipp Sectional Completed 02/7/2019	
	PIPE LENGTH	327.5'					
To MH-2182							
			327.5'	Manhole-2182			
From MH-3132	PIPE TYPE	VCP	0.0'	Manhole-3132			
	PIPE SIZE	8"	386.8'	Crack	12-12	Cipp Sectional	
	PIPE LENGTH	396'	392.8'	Crack	11	Cipp Sectional Completed 01/29/2019	
To MH-2183							
			396'	MH-2183			
From MH-3137	PIPE TYPE	VCP	0.0'	Manhole-3137			
	PIPE SIZE	8"	243'	Offset Joint	12-12	Cipp Sectional Completed 02/5/2019	
	PIPE LENGTH	244.1'					
To MH-2183							
			244.1'	General Observation - Camera can not pass this point			

Spanish Acers
Dunden , Florida
Job No. 18225

Line Segment Information			Distance	Observations	Clock Position	Rehabilitation Technique	Cost
From MH-2184	PIPE TYPE	VCP	0.0'	Manhole- 2184			
			219.1'	Infiltration	7-11		
	PIPE SIZE	8"	235.5'	Crack	3	Grout	
			374.2'	Crack	2	Cipp Sectional Completed 02/16/2019	
To MH-2174	PIPE LENGTH	396'	377.6'	Crack	12-12	Cipp Sectional Completed 02/13/2019	
			380.6'	Crack	12	Cipp Sectional / will cover defect at 380.6'	
						Completed 02/14/2019	
			396'	Manhole-2174			
From MH-2183	PIPE TYPE	LINED	0.0'	Manhole- 2183			
			90.2'	Crack	12-12	Cipp Sectional Completed 02/06/2019	
	PIPE SIZE	8"	123.3'	Crack	12	Cipp Sectional Completed 02/05/2019	
			281.4'	Crack	9-3	Cipp Sectional Completed 02/01/2019	
To MH-2191	PIPE LENGTH	284.6'					
			284.6'	Manhole- 2191			
From MH-2192	PIPE TYPE	VCP	0.0'	Manhole- 2192			
			138.8'	Crack	9-11	Cipp Sectional Completed 02/08/2019	
	PIPE SIZE	8"	143.4'	Crack	7-11	Cipp Sectional Completed 02/06/2019	
To MH-2184	PIPE LENGTH	281.4'					
			281.4'	Manhole-2184			
From MH-2199	PIPE TYPE	VCP	0.0'	Manhole-2199			
			152.8'	Crack	12-12	Grout Completed 02/15/2019	
	PIPE SIZE	8"	181.4'	Crack	12-12	Grout Completed 02/15/2019	
To MH-2191	PIPE LENGTH	294'					
From MH-3132	PIPE TYPE	VCP	0.0'	Manhole- 3132			
			0.0'	Crack	3	Cipp Sectional Completed 01/30/2019	
	PIPE SIZE	8"	134.8'	Infiltration out going pipe at Manhole	11-1	Grout Completed 02/15/2019	
To MH-3130	PIPE LENGTH	135'					
			135'	Manhole 3130			

Spanish Acers

Dunden , Florida

Job No. 18225

Line Segment Information			Distance	Observations	Clock Position	Rehabilitation Technique	Cost
From MH-3143	PIPE TYPE	VCP	0.0'	Manhole-3143			
	PIPE SIZE	8"	260.1'	Crack	12-12	Cipp Sectional Completed 02/04/2019	
	PIPE LENGTH	370'	280.9'	Crack	12-12	Cipp Sectional Completed 02/05/2019	
			318'	Crack	7-5	Cipp Sectional Completed 02/05/2019	
To MH-3133			366'	Crack	9-3	Cipp Sectional Completed 02/05/2019	
			370'	Manhole-3133			
From MH-3138	PIPE TYPE	VCP	0.0'	Manhole-3138			
	PIPE SIZE	8"	68'	Infiltration	6-11	Grout Completed 02/12/2019	
	PIPE LENGTH	248'	97.8'	Infiltration	12-6	Grout Completed 02/12/2019	
			108.2'	Crack	12	Cipp Sectional Completed 02/12/2019	
To MH-2191			114.8'	Crack	7-6	Cipp Sectional Completed 02/12/2019	
			232.4'	Crack	12-12	Cipp Sectional Completed 02/11/2019	
			248'	Infiltration	5	Grout Completed 02/11/2019	
			248'	Manhole-2191			
From MH-3141	PIPE TYPE	VCP	0.0'	Manhole-3141			
	PIPE SIZE	8"	1.1'	Infiltration	6-11	Grout	
	PIPE LENGTH	241.6'	151.4'	Crack	10	Cipp Sectional Completed 02/08/2019	
To MH-3138			171.7'	Crack	10	Cipp Sectional Completed 02/07/2019	
			227.6'	Crack	7-5	Cipp Sectional	
			230.0'	Crack	12	Excavate Type Repair / No Cost	
			238.2'	Crack	12-12	Excavate Type Repair / No Cost	
			241.6'	Manhole-3138			
From MH-3141	PIPE TYPE	VCP	0.0'	Manhole-3141			
	PIPE SIZE	8"	6'	Crack	8-4	Cipp Sectional Completed 02/07/2019	
	PIPE LENGTH	293.4'	37.9'	Crack	2	Cipp Sectional Completed 02/07/2019	
To MH-3143			138.6'	Hole	5-7	Cipp Sectional Completed 02/06/2019	
			221.0'	Crack	12-12	Cipp Sectional Completed 01/31/2019	
			272.6'	Crack	7-6	Cipp Sectional Completed 01/31/2019	
			293.4'	Manhole-3143			
From MH-3144	PIPE TYPE	VCP	0.0'	Manhole -3144			
	PIPE SIZE	8"	204.8'	Crack	12-12	Cipp Sectional Completed 01/23/2019	
	PIPE LENGTH	208'					
To MH-2180							
			208'	Manhole-2180			

Spanish Acers
Dunden , Florida
Job No. 18225

Line Segment Information			Distance	Observations	Clock Position	Rehabilitation Technique	Cost
From MH-2192	PIPE TYPE	VCP	0.0'	Manhole-2192			
	PIPE SIZE	8"	5.5'	Infiltration at joint	10	Grout Completed 02/18/2019	
	PIPE LENGTH	377.5'	232.5'	Infiltration	5	Grout Completed 02/18/2019	
To MH-3146			262.6'	Infiltration	9	Grout Completed 02/18/2019	
			377.5'	Manhole-3146			
From MH-2184	PIPE TYPE	VCP	0.0'	Manhole-2184			
	PIPE SIZE	8"	2'	Crack	12-12	Cipp Sectional Completed 02/04/2019	
	PIPE LENGTH	213'	15.1'	Crack	2-5	Cipp Sectional Completed 02/04/2019	
To MH-3150			210.6'	Crack	10	Cipp Sectional Completed 01/30/2019	
			213'	MH-3150			
From	PIPE TYPE						
	PIPE SIZE						
	PIPE LENGTH						
To							
*							
From	PIPE TYPE						
	PIPE SIZE						
	PIPE LENGTH						
To							
From	PIPE TYPE						
	PIPE SIZE						
	PIPE LENGTH						
To							Total $0.00

4 of 4

Natalie Schaefer

From: Mike Wilson
Sent: Wednesday, March 13, 2019 8:24 AM
To: Natalie Schaefer
Cc: Phil Drennan
Subject: Altair Project Invoice
Attachments: Altair Invoice 03132019.pdf

Good morning Nat,

Can you please process the attached CP invoice?

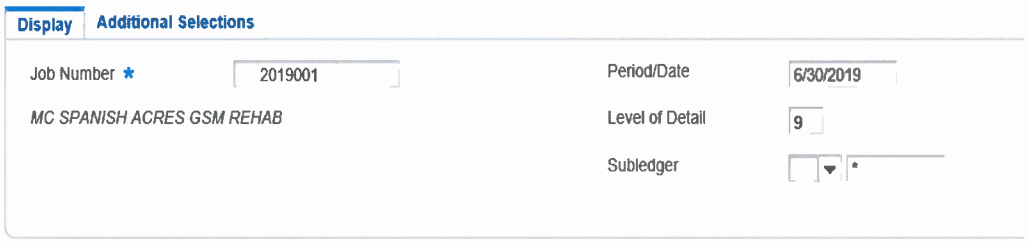
PO# 305545-O6 BU# 250100 CP# 2019001

Thank you,
Mike

Michael Wilson | Regional Manager

Utilities, Inc. of Florida

Email : mawilson@uiwater.com
Office: 321.972.1374
Mobile: 407.468.3268
200 Weathersfield Avenue | Altamonte Springs, FL | 32714



Cost Code	Account	Discriptions	Budget	Spending
208	1705	CAPITALIZED TIME		1,062.64
208	1706	INTEREST DURING CONSTR		2,179.86
208	1713	SITE WORK	10,000.00	
404	1783	GROUTING/SEALING	107,035.00	95,009.92
404	1799	TRANSFER TO FIXED ASSE		
		MC SPANISH ACRES GSM REHAB	**$ 117,035.00**	**$ 98,252.42**

Appendix D: Mid-County WWTP Engineering Analysis

NOVEMBER 2019

MID-COUNTY WASTEWATER TREATMENT PLANT

Engineering Analysis

Prepared for:

Utilities, Inc of Florida
200 Weathersfield Avenue
Altamonte Springs, FL 32714

Prepared by:

Kimley-Horn and Associates, Inc
100 Second Avenue South
Suite 105N
St Petersburg, FL 33701

Engineering Analysis

Mid-County Wastewater Treatment Plant

Pinellas County, Florida

Operating Permit Number: FL0034789
Permit Expiration Date: August 4, 2021
Report Date: November 2019

Prepared For:
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, FL 32714

Prepared By:
Kimley-Horn and Associates, Inc.
100 Second Avenue South, Suite 105N
St. Petersburg, FL 33701

CA 00000696
November 2019
St. Petersburg, Florida
140056012

EXECUTIVE SUMMARY

Kimley-Horn and Associates (Kimley-Horn) was authorized by Utilities Inc. of Florida (UIF) to preform a facility evaluation and analyze potential improvements to the Mid-County Wastewater Treatment Plant (WWTP). The intent of the proposed improvements is to maintain permitted nutrient removal levels, address the existing process and operational deficiencies, and to provide overall plant reliability and redundancy.

Overall, the Mid-County WWTP is operational, however redundancy is limited, preventing overall treatment reliability. Due to the property limits and the existing plant configuration, the plant cannot be expanded by constructing additional tankage for treatment or adequate equalization volume to handle influxes in flow.

The recommended improvements to the WWTP involve upgrading the facility's primary method of treatment from a conventional extended aeration system to a Membrane Biological Reactor (MBR) system. Equipment and installation alternatives were analyzed for the master lift station, headworks, biological treatment process, disinfection, and sludge handling along with MBR system alternatives. Each alternative was evaluated based on capital cost, operation and maintenance requirements, constructability, reliability, and compatibility with an MBR system. The process equipment selected will require final sizing during design and is subject to change. The following table is the summary of improvements including the total design and construction costs for each treatment process.

Process Improvements				
Treatment Stage	**Plant Component**		**Process Equipment**	**OPC Summary (Design & Construction)**
Pre-Treatment	Master Lift Station		10 FT Diameter Duplex Submersible Lift Station with Flygt Pumps	$ 1,182,600
	Headworks	Fine Screening	Huber ROTOMAT Rotary Drum Screen	$ 1,176,500
		Grit Removal	Hydro International Grit King	
Biological/ MBR	Membrane Bioreactor		Kubota Submersible Flat Plate Membrane System-	$ 6,134,000
Disinfection (1)	Ultraviolet Disinfection		WEDCO UV Reactors	$ 692,600
Sludge Handling	Dewatering		Prime Rotary Fan Press	$ 453,200
Permitting & Engineering Services During Construction				$ 190,000
			Total OPC	**$ 9,828,900**

(1) For the purposes of this analysis, the cost of installing UV disinfection was included in the OPC, however, it is not required to maintain disinfection requirements or permitted effluent levels.

During construction, the existing South Train is intended to treat all plant flow while the North Train is retrofitted with the proposed MBR system. Following completion of the proposed improvements, the North Train will independently have the capacity to meet the permitted treatment requirements. The tanks of the South Train are intended to be converted to equalization volume.

Design of the proposed improvements can occur simultaneously and is estimated to require 8-12 months to complete. Construction will require specific phasing to ensure continuous plant operation. Construction of the proposed plant improvements is estimated to require 18-24 months.

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INTRODUCTION

Kimley-Horn and Associates (Kimley-Horn) was authorized by Utilities Inc. of Florida (UIF) to perform a facility evaluation and analyze process improvements to the Mid-County Wastewater Treatment Plant (WWTP) to maintain permitted nutrient removal levels, address process and operational deficiencies, and to provide increased treatment reliability and redundancy.

The Mid-County WWTP is a Type I, advanced wastewater treatment facility located in Dunedin, FL in Pinellas County. The Mid-County WWTP is permitted for an annual average daily flow (AADF) of 0.90 million gallons per day (MGD) that is split between two (2) treatment trains; a 0.3 MGD train and a 0.6 MGD train. Both treatment trains utilize conventional extended aeration biological treatment and a common chlorine contact chamber to provide high-level disinfection for surface water discharge to Curlew Creek. The Mid-County WWTP operating permit is included in **Appendix A**.

On November 19th, 2018, the Mid-County WWTP was issued Consent Order OGC File No. 18-1197 due to exceedances of permitted effluent levels following the failure of a clarifier. In February 2019, an updated Capacity Analysis Report, Operation and Maintenance Performance Report, and Preliminary Design Report (PDR) was submitted to FDEP as required by the consent order. Improvements identified in the PDR were intended to exclusively address nutrient exceedances identified in the consent order. FDEP issued an In-Kind Completion and Case Closure for the consent order on July 30, 2019.

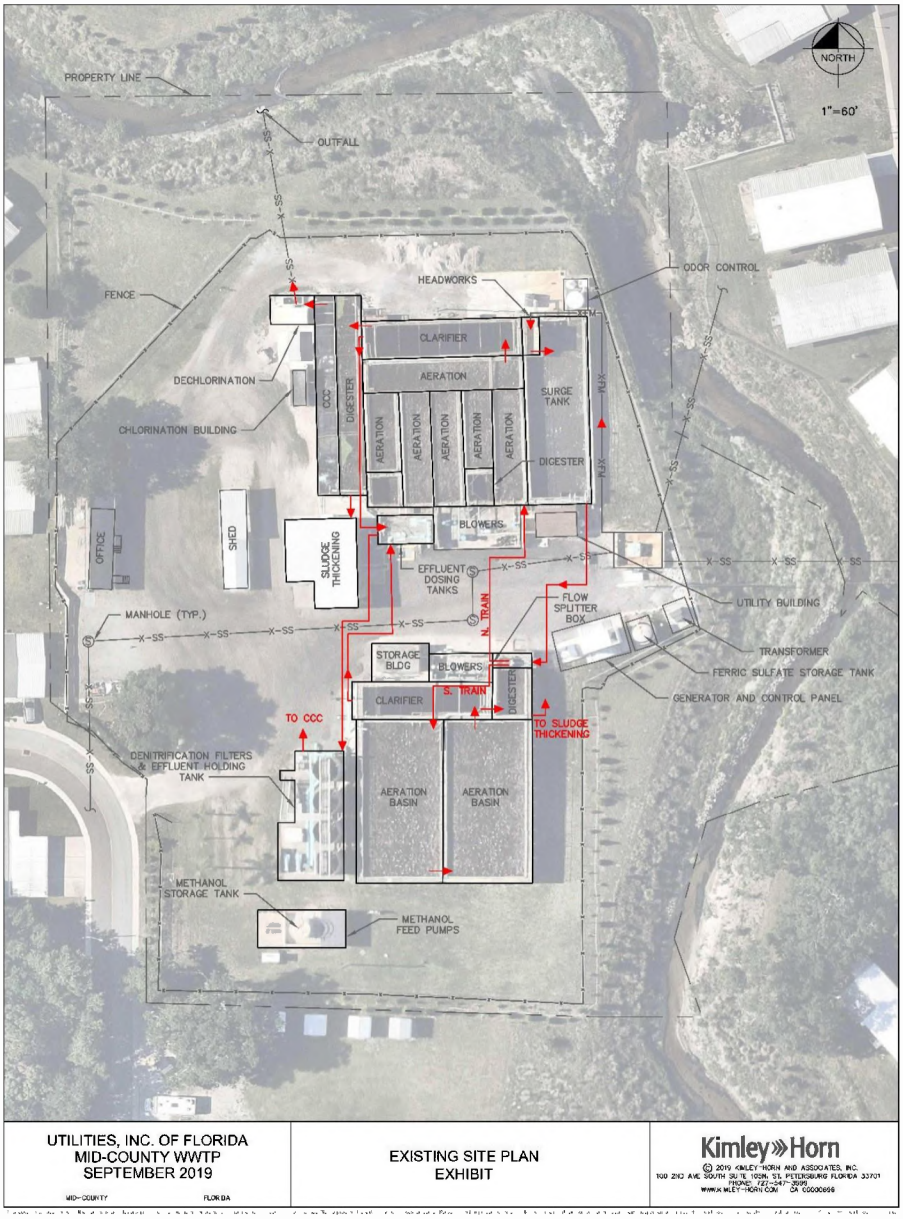
A summary of the existing Mid-County WWTP process components is shown in **Table 1** below.

Table 1: Existing Plant Components

Treatment Stage		Equipment	Capacity	Total Volume/ Surface Area
Pre-Treatment		Master Lift Station (Duplex)	650 GPM	-
		Static Screen (Coarse)	1,300 GPM	-
		Surge Tank	90,000 Gal	200,000 Gal
		Flow Splitter Box	-	-
Biological	North Train	(6) Aeration Basins	0.3 MGD (ADF)	349,000 Gal
		Clarifier		92,000 Gal
	South Train	(2) Aeration Basins	0.6 MGD (ADF)	600,000 Gal
		Clarifier		98,000 Gal
Denitrification/Filtration		(4) Dosing Tanks	-	20,000 Gal
		(3) Denitrification Filters	1.1 MGD (ADF)	367 SF
		Effluent Holding Tank	15,000 Gal	16,000 Gal
Disinfection		Chlorine Contact Chamber	-	34,000 Gal
		Dechlorination Chamber	-	3,400 Gal
Biosolids		Aerobic Digester (North Train)	-	41,000 Gal
		Aerobic Digester (South Train)	-	43,500 Gal
		Dewatering Ditch	-	37,400 Gal

Figure 1 below shows the existing layout and flow pattern of the Mid-County WWTP.

Figure 1: Existing Mid-County WWTP



EVALUATION OF EXISTING PROCESSES

This Engineering Analysis is intended to provide an in-depth analysis of the process improvements required to further address plant deficiencies, improve operations, and provide process redundancy.

The existing treatment processes at the Mid-County WWTP were evaluated based on site visits, correspondence with Mid-County WWTP operators and UIF staff, review of available as-builts and record drawings, operation and maintenance documents, and existing knowledge of the WWTP operation and its collection system. The documents and data reviewed to identify potential process and operational improvements also include the following:

- Daily Monitoring Reports (DMRs) from January 2011 – October 2018
- Supervisory control and data acquisition (SCADA) data on equalization pumping rates, and blower performance
- Influent Sampling Data (November 2018 – January 2019)
- De Nora's Filter Performance Evaluation Report, dated March 2018
- WWTP and Collection System As-builts/Record Drawings dated 1960s – 1990s
- Mid-County Preliminary Design Report by completed by Kimley-Horn (February 2019)
- Mid-County Capacity Analysis Report by Kimley-Horn (February 2019)
- Mid-County Operation and Maintenance Performance Report completed by Kimley-Horn (February 2019)

Existing flow data was collected from FDEP DMRs dated January 2011 through October 2018 to analyze historic flow patterns at the WWTP. Flow rates are recorded using the onsite effluent ultrasonic flow meter located before the discharge to Curlew Creek.

Influent flow rates fluctuate throughout the year due to influence of inflow and infiltration (I&I) during wet weather season and seasonal residency of the surrounding communities. The average AADF from 2011 – 2018 was approximately 0.755 MGD or 84% of the permitted capacity. The minimum and maximum monthly average daily flows, three-month average daily flows, and annual average daily flows are summarized in **Table 2** below.

Table 2: Mid-County Flow Summary (2011-2018)

Flow Scenario	Minimum/Maximum	Flow (MGD)
Monthly Average Daily Flow	Min	0.622
	Max	1.198
Three-Month Average Daily Flow	Min	0.629
	Max	1.016
Annual Average Daily Flow	Min	0.712
	Max	0.787

The Mid-County WWTP service area has reached build-out conditions, and additional connections are not anticipated. The permitted AADF of 0.90 MGD will be maintained; an increase in permitted capacity

is not required. The existing plant requires both treatment trains to be fully operational to meet the effluent requirements for an inflow of 0.90 MGD. When equipment failures occur, the treatment capacity is limited to the remaining train in operation. The existing treatment processes lack redundancy to provide reliability during wet weather events or equipment failures.

Overall, the Mid-County WWTP is operational, however redundancy is limited, preventing overall treatment reliability. Infrastructure at the plant is reaching the end of its useful life and will require rehabilitation at a minimum. Because of the property limits and the existing plant configuration, the plant cannot be expanded by constructing additional tankage for treatment capacity or adequate equalization volume to handle influxes in flow.

Master Lift Station

The existing master lift station has two (2) 650 gallon per minute (GPM) T635 Gorman-Rupp pumps operating in a suction-lift configuration. The existing well is a prefabricated arched-wall tank and concrete top slab that has observable deterioration.

The master lift station receives flow from three (3) influent gravity mains; one from the west, northeast, and east of the wet well. According to plant operators, the upstream gravity system operates in a continuously surcharged condition and there is evidence of surcharging in the upstream manholes. The collection system accumulates large amounts of grit, sediment, and grease that is conveyed to the WWTP during high flow events, which can lead to operation and maintenance issues with the downstream processes.

The existing master lift station does not have operational reliability or peak flow rates and cannot handle peak flows without surcharging the upstream gravity system. The existing wet well has aggregate and rebar exposure and the control panel is corroded and inaccessible. See **Figure 2** for pictures of the existing master lift station.

Figure 2: Existing Master Lift Station

Pre-Treatment

Screening

The enclosed static screen provides pre-treatment at the plant by capturing non-organic solids for disposal. The existing screen capacity provides coarse screening and is rated for a maximum flow rate of 1,300 GPM, matching the current maximum pumping capacity from the master lift station. The screens are operational; however, multiple daily cleanings are required as regular maintenance during wet weather events to remove grit and grease buildup. Grease buildup on the screens can clog the screen openings causing the influent to flow across the screen rather than the openings as necessary for effective debris removal. This 'blinding' of the screen reduces the effective capacity of the screen.

See **Figure 3** for the existing static screen and the condition of the metal grates.

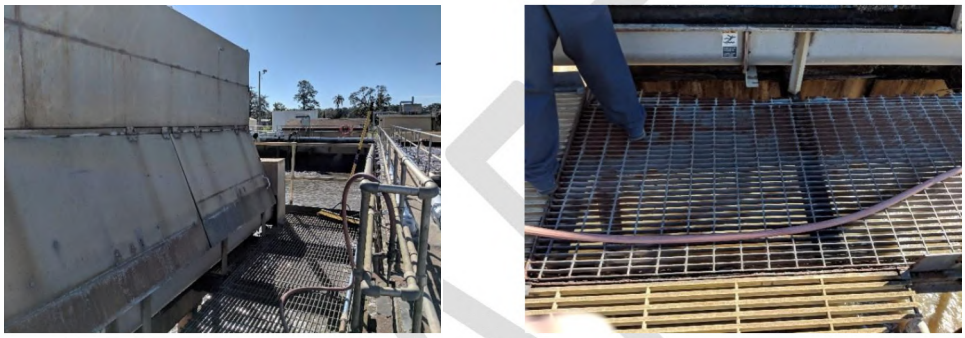


Figure 3: Existing Static Screen and Metal Grates

Surge Tank

Following pre-treatment, raw wastewater is pumped to a surge tank at the North Train containing two (2) submersible pumps operating on variable frequency drives (VFDs). Operation of the pumps was designed to equalize fluctuating influent flow rates to the downstream processes. This is accomplished by using the volume of the tank to dampen peak flow rates and controlling the rate of flow leaving the tank using the VFD operated pumps rated for a maximum capacity of 1000-gpm each. The surge tank has historically been hydraulically overloaded in peak flow conditions coupled with filter backwash operations. During the plant evaluation, the minimum pump operating depth and tank as-built information was used to estimate the useable volume for flow equalization as approximately 159,000 gallons. It is assumed that volume stated in the operating permit did not include the usable volume reduction due to the necessary water level above the submersible pumps. While FDEP does not require flow equalization, additional tankage allocated for equalization volume would improve plant operations during peak flow events and the opportunity for nutrient exceedances.

Flow Splitter Box

Flow from the surge tank is pumped to the flow splitter box, which is located on the South Train. According to the Mid-County WWTP operators, the flow is split evenly between the treatment trains. The pipe that conveys flow to the North Train from the splitter box is restricted due to grit accumulation and is inaccessible for maintenance or routine grit removal. The flow splitter box directly overflows to the South Train aeration basin during wet weather events.

Biological Treatment

Aerobic Basins

The North Train consists of six (6) aerobic basins with a combined volume of 349,000 gallons. The South Train consists of two (2) aerobic basins with a combined volume of 600,000 gallons. In this treatment process, blowers introduce diffused air into the waste stream to provide mixing and oxygen to support microbial activity that stabilizes and decomposes the wastewater's organic constituents. Over time, the aerobic basin accumulates grit and other non-organic solids that are not collected in pre-treatment. In January 2019, UIF spent over $72,000 to remove 96 tons of sand and grit from these basins. According to operations staff, grit removal from the aeration basins is completed every two years.

Clarifiers

Each treatment train has a rectangular clarifier that provides primary settling, initiating the suspended solids removal process. The clarifiers utilize ramp twin hopper with a mechanical skimmer and a right-angle drive motor to collect the settled activated sludge. The activated sludge is transferred as return activated sludge (RAS) to the aeration basins or as waste activated sludge (WAS) to the sludge holding tanks.

Each clarifier can only operate within its respective treatment train. In the event of equipment failure the upstream aeration basins also cannot be in operation and the capacity of the WWTP is effectively reduced to that of treatment train remaining in service. The lack of redundancy and omittance of flexible operational design has made the clarifiers a critical process and a pinch point of plant operation.

See **Figure 4** for the existing condition of clarifiers.

Figure 4: Clarifier North Train (left) and South Train (right)

Denitrification/Filtration

Effluent Dosing Tanks

The clarifier effluent flows to four (4) 5,000-gallon clarified effluent methanol dosing tanks. In 2016, a ChemScan analyzer system and methanol dosing pumps were installed to improve the efficiency and reliability of the nitrogen removal process. Methanol is used as a carbon source to aid in the denitrification capability of the tertiary filters. In the past, excessive methanol dosing has led to the CBOD spikes in the WWTP effluent. Methanol dosing has since been optimized to provide appropriate dosing for denitrification following the filter performance evaluation completed in January 2019.

Filters

Three (3) submersible pumps located in the clarified effluent dosing tanks are used to transfer 500 GPM average to 1,000 GPM maximum to three (3) deep bed sand denitrification filters. The filtered effluent flows through one (1) adjacent 15,000-gallon filtered effluent holding tank where the total suspended solids (TSS) compliance sampling is taken prior to disinfection. The filters were installed in 1994 and were designed to handle an ADF of 1.1 MGD (2.08 GPM/SF) and a maximum flow of 2.2 MGD (4.15 GPM/SF). Excessive backwashing caused loss of media over time and approximately 19 tons of media was added to the filters (approximately 11-inches of sand in each filter) in February 2018 to restore the design media depth.

De Nora was authorized to complete performance evaluations of the existing filters and methanol dosing system and make recommendations for operational improvements in January 2019. Implementation of the recommendations from the filter evaluation resulted in an increased usable filter capacity and improved denitrification capabilities over a larger range of operating conditions.

Disinfection

Following filtration, is pumped to the 37,400-gallon disinfection tank which consists of a 34,000-gallon chlorine contact chamber (CCC) for high-level disinfection and a 3,400-gallon dechlorination (DCC) chamber prior to discharge into Curlew Creek. A minimum of 1.0 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow per the operating permit. Per the WWTP operators, the during wet weather events the CCC tank overflows over the sides. The discharge pipe of the CCC previously included a ninety-degree elbow that created a high tank water level and with only a few inches of side water depth (SWD). Following the initial plant evaluation, operators were instructed to remove the fitting to reduce the water level in the tank to increase the SWD to approximately 12-inches. Despite these modifications, operators have noted that peak flow rates continue to cause the tank to overflow.

While the CCC tank has adequate volume to provide the required contact time for disinfection, the hydraulic design and lack of adequate baffling increases the potential of short-circuiting and subsequent inconsistency of achieved retention times. Additionally, the concrete tank requires coating to protect against chemical degradation and preserve the tank's usable life.

See **Figure 5** for the existing condition of the CCC.

Figure 5: Existing CCC

Biosolids

Following the clarifiers, the settled solids are conveyed to a 43,500-gallon sludge holding tank prior to a sludge dewatering box. The sludge holding tank is a mixing tank that incorporates polymer additives to thicken the sludge. The existing dewatering process produces approximately 8–10% total solids. Alternative sludge handling mechanisms are recommended to increase percentage of total solids and to reduce hauling costs.

PROPOSED IMPROVEMENT ALTERNATIVES

The recommended improvements to the WWTP will involve upgrading the facility's primary method of treatment from extended aeration to Membrane Biological Reactors (MBR). The intent of the proposed improvements is to maintain permitted nutrient levels, address the existing process and operational inefficiencies, provide overall plant reliability, and increase available treatment capacity to prevent overloading, all within the existing plant footprint. Conversion to an MBR biological treatment system is considered the most viable alternative to eliminate the existing facility's operational and process deficiencies without requiring property acquisition and additional tank construction. All information utilized in the equipment evaluation, including product cut sheets and budgetary proposals are included in **Appendix B.**

The preliminary design parameters assumed for equipment selection are listed below:

- 0.90 MGD AADF
- 1.8 MGD Maximum Daily Flow
- 2.7 MGD Peak Hour Flow
- Influent BOD: 250 mg/L (with fluctuations between 100-300 mg/L)
- Influent TKN: 19 mg/L
- Influent TP: 2.1 mg/L
- Screening required: <2 mm screen openings
- Existing operating permit limitations shown in **Table 3** below:

Table 3: Permit Effluent Limitations

Parameter	Min/Max	Limitation	Condition
BOD_5 & TSS	Max	5.0 mg/L	Annual Average
	Max	6.25 mg/L	Monthly Average
	Max	10.0 mg/L	Single Sample
Total Nitrogen	Max	3.0 mg/L	Annual Average
	Max	3.75 mg/L	Monthly Average
	Max	6.0 mg/L	Single Sample
Total Phosphorous	Max	1.0 mg/L	Annual Average
	Max	1.25 mg/L	Monthly Average
	Max	2.0 mg/L	Single Sample
pH	Min	6 S.U.'s	Single Sample
	Max	8.5 S.U.'s	Single Sample
Fecal Coliform (% less than detection)	Min	0.75 S.U.'s	Monthly Total
Fecal Coliform	Max	25 #/100mL	Single Sample
Chlorine (Total Residual for Disinfection)	Min	1.0 mg/L	Single Sample
Chlorine (Total Residual for Dechlorination)	Max	0.01 mg/L	Single Sample
Dissolved Oxygen	Min	5.0 mg/L	Single Sample

These design parameters are subject to change during process design and final equipment selection.

Master Lift Station

The master lift station requires replacement independent of the downstream improvements. The condition of the existing tank and the configuration of the lift station will require the master lift station to be replaced, rather than rehabilitated. It is recommended that the design and construction of a new master lift station be completed as soon as possible.

Equipment Alternative Analysis and Design

A new master lift station with a concrete wet well and submersible pumps is recommended to replace the existing master lift station. The selected pumps should be designed with an operating flow rate that can accommodate peak flows. The operating point is subject to change pending the placement and design of the force main and receiving headworks. VFDs are recommended to control the pumps to accommodate influent flow rate fluctuations and impact to downstream processes. The proposed master lift station components include construction and installation of a new wet well, valve vault, mechanical piping, rails, control panels, valves, pressure transducer, flow meter, and associated fittings and appurtenances.

The preliminary pump selection for the master lift station is shown in **Table 4** below. Final pump selection is subject to change based on hydraulic operating efficiency and final design points. Flygt pumps are recommended because of the dual-vane N-series impellor which can pass large solids that would otherwise clog the pump, reducing pump station maintenance.

Table 4: Master Lift Station Pump Selection

Manufacturer	Make/Model	Pump Design Point	Pump HP	Budgetary Estimate
Xylem	Flygt NP 3202 MT 3 ~642	2,000 GPM @ 50 FT TDH	45	$128,000

A duplex submersible pump station with a 10 FT diameter wet well is recommended to allow for future accommodation of a third pump. The existing gravity main invert elevations require verification to confirm the necessary wet well depth, however the wet well depth is anticipated to be approximately 20 FT. Steel reinforced polymer concrete is recommended for the precast wet well to increase the longevity of the service life. The lift station replacement will require new control panels including VFDs. Control panels meeting minimum FDEP requirements were assumed for the budgetary estimate. The existing on-site generator will be utilized for emergency power to the proposed master lift station.

Constructability and Phasing

The placement of the new master lift station is proposed due North of the existing lift station. Geotechnical investigation will be required to verify soil conditions conducive for the wet well installation. Demolition of existing equipment in the lift station, modifications, and tie-ins to the existing wet well will require a bypassing plan for the three (3) influent gravity mains. Due to the unknown structural integrity of the existing wet well tanks, dog house manholes will be required to reroute the influent gravity mains and provide access points for bypassing. Once the new master lift station is installed and the existing station is being bypassed, the existing station will be demolished and a new terminal manhole will be constructed and connected to the new master lift station wet well.

Prior to the completion of the downstream improvements to the headworks and biological treatment system, the VFDs will require a maximum operating speed set point to mimic existing operating conditions and avoid hydraulic overloading the treatment plant.

Recommendation and OPC

It is recommended that the proposed lift station replacement be designed and constructed as soon as possible. A summary of the opinion of probable cost is included in **Table 5** below. The detailed opinion of probable cost for the master lift station improvements is included in **Appendix C-1.**

Table 5: Master Lift Station OPC Summary	
Engineering Cost	$ 105,000
Construction Cost	$ 1,077,600
Total	**$ 1,182,600**

Headworks

Screening

The existing static screen is not rated for the capacity of the proposed the master lift station replacement and only provides coarse screening. Fine screening with a maximum screen opening of 2-mm is required prior to MBRs to protect the membranes against damage from abrasive or sharp debris and clogging from rags and fibers. Inadequate screening increases the membranes' risk of damage and increase the maintenance required to ensure e[illegible]erati[illegible]

Equipment Alternative Analysis and Design

Fine screen alternatives were considered based on flow capacity and compatibility with MBR systems. The screen alternatives were evaluated based on the following criteria:

- [illegible]otprint and installation re[illegible]uirements
- [illegible]pital Cost
- Operation and Main enance (O&M)
- Reliability

The footprint and installation options of the proposed headworks is critical to due the space constraints of the WWTP site. Equipment with a standalone steel tank and frame mounted installations are preferred to due to ease of installation, shorter installation time, and lower capital cost. The existing headworks does not have concrete channels or a structure that could feasibly accommodate a screen retrofit. The operation and maintenance for each alternative was evaluated based on ease of operation, familiarity with the system, and typical maintenance required for efficient operation. A summary of the screen alternatives analysis is shown in **Table 6** below.

Table 6: Fine Screen Alternatives			
Alternative	**1**	**2**	**3**
Equipment	ROTAMAT	Eliminator	Ozzy Cup Screen
Type	Drum Screen	Band Screen	Drum Screen
Manufacturer	Huber	Headworks, Inc.	Ovivo
Vendor	Moss Kelley	EES	TSC Jacobs
Screen Opening	<1 mm	2 mm	1 mm
Estimated Footprint	14.5' L X 4.5' W X10' H	4.8' L x4.5' W x12.8' H	5' L x 3'W x 10' H
Rated Capacity	2 MGD	2 MGD	2 MGD
Equipment Material	Stainless Steel	Stainless Steel	Stainless Steel
Configuration	Tank Mou	Tank Mounted	Channel Installation
Equipment Capital Cost (1)	$155,000	$175,588	$325,000
(1) Capital cost of equipment was provided directly by manufacturer for inclusion in this ana ysis			

Based on the analysis, the Huber ROTAMAT drum screen is recommended. Fine screening is essential to protect the downstream MBRs from damage and fouling. The ROTAMAT screen satisfies the MBR screen opening constraints and has no risk of carryover. The ROTAMAT screen can be supplied as a standalone tank mounted unit with flanged inlet and outlet connections, which is necessary, given that the Mid-County WWTP does not have an existing headworks with concrete channels. It is anticipated that an elevated platform will be necessary for the fine screen to reduce pumping requirements to the downstream proces

To accommodate maximum flow rates, the fine screen is anticipated to have a rated capacity of 4 MGD. Two (2) screens with a rated capacity of 2 MGD each is also an alternative that would provide additional redundancy. Despite the greater capital cost, providing two screens allows for easier maintenance and redundancy in case of equipment failure.

Constructability and Phasing

The proposed headworks site is recommended to be located north of the existing denitrification filters. This location is easily accessible for hauling while maintaining the property set back requirements.

Installation of the fine screen is required prior to installation of the MBR system. The existing static screen is not sufficient to protect the membranes from damage or blinding. The headworks can be constructed without bypassing or taking the existing headworks off-line. Temporary piping modifications will be required for the interim operation of the plant prior to the MBR system installation. Permanent piping modifications required for the proposed plant configuration should be considered as part of the overall design.

Grit Removal

Grit removal is recommended to remove abrasive particles from the influent flow such as sand and silt than can wear on the plant's downstream equipment. Incorporating grit removal at the plant's

headworks will reduce buildup in the surge tank and aeration basins. Grit removal increases the longevity of an MBR system by removing abrasive particles that are not captured by the fine screens.

Equipment Alternative Analysis and Design

Grit removal alternatives were considered based on compatibility with the recommended fine screen. Alternatives were evaluated based on the following criteria:

- Footprint and installation options
- Capital Cost
- O&M

The footprint and configuration of the proposed grit removal system is critical to accommodate the space constraints of the site. The capital cost of the equipment was evaluated to ensure the quotes included comparable components for each unit. The operation and maintenance for each alternative was considered based on ease of operation and overall maintenance required. A summary of the grit removal alternative analysis is shown in **Table 7** below.

Table 7: Grit Removal System Alternatives

Alternative		**1**	**2**	**3**
Equipment		Grit King	Eutek Headcell	BioMETCAN
Type		Hydrodynami Vortex Separa	Stacked Tray Grit Separator	Vortex Grit Chamber
Manufacturer		Hydro International	Hydro International	Veolia
Vendor		Moss Kelley	Moss Kelley	EES
Particle Size for 95% Removal Efficiency at Average Flow Rate		≥75 microns	≥75 microns	≥75 microns
Estimated Foot rint	**Grit Chamber**	10 FT x 10 FT	12 FT x 12 FT	7 FT x 7 FT
	Grit Washing and Dewatering	(2) 5 FT x 6.5 FT Decanting Dumpster	(1) 24 Inch Dia. Grit Washing Unit (1) 5 FT x 6.5 FT Decanting Dumpster	12 FT x 5 FT Dewatering Screw
Configurati		Stand Alone Steel Tank	Installed Within Concrete Tank	Stand Alone Steel Tank
Equipment Material		Steel	Steel/ Low Density Polyethylene Trays	Steel
Grit Pump		Not Required	Required	Required
Equipment Capital Cost (1)		$225,000	$295,000	$207,750
(1) Capital cost of equipment was provided directly by manufacturer for inclusion in this analysis				

Based on the analysis, the Hydro International Grit King grit removal system is recommended. This system is recommended over the BioMETCAN system because it requires less ancillary equipment to operate and therefore has a smaller overall system footprint. It has no internal moving parts, does not require external power to operate, and can be manufactured as standalone steel unit designed to

operate by gravity for grit disposal. The other alternatives require concrete tank installation or additional equipment for operation, adding cost, complexity and maintenance requirements to operate the system.

The Grit King relies on velocities of the grit particles, friction created by scouring the tank wall, and gravitational forces to remove grit. Although it matches the other alternatives in removal efficiency at average flows, during peak flows the removal efficiency of fine particles decreases. The Eutek Headcell utilizes settling trays that allows the system to maintain removal efficiency during average and peak flow. The Eutek Headcell requires a concrete basin for installation and associated grit collection /washing equipment which increases its overall installation cost, but it is overall a more reliable alternative for grit removal and protection of downstream processes.

Constructability and Phasing

The proposed location for the grit removal equipment location is next to the proposed headworks, north of the denitrification filters. The outlet piping from the grit removal system will discharge flow to the South Train following completion of the plant modifications but will require temporary piping and pumping at necessary to the flow splitter box prior to the construction and installation of the MBR system in the North Train. Construction phasing for the proposed fine screen and grit removal system should occur simultaneously.

Recommendation and OPC

The Huber ROTAMAT drum screen and the Hydro International Grit King are the recommended equipment for the proposed headworks on costs and overall compatibility with the MBR system and plant layout. A summary of the opinion of probable cost is included in **Table 8** below. The detailed opinion of probable cost for the headworks improvements is included in **Appendix C-2.**

Table 8: Headworks OPC Summary	
Engineering Cost	$ 98,000
Construction Cost	$ 1,078,500
Total	**$ 1,176,500**

Biological Treatment and MBR

To recover the hydraulic capacity and improve treatment process reliability within the existing plant footprint, an MBR treatment system is recommended to supplement the biological treatment process. MBR systems provide membrane filtration that produce high quality effluent from mixed liquor, eliminating the need for sedimentation clarifiers. In these systems, anoxic zones are incorporated in the biological treatment process for denitrification meeting permit effluent limitations, which eliminates the need for methanol dosing and denitrification filters. Tankage rendered unnecessary for treatment following the design of an MBR system could be used as flow equalization volume.

Compared to the existing extended aeration treatment process, an MBR system has greater energy requirements due to the addition of permeate pumps, mixers, and blowers. However, converting to an MBR system will eliminate the operation and maintenance costs associated with the existing clarifiers, filters, methanol dosing, backwashing, and the associated pumping required between these processes. In addition, the high concentration of MLSS required in the membrane zones reduces the amount of waste activated sludge discharged for dewatering and hauling, increased quality of the membrane filtered effluent reduces the required disinfection, and minimum labor required results in overall plant operating cost reductions.

There are two types of MBR system configurations: immersed and external. Immersed MBRs are placed within the aerobic basins while external MBR systems are in separate vessels. To utilize the existing tanks and configuration of the plant, an immersed MBR system is recommended.

Flat plate/sheet and hollow fiber membranes are two types of immersed membranes used for wastewater treatment within MBR systems. Flat plate membranes consist of cassettes of membrane plates that separate the solids from the mixed liquor by pulling the wastewater through the membrane using pumps or static head to maintain a transmembrane pressure (TMP). Hollow fiber membranes operate comparatively to flat plate/sheet membranes, but instead of plates or sheets, the transmembrane pressure pulls the wastewater through flexible, hollow membranes strands bound vertically in the cassette.

Equipment Alternative Analysis and Design

Seven (7) MBR systems were evaluated for installation. MBR alternatives were considered based on compatibility with the existing plant configuration and ability to treat to the permitted effluent limitations. Each alternative was evaluated based on the following criteria:

- Footprint, configuration, and capacity
- Capital Cost
- O&M
  - Complexity of maintenance activities and required equipment
  - System Automation and SCADA connectivity
- Reliability
- Operator Testimony

During the evaluation process, hollow fiber membrane systems were eliminated due to maintenance complexity and equipment and tankage required for operation and routine cleaning. The MBR systems by Toray, Hydranautics, and Cembrane/Ovivo alternatives were also eliminated as viable alternatives due to lack of existing installations in the United States or for inexperience treating domestic wastewater. The alternatives that were analyzed in depth for the retrofit of the Mid-County WWTP were the Kubota and FibraCast membrane systems.

A summary of the alternative analysis for the MBR equipment is shown in **Table 9** below.

Table 9: MBR System Alternatives							
Alternative	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Membrane Manufacturer	Kubota	FibraCast	Toray	Hydranautics	Cembrane	MEMCOR	Suez
System Supplier	Kubota	Kruger	H2O Innovation	AWC	Ovivo	Evoqua	Suez
Vendor	Moss Kelley	MTS/Veolia	H2O Innovation	FJ Nugent	TSE Jacobs	Evoqua	Heyward
MBR System Model	SP300	NEOSEP	Membray-NHP	HydraSu	Silicon Carbide (SiC)	Mempulse	ZeeWeed
Membrane Type	Flat Plate	Flat Sheet Fiber	Flat Plate	Flat Sheet Fiber	Flat Plate	Hollow Fiber	Hollow Fiber
Membrane Trains	3	2	2	1	2	2	2
Membrane Units/Cassettes	18	4	4	4	20	18	2
Elements Per Cassette	40	84	50	60	40	-	47
Total Membrane Elements	720	336	400	240	1600	244	188
Membrane Removal Recommended (1)	No	No	No	No	No	Yes	Yes
Membrane Warranty	10-Year 100% Non-Prorated	2-Year 100% + 8 Year Prorated	1-Year	1-Y	1-Year	2-Year 100% + 8 Year Prorated	2-Year 100% + 8 Year Prorated
Mechanical Warranty	1-Year	1-Year	1-Year	-Year	1-Year	1.5-Year	1-Year
Support Services Included	Startup, Commission and Training (3 days), Annual workshop, remote monitoring and tech support	rtup, Com ission and Training during startup	N/A	Startup, Commission and Training (15 days)	Startup, Commission and Training (10 days)	Startup, Commission and Training (35 days)	Startup, Commission and Training (35 days),1 yr of tech support.
Nearest Existing Installation (ADF)	Deltona, FL (1.0 MGD)	Delphos, OH (3.8 MGD)	Crestview, FL (1.0 MGD)	-	-	Lancaster, OH (2.0 MGD)	Rotonda, FL (2.0 MGD)
Operator Survey (2)	Deltona Eastern WRF, Marion County Salt Springs WRF	elphos WWTP	-	-	-	-	Rotonda WWTP, Glades County WWTP
Equipment Capital Cost (3)	$1,800,000	$1,690,000	$1,392,000	$ 1,700,000	$2,300,000	$1,461,000	$990,000
(1) Membranes require removal for scheduled cleaning on an annual basis or more, as recommended by the manufacturer							
(2) Refer to Appendix D for operator surveys completed at each listed plant							
(3) Capital cost of equipment was provided directly by manufacturer for inclusion in this analysis							

The recommended MBR system for the Mid-County WWTP is the Kubota Flat Plate Submerged Membrane System. The Kubota MBR best suits the preferences of UIF for reliability, automation, maintenance, and installation constraints. Although the FibraCast membranes provide a higher treatment capacity within a smaller footprint, the flexible sheets pose more potential maintenance issues related to membrane scouring and cleaning. Additionally, the Kubota membrane manufacturer and system supplier are synonymous, where the FibraCast system has a separate membrane manufacturer and system supplier, making warranty guarantees more complex.

The Kubota MBR system consists of ridged flat plat membranes that can be installed within the existing North Train tanks. The existing aeration basins and surge tank will be rehabilitated and retrofitted with mixers and diffusers to create the necessary anoxic and aeration zones to achieve biological treatment and nutrient removal.

Kubota membranes do not require removal, additional tankage, or draining of the membrane units for cleaning. The membranes' fixed plate configuration improves the efficacy of air scouring by establishing a uniform surface for consistent air flow across the plates, reducing the frequency and chemical strength required for further cleaning the membranes. The recommended chemical cleaning for the Kubota MBR includes in-situ soaking of the membranes with low strength sodium hypochlorite 3 – 4 times a year to remove biological growth and citric acid annually to remove any inorganics. The MBR instrumentation and controls can be programed to initiate scheduled cleaning, resulting in completely automated operation and maintenance of the membranes excluding routine monitoring of the equipment operation and flow characteristics such as TMP, MLSS concentration and turbidity to maintain efficient operation.

The Kubota membranes have a 10-year, 100% non-prorated warranty, exceeding that of the other membrane manufacturers. Additionally, Kubota provides three (3) day operator training at start-up and provides additional annual operation and maintenance trainings. Remote monitoring and control of the MBR system is also offered under the scope of supply to help the operator address any operational issues. Kubota recommends and supplies all equipment associated with their system including mixers, diffusers, pumps and blowers. This promotes successful design of the MBR system because the equipment is specifically designated to work with the Kubota membranes, and limits equipment coordination to a single company.

The Kubota MBR system is the most viable candidate for the Mid-County WWTP because of the system reliability, installation within the existing tankage of the North Train with minimal modifications, and the automation of equipment operation and maintenance activities. The complete Kubota proposal is included in **Appendix B.**

Constructability and Phasing

The Kubota MBR system installation is proposed for the North Train, including the associated biological process modifications. Installation of the MBR system within the North Train limits structural modifications due to the existing layout of the tankage and allows the larger, South Train to remain in operation during construction. The existing tankage on the North Train will meet the requirements for biological treatment parameters and can accommodate varying influent BOD concentrations. By utilizing the existing tankage on site and retrofitting the existing process into an MBR process, the need

to temporary tankage and interim operations is eliminated. This approach has the lowest construction cost and timeframe by reducing the plant modifications required for implementation. By confining the treatment to the existing aerobic basins on the North Train, the South Train can be repurposed as equalization tanks to provide equalization volume following the conversion to the MBR system. Additionally, the flow splitter box, clarifiers, denitrification filers, methanol dosing tanks, and associated components can be demolished following modifications for the new treatment processes.

The intent is to maintain plant operation during construction using the full capacity of the South Train. The MBR retrofit would be completed following the construction of the headworks, grit removal system, and process piping improvements. The existing flow splitter box would be utilized to direct all flow to the South Train while the improvements to the North Train in progress. During construction, equalization volume may not be available, however, temporary equalization facilities can be utilized as necessary. Once the modifications to the North Train are completed, the MBR system will provide adequate capacity for treatment of an AADF of 0.9 MGD and a peak flow of 1.8 MGD. All influent flow can then be treated by the North Train, allowing conversion of the South Train to equalization volume and completion of final piping modifications.

Recommendation and OPC

The Kubota Flat Plate MBR System is recommended based on O&M, simplicity, UIF staff preferences, and compatibility with the constraints of the Mid-County WWTP. A summary of the opinion of probable cost is included in **Table 10** below. The detailed opinion of probable cost for the MBR conversion is included in **Appendix C-3.**

Table 10: MBR Conversion OPC Summary	
Engineering Cost	$ 140,000
Construction Cost	$ 5,994,000
Total	**$ 6,134,000**

Disinfection

The utilization of an MBR system for biological treatment produces high quality effluent making UV disinfection a possible alternative to chlorine disinfection. The existing CCC provides adequate disinfection, but the tank was not effectively designed to provide efficient disinfection or operational redundancy. The existing tank requires coating to protect against chemical degradation, which requires the tank to be drained to complete.

Equipment Alternative Analysis and Design

UV disinfection equipment was analyzed to compare to the necessary rehabilitation to improve operation of the CCC. The design requirements for UV disinfection is 200 fecal coliforms per 100 mL (30-day geometric mean) for surface discharge and 25 fecal coliforms per 100 mL (30-day geometric mean, 75% non-detect) for public reuse access at 60% ultraviolet transmittance (UVT). Two (2) UV disinfection systems were evaluated for compatibility with the Mid-County WWTP improvements.

A summary of the UV disinfection alternative analysis is shown in **Table 11** below.

Table 11: UV Disinfection Alternatives

Alternative	**1**	**2**
Equipment	Non-Contact UV Disinfection System	Closed Channel UV Reactor
Manufacturer	Enaqua	WEDCO
Vendor	EES	MTS
Peak Disinfection Flow Rate	1.2 MGD	1.8 MGD
Minimum UV Transmittance	60%	60%
Number of UV Reactors	2	3
Disinfection Dose (min. MS2 RED)	100.0 mJ/cm^2	100.0 mJ/cm^2
Equipment Redundancy	25%	25%
Estimated Foot Print (LxWxH) (1)	Reactor 1: 25 FT x 4.5 FT x 6 FT Reactor 2: 17.5 FT x 4.5 FT x 6 FT	8.5 FT x 3 FT x 5 FT (each)
Material	316 Stainless Steel	316 Stainless Steel
Configuration	Two (2) In-Pipe Flanged Reactors in Series	Three (3) In-Pipe Flanged Reactors
Total Number of Lamps	280	120
Total Connected Power Load	45 kW	48 kW
UV Lamp Warranty	15,000 hours	14,000 hours
Equipment Capital Cost (2)	$566,975	$395,000
(1) Height includes maintenance access hatch opening radius		
(2) Capital cost of equipment was provided directly by manufacturer for inclusion in this analysis		

Based on the analysis and plant evaluation, UV disinfection is not recommended for effluent disinfection. UV disinfection systems have a high capital cost, require frequent maintenance, and involve significant power requirements. Implementing these systems would require extensive operator training due the variety of maintenance items such as the UV lamps, ballasts, wipers, and sensors that require routine cleaning and replacement. In addition, the UV reactors require significantly more power than the existing CCC, increasing the annual O&M cost of disinfection. The approximate O&M cost is $25,000 per year per the system suppliers.

Rehabilitation of the existing CCC is recommended to improve disinfection. The construction of a new CCC would be comparable to the capital cost of installing a UV disinfection system without the addition of the operation and maintenance costs, but the space constraints of the site limit the feasibility of this option. The proposed MBR system will produce a higher quality effluent than the existing extended aeration treatment process, disinfection efficiency is expected to increase, subsequently reducing the existing operation and maintenance costs associated with chlorine disinfection. The existing CCC requires additional baffling and coating to preserve the tank integrity. Due to the large volume of the tank and effluent quality of the MBR, a temporary dam can be installed to divide the existing CCC so half of the tank can be taken offline for rehabilitation while the other half remains in service and while

meeting disinfection requirements. The existing plant does not have redundant disinfection, so rehabilitating the existing CCC by creating two separate chambers each satisfying the disinfection requirements will provide the necessary redundancy for future maintenance and reliability.

Constructability and Phasing

The proposed UV disinfection system could only be operated following commissioning the proposed MBR system to ensure that the effluent quality corresponds to the UV reactor design. UV disinfection system equipment would require installation on a concrete slab and connecting influent and effluent piping. Utilization of the existing CCC during construction and installation of the proposed disinfection process is required.

Recommendation and OPC

Rehabilitation of the existing CCC is recommended for the Mid-County WWTP. However, for the purposes of this analysis, a summary of the opinion of probable cost to implement the UV disinfection system with the lowest capital cost is included in **Table 12** below. The detailed opinion of probable cost for the UV disinfection system is included in **Appendix B-5.**

Table 12: UV Disinfection OPC Summary	
Engineering Cost	$ 50,000
Construction Cost	$ 642,600
Total	**$ 692,600**

Biosolids/Sludge Handling

To increase the percentage of total solids, a new dewatering system is recommended for sludge handling. The existing dewatering process achieves approximately 8–10% total solids. Sludge hauling is a significant expense for every utility. These costs can be reduced through solids dewatering and can provide large operational savings. The current hauling contract allows for untreated solids to be hauled for stabilization to a separate facility. The disposal costs are tied to the hauled volume; therefore, sludge thickening has a direct and measurable cost savings at the facility. Upgrading the existing process will decrease sludge hauling costs and improve sludge quality and equipment operation.

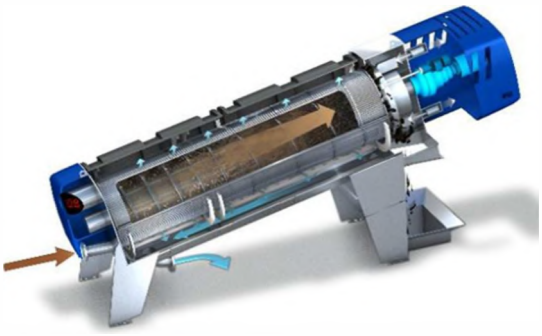
Equipment Alternative Analysis and Design

A screw press, belt press, and rotary fan press were evaluated to replace the existing dewatering equipment at the Mid-County WWTP. Belt presses are a proven technology for solids thickening and dewatering, but produce high levels of odor, use high amounts of wash water, and have a large footprint compared to other dewatering equipment. Screw presses are completely enclosed and can operate with little supervision. The rotary fan press is a newer technology that is competitive with other dewatering technologies in polymer consumption and dewatering performance. The proposed equipment will be designed to achieve a minimum of 16% total solids. Site space constraints and concerns of odor were considered, in addition to capital costs and operation and maintenance. Refer

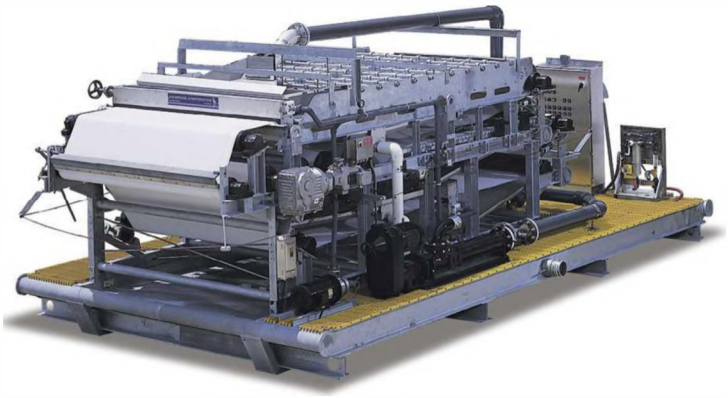
to **Figure 6** for an image of each type of dewatering system and **Table 13** for a summary of the sludge handling alternative analysis.

Figure 6: Dewatering Equipment Alternatives

Prime Solution Rotary Fan Press



Huber Screw Press



Alfa Laval AS-H Belt Press G3 100 (Klampress)

Table 13: Sludge Handling Alternatives			
Alternative	**1**	**2**	**3**
Equipment	**Rotary Fan Press**	**Screw Press**	**Belt Press**
Manufacturer	Prime Solution	Huber	Alfa Laval, Inc.
Vendor	The GK Solution	Moss Kelley	MTS
Maximum Loading Rate @ 1% TSS	40 GPM	66 GPM	125 GPM
Wash Water Requirement	80 GPH @ 45 PSI	62 GPH @ 72 PSI	40 GPM @ 85 PSI
Estimated Footprint	14' L x 6' W x 7' H	17' L x 5.5' W x 9' H	26' L x 9' W x 10.5' H
Polymer Required?	Yes	Yes	Yes
Dewatered Solids	18-24%	16-21%	16-22%
Material	Epoxy Coated Carbon Steel	316L Stainless Steel	Carbon Steel and 316L Stainless Steel
Configuration	Skid Mounted – Completely Enclosed	Completely Enclosed	Skid Mounted
Maintenance Items	Scraper Caps, Gearbox Oil Change	Spray Nozzles, Scraper, Brushes, Gearbox Oil Change	Belt (Tension, Seams, Washdown), Bearings, Rollers
Hours of Operation/Day	8hrs/1day/w	8hrs/5days/wk	4.6hrs/5days/wk
Equipment Capital Cost (1)	$243,000	$390,000	$325,000
(1) Capital cost of equipment was provided directly by manufacturer for inclusion in this analysis			

Based on the analysis, the Prime Solution Rotary Fan Press is recommended for dewatering. This system has the lowest capital cost, as well as the smallest footprint and weekly operation time. Solids are discharged into a completely enclosed tapered channel between two parallel rotating filter plates. As the plates rotate, the solids are pushed along the channel causing them to compress and filtrate drains though the filter plates and out of a drain at the bottom of the press. The large surface area of the parallel plates allows the rotary fan press to process a greater volume of solids compared to the screw press. The footprint, wash water requirements and potential odor concerns eliminates the belt press as a viable option for dewatering.

Constructability and Phasing

The proposed sludge handling system can be completed independently of the other process improvements. While sludge handling improvements are recommended for better dewatering and operational improvements, it is not required for operation of the plant in the existing or proposed condition. These improvements will need to be housed within an enclosed structure with driveway access for sludge hauling. The building can be a 'pole-barn' style structure as a protection from the elements, however potential odor generation should be considered in siting and design. The structure must be designed to protect the equipment and provide protection for the sludge dumpster. Increasing the TSS concentration of biosolids from 10% to 24% reduces the total volume to be removed from the site by approximately 50%. This improvement will provide operational savings which will recover the capital cost of the recommended equipment in 7.7 years based on a hauling cost of $0.15/gal.

Recommendation and OPC

The rotary fan press is recommended based on cost, ease of operation, and small equipment footprint. A summary of the opinion of probable cost is included in **Table 14** below. The detailed opinion of probable cost for the sludge handling equipment included in **Appendix C-5.**

Table 14: Sludge Handling OPC Summary	
Engineering Cost	$ 50,000
Construction Cost	$ 403,200
Total	**$ 453,200**

RECOMMENDATIONS

Summary of Improvements

The process improvements outlined above will provide the reliability and treatment capacity required for the Mid-County WWTP while reducing the overall footprint of equipment on the site. A summary of the proposed plant components is outlined in **Table 15** below.

Table 15: Summary of Process Improvements

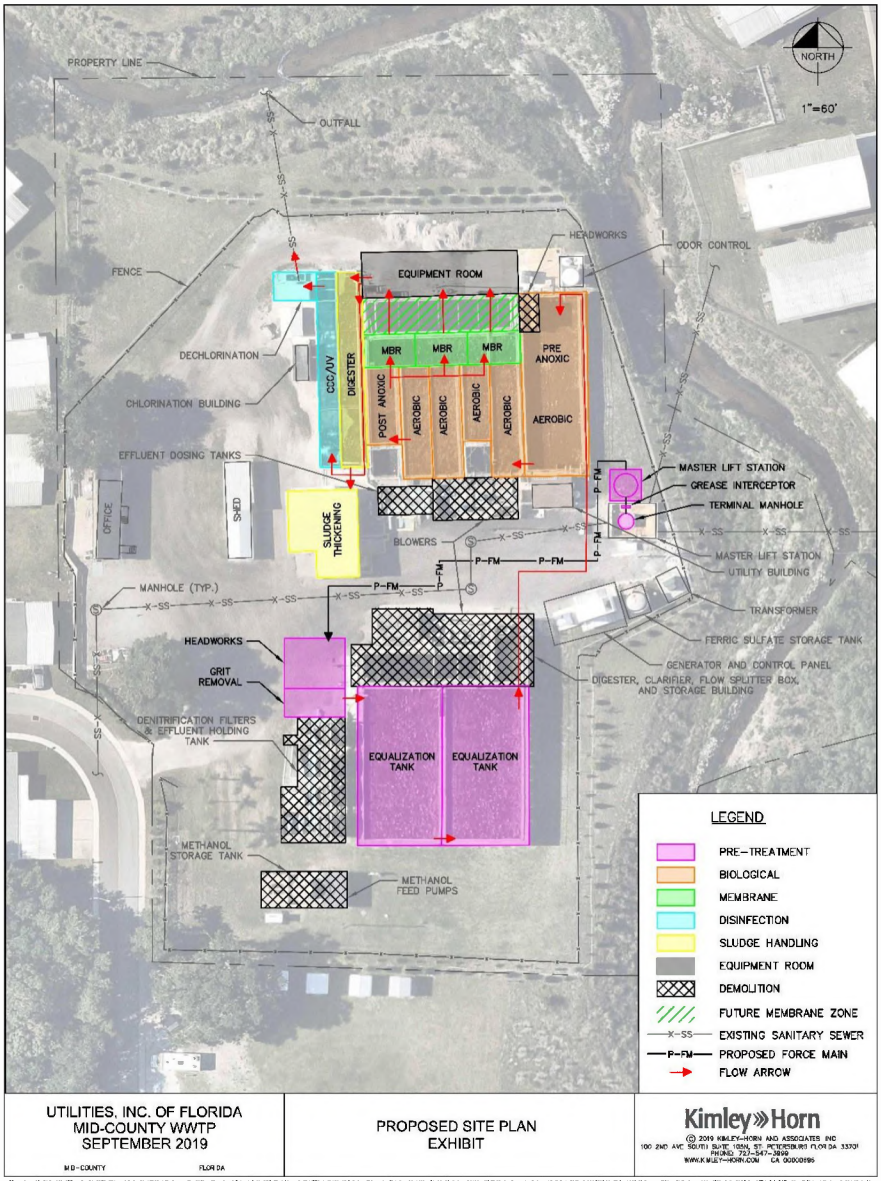
Treatment Stage	Plant Component		Preliminary Equipment Selection	Engineering Design Cost	Construction Costs
Pre-Treatment	Master Lift Station		10 FT Diameter Duplex Submersible Lift Station with Flygt Pumps	$ 105,000	$ 1,077,600
	Headworks	Fine Screening	Huber ROTOMAT Rotary Drum Screen	$ 98,000	$ 1,078,500
		Grit Removal	Hydro International Grit King		
Biological/ MBR	Membrane Bioreactor		Kubota Submersible Flat Plate Membrane System-	$ 140,000	$ 5,994,000
Disinfection (1)	Ultraviolet Disinfectio		WEDCO UV Reactors	$ 50,000	$ 642,600
Sludge Handling	Dewatering		Prime Rotary Fan Pre	$ 50,000	$ 403,200
Permitting				$ 15,000	-
Engineering Services During Construction				-	$ 175,000
			Subtotal	**$ 458,000**	**$ 9,370,900**
			Total OPC		**$ 9,828,900**

(1) For the purposes of this analysis, the cost of installing UV disinfection was included in the OPC, however, it is not required to maintain disinfection requirements or permitted effluent levels.

For detailed OPCs of construction costs, reference **Appendix C.** The OPCs include the budgetary cost for equipment provided by manufactures, estimated cost of installation and construction, and a 20% contingency. All costs are based on manufacturer budgetary information and recent bid information for similar projects. Costs are subject to change following the design of each system component.

The preliminary exhibit of the proposed improvements is shown in **Figure 7** below.

Figure 7: Preliminary Layout of Process Improvements



Schedule/Construction Phasing

Detailed construction phasing is essential to successfully complete the plant improvements while maintaining compliant treatment and capacity requirements during construction. Lack of process redundancy and the differing hydraulic capacities of each treatment train requires the South Train to remain operational during construction to handle the plant's influent flow.

Due to the observed deteriorating conditions of the existing master lift station, the master lift station replacement will be the first phase of construction. The existing master lift station will remain in operation until the replacement station is constructed and connected to the existing headworks. Once the replacement master lift station is operational, dog house manholes will be installed on the existingin influent gravity mains, the existing master lift station will be bypassed, demolished, and a new terminal manhole will be installed with a single influent gravity pipe connecting it to the new master lift station wet well. Once the replacement master lift station is completed, the operating speeds of the new pumps will require an interim set point to avoid exceeding the rated capacity of the existing static screen.

The new headworks can be constructed concurrently with the master lift station or after its completion. Depending on the selected equipment, concrete slabs or tanks will be poured for the fine screen and grit removal system. Most of the construction associated with the headworks includes equipment platforms, installation and connection of equipment, aboveground piping, valves, supports, electrical and water service connections, and instrumentation and controls setup. Temporary piping between the new grit removal system and the existing surge tank will be required to extend the use of the plant's existing equalization process and continue use of the flow splitter box to control plant flow between the North and South Train during construction. The master lift station force main will be extended to connect to the new headworks and the existing static screen will be demolished. Fine screening as outlined in the equipment analysis must be installed and operational prior to installation of an MBR system.

Following the construction of the headworks, the MBR system will be installed within the existing tankage of the North Train. The capacity of the South Train is 0.6 MGD, but the ADF through the plant is 0.7 MGD, so the North Train cannot be taken completely offline during construction. A structural evaluation and required rehabilitation of the North Train tankage shall be completed prior to initiation of equipment installation or construction of any partitioning walls. To rehabilitate the existing tankage, the six (6) aeration basins and surge tank will be required to be taken offline in groups or individually depending on the influent flow rate while maintaining treatment requirements. This process will require the decommissioning and recommissioning of sections of the North Train. As construction progresses, temporary pumps and pumping will be required to be rotated throughout the train to maintain process flow. During design, all possible flow scenarios at each phase of the MBR system installation and tank rehabilitation will need to be considered to ensure the effluent requirements are met. All equipment and piping associated with the MBR system and preceding biological treatment shall be installed during this construction phasing, including, mixers, aeration piping, membranes, pumps, blowers, controls, chemical totes and dosing equipment, etc. During design, the start-up of this equipment will also be considered to optimize the usable treatment capacity. Once the membranes are installed and operable, the permeate will be pumped to the existing CCC and the waste activated sludge will be pumped to the existing sludge holding tank. Pending the final design, the South Plant will be converted to equalization volume and submersible pumps will send flow to the North Train for biological treatment and MBR system.

Upon completion of the MBR system, the south train clarifiers, denitrification filters, and methanol dosing tanks can be decommissioned and demolished. The existing CCC can be rehabilitated by dividing the basin and isolating each side to construct the process improvements. In design, the volume and chlorine dosing requirement to meet high-level disinfection will be evaluated for the modified CCCs. The divided CCC will operate in parallel with the capacity to meet disinfection requirements with one section offline. If UV disinfection is selected, it must only be installed subsequent to the MBR system due to the effluent quality requirements of the system.

The selected dewatering equipment can be installed independent of the other plant processes although it is recommended after installation of the MBR system. The differences between the quality and amount of sludge produced by the existing system versus the MBR system could cause issues with equipment sizing and polymer addition.

A summary of the construction phasing and an approxima e schedule design and construction is shown below in **Table 16**

Table 16: Construction Phasing Outline

Construction Phase	Plant Component	Design Period	Construction Period	Construction Notes
1	Master Lift Station Replacement	3 Months	12 Months	• VFDs require max. operating set point to avoid capacity exceedance of existing screen
2	Headworks	4 Months	6 Months	• Fine screen required prior to MBR system installation • Temporary piping from headworks to surge tank required
3	Biological Treatment Improvements including MBR Installation	6 Months	12 Months	• Construction to begin following completion of headworks • South Train to treat the majority of flow during construction • Existing flow splitter box, clarifiers, denitrification filers, methanol dosing tanks, and associated components may be demolished following completion
4	Disinfection (1) and Dewatering Improvements	3 Months	6-12 Months	• Can be installed independent of other plant improvements

(1) Construction schedule dependent on selected disinfection method. Installation of UV disinfection equipment is expected to have a shorted construction schedule than rehabilitation of the existing CCC. MBRs must be in operation prior to startup of UV disinfection system.

APPENDIX A: Mid-County WWTP Operating Permit

Florida Department of Environmental Protection

Southwest District Office
13051 North Telecom Parkway
Temple Terrace, Florida 33637-0926

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

In the Matter of an
Application for Permit by:

Mid-County Services Inc
Mr. Patrick C. Flynn, Vice President of Operations
200 Weathersfield Avenue
Altamonte Springs, Florida 32714-4027
pcflynn@uiwater.com

File Number FL0034789-013-DW1P
Pinellas County
Mid-County WWTP

NOTICE OF PERMIT ISSUANCE

Enclosed is Permit Number FL0034789 to operate the Mid-County WWTP, issued under Chapter 403, Florida Statutes.

Monitoring requirements under this permit are effective on the first day of the second month following the effective date of the permit. Until such time, the permittee shall continue to monitor and report in accordance with previously effective permit requirements, if any.

The Department's proposed agency action shall become final unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, Florida Statutes, within fourteen days of receipt of notice. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by the Department's proposed permitting decision may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, Florida Statutes. The petition must contain the information set forth below and must be filed (received by the Clerk) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

Under Rule 62-110.106(4), Florida Administrative Code, a person may request an extension of the time for filing a petition for an administrative hearing. The request must be filed (received by the Clerk) in the Office of General Counsel before the end of the time period for filing a petition for an administrative hearing.

Petitions by the applicant or any of the persons listed below must be filed within fourteen days of receipt of this written notice. Petitions filed by any persons other than those entitled to written notice under Section 120.60(3), Florida Statutes, must be filed within fourteen days of publication of the notice or within fourteen days of receipt of the written notice, whichever occurs first. Section 120.60(3), Florida Statutes, however,

also allows that any person who has asked the Department in writing for notice of agency action may file a petition within fourteen days of receipt of such notice, regardless of the date of publication.

The petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition or request for an extension of time within fourteen days of receipt of notice shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, Florida Statutes. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, Florida Administrative Code.

A petition that disputes the material facts on which the Department's action is based must contain the following information, as indicated in Rule 28-106.201, Florida Administrative Code:

(a) The name and address of each agency affected and each agency's file or identification number, if known;
(b) The name, address, any e-mail address, any facsimile number, and telephone number of the petitioner, if the petitioner is not represented by an attorney or a qualified representative; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the determination;
(c) A statement of when and how the petitioner received notice of the Department's decision;
(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;
(e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the Department's proposed action;
(f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the Department's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and
(g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the Department to take with respect to the Department's proposed action.

Because the administrative hearing process is designed to formulate final agency action, the filing of a petition means that the Department's final action may be different from the position taken by it in this notice. Persons whose substantial interests will be affected by any such final decision of the Department have the right to petition to become a party to the proceeding, in accordance with the requirements set forth above.

Mediation under Section 120.573, Florida Statutes, is not available for this proceeding.

This permit action is final and effective on the date filed with the Clerk of the Department unless a petition (or request for an extension of time) is filed in accordance with the above. Upon the timely filing of a petition (or request for an extension of time), this permit will not be effective until further order of the Department.

Any party to the permit has the right to seek judicial review of the permit action under Section 120.68, Florida Statutes, by the filing of a notice of appeal under Rules 9.110 and 9.190, Florida Rules of Appellate Procedure, with the Clerk of the Department in the Office of General Counsel, 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida, 32399-3000, and by filing a copy of the notice of appeal accompanied by the applicable filing fees with the appropriate district court of appeal. The notice of appeal must be filed within 30 days from the date when this permit action is filed with the Clerk of the Department.

Executed in Temple Terrace, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Pamala Vazquez
Program Administrator
Permitting & Waste Cleanup Program
Southwest District

FILING AND ACKNOWLEDGMENT

FILED, on this date, under Section 120.52, Florida Statutes, with the designated Deputy Clerk, receipt of which is hereby acknowledged.

[Clerk] July 11, 2016 [Date]

CERTIFICATE OF SERVICE

The undersigned hereby certifies that this NOTICE OF PERMIT ISSUANCE and all copies were mailed before the close of business on July 11, 2016 to the listed persons.

Name

July 11, 2016
Date

Copies furnished to:
Julian R. Coto, P.E., Excel Engineering Consultant, LLC. Julian@Excelengineers.com
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Christine Frankford, Pinellas County Dept. of Health, Christine_Frankford@doh.state.fl.us

Florida Department of Environmental Protection

Southwest District Office
13051 North Telecom Parkway
Temple Terrace, FL 33637-0926

Rick Scott
Governor

Carlos Lopez-Cantera
Lt. Governor

Jonathan P. Steverson
Secretary

STATE OF FLORIDA
DOMESTIC WASTEWATER FACILITY PERMIT

PERMITTEE:
Mid-County Services, Inc.

RESPONSIBLE OFFICIAL:
Mr. Patrick C. Flynn, Vice President of Operations
200 Weathersfield Avenue
Altamonte Springs, Florida 32714-4027
(407) 869-1919
pcflynn@uiwater.com

PERMIT NUMBER: FL0034789 (Minor)
FILE NUMBER: FL0034789-013-DW1P/NR
EFFECTIVE DATE: August 5, 2016
EXPIRATION DATE: August 4, 2021

FACILITY:

Mid-County WWTP
2299 Spanish Vista Drive
Dunedin, FL 34698-9438
Pinellas County
Latitude: 28°2' 16 " N Longitude: 82°44' 31" W

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and applicable rules of the Florida Administrative Code (F.A.C.) and constitutes authorization to discharge to waters of the state under the National Pollutant Discharge Elimination System. This permit does not constitute authorization to discharge wastewater other than as expressly stated in this permit. The above named permittee is hereby authorized to operate the facilities in accordance with the documents attached hereto and specifically described as follows:

WASTEWATER TREATMENT:

An existing 0.90 million gallons per day (MGD) Annual Average Daily Flow (AADF), Type I, advanced wastewater treatment facility consisting of two separate treatment trains: flow is directed through one static screen, followed by one equalization basin of 200,000 gallons total volume and then a flow splitter box which separates the flow into a 0.30 million gallons per day (MGD) treatment train and 0.60 million gallons per day (MGD) treatment train. The 0.30 million gallons per day (MGD) treatment train consists of six aeration basins, 349,000 gallons of total aeration volume and one clarifier of 92,000 gallons total volume with 1,025 square feet total surface area. The 0.60 million gallons per day (MGD) treatment train consists of two 300,000 gallon aeration basins, 600,000 gallons of total aeration volume and one clarifier of 98,000 gallons total volume with 1,086 square feet total square area. The two treatment trains are combined into four 5,000 gallon clarified effluent holding tanks, three deep-bed denitrification filters of 48,000 gallons total volume and 367 square feet of total surface area, one effluent holding tank of 16,000 gallons total volume, a chlorination/dechlorination chamber of 37,400 gallons total volume comprised of a 34,000 gallon chlorine contact chamber and a 3,400 gallon dechlorination chamber, one aerobic digester of 41,000 gallons total volume, and one sludge holding tank of 43,500 gallons total volume. This facility is operated to provide advanced wastewater treatment and high-level disinfection.

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-013-DW1P/NR
FACILITY: Mid-County WWTP

REUSE OR DISPOSAL:

Surface Water Discharge D-001: An existing 0.90 million gallons per (MGD) Annual Average Daily Flow (AADF) discharge into the Class III Fresh waters of Curlew Creek, WBID 1538A. Curlew Creek flows into WBID 1538 of Curlew Creek Tidal Segment, Class III Marine waters, thence WBID 1528C of Clearwater Harbor (north), Class III Marine waters. The point of discharge is located approximately at latitude 28° 02' 18" N, longitude 82 ° 44' 32" W.

IN ACCORDANCE WITH: The limitations, monitoring requirements, and other conditions set forth in this cover sheet and Part I through Part IX on pages 1 through 20 of this permit.

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to Curlew Creek. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.B.7:

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow, to D-001	MGD	Max	0.90	Annual Average	Monthly	Calculated	FLW-01	See I.A.3
Flow, to D-001	MGD	Max	Report	Monthly Average	5 Days/Week	Recording Flow Meter with Totalizer	FLW-01	See I.A.3
BOD, Carbonaceous 5 day, 20C	mg/L	Max	5.0	Annual Average	Monthly	Calculated	EFD-01	
BOD, Carbonaceous 5 day, 20C	mg/L	Max Max	6.25 10.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
Solids, Total Suspended	mg/L	Max	5.0	Annual Average	Monthly	Calculated	EFD-01	
Solids, Total Suspended	mg/L	Max Max	6.25 10.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	See I.A.6
Solids, Total Suspended	mg/L	Max	5.0	Single Sample	4 Days/Week	Grab	EFB-01	
Nitrogen, Total	mg/L	Max	3.0	Annual Average	Monthly	Calculated	EFD-01	
Nitrogen, Total	mg/L	Max Max	3.75 6.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
Phosphorus, Total (as P)	mg/L	Max	1.0	Annual Average	Monthly	Calculated	EFD-01	
Phosphorus, Total (as P)	mg/L	Max Max	1.25 2.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
pH	s.u.	Min Max	6.0 8.5	Single Sample Single Sample	5 Days/Week	Meter	EFD-01	
Coliform, Fecal, % less than detection	percent	Min	75	Monthly Total	Monthly	Calculated	EFA-01	See I.A.4
Coliform, Fecal	#/100mL	Max	25	Single Sample	4 days/Week	Grab	EFA-01	See I.A.4
Chlorine, Total Residual (For Disinfection)	mg/L	Min	1.0	Single Sample	5 Days/Week	Meter	EFA-01	See I.A.5
Chlorine, Total Residual (For Dechlorination)	mg/L	Max	0.01	Single Sample	Weekly	Grab	EFD-01	
Oxygen, Dissolved (DO)	mg/L	Min	5.00	Single Sample	5 Days/Week	Grab	EFD-01	

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-013-DW1P/NR
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			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Nitrogen, Total	ton/mth	Max	Report	Monthly Total	Monthly	Calculated	EFD-01	See I.A.7
Nitrogen, Total	ton/yr	Max	2.12	Annual Total	Monthly	Calculated	EFD-01	See I.A.7
Chronic Whole Effluent Toxicity, 7-Day IC25 (Ceriodaphnia dubia)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFD-01	See I.A.6
Chronic Whole Effluent Toxicity, 7-Day IC25 (Pimephales promelas)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFD-01	See I.A.6

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-013-DW1P/NR
FACILITY: Mid-County WWTP

2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I.A.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-01	Flow meter prior to discharge to Curlew Creek.
EFD-01	After dechlorination and prior to surface water discharge to Curlew Creek.
EFA-01	After disinfection and prior to dechlorination.
EFB-01	After filtration and prior to disinfection.

3. Recording flow meters and totalizers shall be utilized to measure flow and calibrated at least annually. *[62-600.660(1)]*

4. Over a 30-day period, at least 75 percent of the fecal coliform values shall be below the detection limits. No sample shall exceed 25 fecal coliforms per 100 mL. No sample shall exceed 5.0 mg/L of total suspended solids (TSS) at a point before the application of the disinfectant. Note: To report the "% less than detection," count the number of fecal coliform observations that were less than detection, divide by the total number of fecal coliform observations in the month, and multiply by 100% (round to the nearest integer). *[62-600.440(6)(a)]*

5. A minimum of 1.0 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow. *[62-600.440(5)(c), (6)(b), and (7)(c)]*

6. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.

   a. Effluent Limitation
      (1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) for reproduction or growth shall not be less than 100% effluent. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]
      (2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. [Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]

   b. Monitoring Frequency
      (1) Routine toxicity tests shall be conducted once every six months, the first starting within 60 days of the effective date of this permit and lasting for the duration of this permit.

   c. Sampling Requirements
      (1) For each routine test or additional follow-up test conducted, a total of three flow proportional 24-hr composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.
      (2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.
      (3) Samples for routine and additional follow-up tests shall not be collected on the same day.

   d. Test Requirements
      (1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%**, **50%**, **25%**, **12.5%**, and **6.25%** final effluent.
      (2) The permittee shall conduct a daphnid, **Ceriodaphnia dubia**, Survival and Reproduction Test and a fathead minnow, **Pimephales promelas**, Larval Survival and Growth Test, concurrently.
      (3) All test species, procedures and quality assurance criteria used shall be in accordance with **Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms**, 4th Edition, EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.
      (4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.2.3.

e. Quality Assurance Requirements
   (1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.
   (2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or the "test acceptability criteria" are not met, the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (**Ceriodaphnia dubia**) and Section 11.11 (**Pimephales promelas**). The repeat test shall begin within 21 days after the last day of the invalid test.
   (3) If 100% mortality occurs in all effluent concentrations for either test species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.
   (4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-013, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

f. Reporting Requirements
   (1) Results from all required tests shall be reported on the Discharge Monitoring Report (DMR) as follows:
      (a) Routine and Additional Follow-up Test Results: The calculated IC25 for reproduction or growth for each test species shall be entered on the DMR.
   (2) A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-013, Section 10, Report Preparation and Test Review, and mailed to the Department at the address below within 30 days after the last day of the test.
   (3) For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-013, Section 10, and mailed within 30 days after the last day of the second valid additional follow-up test.
   (4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.
   (5) The same bioassay data shall not be reported as the results of more than one test.
   (6) All bioassay laboratory reports shall be sent to:

   Florida Department of Environmental Protection
   Southwest District Office
   13051 N Telecom Pkwy
   Temple Terrace, Florida 33637-0926
   Phone Number - (813) 470-5700
   FAX Number - (813) 470-5996
   swd_dw@dep.state.fl.us

g. Test Failures
   (1) A test fails when the test results do not meet the limits in I.A.6.a.(1).
   (2) Additional Follow-up Tests:
      (a) If a routine test does not meet the chronic toxicity limitation in I.A.6.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with I.A.6.d.
      (b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.
      (c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5%, and 6.25% effluent. The permittee may modify the dilution series in the second additional follow-up test to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control (0%

effluent) are run. All test results shall be analyzed according to the procedures in EPA-821-R-02-013.

(3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.
   (a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.
   (b) The Department shall review and approve the plan before initiation.
   (c) The plan shall be initiated within 30 days following the Department's written approval of the plan.
   (d) Progress reports shall be submitted quarterly to the Department at the address above.
   (e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with I.A.6.d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in I.A.6.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-013, a repeat test shall be initiated within 21 days after the last day of the invalid routine test.
   (f) Upon completion of four consecutive quarterly valid routine tests that demonstrate compliance with the effluent limitation in I.A.6.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the facility has passed at least four consecutive quarterly valid routine whole effluent toxicity tests. If a test within the sequence of the four is deemed invalid, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive quarterly valid routine tests for the purpose of terminating the plan.

(4) If chronic toxicity test results indicate greater than 50% mortality within 96 hours in an effluent concentration equal to or less than the effluent concentration specified as the acute toxicity limit in I.A.6.a.(2), the Department may revise this permit to require acute definitive whole effluent toxicity testing.

(5) The additional follow-up testing and the plan do not preclude the Department taking enforcement action for acute or chronic whole effluent toxicity failures.

[62-4.241, 62-620.620(3)]

7. In accordance with Rule 62-304.645(13)(a), F.A.C., the Total Maximum Daily Load for Total Nitrogen from this facility shall be 2.12 tons/year (annual total). The Total Nitrogen loading shall be calculated from the monthly average Total Nitrogen concentrations as follows:

Monthly Total (Mt)
$Mt_n = \frac{\text{(Monthly Average Total Nitrogen Concentration, mg/l)(Total Monthly Flow, MG)(8.3454)}}{\text{2000 lbs}}$
Mt_n = Tons/Month

The Annual Total shall be calculated as a 12-month rolling total based on the cumulative total of TN tons discharged during the reporting month (Mt_n) plus the total of TN tons discharged during the preceding 11 consecutive months.

Annual Total (At)*
Annual Total at the end of the n^{th} Month: $At = Mt_{n-11} + Mt_{n-10} \ldots Mt_n$

*The Annual Total will be calculated and reported as an accumulation of each monthly TN load after this permit monitoring effective date until twelve (12) months of data are collected, after which the rolling total will be reported.

[62-304.645(13)(a)]

8. Ambient Monitoring Program
The permittee shall conduct a surface water-monitoring program to evaluate the impacts of the discharge on the water quality of the receiving body of water. The monitoring described below shall be conducted semi-annual basis (wet and dry season). The monitoring reports shall be submitted to the Department's SW District Office annually. The reports shall include discussion and interpretation of the water quality results.

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-013-DW1P/NR
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Ambient sampling should always be conducted in conjunction with a surface water discharge sampling event.

a. Sampling locations

   i. Test site 1 shall be located 300 feet upstream of the outfall to Curlew Creek.
   ii. Test site 2 shall be located 300 feet downstream of the outfall to Curlew Creek.
   iii. Outfall D-001 (effluent): At the outfall (effluent shall be collected just prior to mixing with the surface waters).

b. Sampling Depths

   i. Mid-depth samples shall be collected at the two ambient sites.

c. Sampling Parameters

   i. Surface (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity and specific conductance shall be measured at 0.1 meter below the surface of the water.
   ii. Mid-depth (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity, specific conductivity, total suspended solids, $CBOD_5$, total Kjeldahl nitrogen, nitrite-nitrate, total ammonia nitrogen, total phosphorous, ortho-phosphorus, chlorophyll a corrected, fecal coliform bacteria and turbidity.
   iii. Outfall (effluent): pH, dissolved oxygen, temperature, specific conductivity, total suspended solids, $CBOD_5$, total Kjeldahl nitrogen, nitrite-nitrate, total ammonia nitrogen, total phosphorus, ortho-phosphorus and fecal coliform bacteria.
   iv. Bottom (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity and specific conductivity shall be measured at 0.1 meter above the bottom.

d. Secchi Depth: Secchi depth shall be measured at both ambient sites.

e. Ambient Conditions: Air temperature, rainfall, cloud cover and flow direction of receiving water body shall be noted at each sampling site.

f. Chain of Custody: Time/date of sampling and name of persons who obtained the sample shall be noted at each sampling site.

g. Report: A report containing the data from the Ambient Monitoring Program shall be submitted to FDEP's Southwest District outlining the results in electronic format. The report shall also include all chain of custody forms, laboratory results as reported by the laboratory and the physiochemical raw data sheets. *[62-302.306]*

B. Other Limitations and Monitoring and Reporting Requirements

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the treatment facility shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.B.7.:

			Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow, Total Plant	MGD	Max	0.9	Annual Average	Monthly	Calculated	FLW-01	See I.B.4
Flow, Total Plant	MGD	Max Max	Report Report	Monthly Average 3-Month Rolling Average	5 Days/Week	Recording Flow Meter with Totalizer	FLW-01	SeeI.B.4
Percent Capacity, (TMADF/Permitted Capacity) x 100	percent	Max	Report	Monthly Average	Monthly	Calculated	INF-01	
BOD, Carbonaceous 5 day, 20C (Influent)	mg/L	Max	Report	Monthly Average	Monthly	16-hr FPC	INF-01	See I.B.3
Solids, Total Suspended (Influent)	mg/L	Max	Report	Monthly Average	Monthly	16-hr FPC	INF-01	See I.B.3

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2. Samples shall be taken at the monitoring site locations listed in Permit Condition I.B.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-01	Flow meter prior to discharge to Curlew Creek.
INF-01	Influent sampling point at the head works prior to treatment and ahead of the return activated sludge line.

3. Influent samples shall be collected so that they do not contain digester supernatant or return activated sludge, or any other plant process recycled waters. *[62-600.660(4)(a)]*

4. Recording Flow meters and totalizers shall be utilized to measure flow and calibrated at least annually. [*62-600.200(25)*]

5. The sample collection, analytical test methods and method detection limits (MDLs) applicable to this permit shall be conducted using a sufficiently sensitive method to ensure compliance with applicable water quality standards and effluent limitations and shall be in accordance with Rule 62-4.246, Chapters 62-160 and 62-600, F.A.C., and 40 CFR 136, as appropriate. The list of Department established analytical methods, and corresponding MDLs (method detection limits) and PQLs (practical quantitation limits), which is titled "FAC 62-4 MDL/PQL Table (April 26, 2006)" is available at http://www.dep.state.fl.us/labs/library/index.htm. The MDLs and PQLs as described in this list shall constitute the minimum acceptable MDL/PQL values and the Department shall not accept results for which the laboratory's MDLs or PQLs are greater than those described above unless alternate MDLs and/or PQLs have been specifically approved by the Department for this permit. Any method included in the list may be used for reporting as long as it meets the following requirements:

   a. The laboratory's reported MDL and PQL values for the particular method must be equal or less than the corresponding method values specified in the Department's approved MDL and PQL list;

   b. The laboratory reported MDL for the specific parameter is less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Parameters that are listed as "report only" in the permit shall use methods that provide an MDL, which is equal to or less than the applicable water quality criteria stated in 62-302, F.A.C.; and

   c. If the MDLs for all methods available in the approved list are above the stated permit limit or applicable water quality criteria for that parameter, then the method with the lowest stated MDL shall be used.

   When the analytical results are below method detection or practical quantitation limits, the permittee shall report the actual laboratory MDL and/or PQL values for the analyses that were performed following the instructions on the applicable discharge monitoring report.

   Where necessary, the permittee may request approval of alternate methods or for alternative MDLs or PQLs for any approved analytical method. Approval of alternate laboratory MDLs or PQLs are not necessary if the laboratory reported MDLs and PQLs are less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Approval of an analytical method not included in the above-referenced list is not necessary if the analytical method is approved in accordance with 40 CFR 136 or deemed acceptable by the Department. *[62-4.246, 62-160]*

6. The permittee shall provide safe access points for obtaining representative samples which are required by this permit. *[62-600.650(2)]*

7. Monitoring requirements under this permit are effective on the first day of the second month following the effective date of the permit. Until such time, the permittee shall continue to monitor and report in accordance with previously effective permit requirements, if any. During the period of operation authorized by this permit, the permittee shall complete and submit to the Department Discharge Monitoring Reports (DMRs) in accordance with the frequencies specified by the REPORT type (i.e. monthly, quarterly, semiannual, annual, etc.) indicated on the DMR forms attached to this permit. Unless specified otherwise in this permit, monitoring results for each

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monitoring period shall be submitted in accordance with the associated DMR due dates below. DMRs shall be submitted for each required monitoring period including periods of no discharge.

REPORT Type on DMR	Monitoring Period	Mail or Electronically Submit by
Monthly	first day of month - last day of month	28th day of following month
Quarterly	January 1 - March 31 April 1 - June 30 July 1 - September 30 October 1 - December 31	April 28 July 28 October 28 January 28
Semiannual	January 1 - June 30 July 1 - December 31	July 28 January 28
Annual	January 1 - December 31	January 28

The permittee may submit either electronic or paper DMR forms before December 21, 2016. As of December 21, 2016, the permittee is required to submit electronic DMR forms.

If submitting electronic DMR forms, the permittee shall use the electronic DMR system approved by the Department (EzDMR) and shall electronically submit the completed DMR forms using the DEP Business Portal at http://www.fldepportal.com/go/. Reports shall be submitted to the Department by the twenty-eighth (28th) of the month following the month of operation. Data submitted in electronic format is equivalent to data submitted on signed and certified paper DMR forms.

If submitting paper DMR forms, the permittee shall make copies of the attached DMR forms, without altering the original format or content unless approved by the Department, and shall mail the completed DMR forms to the Department by the twenty-eighth (28th) of the month following the month of operation at the address specified below:

Florida Department of Environmental Protection
Wastewater Compliance Evaluation Section, Mail Station 3551
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

[62-620.610(18)][62-600.680(1)]

8. Unless specified otherwise in this permit, all reports and other information required by this permit, including 24-hour notifications, shall be submitted to or reported to, as appropriate, the Department's Southwest District Office at the address specified below:

Florida Department of Environmental Protection
Southwest District Office
13051 N Telecom Pkwy
Temple Terrace, Florida 33637-0926
Phone Number - (813) 470-5700
FAX Number - (813) 470-5996
swd_dw@dep.state.fl.us
[62-620.305]

9. All reports and other information shall be signed in accordance with the requirements of Rule 62-620.305, F.A.C.
[62-620.305]

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II. BIOSOLIDS MANAGEMENT REQUIREMENTS

A. Basic Requirements

1. Biosolids generated by this facility may be transferred to a Biosolids Treatment Facility (BTF) or disposed of in a Class I solid waste landfill. Transferring biosolids to an alternative biosolids treatment facility does not require a permit modification. However, use of an alternative biosolids treatment facility requires submittal of a copy of the agreement pursuant to Rule 62-640.880(1)(c), F.A.C., along with a written notification to the Department at least 30 days before transport of the biosolids. *[62-620.320(6), 62-640.880(1)]*

2. The permittee shall monitor and keep records of the quantities of biosolids generated, received from source facilities, treated, distributed and marketed, land applied, used as a biofuel or for bioenergy, transferred to another facility, or landfilled. These records shall be kept for a minimum of five years. *[62-640.650(4)(a)]*

3. Biosolids quantities shall be monitored by the permittee as specified below. Results shall be reported on the permittee's Discharge Monitoring Report for Monitoring Group RMP-Q in accordance with Condition I.B.7.

			Biosolids Limitations		Monitoring Requirements		
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number
Biosolids Quantity (Transferred)	dry tons	Max	Report	Monthly Total	Monthly	Calculated	RMP-1
Biosolids Quantity (Landfilled)	dry tons	Max	Report	Monthly Total	Monthly	Calculated	RMP-2

[62-640.650(5)(a)1]

4. Biosolids quantities shall be calculated as listed in Permit Condition II.3 and as described below:

Monitoring Site Number	Description of Monitoring Site Calculations
RMP-1	Biosolids Quantity (Transferred to Biosolids Treatment Facility)
RMP-2	Biosolids Quantity (Landfilled)

5. The treatment, management, transportation, use, land application, or disposal of biosolids shall not cause a violation of the odor prohibition in subsection 62-296.320(2), F.A.C. *[62-640.400(6)]*

6. Storage of biosolids or other solids at this facility shall be in accordance with the Facility Biosolids Storage Plan. *[62-640.300(4)]*

7. Biosolids shall not be spilled from or tracked off the treatment facility site by the hauling vehicle. *[62-640.400(9)]*

B. Disposal

8. Disposal of biosolids, septage, and "other solids" in a solid waste disposal facility, or disposal by placement on land for purposes other than soil conditioning or fertilization, such as at a monofill, surface impoundment, waste pile, or dedicated site, shall be in accordance with Chapter 62-701, F.A.C. *[62-640.100(6)(b) & (c)]*

C. Transfer

9. The permittee shall not be held responsible for treatment and management violations that occur after its biosolids have been accepted by a permitted biosolids treatment facility with which the source facility has an agreement in accordance with subsection 62-640.880(1)(c), F.A.C., for further treatment, management, or disposal. *[62-640.880(1)(b)]*

10. The permittee shall keep hauling records to track the transport of biosolids between the facilities. The hauling records shall contain the following information:

Source Facility	Biosolids Treatment Facility or Treatment Facility
1. Date and time shipped	1. Date and time received
2. Amount of biosolids shipped	2. Amount of biosolids received
3. Degree of treatment (if applicable)	3. Name and ID number of source facility
4. Name and ID Number of treatment facility	4. Signature of hauler
5. Signature of responsible party at source facility	5. Signature of responsible party at treatment facility
6. Signature of hauler and name of hauling firm	

A copy of the source facility hauling records for each shipment shall be provided upon delivery of the biosolids to the biosolids treatment facility or treatment facility. The treatment facility permittee shall report to the Department within 24 hours of discovery any discrepancy in the quantity of biosolids leaving the source facility and arriving at the biosolids treatment facility or treatment facility.

[62-640.880(4)]

D. Receipt

11. If the permittee intends to accept biosolids from other facilities, a permit revision is required pursuant to paragraph 62-640.880(2)(d), F.A.C. *[62-640.880(2)(a)]*

III. GROUND WATER REQUIREMENTS

1. Section III is not applicable to this facility.

IV. ADDITIONAL REUSE AND LAND APPLICATION REQUIREMENTS

1. Section IV is not applicable to this facility.

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V. OPERATION AND MAINTENANCE REQUIREMENTS

A. Staffing Requirements

1. During the period of operation authorized by this permit, the wastewater facilities shall be operated under the supervision of a(n) operator(s) certified in accordance with Chapter 62-602, F.A.C. In accordance with Chapter 62-699, F.A.C., this facility is a Category I, Class B facility and, at a minimum, operators with appropriate certification must be on the site as follows:

   A Class C or higher operator 8 hours/day for 7 days/week. The 8 hours/day of staffing shall occur during the 8-hour period of greatest influent flow. The lead/chief operator must be a Class B operator, or higher.

   [62-620.630(3)][62-699.310][62-699.311(5)(a)2.] [62-610.462]

2. The lead/chief operator shall be employed at the plant full time. "Full time" shall mean at least 4 days per week, working a minimum of 35 hours per week, including leave time. A licensed operator shall be on-site and in charge of each required shift for periods of required staffing time when the lead/chief operator is not on-site. An operator meeting the lead/chief operator class for the treatment plant shall be available during all periods of plant operation. "Available" means able to be contacted as needed to initiate the appropriate action in a timely manner. *[62-699.311(10), (6) and (1)]*

B. Capacity Analysis Report and Operation and Maintenance Performance Report Requirements

1. The application to renew this permit shall include an updated capacity analysis report prepared in accordance with Rule 62-600.405, F.A.C. *[62-600.405(5)]*

2. The application to renew this permit shall include a detailed operation and maintenance performance report prepared in accordance with Rule 62-600.735, F.A.C. *[62-600.735(1)]*

C. Recordkeeping Requirements

1. The permittee shall maintain the following records and make them available for inspection on the site of the permitted facility.
   a. Records of all compliance monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, including, if applicable, a copy of the laboratory certification showing the certification number of the laboratory, for at least three years from the date the sample or measurement was taken;
   b. Copies of all reports required by the permit for at least three years from the date the report was prepared;
   c. Records of all data, including reports and documents, used to complete the application for the permit for at least three years from the date the application was filed;
   d. Monitoring information, including a copy of the laboratory certification showing the laboratory certification number, related to the biosolids use and disposal activities for the time period set forth in Chapter 62-640, F.A.C., for at least five years from the date of sampling or measurement;
   e. A copy of the current permit;
   f. A copy of the current operation and maintenance manual as required by Chapter 62-600, F.A.C.;
   g. A copy of any required record drawings;
   h. Copies of the licenses of the current certified operators;

i. Copies of the logs and schedules showing plant operations and equipment maintenance for three years from the date of the logs or schedules. The logs shall, at a minimum, include identification of the plant; the signature and license number of the operator(s) and the signature of the person(s) making any entries; date and time in and out; specific operation and maintenance activities, including any preventive maintenance or repairs made or requested; results of tests performed and samples taken, unless documented on a laboratory sheet; and notation of any notification or reporting completed in accordance with Rule 62-602.650(3), F.A.C. The logs shall be maintained on-site in a location accessible to 24-hour inspection, protected from weather damage, and current to the last operation and maintenance performed; and

j. Records of biosolids quantities, treatment, monitoring, and hauling for at least five years.

[62-620.350, 62-602.650, 62-640.650(4)]

VI. SCHEDULES

1. The permittee is not authorized to discharge to waters of the state after the expiration date of this permit, unless:

   a. The permittee has applied for renewal of this permit at least 180 days before the expiration date of this permit using the appropriate forms listed in Rule 62-620.910, F.A.C., and in the manner established in the Department of Environmental Protection Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620, F.A.C., including submittal of the appropriate processing fee set forth in Rule 62-4.050, F.A.C.; or

   b. The permittee has made complete the application for renewal of this permit before the permit expiration date.

   Please note, effluent testing shall be conducted for each outfall in accordance with the instructions provided in Sections 3.A.12., 13., and 14. of the application form. A minimum of three samples shall be taken within four and one-half years prior to the date of the permit application and must be representative of the seasonal variation in the discharge from each outfall. *[62-620.335(1) - (4)]*

VII. INDUSTRIAL PRETREATMENT PROGRAM REQUIREMENTS

1. This facility is not required to have a pretreatment program at this time. *[62-625.500]*

VIII. OTHER SPECIFIC CONDITIONS

1. In the event that the treatment facilities or equipment no longer function as intended, are no longer safe in terms of public health and safety, or odor, noise, aerosol drift, or lighting adversely affects neighboring developed areas at the levels prohibited by Rule 62-600.400(2)(a), F.A.C., corrective action (which may include additional maintenance or modifications of the permitted facilities) shall be taken by the permittee. Other corrective action may be required to ensure compliance with rules of the Department. Additionally, the treatment, management, use or land application of residuals shall not cause a violation of the odor prohibition in Rule 62-296.320(2), F.A.C. *[62-600.410(5) and 62-640.400(6)]*

2. The deliberate introduction of stormwater in any amount into collection/transmission systems designed solely for the introduction (and conveyance) of domestic/industrial wastewater; or the deliberate introduction of stormwater into collection/transmission systems designed for the introduction or conveyance of combinations of storm and domestic/industrial wastewater in amounts which may reduce

the efficiency of pollutant removal by the treatment plant is prohibited, except as provided by Rule 62-610.472, F.A.C. *[62-604.130(3)]*

3. Collection/transmission system overflows shall be reported to the Department in accordance with Permit Condition IX. 20. *[62-604.550] [62-620.610(20)]*

4. The operating authority of a collection/transmission system and the permittee of a treatment plant are prohibited from accepting connections of wastewater discharges which have not received necessary pretreatment or which contain materials or pollutants (other than normal domestic wastewater constituents):

   a. Which may cause fire or explosion hazards; or

   b. Which may cause excessive corrosion or other deterioration of wastewater facilities due to chemical action or pH levels; or

   c. Which are solid or viscous and obstruct flow or otherwise interfere with wastewater facility operations or treatment; or

   d. Which result in the wastewater temperature at the introduction of the treatment plant exceeding $40^{o}C$ or otherwise inhibiting treatment; or

   e. Which result in the presence of toxic gases, vapors, or fumes that may cause worker health and safety problems.

   [62-604.130(5)]

5. The treatment facility, storage ponds for Part II systems, rapid infiltration basins, and/or infiltration trenches shall be enclosed with a fence or otherwise provided with features to discourage the entry of animals and unauthorized persons. *[62-600.400(2)(b)]*

6. Screenings and grit removed from the wastewater facilities shall be collected in suitable containers and hauled to a Department approved Class I landfill or to a landfill approved by the Department for receipt/disposal of screenings and grit. *[62-701.300(1)(a)]*

7. Where required by Chapter 471 or Chapter 492, F.S., applicable portions of reports that must be submitted under this permit shall be signed and sealed by a professional engineer or a professional geologist, as appropriate. *[62-620.310(4)]*

8. The permittee shall provide verbal notice to the Department's Southwest District Office as soon as practical after discovery of a sinkhole or other karst feature within an area for the management or application of wastewater, wastewater biosolids (sludges), or reclaimed water. The permittee shall immediately implement measures appropriate to control the entry of contaminants, and shall detail these measures to the Department's Southwest District Office in a written report within 7 days of the sinkhole discovery. *[62-620.320(6)]*

9. The permittee shall provide notice to the Department of the following:

   a. Any new introduction of pollutants into the facility from an industrial discharger which would be subject to Chapter 403, F.S., and the requirements of Chapter 62-620, F.A.C., if it were directly discharging those pollutants; and

   b. Any substantial change in the volume or character of pollutants being introduced into that facility by a source which was identified in the permit application and known to be discharging at the time the permit was issued.

Notice shall include information on the quality and quantity of effluent introduced into the facility and any anticipated impact of the change on the quantity or quality of effluent or reclaimed water to be discharged from the facility.

[62-620.625(2)]

10. Reopener Clause:

    a. The permit shall be revised, or alternatively, revoked and reissued in accordance with the provisions contained in Rules 62-620.325 and 62-620.345, F.A.C., if applicable, or to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2) and 307(a)(2) of the Clean Water Act (the Act), as amended, if the effluent standards, limitations, or water quality standards so issued or approved:
       (1) Contains different conditions or is otherwise more stringent than any condition in the permit/or;
       (2) Controls any pollutant not addressed in the permit.
       (3) The permit as revised or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

    b. The permit may be reopened to adjust effluent limitations or monitoring requirements should future Water Quality Based Effluent Limitation determinations, water quality studies, DEP approved changes in water quality standards, or other information show a need for a different limitation or monitoring requirement.

    c. The Department may develop a Total Maximum Daily Load (TMDL) during the life of the permit. Once a TMDL has been established and adopted by rule, the Department shall revise this permit to incorporate the final findings of the TMDL.

    [62-620.325 & 62-620.345]

IX. GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are binding and enforceable pursuant to Chapter 403, Florida Statutes. Any permit noncompliance constitutes a violation of Chapter 403, Florida Statutes, and is grounds for enforcement action, permit termination, permit revocation and reissuance, or permit revision. *[62-620.610(1)]*

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviations from the approved drawings, exhibits, specifications, or conditions of this permit constitutes grounds for revocation and enforcement action by the Department. *[62-620.610(2)]*

3. As provided in subsection 403.087(7), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor authorize any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit or authorization that may be required for other aspects of the total project which are not addressed in this permit. *[62-620.610(3)]*

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title. *[62-620.610(4)]*

5. This permit does not relieve the permittee from liability and penalties for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted source; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department. The permittee shall take all reasonable steps to minimize or prevent any discharge, reuse of reclaimed water, or residuals use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. *[62-620.610(5)]*

6. If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee shall apply for and obtain a new permit. *[62-620.610(6)]*

7. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control, and related appurtenances, that are installed and used by the permittee to achieve compliance with the conditions of this permit. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to maintain or achieve compliance with the conditions of the permit. *[62-620.610(7)]*

8. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit revision, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. *[62-620.610(8)]*

9. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, including an authorized representative of the Department and authorized EPA personnel, when applicable, upon presentation of credentials or other documents as may be required by law, and at reasonable times, depending upon the nature of the concern being investigated, to:

   a. Enter upon the permittee's premises where a regulated facility, system, or activity is located or conducted, or where records shall be kept under the conditions of this permit;

   b. Have access to and copy any records that shall be kept under the conditions of this permit;

   c. Inspect the facilities, equipment, practices, or operations regulated or required under this permit; and

   d. Sample or monitor any substances or parameters at any location necessary to assure compliance with this permit or Department rules.

   [62-620.610(9)]

10. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data, and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except as such use is proscribed by Section 403.111, F.S., or Rule 62-620.302, F.A.C. Such evidence shall only be used to the extent that it is consistent with the Florida Rules of Civil Procedure and applicable evidentiary rules. *[62-620.610(10)]*

11. When requested by the Department, the permittee shall within a reasonable time provide any information required by law which is needed to determine whether there is cause for revising, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also provide to the Department upon request copies of records required by this permit to be kept. If the permittee becomes aware of relevant facts that were not submitted or were incorrect in the permit

application or in any report to the Department, such facts or information shall be promptly submitted or corrections promptly reported to the Department. *[62-620.610(11)]*

12. Unless specifically stated otherwise in Department rules, the permittee, in accepting this permit, agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard. *[62-620.610(12)]*

13. The permittee, in accepting this permit, agrees to pay the applicable regulatory program and surveillance fee in accordance with Rule 62-4.052, F.A.C. *[62-620.610(13)]*

14. This permit is transferable only upon Department approval in accordance with Rule 62-620.340, F.A.C. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department. *[62-620.610(14)]*

15. The permittee shall give the Department written notice at least 60 days before inactivation or abandonment of a wastewater facility or activity and shall specify what steps will be taken to safeguard public health and safety during and following inactivation or abandonment. *[62-620.610(15)]*

16. The permittee shall apply for a revision to the Department permit in accordance with Rules 62-620.300, F.A.C., and the Department of Environmental Protection Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620, F.A.C., at least 90 days before construction of any planned substantial modifications to the permitted facility is to commence or with Rule 62-620.325(2), F.A.C., for minor modifications to the permitted facility. A revised permit shall be obtained before construction begins except as provided in Rule 62-620.300, F.A.C. *[62-620.610(16)]*

17. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The permittee shall be responsible for any and all damages which may result from the changes and may be subject to enforcement action by the Department for penalties or revocation of this permit. The notice shall include the following information:
    a. A description of the anticipated noncompliance;
    b. The period of the anticipated noncompliance, including dates and times; and
    c. Steps being taken to prevent future occurrence of the noncompliance.

    [62-620.610(17)]

18. Sampling and monitoring data shall be collected and analyzed in accordance with Rule 62-4.246 and Chapters 62-160, 62-600, and 62-610, F.A.C., and 40 CFR 136, as appropriate.
    a. Monitoring results shall be reported at the intervals specified elsewhere in this permit and shall be reported on a Discharge Monitoring Report (DMR), DEP Form 62-620.910(10), or as specified elsewhere in the permit.
    b. If the permittee monitors any contaminant more frequently than required by the permit, using Department approved test procedures, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.
    c. Calculations for all limitations which require averaging of measurements shall use an arithmetic mean unless otherwise specified in this permit.

d. Except as specifically provided in Rule 62-160.300, F.A.C., any laboratory test required by this permit shall be performed by a laboratory that has been certified by the Department of Health Environmental Laboratory Certification Program (DOH ELCP). Such certification shall be for the matrix, test method and analyte(s) being measured to comply with this permit. For domestic wastewater facilities, testing for parameters listed in Rule 62-160.300(4), F.A.C., shall be conducted under the direction of a certified operator.

e. Field activities including on-site tests and sample collection shall follow the applicable standard operating procedures described in DEP-SOP-001/01 adopted by reference in Chapter 62-160, F.A.C.

f. Alternate field procedures and laboratory methods may be used where they have been approved in accordance with Rules 62-160.220, and 62-160.330, F.A.C.

[62-620.610(18)]

19. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule detailed elsewhere in this permit shall be submitted no later than 14 days following each schedule date. *[62-620.610(19)]*

20. The permittee shall report to the Department's Southwest District Office any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance including exact dates and time, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

    a. The following shall be included as information which must be reported within 24 hours under this condition:
        (1) Any unanticipated bypass which causes any reclaimed water or effluent to exceed any permit limitation or results in an unpermitted discharge,
        (2) Any upset which causes any reclaimed water or the effluent to exceed any limitation in the permit,
        (3) Violation of a maximum daily discharge limitation for any of the pollutants specifically listed in the permit for such notice, and
        (4) Any unauthorized discharge to surface or ground waters.

    b. Oral reports as required by this subsection shall be provided as follows:
        (1) For unauthorized releases or spills of treated or untreated wastewater reported pursuant to subparagraph IX.20.(a)4. that are in excess of 1,000 gallons per incident, or where information indicates that public health or the environment will be endangered, oral reports shall be provided to the STATE WATCH OFFICE TOLL FREE NUMBER (800) 320-0519, as soon as practical, but no later than 24 hours from the time the permittee becomes aware of the discharge. The permittee, to the extent known, shall provide the following information to the State Watch Office:
            (a) Name, address, and telephone number of person reporting;
            (b) Name, address, and telephone number of permittee or responsible person for the discharge;
            (c) Date and time of the discharge and status of discharge (ongoing or ceased);
            (d) Characteristics of the wastewater spilled or released (untreated or treated, industrial or domestic wastewater);
            (e) Estimated amount of the discharge;
            (f) Location or address of the discharge;

(g) Source and cause of the discharge;
(h) Whether the discharge was contained on-site, and cleanup actions taken to date;
(i) Description of area affected by the discharge, including name of water body affected, if any; and
(j) Other persons or agencies contacted.

(2) Oral reports, not otherwise required to be provided pursuant to subparagraph IX.20.b.1 above, shall be provided to the Department's Southwest District Office within 24 hours from the time the permittee becomes aware of the circumstances.

c. If the oral report has been received within 24 hours, the noncompliance has been corrected, and the noncompliance did not endanger health or the environment, the Department's Southwest District Office shall waive the written report.

[62-620.610(20)]

21. The permittee shall report all instances of noncompliance not reported under Permit Conditions IX.17., IX.18., or IX.19. of this permit at the time monitoring reports are submitted. This report shall contain the same information required by Permit Condition IX.20. of this permit. *[62-620.610(21)]*

22. Bypass Provisions.

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment works.

b. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless the permittee affirmatively demonstrates that:
(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and
(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
(3) The permittee submitted notices as required under Permit Condition IX.22.c. of this permit.

c. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least 10 days before the date of the bypass. The permittee shall submit notice of an unanticipated bypass within 24 hours of learning about the bypass as required in Permit Condition IX.20. of this permit. A notice shall include a description of the bypass and its cause; the period of the bypass, including exact dates and times; if the bypass has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the bypass.

d. The Department shall approve an anticipated bypass, after considering its adverse effect, if the permittee demonstrates that it will meet the three conditions listed in Permit Condition IX.22.b.(1) through (3) of this permit.

e. A permittee may allow any bypass to occur which does not cause reclaimed water or effluent limitations to be exceeded if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Permit Condition IX.22.b. through d. of this permit.

[62-620.610(22)]

23. Upset Provisions.

a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee.

(1) An upset does not include noncompliance caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, careless or improper operation.
(2) An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of upset provisions of Rule 62-620.610, F.A.C., are met.

b. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:
(1) An upset occurred and that the permittee can identify the cause(s) of the upset;
(2) The permitted facility was at the time being properly operated;
(3) The permittee submitted notice of the upset as required in Permit Condition IX.20. of this permit; and
(4) The permittee complied with any remedial measures required under Permit Condition IX.5. of this permit.

c. In any enforcement proceeding, the burden of proof for establishing the occurrence of an upset rests with the permittee.

d. Before an enforcement proceeding is instituted, no representation made during the Department review of a claim that noncompliance was caused by an upset is final agency action subject to judicial review.

[62-620.610(23)]

Executed in Hillsborough County, Florida.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

Pamala Vazquez
Program Administrator
Permitting & Waste Cleanup Program
Southwest District

FACT SHEET
FOR
STATE OF FLORIDA DOMESTIC WASTEWATER FACILITY PERMIT

PERMIT NUMBER: FL0034789-013 (Minor)

FACILITY NAME: Mid-County WWTP

FACILITY LOCATION: 2299 Spanish Vista Drive, Dunedin, FL 34698-9438
Pinellas County

NAME OF PERMITTEE: Mid-County Services, Inc.

PERMIT WRITER: Astrid Flores Thiebaud/ Sylvia Deputy

1. SUMMARY OF APPLICATION

a. Chronology of Application

Application Number: FL0034789-013-DW1P/NR

Application Submittal Date: January 19, 2016

b. Type of Facility

Domestic Wastewater Treatment Plant

Ownership Type: Private

SIC Code: 4952

c. Facility Capacity

Existing Permitted Capacity:	0.9 mgd Annual Average Daily Flow
Proposed Increase in Permitted Capacity:	0 mgd Annual Average Daily Flow
Proposed Total Permitted Capacity:	0.9 mgd Annual Average Daily Flow

d. Description of Wastewater Treatment

An existing 0.90 million gallons per day (MGD) Annual Average Daily Flow (AADF), Type I, advanced wastewater treatment facility consisting of two separate treatment trains: flow is directed through one static screen, followed by one equalization basin of 200,000 gallons total volume and then a flow splitter box which separates the flow into a 0.30 million gallons per day (MGD) treatment train and 0.60 million gallons per day (MGD) treatment train. The 0.30 million gallons per day (MGD) treatment train consists of six aeration basins, 349,000 gallons of total aeration volume and one clarifier of 92,000 gallons total volume with 1,025 square feet total surface area. The 0.60 million gallons per day (MGD) treatment train consists of two 300,000-gallon aeration basins, 600,000 gallons of total aeration volume and one clarifier of 98,000 gallons total volume with 1,086 square feet total square area. The two treatment trains are combined into four 5,000 gallon clarified effluent holding tanks, three deep-bed denitrification filters of 48,000 gallons total volume and 367 square feet of total surface area, one effluent holding tank of 16,000 gallons total volume, a chlorination/dechlorination chamber of 37,400 gallons total volume comprised of a 34,000 gallon chlorine contact chamber and a 3,400 gallon dechlorination chamber, one aerobic digester of 41,000 gallons total volume, and one sludge holding tank of 43,500 gallons total volume. This facility is operated to provide advanced wastewater treatment and high-level disinfection.

e. Description of Effluent Disposal and Land Application Sites (as reported by applicant)

Surface Water Discharge D-001: An existing 0.90 million gallons per (MGD) Annual Average Daily Flow (AADF) discharge into the Class III Fresh waters of Curlew Creek, WBID 1538A. Curlew Creek flows into WBID 1538 of Curlew Creek Tidal Segment, Class III Marine waters, thence WBID 1528C of Clearwater Harbor (north), Class III Marine waters. The point of discharge is located approximately at latitude 28° 02' 18" N, longitude 82 ° 44' 32" W.

2. SUMMARY OF SURFACE WATER DISCHARGE

a. This facility does not have a new or expanded discharge to surface waters.
b. The Department does not anticipate adverse impacts on threatened or endangered species as a result of permit issuance.
c. The following exceedances were noted during the previous permit cycle:

Date	Parameters	Value	Limit	Units
4/30/2012	Chlorine, Total Residual (min)	0.6	1.0	mg/L
2/29/2012	Chlorine, Total Residual (min)	0.6	1.0	mg/L
10/31/2012	Coliform, Fecal	56	25	#/100mL
4/30/2015	IC25 Statre 7day Chr Ceriodaphnia	<100	100	percent
4/30/2015	IC25 Statre 7Day Chr Pimephales	<100	100	percent
12/31/2014	Nitrogen, Total	17	6.0	mg/L
12/31/2014	Nitrogen, Total	5.2	3.75	mg/L
8/31/2015	Solids, Total Suspended	6.2	5.0	mg/L
2/28/2013	Solids, Total Suspended	5.4	5.0	mg/L

3. BASIS FOR PERMIT LIMITATIONS AND MONITORING REQUIREMENTS

a. This facility is authorized to discharge effluent from Outfall D-001 to Curlew Creek WBID 1538A then WBID 1528C of Clearwater Harbor (north) based on the following:

Parameter	Units	Max /Min	Limit	Statistical Basis	Rationale
Flow	MGD	Max	0.90	Annual Average	62-600.660(1), FAC
Flow	MGD	Max	Report	Monthly Average	62-600.660(1), FAC
BOD, Carbonaceous 5 day, 20C	mg/L	Max	5.0	Annual Average	403.086(4)(a)1. FS & 62-600.740(2)(b)1. FAC
BOD, Carbonaceous 5 day, 20C	mg/L	Max	6.25	Monthly Average	62-600.740(2)(b)2. FAC
BOD, Carbonaceous 5 day, 20C	mg/L	Max	10.0	Single Sample	62-600.740(2)(b)4. FAC
Solids, Total Suspended	mg/L	Max	5.0	Annual Average	403.086(4)(a)2 . FS & 62-600.740(2)(b)1. FAC
Solids, Total Suspended	mg/L	Max	6.25	Monthly Average	62-600.740(2)(b)2. FAC

Parameter	Units	Max /Min	Limit	Statistical Basis	Rationale
Solids, Total Suspended	mg/L	Max	10.0	Single Sample	62-600.740(2)(b)4. FAC
Solids, Total Suspended (Influent)	mg/L	Max	5.0	Single Sample	62-600.440(6)(a)3. FAC
Nitrogen, Total	mg/L	Max	3.0	Annual Average	403.086(4)(a)3. FS & 62-600.740(2)(b)1. FAC
Nitrogen, Total	mg/L	Max	3.75	Monthly Average	62-600.740(2)(b)2. FAC
Nitrogen, Total	mg/L	Max	6.0	Single Sample	62-600.740(2)(b)4. FAC
Phosphorus, Total (as P)	mg/L	Max	1.0	Annual Average	403.086(4)(a)4. FS & 62-600.740(2)(b)1. FAC
Phosphorus, Total (as P)	mg/L	Max	1.25	Monthly Average	62-600.740(2)(b)2. FAC
Phosphorus, Total (as P)	mg/L	Max	2.0	Single Sample	62-600.740(2)(b)4. FAC
pH	s.u.	Min	6.0	Single Sample	62-600.445 FAC & 62-302.530 FAC
pH	s.u.	Max	8.5	Single Sample	62-600.445 FAC & 62-302.530 FAC
Coliform, Fecal, % less than detection	percent	Min	75	Monthly Total	62-600.440(6)(a)1. FAC
Coliform, Fecal	#/100mL	Max	25	Single Sample	62-600.440(6)(a)2. FAC
Chlorine, Total Residual (For Disinfection)	mg/L	Min	1.0	Single Sample	62-600.440(6)(b) FAC
Chlorine, Total Residual (For Dechlorination)	mg/L	Max	0.01	Single Sample	62-600.440(2) & 62-302.530(18) FAC
Oxygen, Dissolved (DO)	mg/L	Min	5.00	Single Sample	62-302.533 FAC
Nitrogen, Total	ton/mth	Max	Report	Monthly Total	62-304.645(13)(a) FAC
Nitrogen, Total	ton/yr	Max	2.12	Annual Total	62-304.645(13)(a) FAC
Chronic Whole Effluent Toxicity, 7-Day IC25 (Ceriodaphnia dubia)	percent	Min	100	Single Sample	62-302.530(20) & (61) FAC and 62-4.241(1)(b) FAC
Chronic Whole Effluent Toxicity, 7-Day IC25 (Pimephales promelas)	percent	Min	100	Single Sample	62-302.530(20) & (61) FAC and 62-4.241(1)(b)

1) Effluent limitations are based on a Level I WQBEL developed by District staff and available in the District permit files. Additionally, effluent limitations are based on Rule 62-302, F.A.C.-Class III Fresh Standards, Rule 62-600, F.A.C. and 403.086, F.S

2) This facility has provided reasonable assurance that the discharge will not adversely affect the designated use of the receiving water. Fifth year inspection data, as well as all other available data, have been evaluated in accordance with the Department's reasonable assurance procedures to ensure that no limits other than those included in this permit are needed to maintain Florida water quality standards.

3) There is a final TMDL for WBID 1538A, Curlew Creek for Fecal Coliform. The TMDL requires the continued attainment of current permit limits.

4) There is a final TMDL for WBID 1538, Curlew Creek Tidal Segment for Dissolved Oxygen, Nutrients (Chlorophyll-a) The TMDL requires the continued attainment of current permit limits. Based on the median TN/TP ratio of 8, total nitrogen is the limiting nutrient. The Wasteload Allocation (WLA) for wastewater point sources for the Mid-County Wastewater Treatment Plant is 4,245 lb/year (2.12 Ton/year) of TN. This TN loading limitation has been added to the permit.

5) The permit requires sampling for total nitrogen and total phosphorus, with permit limits that are established by Florida Statute (403.086, F.S.) and Rule 62-600.740, F.A.C. Total nitrogen and total phosphorus concentration limits remain the same as in the previous permit. There is no increase in permitted surface water discharge capacity for this facility, therefore no increase in nutrient loading is anticipated. The numeric nutrient criteria has been established through the continuation of the concentration limits and the addition of the TN loading

limit established by the TMDL for Curlew Creek WBID 1538. These numeric nutrient limits are sufficient to meet the requirements of Rule 62-302.53, F.A.C.

6) According with Rule 62-600.420, F.A.C., all domestic wastewater facilities are required, at a minimum, to provide secondary treatment of wastewater. New facilities and modifications of existing facilities shall be designed to achieve an effluent after disinfection containing not more than 20 mg/L CBOD5 and 20 mg/L TSS, or 90% removal of each of these pollutants from the wastewater influent, whichever is more stringent. All facilities shall be operated to achieve, at a minimum, the specified effluent limitations (20 mg/L). This facility has continuously met the limits specified in condition I.A.1 of the permit which is the most stringent.

7) There is a statewide TMDL for mercury. This facility is not considered a source of mercury, therefore a mercury minimization plan is not required.

8) This facility is required to conduct chronic toxicity testing of surface water discharges as required in the previous permit. There is a history of passing toxicity tests at this facility.

b. Other Limitations and Monitoring Requirements:

Parameter	Units	Max/ Min	Limit	Statistical Basis	Rationale
Flow	MGD	Max	0.9	Annual Average	62-600.700(2) FAC
Flow	MGD	Max	Report	Monthly Average	62-600.700(2) FAC
Flow	MGD	Max	Report	3-Month Rolling Average	62-600.700(2) FAC
Percent Capacity, (TMADF/Permitted Capacity) x 100	percent	Max	Report	Monthly Average	62-600.405 FAC
BOD, Carbonaceous 5 day, 20C (Influent)	mg/L	Max	Report	Monthly Average	62-600.660(1) FAC
Solids, Total Suspended (Influent)	mg/L	Max	Report	Monthly Average	62-600.660(1) FAC
Monitoring Frequencies and Sample Types	-	-	-	All Parameters	62-4.070 FAC (BPJ)
Sampling Locations	-	-	-	All Parameters	62-600.660 FAC & 62-699 FAC and/or BPJ of permit writer

4. DISCUSSION OF CHANGES TO PERMIT LIMITATIONS

The current wastewater permit for this facility FL0034789-012-DW1P expires on August 4, 2016.

The TN loading limitation has been added to the permit for the finalized TMDL in Curlew Creek.

5. BIOSOLIDS MANAGEMENT REQUIREMENTS

Biosolids generated by this facility may be transferred to BTF or disposed of in a Class I solid waste landfill.

See the table below for the rationale for the biosolids quantities monitoring requirements.

Parameter	Units	Max/ Min	Limit	Statistical Basis	Rationale
Biosolids Quantity (Landfilled)	dry tons	Max	Report	Monthly Total	62-640.650(5)(a)1. FAC
Biosolids Quantity (Transferred)	dry tons	Max	Report	Monthly Total	62-640.650(5)(a)1. FAC
Monitoring Frequency		All Parameters			62-640.650(5)(a) FAC

6. GROUND WATER MONITORING REQUIREMENTS

This section is not applicable to this facility.

7. PERMIT SCHEDULES

Permit renewal information is contained in the permit schedules.

8. INDUSTRIAL PRETREATMENT REQUIREMENTS

At this time, the facility is not required to develop an approved industrial pretreatment program. However, the Department reserves the right to require an approved program if future conditions warrant.

9. ADMINISTRATIVE ORDERS (AO) AND CONSENT ORDERS (CO)

This permit is not accompanied by an AO and this facility has not entered into a CO with the Department.

10. REQUESTED VARIANCES OR ALTERNATIVES TO REQUIRED STANDARDS

No variances were requested for this facility.

11. THE ADMINISTRATIVE RECORD

The administrative record including application, draft permit, fact sheet, public notice (after release), comments received and additional information is available for public inspection during normal business hours at the location specified in item 14. Copies will be provided at a minimal charge per page.

12. CHANGES FROM DRAFT TO FINAL PERMIT

On April 11, 2016, Mid-County Services, Inc. requested a reduction in staffing requirements to 8 hours/day for 7 days/week as specified in Rule 62-699.200(8) and 62-699.311(5)(a)2., FAC. The Department approved the reduction in staffing requirements based on the following:

1. This is an existing domestic wastewater plant that have been in compliance with applicable water quality standards and operation and maintenance requirements for the past year.
2. The facility has a SCADA system as defined in Rule 62-699.200(8), FAC, designed to monitor the various processes and transfer that information electronically to a centrally located monitoring station. This system qualifies as an electronic surveillance system.

The facility description was edited for accuracy.

The DMR reporting information was edited to reflect the new e-reporting requirements, effective December 21, 2016.

13. PROPOSED SCHEDULE FOR PERMIT ISSUANCE

Draft Permit and Public Notice to Applicant	March 16, 2016
Public Comment Period	Beginning: June 8, 2016 Ending: July 8, 2016
Notice of Permit Issuance	July 11, 2016

14. DEP CONTACT

Additional information concerning the permit and proposed schedule for permit issuance may be obtained during normal business hours from:

Astrid Flores Thiebaud
Engineer IV
Southwest District Office
13051 N Telecom Pkwy
Temple Terrace, FL 33637-0926
Telephone No.: (813) 470-5760

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When completed mail this report to: Department of Environmental Protection, Wastewater Compliance Evaluation Section, MS 3551, 2600 Blair Stone Road, Tallahassee, FL 32399-2400

PERMITTEE NAME: Mid-County Services, Inc.
MAILING ADDRESS: 200 Weathersfield Avenue
Altamonte Springs, Florida 32714-4027

FACILITY: Mid-County WWTP
LOCATION: 2299 Spanish Vista Drive
Dunedin, FL 34698-9438

COUNTY: Pinellas
OFFICE: Southwest District

PERMIT NUMBER: FL0034789-013-DW1P/NR

LIMIT: Final
CLASS SIZE: MI
MONITORING GROUP NUMBER: D-001
MONITORING GROUP DESCRIPTION: Discharge of treated effluent., with Influent
RE-SUBMITTED DMR: ☐
NO DISCHARGE FROM SITE: ☐
MONITORING PERIOD From: _____ To: _____

REPORT FREQUENCY: Monthly
PROGRAM: Domestic

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Flow	Sample Measurement										
PARM Code 50050 Y Mon. Site No. FLW-01	Permit Requirement		0.90 (An.Avg.)	MGD						Monthly	Calculated
Flow	Sample Measurement										
PARM Code 50050 1 Mon. Site No. FLW-01	Permit Requirement		Report (Mo.Avg.)	MGD						5 Days/Week	Flow Totalizer
BOD, Carbonaceous 5 day, 20C	Sample Measurement										
PARM Code 80082 Y Mon. Site No. EFD-01	Permit Requirement					5.0 (An.Avg.)		mg/L		Monthly	Calculated
BOD, Carbonaceous 5 day, 20C	Sample Measurement										
PARM Code 80082 1 Mon. Site No. EFD-01	Permit Requirement					6.25 (Mo.Avg.)	10.0 (Max.)	mg/L		Weekly	16-hr FPC
Solids, Total Suspended	Sample Measurement										
PARM Code 00530 Y Mon. Site No. EFD-01	Permit Requirement					5.0 (An.Avg.)		mg/L		Monthly	Calculated
Solids, Total Suspended	Sample Measurement										
PARM Code 00530 1 Mon. Site No. EFD-01	Permit Requirement					6.25 (Mo.Avg.)	10.0 (Max.)	mg/L		Weekly	16-hr FPC

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.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE NO	DATE (mm/dd/yyyy)

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DMR EFFECTIVE DATE: 1st day of the 2nd month following effective date of permit

DEP Form 62-620.910(10), Effective Nov. 29, 1994

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Mid-County WWTP MONITORING GROUP NUMBER: D-001 PERMIT NUMBER: FL0034789-013-DW1P/NR

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	**Quality** or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Solids, Total Suspended	Sample Measurement										
PARM Code 00530 P Mon. Site No. EFB-01	Permit Requirement						5.0 (Max.)	mg/L		4 Days/Week	Grab
Nitrogen, Total	Sample Measurement										
PARM Code 00600 Y Mon. Site No. EFD-01	Permit Requirement					3.0 (An.Avg.)		mg/L		Monthly	Calculated
Nitrogen, Total	Sample Measurement										
PARM Code 00600 1 Mon. Site No. EFD-01	Permit Requirement					3.75 (Mo.Avg.)	6.0 (Max.)	mg/L		Weekly	16-hr FPC
Phosphorus, Total (as P)	Sample Measurement										
PARM Code 00665 Y Mon. Site No. EFD-01	Permit Requirement					1.0 (An.Avg.)		mg/L		Monthly	Calculated
Phosphorus, Total (as P)	Sample Measurement										
PARM Code 00665 1 Mon. Site No. EFD-01	Permit Requirement					1.25 (Mo.Avg.)	2.0 (Max.)	mg/L		Weekly	16-hr FPC
pH	Sample Measurement										
PARM Code 00400 1 Mon. Site No. EFD-01	Permit Requirement				6.0 (Min.)		8.5 (Max.)	s.u.		5 Days/Week	Meter
Coliform, Fecal, % less than detection	Sample Measurement										
PARM Code 51005 A Mon. Site No. EFA-01	Permit Requirement				75 (Min.Mo.Total)			percent		Monthly	Calculated
Coliform, Fecal	Sample Measurement										
PARM Code 74055 A Mon. Site No. EFA-01	Permit Requirement						25 (Max.)	#/100mL		4 Days/Week	Grab
Chlorine, Total Residual (For Disinfection)	Sample Measurement										
PARM Code 50060 A Mon. Site No. EFA-01	Permit Requirement				1.0 (Min.)			mg/L		5 Days/Week	Meter
Chlorine, Total Residual (For Dechlorination)	Sample Measurement										
PARM Code 50060 1 Mon. Site No. EFD-01	Permit Requirement						0.01 (Max.)	mg/L		Weekly	Grab

DMR EFFECTIVE DATE: 1st day of the 2nd month following effective date of permit

DEP Form 62-620.910(10), Effective Nov. 29, 1994

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Mid-County WWTP MONITORING GROUP NUMBER: D-001 PERMIT NUMBER: FL0034789-013-DW1P/NR

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Oxygen, Dissolved (DO)	Sample Measurement										
PARM Code 00300 1 Mon. Site No. EFD-01	Permit Requirement				5.00 (Min.)			mg/L		5 Days/Week	Grab
Nitrogen, Total	Sample Measurement										
PARM Code 00600 A Mon. Site No. EFD-01	Permit Requirement		Report (Mo.Total)	ton/mth						Monthly	Calculated
Nitrogen, Total	Sample Measurement										
PARM Code 00600 P Mon. Site No. EFD-01	Permit Requirement		2.12 (An.Total)	ton/yr						Monthly	Calculated
7-DAY CHRONIC STATRE Ceriodaphnia dubia (Routine)	Sample Measurement										
PARM Code TRP3B P Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		Semi-Annually; twice per year	24-hr FPC
7-DAY CHRONIC STATRE Ceriodaphnia dubia (Additional)	Sample Measurement										
PARM Code TRP3B Q Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		As needed	As required by the permit
7-DAY CHRONIC STATRE Ceriodaphnia dubia (Additional)	Sample Measurement										
PARM Code TRP3B R Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		As needed	As required by the permit
7-DAY CHRONIC STATRE Pimephales promelas (Routine)	Sample Measurement										
PARM Code TRP6C P Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		Semi-Annually; twice per year	24-hr FPC
7-DAY CHRONIC STATRE Pimephales promelas (Additional)	Sample Measurement										
PARM Code TRP6C Q Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		As needed	As required by the permit
7-DAY CHRONIC STATRE Pimephales promelas (Additional)	Sample Measurement										
PARM Code TRP6C R Mon. Site No. EFD-01	Permit Requirement				100 (Min.)			percent		As needed	As required by the permit

DISCHARGE MONITORING REPORT - PART A (Continued)

FACILITY: Mid-County WWTP

MONITORING GROUP NUMBER: D-001

PERMIT NUMBER: FL0034789-013-DW1P/NR

MONITORING PERIOD From: _____ To: _____

Parameter		Quantity or Loading		Units	**Quality** or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Flow	Sample Measurement										
PARM Code 50050 P Mon. Site No. FLW-01	Permit Requirement		0.9 (An.Avg.)	MGD						Monthly	Calculated
Flow	Sample Measurement										
PARM Code 50050 Q Mon. Site No. FLW-01	Permit Requirement	Report (Mo.Avg.)	Report (3Mo.Avg.)	MGD						5 Days/Week	Flow Totalizer
Percent Capacity, (TMADF/Permitted Capacity) x 100	Sample Measurement										
PARM Code 00180 G Mon. Site No. INF-01	Permit Requirement						Report (Mo.Avg.)	percent		Monthly	Calculated
BOD, Carbonaceous 5 day, 20C (Influent)	Sample Measurement										
PARM Code 80082 G Mon. Site No. INF-01	Permit Requirement						Report (Mo.Avg.)	mg/L		Monthly	16-hr FPC
Solids, Total Suspended (Influent)	Sample Measurement										
PARM Code 00530 G Mon. Site No. INF-01	Permit Requirement						Report (Mo.Avg.)	mg/L		Monthly	16-hr FPC

DMR EFFECTIVE DATE: 1st day of the 2nd month following effective date of permit

DEP Form 62-620.910(10), Effective Nov. 29, 1994

000122

SUNSHINE WATER SERVICES COMPANY
APPENDIX D TO EXHIBIT ST-2
WITNESS: SEÁN TWOMEY
PAGE 69 OF 349

DEPARTMENT OF ENVIRONMENTAL PROTECTION DISCHARGE MONITORING REPORT - PART A

When Completed mail this report to: Department of Environmental Protection, Wastewater Compliance Evaluation Section, MS 3551, 2600 Blair Stone Road, Tallahassee, FL 32399-2400

PERMITTEE NAME: Mid-County Services, Inc.
MAILING ADDRESS: 200 Weathersfield Avenue
Altamonte Springs, Florida 32714-4027

FACILITY: Mid-County WWTP
LOCATION: 2299 Spanish Vista Drive
Dunedin, FL 34698-9438

COUNTY: Pinellas
OFFICE: Southwest District

PERMIT NUMBER: FL0034789-013-DW1P/NR

LIMIT: Final
CLASS SIZE: MI
MONITORING GROUP NUMBER: RMP-Q
MONITORING GROUP DESCRIPTION: Biosolids Quantity
RE-SUBMITTED DMR: ☐
NO DISCHARGE FROM SITE: ☐
MONITORING PERIOD From: _____ To: _____

REPORT FREQUENCY: Monthly
PROGRAM: Domestic

Parameter		Quantity or Loading		Units	Quality or Concentration			Units	No. Ex.	Frequency of Analysis	Sample Type
Biosolids Quantity (Transferred)	Sample Measurement										
PARM Code B0007 + Mon. Site No. RMP-1	Permit Requirement		Report (Mo.Total)	dry tons						Monthly	Calculated
Biosolids Quantity (Landfilled)	Sample Measurement										
PARM Code B0008 + Mon. Site No. RMP-2	Permit Requirement		Report (Mo.Total)	dry tons						Monthly	Calculated

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.

NAME/TITLE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT	TELEPHONE NO	DATE (mm/dd/yyyy)

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here):

DMR EFFECTIVE DATE: 1st day of the 2nd month following effective date of permit

DEP Form 62-620.910(10), Effective Nov. 29, 1994

DAILY SAMPLE RESULTS - PART B

Permit Number: FL0034789-013-DW1P/NR Facility: Mid-County WWTP
Monitoring Period From: _____ To: _____

	Flow (MGD) (D-001)	CBOD5 (MG/L)	TSS (MG/L)	TSS (MG/L)	Nitrogen, Total (as N) (MG/L)	Phosphorus, Total (as P) (MG/L)	pH (Min)	pH (Max)	Fecal Coliform Bacteria (#/100ML)	TRC (For Disinfect.) (MG/L)	TRC (For Dechlor.) (MG/L)
Code	50050	80082	00530	00530	00600	00665	00400	00400	74055	50060	50060
Mon. Site	FLW-01	EFD-01	EFD-01	EFB-01	EFD-01	EFD-01	EFD-01	EFD-01	EFA-01	EFA-01	EFD-01
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
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19											
20											
21											
22											
23											
24											
25											
26											
27											
28											
29											
30											
31											
Total											
Mo. Avg.											

PLANT STAFFING:

Day Shift Operator Class: _____ Certificate No: _____ Name: _____

Evening Shift Operator Class: _____ Certificate No: _____ Name: _____

Night Shift Operator Class: _____ Certificate No: _____ Name: _____

Lead Operator Class: _____ Certificate No: _____ Name: _____

DEP Form 62-620.910(10), Effective Nov. 29, 1994

DAILY SAMPLE RESULTS - PART B

Permit Number: FL0034789-013-DW1P/NR Facility: Mid-County WWTP
Monitoring Period From: _____ To: _____

	Oxygen, Dissolved (DO) (MG/L)	Flow (MGD) (Total Plant)	CBOD5 (MG/L)	TSS (MG/L)							
Code	00300	50050	80082	00530							
Mon. Site	EFD-01	FLW-01	INF-01	INF-01							
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
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22											
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25											
26											
27											
28											
29											
30											
31											
Total											
Mo. Avg.											

PLANT STAFFING:

Day Shift Operator Class: _____ Certificate No: _____ Name: _____

Evening Shift Operator Class: _____ Certificate No: _____ Name: _____

Night Shift Operator Class: _____ Certificate No: _____ Name: _____

Lead Operator Class: _____ Certificate No: _____ Name: _____

DEP Form 62-620.910(10), Effective Nov. 29, 1994

INSTRUCTIONS FOR COMPLETING THE WASTEWATER DISCHARGE MONITORING REPORT

Read these instructions before completing the DMR. Hard copies and/or electronic copies of the required parts of the DMR were provided with the permit. All required information shall be completed in full and typed or printed in ink. A signed, original DMR shall be mailed to the address printed on the DMR by the 28th of the month following the monitoring period. Facilities who submit their DMR(s) electronically through eDMR do not need to submit a hardcopy DMR. The DMR shall not be submitted before the end of the monitoring period.

The DMR consists of three parts--A, B, and D--all of which may or may not be applicable to every facility. Facilities may have one or more Part A's for reporting effluent or reclaimed water data. All domestic wastewater facilities will have a Part B for reporting daily sample results. Part D is used for reporting ground water monitoring well data.

When results are not available, the following codes should be used on parts A and D of the DMR and an explanation provided where appropriate. Note: Codes used on Part B for raw data are different.

CODE	DESCRIPTION/INSTRUCTIONS
ANC	Analysis not conducted.
DRY	Dry Well
FLD	Flood disaster.
IFS	Insufficient flow for sampling.
LS	Lost sample.
MNR	Monitoring not required this period.

CODE	DESCRIPTION/INSTRUCTIONS
NOD	No discharge from/to site.
OPS	Operations were shutdown so no sample could be taken.
OTH	Other. Please enter an explanation of why monitoring data were not available.
SEF	Sampling equipment failure.

When reporting analytical results that fall below a laboratory's reported method detection limits or practical quantification limits, the following instructions should be used, unless indicated otherwise in the permit or on the DMR:

1. Results greater than or equal to the PQL shall be reported as the measured quantity.
2. Results less than the PQL and greater than or equal to the MDL shall be reported as the laboratory's MDL value. These values shall be deemed equal to the MDL when necessary to calculate an average for that parameter and when determining compliance with permit limits.
3. Results less than the MDL shall be reported by entering a less than sign ("<") followed by the laboratory's MDL value, e.g. < 0.001. A value of one-half the MDL or one-half the effluent limit, whichever is lower, shall be used for that sample when necessary to calculate an average for that parameter. Values less than the MDL are considered to demonstrate compliance with an effluent limitation.

PART A -DISCHARGE MONITORING REPORT (DMR)

Part A of the DMR is comprised of one or more sections, each having its own header information. Facility information is preprinted in the header as well as the monitoring group number, whether the limits and monitoring requirements are interim or final, and the required submittal frequency (e.g. monthly, annually, quarterly, etc.). Submit Part A based on the required reporting frequency in the header and the instructions shown in the permit. The following should be completed by the permittee or authorized representative:

Resubmitted DMR: Check this box if this DMR is being re-submitted because there was information missing from or information that needed correction on a previously submitted DMR. The information that is being revised should be clearly noted on the re-submitted DMR (e.g. highlight, circle, etc.)
No Discharge From Site: Check this box if no discharge occurs and, as a result, there are no data or codes to be entered for all of the parameters on the DMR for the entire monitoring group number; however, if the monitoring group includes other monitoring locations (e.g., influent sampling), the "NOD" code should be used to individually denote those parameters for which there was no discharge.
Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Sample Measurement: Before filling in sample measurements in the table, check to see that the data collected correspond to the limit indicated on the DMR (i.e. interim or final) and that the data correspond to the monitoring group number in the header. Enter the data or calculated results for each parameter on this row in the non-shaded area above the limit. Be sure the result being entered corresponds to the appropriate statistical base code (e.g. annual average, monthly average, single sample maximum, etc.) and units. Data qualifier codes are not to be reported on Part A.
No. Ex.: Enter the number of sample measurements during the monitoring period that exceeded the permit limit for each parameter in the non-shaded area. If none, enter zero.
Frequency of Analysis: The shaded areas in this column contain the minimum number of times the measurement is required to be made according to the permit. Enter the actual number of times the measurement was made in the space above the shaded area.
Sample Type: The shaded areas in this column contain the type of sample (e.g. grab, composite, continuous) required by the permit. Enter the actual sample type that was taken in the space above the shaded area.
Signature: This report must be signed in accordance with Rule 62-620.305, F.A.C. Type or print the name and title of the signing official. Include the telephone number where the official may be reached in the event there are questions concerning this report. Enter the date when the report is signed.
Comment and Explanation of Any Violations: Use this area to explain any exceedances, any upset or by-pass events, or other items which require explanation. If more space is needed, reference all attachments in this area.

PART B - DAILY SAMPLE RESULTS

Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Daily Monitoring Results: Transfer all analytical data from your facility's laboratory or a contract laboratory's data sheets for all day(s) that samples were collected. Record the data in the units indicated. Table 1 in Chapter 62-160, F.A.C., contains a complete list of all the data qualifier codes that your laboratory may use when reporting analytical results. However, when transferring numerical results onto Part B of the DMR, only the following data qualifier codes should be used and an explanation provided where appropriate.

CODE	DESCRIPTION/INSTRUCTIONS
<	The compound was analyzed for but not detected.
A	Value reported is the mean (average) of two or more determinations.
J	Estimated value, value not accurate.
Q	Sample held beyond the actual holding time.
Y	Laboratory analysis was from an unpreserved or improperly preserved sample.

To calculate the monthly average, add each reported value to get a total. For flow, divide this total by the number of days in the month. For all other parameters, divide the total by the number of observations.
Plant Staffing: List the name, certificate number, and class of all state certified operators operating the facility during the monitoring period. Use additional sheets as necessary.

PART D - GROUND WATER MONITORING REPORT

Monitoring Period: Enter the month, day, and year for the first and last day of the monitoring period (i.e. the month, the quarter, the year, etc.) during which the data on this report were collected and analyzed.
Date Sample Obtained: Enter the date the sample was taken. Also, check whether or not the well was purged before sampling.
Time Sample Obtained: Enter the time the sample was taken.
Sample Measurement: Record the results of the analysis. If the result was below the minimum detection limit, indicate that. Data qualifier codes are not to be reported on Part D.
Detection Limits: Record the detection limits of the analytical methods used.
Analysis Method: Indicate the analytical method used. Record the method number from Chapter 62-160 or Chapter 62-601, F.A.C., or from other sources.
Sampling Equipment Used: Indicate the procedure used to collect the sample (e.g. airlift, bucket/bailer, centrifugal pump, etc.)
Samples Filtered: Indicate whether the sample obtained was filtered by laboratory (L), filtered in field (F), or unfiltered (N).
Signature: This report must be signed in accordance with Rule 62-620.305, F.A.C. Type or print the name and title of the signing official. Include the telephone number where the official may be reached in the event there are questions concerning this report. Enter the date when the report is signed.
Comments and Explanation: Use this space to make any comments on or explanations of results that are unexpected. If more space is needed, reference all attachments in this area.

SPECIAL INSTRUCTIONS FOR LIMITED WET WEATHER DISCHARGES

Flow (Limited Wet Weather Discharge): Enter the measured average flow rate during the period of discharge or divide gallons discharged by duration of discharge (converted into days). Record in million gallons per day (MGD).
Flow (Upstream): Enter the average flow rate in the receiving stream upstream from the point of discharge for the period of discharge. The average flow rate can be calculated based on two measurements; one made at the start and one made at the end of the discharge period. Measurements are to be made at the upstream gauging station described in the permit.
Actual Stream Dilution Ratio: To calculate the Actual Stream Dilution Ratio, divide the average upstream flow rate by the average discharge flow rate. Enter the Actual Stream Dilution Ratio accurate to the nearest 0.1.
No. of Days the SDF > Stream Dilution Ratio: For each day of discharge, compare the minimum Stream Dilution Factor (SDF) from the permit to the calculated Stream Dilution Ratio. On Part B of the DMR, enter an asterisk (*) if the SDF is greater than the Stream Dilution Ratio on any day of discharge. On Part A of the DMR, add up the days with an "*" and record the total number of days the Stream Dilution Factor was greater than the Stream Dilution Ratio.
$CBOD_5$: Enter the average $CBOD_5$ of the reclaimed water discharged during the period shown in duration of discharge.
TKN: Enter the average TKN of the reclaimed water discharged during the period shown in duration of discharge.
Actual Rainfall: Enter the actual rainfall for each day on Part B. Enter the actual cumulative rainfall to date for this calendar year and the actual total monthly rainfall on Part A. The cumulative rainfall to date for this calendar year is the total amount of rain, in inches, that has been recorded since January 1 of the current year through the month for which this DMR contains data.
Rainfall During Average Rainfall Year: On Part A, enter the total monthly rainfall during the average rainfall year and the cumulative rainfall for the average rainfall year. The cumulative rainfall for the average rainfall year is the amount of rain, in inches, which fell during the average rainfall year from January through the month for which this DMR contains data.
No. of Days LWWD Activated During Calendar Year: Enter the cumulative number of days that the limited wet weather discharge was activated since January 1 of the current year.
Reason for Discharge: Attach to the DMR a brief explanation of the factors contributing to the need to activate the limited wet weather discharge.

APPENDIX B: Equipment Proposals and Supporting Documentation

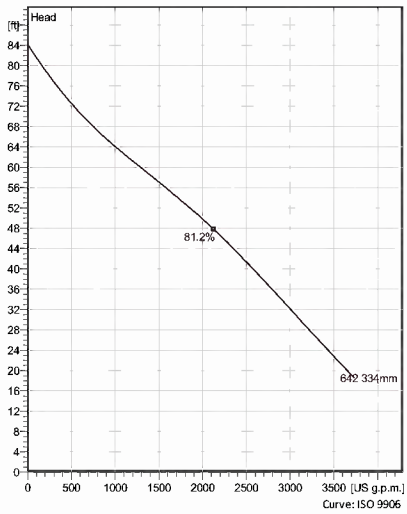
NP 3202 MT 3~ 642

Patented self cleaning semi-open channel impeller, ideal for pumping in waste water applications. Possible to be upgraded with Guide-pin® for even better clogging resistance. Modular based design with high adaptation grade.

FLYGT
a xylem brand

Technical specification

Curves according to: Water, pure [100%],39.2 °F,62.42 lb/ft³,1.6891E-5 ft²/s



Configuration

Motor number
N3202.185 30-23-6AA-W 45hp

Installation type
P - Semi permanent, Wet

Impeller diameter
334 mm

Discharge diameter
7 7/8 inch

Pump information

Impeller diameter
334 mm

Discharge diameter
7 7/8 inch

Inlet diameter
250 mm

Maximum operating speed
1175 rpm

Number of blades
2

Materials

Impeller
Hard-Iron ™

Project	**Created by**		**Last update**
Block	**Created on**	2/4/2020	

NP 3202 MT 3~ 642

Technical specification

FLYGT a xylem brand

Motor - General

Motor number N3202.185 30-23-6AA-W 45hp	**Phases** 3~	**Rated speed** 1175 rpm	**Rated power** 45 hp
Approval No	**Number of poles** 6	**Rated current** 55 A	**Stator variant** 1
Frequency 60 Hz	**Rated voltage** 480 V	**Insulation class** H	**Type of Duty** S1

Motor - Technical

Power factor - 1/1 Load 0.82	**Motor efficiency - 1/1 Load** 90.2 %	**Total moment of inertia** 10.5 lb ft²	**Starts per hour max.** 30
Power factor - 3/4 Load 0.77	**Motor efficiency - 3/4 Load** 90.6 %	**Starting current, direct starting** 350 A	
Power factor - 1/2 Load 0.66	**Motor efficiency - 1/2 Load** 89.7 %	**Starting current, star-delta** 117 A	

Project	**Created by**		**Last update**
Block	**Created on**	2/4/2020	

NP 3202 MT 3~ 642

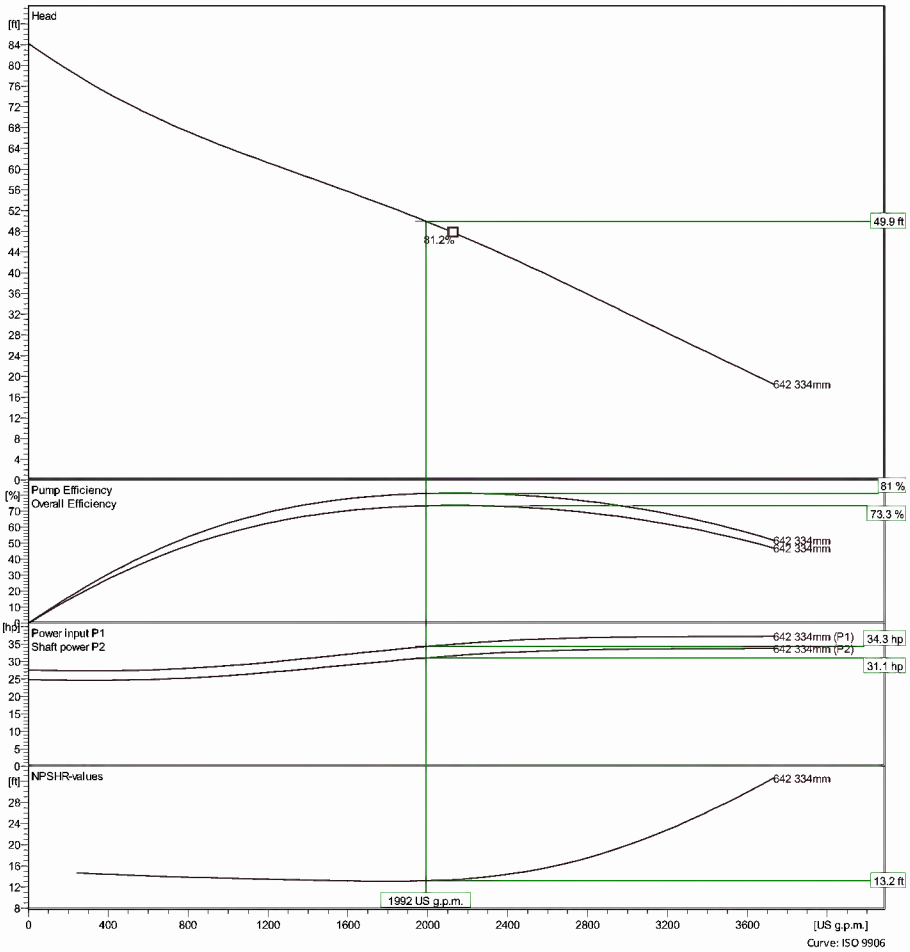
Performance curve

FLYGT a xylem brand

Duty point

Flow	Head
1990 US g.p.m.	49.9 ft

Curves according to: Water, pure [100%], 39.2 °F, 62.42 lb/ft³, 1.6891E-5 ft²/s



Project	Created by	Last update
Block	Created on 2/4/2020	

NP 3202 MT 3~ 642

Duty Analysis

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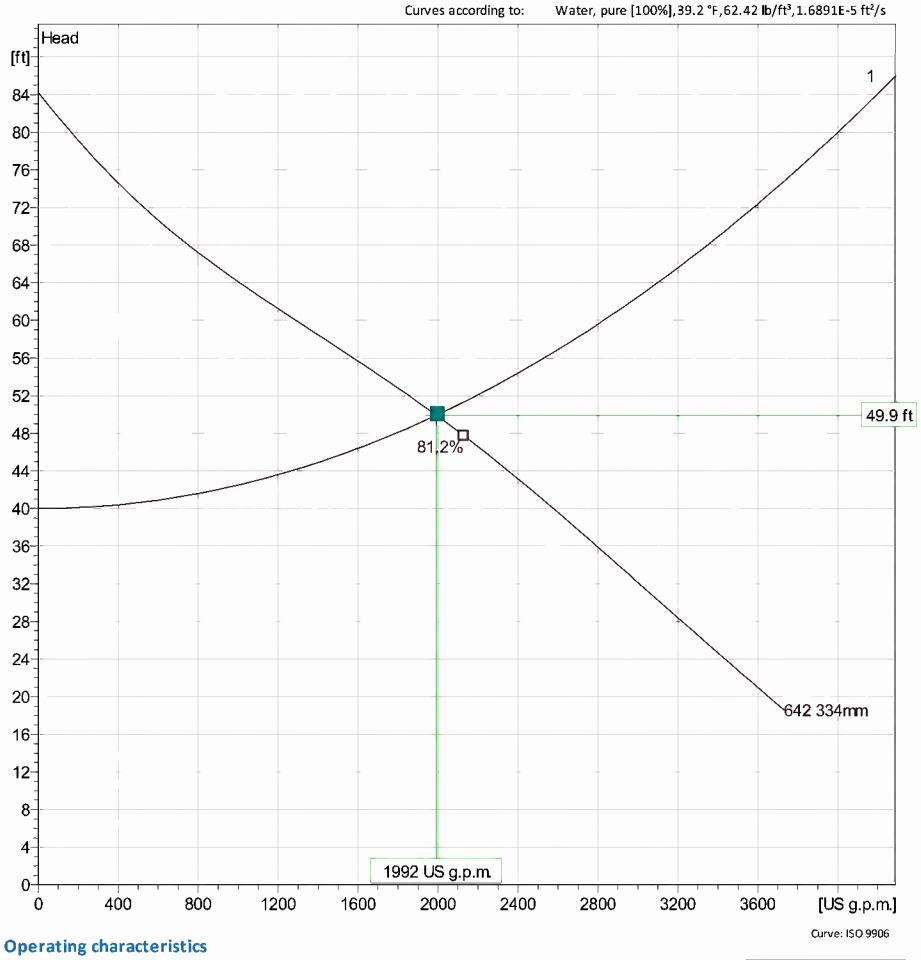
Curves according to: Water, pure [100%],39.2 °F,62.42 lb/ft³,1.6891E-5 ft²/s



Curve: ISO 9906

Operating characteristics

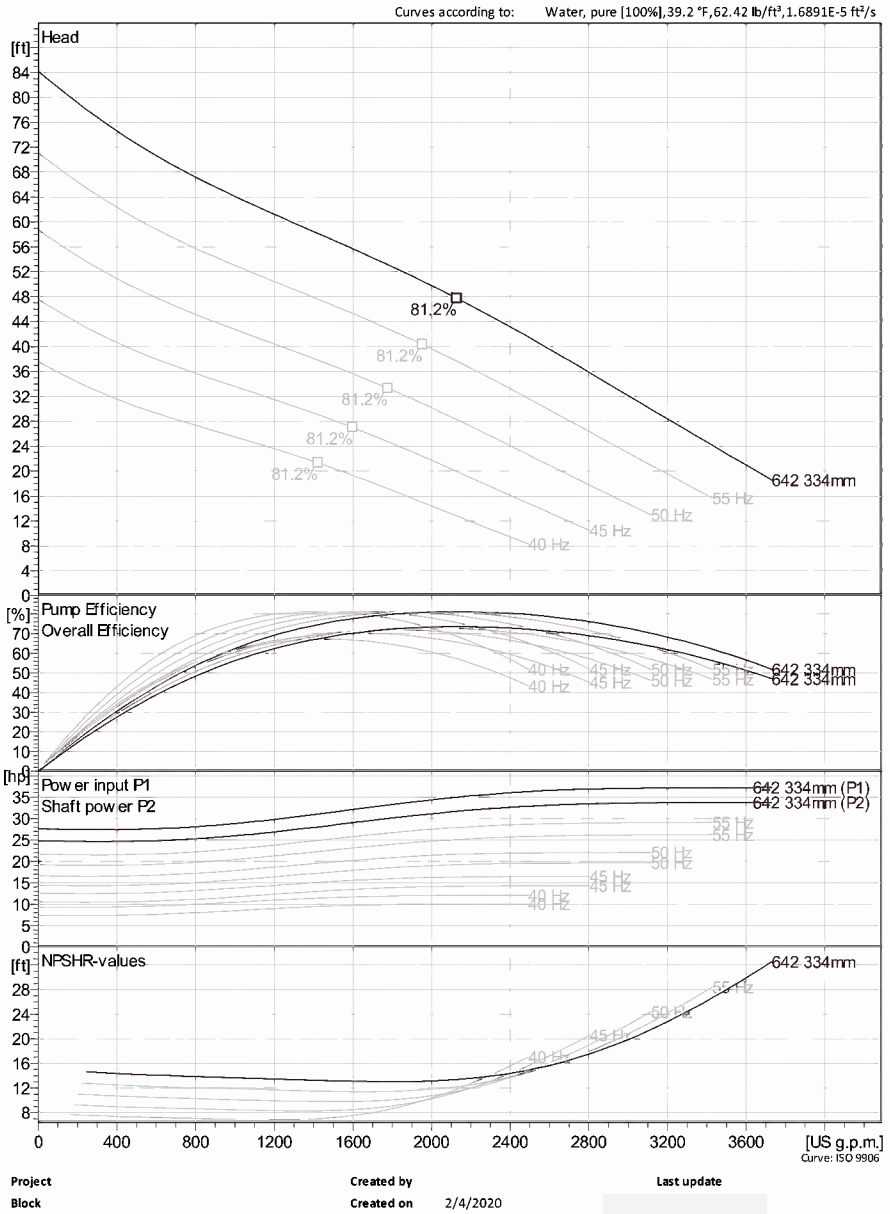
Pumps/Systems	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific energy	NPSHr
1	1990 US g.p.m.	49.9 ft	31.1 h	1990 US g.p.m.	49.9 ft	31.1 hp	81 %	214 kWh/US M	13.2 ft

Project		Created by	Last update
Block		Created on	2/4/2020

NP 3202 MT 3~ 642

VFD Curve

FLYGT
a xylem brand

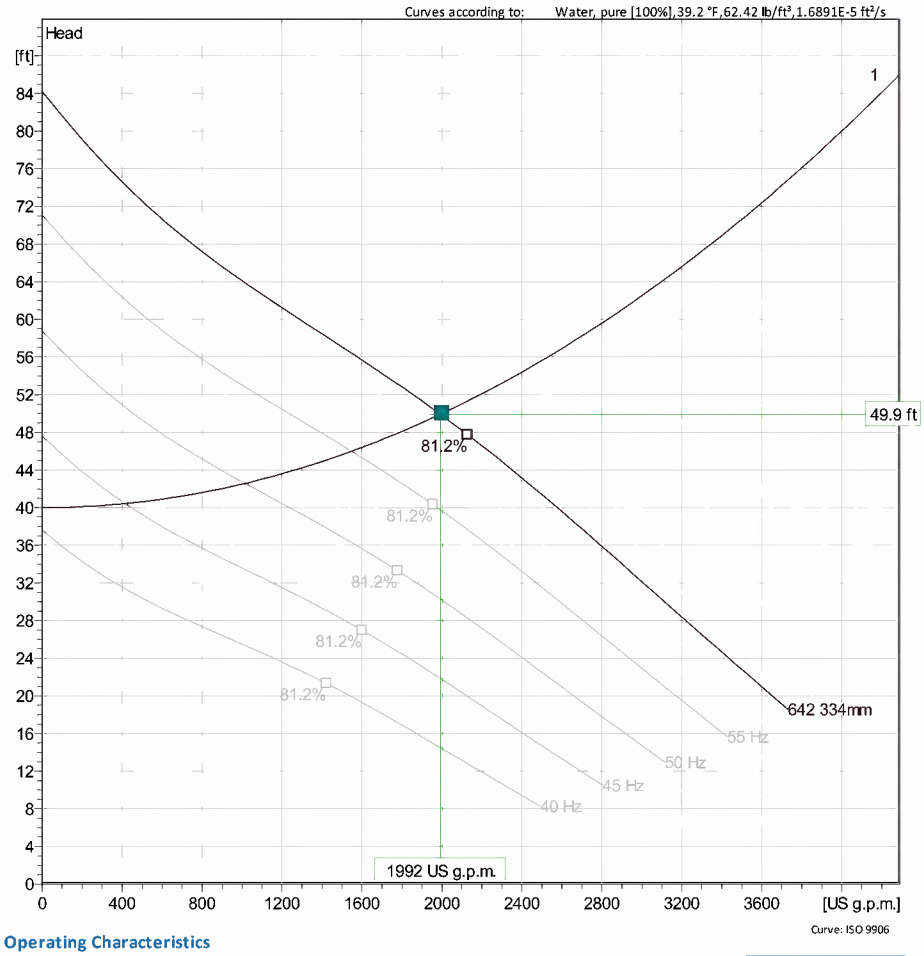


Project	**Created by**	**Last update**
Block	**Created on** 2/4/2020	

NP 3202 MT 3~ 642

VFD Analysis

FLYGT
a xylem brand



Operating Characteristics

Pumps/Systems	Frequency	Flow	Head	Shaft power	Flow	Head	Shaft power	Hydr.eff.	Specific energy	NPSHr
1	59.9 Hz	1990 US g.p.m	49.9 ft	31.1 hp	1990 US g.p.m	49.9 ft	31.1 hp	81 %	214 kWh/US M	13.2 ft
1	55 Hz	1500 US g.p.m	45.6 ft	22.1 hp	1500 US g.p.m	45.6 ft	22.1 hp	78.3 %	204 kWh/US M	11.3 ft
1	50 Hz	966 US g.p.m.	42.3 ft	15.2 hp	966 US g.p.m	42.3 ft	15.2 hp	68.2 %	223 kWh/US M	10 ft
1	45 Hz	374 US g.p.m.	40.3 ft	10.2 hp	374 US g.p.m	40.3 ft	10.2 hp	37.2 %	406 kWh/US M	8.9 ft
1	40 Hz									

Project		**Created by**	**Last update**
Block		**Created on**	2/4/2020

NP 3202 MT 3~ 642

Dimensional Drawing

FLYGT
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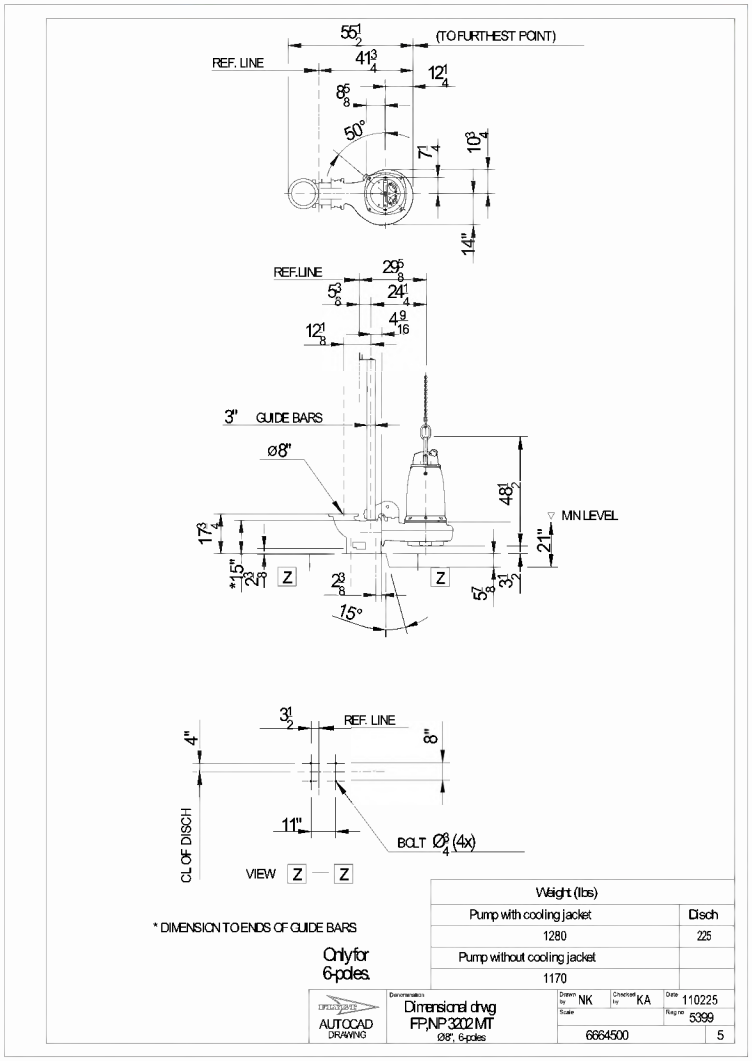


Project	**Created by**		**Last update**
Block	**Created on**	2/4/2020	

HUBER TECHNOLOGY
WASTE WATER Solutions

Huber Technology, Inc.
9735 Northcross Center Court
Suite A
Huntersville, NC 28078
Office 704-949-1010
Fax 704-949-1020

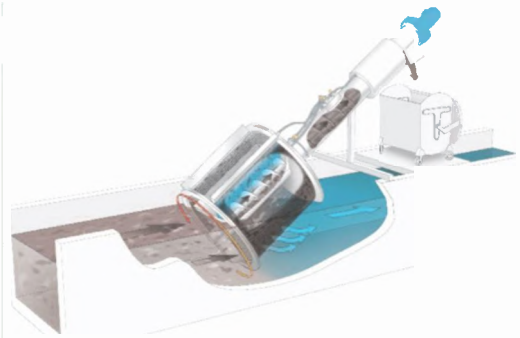
Project:	Mid-County, FL
Equipment:	Rotamat RPPS STAR-1000-1
Proposal Date:	October 30, 2019
Revision:	0

Scope of Supply

ROTAMAT RPPS Design Information

ROTAMAT RPPS Technical Data

Peak Flow	2 (88)	*MGD (l/s)*
TSS level	250	*mg/l TSS*
Nominal Screen Channel Width	40 (1000)	Inch (mm)



ROTAMAT RPPS Details

Model	***Rotamat RPPS STAR-1000-2***
Quantity	1
Material	316L Stainless Steel Construction; picked and passivated in acid bath
Mounted design	Channel Mounted design
	Shafted screw with integrated maintenance free bearing
Basket Size	35° inclined STAR corrugated screen basket; width: 40 inches (1000) mm
Screen Opening	Corrugated Perforated plate circular opening size: 2 mm "
Press Zone	One (1) solenoid valves for compaction zone, 1-inch, 120 VAC, 2-way stainless steel body, Class 1 Division 1
Spray bar	Two (2) solenoid valves for dual alternating spray bars, 1-inch 120 VAC, 2-way stainless steel body, Class 1 Division 1
Level Sensor	Ultrasonic level sensor
RPPS Design	35° inclined auger tube
Motor	2HP, 120 VAC, 3ph, 60 Hz, S.F. 1.0, Class 1 Division 1
Supports	316L Stainless Steel Construction
Anchor Bolts	M12 316L, Included
Control Panel(s)	NEMA 4X Stainless Steel Enclosure, Allen Bradley PLC, Allen Bradley PanelView OIU, Huber Standard Components, Preprogrammed and Factory Tested

Pricing

EQUIPMENT	MODEL	QUANTITY	PRICE
ROTAMAT RPPS Perforated Plate Screens	Rotamat RPPS STAR-1000-2	1	Included
RPPS Spare Parts		1	Included
Control Panel RPPS		1	Included
Manufacturer's services		1	Included
		TOTAL:	**$165,000.00**

Thank you for your interest in Huber Technology, Inc.'s ROTAMAT RPPS unit. If you have any questions, please do not hesitate to contact our Regional Sales Director or our local sales representative.

Huber Sales

Name: Brian Baker
Title: Regional Sales Director - East
Phone: 704-840-3085
Email: Brian.Baker@hhusa.net

Representative

Firm: Moss Kelly
Name: Cameron Young
Phone: 425-392-0491
Email: cjy@mosskelley.com

Technical Clarifications

1. Detailed equipment specification, drawing, and formalization proposal are available upon request

2. If there are site-specific hydraulic constraints that must be applied, please consult the manufacturer's representative to ensure compatibility with the proposed system

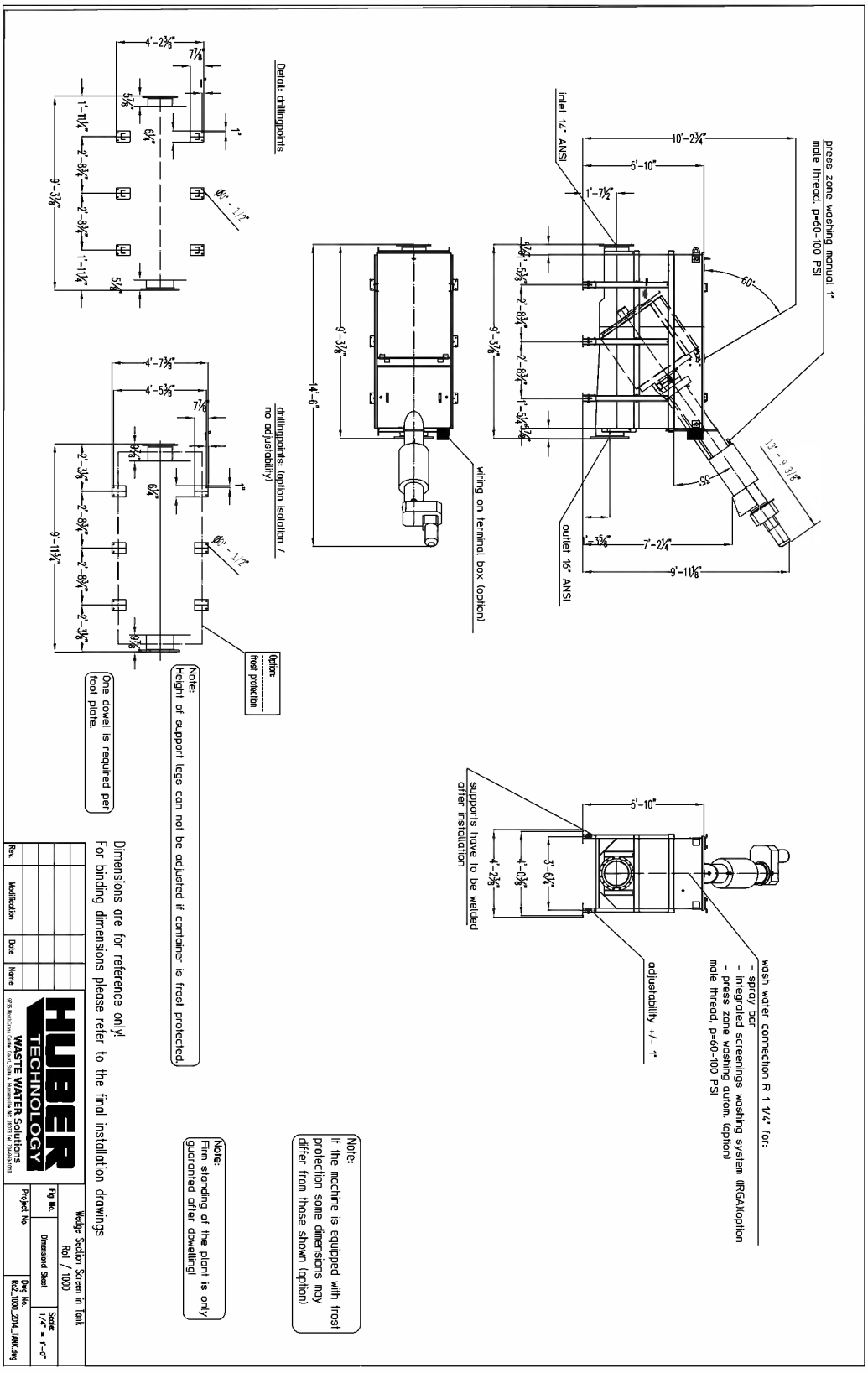
5. Budget estimate is based on Huber Technology's standard Terms & Conditions and is quoted in US$ unless otherwise stated. Any deviation from these standards may result in a price adder.

6. Huber has estimated the Control Panel cost based information provided with the RFQ. If control panel information is not provided with RFQ Huber will use a cost and scope of supply based on our standard panel. Huber reserves the right to change the price and scope at time of bid based on the final plans and specifications.

7. All items listed as "Available Options" are not included in the budgetary pricing.

8. Equipment that is broken out in "Pricing" tab are only valid when packaged together

9. All of Huber's standard machines and systems are manufactured from 304L stainless steel unless otherwise noted. Huber makes no representation or warranties concerning the service life of the equipment against abrasion or corrosion. The concentration of chloride and hydrogen sulfide (H2S) in the equipment operating environment shall be kept below the following values: a. Chloride < 200 mg/l b. Hydrogen sulfide (H2S) < 6ppm


press zone washing manual 1"
male thread, p=60-100 PSI
inlet 14" ANSI
outlet 16" ANSI
wash water connection R 1 1/4" for:
- spray bar
- integrated screenings washing system (RGA)(option
- press zone washing autom. (option)
male thread, p=60-100 PSI
adjustability +/- 1"
supports have to be welded after installation
wiring on terminal box (option)
Detail: drillingpoints
drillingpoints: (option isolation / no adjustability)
Option:
frost protection
Note:
Height of support legs can not be adjusted if container is frost protected
One dowel is required per foot plate.
Note:
If the machine is equipped with frost protection some dimensions may differ from those shown (option)
Note:
Firm standing of the plant is only guaranted after dowelling!
Dimensions are for reference only!
For binding dimensions please refer to the final installation drawings
HUBER TECHNOLOGY
WASTE WATER Solutions
Rev.
Modification
Date
Name
Wedge Section Screen in Tank
RoS / 1000
Fig No.
Dimensioned Sheet
Scale:
1/4" = 1'-0"
Project No.
Dwg No.
RoS_1000_2014_TANK.dwg

Headworks®

Prepared for:

Mid County WWTP Headworks

Submitted by:

Headworks® Inc.

January 29, 2019

HUB
Statewide Historically Underutilized Business Program

Project Name:	Mid County WWTP
State/Country:	FL
Rep.Company:	EES Florida -
Offer:	B-2019-00041
Date Offer:	29-Jan-19
	V3.4

Budget Offer # B-2019-00041
Mid County WWTP Headworks

Thank you for your request for a screen and screenings handling package proposal. Headworks is pleased to offer you the Headworks MS Series Bar Screen Model MS2 and Headworks Eliminator Screen for this project.

The Headworks® Bar Screen Model MS2 design offers the following features:

- Stainless Steel Construction - for corrosion resistance
- Low Profile - requires less than 8 feet of head space
- Low Headloss - even with 1/4 inch openings
- High Hydraulic Capacity - about 2 MGD per ft^2 of screen area
- Electronically Controlled Automatic Reverse - to remove obstructions

The Headworks® Eliminator™ Band Screen design offers the following features:

- Stainless Steel Construction - for corrosion resistance
- Low Profile - requires less than 8 feet of head space
- Perforations as small as 2mm
- Dual Surge™ Spray Wash System
- Discharge through Sluice or Spiral Conveyance

Enclosed are our Design Specifications, Budget Offer, Scope of Supply, and General Terms and Conditions, which complete the offer. If you have any questions or comments, please do not hesitate to contact our local Sales Representative, or our office.

Yours Sincerely,

Fernando Torres
Headworks Inc.
Sales Engineer

HUB
Statewide Historically Underutilized Business Program

Project Name:	Mid County WWTP
State/Country:	FL
Rep.Company:	EES Florida -
Offer:	B-2019-00041
Date Offer:	29-Jan-19
	V3.4

Sales Representative:

Cory N. Peavy
EES Florida - Environmental Equipment Services
3616 Harden Blvd #337
Lakeland, FL 33803
+1 (863)450-3595

Project Summary:

Equipment	Item	Units	US $
Bar Screen MS2	1	1	135,189
Eliminator™ Band Screen	2	1	175,588
TOTAL PROJECT COSTS			**310,777**

Project Name:	Mid County WWTP
State/Country:	FL
Rep.Company:	EES Florida -
Offer:	B-2019-00041
Date Offer:	29-Jan-19
	V3.4

Item:	1
Type of Product	Bar Screen MS2

Project Name:	Mid County WWTP Headworks	
Offer Number:	B-2019-00041	
Item Number:	1	
No. of Screens:	1	
Screen Data	**Feet**	**Meter**
SOL Screen Overall Length (approx.)	11.46	3.49
OF Operating Floor to Channel Invert	4.00	1.22
CD Channel Depth	4.00	1.22
CW Channel Width	2.50	0.76
SW Screen Total Width (approx.)	2.34	0.71
SFW Screen Field Width (approx.)	1.52	0.46
WD Water Depth	2.00	0.61
DH Discharge Height (approx.)	4.00	1.22
SFH Screen Field Height	2.66	0.81
BS Bar spacing	0.19 inch	4.76 mm
Wall Recess	NO	
Floor Recess	NO	
Screen grouted when in recess	NO	
# of Sections/Pieces	1	
Material	SS 304	
Chain Roller Type	Stainless	
Top Enclosed	Yes	
Installation Angle (Degree)	75 deg	
Weight (per screen)	2103 lb	954 kg
Pull Out Type	Yes	
Pivot Type	NO	
Q max. Specified	1.20 mgd	0.05 m3/s
Q max. (v-Ch. = 0.9m/sec or 3'/s)	4.56 mgd	0.21 m3/s
Q max. (v-Ch. = 0.6m/sec or 2'/s)	3.04 mgd	0.14 m3/s
Headloss at 2'/sec channel velocity	9.44 inch	23.97 cm
Headloss at 3'/sec channel velocity	11.24 inch	28.54 cm

Screen Scope of Supply	Supplied
Headworks Bar Screen MS2	YES
Spare Parts	NO
Stainless Steel Box	YES
Control Panel (Main NEMA 4X & Local NEMA 7)	YES
Ultrasonic Level Sensor	YES
Interconnecting Wiring	NO
Training (O&M)	YES

Project Name:	Mid County WWTP
State/Country:	FL
Rep.Company:	EES Florida -
Offer:	B-2019-00041
Date Offer:	29-Jan-19
	V3.4

Item:	**2**
Type of Product	**Eliminator™ Band Screen**

Project Name:	**Mid County WWTP Headworks**	
Offer Number:	**B-2019-00041**	
Item Number:	**2**	
No. of Screens	**1**	
Screen Data	**Feet**	**Meter**
SOH Screen Overall Height (approx.)	12.78	3.90
CD Channel Depth	4.50	1.37
CW Channel Width	4.50	1.37
SW Screen Total Width	4.82	1.47
SEL Screen Element Length	4.00	1.22
WD Water Depth	2.00	0.61
DL Discharge Level (approx.)	5.00	1.52
Opening Size in Inch/mm	0.08 inch	2.00 mm
Wall Recess	NO	
Floor Recess	NO	
Material	SS 304	
Design	Standard	
Top Enclosed	Yes	
Installation Angle (Degree)	90.00	
Weight [lb,kg] (per screen)	2,471	1,121
Pull Out Type	Yes	
Pivot Type	Yes	
Q max. Specified	1.20 mgd	0.05 m3/s
Q max. (v-Ch. = 2'/s) mgd/m3s	11.99	0.53
Headloss at 2'/sec flow speed [inch/cm]	10.86 inch	27.58 cm

Screen Scope of Supply	**Supplied**
Eliminator	YES
Spare Parts	NO
Control Panel (Main NEMA 4X & Local NEMA 7)	YES
Ultrasonic Level Sensor	YES
Interconnecting Wiring	NO
Training (O&M)	YES

Project Name:	Mid County WWTP
State/Country:	FL
Rep.Company:	EES Florida -
Offer:	B-2019-00041
Date Offer:	29-Jan-19
	V3.4

GENERAL TERMS AND CONDITIONS

Applicable Terms

These terms govern the purchase and sale of the equipment and related services. If any (collectively, "Equipment") referred to in Seller's quotation, proposal or acknowledgement, as the case may be (Seller's "Documentation"). Whether these terms are included in an offer or an acceptance by Seller, such offer or acceptance is conditioned on Buyer's assent to these terms. Seller rejects all additional or different terms in any of Buyer's forms documents.

Pricing

The price of the Equipment is based upon the following conditions:

20% Upon Approval of Submittals
75% due net 30 days from date of equipment shipment
5% Retainage due net 30 days from date of Start-Up, but no later than 180 days from shipment

Pricing is based on receipt of a Purchase Order within 60 days from the date of this Offer and shipment of the equipment not later than 12 months from the date of this Offer. In the event Buyer cannot take the equipment within the stipulated time, the price will escalate 0.5% per month thereafter. All storage costs are for the account of the Buyer.

These terms are independent of and not contingent upon the time and manner in which the purchaser receives payment from the site owner or any other person. Acceptance of order subject to credit approval. All monies not paid when due shall bear interest from the due date to the date paid either (i) at the fluctuating rate of 3% above the Prime Rate as defined below or (ii) the highest rate allowed by law, whichever is lesser. "Prime Rate" is the prime rate in effect on the first business day of the month in which a change occurs, as published in the Wall Street Journal on the next business day.

Validity of Quotation

60 days from date of offer.

Bonds

Unless specifically stated in our Offer, No Performance Bonds, Payment Bonds, Supply Bonds, Maintenance or any other type of Bonds and any related expenses are included. Any acceptance to provide Bonds will only be considered prior to the Offer.

Ownership of Material

All devises, designs (including drawings, plans and specifications), estimates, prices, notes, electronic data and other documents or information prepared or disclosed by Seller, and all related intellectual property rights, shall remain Seller's properties. Seller grants Buyer a non-exclusive, non transferable license to use any such material solely for Buyer's use of the equipment. Buyer shall not disclose any such material to third parties without Seller's prior written consent.

Changes

Seller shall not implement any changes in the scope of work described in Seller's documentation unless Buyer and Seller agree in writing to the details of the changes and any resulting price, schedule, or contractual modifications. This includes any changes necessitated by a change in applicable law occurring after the effective date of any contract including these terms.

Project Name:	Mid County WWTP
State/Country:	FL
Rep.Company:	EES Florida -
Offer:	B-2019-00041
Date Offer:	29-Jan-19
	V3.4

Stainless Steel Price Increases

All Orders accepted, are subject to the following terms:

Headworks® Inc. reserves the right to adjust the price of the equipment based on increases in the price of stainless steel. This increase would be based on stainless steel price increases (including surcharges) as published monthly in the U.S. with the base price being that price (including surcharges, if any) published on the date of this offer. Such price increase only affects the cost of the stainless steel material portion of the affected equipment.

Force Majeure

"Force Majeure" shall mean any act or event which is outside the reasonable control of a party including, without prejudice to the foregoing generality, Acts of God, epidemics, tidal waves, explosions, lightning, earthquakes, hurricanes, wars (whether declared or not), riots, strikes and industrial actions (other than among the employees of party seeking to rely on such event, or its subcontractor), civil and military disturbances and unrest, acts of the public enemy, action or inaction of the government or governmental authorities or of representatives thereof. If Headworks is prevented from or delayed in performing its obligations as a result of Force Majeure, such prevention or delay shall not be considered a breach of the Agreement, but shall for the duration of such event relieve Headworks of its respective obligations thereunder. Should the Force Majeure suspension period last for more than one (1) month, Headworks may terminate this quote or agreement.

Freight Terms

Equipment is sold FOB point of manufacture with freight included in the above price to the nearest specified destination, provided suitable access roads exist for the delivery carrier(s).

Shipment Schedule

16 - 20 weeks ex works after receipt of approved submittal drawings.

Start-Up and Operator Training

1 trip of up to 3 consecutive days included, per Screen.

Submittals

Technical submittal drawings for review, authority examination and approval shall be furnished to the buyer within 3 - 4 weeks of order acceptance. The buyer shall approve the submittals within 4 weeks from receipt, otherwise the Stainless Steel Price Increases clause described above will become applicable.

Taxes

Federal, state and local taxes, if any, are not included in the above prices. All applicable taxes are for the purchaser's account.

Patent Protection

Various Headworks equipment contain proprietary information covered by a number of patents and patents pending in the USA and in many international countries. For a full list of the approved patents, please contact Headworks Inc. Legal department in Houston, Texas.

Project Name:	Mid County WWTP
State/Country:	FL
Rep.Company:	EES Florida -
Offer:	B-2019-00041
Date Offer:	29-Jan-19
	V3.4

Headworks® Bar Screen Warranty

The seller warrants all equipment of its own manufacture to be free of defects caused by faulty material or workmanship for a period of eighteen (18) months from date of shipment or twelve (12) months from date of start-up, whichever first occurs. Headworks will replace or repair any part or parts which upon examination shall show to have failed under normal use and service by the original user within the warranty period. This warranty does not apply to equipment or parts thereof which have been altered or repaired other than by a representative of Headworks, or damaged by improper installation, application, erosion or corrosion of any sort, or subjected to misuse, abuse, neglect or accident.

THIS WARRANTY, INCLUDING THE STATED REMEDIES, IS EXPRESSLY MADE BY HEADWORKS AND ACCEPTED BY PURCHASER IN LIEU OF ALL OTHER WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHETHER WRITTEN, ORAL, EXPRESS, IMPLIED, OR STATUTORY. HEADWORKS NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITIES WITH RESPECT TO ITS EQUIPMENT. HEADWORKS SHALL NOT BE LIABLE FOR NORMAL WEAR AND TEAR, NOR FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGE DUE TO INOPERABILITY OF ITS EQUIPMENT FOR ANY REASON NOR ANY CLAIM THAT ITS EQUIPMENT WAS NEGLIGENTLY DESIGNED OR MANUFACTURED.

Eliminator™ Warranty

The seller warrants all equipment of its own manufacture to be free of defects caused by faulty material or workmanship for a period of eighteen (18) months from date of shipment or twelve (12) months from date of start-up, whichever first occurs. Headworks will replace or repair any part or parts which upon examination shall show to have failed under normal use and service by the original user within the warranty period. This warranty does not apply to equipment or parts thereof which have been altered or repaired other than by a representative of Headworks, or damaged by improper installation, application, erosion or corrosion of any sort, or subjected to misuse, abuse, neglect or accident.

THIS WARRANTY, INCLUDING THE STATED REMEDIES, IS EXPRESSLY MADE BY HEADWORKS AND ACCEPTED BY PURCHASER IN LIEU OF ALL OTHER WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHETHER WRITTEN, ORAL, EXPRESS, IMPLIED, OR STATUTORY. HEADWORKS NEITHER ASSUMES NOR AUTHORIZES ANY OTHER PERSON TO ASSUME FOR IT ANY OTHER LIABILITIES WITH RESPECT TO ITS EQUIPMENT. HEADWORKS SHALL NOT BE LIABLE FOR NORMAL WEAR AND TEAR, NOR FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGE DUE TO INOPERABILITY OF ITS EQUIPMENT FOR ANY REASON NOR ANY CLAIM THAT ITS EQUIPMENT WAS NEGLIGENTLY DESIGNED OR MANUFACTURED.

Termination

Buyer may at any time terminate this order or any part hereof for its sole convenience. In the event of such termination, Seller shall immediately stop all work hereunder, and shall immediately cause any of its suppliers or subcontractors to cease such work. Seller shall be paid a reasonable termination charge consisting of a percentage of the order price reflecting the percentage of the work performed prior to the notice of termination, including without limitations any and all engineering work completed in submittal preparation, plus actual direct costs resulting from termination. Seller shall not be paid for any work done after receipt of the notice of termination, nor for any costs incurred by the Seller's suppliers or subcontractors which Seller could reasonably have avoided. Buyer will make no payments for finished work, work in process, or raw material fabricated or procured by the Seller in excess of any order or release.

Project Name:	Mid County WWTP
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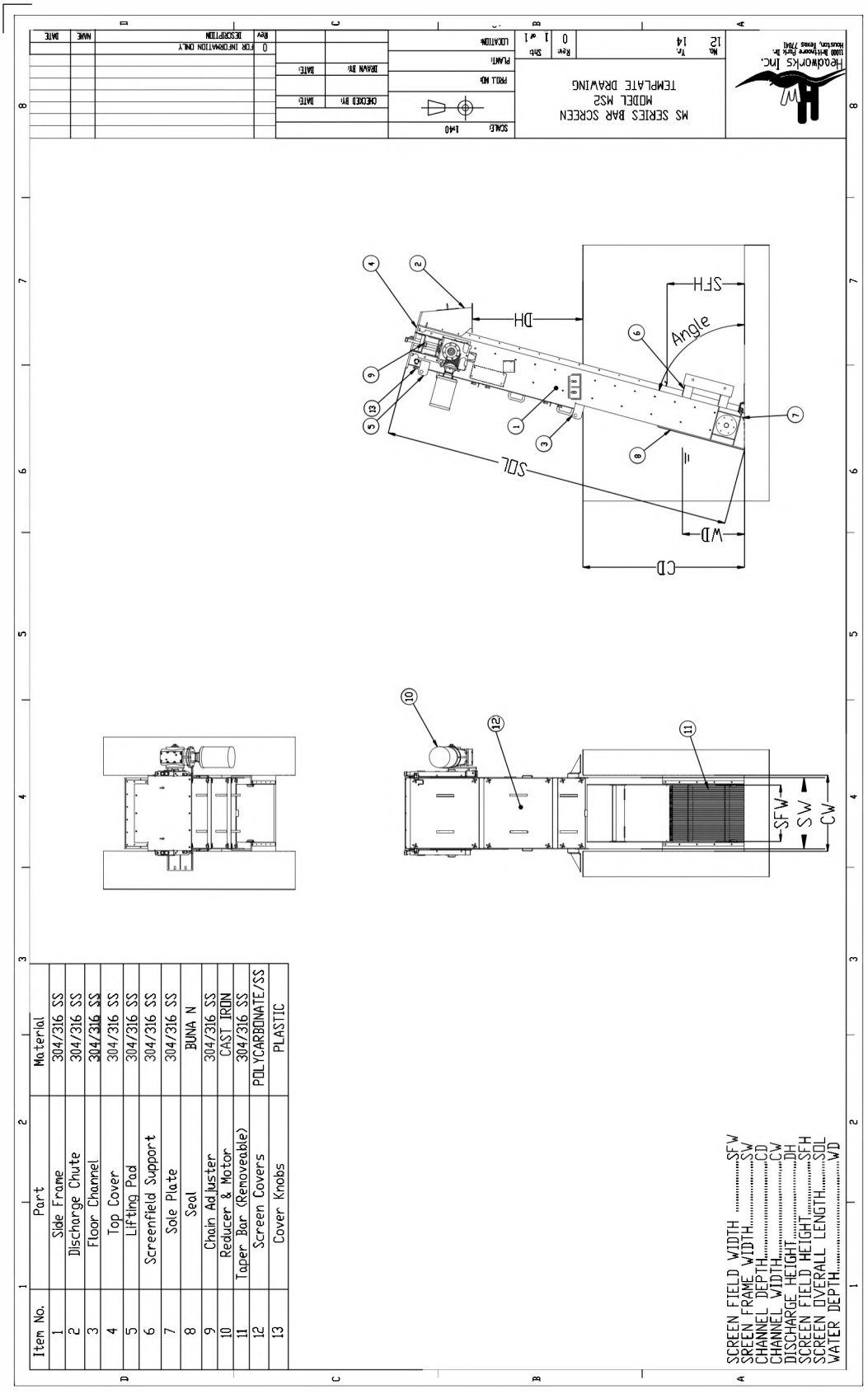
Presence of High Grit Levels, Stones and Rocks

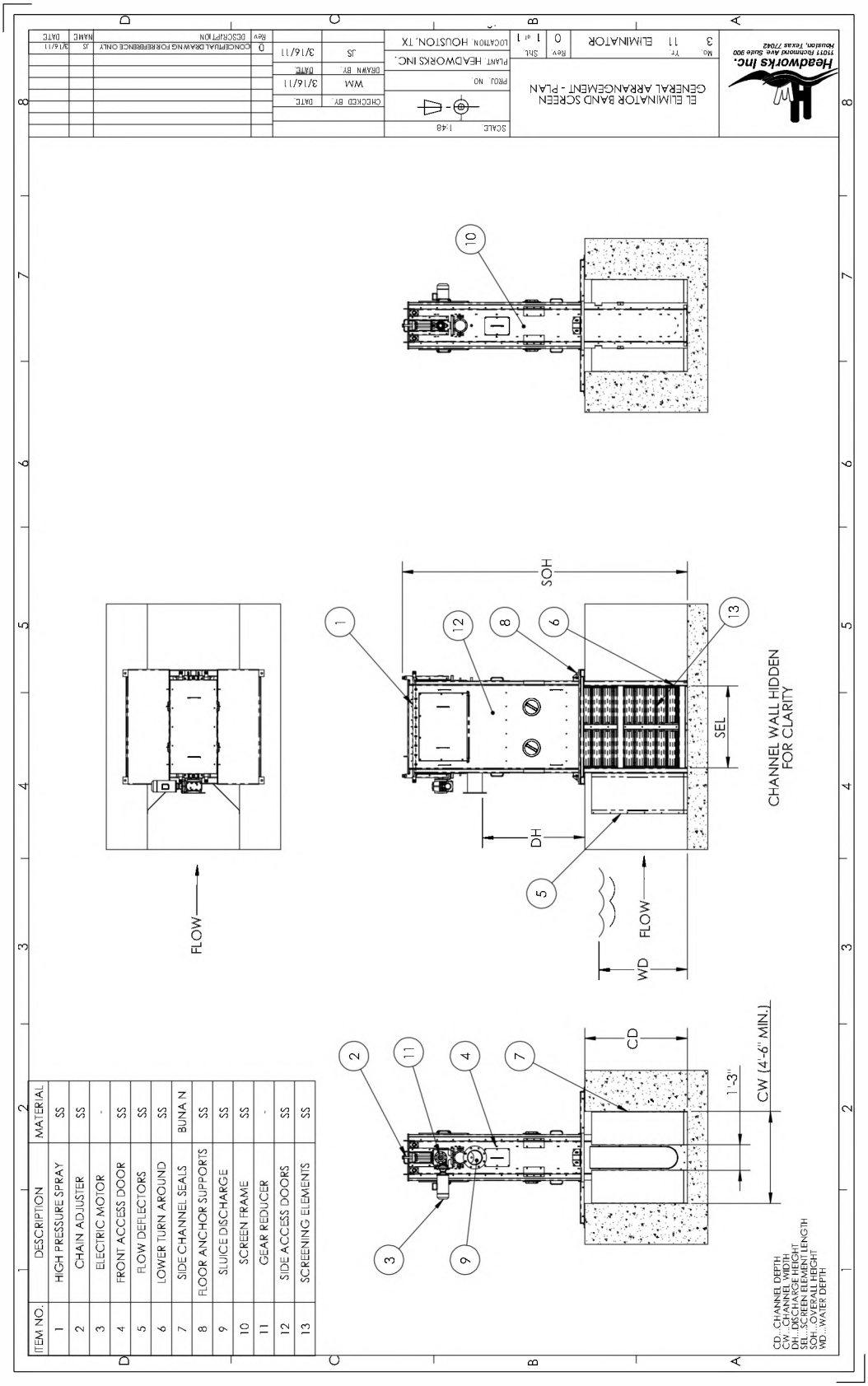
The presence of high levels of Grit, Stones and/or Rocks that can impair the normal operation of Headworks' products, develop premature wear and/or cause damage to it's products is not covered under the Headworks Inc. Standard Warranties unless strictly expressed in writing. This policy is in effect for the Bar Screen, Perforator™, Eliminator™, Spiralman™, Transporter™, Transpactor™, & Screwpactor™.

Limitation of Liability

In no event shall Seller be liable for anticipated profits or for incidental or consequential damages. Seller's liability on any claim of any kind for any loss or damage arising out of or in connection with or resulting from this contract or from the performance or breach thereof shall in no case exceed the price allocable to the goods or services which gives rise to the claim. Seller shall not be liable for penalties of any description. Any action resulting from any breach on the part of Seller as to the goods or services delivered hereunder must be commenced within one (1) year after the cause of action has accrued.



Item No.	Part	Material
1	Side Frame	304/316 SS
2	Discharge Chute	304/316 SS
3	Floor Channel	304/316 SS
4	Top Cover	304/316 SS
5	Lifting Pad	304/316 SS
6	Screenfield Support	304/316 SS
7	Sole Plate	304/316 SS
8	Seal	BUNA N
9	Chain Adjuster	304/316 SS
10	Reducer & Motor	CAST IRON
11	Taper Bar (Removeable)	304/316 SS
12	Screen Covers	POLYCARBONATE/SS
13	Cover Knobs	PLASTIC


Headworks Inc.
11011 Richmond Ave. Suite 900
Houston, Texas 77042
EL ELIMINATOR BAND SCREEN
GENERAL ARRANGEMENT - PLAN
ELIMINATOR
LOCATION HOUSTON, TX
PLANT HEADWORKS INC.
SCALE 1:48
DRAWN BY WM 3/16/11
CHECKED BY JS 3/16/11
CONCEPTUAL DRAWING FOR REFERENCE ONLY
ITEM NO. DESCRIPTION MATERIAL
1 HIGH PRESSURE SPRAY SS
2 CHAIN ADJUSTER SS
3 ELECTRIC MOTOR -
4 FRONT ACCESS DOOR SS
5 FLOW DEFLECTORS SS
6 LOWER TURN AROUND SS
7 SIDE CHANNEL SEALS BUNA N
8 FLOOR ANCHOR SUPPORTS SS
9 SLUICE DISCHARGE SS
10 SCREEN FRAME SS
11 GEAR REDUCER -
12 SIDE ACCESS DOORS SS
13 SCREENING ELEMENTS SS
SOH
SEL
DH
WD
CD
1'-3"
CW (4'-6" MIN.)
FLOW
CHANNEL WALL HIDDEN FOR CLARITY
CD...CHANNEL DEPTH
CW...CHANNEL WIDTH
DH...DISCHARGE HEIGHT
SEL...SCREEN ELEMENT LENGTH
SOH...OVERALL HEIGHT
WD...WATER DEPTH

OVIVO Worldwide Experts in Water Treatment

BUDGETARY PROPOSAL

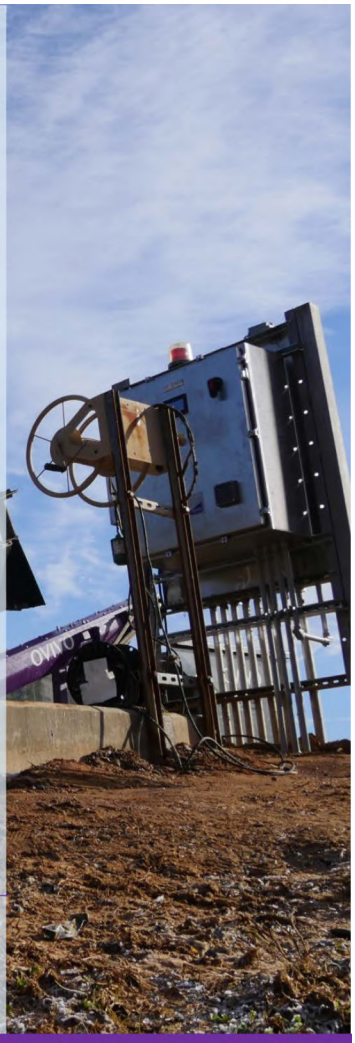
REV B 6-7-19

MID COUNTY WWTP

FLORIDA

Ovivo® Ozzy™ Cup Screens

Ovivo® J&A Grit System



PREPARED FOR

Shelby Hughes, P.E.
Kimley-Horn

AREA REPRESENTATIVE

Austin Moore

TSC Jacobs

PREPARED BY:

JARED HOLINDRAKE

Phone: (801) 931-3000

Jared.Holindrake@ovivowater.com

BUDGET PROPOSAL, PATENTED OZZY CUP SCREEN AND GRIT SYSTEM

Ovivo USA, LLC is pleased to submit a budgetary proposal for the following equipment (the "Products") on the project indicated above (the "Project"). This proposal, either in its original form or in its "as sold" format, constitutes Ovivo's contractual offer of goods and services in connection with the Project.

ITEM	EQUIPMENT	PRICE
I	(2) Ovivo® Ozzy™ Cup Screens, 5' Diameter, Controls, Troughing, Compactor and Startup Services	*$325,000

*Please see your local Ovivo Rep for:

- Explosion proof environments
- **Special Spec Requirements or Testing**

*5% adder for 316 SS Fabricated steel

STANDARD SCOPE OF SUPPLY

ITEMS INCLUDED:

One (1) Coarse Ovivo® Ozzy™ Cup Screen, 304SS Fabrication for 1.8MGD

- Drum Screen width approximately half the width of the channel.
- Drum screen diameter approximately twice the depth of the channel.
- 1.0 HP, 1800 RPM, TEFC helical gear motor suitable for 460/3/60 supply, outdoor rated.
- Standard nylon rack and pinion gear drive.
- Spray wash hood and nozzles
- 5mm Ovivo ProPaPanel®
- Underflow spray wash and solenoid
- Seal and diverter plate in SS with UHMW Seal plates for flow path
- 1.0 inch solenoid valve and pressure gauge
- Wash water requirement of 25 GPM @ 45 psi minimum.
- Anchor and Assembly Fasteners
- Full Cover

One (1) MBR Fine Ovivo® Ozzy™ Cup Screen, 304SS Fabrication for 1.8MGD

- Drum Screen width approximately half the width of the channel.
- Drum screen diameter approximately twice the depth of the channel.
- 1.0 HP, 1800 RPM, TEFC helical gear motor suitable for 460/3/60 supply, outdoor rated.
- Standard nylon rack and pinion gear drive.
- Spray wash hood and nozzles
- 1mm Ovivo PolyMesh
- Underflow spray wash and solenoid
- Seal and diverter plate in SS with UHMW Seal plates for flow path
- 1.0 inch solenoid valve and pressure gauge
- Wash water requirement of 25 GPM @ 45 psi minimum.
- Anchor and Assembly Fasteners
- Full Cover

One (1) Screw Compactor (combined Solids), Ovivo Model 200 in 304SS, to include:

- Capacity: 64 cubic feet per hour
- Motor size: 1 HP 1800 RPM, screw compactor motor suitable for 460/3/60 supply.
- Shafted screw in ASTM A36 carbon steel.
- Screw brush on periphery of screw flights- Nylon.
- U-shaped screw housing /drainage trough approximately 1mm smaller diameter than drum screen.
- Self-aligning thrust and radial load bearing to support the screw at the inlet end.
- High performance plastic sleeve bearing at the outlet end of the screw.
- Screw compactor reject drain connection: 4 inch diameter.
- Wash water requirement for screening rinse at screw compactor sleeve bearing: 2.5 GPM @ 40 psig.
- 1.0 inch NPT solenoid.

- Tubular 304 stainless steel compactor discharge chute angled at a minimum of a 45 degree
- 304 stainless steel discharge chute supports.
- Anchor and Assembly Fasteners

One (1) Standard NEMA 4 Control Panel:

- PLC based control with 4" HMI interface
- Main disconnect switch
- Emergency stop pushbutton
- Faults and Alarms on HMI
- HMI based level control with single upstream laser level sensor
- SCADA Output
- VFD soft start and speed adjustments on Drum
- Adjustable run times and tracking
- Ready for WaterExpert

20' of slouch troughing to connect the drums and compactor.
Freight, FCA to job site.

ITEM	EQUIPMENT	ESTIMATED SHIP DATE*	PRICE
II	Jeta, Cyclone & Grit Classifier	*	$140,000

SCOPE OF SUPPLY

ITEMS INCLUDED:

One (1) Jeta® Grit Collector, Model 100/270, to include:

- 1.0 HP, 1760 RPM, TEFC helical gear motor suitable for 460/3/60 supply for Class I, Division 2, Group D requirements.
- Standard gear driven gear head – heavy duty cast iron including air bell to prevent ingress of water into the gearbox.
- 10.75 inch O.D. drive tube – 304 Stainless Steel.
- Flat disk impeller with adjustable blades, 304 Stainless Steel.
- 3.0 inch diameter grit suction line, 304 Stainless Steel.
- Grit fluidizing line – 1.0 inch diameter running parallel to the suction tube, 304 stainless steel.
- 1.0 inch solenoid valve.
- Two (2) manual isolation valves for isolation of the solenoid.
- Freight, FCA to job site.

ONE (1) Gorman-RUPP Self-Priming Grit Pump, to include:

- Approx. 7.5 HP motor, 1750 RPM, mounted on a vertical V-Belt Base suitable for 460/3/60.
- Supply for Class I, Division 1, Group D requirements;
- Capacity of 250 GPM at ~28 feet of head;

- 3.0 inch inlet/3.0 inch outlet;
- Casing – Grey Cast Iron No.30;
- Bearing housing – Grey Cast Iron No.30;
- Removable cover plate – Grey Cast Iron No.30;
- Replaceable wear plate – Steel No.1018;
- Suction and discharge flanges – Grey Iron No. 30
- Freight, FCA to job site.

One (1) Grit Classifier, Ovivo SPR15, to include:

- One (1) HP, suitable for 460/3/60 TEFC Explosion proof.
- Inlet hopper with adjustable overflow weirs and removable covers – 304 Stainless Steel.
- 2 inch plugged drain at the base of the classifier.
- 6 inch discharge pipe at the end of the classifier constructed of 304 stainless steel.
- Outlet weir – 304 Stainless Steel.
- Support legs to hold classifier at approximately 20 degrees from horizontal– 304 Stainless Steel.
- Inlet attached to the classifier with 5.5 inch diameter hole for connecting the cyclone discharge line - 304 stainless steel.
- Screw: 6 inches in diameter by approximately 8 feet long –ASTM carbon steel.
- U shaped trough – 304 stainless steel.
- Classifier approximately 12.0 feet long. 4 inch organics return outlet with 150# flange connection.
- Top bearing – thrust and radial type.
- One (1) D10LB cyclone attached to classifier frame as described below.

One (1) Krebs Grit Cyclone – Model D-10B-841, to include:

- Cyclone capable of handling 100 GPM with an inlet pressure of 7-12 PSIG:
- Fabricated Carbon Steel Housing.
- Replaceable Neoprene Liners for all Housing Sections.
- Nihard Vortex Finder.
- Adjustable Neoprene Apex Liner.
- The inlet and overflow connections are 150# flat face flanged adapter spool pieces.
- Quick release toggle clamps for the apex.
- 1.25" pressure gauge connections on the inlet adapters.
- Cyclone housing – Fabricated carbon steel housing.
- Cyclone liner – Neoprene.
- Cyclone – 3 inch inlet and 4 inch overflow outlet.
- Cyclone – 2.5 inch vortex finder.
- Average underflow to classifier--10 GPM.
- Pressure gauge assemblies complete with protective diaphragms (0-30 psi dials) on cyclone inlet.
- Anchor bolts – 304 Stainless Steel.

- Fasteners – 304Stainless Steel.

One (1) Standard NEMA 4 ControlPanel:

- PLC based control with 4" HMI interface
- Main disconnect switch
- Emergency stop pushbutton
- HMI based Grit drive H-O-A selector switch
- HMI based Grit pump H-O-A selector switch
- HMI based Grit classifier H-O-A selector switch
- HMI based Run indicating lights for grit drive, grit classifier, and fluidizing water.
- HMI based Overload alarm indicating lights for grit drive, grit pump and grit classifier.
- HMI based Grit classifier high level indicating light
- HMI based Pump fail to prime indicating light for grit pump.
- Freight, FCA to job site.

ITEMS NOT INCLUDED (But not limited to the following):

- Taxes.
- DVD recordings of training sessions.
- Control Panel and Electrical connections.
- Dumpster.
- Drain piping for the grit classifier.
- Offloading at job site.
- Installation.
- Access ladder or stairs.
- Spares
- Grating
- Concrete work.
- Civil design.

FIELD SERVICE OPTION:

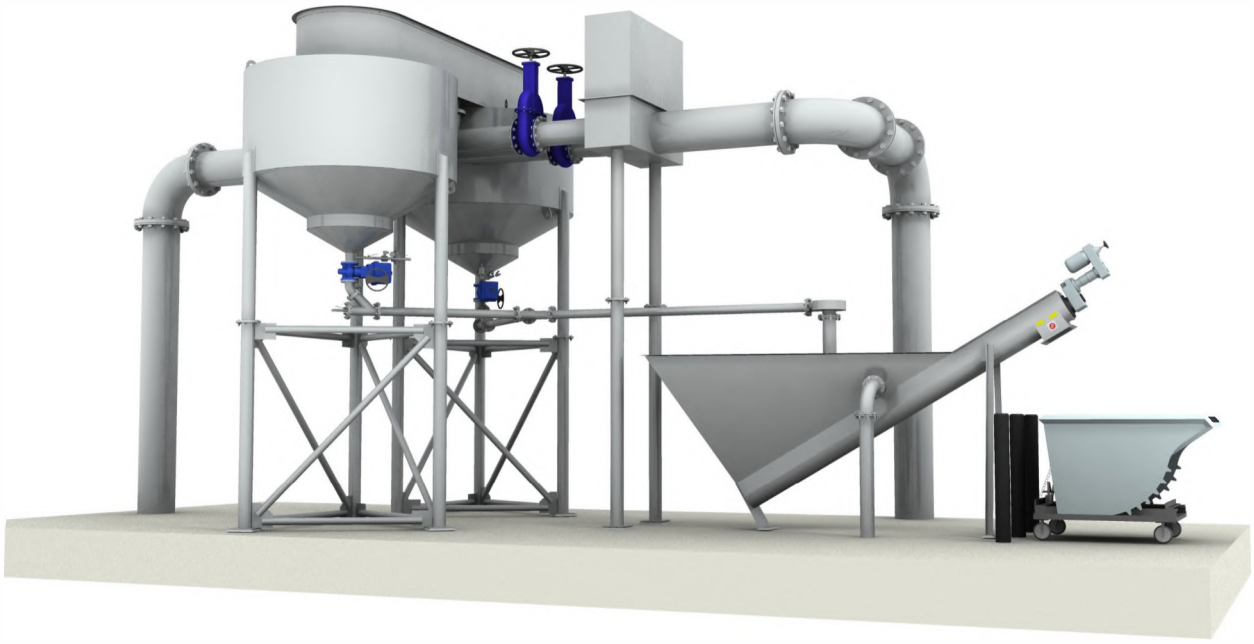
Two (2) trip of four (4) days total of service, at the site for the supervision of equipment start-up, testing supervision, and instructing the operators.

Additional service days can be purchased at the current rate.

TYPICAL LEAD TIMES:

Submittals: Eight (8) weeks after Purchaser's receipt of Ovivo's written acknowledgement of an approved purchase order.

Shipping: Twenty four (24) weeks after receipt of approved drawings from Purchaser.



Grit Removal System Proposal Package
Dunedin, FL · Mid County WRF
Kimley-Horn

Manufacturer
Hydro International
2925 NE Aloclek Suite 140
Hillsboro, OR 97124
(866) 615-8130 ph
(503) 615-2906 fax
hydro-int.com

Representative
Moss Kelley, Inc.
725 Primera Blvd. Suite 155
Lake Mary, FL 32746
Phone: (407) 805-0063
Fax: (407) 805-0062

hydro-int.com

Hydro International®

Water & Wastewater Solutions

Hydro International

August 9, 2019

Ms. Shelby Hughes, P.E.
Kimley-Horn
100 Second Ave South #105N
St. Petersburg, FL 33701

RE: Headworks Grit Removal System
Dunedin, FL – Mid County WRF
File #19_11_0403B

Dear Ms. Hughes:

Thank you for your interest in Hydro International. We are pleased to present our proposal for Grit King® Grit Removal and Dewatering System. Hydro International is dedicated to providing innovative, high performance advanced grit management systems grit removal equipment. Supported by over 30 years of research, testing both in our lab and in the field, product development and superior engineering we pride ourselves on providing high-quality products and unmatched customer service. Our extensive experience includes thousands of installations throughout the world.

Grit is continually introduced into collection systems, but is not uniformly carried to treatment facilities. As flows increase, the grit load entering the plant elevates. Once in the treatment plant, where velocities are slower, grit will deposit in processes, disrupting systems, decreasing equipment longevity, and increasing maintenance costs. The Grit King® Grit Removal System offers many benefits over conventional grit removal systems including:

- Complete system designed to process the solids load as well as the hydraulic load through each step of the process, collection, washing/classification and dewatering and producing a clean, dry product.
- Removing fine and slowly settling grit, protecting equipment and processes from abrasive wear and sedimentation
- All-hydraulic design with no moving parts, minimizing operating and maintenance costs
- Small footprint yet capable of high efficiency solids capture and removal
- Robust design allowing long component life with minimal wear

We sincerely appreciate your interest in our equipment and look forward to working with you on this project. As you progress with the design, we can quickly generate CAD drawings, budget updates, and specifications as well as provide review of equipment layouts and specifications for your particular application. Reference lists are available through your local representative. If you have any questions or concerns, do not hesitate to contact us.

Regards,
Hydro International

Dara Rolfe
Applications Engineer

Hydro International
2925 NE Alcolek Suite 140 · Hillsboro, OR 97124
Tel: (866) 615-8130 Fax: (503) 615-2906 Web: hydro-int.com

Performance Objective

Hydro International is pleased to propose the following Grit King® grit removal and dewatering system to be installed in an existing plant which has flows of 0.9 mgd average and 2 mgd peak. Each component of the grit removal systems performance shall be outlined below.

Proposed Equipment Summary

Grit King® Grit Concentrator

The Grit King® is an all-hydraulic/non-mechanical vortex separator designed to remove grit, sediment and sand from wastewater, raw water and other liquids using vortex motion and boundary layer effects to aid gravitational settlement. The unit can be installed into the flow line, downstream of the screens, of any system where limited head is available. The unit requires no external power source, has no internal moving parts, is self-cleaning, has a compact modular construction and is virtually maintenance free.

Specifications

Quantity:	1
Size:	10’ diameter
Configuration:	Free Standing
Performance @ Peak Flow/Unit:	95% removal of all grit (SG 2.65) ≥ 106 microns
Performance @ Average Flow/Unit:	95% removal of all grit (SG 2.65) ≥ 75 microns
Peak Flow/Unit:	2 mgd with 12" headloss
Average Flow/Unit:	0.9 mgd with 3" headloss
Depth of Flow in Effluent @ Average/Peak:	5” / 9”
Influent Connection:	10” flanged pipe
Effluent Connection:	20” channel
Underflow Connection:	3” pipe
Underflow Rate / Unit:	75 gpm
Underflow Control:	Hydro-Brake® SXV Vortex Valve
NPW Connection:	1” NPT
NPW Requirement/Unit:	Intermittent 50 gpm @ 50 psig
Material of Construction:	304 SS
Weight Dry/Wet (approximate):	9,000/63,000 lbs

Decanter Dewatering Unit

The Decanter dewaters grit by quiescently settling high-density solids to retain all grit and abrasives. The Decanter is an economical option for smaller plants that require performance dewatering. The Decanter comes in three basic configurations to match local disposal trucks or equipment configurations: front-loading, rear-loading, and self-dumping.

Specifications

Quantity	2
Size:	1.5 cy
Overflow Connection:	3” NPT
Drain Connection:	2” NPT
Drain Screen:	0.10” 304 SS wedgewire
Material of Construction:	Galvanized Steel
Weight Dry/Wet (approximate):	800 / 4800 lbs.
Performance:	≥60% (wt.) total solids and ≤25% volatile solids

Control Panel

The panel shall contain all timers, switches, and indicator lights to operate one (1) Grit King® unit in either fully automated or manual mode.

Specifications

Quantity: 1
Enclosure Material: 304 SS
Enclosure Type: NEMA 4X
Power Supply: 120V/single-phase
Control Logic: Programmable Relay

System Hydraulics

System hydraulics is the responsibility of the design engineer. Hydro International can provide information on Grit King® hydraulics and pumping and piping FAQ's to assist the engineer in determining system hydraulics and pump requirements, upon request.

Design Recommendations

- 1/2" or finer screening prior to the grit removal system
- Velocity through bar screen openings/slots/apertures should not exceed 4 ft/s at peak flow as recommended by industry design manuals.
- Estimated grit load at peak flow is 0.05 yd^3/hr.
- Stated output grit quality (total solids/volatile solids) is based on a minimum plant influent grit quantity of 50 pounds FS/million gallon.
- All piping connected to Hydro equipment must be supported by other means than the Hydro equipment
- 2 – 3 ft/s channel velocities at peak flow as recommended by industry design manuals
- 4 – 7 ft/s grit slurry pipe velocities as recommended by industry design manuals
- Incorporate a drain line, piped to a floor drain, in the grit dumpster to allow for further dewatering prior to disposal
- A minimum 18" of access clearance around all equipment and minimum 3' of access clearance above equipment
- Operators find that it is useful to locate a spray hose adjacent to the equipment so that they can spray all equipment down during an inspection
- Incorporate a minimal access platform to facilitate inspection access to the top of the equipment
- Intermittent operation of grit pump/ TeaCup® system may be an option. Contact Hydro for further information.

Start-up

One (1) factory trained representative, one (1) trip, for start-up and instruction services as required totaling two (2) days.

Quote Validity: 30 days After expiration of validity Hydro International reserves the right to adjust pricing to account for any significant increases in material costs.

Exclusions

Any item(s) not specifically described above are excluded and are not to be supplied by Hydro International including but not limited to the following:

- Field assembly, erection and installation
- Anchor Bolts
- Interconnecting piping and valving not expressly stated above
  Pipe connections and fittings not expressly stated above
- All pipe supports, hangers and braces
- Controls, switches, control panels and instrumentation of any kind not expressly stated above
- Wiring and conduit
- Grit pump(s) and associated piping, valving, gauges
- Covers and access hatches
- Field or touch-up paint, painting, blasting and touch-up of surface finish
- Spare parts not specifically stated above
- Unloading, hauling and storage charge
- Lubricating oil and greases
- Grit study, field performance testing, laboratory testing and sample collection and analysis

- All concrete and grouting work
- Insulation and heat tracing of any kind
- Structural / Seismic analysis
- Performance, Warranty, Efficacy and/or Supply Bond(s)
- Grit dumpsters
- Translation Services

Options

Quotes will be provided upon request for the following optional features:

- Additional field days for startup or training
- Explosion proof upgrade
- PLC Based Control Panel
- Upgrade 304 to 316 Stainless Steel
- Structural / Seismic Anchorage Certification
- Field performance testing, laboratory testing and sample collection and analysis
- Service & maintenance contract
- Tank Cleaning
- Additional Decanters
- Extended warranty

Warranty

Hydro International's Standard Warranty shall apply per the Terms and Conditions of Sale.

Delivery

Please allow 4 to 6 weeks after receipt of purchase order for approval drawings. Shipment is typically a maximum of 12-16 weeks after receipt of "Approved" or "Approved As Noted, Resubmittal Not Required" submittal package. Price includes truck freight to jobsite, but does not include any state or local taxes if required

Terms & Conditions

This proposal is made pursuant to Hydro International's standard Terms & Conditions of Sale, attached hereto and made a part hereof.

Contacts

Plant Representative:

Mr. Cameron Young

Moss Kelley, Inc.

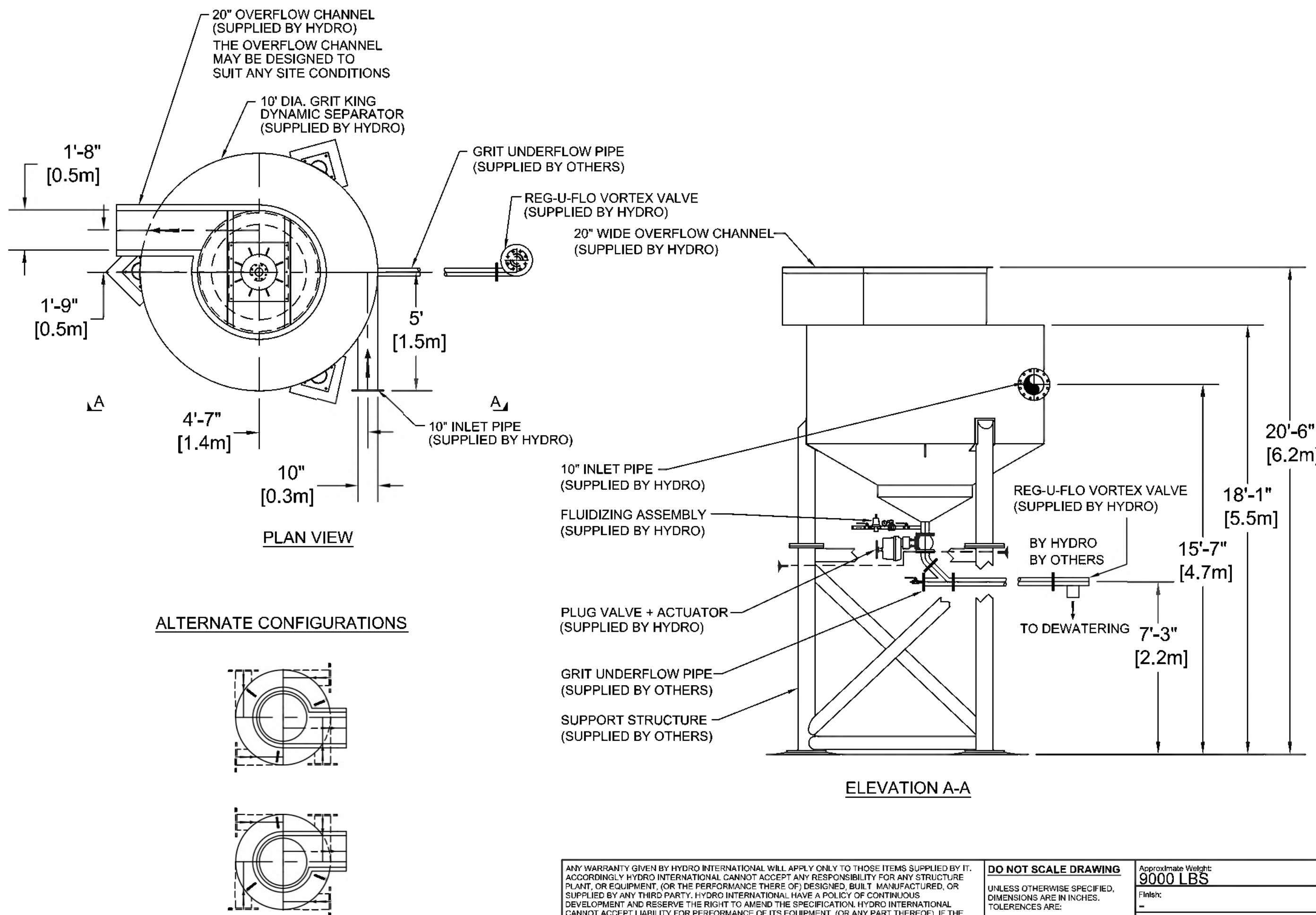
725 Primera Blvd. Suite 155

Lake Mary, FL 32746

Phone: (407) 805-0063

Fax: (407) 805-0062

Email: cjy@mosskelley.com



PROJECTION

NOTES:

1. PLANT FLOW BYPASS IS RECOMMENDED TO ALLOW THE GRIT KING TO BE TAKEN OUT OF SERVICE IF MAINTENANCE IS REQUIRED.

2. THE INLET PIPE AND OVERFLOW CHANNEL MAY BE ROTATED 360 DEGREES ABOUT THE UNITS CENTRAL AXIS BUT INLET AND OUTLET ORIENTATION MUST REMAIN THE SAME.

3. CLOCKWISE & COUNTERCLOCKWISE CONFIGURATIONS ARE AVAILABLE.

4. THE INLET PIPE DIAMETER VARIES BASED ON THE DESIGN FLOW RATE AND HEADLOSS REQUIREMENTS.

5. ALTERNATE INLET & EFFLUENT CONFIGURATIONS ARE AVAILABLE.

6. FLUIDIZING WATER REQUIREMENTS
50 gpm [2.3 l/s] @ 50 psi [345 Kpa]

7. THE OVERALL ELEVATIONS CAN VARY BASED ON THE SITE CONDITIONS

REV	BY	DATE	DESCRIPTION
-	AP	12/31/2011	FIRST RELEASE

REVISION HISTORY

Date	Scale	
12/31/2011	1/4"=1'0"	
Drawn By: AP	Checked By: -	Approved By: LS

Title
GRIT KING SEPARATOR
10' DIAMETER
FREE STANDING
PROPOSAL DRAWING

Hydro International
wastewater

2925 NW Aloclek Drive
Suite 140
Hillsboro, OR 97124
Tel: (503) 615-8130
Fax: (503) 615-2906
email: sales@eutek.com

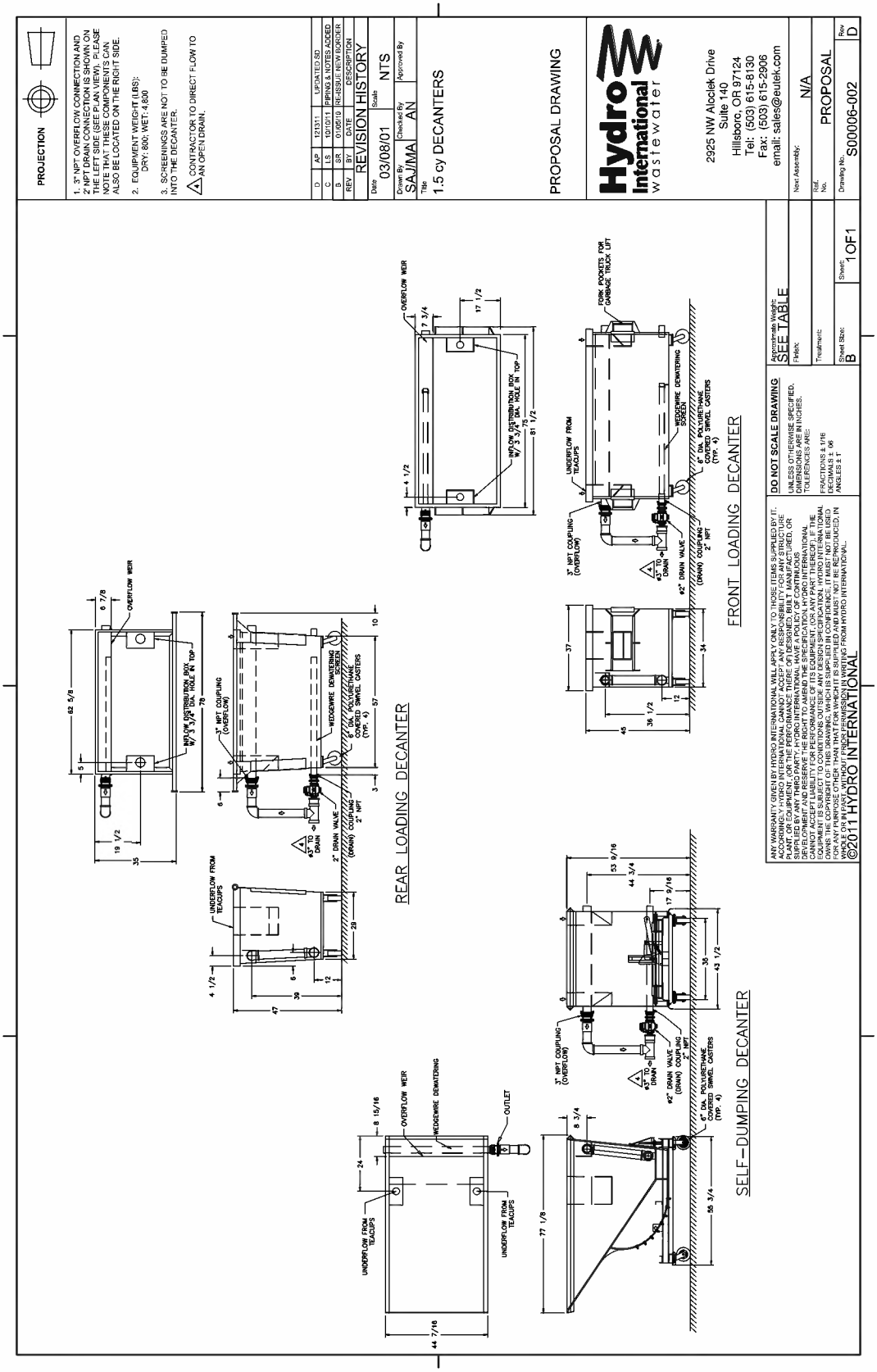
DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERENCES ARE:

FRACTIONS ± 1/16
DECIMALS ± .06
ANGLES ± 1°

Approximate Weight: 9000 LBS	
Finish: -	Next Assembly: -
Treatment: -	Ref. No. PROPOSAL
Sheet Size: B / Sheet: 1 OF 1	Drawing No. 10' GK FSU 10" / Rev -

SUNSHINE WATER SERVICES COMPANY
APPENDIX D TO EXHIBIT ST-2
WITNESS: SEÁN TWOMEY
PAGE 110 OF 349


PROJECTION
1. 3" NPT OVERFLOW CONNECTION AND 2" NPT DRAIN CONNECTION IS SHOWN ON THE LEFT SIDE (SEE PLAN VIEW). PLEASE NOTE THAT THESE COMPONENTS CAN ALSO BE LOCATED ON THE RIGHT SIDE.
2. EQUIPMENT WEIGHT (LBS): DRY: 800; WET: 4,800
3. SCREENINGS ARE NOT TO BE DUMPED INTO THE DECANTER.
4 CONTRACTOR TO DIRECT FLOW TO AN OPEN DRAIN.
REVISION HISTORY
REV | BY | DATE | DESCRIPTION
D | AP | 12/13/11 | UPDATED SD
C | LS | 10/10/11 | PIPING & NOTES ADDED
B | SR | 01/05/10 | RE-ISSUE NEW BORDER
Date 03/08/01 Scale NTS
Drawn By SAJ/MA Checked By AN Approved By
Title 1.5 cy DECANTERS
PROPOSAL DRAWING
Hydro International wastewater
2925 NW Aloclek Drive
Suite 140
Hillsboro, OR 97124
Tel: (503) 615-8130
Fax: (503) 615-2906
email: sales@eulek.com
REAR LOADING DECANTER
FRONT LOADING DECANTER
SELF-DUMPING DECANTER
OVERFLOW WEIR
INFLOW DISTRIBUTION BOX W/ 3 3/4 DIA. HOLE IN TOP
3" NPT COUPLING (OVERFLOW)
WEDGEWIRE DEWATERING SCREEN
6" DIA. POLYURETHANE COVERED SWIVEL CASTERS (TYP. 4)
2" DRAIN VALVE (DRAIN) COUPLING 2" NPT
UNDERFLOW FROM TEACUPS
FORK POCKETS FOR GARBAGE TRUCK LIFT
OUTLET
DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE:
FRACTIONS ± 1/16
DECIMALS ± .06
ANGLES ± 1°
Approximate Weight: SEE TABLE
Finish:
Treatment:
Sheet Size: B
Sheet: 1 OF 1
Next Assembly: N/A
Ref. No.: PROPOSAL
Drawing No.: S000006-002
Rev D
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Water & Wastewater Solutions

North American Grit Gradations

Hydro International is pleased to announce the availability of national and regional grit gradation data. This data, which has been compiled from over 120 tests across North America, contains average physical size data as well as settling velocity (SES) data, making it the most comprehensive information available on grit and its behavior.

Virtually all conventional grit removal processes rely on gravity sedimentation to achieve the separation of grit from wastewater. Most conventional grit removal processes are designed based on the assumption that grit is spherical and has a specific gravity 2.65. However, not all grit maintains a specific gravity of 2.65 and other factors such as shape and encapsulation by fats, oils and grease significantly impact its settling velocity. Therefore, the best means to analyze grit is to determine the settling velocity for given particle size ranges. Settling velocity data can be correlated to the measured settling velocity of a clean sand sphere. The settling velocity is expressed as the Sand Equivalent Size (SES), which is the sand particle size having the same settling velocity as the more buoyant grit particle. The correlated particle size, or Sand Equivalent Size can then be used for design of the grit removal process.

When settling velocity is considered in the design actual removal efficiency of grit particles can be estimated more realistically.

Data is available for the following regions:

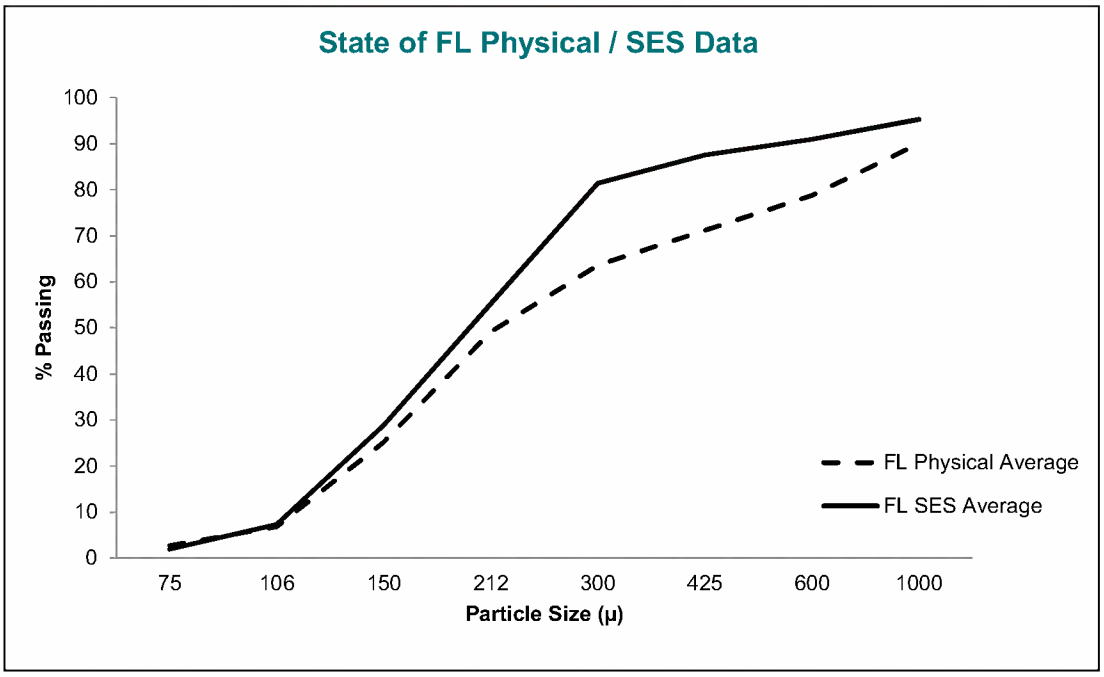
Region	States / Provinces Included
Northeast	ME, VT, NH, MA, RI, NY, CT
Mid-Atlantic	PA, NJ, MD, DE, DC, VA, WV
Southeast	NC, SC, GA, AL, FL, MS
North Central	MO, KS, KY, IN, OH, IL, MI, WI, IA, MN, ND, SD, NE
South Central	TN, AR, OK, TX, LA
West	WA, OR, CA, AK, HI, AZ, NV, NM, CO, ID, MT, UT, WY
Western Canada	AB, MB, SK
Ontario Canada	ON

State data is available for individual states where more than 5 data points are available; those states currently include: Georgia, Texas, Florida, California, and Virginia.

Hydro International
2925 NE Aloclek Suite 140 · Hillsboro, OR 97124
Tel: (866) 615-8130 Fax: (503) 615-2906 Web: hydro-int.com

Hydro-Int.com

Florida Gradation



Micron	% Passing								
	75	106	150	212	300	425	600	1000	
FL Physical Average	2.7	6.8	25.3	49.2	63.6	71.2	78.8	90.0	*Physical*
FL SES Average	2.0	7.4	28.9	55.2	81.4	87.5	91.0	95.3	*SES*

The above table shows the % of grit passing through various sieve sizes based on physical size (unshaded) and Sand Equivalent Size (SES) (shaded). SES provides the settling velocity distribution of the grit particles.

Standard Terms and Conditions of Sale

1. **DEFINITIONS.** "Hydro" is Hydro International with an address of 2925 NE Alcolek Drive #140 in Hillsboro, Oregon. "Buyer" is the party purchasing the goods from Hydro.

2. **ENTIRE AGREEMENT**. Hydro's agreement is based on these terms and conditions of sale. This document, together with any additional writings signed by Hydro, represents a final, complete, and exclusive statement of the agreement between the parties and may not be modified, supplemented, explained, or waived by parol evidence, Buyer's purchase order, any course of dealing, Buyer's payment or acceptance, or in any other way except in writing signed by Hydro through its authorized representative. These terms and conditions are intended to cover all activity of Hydro and Buyer hereunder, including sales and use of products, parts, and work, and all related matters (references to products include parts and references to work include construction and installation). Hydro's obligations hereunder are expressly conditioned on Buyer's assent to these terms and conditions. Hydro objects to any terms that are different from, or additional to, these terms and conditions. Any applicable detail drawings and specifications are hereby incorporated and made a part of these Terms and Conditions of Sale insofar as they apply to the material supplied hereunder.

3. **SPECIFICATIONS.** Products are supplied in accordance with information received by Hydro, or its duly authorized agent, from Buyer. Hydro shall have no responsibility for products created or sold based upon inaccurate and/or incomplete information supplied to it. Buyer shall ensure that Hydro receives all relevant information in time to enable it to supply the appropriate products.

4. **INSTALLATION AND APPLICATION OF PRODUCTS.** Products supplied hereunder shall be installed and used only in the application for which they were specifically designed. Buyer should not presume that any products supplied by Hydro may be utilized for any applications other than those specified; nor shall Hydro's obligations, including, without limitation, any warranty obligations, survive Buyer's transfer of products supplied hereunder to third parties unless the products are transferred with Hydro's consent. In addition, Buyer shall not use any product supplied hereunder at any location other than at the location for which Hydro has previously received notice from Buyer. Any breach of any of the foregoing restrictions may amount to an infringement of the patent for the products in question and will in any event void all express or implied warranties relating to the products supplied hereunder.

5. **PURCHASE PRICE AND PAYMENT TERMS.** All prices are in U.S. dollars and all payments shall be made in U.S. dollars. Payment terms are as follows:

	Incremental Payment	Cumulative Payment
Upon Approval of Shop Drawings	10%	10%
Upon Delivery of Equipment to Site	80%	90%
Upon Final Acceptance or 45 days following completion of equipment start up	10%	100%

If payments are not made in conformance with the terms stated herein, any unpaid balance shall be subject to interest at a rate 1½% per month, but not to exceed the maximum amount permitted by law. If shipment is delayed by Buyer, the previously agreed date of readiness for shipment shall be deemed to be the date of shipment for payment purposes. If manufacture is delayed by Buyer, a payment shall be made based on purchase price and percentage of completion, with the balance payable in accordance with the terms as stated. If at any time in Hydro's judgment Buyer may be or may become unable or unwilling to meet the terms specified, Hydro may require satisfactory assurance or full or partial payment as a condition to commencing, or continuing manufacture, or in advance of shipment.

Until payment in full has been received by Hydro, this Standard Terms and Conditions of Sale shall constitute a security agreement and Buyer hereby grants Hydro a purchase money security interest in and to the products produced by Hydro hereunder, and any products or proceeds thereof. In particular:

a. Hydro will retain an express purchase money security interest in and to the products and all proceeds thereof.

b. Until full payment for the products is received by Hydro, Hydro reserves the right to retake possession of the products at any time and for this purpose Buyer authorizes Hydro or its duly authorized agent to enter upon land or premises where it believes the product may be.

c. Proceeds of any disposal of the products shall be held in trust for Hydro pursuant to the terms of the Maine Uniform Commercial Code.

d. Buyer grants Hydro a power of attorney for the purpose of filing a UCC-1 financing statement in the name of Buyer to evidence Hydro's security interest in the products.

6. **BACKCHARGES.** In the event that Buyer is required to make repairs, corrections or modifications to the goods supplied by Hydro, it shall only do so upon written approval from Hydro. Backcharges shall be limited to the costs directly associated in making the repairs, corrections or modifications to the goods supplied by Hydro. The costs of such backcharges shall be subject to approval by Hydro and shall be limited to: (1) directly related labor and material costs, (2) directly related equipment and tool rental at prevailing rates in the project location and (3) Buyer's overhead & supervision costs to make repairs, corrections or modifications to the goods supplied by Hydro. Buyer shall submit complete documentation to Hydro's satisfaction including but not limited to labor time sheets, material lists, and rental fees detailing the nature of the back charges. Backcharges shall be in the form of an adjustment to the contract price or reduction in retained payments and not a direct payment. No incidental or consequential backcharges shall be allowed.

7. **DELIVERY.** The goods are sold DDP (Incoterms 2010) jobsite, freight prepaid to Buyer at job site. Except as outlined in Paragraph 8 below, the risk of loss passes to Buyer after Hydro delivers the goods to the jobsite. Hydro reserves the right to select the method of shipment and carrier. Delivery dates are approximate only and are not a guarantee of delivery on a particular day. Hydro is not liable for failure or delays in deliveries of any cause whatsoever beyond the control of Hydro.

8. **TITLE & INSURANCE:** Title to the product(s) and risk of loss or damage shall pass to Buyer upon delivery to a carrier as outlined in Paragraph 7 above, or, in the event Buyer delays shipment, by the previously agreed date of readiness for shipment, except that a security interest in the product(s) or any replacement shall remain in Hydro's name, regardless of the mode of attachment to realty or other property, until the full price has been paid in cash. Buyer agrees to protect Hydro's interest by adequately insuring the product(s) against loss or damage from any external cause with Hydro named as insured or co-insured.

9. **ERECTION:** Unless otherwise stated in writing, the goods provided hereunder shall be assembled and erected by and at the expense of Buyer.

10. **CANCELLATION & BREACH:** Orders placed cannot be canceled, nor shipments of goods made up, or in process, be deferred beyond the original shipment dates specified, except with Hydro's written consent and upon terms which shall indemnify Hydro against all loss. In the event of cancellation or the substantial breach of Buyer's obligations, as by failing to make any of the payments when due, the parties agree that Hydro will suffer a serious and substantial damage that will be difficult, if not impossible, to measure, both as of the time of entering into this purchase agreement and as of the time of such cancellation or breach. Therefore, the parties agree that, upon such cancellation or breach, Buyer shall pay to Hydro the sums set forth herein below, which sums the parties do hereby agree shall constitute agreed and liquidated damages in such event:

    a. If cancellation or breach shall occur after the acceptance of the purchase order but prior to mailing of submittal documents by Hydro to Buyer, liquidated damages shall be 10% of the selling price.

    b. If cancellation or breach shall occur within thirty (30) days from the mailing of submittal documents by Hydro to Buyer, the liquidated damages shall be 20% of the selling price.

    c. If the cancellation or breach occurs after thirty (30) days from the mailing of submittal documents by Hydro to Buyer, but prior to notification that the order is ready for shipment, the liquidated damages shall be the total of 30% of the selling price plus the expenses incurred, cost of material, and reasonable value of the work expended to fill the order involved herein by Hydro's engineers and other employees, agents and representatives after the mailing of general arrangement drawings by Hydro to Buyer, said sums to be determined at the sole reasonable discretion of Hydro; provided, however, that the total liquidated damages under this provision shall not exceed the total selling price.

    d. If cancellation or breach shall occur after Hydro has notified Buyer that the order is ready for shipment, then the liquidated damages shall be the total selling price, less costs associated with startup or field testing.

11. **MATERIALS OF CONSTRUCTION, PAINTS AND COATINGS**: Buyer is responsible for determining the suitability of, and for giving final approval of, the materials of construction, paints, coatings, etc. to be used by Hydro.

12. **WARRANTY:** Any product that proves defective in material, workmanship or design within twelve (12) months after delivery (or entry into storage) will be, at the discretion of HYDRO, modified, repaired or replaced, or Buyer's payment for the products will be refunded. This shall be Buyer's sole remedy. HYDRO EXPRESSLY EXCLUDES AND DISCLAIMS ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTIES, EXPRESS OR IMPLIED.

    This warranty does not cover any defects or costs caused by: (1) normal wear and tear of equipment from designed operation. (2) modification, alteration, repair or service of the goods by anyone other than Hydro; (3) physical abuse to, or misuse of, the goods, or operation thereof in a manner contrary to Hydro's instructions; (4) any use of the goods other than that for which they were intended; (5) chemicals or components which were not disclosed to Hydro; (6) storage contrary to Hydro's instructions; or (7) failure to maintain the goods in accordance with Hydro's instructions.

    This warranty does not apply to component parts of the goods that were not both originally designed and manufactured by Hydro, including, but not limited to, valves and controls. These component parts do not carry any warranties by Hydro, and only carry the warranties, if any, of their manufacturers.

In order for Buyer to make a claim under this warranty, Buyer must promptly, and within the warranty period, notify Hydro in writing of any defect(s) in the goods covered by this warranty. If any defect(s) in the goods covered by this warranty are visible at the time of delivery, Buyer must notify Hydro of the defect(s) in writing within five working days. To make any claim under this warranty, Buyer must also fully comply with written authorization and return instructions from Hydro.

13. **FIELD SERVICE:** Startup/Field Service will only be scheduled upon written request. Buyer shall notify Hydro of schedule requirements at least ten (10) working days in advance, or additional charges may be added to cover late-scheduled travel costs. Additional costs will be limited to those arising out of late-scheduled costs. Should Buyer have outstanding balances due Hydro, no startup / field service will be scheduled until such payments are received by Hydro. Hydro will send documents to Buyer defining the service or startup requirements. Buyer assumes all responsibility for the readiness of the system when it requests startup service. Should Hydro's Field Service Engineer arrive at the jobsite and determine that the system cannot be started up within a reasonable time, Hydro shall have the option to bring the Field Service Engineer home and bill Buyer for time, travel and living expenses. Additional field service is available from Hydro at the prevailing per-diem rate at the time of the request for service plus all travel and living expenses, portal-to-portal. A purchase order or change order will be required prior to scheduling this additional service.

14. **LIMITATION OF HYDRO'S LIABILITY**. Hydro assumes no liability or responsibility for the misuse of its products by Buyer, Buyer's employees, agents or assigns, or other use inconsistent with the use appropriate to the performance specification requirements submitted to Hydro, and Buyer agrees to indemnify and hold harmless Hydro for any loss, costs, expense or liability that it may incur or be put to as a result of misuse or inconsistent use of the products. In addition, Hydro shall have no liability to Buyer for any consequential or incidental damages incurred by Buyer in connection with the contract documents or the products purchased by Buyer. Hydro shall not be liable for any loss which results from delay in delivery caused by any reason beyond its control, including, but not limited to, acts of God, casualty, civil disturbance, labor disputes, strikes, transportation or inability to obtain materials or services, any interruption of its facilities, or act of any governmental authority. The time for delivery shall be extended during the continuance of such conditions. The total liability of Hydro to Buyer in the form of liquidated damages for any loss, indemnity, damage or delay of any kind will not under any circumstances exceed 25% of the Contract Sum.

15. **INTELLECTUAL PROPERTY**. Hydro shall retain sole ownership of all of its intellectual property used or produced in connection with the Project, including but not limited to all drawings, specifications, software, written materials, manuals, marks, business methods, and all other property that is capable of protection by a patent, copyright or trademark (whether or not such protection has actually been sought). Buyer shall not use such intellectual property except for the purpose of confirming the quality of design and/or manufacturing of the products and services set forth in the Proposal. Buyer shall not photocopy, duplicate or in any way copy such intellectual property except for the Buyer's internal purposes only (but not for rendering services or selling products to third persons). Buyer shall not sell, license, assign or transfer the intellectual property protected by this paragraph to anyone. Buyer shall ensure that Owner is in possession of valid licenses for all third-party software (not provided by Hydro) used for the Project, and shall indemnify and hold harmless Hydro against all claims by licensors of such software. Hydro makes no warranty regarding the effect of such third-party software on the performance of the software to be developed by Hydro for the Project and Hydro shall be released from any warranties given to Buyer to the extent that such software causes or contributes to problems. Following acceptance and final payment to Hydro, Hydro will grant to the Owner a non-transferable, non-exclusive license to use the software for the Owner's internal purposes only in the form of the license agreement attached as Exhibit A. Patent: www.hydro-int.com/patents

16. **TAXES.** Prices stated herein do not include any tax, excise, duty or levy now or hereafter enacted or imposed, by any governmental authority on the manufacture, sale, delivery and/or use of any item delivered. An additional charge will be made therefore and paid by Buyer unless Hydro is furnished with a proper exemption certificate relieving Hydro of paying or collecting the tax, excise, duty or levy in question.

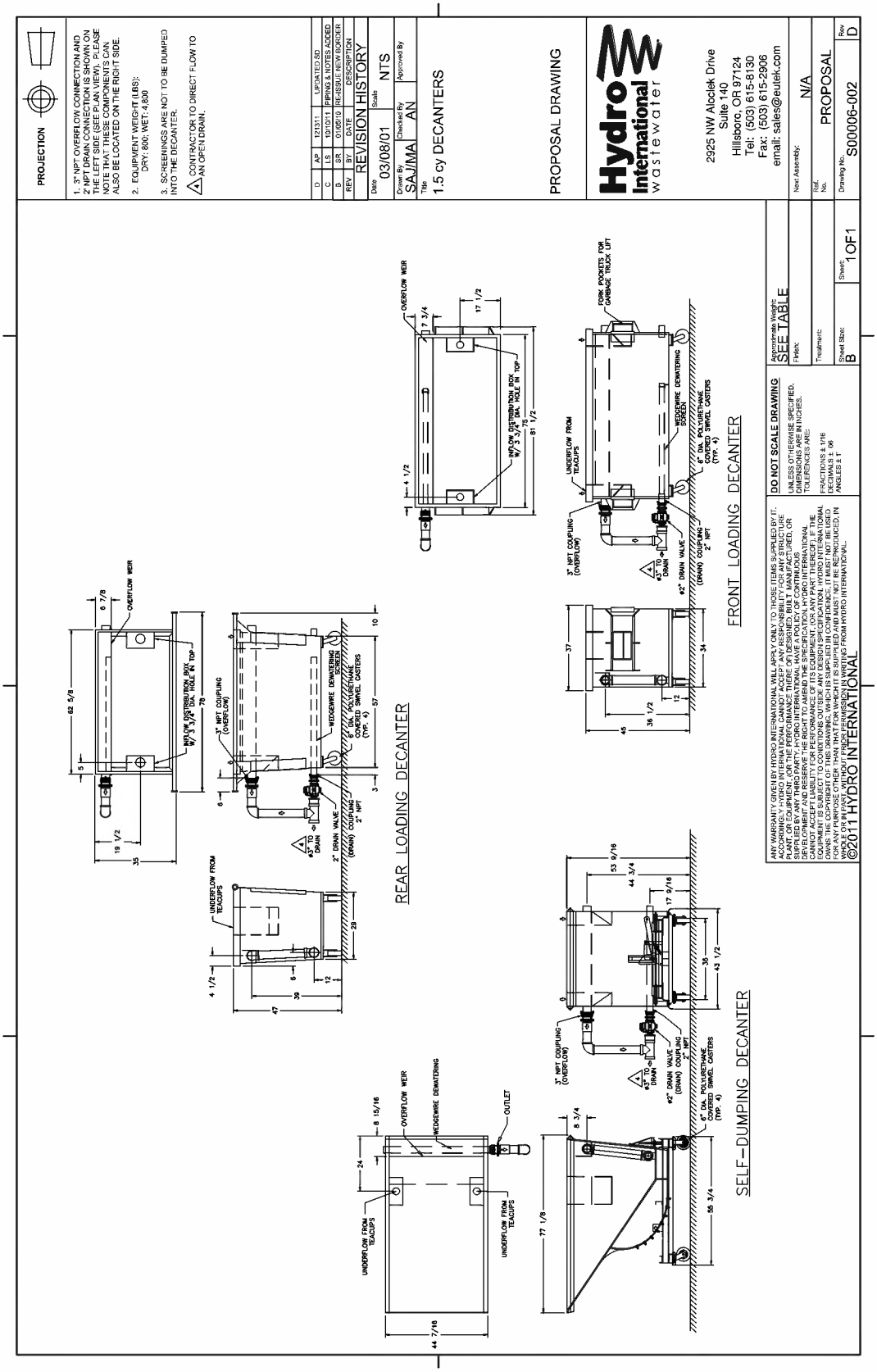
17. **INTERPRETATION OF CONTRACT.** This contract shall be construed according to the laws of the State of Maine.

18. **CHOICE OF FORUM**. Buyer and Hydro hereby consent and agree that the United States District Court for the District of Maine or the District Court or Superior Court located in the City of Portland, County of Cumberland, Maine will have exclusive jurisdiction over any legal action or proceeding arising out of or relating to the contract documents, and each party consents to the personal jurisdiction of such Courts for the purpose of any such action or proceeding. Buyer and Hydro further hereby consent and agree that the exclusive venue for any legal action or proceeding arising out of or relating to the contract documents will be in the County of Cumberland, Maine. Each party hereby waives all rights it has or which may hereafter arise to contest such exclusive jurisdiction and venue.

19. **ATTORNEYS' FEES.** If any judicial or non-judicial proceeding is initiated for the purpose of enforcing a provision of this contract, the prevailing party shall be awarded reasonable attorneys' fees in addition to all other costs associated with the proceeding, whether or not the proceeding advances to judgment.

20. **SEVERABILITY.** If any provisions of this contract are held invalid by a court of competent jurisdiction, the remainder of this contract shall not be rendered invalid, and such invalid provisions shall be modified, in keeping with the letter and spirit of this contract, to the extent permitted by applicable law so as to be rendered valid.

21. **ANTI-BRIBERY.** Hydro International will not engage in any form of bribery or corruption. The offering, giving or receiving of bribes is contrary to Hydro International's values and can play no part in the way in which it carries out its business. Hydro requires you to support our approach and implement provisions consistent with our policy through your own organization and your supply chain. Please find a copy of our Anti-Bribery and Corruption Policy on our website at: https://www.hydro-int.com/sites/default/files/hydro_international_anti-bribery_and_corruption_policy_-_july_2018.pdf


PROJECTION
1. 3" NPT OVERFLOW CONNECTION AND 2" NPT DRAIN CONNECTION IS SHOWN ON THE LEFT SIDE (SEE PLAN VIEW). PLEASE NOTE THAT THESE COMPONENTS CAN ALSO BE LOCATED ON THE RIGHT SIDE.
2. EQUIPMENT WEIGHT (LBS): DRY: 800; WET: 4,800
3. SCREENINGS ARE NOT TO BE DUMPED INTO THE DECANTER.
4 CONTRACTOR TO DIRECT FLOW TO AN OPEN DRAIN.
REVISION HISTORY
REV | BY | DATE | DESCRIPTION
D | AP | 12/13/11 | UPDATED SD
C | LS | 10/10/11 | PIPING & NOTES ADDED
B | SR | 01/05/10 | RE-ISSUE NEW BORDER
Date 03/08/01 Scale NTS
Drawn By SAJ/MA Checked By AN Approved By
Title 1.5 cy DECANTERS
PROPOSAL DRAWING
Hydro International wastewater
2925 NW Aloclek Drive
Suite 140
Hillsboro, OR 97124
Tel: (503) 615-8130
Fax: (503) 615-2906
email: sales@eulek.com
REAR LOADING DECANTER
FRONT LOADING DECANTER
SELF-DUMPING DECANTER
OVERFLOW WEIR
INFLOW DISTRIBUTION BOX W/ 3 3/4 DIA. HOLE IN TOP
3" NPT COUPLING (OVERFLOW)
WEDGEWIRE DEWATERING SCREEN
6" DIA. POLYURETHANE COVERED SWIVEL CASTERS (TYP. 4)
2" DRAIN VALVE (DRAIN) COUPLING 2" NPT
UNDERFLOW FROM TEACUPS
FORK POCKETS FOR GARBAGE TRUCK LIFT
OUTLET
DO NOT SCALE DRAWING
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. TOLERANCES ARE:
FRACTIONS ± 1/16
DECIMALS ± .06
ANGLES ± 1°
Approximate Weight: SEE TABLE
Finish:
Treatment:
Sheet Size: B
Sheet: 1 OF 1
Next Assembly: N/A
Ref. No.: PROPOSAL
Drawing No.: S000006-002
Rev D
ANY WARRANTY GIVEN BY HYDRO INTERNATIONAL WILL APPLY ONLY TO THOSE ITEMS SUPPLIED BY IT. ACCORDINGLY, HYDRO INTERNATIONAL CANNOT ACCEPT ANY RESPONSIBILITY FOR ANY STRUCTURE, PLANT, APPARATUS OR THE LIKE FOR WHICH IT HAS SUPPLIED EQUIPMENT, MATERIALS, STEEL OR SUPPLIED BY ANY THIRD PARTY. HYDRO INTERNATIONAL HAVE A POLICY OF CONTINUOUS DEVELOPMENT AND RESERVE THE RIGHT TO AMEND THE SPECIFICATION. HYDRO INTERNATIONAL CANNOT ACCEPT LIABILITY FOR ERRORS OR INFORMATION CONTAINED IN THIS PUBLICATION. USE OF EQUIPMENT IS SUBJECT TO CONDITIONS OUTSIDE ANY DESIGN SPECIFICATION. HYDRO INTERNATIONAL OWNS THE COPYRIGHT OF THIS DRAWING, WHICH IS SUPPLIED IN CONFIDENCE. IT MUST NOT BE USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SUPPLIED AND MUST NOT BE REPRODUCED, IN WHOLE OR IN PART, WITHOUT PRIOR PERMISSION IN WRITING FROM HYDRO INTERNATIONAL.
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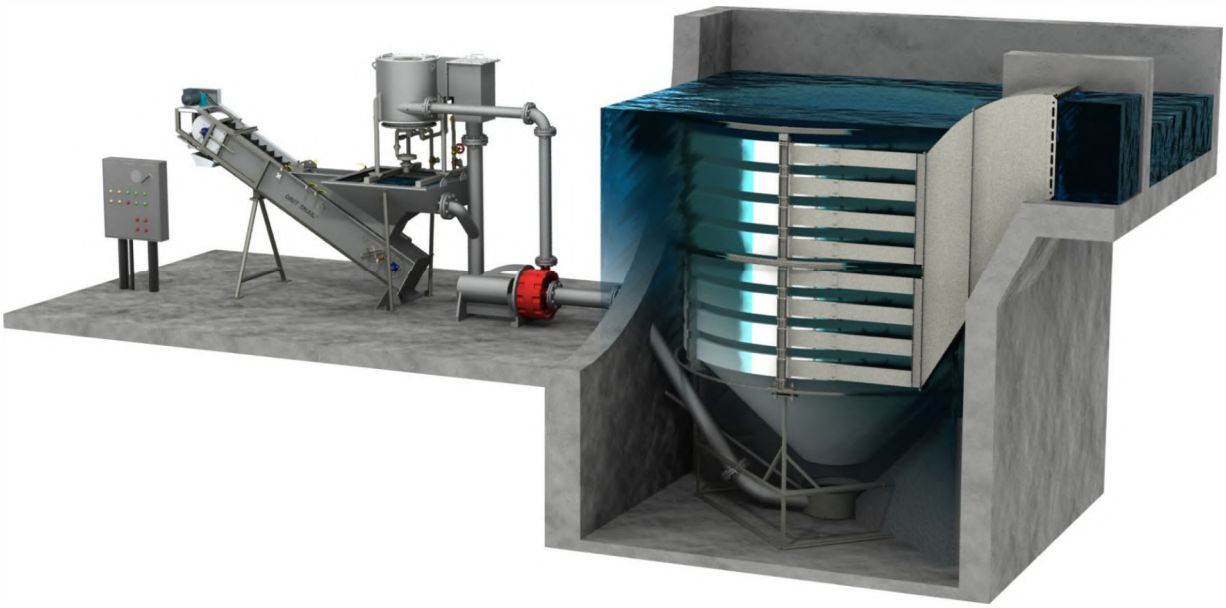


Grit Removal System Proposal Package
Dunedin, FL · Mid County WRF
Kimley-Horn

Manufacturer
Hydro International
2925 NE Aloclek Suite 140
Hillsboro, OR 97124
(866) 615-8130 ph
(503) 615-2906 fax
hydro-int.com

Representative
Moss Kelley, Inc.
725 Primera Blvd. Suite 155
Lake Mary, FL 32746
Phone: (407) 805-0063
Fax: (407) 805-0062

hydro-int.com

Hydro International®

Water & Wastewater Solutions

Hydro International

August 9, 2019

Ms. Shelby Hughes, P.E.
Kimley-Horn
100 Second Ave South #105N
St. Petersburg, FL 33701

RE: Headworks Grit Removal System
Dunedin, FL – Mid County WRF
File #19_11_0403A

Dear Ms. Hughes:

Thank you for your interest in Hydro International. We are pleased to present our proposal for a HeadCell® Grit Removal, Classification, Washing, and Dewatering System. Hydro International is dedicated to providing innovative, high performance advanced grit management systems grit removal equipment. Supported by over 30 years of research, testing both in our lab and in the field, product development and superior engineering we pride ourselves on providing high-quality products and unmatched customer service. Our extensive experience includes thousands of installations throughout the world.

Grit is continually introduced into collection systems, but is not uniformly carried to treatment facilities. As flows increase, the grit load entering the plant elevates. Once in the treatment plant, where velocities are slower, grit will deposit in processes, disrupting systems, decreasing equipment longevity, and increasing maintenance costs. The HeadCell® Grit Removal System offers many benefits over conventional grit removal systems including:

- Complete system designed to process the solids load as well as the hydraulic load through each step of the process, collection, washing/classification and dewatering and producing a clean, dry product.
- Removing fine and slowly settling grit, protecting equipment and processes from abrasive wear and sedimentation
- All-hydraulic design with no moving parts, minimizing operating and maintenance costs
- Small footprint yet capable of high efficiency solids capture and removal
- Robust design allowing long component life with minimal wear

We sincerely appreciate your interest in our equipment and look forward to working with you on this project. As you progress with the design, we can quickly generate CAD drawings, budget updates, and specifications as well as provide review of equipment layouts and specifications for your particular application. Reference lists are available through your local representative. If you have any questions or concerns, do not hesitate to contact us.

Regards,
Hydro International

Dara Rolfe
Applications Engineer

Hydro International
2925 NE Aloclek Suite 140 · Hillsboro, OR 97124
Tel: (866) 615-8130 Fax: (503) 615-2906 Web: hydro-int.com

Performance Objective

Hydro International is pleased to propose the following HeadCell® grit removal, washing, and dewatering system to be installed in an existing plant which has flows of 0.9 mgd average and 2 mgd peak. Each component of the grit removal systems performance shall be outlined below.

Proposed Equipment Summary

HeadCell® Grit Concentrator Unit

The HeadCell® is an all-hydraulic grit concentrator, which uses vortex flow and a stacked tray design to efficiently capture and settle fine grit via large surface area and short settling distances. The HeadCell® includes a system (Patent Pending – Application Number 62/447,688) for directing floatable material towards the effluent weir. The unit can be installed into the process flow, downstream of screening, in any system where limited head is available. The unit requires no external power source, has no internal moving parts, is self-cleaning, and has a compact modular construction. Wide turndown ratios can be accommodated in the HeadCell® when it is combined with Hydro's high performance washing system.

Specifications

Quantity:	1
Size:	6' diameter
Number of Tray/Unit:	5
Surface Area/Unit:	141 ft^2
Loading Rate @ Peak Flow/Unit:	9.8 gpm/ft^2
Performance @ Peak Flow:	95% removal of all grit (SG 2.65) ≥ 106 microns
Performance @ Average Flow:	95% removal of all grit (SG 2.65) ≥ 75 microns
Peak Flow/Unit:	2 mgd with 12" headloss
Average Flow/Unit:	0.9 mgd with 3" headloss
Discharge:	Weir
Underflow Connection:	4" flanged pipe
NPW Connection:	1" NPT
NPW Requirement/Unit:	Intermittent 20 gpm @ 50 psig
Spray Bar Connection:	1.5"
Spray Bar NWP Requirement/Unit:	Intermittent 8 gpm @ 50 psig
Material of Construction:	316 SS Duct, 304 SS Support Structure/Underflow Low Density Polyethylene Trays
Weight Dry (approximate):	930 lbs

TeaCup® Grit Washing / Classification Unit

The TeaCup® is an all hydraulic, high efficiency vortex separator designed to remove grit, sediment and sand from wastewater, raw water and other liquids using vortex motion and boundary layer effects to aid in organics removal. The TeaCup® provides finer particle removal as flow rate increases. The TeaCup® discharges a clean (low organic) grit slurry, which emits fewer odors and requires only dewatering to meet stringent disposal regulations.

Specifications

Quantity:	1
Size:	24" diameter
Performance @ Design Flow:	95% removal of all grit (SG 2.65) ≥ 75 microns @ design flow
Design Flow/Unit:	150 gpm with 39" headloss
Maximum Flow/Unit:	250 gpm with 108" headloss
Influent Solids Concentration:	≤1.0%
Influent Connection:	3" flanged pipe
Effluent Connection:	4" flanged pipe

Underflow Connection:	3” flanged pipe
NPW Connection:	1.5” NPT
NPW Requirement/Unit	Intermittent 20-30 gpm @ 50 psig (for 30-120 sec. every 1–2 hrs.)
Material of Construction:	304 SS
Weight Dry/Wet (approximate):	650/750 lbs
Operation Time:	Continuous or a minimum of 10-15 minutes

Decanter Dewatering Unit

The Decanter dewaters grit by quiescently settling high-density solids to retain all grit and abrasives. The Decanter is an economical option for smaller plants that require performance dewatering. The Decanter comes in three basic configurations to match local disposal trucks or equipment configurations: front-loading, rear-loading, and self-dumping.

Specifications

Quantity	1
Size:	1.5 cy
Overflow Connection:	3” NPT
Drain Connection:	2” NPT
Drain Screen:	0.10” 304 SS wedgewire
Material of Construction:	Galvanized Steel
Weight Dry/Wet (approximate):	800 / 4800 lbs.
Performance:	≥60% (wt.) total solids and ≤25% volatile solids

Grit Pump

The grit pump shall be designed to convey grit slurry from the HeadCell® grit concentrator unit to the TeaCup® grit washing/classification unit. The grit pump shall be a recessed impeller, vortex-type unit, specifically designed to pump slurries of grit, debris and organic solids without clogging. The parts exposed to abrasive wear (case, impeller and wearplate) shall have a minimum 650 Brinell hardness for maximum wear resistance.

Specifications

Quantity:	1
Style:	Dry- Pit
Nominal Size:	TBD
Design Flow Rate:	150 gpm
Design TDH:	30’
Power Supply:	480V/3-phase
Horsepower:	TBD

Control Panel

The panel shall contain all timers, VFD, switches, and indicator lights to operate one (1) HeadCell® spray bar and fluidizing systems, one (1) TeaCup® unit and one (1) grit pump in either fully automated or manual mode.

Specifications

Quantity:	1
Enclosure Material:	304 SS
Enclosure Type:	NEMA 4X
Power Supply:	480V/3-phase
Control Logic:	Programmable Relay
Grit Pump Control:	VFD

System Hydraulics

System hydraulics is the responsibility of the design engineer. Hydro International can provide information on HeadCell® hydraulics, TeaCup® flow vs. headloss curves and pumping and piping FAQ’s to assist the engineer in determining system hydraulics and pump requirements, upon request.

Design Recommendations

- 1/2" or finer screening prior to the grit removal system
- Velocity through bar screen openings/slots/apertures should not exceed 4 ft/s at peak flow as recommended by industry design manuals.
- Estimated grit load at peak flow is 0.05 yd^3/hr.
- Stated output grit quality (total solids/volatile solids) is based on a minimum plant influent grit quantity of 50 pounds FS/million gallon.
- All piping connected to Hydro equipment must be supported by other means than the Hydro equipment
- 2 – 3 ft/s channel velocities at peak flow as recommended by industry design manuals
- 4 – 7 ft/s grit slurry pipe velocities as recommended by industry design manuals
- Incorporate a drain line, piped to a floor drain, in the grit dumpster to allow for further dewatering prior to disposal
- A minimum 18" of access clearance around all equipment and minimum 3' of access clearance above equipment
- Operators find that it is useful to locate a spray hose adjacent to the equipment so that they can spray all equipment down during an inspection
- Incorporate a minimal access platform to facilitate inspection access to the top of the equipment
- Intermittent operation of grit pump/TeaCup® system may be an option. Contact Hydro for further information.
- Discharge chutes for grit should be at a minimum 45° incline if it is open chute. If it is an enclosed chute/pipe/tube then a minimum angle of 60° is required to ensure plugging does not occur.
- Grit pumps may require NPW for seal flushing. Requirements for flushing are dependent on the make, model, and seal type of the pump specified by the engineer.

Start-up

One (1) factory trained representative, two (2) trips, for start-up and instruction services as required totaling four (4) days.

Quote Validity: 30 days After expiration of validity Hydro International reserves the right to adjust pricing to account for any significant increases in material costs.

Exclusions

Any item(s) not specifically described above are excluded and are not to be supplied by Hydro International including but not limited to the following:

- Field assembly, erection and installation
- Anchor Bolts
- Interconnecting piping and valving not expressly stated above
  Pipe connections and fittings not expressly stated above
- All pipe supports, hangers and braces
- Controls, switches, control panels and instrumentation of any kind not expressly stated above
- Wiring and conduit
- Grit pump(s) and associated piping, valving, gauges
- Covers and access hatches
- Field or touch-up paint, painting, blasting and touch-up of surface finish
- Spare parts not specifically stated above
- Unloading, hauling and storage charge
- Lubricating oil and greases
- Grit study, field performance testing, laboratory testing and sample collection and analysis
- All concrete and grouting work
- Insulation and heat tracing of any kind
- Structural / Seismic analysis
- Performance, Warranty, Efficacy and/or Supply Bond(s)
- Grit dumpsters
- Translation Services

Options

Quotes will be provided upon request for the following optional features:

- Additional field days for startup or training
- Explosion proof upgrade
- PLC Based Control Panel
- Upgrade 304 to 316 Stainless Steel
- Structural / Seismic Anchorage Certification
- Field performance testing, laboratory testing and sample collection and analysis
- Service & maintenance contract
- Additional Decanters
- Extended warranty

Warranty

Hydro International's Standard Warranty shall apply per the Terms and Conditions of Sale.

Delivery

Please allow 4 to 6 weeks after receipt of purchase order for approval drawings. Shipment is typically a maximum of 12-16 weeks after receipt of "Approved" or "Approved As Noted, Resubmittal Not Required" submittal package. Price includes truck freight to jobsite, but does not include any state or local taxes if required.

Terms & Conditions

This proposal is made pursuant to Hydro International's standard Terms & Conditions of Sale, attached hereto and made a part hereof.

Contacts

Plant Representative:

Mr. Cameron Young

Moss Kelley, Inc.

725 Primera Blvd. Suite 155

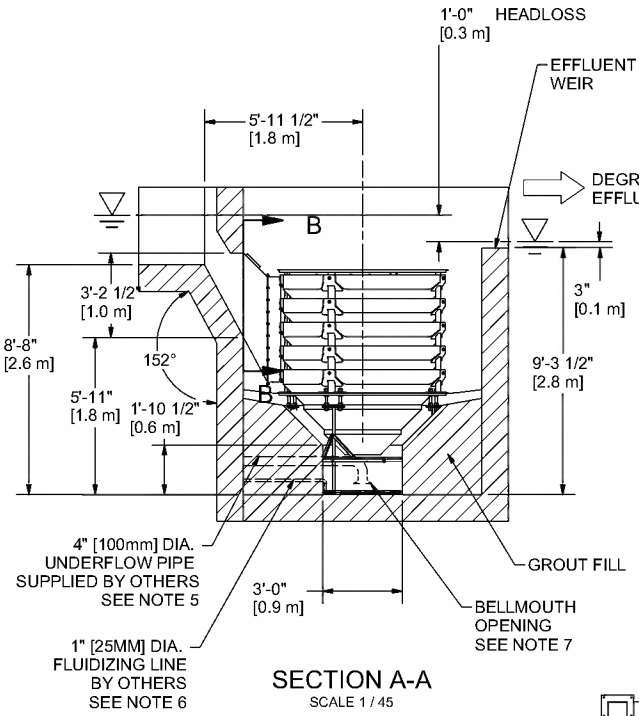
Lake Mary, FL 32746

Phone: (407) 805-0063

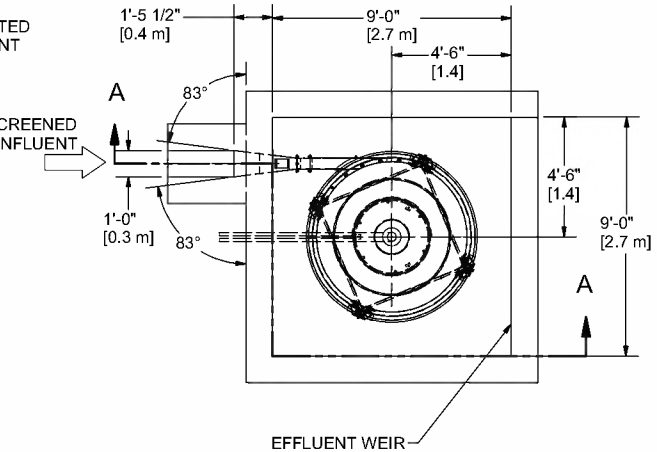
Fax: (407) 805-0062

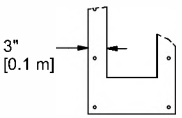
Email: cjy@mosskelley.com

DO NOT CHANGE DUCT LAYOUT OR PIPE ORIENTATION
WITHOUT CONSULTING HYDRO INTERNATIONAL

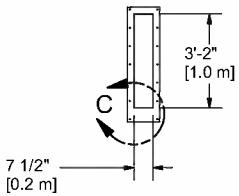


SECTION A-A
SCALE 1 / 45





DETAIL C
SCALE 1 / 15



SECTION B-B
SCALE 1 / 40

PROJECTION

COMMENTS
1. ALLOW GRIT PUMP TO FULLY DRAIN HEADCELL TANK.

2. PLANT FLOW BYPASS RECOMMENDED TO ALLOW THE HEADCELL TO BE TAKEN OUT OF SERVICE FOR MAINTENANCE.

3. CLOCKWISE & COUNTERCLOCKWISE UNITS ARE AVAILABLE. CW SHOWN.

4. ALTERNATE EFFLUENT CONFIGURATIONS ARE AVAILABLE.

5. THE GRIT PUMP SUCTION LINE SHOULD BE DESIGNED FOR A 4-7 FT/S [1.2-2.2 M/S LINE VELOCITY.

6. FLUIDIZING WATER REQUIREMENTS
20 GPM [1.3 L/S] FOR 6',HEADCELL AT 50PSI

7. DISTANCE BETWEEN BELL MOUTH AND BOTTOM OF TANK 1.25 X SUCTION PIPE DIAMETER

REVISION HISTORY			
REV	BY	DESCRIPTION	DATE
A	DR	FIRST RELEASE	2/19/19

DATE 2/19/2019	SCALE 1 / 45
DRAWN BY DR	CHECKED BY AS / APPROVED BY JG

Title
HEADCELL
6' DIAMETER
5 TRAYS
CONCRETE DUCT
INTERMITTENT UNDERFLOW
106 MICRON

Proposal

Hydro International
2925 NW Aloclek Drive
Suite 140
Hillsboro, OR 97124
Tel: +1 (503) 615-8130
Fax: +1 (503) 615-2906
hydro-int.com

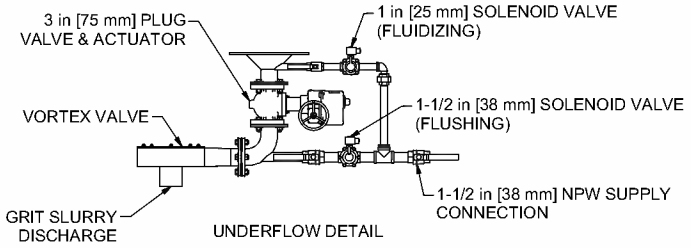
DO NOT SCALE DRAWING

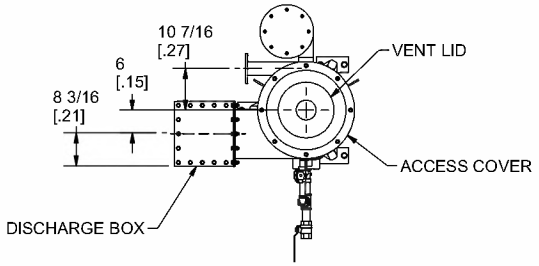
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES

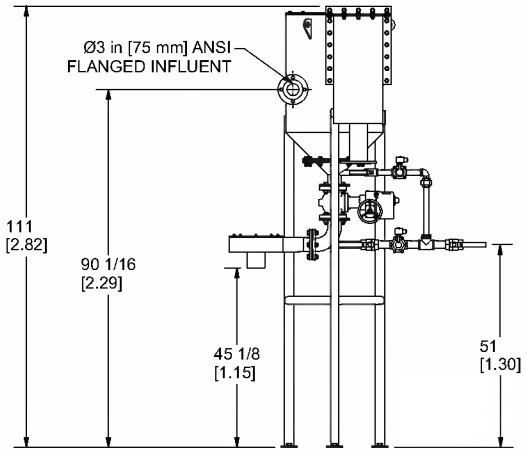
TOLERENCES ARE
FRACTIONS ± 1/16
DECIMALS
.X X ± .06
.X XX ± .03
.X XXX ± .015
ANGLES ± .5°

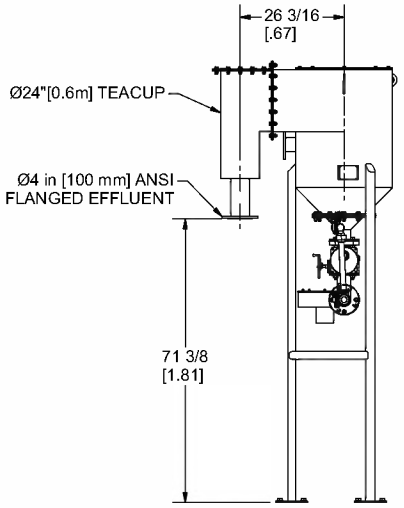
WEIGHT 926.1 lbmass	MATERIAL
NEXT ASSEMBLY 6' 5T 0.48 INT-CON	
DRAWING NO 6' 5T 0.48 INT-CON	
SHEET SIZE B	SHEET 1 OF 2 / Rev A

000178









PROJECTION

COMMENTS

1. TEACUPS ARE AVAILABLE IN CW & CCW ORIENTATION.
2. PLUMBING WILL BE LAYED OUT AND INSTALLED ON EQUIPMENT DURING FABRICATION.
3. CONTRACTOR REQUIRED TO MAKE ONE CONNECTION FOR THE NPW SUPPLY.
4. TEACUP WEIGHT: DRY: 1,000 LBS ; WET: 1,300 LBS
5. PROVIDE 18" OF CLEARANCE AROUND AND 3' ABOVE EQUIPMENT FOR O&M.
6. NPW REQUIREMENTS: INTERMITTENT 30 GPM @ 50 PSIG ±10 PSIG

REVISION HISTORY

REV	BY	DESCRIPTION	DATE
A	DR	FIRST RELEASE	2/22/17

DATE	SCALE
2/22/2017	1:25

DRAWN BY	CHECKED BY	APPROVED BY
DR	AS	JG

Title
24 INCH - 75 MICRON

TEACUP

Proposal Drawing

Hydro International

2925 NW Aloclek Drive
Suite 140
Hillsboro, OR 97124
Tel: +1 (503) 615-8130
Fax: +1 (503) 615-2906
hydro-int.com

DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES [METERS]
TOLERENCES ARE
FRACTIONS ± 1/16
DECIMALS
.X X ± .06
.X XX ± .03
.X XXX ± .015
ANGLES ± .5°

WEIGHT	MATERIAL
1009.8 lbmass	

NEXT ASSEMBLY
TC24-75DB-01

DRAWING NO
TC24-75DB-02

SHEET SIZE	SHEET	Rev
B	1 OF 1	A

000179

SUNSHINE WATER SERVICES COMPANY
APPENDIX D TO EXHIBIT ST-2
WITNESS: SEAN TWOMEY
PAGE 126 OF 349

Water & Wastewater Solutions

Hydro International

North American Grit Gradations

Hydro International is pleased to announce the availability of national and regional grit gradation data. This data, which has been compiled from over 120 tests across North America, contains average physical size data as well as settling velocity (SES) data, making it the most comprehensive information available on grit and its behavior.

Virtually all conventional grit removal processes rely on gravity sedimentation to achieve the separation of grit from wastewater. Most conventional grit removal processes are designed based on the assumption that grit is spherical and has a specific gravity 2.65. However, not all grit maintains a specific gravity of 2.65 and other factors such as shape and encapsulation by fats, oils and grease significantly impact its settling velocity. Therefore, the best means to analyze grit is to determine the settling velocity for given particle size ranges. Settling velocity data can be correlated to the measured settling velocity of a clean sand sphere. The settling velocity is expressed as the Sand Equivalent Size (SES), which is the sand particle size having the same settling velocity as the more buoyant grit particle. The correlated particle size, or Sand Equivalent Size can then be used for design of the grit removal process.

When settling velocity is considered in the design actual removal efficiency of grit particles can be estimated more realistically.

Data is available for the following regions:

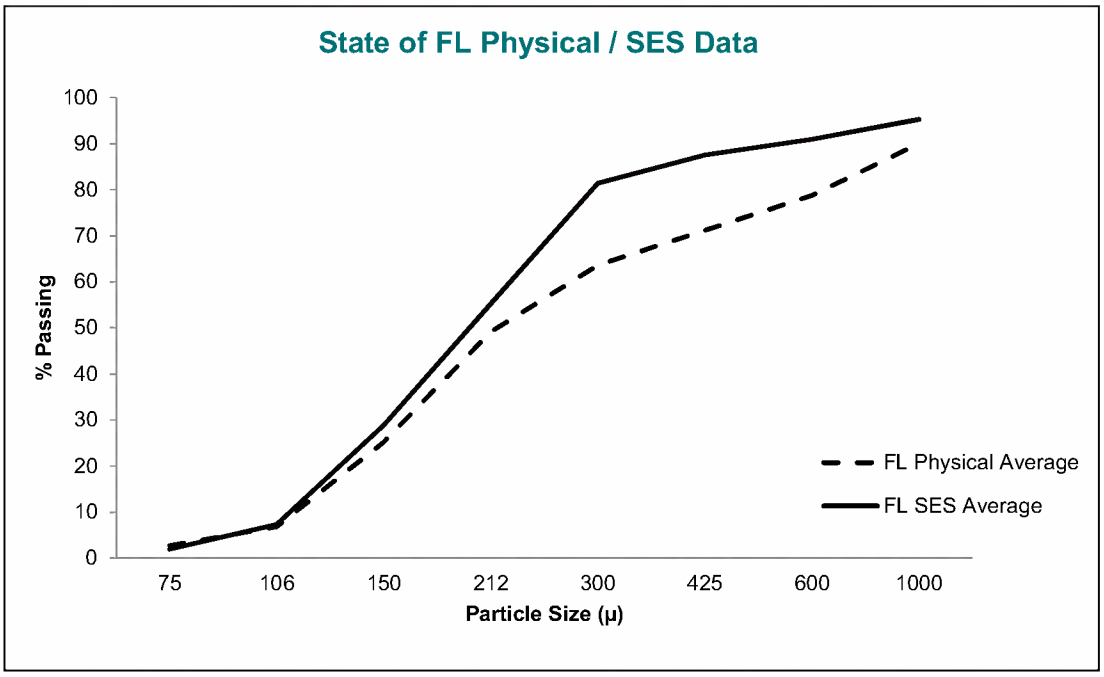
Region	States / Provinces Included
Northeast	ME, VT, NH, MA, RI, NY, CT
Mid-Atlantic	PA, NJ, MD, DE, DC, VA, WV
Southeast	NC, SC, GA, AL, FL, MS
North Central	MO, KS, KY, IN, OH, IL, MI, WI, IA, MN, ND, SD, NE
South Central	TN, AR, OK, TX, LA
West	WA, OR, CA, AK, HI, AZ, NV, NM, CO, ID, MT, UT, WY
Western Canada	AB, MB, SK
Ontario Canada	ON

State data is available for individual states where more than 5 data points are available; those states currently include: Georgia, Texas, Florida, California, and Virginia.

Hydro International
2925 NE Aloclek Suite 140 · Hillsboro, OR 97124
Tel: (866) 615-8130 Fax: (503) 615-2906 Web: hydro-int.com

Hydro-Int.com

Florida Gradation



Micron	% Passing								
	75	106	150	212	300	425	600	1000	
FL Physical Average	2.7	6.8	25.3	49.2	63.6	71.2	78.8	90.0	*Physical*
FL SES Average	2.0	7.4	28.9	55.2	81.4	87.5	91.0	95.3	*SES*

The above table shows the % of grit passing through various sieve sizes based on physical size (unshaded) and Sand Equivalent Size (SES) (shaded). SES provides the settling velocity distribution of the grit particles.

Standard Terms and Conditions of Sale

1. **DEFINITIONS.** "Hydro" is Hydro International with an address of 2925 NE Aloclek Drive #140 in Hillsboro, Oregon. "Buyer" is the party purchasing the goods from Hydro.

2. **ENTIRE AGREEMENT**. Hydro's agreement is based on these terms and conditions of sale. This document, together with any additional writings signed by Hydro, represents a final, complete, and exclusive statement of the agreement between the parties and may not be modified, supplemented, explained, or waived by parol evidence, Buyer's purchase order, any course of dealing, Buyer's payment or acceptance, or in any other way except in writing signed by Hydro through its authorized representative. These terms and conditions are intended to cover all activity of Hydro and Buyer hereunder, including sales and use of products, parts, and work, and all related matters (references to products include parts and references to work include construction and installation). Hydro's obligations hereunder are expressly conditioned on Buyer's assent to these terms and conditions. Hydro objects to any terms that are different from, or additional to, these terms and conditions. Any applicable detail drawings and specifications are hereby incorporated and made a part of these Terms and Conditions of Sale insofar as they apply to the material supplied hereunder.

3. **SPECIFICATIONS.** Products are supplied in accordance with information received by Hydro, or its duly authorized agent, from Buyer. Hydro shall have no responsibility for products created or sold based upon inaccurate and/or incomplete information supplied to it. Buyer shall ensure that Hydro receives all relevant information in time to enable it to supply the appropriate products.

4. **INSTALLATION AND APPLICATION OF PRODUCTS.** Products supplied hereunder shall be installed and used only in the application for which they were specifically designed. Buyer should not presume that any products supplied by Hydro may be utilized for any applications other than those specified; nor shall Hydro's obligations, including, without limitation, any warranty obligations, survive Buyer's transfer of products supplied hereunder to third parties unless the products are transferred with Hydro's consent. In addition, Buyer shall not use any product supplied hereunder at any location other than at the location for which Hydro has previously received notice from Buyer. Any breach of any of the foregoing restrictions may amount to an infringement of the patent for the products in question and will in any event void all express or implied warranties relating to the products supplied hereunder.

5. **PURCHASE PRICE AND PAYMENT TERMS.** All prices are in U.S. dollars and all payments shall be made in U.S. dollars. Payment terms are as follows:

	Incremental Payment	Cumulative Payment
Upon Approval of Shop Drawings	10%	10%
Upon Delivery of Equipment to Site	80%	90%
Upon Final Acceptance or 45 days following completion of equipment start up	10%	100%

If payments are not made in conformance with the terms stated herein, any unpaid balance shall be subject to interest at a rate 1½% per month, but not to exceed the maximum amount permitted by law. If shipment is delayed by Buyer, the previously agreed date of readiness for shipment shall be deemed to be the date of shipment for payment purposes. If manufacture is delayed by Buyer, a payment shall be made based on purchase price and percentage of completion, with the balance payable in accordance with the terms as stated. If at any time in Hydro's judgment Buyer may be or may become unable or unwilling to meet the terms specified, Hydro may require satisfactory assurance or full or partial payment as a condition to commencing, or continuing manufacture, or in advance of shipment.

Until payment in full has been received by Hydro, this Standard Terms and Conditions of Sale shall constitute a security agreement and Buyer hereby grants Hydro a purchase money security interest in and to the products produced by Hydro hereunder, and any products or proceeds thereof. In particular:

a. Hydro will retain an express purchase money security interest in and to the products and all proceeds thereof.

b. Until full payment for the products is received by Hydro, Hydro reserves the right to retake possession of the products at any time and for this purpose Buyer authorizes Hydro or its duly authorized agent to enter upon land or premises where it believes the product may be.

c. Proceeds of any disposal of the products shall be held in trust for Hydro pursuant to the terms of the Maine Uniform Commercial Code.

d. Buyer grants Hydro a power of attorney for the purpose of filing a UCC-1 financing statement in the name of Buyer to evidence Hydro's security interest in the products.

6. **BACKCHARGES.** In the event that Buyer is required to make repairs, corrections or modifications to the goods supplied by Hydro, it shall only do so upon written approval from Hydro. Backcharges shall be limited to the costs directly associated in making the repairs, corrections or modifications to the goods supplied by Hydro. The costs of such backcharges shall be subject to approval by Hydro and shall be limited to: (1) directly related labor and material costs, (2) directly related equipment and tool rental at prevailing rates in the project location and (3) Buyer's overhead & supervision costs to make repairs, corrections or modifications to the goods supplied by Hydro. Buyer shall submit complete documentation to Hydro's satisfaction including but not limited to labor time sheets, material lists, and rental fees detailing the nature of the back charges. Backcharges shall be in the form of an adjustment to the contract price or reduction in retained payments and not a direct payment. No incidental or consequential backcharges shall be allowed.

7. **DELIVERY.** The goods are sold DDP (Incoterms 2010) jobsite, freight prepaid to Buyer at job site. Except as outlined in Paragraph 8 below, the risk of loss passes to Buyer after Hydro delivers the goods to the jobsite. Hydro reserves the right to select the method of shipment and carrier. Delivery dates are approximate only and are not a guarantee of delivery on a particular day. Hydro is not liable for failure or delays in deliveries of any cause whatsoever beyond the control of Hydro.

8. **TITLE & INSURANCE:** Title to the product(s) and risk of loss or damage shall pass to Buyer upon delivery to a carrier as outlined in Paragraph 7 above, or, in the event Buyer delays shipment, by the previously agreed date of readiness for shipment, except that a security interest in the product(s) or any replacement shall remain in Hydro's name, regardless of the mode of attachment to realty or other property, until the full price has been paid in cash. Buyer agrees to protect Hydro's interest by adequately insuring the product(s) against loss or damage from any external cause with Hydro named as insured or co-insured.

9. **ERECTION:** Unless otherwise stated in writing, the goods provided hereunder shall be assembled and erected by and at the expense of Buyer.

10. **CANCELLATION & BREACH:** Orders placed cannot be canceled, nor shipments of goods made up, or in process, be deferred beyond the original shipment dates specified, except with Hydro's written consent and upon terms which shall indemnify Hydro against all loss. In the event of cancellation or the substantial breach of Buyer's obligations, as by failing to make any of the payments when due, the parties agree that Hydro will suffer a serious and substantial damage that will be difficult, if not impossible, to measure, both as of the time of entering into this purchase agreement and as of the time of such cancellation or breach. Therefore, the parties agree that, upon such cancellation or breach, Buyer shall pay to Hydro the sums set forth herein below, which sums the parties do hereby agree shall constitute agreed and liquidated damages in such event:

    a. If cancellation or breach shall occur after the acceptance of the purchase order but prior to mailing of submittal documents by Hydro to Buyer, liquidated damages shall be 10% of the selling price.

    b. If cancellation or breach shall occur within thirty (30) days from the mailing of submittal documents by Hydro to Buyer, the liquidated damages shall be 20% of the selling price.

    c. If the cancellation or breach occurs after thirty (30) days from the mailing of submittal documents by Hydro to Buyer, but prior to notification that the order is ready for shipment, the liquidated damages shall be the total of 30% of the selling price plus the expenses incurred, cost of material, and reasonable value of the work expended to fill the order involved herein by Hydro's engineers and other employees, agents and representatives after the mailing of general arrangement drawings by Hydro to Buyer, said sums to be determined at the sole reasonable discretion of Hydro; provided, however, that the total liquidated damages under this provision shall not exceed the total selling price.

    d. If cancellation or breach shall occur after Hydro has notified Buyer that the order is ready for shipment, then the liquidated damages shall be the total selling price, less costs associated with startup or field testing.

11. **MATERIALS OF CONSTRUCTION, PAINTS AND COATINGS**: Buyer is responsible for determining the suitability of, and for giving final approval of, the materials of construction, paints, coatings, etc. to be used by Hydro.

12. **WARRANTY:** Any product that proves defective in material, workmanship or design within twelve (12) months after delivery (or entry into storage) will be, at the discretion of HYDRO, modified, repaired or replaced, or Buyer's payment for the products will be refunded. This shall be Buyer's sole remedy. HYDRO EXPRESSLY EXCLUDES AND DISCLAIMS ANY WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHER WARRANTIES, EXPRESS OR IMPLIED.

    This warranty does not cover any defects or costs caused by: (1) normal wear and tear of equipment from designed operation. (2) modification, alteration, repair or service of the goods by anyone other than Hydro; (3) physical abuse to, or misuse of, the goods, or operation thereof in a manner contrary to Hydro's instructions; (4) any use of the goods other than that for which they were intended; (5) chemicals or components which were not disclosed to Hydro; (6) storage contrary to Hydro's instructions; or (7) failure to maintain the goods in accordance with Hydro's instructions.

    This warranty does not apply to component parts of the goods that were not both originally designed and manufactured by Hydro, including, but not limited to, valves and controls. These component parts do not carry any warranties by Hydro, and only carry the warranties, if any, of their manufacturers.

In order for Buyer to make a claim under this warranty, Buyer must promptly, and within the warranty period, notify Hydro in writing of any defect(s) in the goods covered by this warranty. If any defect(s) in the goods covered by this warranty are visible at the time of delivery, Buyer must notify Hydro of the defect(s) in writing within five working days. To make any claim under this warranty, Buyer must also fully comply with written authorization and return instructions from Hydro.

13. **FIELD SERVICE:** Startup/Field Service will only be scheduled upon written request. Buyer shall notify Hydro of schedule requirements at least ten (10) working days in advance, or additional charges may be added to cover late-scheduled travel costs. Additional costs will be limited to those arising out of late-scheduled costs. Should Buyer have outstanding balances due Hydro, no startup / field service will be scheduled until such payments are received by Hydro. Hydro will send documents to Buyer defining the service or startup requirements. Buyer assumes all responsibility for the readiness of the system when it requests startup service. Should Hydro's Field Service Engineer arrive at the jobsite and determine that the system cannot be started up within a reasonable time, Hydro shall have the option to bring the Field Service Engineer home and bill Buyer for time, travel and living expenses. Additional field service is available from Hydro at the prevailing per-diem rate at the time of the request for service plus all travel and living expenses, portal-to-portal. A purchase order or change order will be required prior to scheduling this additional service.

14. **LIMITATION OF HYDRO'S LIABILITY**. Hydro assumes no liability or responsibility for the misuse of its products by Buyer, Buyer's employees, agents or assigns, or other use inconsistent with the use appropriate to the performance specification requirements submitted to Hydro, and Buyer agrees to indemnify and hold harmless Hydro for any loss, costs, expense or liability that it may incur or be put to as a result of misuse or inconsistent use of the products. In addition, Hydro shall have no liability to Buyer for any consequential or incidental damages incurred by Buyer in connection with the contract documents or the products purchased by Buyer. Hydro shall not be liable for any loss which results from delay in delivery caused by any reason beyond its control, including, but not limited to, acts of God, casualty, civil disturbance, labor disputes, strikes, transportation or inability to obtain materials or services, any interruption of its facilities, or act of any governmental authority. The time for delivery shall be extended during the continuance of such conditions. The total liability of Hydro to Buyer in the form of liquidated damages for any loss, indemnity, damage or delay of any kind will not under any circumstances exceed 25% of the Contract Sum.

15. **INTELLECTUAL PROPERTY**. Hydro shall retain sole ownership of all of its intellectual property used or produced in connection with the Project, including but not limited to all drawings, specifications, software, written materials, manuals, marks, business methods, and all other property that is capable of protection by a patent, copyright or trademark (whether or not such protection has actually been sought). Buyer shall not use such intellectual property except for the purpose of confirming the quality of design and/or manufacturing of the products and services set forth in the Proposal. Buyer shall not photocopy, duplicate or in any way copy such intellectual property except for the Buyer's internal purposes only (but not for rendering services or selling products to third persons). Buyer shall not sell, license, assign or transfer the intellectual property protected by this paragraph to anyone. Buyer shall ensure that Owner is in possession of valid licenses for all third-party software (not provided by Hydro) used for the Project, and shall indemnify and hold harmless Hydro against all claims by licensors of such software. Hydro makes no warranty regarding the effect of such third-party software on the performance of the software to be developed by Hydro for the Project and Hydro shall be released from any warranties given to Buyer to the extent that such software causes or contributes to problems. Following acceptance and final payment to Hydro, Hydro will grant to the Owner a non-transferable, non-exclusive license to use the software for the Owner's internal purposes only in the form of the license agreement attached as Exhibit A. Patent: www.hydro-int.com/patents

16. **TAXES.** Prices stated herein do not include any tax, excise, duty or levy now or hereafter enacted or imposed, by any governmental authority on the manufacture, sale, delivery and/or use of any item delivered. An additional charge will be made therefore and paid by Buyer unless Hydro is furnished with a proper exemption certificate relieving Hydro of paying or collecting the tax, excise, duty or levy in question.

17. **INTERPRETATION OF CONTRACT.** This contract shall be construed according to the laws of the State of Maine.

18. **CHOICE OF FORUM**. Buyer and Hydro hereby consent and agree that the United States District Court for the District of Maine or the District Court or Superior Court located in the City of Portland, County of Cumberland, Maine will have exclusive jurisdiction over any legal action or proceeding arising out of or relating to the contract documents, and each party consents to the personal jurisdiction of such Courts for the purpose of any such action or proceeding. Buyer and Hydro further hereby consent and agree that the exclusive venue for any legal action or proceeding arising out of or relating to the contract documents will be in the County of Cumberland, Maine. Each party hereby waives all rights it has or which may hereafter arise to contest such exclusive jurisdiction and venue.

19. **ATTORNEYS' FEES.** If any judicial or non-judicial proceeding is initiated for the purpose of enforcing a provision of this contract, the prevailing party shall be awarded reasonable attorneys' fees in addition to all other costs associated with the proceeding, whether or not the proceeding advances to judgment.

20. **SEVERABILITY.** If any provisions of this contract are held invalid by a court of competent jurisdiction, the remainder of this contract shall not be rendered invalid, and such invalid provisions shall be modified, in keeping with the letter and spirit of this contract, to the extent permitted by applicable law so as to be rendered valid.

21. **ANTI-BRIBERY.** Hydro International will not engage in any form of bribery or corruption. The offering, giving or receiving of bribes is contrary to Hydro International's values and can play no part in the way in which it carries out its business. Hydro requires you to support our approach and implement provisions consistent with our policy through your own organization and your supply chain. Please find a copy of our Anti-Bribery and Corruption Policy on our website at: https://www.hydro-int.com/sites/default/files/hydro_international_anti-bribery_and_corruption_policy_-_july_2018.pdf

VEOLIA

MID COUNTY, FL – GRIT REMOVAL SYSTEM

ATTN:

VEOLIA LOCAL REPRESENTATIVE

ENVIRONMENTAL EQUIPMENT SERVICES
CONTACT: MR. CORY PEAVY
P. 863-640-0201

January 28, 2019

BUDGET PROPOSAL REV0
VEOLIA PROJECT NO. US_01_19_236666

As specialists in potable water, process water, wastewater treatment and stormwater management, the **John Meunier Products** equipment has been serving North American municipalities and industries since 1948.
Further to your request, we are pleased to submit our budget proposal for the supply only of the equipment listed hereafter.

The following equipment selection has been based on a **peak flow of 1.2 MGD** of municipal waste water. As some essential information is not available at this time, the hydraulic profile has been based on the assumption of a freefall condition in the channel downstream of the grit chamber.
Should the operating conditions differ we will be pleased to review our selection accordingly.

Option 1: Self-Standing BioMECTAN® (New Veolia Equipment)

For this application, we recommend our **John Meunier BioMECTAN® Advanced Hybrid Vortex Grit Removal System** to capture grit from municipal waste water. Grit extraction shall be performed with a bottom suction grit pump to discharge in our **SAM® Type GDS Grit Dewatering Screw** to wash and dewater the grit.

Item	Quantity	Description	Model Number		Price (USD)
JOHN MEUNIER® Products – Grit Removal System					
A.	One (1)	BioMECTAN® Grit Removal System w/ Stainless Steel tank	JMDB/1-20SXH		Included
B.	One (1)	Gorman-Rupp® Grit Pump	Super T-Series 4x4		Included
C.	One (1)	SAM® Type GDS Grit Dewatering Screw	GDSCF/9-12-25XA		Included
D.	One (1)	Relay-Based Control System (Veolia Standard)			Included
E.		Factory Start-Up Service	1 Trip	2 days	Included
F.		Freight Charges to Site (DDP – Incoterm 2010)			Included
		TOTAL BUDGET PRICE (as per Scope of Supply and General Conditions)			**$207,750.00**

Option 2: Concrete Channel Installation – Mectan® V w/ SAM® type GDS

For this option, we propose our **John Meunier Mectan® V 360 degrees forced Vortex Grit Separator** to capture grit from municipal waste water. Grit extraction shall be performed with a top mounted grit pump to discharge in our **SAM® Type GDS Grit Dewatering Screw** to wash and dewater the grit.

Item	Quantity	Description	Model Number		Price (USD)
JOHN MEUNIER® Products – Grit Removal System					
G.	One (1)	Mectan® Grit Removal Mechanism	JMDV/1-20ISXH		Included
H.	One (1)	Gorman-Rupp® Grit Pump	Super T-Series 4x4		Included
I.	One (1)	SAM® Type GDS Grit Dewatering Screw	GDSCW/9-10-25XA		Included
J.	One (1)	Relay-Based Control System (Veolia Standard)			Included
		Factory Start-Up Service	1 Trip	2 days	Included
		Freight Charges to Site (DDP – Incoterm 2010)			Included
		TOTAL BUDGET PRICE (as per Scope of Supply and General Conditions)			**$155,750.00**

WATER TECHNOLOGIES

Should you have any questions regarding this proposal, do not hesitate to contact the undersigned.
Sincerely,

Siham El Murr, P.Eng.
Application Engineer, Tender Team | Pretreatment & CSO

VEOLIA

GENERAL CONDITIONS

SCHEDULE

a. **SUBMITTAL DOCUMENTS AND SHOP DRAWINGS** — **4 TO 6 WEEKS**
After receipt of a signed and approved purchase order, Mechanical and Electrical submittal sections might be sent separately.

b. **APPROVAL OF SUBMITTAL DOCUMENTS AND SHOP DRAWINGS** — **2 WEEKS***
After emission of submittal documents and drawings from Montreal

c. **MANUFACTURING, TESTING AND PREPARATION FOR SHIPMENT** — **16 TO 20 WEEKS**
After receipt in Montreal of approved submittals documents and drawings.
This schedule is subject to change based on factory loading at the time of the submittals approval.

d. **TRANSPORTATION TIME** — **UP TO 5 DAYS**
Time anticipated. Veolia has no control on transport, transit time cannot be guaranteed

** Delays beyond the control of VEOLIA could affect pricing and project schedule*
Schedule may be affected by our shop and office annual shutdowns (when applicable): two weeks at the end of July (shop only) and two weeks for Christmas Holidays. These weeks are to be added to our specified delivery time.

WARRANTY PERIOD

- **12 months** from date of equipment Start Up, or
- **18 months** from date of shipment (Ex-Works Montreal), whichever comes first

The equipment shall be guaranteed to be free from defects in material and workmanship. This warranty shall not apply to normal wear and tear nor any defect, failure or damage caused by improper use or improper or inadequate maintenance and care.

PARTICULAR TERMS AND CONDITIONS

- VEOLIA *General Terms and Conditions for Sale* will apply
- This proposal will remain valid for **60 days** following the date of this proposal
- All prices are in **US funds**, all applicable taxes extra.
- Payment schedule: 25% on submittal approval, 75% on delivery
- Mechanical and electrical shop testing is included in the basic price.
- No process or performance warranty is included.
- VEOLIA takes exception to all liquidated damages clauses.

John Meunier Products
BioMECTAN® Advanced Hybrid Vortex Grit Removal System

VEOLIA

Equipment Data-Sheet

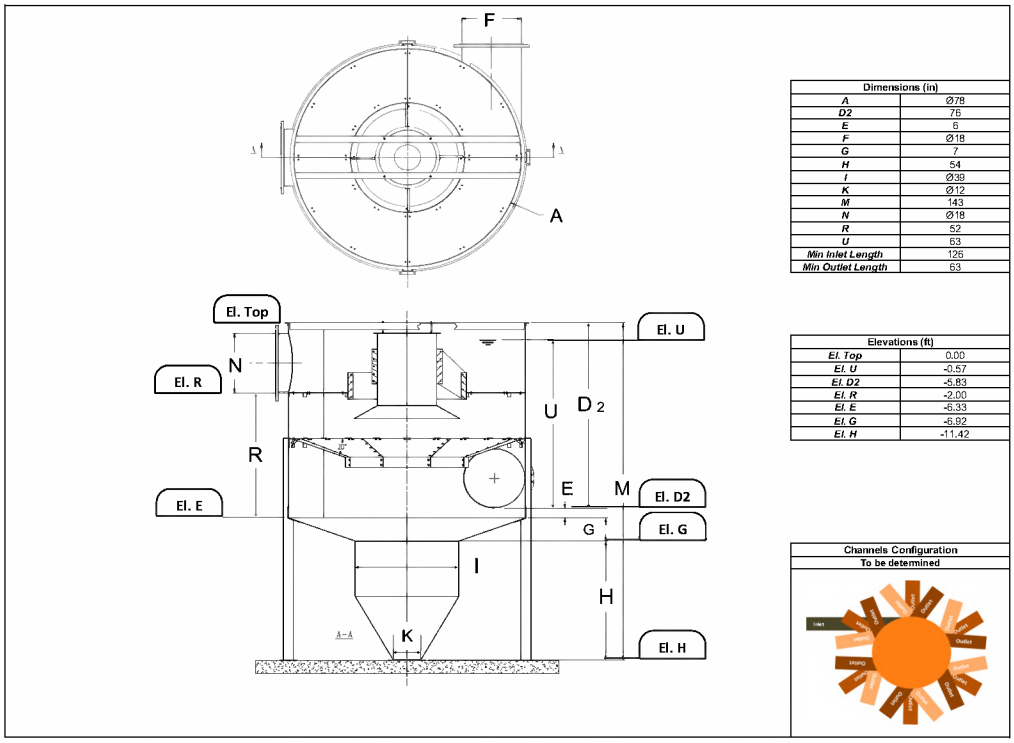
Mid County, FL
US_01_19_236666 Rev. 0 2019-01-25

Model # JMDB/1-20SXH

Selection

Quantity	1
Unit Type	BioMectam®
Peak Flow per Unit	1.20 MGD
Unit Maximum Capacity	3.10 MGD
Installation Type	Steel tank (included)
Rotation	CW
Downstream Water Depth	7 In
Headloss across Unit	8 to 12 In
Grit Extraction Type	Bottom Suction Grit Pump
Grit Extraction Flow	175 GPM
Wash Water (if applicable)	Gray water from outlet pipe
Unit Weight	3572 Lbs

Dimensions



Dimensions (in)	
A	Ø78
D2	76
E	6
F	Ø18
G	7
H	54
I	Ø39
K	Ø12
M	143
N	Ø18
R	52
U	63
Min Inlet Length	126
Min Outlet Length	63

Elevations (ft)	
El. Top	0.00
El. U	-0.57
El. D2	-5.83
El. R	-2.00
El. E	-6.33
El. G	-6.92
El. H	-11.42

Channels Configuration
To be determined

Performances

The efficiency levels below apply to all flowrates and relate to grit having a S.G. of 2.65 and to the difference in grit content in the influent channel, as compared to that in the effluent channel.

BioMECTAN® Grit Removal Efficiency - Dry Sieving		
BioMECTAN®	Microns	Mesh
96%	≥ 300	≥ 50
87%	≥ 210 & < 300	≥ 70 & < 50
75%	≥ 150 & < 210	≥ 100 & < 70
68%	≥ 100 & < 150	≥ 140 & < 100

BioMECTAN® Grit Removal Efficiency - Wet Sieving
95% Removal Down to 140 Mesh (100 Microns)

John Meunier Products
BioMECTAN® Advanced Hybrid Vortex Grit Removal System

VEOLIA

Equipment Data-Sheet

Mid County, FL
US_01_19_236666 Rev. 0 2019-01-25

Model # JMDB/1-20SXH

Selection

Quantity	1
Unit Type	BioMectam®
Peak Flow per Unit	1.20 MGD
Unit Maximum Capacity	3.10 MGD
Installation Type	Steel tank (included)
Rotation	CW
Downstream Water Depth	7 In
Headloss across Unit	8 to 12 In
Grit Extraction Type	Bottom Suction Grit Pump
Grit Extraction Flow	175 GPM
Wash Water (if applicable)	Gray water from outlet pipe
Unit Weight	3572 Lbs

Scope of Supply

Internal Components

Qty 1	Vortex Chamber Inner 360° Conical Baffle Assembly			SS304
Qty 1	Central Deflector, Annular Weir and Top Floor			SS304

Gray Water Fluidization and Recirculation System

Qty 1	Water Fluidization System		45 gpm @ 55 kPa	INCLUDED
Qty 1	Solenoid Valve	Ø1.5 in FNPT [Ø38 mm]	120 V	Bronze
		Cl 1 Div 1	NEMA 7	
Qty 1	Manual Valve	Ø1.5 in FNPT [Ø38 mm]		Bronze
Qty 1	Fluidization Nozzle			Teflon
Qty 3	Eductor Nozzles	Ø3/4 in [Ø19 mm]		SS316
Qty 1	Booster Pump			
	Pumping Capacity		45 gpm	
	Booster Pump Motor	460V / 3Ph / 60Hz	3 HP (2.24 kW)	Premium Efficiency

Steel tank and Walkway

Qty. 1	Steel Tank			INCLUDED
	Fabricated Tank		0.25 in	SS304
	Support Legs			SS304
	Drain Connection		Ø2.0 in ANSI [Ø51 mm]	SS304
Qty 0	Walkway Path			[redacted]
	Covers			Grating / FRP
	Handrail			Aluminum

Grit Extraction System

Qty. 1	Grit Pump			INCLUDED
	Gorman-Rupp® Grit Pump T-Series			
	Extraction Capacity		175 GPM	
	Total Dynamic Head		20 ft	
	Grit Pump Motor	460V / 3Ph / 60Hz	7.5 HP (5.59 kW)	Premium Efficiency

Anchors

	Type / Material	As preferred	NOT INCLUDED
	Operating Floor	Internally Threaded	Ø5/8 in

Control System

Qty. 1	Main Control Panel	Unclassified Area	NEMA 4/12 Painted	INCLUDED
	SMART Relay			UL Approval
	Includes*			
	Main fusible disconnect switch with splitter			NEMA 4/12
	Operator devices (selectors, buttons, lights)		22 mm	NEMA 4/12
	Motor(s) full voltage non-reversible starter(s)			IEC Rate
	Equipment power supply protection			
	Safety barriers for digital signals			

Qty. 1	Local Control Station (Mectan)	Cl 1 Div 1	NEMA-7	INCLUDED
	Qty 1	Emergency Stop (Pushbutton)		
	Qty 1	Off/Auto (Selector Switch)		
Qty. 1	Local Control Station (Pump)	Cl 1 Div 1	NEMA-7	[redacted]
	Qty 1	Emergency Stop (Pushbutton)		
	Qty 1	Off/Remote/Man Test* (Selector Switch)		
		* Spring Return		

Options

Qty. 0	Walkway (elevated)		NOT INCLUDED
Qty. 0	Parshall Flume	18 In	NOT INCLUDED
Qty. 0	Level / velocity control plates		NOT INCLUDED
Qty. 0	Grit Pump Casing Heater		NOT INCLUDED
Qty. 0	Grit Performance Testing		NOT INCLUDED

Spare Parts

Qty. 0	Set of Gaskets	NOT INCLUDED
Qty. 0	Pump Mechanical Seal	NOT INCLUDED
Qty. 0	Solenoid Valve	NOT INCLUDED

John Meunier Products
SAM® type GDS Grit Dewatering Screw

VEOLIA

Equipment Data-Sheet

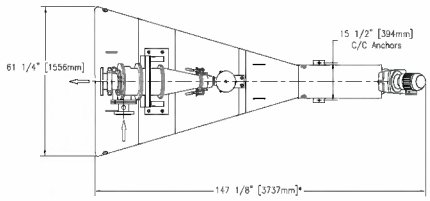
Mid County, FL
CA_01_19_236666 Rev .0 2019-01-25

Model #GDSCW/9-12-25XA

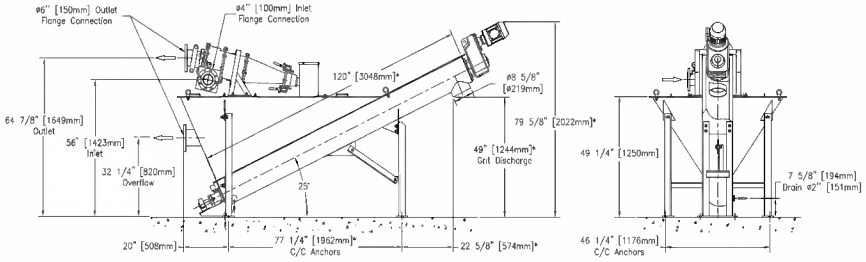
Selection

Quantity	1
Material Handling	Grit
Extraction Type	Grit Pump
Extraction Flow	175 GPM
Inlet Component	Hydrocyclone
Inlet Flow	10 to 20% of extraction flow
Recovery to Underflow	95 to 96% of 200 mesh [75 microns] particles
Organics Content	Less than 3% organics content
Number of Inlet(s)	1
Hopper Hydraulic Capacity	165 GPM
Solid Handling Capacity	60 ft³/h
Installation Angle	25 °
Discharge Height	57 in
Wash Water (if applicable)	Potable or Treated effluent
Unit Weight	1976 lbs

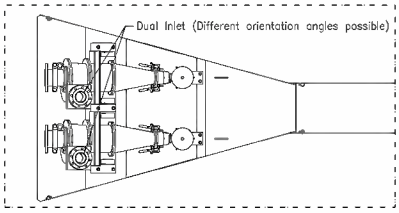
Dimensions

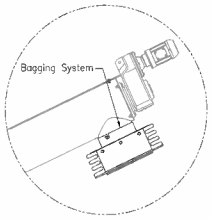


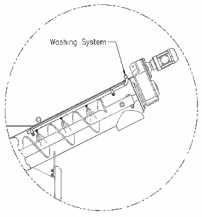
DO NOT USE FOR CONSTRUCTION
FOR INFORMATION ONLY



Possible Options







John Meunier Products
SAM® type GDS Grit Dewatering Screw

VEOLIA

Equipment Data-Sheet

Mid County, FL
CA_01_19_236666 Rev .0 2019-01-25

Model #GDSCW/9-12-25XA

Selection

Quantity	1
Material Handling	Grit
Extraction Type	Grit Pump
Extraction Flow	175 GPM
Inlet Component	Hydrocyclone
Inlet Flow	10 to 20% of extraction flow
Recovery to Underflow	95 to 96% of 200 mesh [75 microns] particles
Organics Content	Less than 3% organics content
Number of Inlet(s)	1
Hopper Hydraulic Capacity	165 GPM
Solid Handling Capacity	60 ft³/h
Installation Angle	25 °
Discharge Height	57 in
Wash Water (if applicable)	Potable or Treated effluent
Unit Weight	1976 lbs

Scope of Supply

Inlet Hopper

Inlet Hopper	Thickness	0.1875 in	SS304
	Covers Thickness	18 Ga	
	Overflow Diameter Connection	Ø6 in ANSI [Ø152 mm]	
Settling Plates	Thickness	18 Ga	SS304

Trough and Support

Trough	Length	12 ft	SS304
	Thickness	0.25 in	
	Drain Pipe Connection	Ø2 in MNPT [Ø51 mm]	
	Drain Pan Connection	Ø0.75 in FNPT [Ø19 mm]	
Support	Thickness	0.25 in	SS304

Screw Assembly

Spiral Screw	Shafted - Full pitch	Abrasion Resistant Steel with hard facing	
	Diameter	Ø9 in	
	Flight Thickness	Ø0.25 in	
Screw shaft	Diameter	Ø2 in	

Drive System

Main Power Supply			460V / 3Ph / 60Hz
Motor	WEG	1 HP (0.74 kW)	Premium Efficiency
	Cl 1 Div 1	TEFC	1.15 s.f.
	Single Speed	1750 RPM	Class F insulation
Reducer	SEW	11 RPM	Parallel-Helical Type
	1.4 s.f. (per AGMA)		

Inlet Component

Qty. 1 Cyclone	95% of 200 mesh particles	Inlet direction: From the top	
Inlet Diameter	Ø4 in ANSI [Ø102 mm]	Painted A36 Carbon Steel	
Overflow Diameter	Ø6 in ANSI [Ø152 mm]	Painted A36 Carbon Steel	
Housing	Ø10 in	Painted A36 Carbon Steel	
Inlet Head Liner		Pure Gum Rubber	

Anchors

Type / Material	As preferred	NOT INCLUDED
Operating Floor	Internally Threaded	Ø5/8 in

Instrumentation

Qty. 0	Safety Pull Cord		NOT INCLUDED
		Emergency-Stop Switch	NEMA-7
		Includes mounting bracket and cable holders	

Qty. 0	Rotating Shaft Motion Detector		NOT INCLUDED
	Qty. 0	Non-Contact Proximity Switch	NEMA-7
	Qty. 0	Remote Controller	NEMA-4X
		Includes mounting bracket	

Control System

Qty. 1	Main Control Panel	Unclassified Area	NEMA-4/12 Painted	INCLUDED
	Included in Common Control Panel			UL Approval
	Operator Interface Screen			
	Main fusible disconnect switch with splitter			NEMA 4/12
	Operator devices (selectors, buttons, lights)		22 mm	NEMA 4/12
	Motor full voltage non-reversible starter			IEC Rated
	Equipment power supply protection			
	Safety barriers for digital signals			

Qty. 1	Local Control Station	Cl. 1 Div. 1	NEMA-7	INCLUDED
	Qty. 1		Emergency Stop (Pushbutton)	
	Qty. 1		Off/Remote/Man Test* (Selector Switch)	
			* Spring Return	

Options

Qty. 0	Rigid Discharge Tube		NOT INCLUDED
Qty. 0	Flexible Discharge Sprout		NOT INCLUDED
Qty. 0	Bagging System	295 ft	NOT INCLUDED
Qty. 0	Odor Control Connection	Ø4.0 in ANSI [102 mm]	NOT INCLUDED
Qty. 0	Cold Weather Protection Package		NOT INCLUDED
Qty. 1	Washing System	6 GPM @ 40 psi	INCLUDED
	Spray Wash Manifold	Ø1/2 in FNPT [Ø12.7 mm]	
Qty. 3	Spray Nozzles	Ø1/8 in FNPT [Ø3 mm]	Bronze
Qty. 1	Solenoid Valve	Ø1/2 in FNPT [Ø12.7 mm]	Brass
		Cl 1 Div 1 NEMA-7	
Qty. 1	Manual Ball Valve	Ø1/2 in FNPT [Ø12.7 mm]	Brass

Spare Parts

Qty. 0	Complete Set of Lower Bearing Assembly	NOT INCLUDED
Qty. 0	Bottom Bearing	NOT INCLUDED
Qty. 0	Packing Gland and Packing Glang Body	NOT INCLUDED
Qty. 0	Bagger (Spare 295 ft [90 m])	NOT INCLUDED
Qty. 0	Hydrocyclone Cone Liner	NOT INCLUDED
Qty. 0	Hydrocyclone Apex Liner	NOT INCLUDED

John Meunier Products
MECTAN® Vortex Grit Chamber

VEOLIA

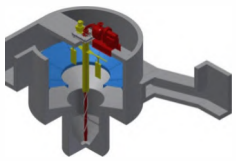
Equipment Data-Sheet

Mid County, FL
US_01_19_236666 Rev. 0 2019-01-25

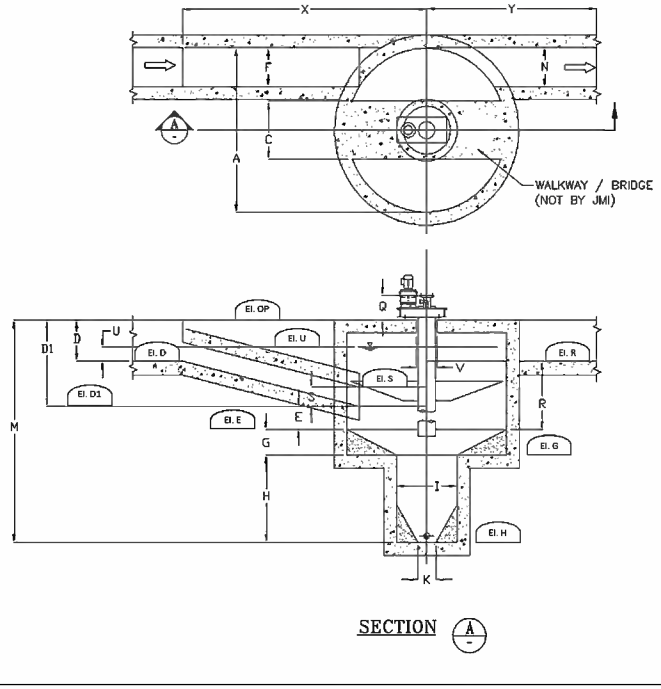
Model # JMDV/1-20SXH

Selection

Quantity	1
Unit Type	Mectan® V
Peak Flow per Unit	1.20 MGD
Unit Maximum Capacity	2.50 MGD
Installation Type	Concrete tank (by others)
Rotation	Clockwise
Downstream Water Depth	8 in
Headloss across Unit	3.00 in
Grit Extraction Type	Top Mounted Grit Pump
Grit Extraction Flow	175 GPM
Wash Water (if applicable)	Potable or Treated Effluent
Unit Weight	2856 Lbs



Dimensions



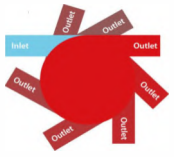
SECTION A-A

Dimensions (in)	
A	Ø78
C	30.0
D	50.0
D1	66.0
E	6.0
F	16.0
G	7.0
H	54.0
I	Ø39
K	Ø12
M	133.0
N	16.0
Q	16.3
R	22.0
S	10.0
U*	10.8
V	Ø13
X	91.2
Y	45.6

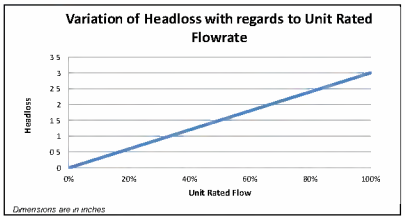
** See Note 1*

Elevations (ft)	
El. OP	0.0
El. U	-3.3
El. D	-4.2
El. R	-4.2
El. S	-4.7
El. D1	-5.5
El. E	-6.0
El. G	-6.58
El. H	-11.08

Channels Configuration
To be determined



Hydraulics & Performances



Dimensions are in inches

The efficiency levels below apply to all flowrates and relate to grit having a S.G. of 2.65 and to the difference in grit content in the influent channel, as compared to that in the effluent channel.

MECTAN® Grit Removal Efficiency - Dry Sieving		
MECTAN® V	Microns	Mesh
96%	≥ 300	≥ 50
87%	≥ 210 & < 300	≥ 70 & < 50
75%	≥ 150 & < 210	≥ 100 & < 70
68%	≥ 100 & < 150	≥ 140 & < 100

MECTAN® Grit Removal Efficiency - Wet Sieving
95% Removal Down to 140 Mesh (100 Microns)

John Meunier Products
MECTAN® Vortex Grit Chamber

VEOLIA

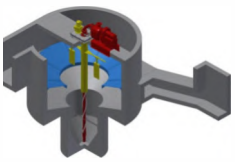
Equipment Data-Sheet

Mid County, FL
US_01_19_236666 Rev. 0 2019-01-25

Model # JMDV/1-20SXH

Selection

Quantity	1
Unit Type	**Mectan® V**
Peak Flow per Unit	1.20 MGD
Unit Maximum Capacity	2.50 MGD
Installation Type	**Concrete tank (by others)**
Rotation	**Clockwise**
Downstream Water Depth	8 in
Headloss across Unit	3.00 in
Grit Extraction Type	**Top Mounted Grit Pump**
Grit Extraction Flow	175 GPM
Wash Water (if applicable)	**Potable or Treated Effluent**
Unit Weight	2856 Lbs



Scope of Supply

Agitator and Paddle Arm Assembly

Drive Torque Tube Diameter		Ø10 in	SS304
Rotation Speed		25 RPM	
Paddles		Horizontal	
Gear Case	Main Assembly		Epoxy painted steel
	Pinion and Slewing Bearing Assembly		Carbon steel
	Bearing	5.0 s.f	B10-20 years

Torque Tube Drive System

Main Power Supply			460V / 3Ph / 60Hz
Motor	WEG	0.5 HP (0.37 kW)	Premium Efficiency
	Cl 1 Div 1	TEFC	1.15 s.f
	Single Speed	1750 RPM	Class F insulation
Reducer	SEW	25 RPM	Parallel-Helical Type
	2.0 s.f (per AGMA)		

Separator Plate

Qty. 1	**Vortex Chamber Inner 360° Conical Baffle Assembly**	SS304

Grit Extraction System

Qty. 1	**Grit Pump**	**Gorman-Rupp® Grit Pump T-Series**		**INCLUDED**
	Grit Suction Pipe		Ø4 in	SS304
	Extraction Capacity		175 GPM	
	Total Dynamic Head		20 ft	
	Grit Pump Motor	460V / 3Ph / 60Hz	7.5 HP (5.59 kW)	Premium Efficiency

Water Fluidization

Qty. 1	**Water Fluidization System**		45 GPM @ 55 psi	**INCLUDED**
Qty. 1	Solenoid Valve	Ø1.5 in FNPT [Ø38 mm]	120 V	Bronze
		Cl 1 Div 1	NEMA 7	
Qty. 1	Manual Valve	Ø1.5 in FNPT [Ø38 mm]		Bronze
Qty. 2	Fluidization Lines			PVC flexible tubing reinforced

Steel tank and Walkway

Qty. 0	**Steel Tank**			**NOT INCLUDED**
	Fabricated Tank		0.25 in	SS304
	Inlet/Outlet Flange		ANSI - Roll on type	SS304
	Support Legs			SS304
	Drain Connection		Ø2.0 in ANSI [Ø51 mm]	SS304
Qty. 0	**Walkway Path**			[illegible]
	Covers			Grating / FRP
	Handrail			Aluminum

Anchors

Type / Material	As preferred		**NOT INCLUDED**
Operating Floor	Internally Threaded		Ø5/8 in
Gear Case	Internally Threaded Expansion		Ø5/8 in
Extraction Tube Support	Wedge Expansion type		Ø3/8 in
Conical Baffle	Adhesive threaded rod		Ø1/2 in

Control System

Qty. 1	**Main Control Panel**	Unclassified Area	NEMA 4/12 Painted	**INCLUDED**
	SMART Relay			UL Approval
	Includes:			
	Main fusible disconnect switch with splitter			NEMA 4/12
	Operator devices (selectors, buttons, lights)		22 mm	NEMA 4/12
	Motor(s) full voltage non-reversible starter(s)			IEC Rate
	Equipment power supply protection			
	Safety barriers for digital signals			

Qty. 1	**Local Control Station (Mectan)**	Cl 1 Div 1	NEMA-7	**INCLUDED**
	Qty. 1	Emergency Stop (Pushbutton)		
	Qty. 1	Off/Auto (Selector Switch)		
Qty. 1	**Local Control Station (Pump)**	Cl 1 Div 1	NEMA-7	
	Qty. 1	Emergency Stop (Pushbutton)		
	Qty. 1	Off/Remote/Man Test* (Selector Switch)		
		* Spring Return		

Options

Qty. 1	**Walkway (elevated)**		**INCLUDED**
Qty. 0	**Parshall Flume**	6 in	**NOT INCLUDED**
Qty. 0	**Level / velocity control plates**		**NOT INCLUDED**
Qty. 0	**Grit Pump Casing Heater**		**NOT INCLUDED**
Qty. 0	**Grit Performance Testing**		**NOT INCLUDED**
Qty. 0	**Odor Control Connection (for self-standing tank)**	Ø4.0 in ANSI [102 mm]	**NOT INCLUDED**

Spare Parts

Qty. 0	**Set of Gaskets**	**NOT INCLUDED**
Qty. 0	**Pump Mechanical Seal**	**NOT INCLUDED**
Qty. 0	**Solenoid Valve**	**NOT INCLUDED**

For Earth, For Life

Kubota

Preliminary Proposal for

Mid County, FL

Membrane Bioreactor System

August 26, 2019

Kubota Membrane USA
Damone Supica, PE
Regional Manager MBR Systems
425-248-7897

Moss Kelley, Inc.
Cameron Young
407-913-7177

Table of Contents

For Earth, For Life
Kubota

1 Introduction

Kubota Membrane USA Corporation appreciates the opportunity to present the enclosed updated budgetary proposal to supply a membrane bioreactor (MBR) system for the Mid County, FL project. Included below is an overview of Kubota's Submerged Membrane Unit and the proposed system.

2 Membrane Product Information

For this project, we are proposing to use Kubota's SP300 Submerged Membrane Units. The SP Series, developed in 2011, is Kubota's most efficient design, requiring up to 50% less air flow for membrane scour than other Kubota models while still maintaining the reliable and simple operation that is characteristic of Kubota's MBR systems.

Kubota's membrane sheet is made from chlorinated polyethylene, has an average pore size of 0.2 micron, is much thicker than other membranes to provide long-lasting durability, and features high porosity to enable high flow. This pore size has been designed as the optimum balance between water quality and quantity. Kubota's membrane sheet has Title 22 approval for water reuse in California.

Kubota developed the flat plate membrane technology specifically for use in wastewater applications. The robustness of the components and fixed spacing between the membrane sheets are ideal to withstand high solids concentration in the MBR tanks, simplifying operation, maintenance, and troubleshooting.

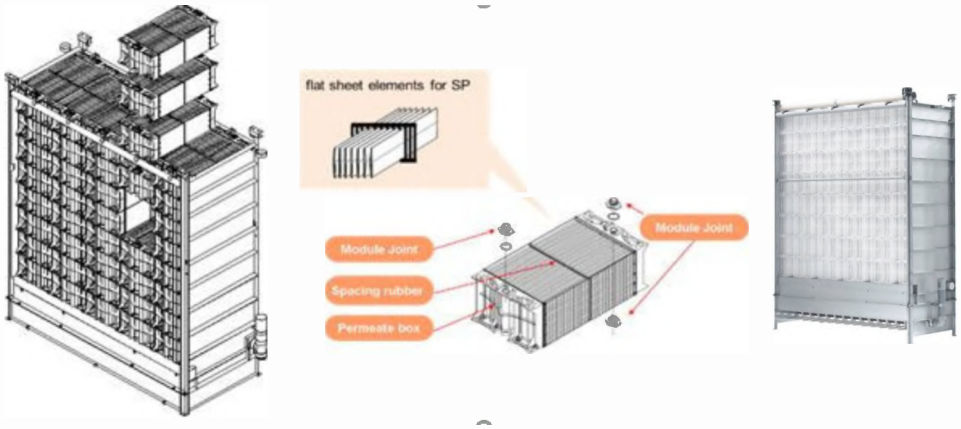


Figure 1. SP Series Unit Structure (left), Membrane Module Structure (center), and SP400 (right))

3 Design Overview

The MBR system was designed based on the design flows and influent concentrations listed below *(Table 1 and Table 2*).

3.1 Influent Design Flow

We used the following flow conditions to design the capacity of the proposed MBR system.

Table 1: Design Flow Conditions

Condition	Design Flow	Unit
Average Day Flow	0.90	MGD
Max Month Avg Day Flow	0.90	MGD
Peak Daily Flow	1.80	MGD

The wastewater characteristics used for preliminary design are listed in the table below.

Table 2: Influent and Effluent Characteristics

Constituent	Max Month Influent Concentration	Effluent Limit
BOD	250 mg/L	< 5.0 mg/L
TSS	250 mg/L	< 5.0 mg/L
TKN	19 mg/L	< 1.0 mg NH3
TN	-	< 3 mg/L
TP	2 mg/L	<1 mg/l
Minimum Monthly Design Temperature	17°C	-

*TP Assumed to be achieved with standard biological phosphorus uptake and chemical addition (if needed).

3.2 MBR Specifications

Table 3: MBR Specifications

Component	Specifications
Submerged Membrane Unit Model	SP300
Membrane Surface Area per Unit	3,552 ft^2
Design MLSS at MBR	10,000 mg/L
Number of MBR Tanks	3 MBR tanks
Total Number of Submerged Membrane Units	18 units (6 units per tank)
Flux Rate Avg Day and Peak Day	14.1 gfd /28.2 gfd

Component	Specifications
System HRT/SRT	12 hrs/28 days
Minimum Monthly Avg. Influent Temperature	20°C

3.3 Preliminary Layout

The proposed MBR system uses 3 stage process to provide BOD, TSS, Phosphorus and Nitrogen removal to meet effluent limits.

Tank Name	Tank Dimensions (W' x L' x SWD')	Volume per Tank (gallons)	Number of Tanks	Total Tank Volume (gallons)	Nominal HRT at 0.90 MGD (hours)
EQ/Pre-Anoxic	31.5' x 90'' x 5' SWD (Min SWD)	106,000	1	106,000	2.8
Pre-Aeration	15' x 56' x 8.5' avg SWD	53,000	4	212,000	5.7
Post Anoxic	15' x 56' x 8'swd	50,000	1	50,000	1.3
MBR	15.5' x 25' x 9.2' SWD	27,000	3	81,000	2.2
TOTAL		-	-	449,000 gallons	12.0 hours

4 Scope of Supply

The following proposed items will be supplied by Kubota Membrane USA, and are included in the budgetary price that is listed in Section 6. We are flexible in terms of scope of supply though, and are happy to adjust our scope to fit the project's needs.

4.1 Major Equipment and Instrumentation

See attached scope of supply.

4.2 Direct Services

The following services are included in Kubota's scope of supply.

Design Support

- Support during preliminary and final design.
- Construction submittals including shop drawings.
- Preparation and submittal of a system O&M manual for Kubota supplied systems and equipment.
- Equipment delivery coordination with the contractor.
- One day on-site delivery inspection of Submerged Membrane Units.

Commissioning

- 15 days on-site for installation inspection, start-up, and commissioning including dry and wet equipment checks, clean water testing, and support during seeding and start-up.
- 3 days on-site for performance testing.

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Kubota

		EQ/ANOXIC ZONE EQUIPMENT					
AX1	Mixer	Submersible	180,000	Gallons	Wilo/ABS	2.7	3
AX1	Guiderail Assembly	Floor Mount	N/A	N/A	N/A	N/A	3
AX1	Level Switch	Float	N/A	N/A	Conery	N/A	2
AX1	Level Transmitter	Hydrostatic	23	ft	Wika	N/A	1
PRE AERATION ZONE EQUIPMENT (Basins A2-A5)							
PA	Diffuser	Fine Bubble	275 per basin	scfm	EDI/Aquarius	N/A	4
PA (A5 only)	Mixer	Submersible	53,000	Gallons	Wilo/ABS	2.7	2
PA	Guiderail Assembly	Floor Mount	N/A	N/A	N/A	N/A	2
PA	Level Switch	Float	N/A	N/A	Conery	N/A	2
PA	DO Probe + Transmitter	LDO w/ Pole Mount	N/A	mg/L DO	HACH	N/A	4
MEMBRANE ZONE EQUIPMENT							
MBR	SMU	Flat Plate	N/A	SP300	KUBOTA	N/A	18
MBR	SMU Lifting Tool	N/A	N/A	N/A	KUBOTA	N/A	1
MBR	Isolation Valve	Butterfly	N/A	N/A	Bray	N/A	18
MBR	Isolation Valve	Butterfly	N/A	N/A	Asahi	N/A	18
MBR	Level Switch	Float	N/A	N/A	Conery	N/A	6
MBR	SMU Guide & Stabilizer	N/A	N/A	N/A	KUBOTA	N/A	18
MBR	Fasteners	N/A	N/A	N/A	KUBOTA	N/A	72
MBR	In-Basin Pipe&Supports	Permeate	N/A	N/A	KUBOTA	N/A	18
MBR	In-Basin Pipe&Supports	Air Scour	N/A	N/A	KUBOTA	N/A	18
MBR	Freight	N/A	N/A	N/A	KUBOTA	N/A	18
PERMEATE SYSTEM EQUIPMENT							
PRMT	Pump	Self-Priming	463	GPM	Gorman Rupp	5	3
PRMT	Valve	Solenoid	N/A	Inch	ASCO	N/A	3
PRMT	Pressure Transmitter	Diaphragm	N/A	PSI	TBD	N/A	3
PRMT	Flow Meter	Electromagnetic	6	Inch	Siemens	N/A	3
PRMT	Automated Valve	Modulating Butterfly	6	Inch	Auma	N/A	3
PRMT	Turbidity Meter	Laser	N/A	NTU	HACH	N/A	3
PRMT	Analog Transmitter	SC200	N/A	AI	HACH	N/A	3
RAS PUMPING SYSTEM EQUIPMENT (2 Loops)							
FF (Loop1)	Pump	Submersible	1562	GPM	Wilo/ABS	15	3
FF (Loop1)	Level Transmitter	Hydrostatic	23	ft	Wika	N/A	1
FF (Loop1)	Flow Meter	Electromagnetic	12	Inch	Siemens	N/A	3
FF (Loop2)	Pump	Submersible	1562	GPM	Wilo/ABS	15	3

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Kubota

FF (Loop2)	Level Transmitter	Hydrostatic	23	ft	Wika	N/A	1
FF (Loop2)	Flow Meter	Electromagnetic	12	Inch	Siemens	N/A	3
WAS SYSTEM							
WAS	Actuated Valve	Plug	3	Inch	TBD	N/A	1
WAS	Flow Meter	Electromagnetic	3	Inch	Siemens	N/A	1

BLOWER SYSTEMS EQUIPMENT							
MBR BLW	Blower	Positive-Displacement	540/5.8	scfm/psi	Aerzen	40	4
MBR BLW	Sound Enclosure	With Blower	N/A	N/A	N/A	N/A	0
MBR BLW	Temperature Gauge	With Blower	N/A	N/A	N/A	N/A	0
MBR BLW	Pressure Gauge	With Blower	N/A	N/A	N/A	N/A	0
MBR BLW	Temperature Switch	With Blower	N/A	N/A	N/A	N/A	0
MBR BLW	Check Valve	With Blower	N/A	N/A	N/A	N/A	0
MBR BLW	Flow Meter	Mass Air Flow	6	Inch	Endress Hauser	N/A	3
PA BLW	Blower	Positive-Displacement	500/5.5	scfm/psi	Aerzen	30	2
PA BLW	Sound Enclosure	With Blower	N/A	N/A	N/A	N/A	0
PA BLW	Temperature Gauge	With Blower	N/A	N/A	N/A	N/A	0
PA BLW	Pressure Gauge	With Blower	N/A	N/A	N/A	N/A	0
PA BLW	Temperature Switch	With Blower	N/A	N/A	N/A	N/A	0
PA BLW	Valve	With Blower	N/A	N/A	N/A	N/A	0
PA BLW	Valve	With Blower	N/A	N/A	N/A	N/A	0
PA	Flow Control Valve	Actuated Butterfly	N/A	N/A	tbd	N/A	4
PA BLW	Flow Meter	Mass Air Flow	6	Inch	Endress Hauser	N/A	4
CIP SYSTEM EQUIPMENT							
SMU CIP	System	Eductor	N/A	N/A	KUBOTA	N/A	1
CONTROL PANEL EQUIPMENT							
Control	Control Panel	PLC, HMI	N/A	N/A	KUBOTA	N/A	1
STARTUP AND COMMISSIONING							
D. Service	Kubota Design Assistance	Mechanical and PIDS	N/A	N/A	KUBOTA	N/A	1
Freight	To Job Site	FOB	N/A	N/A	N/A	N/A	1
Warranty	KUBOTA Extended Warranty	Full, CIP	10	year	N/A	N/A	1

- Additional days are available as needed.

Training

- 3 days of on-site, hands on operator training using a mix of classroom and field time. See Table 4 below for list of training topics.

Table 4: Training and Workshops Included in Kubota's Scope of Supply

Training/Workshop	Brief Summary
SCADA and HMI	1. Navigation of all HMI screens and menus. 2. Review of automatic operations and controls. 3. Changing process set points. 4. Overriding controls from the HMI. 5. Manual operation of the system in the event of a power failure.
CIP training	1. Navigation of CIP (Clean-In-Place), in-situ maintenance chemical cleaning. 2. Control from HMI and operation of manual valve. 3. Adjust set points of chemical flow.
Troubleshooting	1. Case study of troubleshooting 2. Recovery from trouble 3. "Fish bone" approach
Daily testing	1. Filterability test 2. Viscosity measurement

Membrane Warranty

- Kubota is proud to offer the best mechanical and hydraulic warranty in the industry. Our standard warranty is 10 years and is 100% non-prorated.

Workshop/Additional Training Available (No Charge)

- In addition to our standard training at commissioning, Kubota Membrane USA hosts annual operator workshops in which operators meet to exchange ideas and learn about the latest developments in MBR technology.
- Customized individual training, such as membrane disassembling training, is also available upon request.

Support by Remote Monitoring

The Kubota membrane system as proposed includes a SCADA system that can be remotely monitored and controlled, provided wireless connectivity is available. Technical support staff can monitor the status of your system to proactively address potential problems. Whenever a call is placed to our service staff, that person will be able to log in to the SCADA system and easily see what is happening at the plant.

We establish communication protocols and rules with the plant owner to allow us to log in remotely to:

- Obtain permission from plant operations prior to any remote access.
- Work directly with operators and maintenance personnel to troubleshoot problems live.
- Make small programming modifications and improvements to both the PLC and SCADA systems.
- Regularly run process reports, download and analyze historical data and alarms, alert operators to any abnormal conditions we see.

4.3 Exclusions to Kubota Scope of Supply

The following items are not currently included in the Kubota scope of supply:

- Equipment unloading, handling, storage, and installation
- Electrical system (Main electrical, generators, etc.)
- Pretreatment/Headworks (Fine Screen, Grit Removal, DAF, etc.)
  - Kubota recommends an internally fed drum screen with a 2-mm perforated plate. Kubota can supply screening units for an additional cost.
- Disinfection System
- Concrete Tanks, Building Construction
- All piping that is outside of the MBR tanks, including header pipes
- Civil Works, installation and connection of piping/wiring
- VFDs and motor controllers
- Equipment lifts or hoists
- Seismic bracing for equipment, if needed
- Any bid, performance, or payment bonds.

5 Warranty

Equipment Warranty

Kubota's standard 10-year membrane warranty, and 1-year mechanical equipment warranty is included in the budgetary price proposed *(Table 5)* and goes into effect at the commencement date of commissioning. The warranty included is a guarantee that the products supplied by Kubota are free from defect in material or workmanship.

6 Budgetary Price

The budgetary price for the equipment and instrumentation described herein is shown below *(Table 5)*.

Table 5: Budgetary Price for the Kubota MBR Equipment and Equipment Warranty

Budgetary Price	
MBR Equipment, Instrumentation, Services, and 10-year Membrane Warranty	$1,800,000

The pricing herein is for budgetary purposes only and does not constitute an offer of sale.

Lead Times

Typical lead times for submittals, equipment, and Submerged Membrane Units are as follows:

- Submittals: 8 weeks after Contractor agreement
- Equipment: 14-20 weeks after approval of submittals
- Submerged Membrane Units: 16-20 weeks after approval of submittals

7 24/7 Technical Support

24/7 phone support is available in addition to support during regular business hours. 24-hour technical support calls are shared within the Kubota staff so that you can rest assured knowing that knowledgeable engineers and technicians are just a phone call away.

8 Additional Services (Optional)

The following service plans are optional and may be added to Kubota's scope of supply if desired for an additional cost.

Kubota Membrane Protection Plan

Under this plan, Kubota Membrane USA warrants against any membrane failure for 10 years when the system is operated in accordance with the O&M manual. This plan includes annual onsite membrane inspection with membrane examination and inspection report, periodic replacement of parts and damaged membranes (if any), and phone support during the 10-year period.

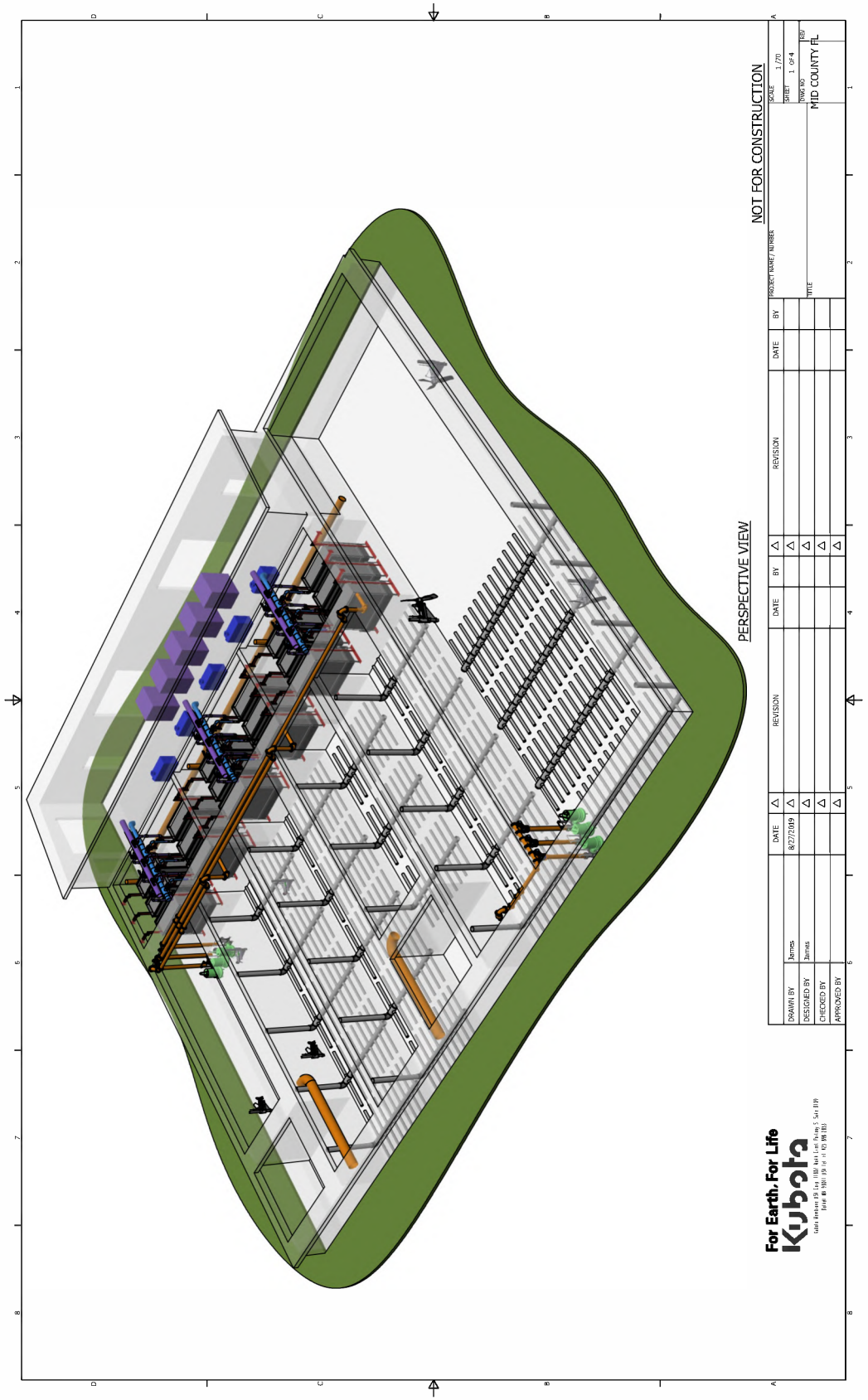
Kubota Custom Membrane Support Plan

Kubota can customize your support/service package to meet your needs. The following table shows a variety of our available services:

Table 6: Kubota's Available Services

Service	Note
Periodical technical support	Monthly, Quarterly, Annually
24/7 phone support	Always Available
SCADA monitoring	Weekly, Monthly, Quarterly
Periodical site visit	Quarterly, Semi-annually, Annually
Membrane inspection	Annual, Semi-annual, 3x per year
Membrane protection (10-year contract)	Select annual or semi-annual inspections
Program (SCADA, etc.) update	Based on hydraulic changes, such as increases in flow or changes in operation.

(End of Document)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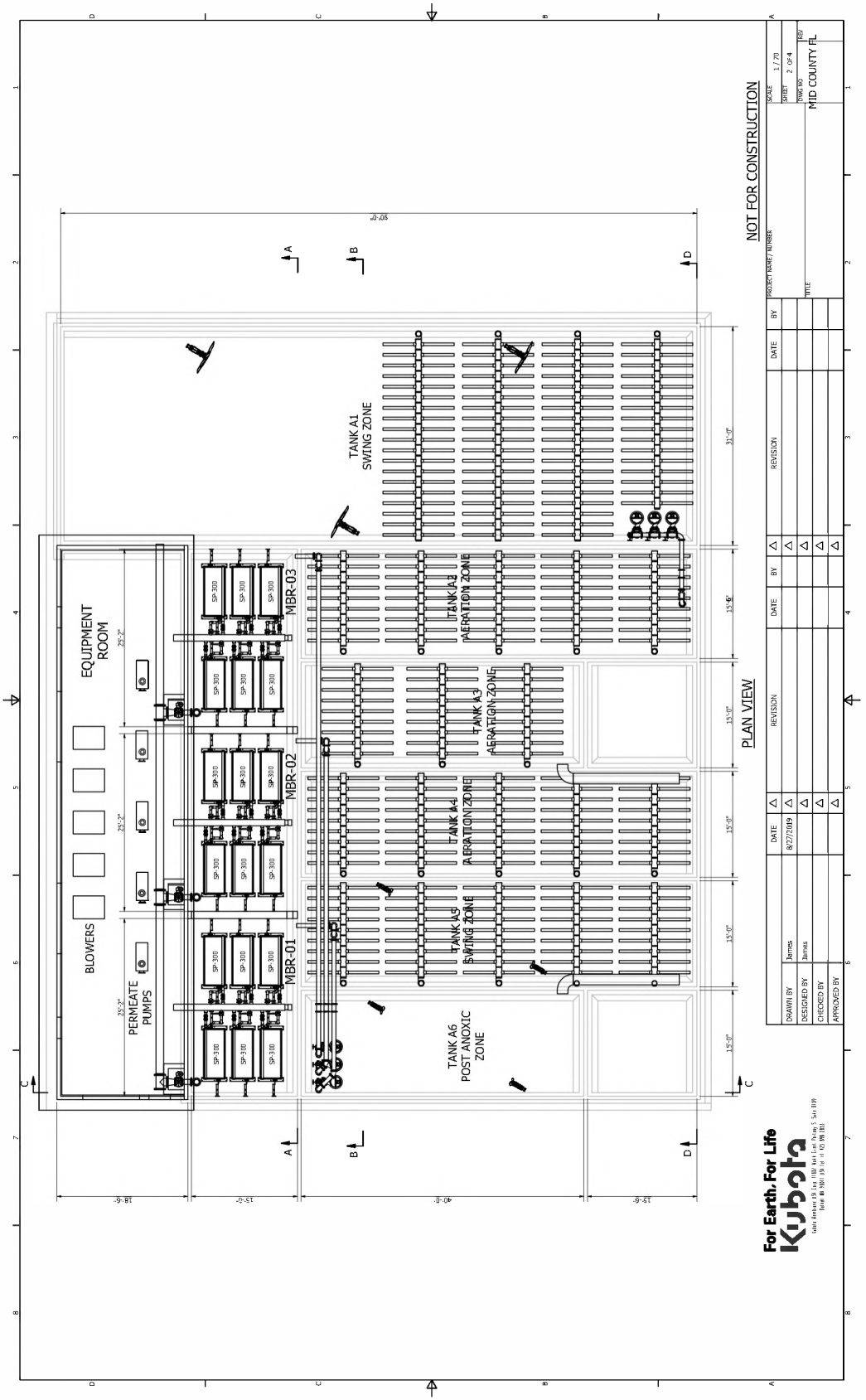
For Earth. For Life
Kubota
MID COUNTY FL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MBR-02
MBR-03
SP-300
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TANK A2 AERATION ZONE
TANK A3 AERATION ZONE
TANK A4 AERATION ZONE
TANK A5 SWING ZONE
TANK A6 POST ANOXIC ZONE
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BY
DRAWN BY
James
8/27/2019
DESIGNED BY
James
CHECKED BY
APPROVED BY
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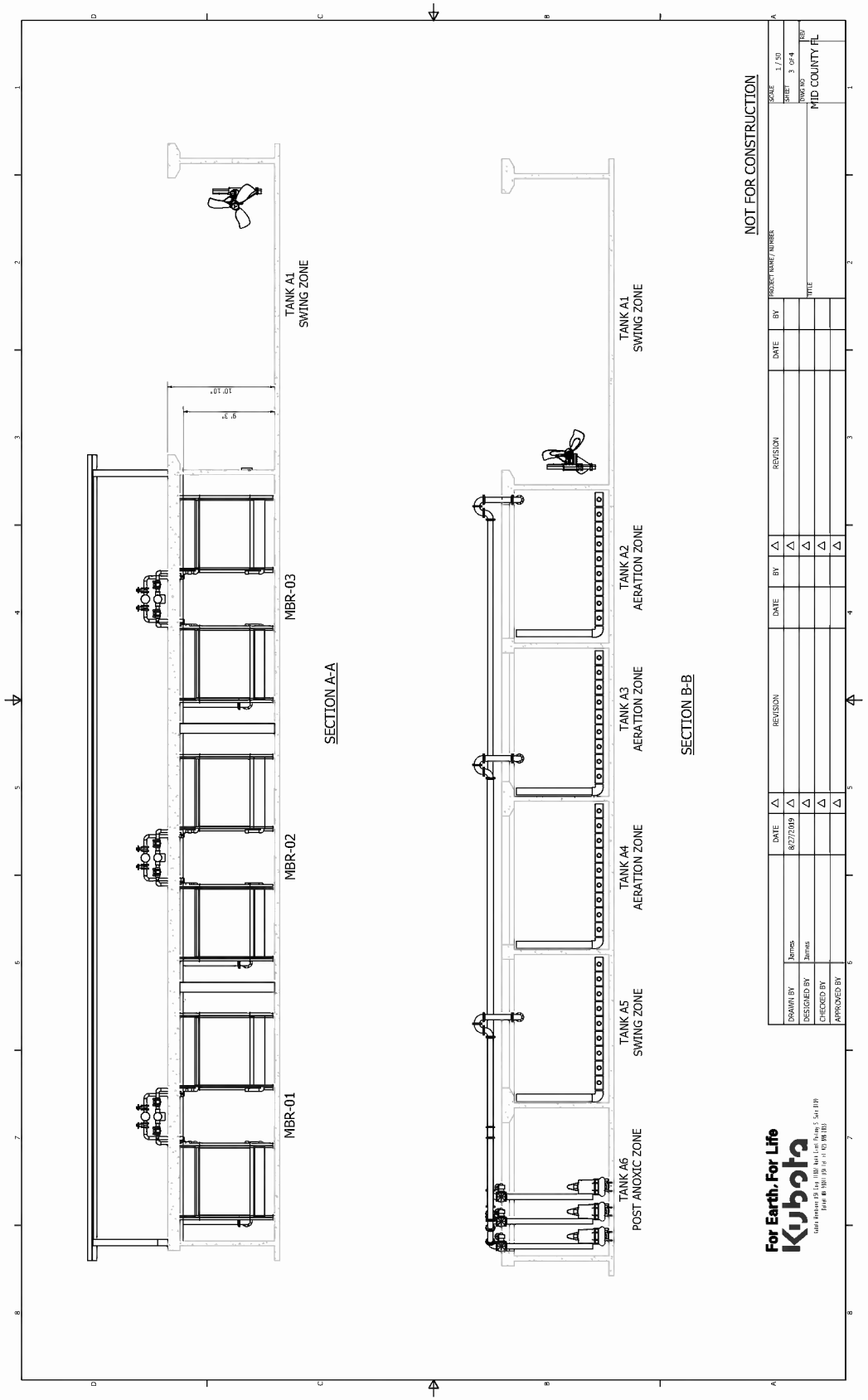
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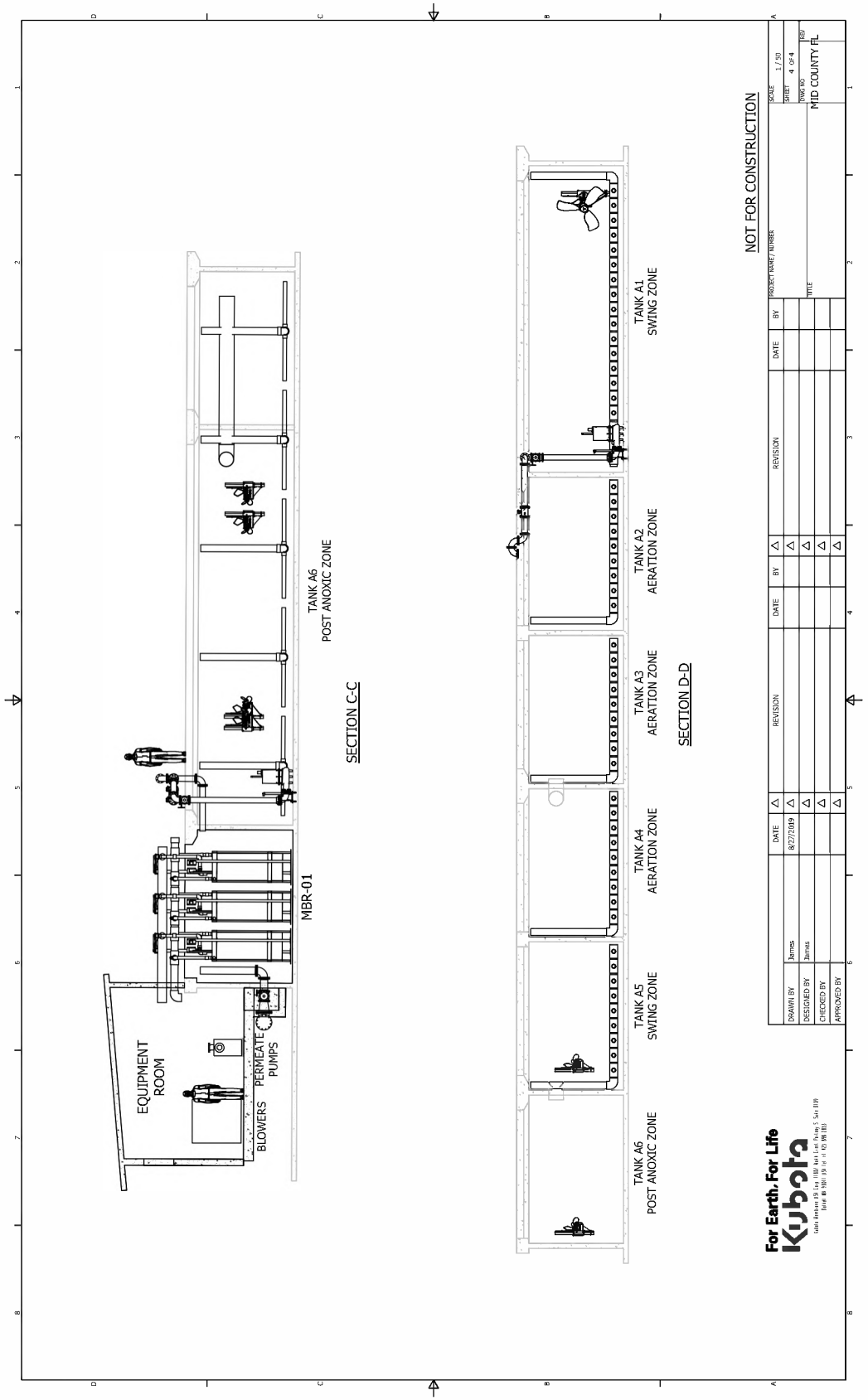
Kubota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James
8/27/2019
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SCALE 1 / 50
SHEET 4 OF 4
DWG NO
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For Earth. For Life
Kubota

Submitted to: Kimley-Horn

Submitted by: Daniel Hurt
Regional Sales Manager

Date: 9/16/2019

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Water Technologies

Introduction

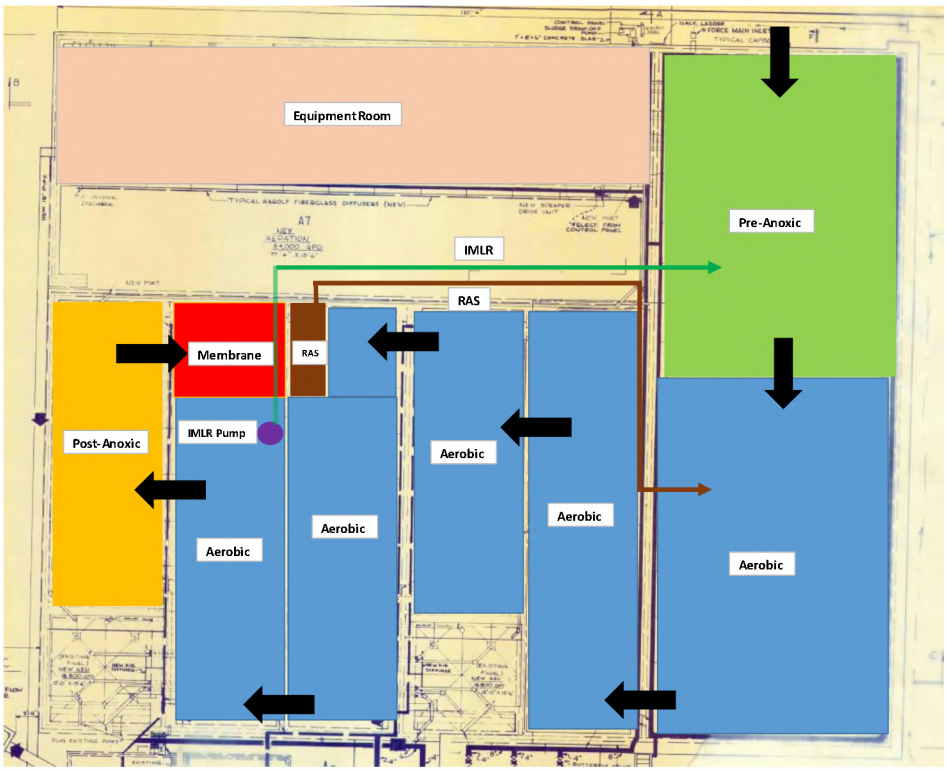
Kruger proposes the retrofit of an MBR process system into the existing North Train aeration tanks for the Mid County WTF, FL.

The secondary system consists of one (1) pre-anoxic reactor, five (5) aerobic reactors in a plug flow pattern, and one (1) post-anoxic reactor. Mixed liquor from the aerobic reactor will be recycled to the pre-anoxic reactor for enhanced denitrification. Overall system configuration is as shown in the schematic below. Denitrification in the post-anoxic reactor via endogenous decay should be accompanied by supplemental carbon addition (e.g. MicroC (by others)) to meet the total nitrogen limit. Kruger recommends having provisions for metal salt addition for phosphorus removal.

The membrane filtration system proposed shall consist of two (2) trains retrofitted into the existing aerobic tank. Each train shall be equipped with two (2) fully populated membrane cassettes including air scour grid. The membrane filtration system is designed with one (1) fully redundant train allowing for full treatment capacity with one train offline or in CIP during average and peak day flow conditions.

To provide equal flow distribution to and from the membrane tanks, a common influent distribution channel and a common RAS wet well is required to fit within the existing aerobic tank. The RAS wet well shall be equipped with submersible RAS pumps that will pump RAS back to the aerobic reactors. Waste Activated Sludge (WAS) is expected to be handled by splitting a line off of the RAS line, with an open/close valve and flowmeter located in the WAS line (by others).

Influent must pass through a 2 mm (or less) perforated screen (included as an option in this offer). Influent screening is an integral part of the successful performance of any MBR system. It has been assumed that the influent wastewater contains incoming solids in the raw wastewater that are typical of a domestic wastewater facility. If there are significant contributions from certain industries, commercial laundry facilities, or any other source that might lead to elevated amounts of hair or fibrous materials the influent screening may require re-evaluation.



We appreciate the opportunity to provide this proposal to you. If you have any questions or need further information, please contact our local Representative, Bob Bierhorst of MTS Environmental, or our Regional Sales Manager, Daniel Hurt, at (919)-523-2328 (daniel.hurt@veolia.com).

Cc: JJM, MAD, BDR, LGW, CS, project file (Kruger)
MTS Environmental

Revision	Date	Process Eng.	Comments
0	02.21.2019	CS	Initial, budgetary proposal.
1	09.13.2019	Cs	Revised to retrofit North Train.

We Know Water

With 160 years of expertise in the areas of water, energy and waste, Veolia applies its capacity for innovation to pursuing human progress and wellbeing, and improving the performance of businesses and regions. To make the switch from a resource consumption rationale to a use-and-recover approach in today's circular economy, Veolia designs and implements solutions aimed at improving access to resources while at the same time protecting and renewing those same resources.

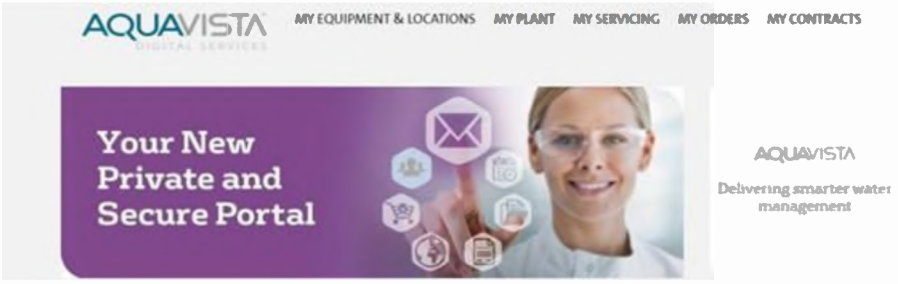
As the world's leading provider of environmental solutions to cities and businesses, we blend our skills in operations, engineering and technology with an unrivaled international network to offer a wide range of service delivery models to our clients. Whether we are reducing our customers' energy consumption to control costs or helping them meet strict water quality standards, we provide performance and reliability guarantees and measure our work by our customers' satisfaction.

10 MGD Tahoe-Truckee SD BIOSTYR - Truckee, CA

We specialize in providing advanced and differentiating technologies that range from biological nutrient removal to mobile surface water treatment. The ACTIFLO® Microsand Ballasted Clarifier, BioCon® Biosolids Dryer, BIOSTYR®/BIOSTYR DUO™ Biological Aerated Filter (BAF) and Hydrotech Discfilter are just a few of our innovative technologies. Based on this expertise, we believe that we have developed the best solution for your application.

We Know Smart Water Management

Veolia is the only company in the world that can combine decades of water treatment expertise, process knowledge and our wide range of domestic and global references into a comprehensive digital solutions platform that provides numerous opportunities to enhance the management of water.



When AQUAVISTA™ is paired with process and equipment instrumentation, your facility will have access to the most advanced suite of cloud-based monitoring, control and technical support mechanisms in the industry. AQUAVISTA™ provides the opportunity to improve your plant's overall performance with enhancements in operational efficiencies and critical asset management. AQUAVISTA™ runs on today's most secure cloud based services and is fully accessible with any common smart devices (phone, pad, tablet).

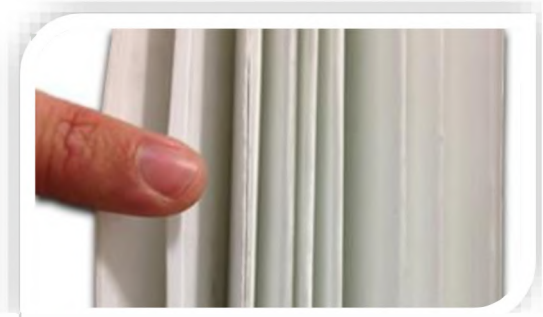
Four (4) tiers of service are available:

- Portal: A remote monitoring and reporting tool with overview of all plant data and access to important facility documentation.
- Insight: Portal + Data driven performance optimization advice regarding the general status and operational conditions of your plant.
- Assist: Added level of access to Veolia's process experts for process, maintenance, and training support.
- Plant: Operator adjustable levels of automatic control of your treatment facility.

All levels of service provide a simple link to Veolia's customer service group to facilitate easy access to spare parts and other service needs

FibrePlate™ Membrane

FibrePlate™ is an advanced membrane technology designed to leverage all the lessons learned in the industry into the next generation membrane platform for large-scale municipal wastewater treatment plants. FibrePlate™ combines the strengths while eliminating the weaknesses of the existing hollow fibre and flat plate platform technologies into the world's most robust and cost effective hybrid membrane.

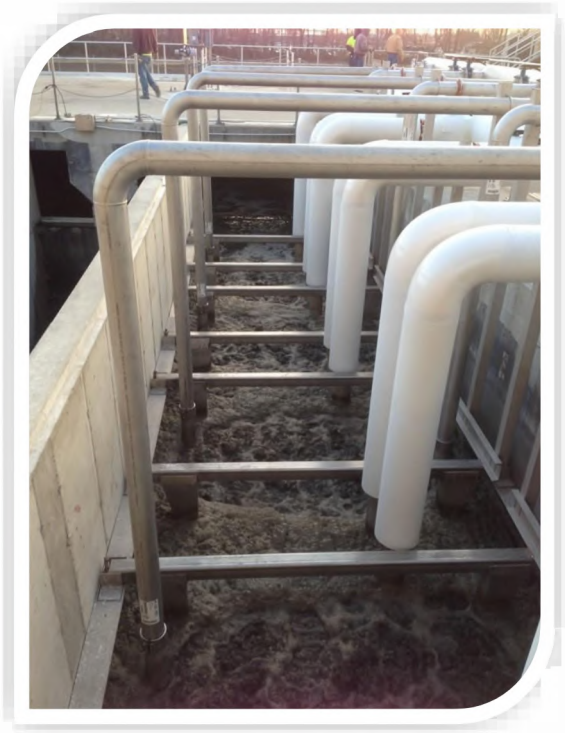


FibrePlate™ is an ultrafiltration membrane product that is constructed as a sheet of almost 500 "fibres". This configuration allows for internal flow paths to be set within a very robust sheet configuration. Sixteen sheets are then arranged side by side to form a FibrePlate™ membrane module. This results in the most efficient use of membrane tank volume and a vertical mixed liquor flow path that is free from header obstructions.

Individual FibrePlate™ modules are combined into a membrane cassette, where the collection of clean permeate from all modules is combined within the cassette permeate collection header. Due to their unique configuration and high surface area per module, the arrangement of FibrePlate™ modules within a cassette is optimized to produce a very high packing density. This allows the membrane tanks to be smaller in volume for a given treatment capacity. Modules are configured in blocks, which are combined vertically resulting in a cassette with modules stacked three rows high, minimizing footprint and maximizing air scour efficiency.

Specifically, FibrePlate™ was designed to achieve the following BEST IN THE WORLD benefits:

1. Smallest footprint
2. Lowest membrane aeration energy
3. High permeate fluxes
4. Insitu desludging from plant upset.
5. Robust, reinforced, self-healing 0.04 micron ultrafiltration membrane manufactured with proven industry materials for 10+ year life expectancy.



Design Summary

The design assumes that the raw influent wastewater is biodegradable, no toxic compounds are present, influent FOG is less than 100 mg/L at all times, that the COD/BOD ratio is between 1.7 and 2.3, and that none of the equipment provided would be used in a classified area (e.g. Class 1, Division 1 or Class 1, Division 2).

Influent Design Basis

Parameter	Unit	Value
Flow, Daily Average	MGD	0.9
Flow, Max. Month	MGD	1.125*
Flow, Peak Day	MGD	1.8*
Flow, Peak Hourly	MGD	2.7*
$cBOD_5$ (winter/summer)	mg/L	250/100
TSS (winter/summer)	mg/L	250/100
TKN (winter/summer)	mg/L	40/20
TP (winter/summer)	mg/L	7/4
Elevation	ft. AMSL	50*
Min/Max Temperature	°C	18/30*

*Assumed

Effluent Objectives – 30 Day Average

Parameter	Unit	Value
$cBOD_5$	mg/L	≤ 5
TSS	mg/L	≤ 5
TN	mg/L	3.0[A,B]
TP	mg/L	1.0[C]

A. Achieving an average TN of 3.0 mg/L in a given month is contingent on the rDON not exceeding 1 mg/L.
B. External Carbon addition required.
C. Alum addition is recommended to meet TP limit.

Process Design Summary

Total System		
Parameter	**Unit**	**Value**
Total Volume	MG	~ 0.45
Total SRT	Days	22
Total HRT @ 0.9 MGD	hrs	12
Max. Month BNR MLSS at 18°C	mg/L	9,000

Pre-Anoxic Zone		
Parameter	**Unit**	**Value**
Tanks per Train	QTY	1
Width x Length	ft	31.5 x 44
Side Water Depth	ft	9
Total Volume	MG	0.094
HRT at 0.9 MGD	hrs	2.5
Recycle from Oxic Zone	%	200% - 300%

Aerobic Zone						
Parameter	**Unit**	**Aerobic 1**	**Aerobic 2**	**Aerobic 3**	**Aerobic 4**	**Aerobic 5**
Tanks per Train	QTY	1	1	1	1	1
Width x Length	ft	31.5 x 45	15.5 x 56	15 x 40	15 x 56	15 x 38
Side Water Depth	ft	9	9	9	9	9
Volume per Zone	MG	0.095	0.058	0.04	0.056	0.038
Total Volume	MG	0.287				
HRT AT 0.9 MGD	hrs	7.65				
OUR at 30C	mg/L/hr	70	59	51	59	46
AOR at 30C	lb/hr	56	27	15	25	11
SOR	lb/hr	123	54	31	46	22
Design Residual DO	mg/L	1.5 – 2.0	1.5 – 2.0	1.5 – 1.0	1.5 – 1.0	1.5 – 1.0
Alpha / Beta	-	0.6 / 0.95	0.6 / 0.95	0.64 / 0.95	0.64 / 0.95	0.64 / 0.95
Process Airflow Rate	SCFM	733	322	182	276	128
Total Process Airflow	SCFM	1,641				

Post-Anoxic Zone		
Parameter	**Unit**	**Value**
Tanks per Train	QTY	1
Width x Length	ft	15 x 40
Side Water Depth	ft	9
Total Volume	MG	0.04
HRT at 0.9 MGD	hrs	1.1
MicroC Requirement	GPD	~ 60 - 70

Membrane Tank		
Parameter	**Unit**	**Option 1**
Number of Trains	QTY	2
Tanks per Train	QTY	1
Width x Length per Train	ft	7.75 x 14.5
Side Water Depth	ft	9
MLSS at Min Temperature	mg/L	11,400
Membrane Net Flux Rate @ ADF	GFD	10.7*
Membrane Net Flux Rate @ PDF	GFD	21.4*
Membrane Net Flux Rate @ PHF	GFD	16.1+
Total Installed Membrane Area	ft2	168,000
Membrane Air Scour Rate @ ADF	SCFM/Train	504
Membrane Air Scour Rate @ PHF	SCFM/Train	1,848
Permeate Tank Working Volume	Gallons	2,600
RAS Recycle Ratio to Aerobic Tank	%	400%
WAS @ Design	lbs/d	~ 1,200

*1 Trains in Operation
+2 Trains in Operation

Scope of Supply

Kruger is pleased to present our scope of supply which includes process engineering design, equipment procurement, and field services required for the proposed treatment system, as related to the equipment specified. The work will be performed to Kruger's high standards under the direction of a Project Manager. All matters related to the design, installation, or performance of the system shall be communicated through the Kruger representative giving the Engineer and Owner ready access to Kruger's extensive capabilities. A guarantee of the process performance is included in Kruger's Scope of Supply in accordance with Kruger's standard guarantee terms.

Process and Design Engineering

Kruger provides comprehensive process engineering and design support for our NEOSEP MBR® system, including but not limited to:

- Detail process design assistance including BIOWIN modeling of the system for confirmation of design capabilities.
- Provision of drawings and specifications for use by the consulting engineer in developing the detailed plant design.
- Provision of calculations and other data and attendance at meetings as necessary during state approval processes.
- Shop drawing submittal for Engineer's review and approval. Includes detailed equipment information for all equipment supplied by Kruger.
- Equipment installation instructions for all equipment supplied by Kruger, as well as detailed Operations and Maintenance Manuals.

NEOSEP® MBR System Equipment – Biological System

Fine Screen System	Description	Est. HP/ea	Qty
Fine Screens – OPTIONAL ADDER	Internally fed, 304SS rotary drum screen with 2 mm perforated plate. 12" inlet connection. Includes spray assembly, drum housing and screening discharge chute. Peak capacity per screen of 1,875 gpm.	0.75	2
Screenings Compactor – OPTIONAL ADDER	304SS shaftless double spiral compactor with inlet hopper, trough, trough cover, spray zone, integral bagging system. Minimum 20% dry solids discharge. *Note that this includes added length and third chute for future screen connection in phase II.	2.0	1

Grit Removal System	Description	Est. HP/ea	Qty
Grit System – OPTIONAL ADDER	Gritguard™ Vortex Grit System by SPIRAC'S® Model VG15	TBD	1
Grit Classifier – OPTIONAL ADDER	SANDSEP® Grit Classifier Model SA320	1	1

Biological Process Equipment Items	Description	Est. HP/ea	Qty
Submersible Mixer (Pre-Anoxic Zone)	Submersible mixer, inclusive of 304SS mast and bracket. Wilo or Equal.	4.2	1
Nitrate Recycle Wall Pump	2,300 GPM ea. Submersible pump, inclusive of 304SS mast and bracket. Wilo or Equal	9.5	1
Aerobic Zone Diffuser System	Fixed FB Tube Diffuser System, EPDM diffuser material, complete with in-tank PVC air piping and supports. EDI MP3 or Equal.	N/A	LOT
Aerobic Zone Airflow Control Valves	One 4" B/F valve(s) with modulating electric actuator. Four 2" B/F valve(s) with modulating electric actuator.	N/A	5
Submersible Mixers (Post-Anoxic Zones)	Submersible mixer, inclusive of 304SS mast and bracket. Wilo or Equal.	1.9	2
Aerobic Process Blowers	Tri-Lobe Positive Displacement Blower (VFD by others), including blower, motor and sound attenuating enclosure, antifriction bearing grease and synthetic oil for start-up. Kaeser or Equal.	75	2
RAS Recycle Pumps	3,100 GPM ea. Submersible Pump (VFD by others), inclusive of guide rails, base elbow, lifting chain, hoist and seal leak/alarm relays.	30	2

NEOSEP® MBR System Equipment – Membrane System

Membrane Equipment Items	Description	Est. HP/ea	Qty
Membrane Cassettes	FibrePlate FPC500 Cassette each with eighty-four (84) FPM500 modules.	N/A	4
Membrane Zone Blowers	Tri-Lobe Positive Displacement Blower (VFD by others), including blower, motor and sound attenuating enclosure, antifriction bearing grease and synthetic oil for start-up. Kaeser or Equal.	75	2
Membrane Tank Isolation Gates	304SS Membrane Zone influent slide gates, non-self-contained, manual handwheel operator.	N/A	2
Membrane Cassette Isolation Valves	4" and 6" B/F valves for air and permeate line isolation.	N/A	16
Permeate Pumps	1,100 GPM ea., Rotary Lobe Pump (VFD by others).	25	2
Permeate Control Valves	8" B/F valve(s) with Open/Close electric actuator.	N/A	2
Membrane Train Permeate Air Ejector	2" air ejector to remove air entrained in the permeate line	N/A	2
Permeate Line Priming Control Valves	2" ball valves with Open/Close electric actuator	N/A	4
Sodium Hypochlorite Membrane Cleaning System	Metering Pump Skid for Sodium Hypochlorite feed, inclusive of a two pump skid (1 Duty + 1 Standby). Lutz-Jesco or Equal.	N/A	1
Citric Acid Membrane Cleaning System	Metering Pump Skid for Citric Acid feed, inclusive of a one pump skid. Lutz-Jesco or Equal.	N/A	1

Instrumentation and Controls Equipment Items*	Qty	Description
Submersible Pressure Transducer	4	Membrane Tank, Permeate Tank, and RAS Wet Well Liquid Level Measurement
Level Switch	8	High and Low Level Float Switches for MBR Tanks, RAS Wetwell and Permeate Tank
Permeate Pump Pressure Switch	4	In-line Pressure Switches for Protection of Permeate Pumps
DO Probe (LDO)	5	Aerobic Zone DO Monitoring
Effluent Turbidimeter	2	Online Turbidimeter for Each Membrane Train
Thermal Mass Flowmeter	7	Process Air and Membrane Zone Air Flow
Magnetic Flowmeter	1	12 inch, RAS Flowrate
Magnetic Flowmeter	2	8 inch, Membrane Permeate Pump Flow
In-Line Pressure Transmitter	2	Membrane Permeate Pressure
PLC Control Cabinet	1	NEMA 12; ControlLogix PLC; Panelview HMI; 120V Feed

* All instruments supplied with integral signal converter/transmitter where applicable.

Membrane Warranty

Kruger's systems are provided with a standard 1 yr warranty for protection against defects in materials and workmanship as defined in the attached terms and conditions. The FibrePlate membrane modules are warranted for an additional year (2 yr total) at 100% followed by an additional eight (8) yr prorated warranty period.

Field Services

Kruger provides very comprehensive support of our systems throughout the installation and start-up period. Our experienced staff of field service personnel will inspect the installation of each component and assist in mechanical start-up, and will typically include direct manufacturer assistance for key pieces of equipment (e.g. blowers). Our dedicated team of instrumentation and controls engineers will provide calibration and start-up of all instrumentation and onsite verification of proper functioning of our PLC programming and operator interface systems. Process Engineers will assist in verification of program functions, start-up of the process, any process performance testing and optimization of the process. Kruger personnel will also provide onsite instruction of the operations staff in the proper operation of the Kruger supplied equipment and systems.

Scope of Supply BY INSTALLER/PURCHASER

The following items are NOT included in the scope of supply for the NEOSEP® MBR system and should be provided for by the Installing Contractor/Purchaser of the system *unless explicitly stated as included in the above scope of supply*. These items include, but are not necessarily limited to, the following items:

- Concrete foundations, pads, tanks, structural components, walkways, handrail, grating and covers,
- Equipment installation, piping to and from the MBR system, interconnecting piping, manual isolation valves, air and permeate header piping, anchor bolts, epoxy/adhesive for anchors,
- Raw influent wastewater pumping, grit removal facilities, coarse and fine screening facilities,
- Solids handling/disposal system, WAS pumps, digester equipment,
- Effluent holding tanks/equipment, disinfection equipment, outfalls,
- Chemical addition systems, containment, odor control equipment, laboratory systems or equipment,
- Overhead gantries or cranes as needed for membrane module retrieval,
- Motor control center, motor starters, adjustable frequency drives, main disconnects, breakers, generators, or power supply,
- Field wiring, interconnecting wiring, conduit, wiring terminations at equipment, local equipment disconnects, local equipment control panels, and wiring terminations at control panels,
- All electrical and mechanical hardware with the exception of the equipment that is identified above,

- All work associated with buildings or other structures used for housing any part of the system provided, including HVAC and electrical work.

Schedule

- Drawings and Specifications for use in preparation of Engineer's Bidding Documents can be provided, and typically require 2-3 weeks following confirmation of scope.
- Shop drawings will be submitted within 6-8 weeks of receipt of an executed contract by all parties.
- Most process equipment will be delivered within 8-16 weeks after receipt of written approval of the shop drawings. Lead times on blowers may be up to 22 weeks, and lead time on membrane cassettes may be up to 26 weeks.
- Installation manuals will be furnished upon delivery of equipment.
- Operation and Maintenance Manuals will be submitted within 90 days after receipt of approved shop drawings.

Pricing

The price for the NEOSEP® MBR system, as defined herein, including process and design engineering, field services, equipment supply and guarantee of effluent performance is:

MBR - $1,690,000
Fine Screens System Adder: $283,000
Grit Removal System Adder: $93,000

Pricing is FOB shipping point, with freight allowed to the job site. This pricing does not include any sales or use taxes. In addition, pricing is valid for ninety (90) days from the date of issue and is subject to negotiation of a mutually acceptable contract.

Please note that the above pricing is expressly contingent upon the items in this proposal and Kruger's Standard Terms of Sale detailed herein.

Kruger Standard Terms of Payment

The terms of payment are as follows:

- 10% on receipt of fully executed contract
- 15% on submittal of shop drawings
- 75% on the delivery of equipment to the site

Payment shall not be contingent upon receipt of funds by the Contractor from the Owner. There shall be no retention in payments due to Kruger. All other terms per our Standard Terms of Sale are attached.

All payment terms are net 30 days from the date of invoice. Final payment not to exceed 120 days from delivery of equipment.

Kruger Standard Terms of Sale

1. Applicable Terms. These terms govern the purchase and sale of the equipment and related services, if any (collectively, "Equipment"), referred to in Seller's purchase order, quotation, proposal or acknowledgment, as the case may be ("Seller's Documentation"). Whether these terms are included in an offer or an acceptance by Seller, such offer or acceptance is conditioned on Buyer's assent to these terms. Seller rejects all additional or different terms in any of Buyer's forms or documents.

2. Payment. Buyer shall pay Seller the full purchase price as set forth in Seller's Documentation. Unless Seller's Documentation provides otherwise, freight, storage, insurance and all taxes, duties or other governmental charges relating to the Equipment shall be paid by Buyer. If Seller is required to pay any such charges, Buyer shall immediately reimburse Seller. All payments are due within 30 days after receipt of invoice. Buyer shall be charged the lower of 1 ½% interest per month or the maximum legal rate on all amounts not received by the due date and shall pay all of Seller's reasonable costs (including attorneys' fees) of collecting amounts due but unpaid. All orders are subject to credit approval.

3. Delivery. Delivery of the Equipment shall be in material compliance with the schedule in Seller's Documentation. Unless Seller's Documentation provides otherwise, Delivery terms are F.O.B. Seller's facility.

4. Ownership of Materials. All devices, designs (including drawings, plans and specifications), estimates, prices, notes, electronic data and other documents or information prepared or disclosed by Seller, and all related intellectual property rights, shall remain Seller's property. Seller grants Buyer a non-exclusive, non-transferable license to use any such material solely for Buyer's use of the Equipment. Buyer shall not disclose any such material to third parties without Seller's prior written consent.

5. Changes. Seller shall not implement any changes in the scope of work described in Seller's Documentation unless Buyer and Seller agree in writing to the details of the change and any resulting price, schedule or other contractual modifications. This includes any changes necessitated by a change in applicable law occurring after the effective date of any contract including these terms.

6. Warranty. Subject to the following sentence, Seller warrants to Buyer that the Equipment shall materially conform to the description in Seller's Documentation and shall be free from defects in material and workmanship. The foregoing warranty shall not apply to any Equipment that is specified or otherwise demanded by Buyer and is not manufactured or selected by Seller, as to which (i) Seller hereby assigns to Buyer, to the extent assignable, any warranties made to Seller and (ii) Seller shall have no other liability to Buyer under warranty, tort or any other legal theory. If Buyer gives Seller prompt written notice of breach of this warranty within 18 months from delivery or 1 year from beneficial use, whichever occurs first (the "Warranty Period"), Seller shall, at its sole option and as Buyer's sole remedy, repair or replace the subject parts or refund the purchase price therefore. If Seller determines that any claimed breach is not, in fact, covered by this warranty, Buyer shall pay Seller its then customary charges for any repair or replacement made by Seller. Seller's warranty is conditioned on Buyer's (a) operating and maintaining the Equipment in accordance with Seller's instructions, (b) not making any unauthorized repairs or alterations, and (c) not being in default of any payment obligation to Seller. Seller's warranty does not cover damage caused by chemical action or abrasive material, misuse or improper installation (unless installed by Seller). THE WARRANTIES SET FORTH IN THIS SECTION ARE SELLER'S SOLE AND EXCLUSIVE WARRANTIES AND ARE SUBJECT TO SECTION 10 BELOW. SELLER MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

7. Indemnity. Seller shall indemnify, defend and hold Buyer harmless from any claim, cause of action or liability incurred by Buyer as a result of third party claims for personal injury, death or damage to tangible property, to the extent caused by Seller's negligence. Seller shall have the sole authority to direct the defense of and settle any indemnified claim. Seller's indemnification is conditioned on Buyer (a) promptly, within the Warranty Period, notifying Seller of any claim, and (b) providing reasonable cooperation in the defense of any claim.

8. Force Majeure. Neither Seller nor Buyer shall have any liability for any breach (except for breach of payment obligations) caused by extreme weather or other act of God, strike or other labor shortage or disturbance, fire, accident, war or civil disturbance, delay of carriers, failure of normal sources of supply, act of government or any other cause beyond such party's reasonable control.

9. Cancellation. If Buyer cancels or suspends its order for any reason other than Seller's breach, Buyer shall promptly pay Seller for work performed prior to cancellation or suspension and any other direct costs incurred by Seller as a result of such cancellation or suspension.

10. LIMITATION OF LIABILITY. NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, SELLER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER INDIRECT DAMAGES, AND SELLER'S TOTAL LIABILITY ARISING AT ANY TIME FROM THE SALE OR USE OF THE EQUIPMENT SHALL NOT EXCEED THE PURCHASE PRICE PAID FOR THE EQUIPMENT. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY.

11. Miscellaneous. If these terms are issued in connection with a government contract, they shall be deemed to include those federal acquisition regulations that are required by law to be included. These terms, together with any quotation, purchase order or acknowledgement issued or signed by the Seller, comprise the complete and exclusive statement of the agreement between the parties (the "Agreement") and supersede any terms contained in Buyer's documents, unless separately signed by Seller. No part of the Agreement may be changed or cancelled except by a written document signed by Seller and Buyer. No course of dealing or performance, usage of trade or failure to enforce any term shall be used to modify the Agreement. If any of these terms is unenforceable, such term shall be limited only to the extent necessary to make it enforceable, and all other terms shall remain in full force and effect. Buyer may not assign or permit any other transfer of the Agreement without Seller's prior written consent. The Agreement shall be governed by the laws of the State of North Carolina without regard to its conflict of laws provisions.

VEOLIA

NEOSEP® MBR Operation and Maintenance Estimate

Project: Mid County WWTP Dunedin, FL
Date: March 29, 2019

Energy Consumption Estimate

The following estimate of energy consumption is based on the given **average flow and loading conditions**. If initial start-up loading conditions are lower than design loading, actual power consumption over much of the life of the plant would be considerably lower than the values represented here. Estimated life cycle costs should take any varying influent loading over the life of the plant into consideration for an accurate life cycle estimate. These calculations also take into account motor and VFD efficiencies to calculate kWh based on wire-HP consumed. If comparing to other processes or systems, it is important that all systems are evaluated on an equivalent basis. For more information on efficiencies assumed please contact Kruger.

Total Annual Energy Estimates @ Average Conditions			
Parameter	**Unit**	**Option 1**	**Option 2**
Process Aeration	kW-hr/yr	267,560	267,560
Membrane Air Scouring	kW-hr/yr	61,607	59,740
Permeate Pumping	kW-hr/yr	11,816	11,855
RAS Pumping	kW-hr/yr	93,989	93,989
Mixers	kW-hr/yr	64,827	64,827
Internal Recycle Pumping	kW-hr/yr	19,918	19,918
Bio-P Recycle Pumping	kW-hr/yr	4,979	4,979
Total Annual Energy Consumption	**kW-hr/yr**	**524,695**	**522,868**

Chemical Consumption Estimate

The following estimate of chemical consumption is based on the given average flow and loading condition. Actual chemical consumption could vary considerably if low flow periods exist which allow for operation at lower than design flux rate and/or with one or more membrane tanks out of service. Please contact Kruger for revised estimates if initial start-up flows and anticipated flow increases over the life of the facility are known. Bulk NaOCl solution assumed at 12.5% concentration and Citric acid assumed at 50% concentration.

Option 1: Two (2) membrane trains.

Total Annual Chemical Estimates @ Average Conditions			
Chemical Usage	**NaOCl (Gallons/Yr)**	**Citric Acid (Gallons/Yr)**	**Micro-C (Gallons/Yr)**
Maintenance Cleaning (MC)	608	0	-
Recovery Cleaning (RC)	262	131	-
Total	**870**	**131**	**16,425**

VEOLIA

NEOSEP® MBR Operation and Maintenance Estimate

Option 2: Three (3) membrane trains.

Total Annual Chemical Estimates @ Average Conditions			
Chemical Usage	**NaOCl (Gallons/Yr)**	**Citric Acid (Gallons/Yr)**	**Micro-C (Gallons/Yr)**
Maintenance Cleaning (MC)	442	0	-
Recovery Cleaning (RC)	262	131	-
Total	**704**	**131**	**16,425**

Manpower Estimate – Option 1

The following estimate of Manpower is based on average estimated time for one year. The following figures are estimated, and actual hours may vary based on usage beyond or below expected.

Equipment	Quantity	Task	Frequency	Time Required to Perform Task	Total Hours
General	1	Walkthrough	Daily	30 min	130
Membranes	2	Recovery Cleaning	1-2 / year	30 min/Tank	1.0
Submersible Mixers	6	Oil change / seals	yearly	30 min/Mixer	3.0
Blowers	5	Tighten / check belts	Monthly	10 min/Blower	10
Blowers	5	Change Filters	Quarterly	10 min/Blower	3.3
Blowers	5	Change Oil	Twice yearly	30 min/Blower	5.0
Pumps	8	Change Seals	Yearly	30 min/Pump	4.0
DO Probes	2	Clean Probes	Monthly	5 min/Probe	0.1
Total					**156 hrs**

VEOLIA

NEOSEP® MBR Operation and Maintenance Estimate

Manpower Estimate – Option 2

The following estimate of Manpower is based on average estimated time for one year. The following figures are estimated, and actual hours may vary based on usage beyond or below expected.

Equipment	Quantity	Task	Frequency	Time Required to Perform Task	Total Hours
General	1	Walkthrough	Daily	30 min	130
Membranes	3	Recovery Cleaning	1-2 / year	30 min/Tank	1.5
Submersible Mixers	6	Oil change / seals	yearly	30 min/Mixer	3.0
Blowers	6	Tighten / check belts	Monthly	10 min/Blower	12
Blowers	6	Change Filters	Quarterly	10 min/Blower	4.0
Blowers	6	Change Oil	Twice yearly	30 min/Blower	6.0
Pumps	9	Change Seals	Yearly	30 min/Pump	4.5
DO Probes	2	Clean Probes	Monthly	5 min/Probe	0.1
Total					**161 hrs**

PROPOSAL FOR THE SUPPLY OF A MEMBRANE BIOREACTOR PLANT

Project Name: Mid-County Wastewater Treatment Plant

Proposal Number: U5136

Revision Number: 0

Date: 4/16/2019

Submitted to	**Submitted by**
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EXECUTIVE SUMMARY

H_2O Innovation is pleased to present this proposal for the supply of membrane bioreactor (MBR) equipment for the retrofit of the existing system in operation at the Mid-County Wastewater Treatment Plant (WWTP). The design presented in this proposal involves the equipment to modify the two (2) existing clarifiers to MBR trains based on the treatment capacities described below. Our proposal and pricing for the MBR system is based upon the design and supply of the equipment described in detail in the scope of supply in Section 2. The MBR retrofit is proposed using Toray NHP membranes.

The following major pieces of equipment have been proposed:

- Fine screens and compactor, loose shipped
- Membrane modules, loose shipped
- Membrane air scour blowers, loose shipped
- Permeate pumps, skidded
- RAS pumps, skidded
- CIP tank, loose shipped
- Piping to modify the clarifiers to MBR tanks (RAS, permeate and air scour)
- Valves assocaited with the MBR equipment
- Main control panel with PLC
- Power panel with motors starters
- Wall mounted VFDs

SECTION 1 - TECHNICAL APPROACH

The proposed membrane bioreactor (MBR) wastewater treatment plant is designed to provide treatment of municipal sewage for surface water discharge as described below.

1.1 DESIGN PARAMETERS

The system is designed to meet the following specified flows.

Parameter	Value	Units	Value	Units
Annual Average Daily Capacity (ADC)	3,384	m^3/d	893,958	gpd
Annual Average Daily Flow (ADF)	3,384	m^3/d	893,958	gpd
Monthly Average Daily Capacity	3,600	m^3/d	951,019	gpd
Hourly Peak Flow (HPF)	6,792	m^3/d	1,794,256	gpd
Daily Peak Flow (DPF)	4,800	m^3/d	1,268,026	gpd
Weekly Peak Flow (WPF)	4,800	m^3/d	1,268,026	gpd
Monthly Peak Flow (MPF)	3,600	m^3/d	951,019	gpd

1.2 SYSTEM CONFIGURATION

The existing flow equalization and aeration basins will remain in operation. The membranes will be integrated into the existing clarifier tanks.

Parameter	Value
Number of membrane trains	2
Number of membrane modules per train	22
Membrane module	Toray NHP210-300S
Total membrane area supplied	9,240 m^2
	99,422 ft^2
Membrane flux at the ADC/ADF	15.3 $L/m^2 \cdot h$
	9.0 $gal/ft^2 \cdot d$
Membrane flux at the MPF	16.2 $L/m^2 \cdot h$
	9.5 $gal/ft^2 \cdot d$
Membrane flux at the DPF/WPF	21.6 $L/m^2 \cdot h$
	12.7 $gal/ft^2 \cdot d$
Membrane flux at the HPF	30.6 $L/m^2 \cdot h$
	18.0 $gal/ft^2 \cdot d$

1.3 OVERALL PROCESS DESCRIPTION

The treatment process includes the provision of the following subsystems, described below:

1. Fine Screening
2. Flow Equalization System – Surge Tank (Not by H_2O Innovation)
3. Aerobic Biological Treatment (Not by H_2O Innovation)
4. Membrane Filtration
5. Sludge Handling System

1.3.1 FINE SCREENING

Rotary drum fine screens with 2mm punched hole openings are provided at the entry to the plant to ensure the removal of hair and debris to protect downstream equipment. The screening system automatically transfers solids into a compactor. Screened water falls by gravity into the surge tank.

1.3.2 FLOW EQUALIZATION SYSTEM – SURGE TANK (NOT BY H2O INNOVATION)

The surge tank manages the diurnal variation in flows. This volume provides raw wastewater storage during high flow periods and raw feed supplementation during low flow periods to provide a stable and consistent feed for the downstream processes.

1.3.3 AEROBIC BIOLOGICAL TREATMENT (NOT BY H2O INNOVATION)

The aerobic biological treatment system provides removal of oxygen demand (measured as BOD or COD) from the wastewater as bacteria consume organics within this unit operation.

Oxygen is supplied to the aerobic bioreactor through the use of process blowers and transferred via fine bubble diffuser grids in the aerobic tanks. The aeration grids are designed to handle a large range of airflow rates to accommodate varying demands. One dissolved oxygen (DO) analyzer per train is installed within the aerobic bioreactor to monitor the DO concentration and ensure it remains at or above 2 mg/L.

1.3.4 MEMBRANE FILTRATION

Membrane Bioreactors (MBR) are used in wastewater treatment for superior removal of wastewater constituents. They operate in the same manner as conventional activated sludge processes, but with a membrane barrier separating solids to achieve extremely high effluent quality while retaining the microbial population within the biological processes.

The H_2O Innovation MBR system is fully automated to minimize the need for operator involvement. TORAY flat sheet PVDF membrane modules with a pore size of 0.08 µm are submerged within the membrane tanks and are hydraulically connected to external permeate pumps that pull permeate through the flat plate membranes. Twenty two (22) membrane modules

per train are included in this design and each module holds up to 300 individual membrane elements. This design provides sufficient membrane area to allow operation at a conservative membrane flux. An isometric view of a similar membrane module is shown in the figure below.

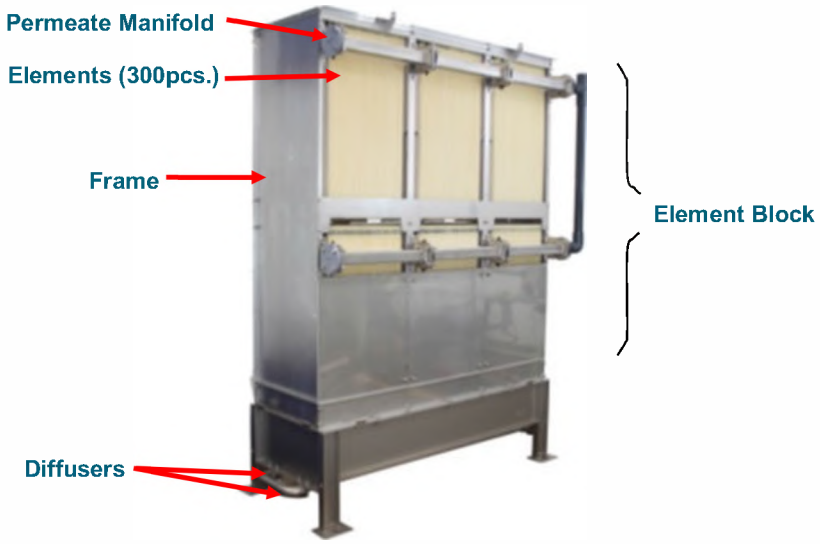


Figure 1. Toray NHP Module

Membrane permeate flows through the flat sheet membranes in the membrane tank to the permeate tank via the permeate pumps. The permeate tank is used as a source of clean water for chemical cleanings of the membrane modules and as temporary storage for treated water prior to discharge.

The pressure difference generated across the membrane when this flux is applied is called the transmembrane pressure (TMP). The transmembrane pressure (TMP) is calculated as the vacuum pressure at the water level in the membrane tank. Over time with any membrane, permeability will decline as the membranes foul, depending on water characteristics and flux. As permeability decreases, the TMP will rise for a given flux.

During permeation, the operating TMP is usually 0.5-1 psig. In order to extend the useful life of the membrane, different strategies for maintaining permeability are employed:

- First, membranes operate in a cycle where a train will permeate for nine (9) minutes followed by a one (1) minute relax period to prevent solids caking.
- Second, the membrane modules have an integrated coarse bubble diffuser that provides continuous air scour of the membranes to prevent sludging and extend the membrane cleaning interval.

- Third, chemical cleaning provides preventative maintenance to avoid the accumulation of scale-forming substances and/or organic material. Chemical cleaning is the most rigorous form of membrane maintenance. Generally, flat sheet plate-and-frame MBR configurations are inherently more resistant to fouling than hollow fiber membrane configurations. Therefore, relatively fewer chemical cleans are required. In situ cleans, or clean in place (CIP) procedures are initiated once the TMP has risen 0.75 psig (5 kPa) or more from its initial operating level, or after 6 months of operation, whichever comes first. The CIP process is a semi-automated procedure where flow is reversed through the membranes while dosing cleaning chemicals at relatively high concentrations. Membrane cleans are performed using treated water from the permeate tank. Cleaning chemicals (typically sodium hypochlorite) are mixed in a chemical tank and are pumped through the membranes using the permeate pumps and are allowed to soak for a set period of time (typically 1-3 hours) prior to flushing and restarting the train.

1.3.5 SLUDGE HANDLING SYSTEM

The activated sludge is returned from the membrane tank to the aerobic tank continuously to prevent accumulation of solids and retain the activated sludge within the system. The system is equipped with return activated sludge (RAS) pumps that recirculate flow at approximately four times the plant average daily flow.

The design MLSS concentration is based on a target food to microorganism (F:M) ratio at the design flow condition. As the MLSS concentration increases over time, periodic sludge wasting is required to maintain the concentration in the range of 7-10 g/L. The RAS flow from the RAS pumps is temporarily redirected to the sludge storage/thickening tank when sludge wasting is required. The waste sludge sent to the sludge tank is aerated in order to minimize the proliferation of odors.

SECTION 2 - SCOPE OF SUPPLY

2.1 EQUIPMENT AND SKIDS

To provide clarity on the scope of supply we have proposed for the system, please see the table below for each piece of equipment. All equipment not described below is entirely by others. If there are discrepancies, the scope of supply table takes precedence.

Qty	Headworks	Supply		Installation	
		H_2O	Other	H_2O	Other
2	Automatic rotary drum fine screens with motor, including solenoid valves for washwater. Screen openings are 2mm punched hole perforations.	✓			✓
1	Automatic compactor for screened solids from the fine screens, including solenoid valves for washwater.	✓			✓
Lot	Associated interconnecting piping and wiring		✓		✓

Qty	MBR Equipment	Supply		Installation	
		H_2O	Other	H_2O	Other
44	Membrane modules (NHP210-300S) including membrane elements, frames, integrated diffuser, headers and adapters	✓			✓
44	Sets of guiderails for installing and removing membranes in the membrane tanks	✓			✓
2	Level transmitters in the membrane tanks	✓			✓
2	Temperature probes and transmitters in the membrane tanks	✓			✓
2	Sets of associated interconnecting piping to modify the existing clarifiers to MBR tanks (permeate and RAS piping)	✓			✓
Lot	Associated interconnecting piping and wiring between the MBR tanks and equipment skids		✓		✓

Qty	Process Equipment Skid	Supply		Installation	
		H_2O	Other	H_2O	Other
2	Frames for skid mounted process equipment (one per train). Skids include equipment listed, as well as associated on-skid piping, pipe supports and instrument supports. Note that all on-skid piping is PVC.	✓			✓

	On **each** skid, the following equipment will be installed:				
	1	Centrifugal permeate/CIP pumps with motor (VFD rated), including gauges, flowmeters, valves and accessories	✓	✓	
	1	Permeate pressure transmitters on the permeate line	✓	✓	
	1	Centrifugal RAS/WAS pump with motors (VFD rated), including gauges, flowmeters, valves and accessories	✓	✓	
	1	Electrically actuated valves off the RAS line to return MLSS to the aerobic tank or send to waste in the sludge tank	✓	✓	
	1	Electromagnetic flowmeter on the RAS line	✓	✓	
	1	NEMA 4X Remote IO panel (one per equipment frame), with all skidded equipment pre-wired	✓	✓	
Lot	Associated interconnecting piping and wiring outside the limits of the equipment frames			✓	✓

Qty	Blowers	Supply		Installation	
		H_2O	Other	H_2O	Other
2	Membrane tank positive displacement air scour blower with motor (VFD rated), complete with silencer, pressure gauge, pressure relief valve, check valve and flow measurement device, all housed within a sound enclosure	✓			✓
Lot	Associated interconnecting piping and wiring outside the limits of the equipment frame		✓		✓

Qty	Auxiliary Equipment	Supply		Installation	
		H_2O	Other	H_2O	Other
1	CIP tank (HDPE), valves and accessories for temporary storage of membrane permeate and chemicals for membrane cleans	✓			✓
Lot	Associated interconnecting piping and wiring		✓		✓

Qty	Electrical System	Supply		Installation	
		H_2O	Other	H_2O	Other
1	NEMA 4X main control panel with Allen Bradley PLC, touchscreen HMI and HMI software including all electrical and controls equipment as well as the programming required for automatic operation.	✓			✓
1	Power panel for motors starters	✓			✓
6	Wall mountable VFDs (total) for permeate pump, RAS pump and membrane blower VFDs	✓			✓
Lot	Power connections and control wiring to H_2O Innovation supplied panels and junction boxes, and any related electrical equipment not specifically mentioned such as transformers		✓		✓
1	Uninterruptible power supply (UPS)	✓			✓
Lot	Plant SCADA system		✓		✓

General	Supply		Installation	
	H_2O	Other	H_2O	Other
H_2O Innovation Standard Drawing Submittal Package including system P&IDs, general arrangement drawings, system layout, and plant control narrative	✓		n/a	
Factory acceptance testing	✓		n/a	
Operating and maintenance manuals for the MBR scope of work	✓		n/a	
One (1) Year Mechanical and Workmanship Warranty	✓		n/a	
Equipment Delivery To Site (Ex-Works)		✓	n/a	
Engineering of site space including space around the tank installations		✓	n/a	

Any other equipment or service not specifically mentioned in the above scope of supply shall be by others, or can be added to the H_2O Innovation scope of supply at additional cost. H_2O Innovation reserves the right to change the design during detailed engineering.

2.2 BUYER/OWNER RESPONSIBILITY

Unless noted otherwise, the buyer or owner is responsible for the following non-inclusive list:

Design

- Ensuring equipment meets building/area classification requirements.
- Design, supply and installation of isolation valves outside the equipment tanks.
- Design, supply and installation of walkway, platforms, handrails, grating, tank covers, and access ladders/stairs, as required.
- Ensuring compatibility of equipment materials of construction with process environment.
- Design, supply and installation of lighting, heating and ventilation as appropriate for sewage treatment buildings.
- Design, supply and installation of any and all weather protection, buildings or sheds of any kind.
- Any and all permits for the site.
- Design, supply and installation of concrete and grout use.
- Design, supply and installation of embedded posts and anchor, anchor bolts.
- Design, supply and installation of grounding and lightning protection.
- Design, supply and installation of membrane removal system (such as an overhead crane)
- Controls, unless otherwise stated.
- Compressed air suitable for process air requirements.

Site Work

- Any and all site work, including equipment, piping and electrical installation, and civil work.
- Unloading, uncrating, installation and installation supervision. Installation will, at minimum, require a forklift and a crane/hoist.
- Notifying H_2O Innovation and the shipping company of unforeseen damage or required structural repairs upon equipment arrival on site. Any charges for such repairs will be noted in writing and approved by H_2O Innovation Project Manager.
- Electrical service required to supplied control (power to panel).
- Supply and installation of electrical connection and interconnecting wiring.
- Supply and installation of interconnecting piping including supports and all associated accessories between H_2O Innovation equipment boundaries.
- Design, supply and installation of interconnecting piping including supports and all associated accessories between the supplied wastewater system and the raw water supply and point of use/discharge.
- Any other auxiliary equipment or service not detailed above.
- Informing H_2O Innovation of readiness of the equipment before requesting start up service. Non-readiness may result in additional charges.

Start Up

- Sourcing, selection and procurement of a seed sludge source, as approved by H_2O Innovation.
- Supply of chemicals, and design, supply and installation of chemical feed systems and instrumentation other than those detailed above.
- Supply of automatic samplers and other sampling equipment, lab and hand held water quality test equipment, and calibration equipment and consumables.
- Supply of all equipment, consumables and manpower for system performance testing.

- Design, supply and installation of sludge removal system, and dewatering equipment, including disposal and handling of any and all waste or sludge produced.

2.3 MAIN EQUIPMENT MANUFACTURERS

The following table shows the list of suppliers preliminarily selected for this project, subject to "or equal" substitution during the detailed engineering phase of the project:

Equipment Description	Manufacturer
Screens	IPEC / Or-TEC
Blowers	Aerzen
Permeate Pumps	AMT / Goulds / Vogelsang / Boerger / Sulzer / KSB
RAS Pumps	Sulzer / AMT / Goulds / Flowserve / KSB
MBR Membranes	Toray
Pressure transmitters	Endress & Hauser
Magnetic flowmeter	Endress & Hauser
Pressure gauges	Wika
Level Transducer	Endress & Hauser
Temperature transmitters	Wika
Insertion thermal mass flowmeters	Endress & Hauser / IFM Efector
PLC	Allen Bradley
I/O	Wago / Allen Bradley
HMI	Hope Industrial

2.4 AUTOMATION AND CONTROL SYSTEM

H_2O Innovation has provided an automation and controls system using Allen Bradley. A main control panel is provided with a CompactLogix PLC and Hope Industrial PC with touch screen HMI.

One remote I/O panel is included for each train.

Equipment VFDs are wall mountable/installed on the equipment skids/supplied loose to be mounted in a motor control panel.

Junction boxes are provided for each piece of equipment provided for transferring of signals from the loose shipped equipment to the MCP or remote I/O panels, such as chemical dosing skids.

2.5 WARRANTIES

Please note that the warranties and guarantees herein shall commence at Substantial Performance of the system or 6 months from delivery of equipment, whichever comes first. Substantial Performance of the system is considered to occur once the Owner is receiving benefit from the supplied equipment and treatment system (beneficial use).

2.5.1 MECHANICAL WARRANTY

All equipment supplied by H_2O Innovation excluding the membranes is guaranteed one (1) year, parts and workmanship.

SECTION 3 - COMPANY INFORMATION

H_2O Innovation is a complete water treatment solutions company, providing custom-designed water treatment systems along with operating and maintenance solutions.

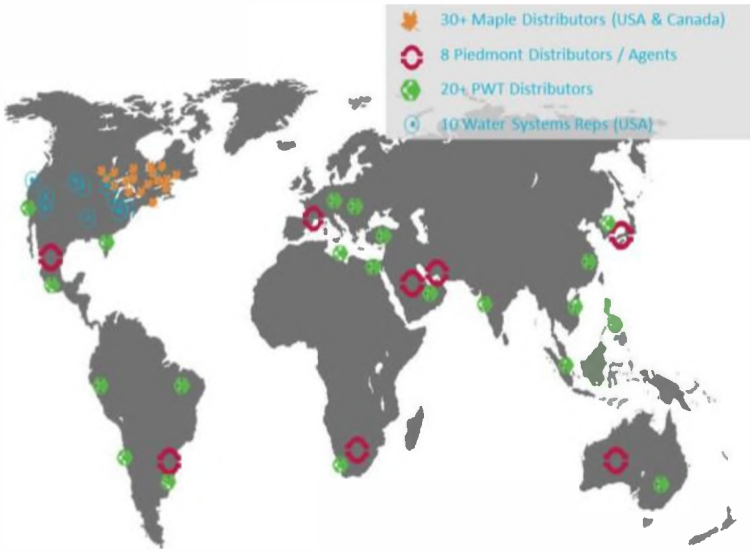
H_2O Innovation designs, develops, produces and integrates custom-built water treatment systems for multiple markets in the United States, Canada and abroad. Whether it is for the **production of drinking water**, the **treatment of wastewater**, or for use in **industrial processes**, our solutions combine the best expertise with the most advanced membrane technology products.

H_2O Innovation designs, manufactures and installs water and wastewater treatment systems for a wide range of applications. The systems incorporate membrane technologies with other conventional water treatment technologies to meet diverse needs of municipalities, industries, government agencies, commercial institutions, utilities and agriculture. System applications include industrial process and rinse water, food and beverage mix, municipal water and wastewater systems, boiler feed water, wastewater reuse and reclamation.

Our reliable, eco-friendly solutions streamline costs and optimize treatment. As renowned water treatment specialists, we provide counsel and solutions that result in efficient and reliable systems that perform and last, whatever the need and application.

3.1 H_2O INNOVATION – GENERAL COMPANY INFORMATION

Our worldwide presence, which includes our Maple, chemicals and couplings divisions, is shown below in the world map:



H_2O Innovation was co-founded by our Company's CEO over 15 years ago. Since then, our company has steadily grown to 500 employees with annual revenues of $50 million. H_2O

Innovation has set its goal on becoming an active and important player in the consolidation of the water treatment industry. Over its decade and a half of existence, the company has drawn up a sound development strategy, which is threefold: internal growth, external growth and strategic alliances. The Company is delivering projects, and servicing existing plants with a patented line of chemical products specifically designed for membrane applications and a line of couplings targeted for the UF and RO markets.

H_2O Innovation has over 650 operating systems worldwide. What started as a single operation in one location has now grown into a strong North American presence with six (6) water treatment offices and manufacturing locations: Vista CA, Champlin MN, Ham Nord QC, Quebec City QC, Calgary AB, and Burlington ON.

H_2O Innovation USA's main office is located in Vista, California, with the American manufacturing and engineering office in Minneapolis. In Canada, H_2O Innovation's head office is located in Quebec City, with our Canadian manufacturing shop in Ham-Nord, QC and engineering office in Burlington, ON. A sales, engineering, and project management office in Calgary, AB serves the oil and gas market along with Western Canada. All of our process engineering and design, project management, procurement, manufacturing and assembly, testing and after-sales service are performed from these locations. A map of the office locations can be seen below:

3.2 BUSINESS PHILOSOPHY

H_2O Innovation's mission is to develop, produce and bring to market safe, integrated, and customized products for the production of drinking water and industrial process water, the reclamation of water and the treatment of wastewater. Our systems are environmentally friendly and aim to meet or exceed local and federal water treatment standards.

H_2O Innovation's approach is to review and fully understand our customer's needs before making recommendations. We conduct a complete analysis of the customer's unique situation and consider all possible solutions, with an emphasis on technical suitability, capital and operating costs, energy savings, maintenance requirements and equipment amortization. Technical specifications are fully respected in the development of our proposal and during the execution of the project. In the absence of technical specifications, proposals are prepared jointly with the customer and customer's engineer, who become key partners in the design process. Our systems utilize standard replacement parts for valves, motors and switches that are available easily from well-known manufacturers. Technical submittals for approval are prepared in conformance with the requirements of the specifications and presented for ease in the evaluation by the engineer. Any deviation and/or exception to the specifications are clearly identified.

H_2O Innovation has acquired a unique know-how in the sector of membrane filtration and applies it in the development of highly efficient solutions. The Company possesses a broad line of products serving various customers in the municipal, commercial, institutional, industrial, oil & gas, mining and energy markets. We are able to build complex and highly specified projects for a variety of applications, as exemplified in this video: http://vimeo.com/61737449.

3.3 TORAY MEMBRANES

Founded in 1926, Toray is a world leader with over 35 years of experience in the development and manufacturing of advanced membranes for the treatment of water and wastewater.

A pioneer in the application of membranes to the treatment of water, Toray began its reverse osmosis (RO) development program in 1968. Today, Toray offers the most extensive portfolio of water treatment membranes in the industry – RO, nanofiltration (NF), ultra-filtration (UF), micro-filtration (MF) and membrane bioreactor (MBR) membranes – combined with a globally-recognized expertise in the successful application of these technologies to some of the world's most challenging water treatment situations.

Toray's Corporate Guiding Principles focus on "placing top priority on safety, accident prevention and environmental preservation". Their vision is to make a global contribution toward conserving resources and protecting the environment to develop a sustainable recycling-oriented society. In recognition of its environmentally friendly business activities, including its involvement in such areas as seawater desalination, water treatment and carbon fiber composite materials businesses as well as for its CSR activities targeting climate change prevention and sustainable social growth, energy saving measures and betterment of the workplace, Toray was honored by receiving the 2008 Humanitarian Award from the United Nations Association of New York.

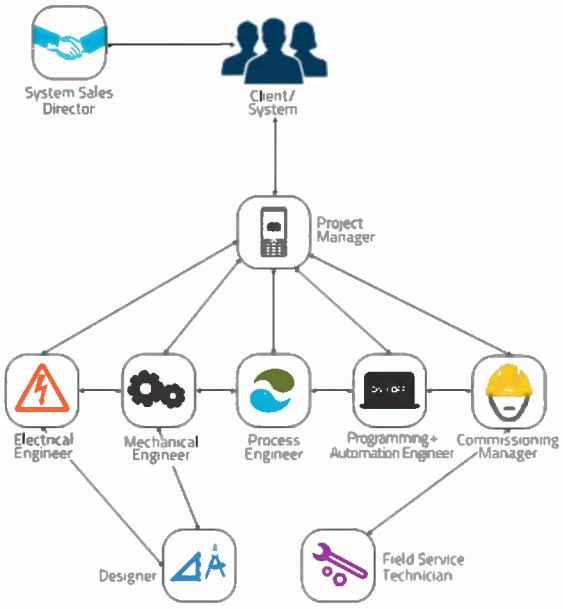
With over 200 systems in operation around the world, TORAY's MBR technology offers a proven, reliable and cost-effective solution to the treatment of complex, highly-variable and high-strength wastewater streams from municipalities, industries and commercial development projects, to reuse quality levels. Based around the rugged PVDF 'MEMBRAY' membrane, TORAY brings you the next generation in MBR technology and delivers 24/7 confidence that your new treatment facility will deliver the treatment efficiency and effluent quality you expect.

SECTION 4 - PROJECT EXECUTION

4.1 ORGANIZATIONAL CHART

Our project manager will be the main point of contact for all communication between you, your engineering team and H_2O Innovation's engineering team. H_2O Innovation's project manager selected for this project has extensive experience in water and wastewater treatment. His mission will be to regularly interact with your team outside of planned events and meetings to ensure a completely open, efficient and effective communication line.

Your project manager will be supported by the Mechanical, Drafting, Process and Electrical/Controls departments. Someone will be assigned to your project within each of these teams and will remain so until the end of the project. We will use our project manager to facilitate direct discussions between the different disciplines on your side and on ours to promote collaboration.



4.2 FLEXIBILITY OF TEAM APPROACH

Our teams are focused, flexible and interconnected. If we have to adjust workload we can pull from our different teams to accommodate incoming or outgoing projects. Many of our engineers have been trained in several disciplines throughout their years with previous employers and at H_2O Innovation, and we can pull from their experience to benefit your project and schedule.

We have a team of 83 people dedicated to project engineering, manufacturing, commissioning and service. This is enough resources for us to pull from and adjust our workload to match your

needs. We have also established relationships with key contractors over the years to help us manage peak activity, if required.

4.3 PROJECT APPROACH

Our manufacturing plant in Ham-Nord employs fully qualified AWS welders for carbon steel. Stainless steel fabrication and electrical panels are assembled meeting the UL requirements by certified electricians. All electrical panels bear the UL label. The following describes in brief the location and capabilities of our three manufacturing facilities:

1- Quebec - 62,000 ft²
Facilities available:

- Pipe and frame welding
- Skid assembly
- PLC Programming
- Factory acceptance testing
- Sand blasting and painting
- Electrical panel assembly (UL cert.)

2- Minnesota - 31,000 ft²
Facilities available:

- Piping and frame welding
- Skid assembly
- PLC Programming
- Factory acceptance testing

3- Vista – 12,000 ft²
Facilities available:

- Piedmont couplings
- PWT Chemical Production
- Membrane autopsy/testing

Skid mounted systems fabrication, welding, manufacturing and assembly, piping spools and panels is accomplished in our manufacturing plants in Minneapolis, MN and Ham-Nord, QC.

H_2O Innovation has demonstrated experience in various water treatment processes including:

- ✓ Conventional Filtration - Multimedia, Carbon, Cartridge

- ✓ Secondary Clarification
- ✓ IFAS Technology – Bio-Wheel™
- ✓ Membrane Bioreactor and Conventional Wastewater Plants
- ✓ Softening - Membrane and Ion Exchange
- ✓ Low pressure membranes – MBR / MF / UF
- ✓ High pressure membranes - Reverse Osmosis, Nanofiltration
- ✓ Electrodeionization
- ✓ Degasifiers - Forced Draft and Vacuum
- ✓ Demineralization - Cation, Anion, and Mixed Bed
- ✓ Chemical Feed Systems

All raw materials and components are procured from reputable and qualified suppliers with emphasis on quality and workmanship. Over the years we have maintained excellent relationships with our vendors.

We only have one division, one business: WATER. This ensures that you will deal with a player that is entirely focused on your solution and not potentially distracted by other corporate priorities.

Below are some photos of our assembly yard in Calgary, AB.

SECTION 5 - THE H_2O INNOVATION ADVANTAGE

5.1 WASTEWATER TREATMENT EXPERIENCE

As with any company, H_2O Innovation's MBR experience is comprised of a combination of the experience of the technical staff, company references and references using the membrane product that is offered. As an advanced membrane system supplier, the company has recruited top talent with the field of membrane bioreactors. Below is a list of employees who have been recruited as a part of this effort, representing over 120 MGD of MBR experience. This aggressive business development initiative has positioned H_2O Innovation to become a leading integrator in the MBR market.

Denis Guibert

Vice President – Engineering

Denis is a Professional Engineer with over 20 years of experience in water and wastewater treatment with a focus on membrane filtration. He has a M.Sc. in Chemical Engineering and a Ph.D. in Chemical Engineering from the National Institute of Applied Sciences in Toulouse, France. He worked for ZENON Environmental and GE Water & Process Technologies for over 10 years before joining H_2O Innovation in March 2012.

Fraser Kent

Director – Wastewater Projects

Fraser is a Professional Engineer with over 18 years of experience in water and wastewater treatment with a focus on membrane filtration. He has a B.A.Sc. and M.A.Sc. from the University of Ottawa in Environmental Engineering and a Ph.D. in Environmental Engineering from the University of Guelph where he conducted research on MBR-RO for water reclamation. He has extensive experience with MF/UF for drinking water and wastewater treatment, NF and RO for water treatment and reclamation and has conducted research in the areas of water quality and anaerobic digestion. He worked for ZENON Environmental and GE Water & Process Technologies for over 10 years before joining H_2O Innovation in October 2012.

Darren O'Neil

Senior Project Engineer

Darren is a Professional Engineer with over 20 years of water and wastewater treatment and engineering experience including project management, mechanical and process engineering design for various multi-million dollar projects in both municipal and industrial fields. He has worked on large wastewater treatment projects such as the 4 MGD Marco Island MBR in Florida, the Tri-City WPCP in Clackamas County, Oregon- a 10 MGD MBR facility, and a 400 kW anaerobic digester for the Michigan State University power generation facility. ***In total, he has been the***

primary design engineer for over 30 MGD of MBR plants and involved in over 120 MGD of MBR designs. Before joining H_2O Innovation in 2014, he worked for Anaergia, Hatch Engineering and GE Water & Process Technologies.

Hany Abraham

Mechanical Engineer

Hany is a Professional Engineer with over 20 years of experience in water and wastewater treatment. He has a M.Sc. in fluid mechanics and B.A.Sc. in Mechanical Engineering. He worked for Degrémont / Suez and GE Water & Process Technologies for over 11 years before joining H_2O Innovation. He was focused on wastewater treatment and reuse processes such as UF and MBR for RO pretreatment. He has engineered over 50 major projects across various wastewater market sectors including MBR applications with capacities from 1 to 10 MGD with key clients such as: City of Henderson Nevada, Tate & Lyle, Maple Leaf, ConAgra, Hanford and TVA nuclear plants.

Katherine Scott

Process Engineer

Katherine is a Professional Engineer with over 10 years of experience in membrane applications for drinking water, industrial water and wastewater systems. Her experience is based foremost in the costing, evaluation and design of industrial and municipal systems, as well as in commissioning and managing membrane pilot systems. She graduated from the University of Western Ontario with a B. Sc. in Chemical Engineering and has a HBA from the Ivey School of Business. She started her career at GE Water & Process Technologies before moving to H_2O Innovation in 2014.

Adam Moore

Process Engineering

Adam has a B. Eng. and M.A.Sc. in Environmental Engineering from the University of Guelph in Ontario, Canada with an emphasis on wastewater treatment. His research work was focused on the application of membrane bioreactors for treating high strength food industry wastewater for potential reuse. His past experience includes conducting surface water field programs involving stream flow characterization, water quality and watershed surveillance. Adam joined H_2O Innovation in 2015.

Gregory Bauer

Mechanical Design

Greg has over 15 years of experience in design for water and wastewater treatment equipment and plants. As a member of the H_2O Innovation team, he is responsible for design and drafting of equipment. Mr. Bauer has been involved in the drafting of PFD and P&IDs, plant layouts, and fabrication details of over 50 plants and portable systems utilizing membranes, clarifiers, screens, air processing and other types of equipment. He has also been responsible for setting company drafting standards and optimization tools for MicroStation and AutoCAD drafting software.

5.1.1 MEMBRANE EXPERIENCE

Below are examples of a few of our employees with substantial membrane experience; this list represents a quarter of our total engineering team.

Employee Name	Past Employers	Yrs of Experience
Fraser Kent – Process	Zenon/GE/Fibrecast	19
Katherine Scott – Process	Zenon/GE	12
Bill Legge – Process	CBCL/Zenon/GE/AECOM	24
Alexis Girard-King – Process	Zenon/GE	11
David Faber – Sales	Fluid Systems/Hydranautics/CSM	22
Ron Maness - Sales	IDI/Aquasource/Memcor/USFilter/Veolia/ Zenon/GE/Harn RO	33
Samantha Kendrick – Sales	Zenon/GE	19
Bill Youels – Commissioning	Harn RO	18
Darren O'Neil – Mechanical	Zenon/GE/Hatch/Anaergia	21
Hany Abraham - Mechanical	Zenon/Degrémont/Suez/GE	23
Denis Guibert – VP Eng'g	Zenon/GE	21
Greg Bauer – Drafting	Zenon/GE/Ovivo	26
Philippe Leroux – Programmer	H_2O Innovation	18

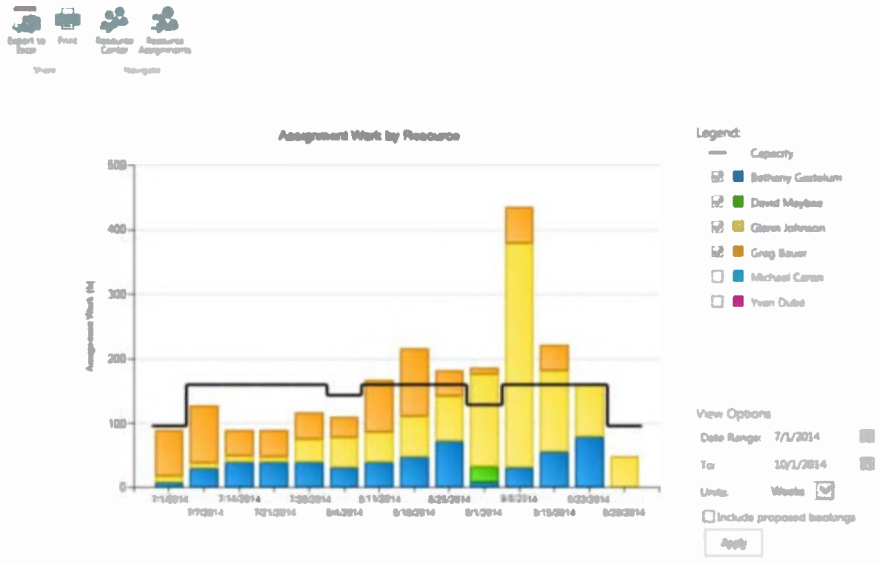
5.2 UTILITY PARTNERS - OPERATIONS AND MAINTENANCE SERVICES

Utility Partners (UP) is the operations arm of H_2O Innovation. Through UP, we provide state government, industrial, and municipal clients with innovative and cost-effective solutions for utility system management. From its roots in the southeast, UP has grown to establish several regional offices, manage in excess of thirty-five (35) public-private partnerships from one coast to another, and serve clients with a staff of nearly 500 professionals. Services include construction, operations, maintenance, and management of water, wastewater, and utility billing systems.

We supply **solutions** to meet our clients' needs, especially as the challenges and burdens of operating utility systems are increasing in today's economy. Municipalities and industries face constant budget constraints as they encounter economic shortfalls and increases in regulatory pressures. Local governments must develop innovative solutions for these difficult conditions, even as the public's demand for higher service levels continues to grow. By partnering with our firm, clients overcome these challenges and improve the level of service to their customers and meet the regulatory demands that are placed on them.

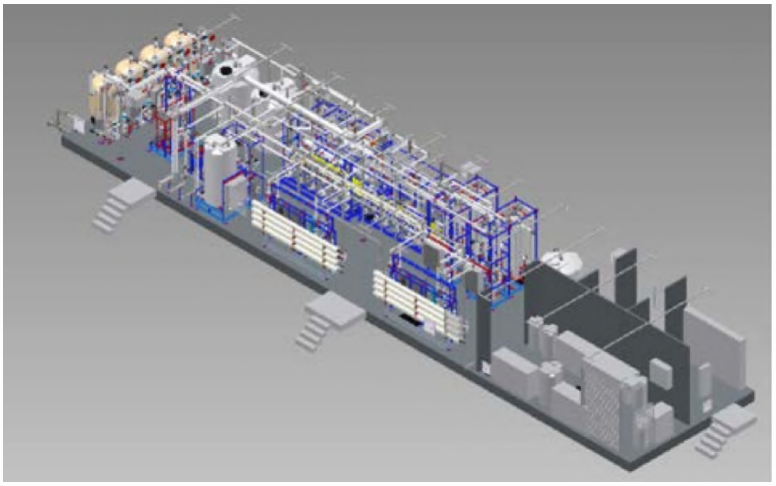
5.3 PROJECT COORDINATION

H_2O Innovation uses Microsoft Project Server to track, schedule, and regulate all of its projects. Each project schedule is detailed with resources allocated for every task, which allows for earlier identification of conflicts providing the ability to better plan and adjust as the project is underway.



5.4 CAD FILES

H_2O Innovation provides all of its CAD drawings in 3D models, created and viewed with Inventor. All drafters work off of the same version of Inventor and the work is saved to a standard location for all offices to access electronically. With a 3D view of your skidded equipment, you can better visualize and engineer your water treatment plant and its surroundings.



5.5 CAD FILE MANAGEMENT

H_2O Innovation works with the CAD file management system called Vault, which is a web-based program that all of our drafters can access via this central location. Previously to using the Vault, regular Windows folders were used, which had no controlled access and a manual revision process. Using the Vault, there is an automated revision control, a check in and check out policy, and the read write provisions are only available to H_2O Innovation's drafters.

5.6 QUALITY FABRICATION

H_2O Innovation employs the latest technologies in 3D modeling, biological process modeling and tools for managing our information and teams. To illustrate this experience we have included a number of photographs and 3D model images below to provide examples of our skid and panel fabrication.

5.7 ELECTRICAL STANDARDIZATION

5.7.1 PLC/HMI SOFTWARE

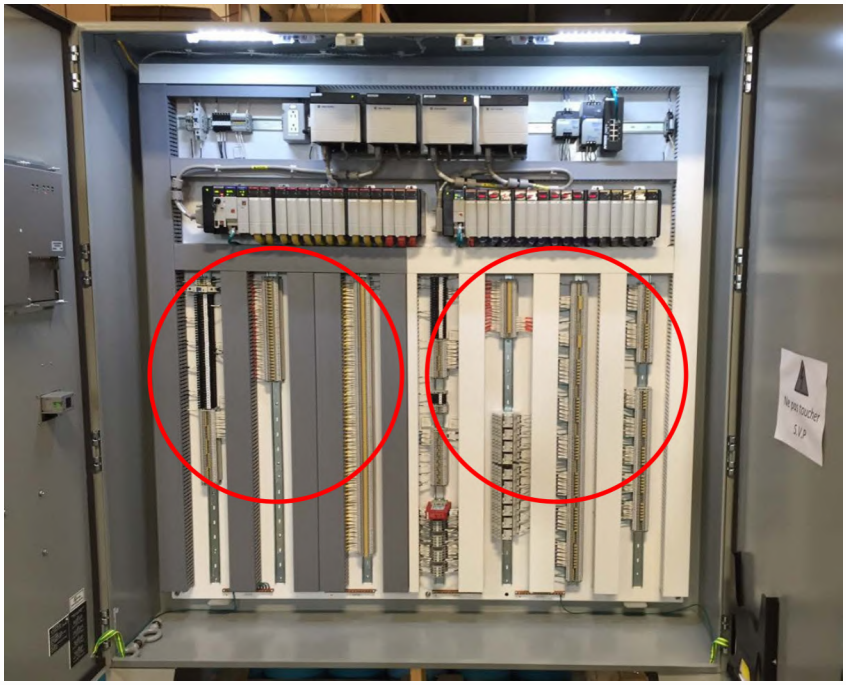
H_2O Innovation has been qualified and is part of the Rockwell "Machine Builder" program, giving you extra confidence in our programming, controls and integrating capabilities.

As a Rockwell preferred partner, H_2O Innovation has implemented the use of the PlantPAX library (P2) of Process objects. The Process objects are predefined, documented, and verified application codes written and supported by Rockwell automation. The library consists of integrated Add-On instructions and global faceplates with rich functionality and security for such processes as Analog Inputs, Digital Inputs, Alarms, Interlocks, PID Loops (w/Auto-tuning capability), Pumps, Frequency Drives, Valves, Mode Control, Run Timers, and others. Additionally, please see the following link for our partnership information with Rockwell:

http://www.software.rockwell.com/corporate/sp/OEMDetail.cfm?CompanyID=10903.

5.7.2 CONTROL PANEL DESIGN

In each of H_2O Innovation's custom panels, we offer separate panel sections for 120VAC and 24/12VDC. The 120VAC section is distinguished by the white wiring duct, and 24/12VDC is contained within the gray wiring duct as shown in the photo below. In addition, we always include a RJ45 connection that is on the outside of the panel so that connecting to the system with a computer does not require having to open the panel. This is a safer approach than working with a live and open panel.



5.7.3 UPS SYSTEM

H_2O Innovation does not use a residential-type UPS in our electrical and control panels for the following reasons:

- These units provide a square wave output that creates harmonics and noise in the electrical power to the PLC and all the critical instrumentation
- They may shorten the life of the sensitive equipment installed in the panel
- They prevent access to some of the components at the bottom of the panels
- They may not be properly supported
- They may not have the capability to generate a signal feedback in case of power failure

Instead, H_2O Innovation provides an industrial-grade, panel mounted UPS with a step sinewave or a true sinewave depending on the size and application. This provides a safer working environment for maintenance, ensures a cleaner power to the panels, and provides for additional functionality when needed.

5.7.4 HMI TABLET

H_2O Innovation includes an HMI tablet in its scope of supply that can be used as a fully functional mobile Human Machine Interface. HMI screens can be accessed through the tablet allowing for fast and easy monitoring and control of the system while standing directly in front of the desired piece of equipment. This facilitates increased efficiency and operator mobility. This tablet allows the operator to walk around all trains and equipment and perform operator tests and tasks. This allows for ultimate flexibility in monitoring and controlling the system.

During the commissioning phase, the H_2O Innovation field service representative will format and setup the tablet to ensure it is fully functional for routine operational, system control and adjustment of setpoints. The mobile HMI becomes a critical tool for the commissioning team and operators in their day-to-day tasks for monitoring, troubleshooting and system optimization.

During the operator training session the H_2O Innovation representative will train the operators in the use of the HMI tablet. At the completion of the commissioning phase, the HMI tablet is handed over to the operators for their future use.

5.8 SHIPPING AND PACKAGING

Shipment of your equipment will come in professional-grade wrapping to ensure your equipment is protected from the elements and can be stored in safe conditions. Details such as these make a difference on construction sites.

SECTION 6 - COMMERCIAL OFFER

6.1 PRICING

H_2O Innovation USA is pleased to submit our budgetary proposal (free of all taxes and duties) for the scope of work described above:

Items	Price ($USD)
MBR Equipment	$1,392,000

- Shipping EXW (as per Incoterms 2010) H_2O Innovation manufacturing plant.
- This proposal is for budgetary purposes only and does not comprise an offer of sale.
- Taxes are excluded.
- H_2O Innovation standard terms and conditions apply.

6.2 PAYMENT TERMS AND CONDITIONS

H_2O Innovation has assumed the following payment terms:

- 15% upon acceptance of Purchase Order.
- 15% upon submittal of drawing and engineering packages to the Customer.
- 45% upon receipt of major equipment at H_2O Innovation manufacturing facilities.
- 20% upon notice of readiness to ship from H_2O Innovation manufacturing facilities.
- 5% upon completion of commissioning or 60 days after shipment of equipment, whichever comes first.

'TORAY'
Innovation by Chemistry

This sheet be completed automatically after finished Bioreactor Design and MBR Design!
Disclaimer: Values in this sheet shall be determined by OEM with his verification / TORAY do not guarantee Flux rates

Project Name:	**Mid County WWTP**
Project Number:	**TBD**

Water Category:	**Municipal / Domestic Wastewater**
MBR System Design	**Separate System (the MBR modules are installed in a separate tank)**
Calculation of n-1 operation	**no**

MBR Design (Filtration System) [5.3]

Filtration Flows & Temperature	**Unit**	**N - trains in operation**	**N-1- trains in operation**	**Notice**
Annual Average Daily Capacity (ADC)	[m^3/d]	3384	-	(daily average)
Annual Avergae Daily Flow-(ADF)	[m^3/h]	141	0	Annual Average Flow: average influent flow in one day without storm water□
Hourly Peak Flow (< 1h) (HPF)	[m^3/h]	283	0	Hourly peak Flow: several hourly peaks are allowed within one day, as long as the average flow of that penod is smaller than or equal to the daily peak
Daily Peak Flow (< 24h) (DPF)	[m^3/h]	200	0	Max. Daily Flow : several daily peaks with in a penod of 7 days as long as the average flow of that penod is smaller than or equal to the weekly peak□
Maximum Daily Capacity	[m^3/d]	4800	-	
Weekly Peak Flow (WPF)	[m^3/h]	200	0	Maximum Weekly Flow : several weekly peaks with in a penod of 30 days as long as the average flow of that penod is smaller than or equal to the monthly peak
Monthly Peak Flow (< 30 days) (MPF)	[m^3/h]	150	0	Maximum Monthly Flow : several monthly peaks are allowed during one year, as long as the average flow of that penod is smaller than or equal to the yearly average
Monthly Average Daily Capacity	[m^3/d]	3800	-	(membrane design)
Minimum Temperature in MBR Tank	[°C]	15		(membrane design)

MBR Tanks		
Number of MBR Trains	train(s) / system	2.00
Number of membrane modules per train	module(s) / train	22.00
Number of MBR trains per tank	train(s) / tank	2.00
Number of MBR tanks	tanks	1.00
Basin Length (of each tank)	[m]	17.70
Basin Width (of each tank)	[m]	8.80
Minimum Water Level (m) including 0.5 m supernatant	[m]	2.75
Minimum Freeboard	[m]	0.50
Basin Depth	[m]	3.25
Basin Volume (without freeboard)	[m^3]	419
Total Volume of MBR Tank(s)	[m^3]	420

Membrane modules	**Unit**	**N - trains in operation**	**N-1- trains in operation**
Type of membrane modules	type	NHP210-300S 304SS	
Total number of membrane modules	pcs	44	22
Number of elements per module	elements / module	300	
Total number of membrane elements	pcs	13200	6600
Installed total membrane surface	[m^2]	9240	4620
Flux at Average Daily Flow (ADF)	[L/m^2 x h]	15.3	
Flux at Hourly Peak Flow (DPF)	[L/m^2 x h]	30.6	
Flux at Daily Peak Flow (DPF)	[L/m^2 x h]	21.8	
Flux at weekly peak flow (WPF) (<7 days)	[L/m^2 x h]	21.8	
Flux at monthly peak flow (MPF) (< 30days)	[L/m^2 x h]	16.2	
Recommended air flow per train	[Nm^3/h/train]	1980	
Maximum air flow per train	[Nm^3/h/train]	2840	
Estimated oxygen input from air scouring (@ rec. flow rate @all train in operation)	[kg/day]	965	
Sludge Recirculation flow per train	[m^3/h]	211.5	

Design MBR Tank:	**Unit**	**Value**
Membrane Module	NHP210-300S 304SS	
Membrane Aera per Module:	[m^2]	210
Number of Trains (n):	trains	**2**
Number of Modules per Train:	Modules per Train	22
Number of installed Modules:	Modules	**44**

Installed Flux:	**Unit**	**Value**	**Status**	**Value**	**Status**
Operation Condition		Normal			
Trains in operation	pcs	n			
Number of modules	pcs	44			
Installed Membrane Area	[m^2]	9240			
a) average daily flux	[L/m^2 x h]	15.3	O.K.		
b) hourly peak flux	[L/m^2 x h]	30.6	O.K.		
c) daily peak flux	[L/m^2 x h]	21.8	O.K.		
d) weekly peak flux	[L/m^2 x h]	21.8	O.K.		
e) monthly peak	[L/m^2 x h]	16.2	O.K.		

MBR related pumps & blowers		
Scouring Air Blower	**Unit**	**Value**
recommended scouring air per train	[Nm^3/h]	1980
maximum -design scouring air per train	[Nm^3/h]	2840
Δp (excl. piping head loss)	[mbar]	295
MBR Suction Pump(if any)	**Unit**	**Value**
required pump capacity per train	[m^3/h]	180
max suction head (excl. piping head loss)	[m]	0.2
MBR Tank Sludge Feed Pump	**Unit**	**Value**
Biomass Recirculation MBR Feed	feed by pump & return by gravity	
installed capacity per train	[m^3/h]	211.5
discharge head	depending on plant design	
Chemical Cleaning (design for one train):	**Unit**	**Value**
Volume of Chemical Tank per module	[l]	270
Volume of Chemical Tank per train	[m^3]	5.94

Budgetary Quote

Membrane BioReactor

Date: April 15, 2019 **Time:**

To: Shelby Hughes, P.E. **Phone:** 727 498 2585

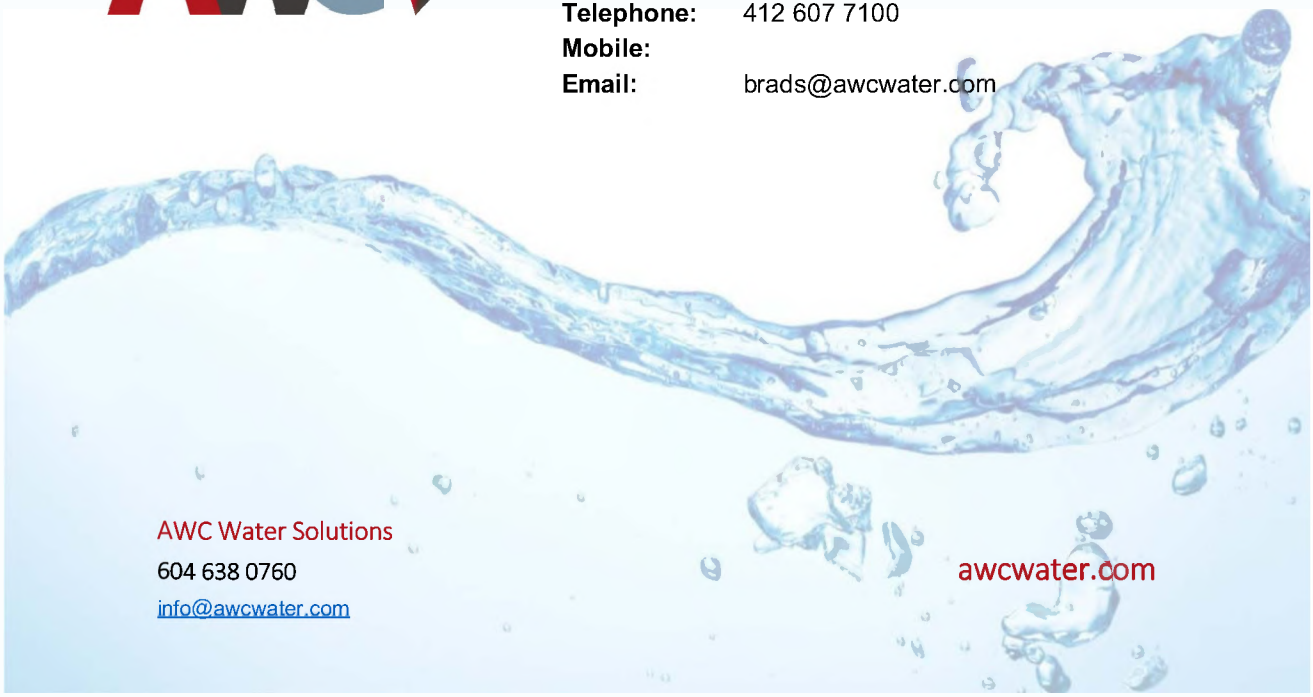
Copies: **Fax:**

AWC Ref#: 31304
Re: Mid-County MBR WWTP

SUBMITTED BY:

AWC Water Solutions Ltd.
#104 – 19074 22 Ave.
Surrey, British Columbia V3Z 3S6

Main Contact: Brad Sciulli
Telephone: 412 607 7100
Mobile:
Email: brads@awcwater.com



AWC Water Solutions Ltd. (AWC) is pleased to provide a preliminary design and budgetary quote for a Membrane BioReactor (MBR) system. This budgetary quote includes a preliminary cost, basis of design, and scope of supply for a 0.9 MGD MBR system.

AWC's MBR system is designed to deliver stable, clear treated effluent with minimal operator input. They are simple, compact and reliable that are installed with minimum field work. The systems also have an in-situ maintenance cleaning eliminating the need for "dip tanks".

Unique to AWC's MBR systems, the membranes are submerged modules made from materials that provide superior physical strength and chemical stability. They are structurally designed to extend their life to approximately ten years. Plus, the low trans-membrane pressure allows for either a pumped or gravity flow through.

Preliminary Scope of Supply and Basis of Design

Plant Type **AWC-MBR-625**

Flow Rates	
Average Daily Flow	0.9 MGD
Max Daily Flow	-
Peak Hourly Flow	1.8 MGD*

Handled by EQ tank

Parameters	Influent (mg/L)	Effluent (mg/L)
cBOD	250	<10
TSS	200	<10
TKN	35	-
TP	-	1
TN	-	3
Coliform, Fecal	-	25 CFU/100mL
Liquid Temperature	12 °C	

Tankage (concrete by others)

EQ tank, EQ pumps, EQ blowers, etc. provided by others

1 Pre-anoxic tank, 280 m^3, 7m L× 10 mW× 4m SWD

1 Aerobic tank, 1140 m^3, 28.5m L× 10 mW× 4m SWD

1 Post-anoxic tank, 200 m^3, 5m L× 10 mW× 4m SWD

1 Membrane tank, 200 m^3, 5m L× 10 mW× 4m SWD (16 ft x 33 ft x 13 ft SWD)

1 Backwash/effluent holding tank, HDPE, 12 m^3 (3000 gal)

Headworks
- Fine screen (1 duty and 1 standby), Drycake, DSS series

Pre-Anoxic Zone
- 2 Submersible mixers
- ORP sensor

Aerobic Zone
- Fine bubble air diffusers, EDI
- pH sensor
- DO sensor
- Recycle pumps (1 duty and 1 standby) c/w isolation valves, check valves, etc. submersible, Barnes
- Level sensor
- Float level switches

Post-Anoxic Zone
- 2 Submersible mixers
- ORP sensor

MBR Zone
- Submerged membrane modules, Hydranautics HSM 1500-ES
- Level sensor
- Float level switches
- TMP transmitters
- Pressure gauges
- RAS/WAS pumps (1 duty and 1 standby) c/w isolation valves, check valves, etc. submersible, Barnes

Permeate Collection System
- Permeate pumps (4 duty and 1 standby) c/w isolation valves and check valves, VFDs, Goulds
- Permeate flowmeters

Backwash System
- Backwash pumps (2 duty and 1 standby) c/w isolation valves and check valves, VFDs, Goulds
- Level sensor
- Float level switches

Air Supply System
- Aeration/MBR blowers (2 duty and 1 standby) with sound enclosure, Aerzen
- Flow switches
- Air flow meters

UV Disinfection System
- UV units (1 duty and 1 standby), Trojan

CIP System

- Chemical feed pumps (1 duty and 1 standby) for sodium hypochlorite: isolation valves, calibration column, chemical tank, etc.
- Chemical feed pump for citric acid (1 duty and 1 standby): isolation valves, calibration column, chemical tank, etc.

Phosphorus Removal System

- Chemical feed pumps (1 duty and 1 standby) for alum: isolation valves, calibration column, chemical tank etc.

pH Adjustment System

- Chemical feed pumps (1 duty and 1 standby) for alum: isolation valves, calibration column, chemical tank, etc.

Carbon Addition System

- Chemical feed pumps (1 duty and 1 standby) for alum: isolation valves, calibration column, chemical tank, etc.

PLC control system for fully automatic operation

A commissioning report

Operation and Maintenance Manual: 1 digital and 3 hard copies

Startup, Commissioning, and Training: Startup, Commission and Training are included in price to a maximum of:

- (15) days on site
- (2) total trips to site

Note: Should performance of Startup and Commissioning be hindered or otherwise prolonged, through no fault of AWC, extra costs will apply as per AWC standard rates. Schedule to be mutually agreed upon at least (4) weeks prior to required startup date.

Price

Budgetary pricing (excludes applicable taxes): $1,700,000.00 USD.

Commercial Deliverables

Our commercial deliverables are provided below. If you have any questions concerning these deliverables, please do not hesitate to contact us.

Pricing Conditions

The pricing is valid, and this Quotation is open for acceptance until June 30, 2019 and may be subject to the acceptance of financial credit check of the customer by AWC Financial Services. Applicable taxes are not included.

Recommended Spare Parts

Unless otherwise noted, spare parts HAVE NOT included in this quotation.

Exclusions to the Scope of Supply

AWC scope of supply excludes the following items:

- Design, detailing of interconnecting pipework
- Receiving, unloading and suitable storage of material
- Pressure washing of tanks and equipment following shipment
- Installation of all equipment supplied
- Installation labour for process equipment
- Concrete foundation materials and building work
- Loading of membranes
- Piping connections, yard piping, drain piping, or other piping outside the tank, skid, or plant structures
- Field electrical wiring and conduit between control panel and junction boxes
- Minor re-termination of electrical wiring from equipment to junction boxes due to shipping constraints
- Field erection of treatment plant and equipment, labour and supervision
- Sludge seeding
- Base meter, split trough, disconnect switches, transformer, if required
- Field paint or painting labour
- General cleaning of plant

Terms and Conditions

Except where otherwise set out in the Quotation, AWC standard terms and conditions as per Appendix A shall apply. Should this proposal be technically and otherwise commercially acceptable for the client, AWC is open to negotiating in good faith to come to a mutually accepted terms and conditions.

Warranty

AWC warranty as per Appendix B shall apply. Additional coverage is available, please contact your representative for details.

Terms of Payment

AWC's standard terms of payment are:

- 10% of contract price upon receipt PO
- 25% of contract price upon receipt of approved shop drawings
- 25% of contract price upon receipt of major equipment
- 30% of contract price upon delivery to package plant to the site
- 10% of contract price after completion of start-up and submission of final O&M manuals, or 90 days after delivery, whichever occurs first.

Note: Payments are due net 30 days from dates of invoices.

Shipping Terms

DAP: AWC will include trucking delivery to site including insurance. Off-loading to be completed by others.

Schedule and Shipment

Shop drawings will be submitted for approval within (4-6) weeks of receiving the purchase order. Fabrication will not commence until the purchaser has indicated in writing his full approval of the shop drawings.

Shipment will be made within 18 -20 weeks following receipt of approval of shop drawings.

Lead times quoted are based on current plant loading. Firm lead time to be finalized at time of order.

Shop Drawing Submittal Package

Layout drawings are generated in 3D design software. Typically, only PDFs are supplied, but 3D files may be available upon request. The drawings listed below is included in this quote. As noted in the *Schedule and Shipment* above, fabrication will not commence until AWC receives a written approval from the purchaser. Please note additional drawing and submittal requirements shall be at an extra cost. One set of revisions is included with drawings. Should additional revisions be required, they will be at extra cost based on AWC standard labour rates. Professional engineering stamps are available at an additional cost.

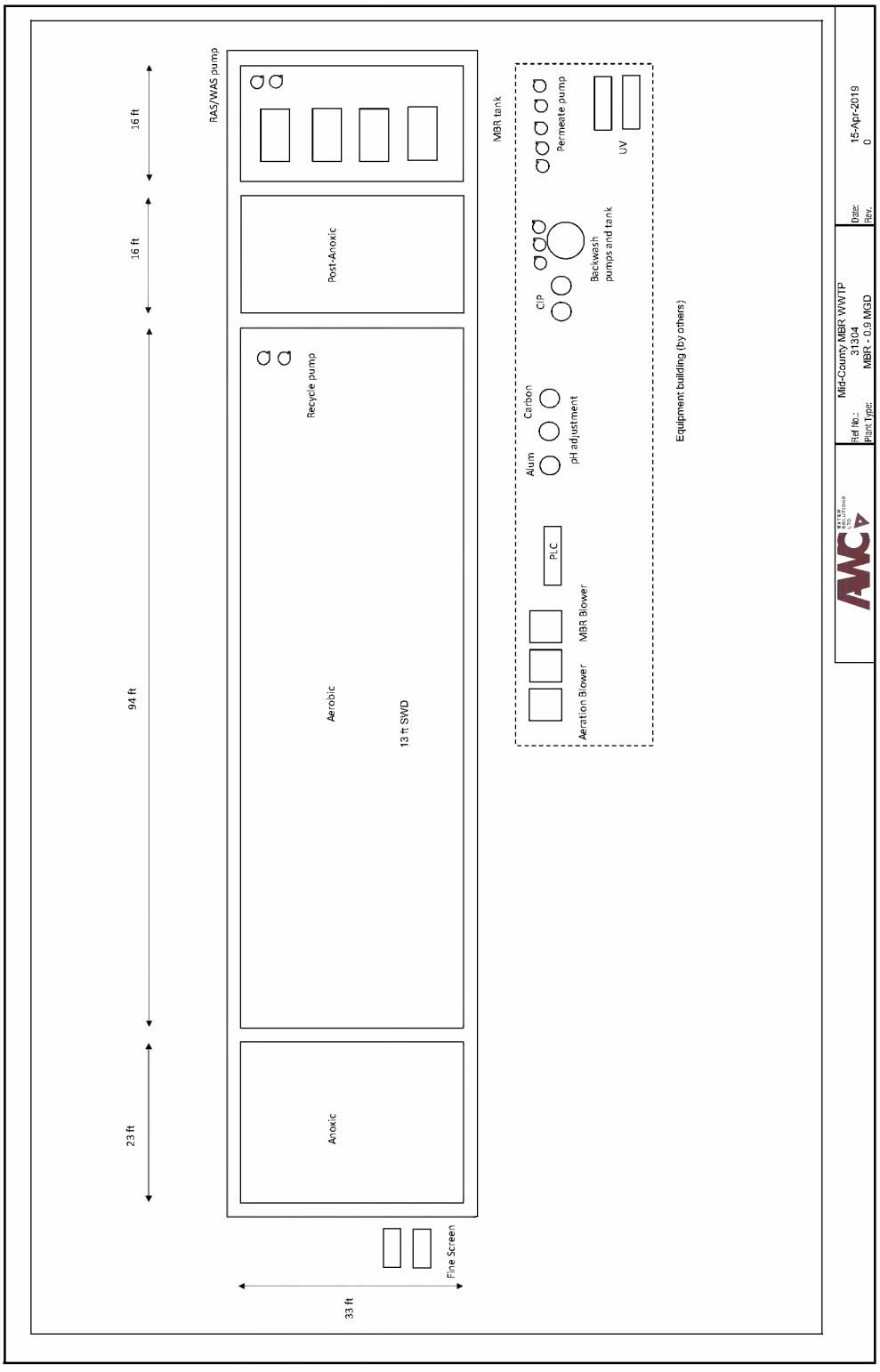
- Design Criteria
- Process Description
- General Layout
- Process and Instrumentation Diagram
- Electrical Drawings

As-Built Drawings will be available within **4 weeks** of shipment.

Testing and Inspection Reports

The below testing shall be performed prior to shipping. Copies of AWC Test Procedures and Test Forms available upon request. Further testing and/or report requirements, including witness testing, is an available at an additional cost.

- Assembly Inspection Test TST-ASY-100-00
- Fabrication Inspection Test TST-FAB-100-00


RAS/WAS pump
MBR tank
16 ft
16 ft
94 ft
23 ft
Post-Anoxic
Recycle pump
Aerobic
13 ft SWD
Anoxic
Fine Screen
33 ft
Alum
Carbon
pH adjustment
CIP
Permeate pump
Backwash pumps and tank
UV
PLC
Aeration Blower
MBR Blower
Equipment building (by others)
Mid-County MBR WWTP
Ref No.: 31304
Plant Type: MBR - 0.9 MGD
Date: 15-Apr-2019
Rev. 0

Appendix A:

AWC Water Solutions Ltd.
Standard Terms and Conditions

Terms and Conditions – AWC Water Solutions Ltd.

1. DEFINITIONS:

i. **"Agreement"** means the Buyer's agreement to purchase the Product(s) and/or Services from the Seller (AWC Water Solutions Ltd.).
ii. **"Buyer"** means the company, partnership, person, or entity purchasing the Product(s) and/or Services from the Seller identified in the Purchase Documents.
iii. **"Product(s)"** means the equipment parts and materials being purchased by the Buyer identified in the Purchase Documents.
iv. **"Purchase Documents"** means the documents accompanying these Terms and Conditions which more fully describe the Products and/or Services being purchased from the Seller, including, as applicable, the Buyer's request for quotation, purchase orders, and the Seller's quotation.
v. **"AWC Solutions"**, **"AWC"** and **"Seller"** means AWC Water Solutions Ltd.
vi. **"Services"** means all engineering, technical, and mechanical services of any description or kind to be provided by the Seller in relation to the Products.

2. APPLICATION: These terms and Conditions apply to every sale of Product(s) and every supply of Services by the Seller to the Buyer. The Buyer specifically agrees and acknowledges that unless the Seller agrees in writing to a modification of these Terms and Conditions, these Terms and Conditions apply and take precedence over any of the Buyer's Terms and Conditions whether set out in the Purchase Documents or otherwise.

3. PRICES: Unless otherwise specified by the Seller, the Seller's price for the sale of the Product(s) will remain in effect for forty-five (45) days from the date provided. The Seller's prices do not include applicable taxes which will be added to the price quoted and appear as a separate line item on the Seller's invoice. In case of any discrepancies between Buyer's Purchase Order and Seller's Order Confirmation it is the responsibility of Buyer to notify Seller within 24 hours of receiving the Seller's Order Confirmation after which point Buyer is bound to prices in Seller's Order Confirmation.

4. TERMS OF PAYMENT: Subject to approval of the Seller's accounting department, the Buyer shall pay the Seller the price of the Product(s) and/or Services provided within thirty (30) days from the date of the Seller's invoice. If the Seller and the Buyer have agreed to a milestone payment schedule, the payment specified in the milestone payment schedule shall be paid on the dates that each milestone is achieved. All overdue payments bear interest commencing on the day on which the amount became payable, calculated at the rate of 1.2% per month compounded monthly (15.3895% per annum).

5. DELIVERY AND TRANSFER OF TITLE AND RISK: All delivery dates of the Product(s) and/or Services to be provided by the Seller are approximate only and are based on the Seller having received from the Buyer all information required by the Seller to provide the Product(s) and/or Services. Seller shall in good faith attempt to effect delivery by the date specified but shall not be responsible or liable for delays due to unexpected circumstances. In no event will Seller be liable for incidental or consequential damages resulting from failure to meet the specified or amended delivery dates. All Product(s) shall be delivered to the Buyer at the location indicated in the Purchase Documents, EX WORKS at the point of the manufacture of the Product(s). All risk of loss or damage to the Products while in transit shall be borne by the Buyer. Title to the Product(s) shall pass to the Buyer on the Buyer making payment in full for the Product(s) or on the Product(s) being delivered to the Buyer, whichever occurs later.

6. DOCUMENTATION: The Seller shall supply the Buyer with the documentation specified in the Seller's quotation. Any additional copies of the documentation or the supply of documentation on alternative media will be provided by the Seller to the Buyer at the Seller's price in effect at the time of the request.

7. INSTALLATION: The Buyer shall be responsible for transporting, receiving, storing, installing, starting up, and maintaining all Product(s). If requested, the Seller may, at its option, provide Services to assist the Buyer in the installation of the Product(s) at a price agreed upon between the Buyer and the Seller or at the rates set out in the Seller's published rate schedule at the time the Services are rendered.

8. EXCUSE OF PERFORMANCE: The Seller shall be excused from the performance of any term or condition of this sale or the provision of Services when and to the extent that the performance is delayed beyond its reasonable control including, without limitation to, acts of God, wars, riots, labour unrest, inability to obtain materials or components, explosions, accidents, governmental requests, laws, regulations, orders or actions. If such an event occurs, the delivery date and the price of the Product(s) and/or Services to be provided by the Seller may be revised by agreement made between the Buyer and the Seller or the Seller may at its option cancel the sale of the Product(s) or agreement to provide Services in which case the Buyer will pay the Seller any and all losses, damages, dismantling, restocking fees, and any other costs or expense incurred by the Seller arising from such a termination.

9. TERMINATION AND SUSPENSION: The Buyer may terminate or suspend its purchase of all of the Product(s) and/or Services provided that it pays the Seller for any and all losses, dismantling, restocking fees and any other costs or expenses arising from such termination or suspension. The Seller shall have the right, in addition to any other remedy deemed necessary, to either terminate its agreement to sell the Product(s) or provide the Services or suspend further deliveries of the Product(s) or provision of the Services to the Buyer in the event the Buyer fails to make any payment required to be made to the Seller when due.

10. WARRANTY: Subject to the limitations of liability and remedies set out in Section 12, the Seller warrants its Product(s) and/or Services as follow:
Seller's Products: The Seller will, at its option, repair or replace any defects in material or workmanship in any Product(s) manufactured by the Seller which appear within the earlier of twelve (12) months from the date of initial installation of the Seller's Product(s) by the Buyer, or eighteen months from the date the Seller's Products(s) were delivered to the Buyer.

Re-Sale Products: The Product(s) manufactured by any third party (including the Seller's principals and their affiliated companies) provided by the Seller to the Buyer as the manufacturer's distributor shall be subject to the manufacturer's standard warranty. The Buyer agrees that the Seller shall have no liability for correcting any defect in the materials and workmanship in any re-sale Product(s) and that the Seller's only obligation is to make a reasonable commercial effort to assist the Buyer in making a warranty claim as against the manufacturer's standard warranty.

Services: Any Services supplied by the Seller, including component integration, device configuration, and the repair of Product(s) are warranted against defects in workmanship for a period of the earlier of ninety (90) days from the date of the installation of the Product(s) or one hundred and twenty (120) days from the date of the delivery of the Product(s) to the Buyer. Any interpretative services provided by the Seller are not warranted wither as to the accuracy or correctness of any such interpretations or any recommendations made by the Seller based upon these interpretations.

On-Site Warranty Support: If the Buyer requires the Seller to provide any Services relating to any defect in the Product(s) and/or Services rendered or any warranty claim made by the Buyer in respect of the Product(s) and/or Services, including diagnosis, dismantling, and reinstallation of Product(s), at the Buyer's site, all costs of travel to and from the Buyer's site and of these Services shall be paid by the Buyer at the rates set out in the Seller's published rate schedule in effect at the time the Services are actually provided.

11. WARRANTY EXCLUSIONS:

a) The Seller does not warrant the performance of any Product(s) and/or services provided by it to the extent that the actual operating or other conditions differ from the specifications or other data supplied by the Buyer for the purpose of selection of design of the Product(s) and/or Services to be provided by the Seller.
b) This limited warranty shall not apply to any repair or replacement of Product(s) caused by abuse, accidental damage, misuse, improper installation, and improper application, corrosion or inadequate or improper preventative maintenance of the Product(s).
c) Except as expressly provided herein, there are no other representations or warranties of any kind, express or implied, as to the merchantability, fitness for particular purpose, or any other matter with respect to the product (s) or services.

12. LIMITATION OF REMEDY AND LIABILITY: The Seller shall not be liable for any kind of consequential damages including loss of anticipated profits, loss of use of equipment or any associated equipment, the loss of product from the Buyer's facility(s) or the loss of capital however caused. The Buyer agrees that the Seller's sole and exclusive liability for all losses and damages arising out of or connected in any way with the Product(s) and/or Services provided by the Seller shall be limited to the repair, correction, or replacement of the Product(s) and/or Services in accordance with the terms of limited warranty set out in Section 10 herein. The Buyer further agrees that the Seller's total liability arising out or connected in any way with the provision of the Product(s) and/or Services is limited to the value of the Product(s) and/or Services provided by the Seller under this Agreement.

13. INDEMINITY: The Seller agrees to protect, defend, and indemnify the Buyer, its respective officers, directors, employees, and consultants from and against any and all claims, demands, losses, causes of action, liability and costs (including all legal costs and attorney fees) of every kind and nature arising out of or connected in any way with damage to property, person injury, or death of the Buyer's employees, or third parties alleged to have been caused by any act or omission of the Seller connected with the Product(s) and/or Services provided by the Seller. The Buyer agrees to protect, defend, and indemnify the Seller, its respective officers, directors, employees, and consultants from and against all claims, demands, losses, causes of action, liability and costs (including all legal costs and attorney fees) of every kind and nature arising out of or connected in any with damage to property, personal injury, or death of the Seller's employees, or third parties alleged to have been caused by any act or omission of the Buyer.

14. INSURANCE: The Buyer shall provide at its expense property damage insurance or "all risk" builder's risk insurance covering all its property on the basis of full replacement cost value without depreciation which will name the Seller and any manufacturer of the Product(s) as additional insureds with a waiver of subrogation against all insured parties thereunder.

15. GENERAL PROVISIONS:

a) Buyer shall not assign its rights or obligations under this Agreement without Seller's prior written consent.
b) There are no understandings, agreements, or representations, express or implied, not specified in this Agreement.
c) No action, regardless of form, arising out of transactions under this Agreement, may be brought by either party more than two (2) years after the cause of action arose.
d) This Agreement is formed and shall be construed, performed and enforced under the laws of the Province of British Columbia. Any suit, action, or proceeding arising out of or connected in any way with this agreement shall be brought in a Court of the Province of British Columbia which the parties shall have exclusive jurisdiction to hear and resolve such disputes, subject only to the parties agreeing to resolve such disputes through arbitration.

16. CANCELLATION, CHANGES, AND / OR DELAYS:
In the event an order is cancelled; a cancellation charge shall be applied. Cancellation fees shall be at the sole discretion of AWC, and based upon on allocated or buy-in material's status and/or labor applied, as well as a reasonable amount to cover overhead and profit.
Changes to the scope of supply as described in the prevailing Purchase Order, after approval of drawings or release to manufacture shall be subject to a change-order charge and subsequent delivery delay. Where possible AWC shall endeavor to accommodate such changes, however AWC cannot be held responsible for Deliverables that may become affected as a result of such change/s, whether a charge is applicable or not.
In the event of a delay outside the control of AWC, and where substantial work or costs have been incurred by AWC, payment terms shall be adjusted to preserve AWC's initially projected cash position.
AWC shall not accept an order which contains a penalty clause for late delivery unless otherwise described in the quoted Bill of Materials. AWC shall not participate with or become partners in a project where a penalty for late/non-compliant delivery would constitute a financial back-charge or discount to the agreed upon order value. AWC will not accept back-charges or claims for late delivery whether directly or indirectly caused by AWC or its suppliers.

Appendix B:

AWC Water Solutions Ltd.
Standard Warranty

Standard Warranty

1. AWC Water Solutions Ltd. (AWC) warrants to the Customer that the Equipment as supplied by AWC be free from defects in material and workmanship for the Warranty period.

2. If the Customer gives AWC prompt written notice of a warranty claim within the warranty period (the "Warranty Period"), AWC shall repair or replace the subject parts free of charge, which is returned to our factory, transportation charges prepaid. Should AWC determine that the claim is not covered by this warranty, the Customer shall pay AWC its customary charges for any repair or replacement made by AWC.

3. This warranty shall not apply to any failure or defect which results from the Equipment not being operated and maintained in accordance with the Operation and Maintenance manual or which results from improper operation of the Equipment, or operation of the equipment at variance with the system design specifications or standard operating practices in the industry. In addition, this warranty shall not apply to Equipment that has been altered or repaired after start-up by anyone except AWC or the Customer acting on written instructions from AWC. The warranty may not apply if untrained operators cause damage to the plant.

4. The Customer must immediately notify AWC by way of a description of the problem and all useful data to assist in remedying the problem(s). AWC may request operators log data, maintenance records and names of the operators operating the equipment. If Customer has not maintained the operator's log and maintenance records in the manner directed in the Operation and Maintenance manual or in a manner inconsistent with normal/standard operating practices or does not notify AWC of the problem as specified above, this warranty may, at AWC discretion, be invalid.

5. The Customer will be expected to assist AWC to diagnose and resolve any problems by way of telephone support. If it is determined that a component requires replacement, AWC will immediately send a replacement component to be installed by the Customer. The replaced component must be shipped back to AWC for repair and to verify that warranty coverage applies. If it is determined that extra support is necessary, AWC will visit the site to repair or replace any Equipment determined to be in breach of Warranty.

6. Warranty claims will not be considered if the Customer/Contractor has not paid AWC.

7. Limitation of liability. AWC shall not be liable for any consequential, incidental, personal, property or other damages and AWC liability arising at any time from the sale or use of the Equipment shall not exceed the purchase price of the Equipment.

8. This warranty is the exclusive remedy for all claims based on a failure of or defect in the Equipment. This warranty is in lieu of all other warranties whether written or oral. The liability with respect to repair or replacement will end on the expiry date of the warranty.

Product

AWC Water Solutions (MBR-625 / Mid-County MBR WWTP)

Warranty Period

Twelve (12) months from start-up or eighteen (18) months from delivery of equipment to site whichever is earlier.

10/5/2018

Chemical Pumps		Citric Acid Pump	Sodium Hypochlorite Pump
Type		Diaphragm	Diaphragm
Manufacturer		LMI or Equal	LMI or Equal
Materials		Suitable for acid use	Suitable for sodium hypochlorite use
Min Injection Flow	L/min	3.5	0.2
Max Injection Flow	L/min	8.3	4.9
Stock Concentration	%	30%	12.5%
Redundancy Required	-	No	No
Number of Feed Pumps	-	1.0	1.0
Number of Duty Pumps	-	1.0	1.0
Safety Factor	-	1.2	1.2
Design Flow	L/min	8.3	4.9
Turndown Rate	%	58%	95%

Scour Air

Max Specific Air Flow	acfm/(sf)	0.019
Total Maximum Air Flow (Design)	acfm	1251
Membrane Tank Blower Type	Positive Displacement	
Membrane Tank Blower Manufacturer	Aerzen, Roots or equal	
Total Blower Horse Power	HP	37
Number of Duty Blowers	-	4
Blower HP (Each)	HP	10
Maximum Air Flow per Module	scfm	313
Nominal Air Flow per Module	scfm	261

Annual Operation Cost Summary

Power Consumption

Backwash (CIP/CEB) Pumps (See r	MWh	0.002
Membrane Pumps (See note 3)	MWh	69.9
Scour Air	MWh	201
Membrane System Power (Total)	MWh	271
Power Unit Cost	$/kWh	$ 0.11
Membrane System Power Cost	$/yr	$ 29,790

Chemical Consumption

Citric Acid	gal	134
Sodium Hypochlorite	gal	673
	unit cost	
Citric Acid Cost	$ 15.0	$ 2,005
Sodium Hypochlorite	$ 0.8	$ 504
Total Chemical Cost		$ 2,509

Key Process and Cost Indicators

Annual Scour Air Power	kWh/kG pmt	0.6
Annual Membrane System Power	kWh/kG pmt	0.7

Scour Air	ft³ air/gal pmt	1.80
Membrane Chemicals	$/MG pmt	6.87

OVIVO MBR

ONE SYSTEM, MANY SOLUTIONS

Mid-County WWTP, FL
Membrane Bioreactor Equipment and Services
Preliminary Proposal
Ovivo Proposal # 052119-1-MH-R0

PREPARED FOR:

KIMLEY-HORN AND ASSOCIATES, INC.
Attn: Shelby Hughes, P.E.
100 Second Avenue South, Suite 105N
St. Petersburg, FL 33701

CREATED:
05/27/2019

VALID UNTIL:
07/27/2019

OVIVO
Ovivo USA LLC
2404 Rutland Drive, Austin, TX 78758
1-855-OVIVO-MBR
ovivowater.com

mbrcentral.com
A unique portal for MBR and Packaged Wastewater Treatment information

table of contents
ovivo mbr - one system, many solutions

executive summary
comprehensive system solutions

Ovivo has been in the U.S. wastewater market since 1914 and our Austin, TX office has been serving the market since 1966. Our heritage extends back to the very first activated sludge patent in the U.S. (Jones & Atwood) and the first ever MBR patent (Dorr Oliver). As a company we have over 50,000 pieces of equipment installed at every major treatment plant in the U.S., we have sold more than 2,000 biological processes and 361 total Ovivo MBR & MBT installations in North America.

310 Total Ovivo MBR System Supplied Plants

51 Total Ovivo MBT System Supplied Plants

~60 Silica Carbide (SiC) Installations

Since, 2001, Ovivo has played a pivotal role in establishing and innovating submerged MBR technology in North America. Continuing on our technology and market advancement, Ovivo has recently added a Silicon Carbide (SiC) membrane to our product offering. Ovivo has partnered with Cembrane with an ownership purchase and exclusive rights to market the SiC membrane technology into the North American municipal market, the industrial water/wastewater arena and the electronic market globally.

Over the past few years, Ovivo has successfully integrated SiC flat plate membranes into its wastewater solutions for the electronics market, our microBLOX® packaged plants and our sludge thickening applications. The new partnership will not only enhance growth in Ovivo's existing markets, but is creating opportunities with these solutions that are aligned to our customers' need for durability, highest performance and sustainability in both the municipal and industrial sectors.

Ovivo is proud to be **one of the first in the Municipal market to be expanding this type of technology**. Ovivo's investment in Cembrane's sustainable and innovative technology will increase manufacturing capacity to meet the growing demand for reliable, efficient, high-quality water treatment with SiC membranes.

Respectfully Submitted,

Maria Hamlin, Regional Manager MBR Systems, Ovivo USA
512.652.5812, Maria.Hamlin @OvivoWater.com

Austin Moore, TSC-Jacobs
813.888.5556, austin@tscjacobs.com

section 1
technical proposal

1.a Influent Flow Data

The influent design flows are summarized in the table below. Assumed retrofitting of existing train #2 for the MBR process design.

Parameter	Flow	Minimum Temperature	Event Duration
Average Annual Flow (AAF)	0.90 MGD	20° C	9 consecutive months
Maximum Month Flow (MMF)	0.90 MGD	15° C	3 consecutive months
Peak Week Flow (PWF)[1]	1.08 MGD	15° C	7 consecutive days
Peak Hour Flow (PHF)[1]	1.80 MGD	15° C	2 hours
Peak Day Flow (PDF)[1]	1.80 MGD	15° C	8 non-consecutive days

Notes:
1 Peak Values assumed to occur during MMF, to be verified by Consulting Engineer

1.b Influent | Effluent Characteristics

Influent wastewater flows or loads are summarized below. In the event that the influent exceeds the specifications used in engineering this proposal, or the source of influent changes, the ability of the treatment system to produce the designed treated water quality and/or quantity may be impaired. Ovivo will provide guidance to overcome characteristic variations, however, if the Owner chooses to continue to operate the system, they assume the risk or any additional costs associated with biological upset, increased consumable use or membrane damage.

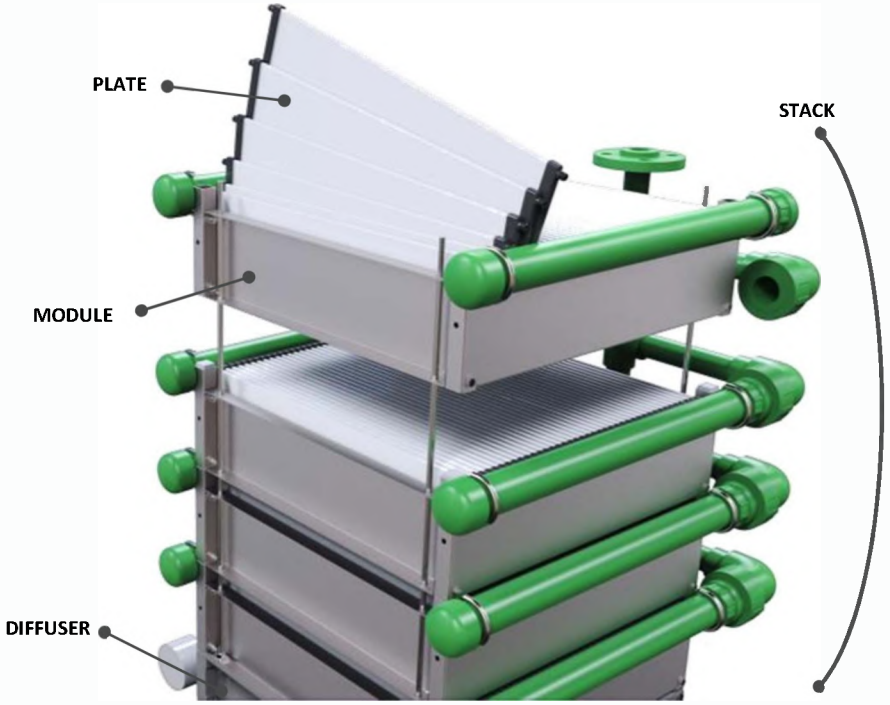
Parameter	Influent	Effluent	Remarks
BOD	250 mg/L	< 5 mg/L	
TSS	250 mg/L	< 5 mg/L	
TKN	19 mg/L	--	
NH_3	13.5 mg/L[1]	--	
TN	19 mg/L	< 3 mg/L	
TP	3 mg/L	< 1 mg/L	
Alkalinity	300 mg/L	--	
Grit[2]	< 5 mg/L		Maximum limit in MBR basins
Coarse Suspended Solids (CSS)	< 200 mg/L[3]		Maximum limit in MBR basins
Screen Capture Efficiencies	90%		
Maximum Temperature	25° C		
Elevation	110 ft		

Notes:
1 Values assumed by Ovivo, to be verified by Consulting Engineer.
2 Particles having a specific gravity > 1.6 and unable to pass through a 65-meshc (0.21 mm) screen.
3 May be accomplished with a rescreen if headworks is insufficient.

1.c Membrane System Design

SiC Technology data shown below is customized specific to this project.

Parameter	Data 1	Data 2	Data 3
Membrane Unit	M10	UF/MF	316SS Housing
Membrane Plate Properties	Flat Plate	Silicon Carbide	0.1 µm (avg)
	1.625 ft^2/plate	Ave TMP 1.0 to 3.0 psig	Max TMP 5.8 psig
Membrane Module Properties	65 ft^2/module	40 plates/module	6 mm plate spacing
	2.1' w x 2.25' l x .55'h	79 lbs dry weight	99 lbs wet weight
Membrane Diffuser Properties	Coarse Bubble	--	SS316 housing
Membrane Stack Configuration	650 ft^2/stack	10 modules per stack	SS316 housing
	2.1' w x 2.25' l x 6.9'h	790 lbs dry weight	990 lbs wet weight
Number of Membrane Trains	2	--	--
Number of Units per Train	20	Double Row	Guide
Total Membrane Surface Area	26,000 ft^2	40 OMUs	--
Flux	AAF |34.6 gfd	MMF | 34.6 gfd	PDF | 69.2 gfd



1.d Biological System Design

Data is preliminary based on current parameters and may be optimized as final design commences.

Parameter	Data 1	Data 2	Data 3
Pre-Anoxic Zone (PAX)	2 Basins	10' Side Water Depth	99,185 Gallons Total[1]
Pre-Aeration Zone (PA)	2 Basins	12' Side Water Depth	350,100 Gallons Total[1]
Membrane Zone (MBR)	2 Basins	11' Side Water Depth	44,930 Gallons Total[1]
SRT	Plant | 27 days	--	--
MLSS	PAX | 8,326 mg/L	PA | 8,302 mg/L	MBR | 10,338 mg/L
AOR	Total 2,456.5 lbs O_2/d	PA | 2,034.5 lbs O2/day[1]	MBR |422 lbs O2/day[1]
Waste Sludge	14,918 gallons per day	1.0 %	--

1. Total all basins

1.e BioWin Summary

The following is a summary table of the BioWin model. A full report is available upon request.

Characteristics	Unit	Value	Comment
Influent			
Flow (MMF)	MGD	0.9	
T.BOD	mg/L	250	
TSS	mg/L	250	
ISS	mg/L	58	
VSS	mg/L	192	
T.P	mg/L	3	
TKN	mg/L	19	
Ammonia N	mg/L	13.5	
pH	mg/L	7.3	
Alkalinity	mg/L	300	
Temperature	°C	15	
Recycle	Q	4	
SRT	days	27	
Process Basins			
MLSS PAX	mg/L	8,326	
MLSS PA	mg/L	8,302	
DO PA	mg/L	2	SNdN
OUR PA	mg/L/hr	27.95	
OTR PA	lb/hr	84.77	
	lb/day	2,034.5	
SOTE PA	%	21.06%	
Diffuser Type	--	Fine Bubble	
Alpha		0.5	

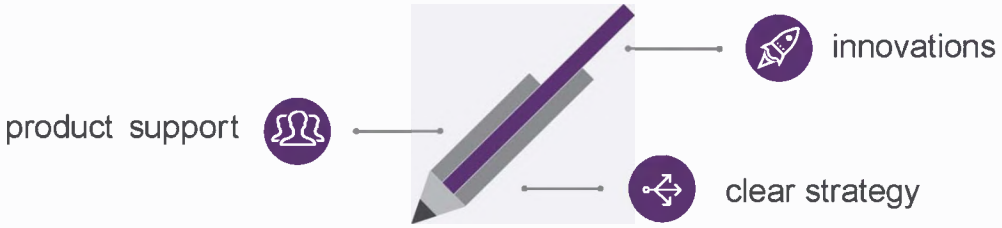
BioWin Summary continued;

Characteristics	Unit	Value	Comment
MBR			
MLSS	mg/L	10,338	
Scour Air Total	scfm	1,400	
Recycle	Q	4	
DO	mg/L	5.7	
OUR	mg/L/hr	33.39	
OTR	lb/hr	17.59	
	lb/day	422	
SOTE	%	4.79	
Alpha	--	0.758	
Diffuser Type	--	Coarse Bubble	
Chem Addition			
Micro C	gpd	--	
Alum	gpd	--	
pH	gpd	--	
WAS			
Volume	gpd	14,918.11	
Mass	lb/d	808.73	
Effluent			
T.BOD	mg/L	0.88	
TSS	mg/L	0	
F.TKN	mg/L	1.11	
Nitrate N	mg/L	0.70	
Nitrite N	mg/L	0.05	
TN	mg/L	1.87	
Ammonia N	mg/L	0.21	
TP	mg/L	0.2	
Effluent RFP Requirement			
BOD	mg/L	<5	
TSS	mg/L	<5	
TN	mg/L	<3	
TP	mg/L	<1.0	

1.f Commentary on Technical Design and Performance Requirements

01 the commentary

Ovivo's design considerations **pay respect to a simplistic flow sheet to capture maximum value** in capital, construction, and operational costs. There are diverse techniques in which the design may be approached. A cost effective MBR system design is a balancing act between process flexibility, turndown, energy efficiency, bio-hydraulics and sustainable membrane flux while meeting the design requirements in accordance with the parameters set forth. Ovivo's proposed MBR system design is focused on key points, noted throughout this proposal, which we believe will bring the most value to the project.



02 the membranes

The heart of the system is Ovivo's Ceramic Membrane Technology, comprised of hydrophillic Silicon Carbide UF/MF (0.1µ) flat plate which provides unmatched flux rate, repellling negatively charged particlaes including oil. The chemically inert membrane material can operate in extreme enivronments, a pH range from 1-14 and high sludge concentrations of 4% organic waste or 10% inorganic waste. The plates have a high resestance to oxidents even ozone. The very hydrophillic nature of membranes, allows the membrane zones to be shut down and drained without the addition of preservative. Membranes are kept clean with an automated backwash system and a regular maintenance clean (MC) which can utilize non-chlorine based chemicals, such as parasitic acidic or ozone.

the process zone 03

On the process side, Ovivo AEROSTRIP® diffusers have been the leading technology to reduce operational costs and improve plant performance. Advanced perforation technology and a high strength polyurethane membrane are the secrets to the AEROSTRIP® fine pore diffusers high performance and long service life. Ovivo guarantees clean water transfer efficiencies of 8.5-10%/m (2.6-3.0% ft) 20' side-water depth (SWD) in virtually all applications.

section 2
scope of supply

2.a Equipment Scope of Supply Summary

The following table represents a scope of supply summary for the major equipment provided by Ovivo. Scope of Supply specifics for quantities, and equipment details are shown in our technical specifications and PIDs. If specifications and PIDs are not provided with this proposal, the reviewer may request these items through our local Representative or Ovivo's Regional Manager.

Item	Description	Specification	Manufacturer
PAX Zone(s)			
Basin Mixing	Mixer	Submersible Propeller	Wilo
Instruments	Level	Hydrostatic | Switch	Blue Ribbon | Conery
PA Zone(s)			
Fine Bubble Diffusers	Flat Panel	2.6-3.0% ft	Ovivo/Aerostrip
Instruments	Dissolved Oxygen	LDO	Hach
MBR Zone(s)			
Membrane	OV SiC Technology	Silicon Carbide Flat Plate	Ovivo | Cembrane
Membrane Mounting	UMK	--	Ovivo
Valves	Lot	Ball | Butterfly	Asahi | Keystone
Instruments	Level	Switch	Conery
Permeate/Backwash Subsystem			
Permeate Production	Pump	Rotary Lobe	Boerger
Valves	Lot	Ball | Butterfly | Control	Asahi | Keystone
Instruments	Flow | Level	Mag Meter | Switch	E+H | Conery
RAS Subsystem			
Transfer	Pump	Submersible	Wilo
Valves	Lot	Ball | Butterfly | Control	Asahi | Keystone
Instruments	Flow | TMP Turbidity	Mag Meter | Inducer | Optical	E+H |E+H | Hach
Aeration Subsystem(s)			
PA & MBR	Blowers	PD	Aerzen
Valves	Lot	Butterfly	Keystone
Instruments	Pressure | Flow	Transducer | Mass Air	E+H
Maintenance Clean (MC) & Backwash (BW)Subsystem			
MC & BW Equipment	Lot	Automated System	Ovivo

2.b Control Scope of Supply Summary

Ovivo's control integration is done in an exclusive partnership with Hyperion International. Hyperion, has been involved in over 100 of our MBR projects. Located a few miles from our Austin MBR Headquarters, their UL panel shop provides us with technical specialization in instrumentation and controls system design, engineering, and operations. Before shipping the equipment, Hyperion will conduct a Factory Acceptance Test (FAT). The FAT is to be conducted at this facility and is witnessed by Ovivo. The customer may also attend the FAT. The FAT includes forcing I/O and observing proper PLC outputs and screen representation, as well as alarm and report functions, in accordance with the project requirements. Ovivo and Hyperion's integration scope on any project could be easily expanded to equipment not supplied by Ovivo, a full plant SCADA and MCC.

QTY	Description	Remarks
1	**PLC Panel**	MBR System Scope
1	**HMI**	MBR System Scope
1	**SCADA**	MBR System Scope
1	**Motor Control Panel**	By Others
1	**FAT**	Ovivo | Hyperion

2.c Services Scope of Supply Summary

Ovivo's scope of services is shown below. Every application is different and site conditions are dynamic (changing all the time). There is not one right answer for every plant. Our team will provide a design based on specified conditions, but, then **we work with the plant operators to optimize the best commissioning strategy,** based on real conditions. WaterExpert™ a platform to help better maintain and operate the equipment and harness the power of cloud to provide real time data insights into the equipment is provided.

Item	Description	Duration	Provider
Services			
Mechanical Inspection	On-site installation inspection	1 Days	Ovivo Project Manager
Commissioning	Start-up, demonstration and training	10 Days	Ovivo Technical Services
Ongoing Support	24/7 technical phone support	Warranty Period	Ovivo Technical Services
Digital Asset Management			
WaterExpert™	Data trending, asset management	1 year	Ovivo
Freight			
Shipping	Included	--	--

section 3
operational considerations

3.a O&M, Lifecycle Estimates

Power		MC Chemicals		Membranes	
optimum theoretical energy [1]	1.0 kw/m3	annual consumption [2]	$8,764	one replacement [3]	20 year [3]

1 - Full System kW per treated flow

2 - Total Annual Consumption

3 - 20-yr lifecycle

3.b Operational Management Tools

Waterxpert™ is included for the first year of operation. WaterExpert™ is a platform provided to help better maintain and operate the equipment and harness the power of cloud to provide real time **data insights into the equipment.** Included in the WaterExpert™ base plan are data trending charts, alerts, maintenance calendars, digital documentation of Ovivo's scope of supply, drawings, IOM manuals and generic videos of basic process, operation and maintenance your MBR equipment.

At Commissioning, Ovivo start-up personnel will provide onsite training of the system as well as the use of the WaterExpert™ digital operation tools.

These tools can be accessed from any smart phone, tablet or computer. A brief video demonstrating WaterExpert™ capabilities is available at the following youtube link: https://www.youtube.com/watch?v=qWvU6fjlypY

section 4
warranty and support considerations

4.a Warranties

Warranty 01

As a multi-product wastewater treatment system supplier for over 50 years, Ovivo understands that each system is only as reliable, only as efficient, as the weakest component. Our commitment is to the complete Ovivo® MBR System. Our multiple product ownership, strong licensing and OEM agreements allow us to provide for meaningful warranties and guarantees.

One interesting, differentiating feature of an **Ovivo Membrane Warranty is that the Owner is not required to monitor, report or record instrument (online) field data for the purpose of maintaining warranty** coverage as long as WaterExpert™ is maintained. This allows Ovivo and the Owner to collaborate in managing the data trends and alerts. The Owner shall be required to maintain a reliable, high-speed connection to the processor and to maintain manual records regarding MBR M LSS, CSS and chemical use data. Any event or instance where connectivity is lost with <10% of data missing or if data conforms with MLSS, Permeability, TMP and Air Scour **the Warranty shall not be reduced or voided**.

Warranties presented in this proposal are:

Warranty	Description[1]	Duration Yrs	Type
Membrane			
Workmanship	Workmanship and Defects	12	4 Full | 8 Prorated
Equipment			
Ancillary	Workmanship	1	Full
Fine Bubble Diffusers[3]	Workmanship and Performance	5	Full
MBR System			
Process[2]	System Process Performance	1	--

Notes:
1. See warranty statements and specifications for full description.
2. Must have WaterExpert maintained.
3. Applies to aeration basin flat panel Aerostrip diffusers.

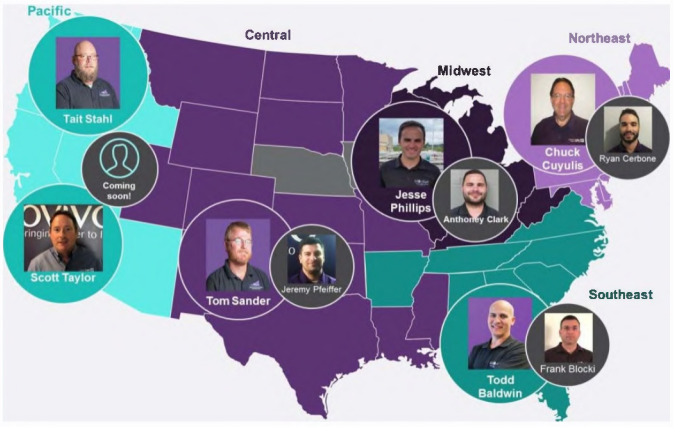
4.b Commentary of Ovivo Support

Ovivo is a global provider of wastewater equipment, technology and services with 30+ multi-disciplined personnel specifically dedicated to the North American MBR market. All with extensive MBR experience, will be directly committed to ensuring the success of this project.

01
the mbr group

02
product support

OVIVO MBR PRODUCT SUPPORT



Our product support team will contribute in a meaningful way to the success of the operational aspects and as appropriate, will ensure that performance goals are met or exceeded. Product Technical Support Personnel are located across the country for regional technical support.

technology support
03

Ovivo Inc. has formed a global supply agreement with Cembrane headquartered North of Copenhagen. The team behind Cembrane consists of the pioneer of Silicon Carbide (SiC) membranes as well as experts with a long experience in Silicon Carbide processing. Ovivo is investing in SiC membranes in a major way and on a global basis in-order to make these membranes technically and commercially viable though multi-product lines. This commitment assures our customers that Ovivo will stand behind their specific installation.

section 5
commercial considerations

5.a Pricing

Ovivo is pleased to offer the Membrane Bioreactor System equipment and services as detailed in this proposal. Unless specifically and expressly included in this proposal, pricing provided is limited to the Services, Goods, quantities, materials, and model numbers as per Ovivo's Scope of Supply. The estimated cost of this proposal constitutes a non-binding estimate for certain goods and/or services and is exclusive of applicable local sales tax or bonds.

Item	Description	Price
Base Equipment and Services		
MBR Equipment	Scope per section 2.a	Included
Controls	Scope per section 2.b	Included
Services	Scope per section 2.c	Included
Warranties	Scope per section 4.a	Included
	Total	**$2,300,00.00**

STEEL, STAINLESS STEEL AND ALUMINUM PRICE ESCALATION

Recently we have experienced sharp increase in various metal prices, we continuously monitor the markets. To remain competitive, we will not attempt to cover all possible escalations from Bid Date to steel and aluminum procurement. Due to potential material cost fluctuations, the prices quoted in this proposal may be increased based on the actual material cost at the time steel fabrication begins. Steel fabrication generally will begin no later than 3 weeks after submittal approval.

The prices quoted in our proposal are based on the following major cost indexes at the time of our proposal.

1. Cost information is based on the most current ATI surcharge information found at www.atimetals.com/businesses/atiflatrolledproducts/Pages/stainless-steels-surcharge-report.aspx
2. Cost information is based on the most current North America Composite Carbon Steel price information found at www.meps.co.uk/allproducts%20steel%20price.htm

Ovivo reserves the right to re-quote if these indexes increase from the proposal date to the order date. If necessary, as an example of the escalation calculation would that assume a proposal made in January for 316/316L steel fabrication with a purchase order placed in March, the surcharge in January, at time of proposal, was $0.7460 and the surcharge at time of steel fabrication is $0.9460. An additional $0.20/lbs. would be added.

Any additional duties and tariffs invoked after the date of the proposal will be added to the total proposed price.

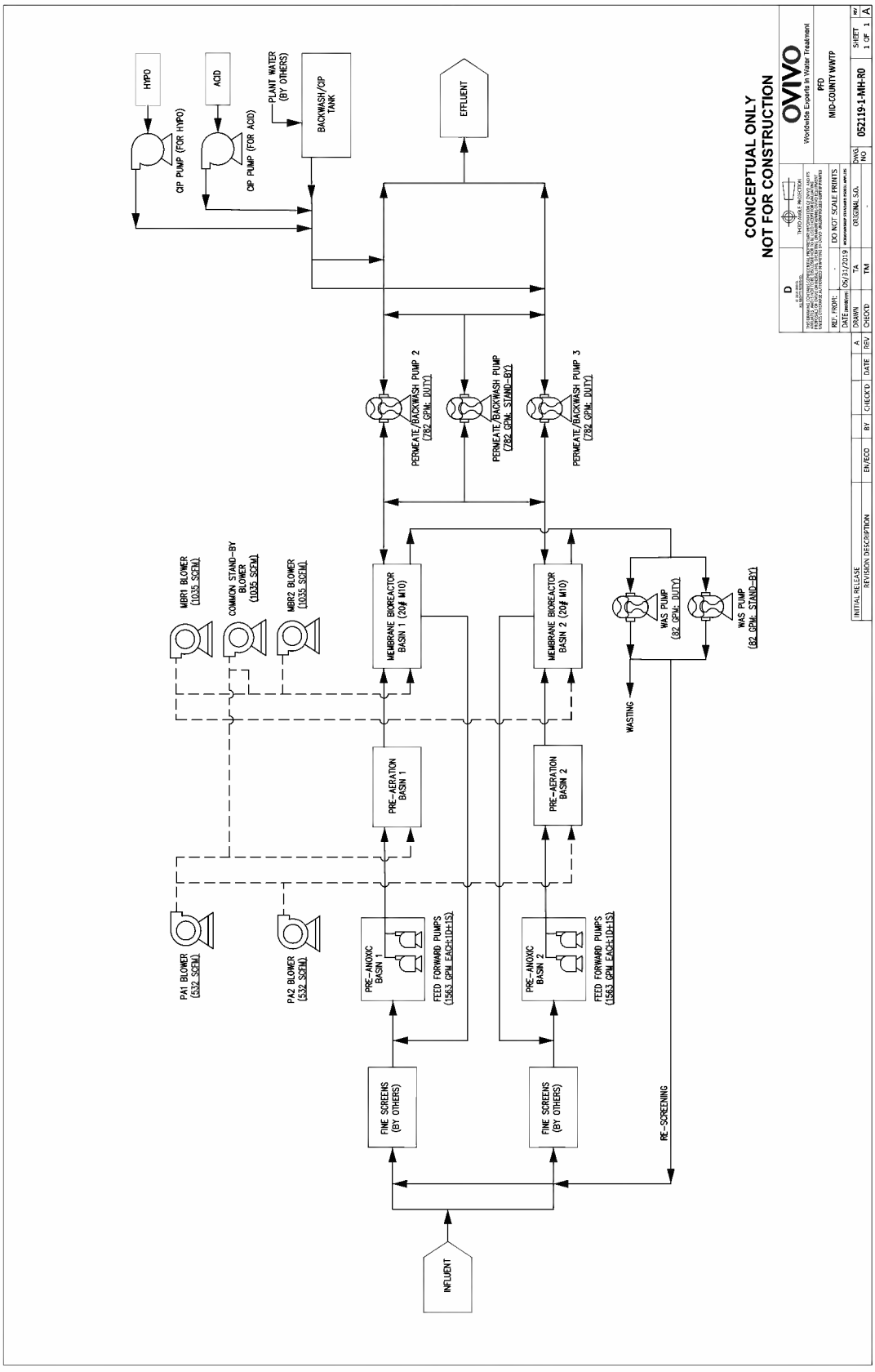
14

appendix
supplementary information

Process Flow Diagram

General Arrangement Drawings

Brochure


HYPO
ACID
PLANT WATER (BY OTHERS)
CIP PUMP (FOR HYPO)
CIP PUMP (FOR ACID)
BACKWASH/CIP TANK
EFFLUENT
PERMEATE/BACKWASH PUMP 2 (782 GPM, DUTY)
PERMEATE/BACKWASH PUMP (782 GPM, STAND-BY)
PERMEATE/BACKWASH PUMP 3 (782 GPM, DUTY)
MBR1 BLOWER (1035 SCFM)
COMMON STAND-BY BLOWER (1035 SCFM)
MBR2 BLOWER (1035 SCFM)
MEMBRANE BIOREACTOR BASIN 1 (20ϕ M10)
MEMBRANE BIOREACTOR BASIN 2 (20ϕ M10)
WAS PUMP (82 GPM, DUTY)
WAS PUMP (82 GPM, STAND-BY)
WASTING
PRE-AERATION BASIN 1
PRE-AERATION BASIN 2
PA1 BLOWER (532 SCFM)
PA2 BLOWER (532 SCFM)
PRE-ANOXIC BASIN 1
PRE-ANOXIC BASIN 2
FEED FORWARD PUMPS (1563 GPM, EACH-1D+1S)
FEED FORWARD PUMPS (1563 GPM, EACH-1D+1S)
FINE SCREENS (BY OTHERS)
FINE SCREENS (BY OTHERS)
RE-SCREENING
INFLUENT
CONCEPTUAL ONLY
NOT FOR CONSTRUCTION
OVIVO
Worldwide Experts in Water Treatment
PFD
MID-COUNTY WWTP
052119-1-MH-R0
SHEET 1 OF 1
REV A
INITIAL RELEASE
REVISION DESCRIPTION
DO NOT SCALE PRINTS
ORIGINAL SIZE


CONCEPTUAL ONLY
NOT FOR CONSTRUCTION
EXISTING AERATION BASIN
MBR BASIN 1
TELESCOPIC VALVE
MBR BASIN 2
NEW WALL TO BE CONSTRUCTED
PRE-AERATION BASIN 1
PRE-AERATION BASIN 2
PRE-ANOXIC BASIN 1
PRE-ANOXIC BASIN 2
MBR BASIN
PRE-AERATION BASIN
PRE-ANOXIC BASIN
7'
50'
17'
39'
11'
12'
10'
OVIVO
Worldwide Experts in Water Treatment
LAYOUT PROPOSAL
MID COUNTY WWTP
052119-1-MH-R0
DO NOT SCALE PRINTS
ORIGINAL S.O.
INITIAL RELEASE
REVISION DESCRIPTION

OVIVO Worldwide Experts in Water Treatment

MUNICIPAL WASTEWATER
SILICON CARBIDE MEMBRANE

ACHIEVING A NEW LEVEL OF PERFORMANCE IN MEMBRANE TECHNOLOGY

- Highest Flux
- Withstands the Harshest Environments
- Quick & Easy Cleaning for Full Recovery
- Longest Life of Any Membrane

Ideally suited for Sludge Thickening, High Rate MBR, Tertiary Treatment and Wet Weather Overflow Applications

SILICON CARBIDE FLAT PLATE MEMBRANES

www.ovivowater.com

1-855-GO-OVIVO

Ovivo® Silicon Carbide Flat Plate Membranes

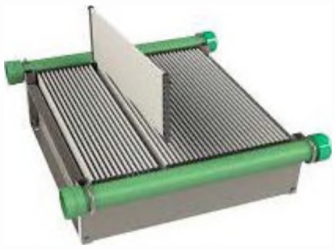
KEY HIGHLIGHTS

- 0.1 µm pore size
- Completely hydrophilic
- High chemical and temperature tolerance
- Submerged design
- Resistant to damage from debris, grit, and coarse material
- Easily re-wetted after drying

PLATE

WHAT'S SO SPECIAL ABOUT SILICON CARBIDE?

Silicon Carbide's natural properties effortlessly attracts water while repelling foulants. This results in extremely high sustainable fluxes and the ability to operate reliably in high solids and oils, as well as under other difficult conditions that polymeric membranes have shied away from. Silicon carbide is also one of the hardest materials in the world and forms membrane plates that are solid as a brick and able to withstand the broadest range of temperature, pH, chemicals, and pressures. SiC membranes have achieved a new level of performance in some of the most demanding applications.

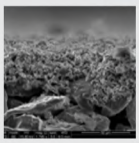


MODULE

HOW IT'S MADE

SiC POWDER
Silicon Carbide mixed into paste and extruded

SUBSTRATE
Extrusion fired at 2,000 °C to bind SiC grains



MEMBRANE LAYER
Membrane layer applied to substrate

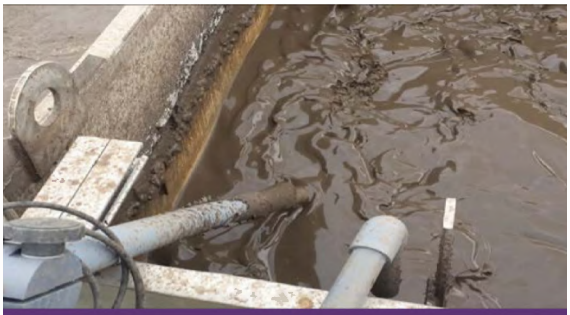
SiC PLATE
0.1 micron SiC flat plate membrane

STACK

POTENTIAL APPLICATIONS

HIGH RATE MBR

SiC allows for operation at high MLSS, increasing MBR capacity within the same footprint

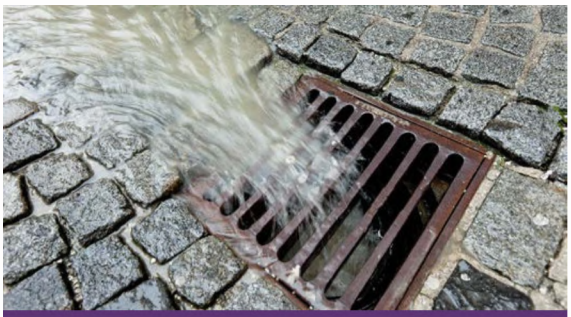


SLUDGE THICKENING

SiC expands the operating window for MBT, easier to recover from dewatering

TERTIARY TREATMENT

High flux, low footprint design with lower energy consumption than hollow fibers



WET WEATHER OVERFLOWS

CSO, SSO MBR peak flow, CAS peak flow. SiC can be completely dried, allowing for intermittent storm use

Ovivo® Silicon Carbide Flat Plate Membranes

THE **OVIVO** DIFFERENCE

200+ YEARS OF HERITAGE • 100% FOCUSED ON WATER

OPERATING LIMITS/CAPABILITIES

Operating Parameter	Units	Silicon Carbide
TSS	mg/l	< 45, 000
Oil & Grease	mg/l	< 500
Free Oil	mg/l	< 500
pH	-	1 - 14
Temperature	°C	1 - 80
Backwash Pressure	psi	< 30
Chlorine Tolerance	wt%	1.0

CSO Results
(Raw Sewage)

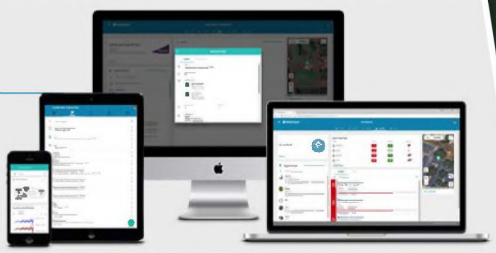
WaterExpert™

YOUR WATER TREATMENT HUB

**ALL OF YOUR MANUALS,
ALL OF YOUR KNOWLEDGE,
ALL IN ONE PLACE.**

Get your team on the same page.
Upload and share documents & media.
Create and manage service logs and maintenance schedules.

Learn more at WaterExpert.com



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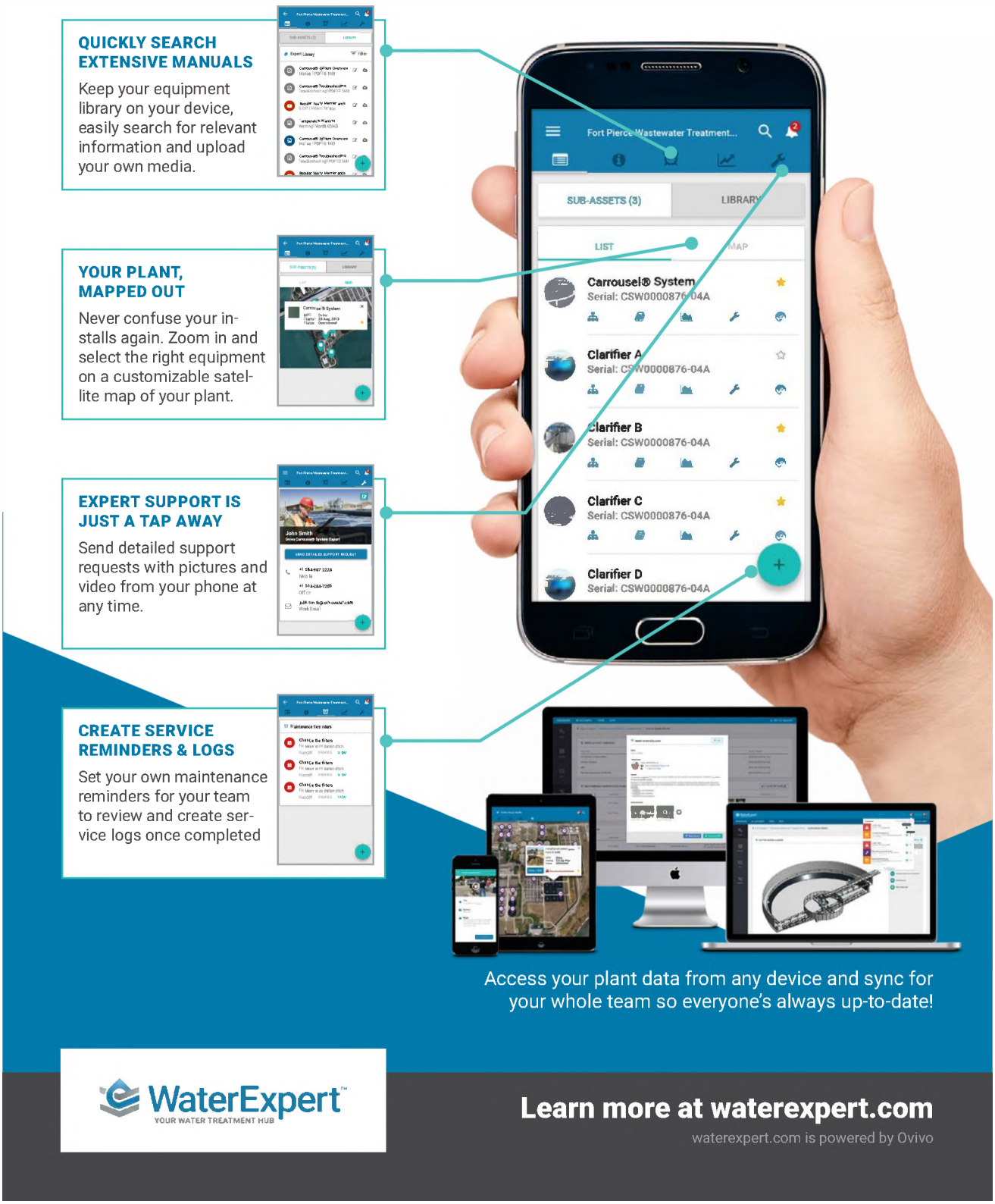
ovivowater.com


QUICKLY SEARCH EXTENSIVE MANUALS
Keep your equipment library on your device, easily search for relevant information and upload your own media.
YOUR PLANT, MAPPED OUT
Never confuse your installs again. Zoom in and select the right equipment on a customizable satellite map of your plant.
EXPERT SUPPORT IS JUST A TAP AWAY
Send detailed support requests with pictures and video from your phone at any time.
CREATE SERVICE REMINDERS & LOGS
Set your own maintenance reminders for your team to review and create service logs once completed
Fort Pierce Wastewater Treatment...
SUB-ASSETS (3)
LIBRARY
LIST
MAP
Carrousel® System
Serial: CSW0000876-04A
Clarifier A
Serial: CSW0000876-04A
Clarifier B
Serial: CSW0000876-04A
Clarifier C
Serial: CSW0000876-04A
Clarifier D
Serial: CSW0000876-04A
Access your plant data from any device and sync for your whole team so everyone's always up-to-date!
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evoqua
WATER TECHNOLOGIES

MEMPULSE™ MEMBRANE BIOREACTOR SYSTEM

Dunedin, FL, Mid-County WWTP

Budgetary Proposal NO. 19P2293MBR

01/31/2019

558 Clark Road, Tewksbury, MA 01876
+1 (866) 926-8420 (toll-free) +1 (978) 863-4600 (toll) www.evoqua.com

EXECUTIVE SUMMARY

Thank you for your interest in Evoqua Water Technologies' new MEMCOR® MemPulse MBR system. Our MBR technology uses the latest advances in filtration and biological treatment in a combination specifically designed to create highly efficient aeration in conjunction with the absolute barrier of membrane filtration. The MEMCOR MBR has several key advantages over both conventional treatment processes and competitive MBR membrane systems.

MemPulse™ Air Scour System

- Evoqua's MemPulse MBR system was the first low-energy, high-efficiency aeration system to be introduced to the MBR marketplace, and our competition is still trying to catch up! MemPulse uses a simple device with no moving parts to randomly release pulses of high-energy air.
- MemPulse provides the most efficient scouring technology on the market, at the lowest operating cost – providing long-term, stable operation at lower airflow rates.

Minimizing Maintenance Requirements

- Legacy MBR systems require regular maintenance on the membrane equipment for slack adjustment or manual solids removal. Evoqua's advanced fibers and aeration system require no regular in-tank maintenance.
- MemPulse™ provides uniform distribution of mixed liquor and air across the entire membrane tank ensuring a consistent mixed liquor environment for each sub-module preventing preferential fouling of membranes.

Smallest Process Footprint

- Our monolithic PVDF fibers provide the most membrane area per unit of tank area, in a proven process design package – up to 25% smaller than competitive hollow fiber systems. This means substantial savings in footprint and concrete construction costs.
- Our advanced process allows for elevated mixed liquor suspended solids up to 14,500mg/L in the membrane tank, allowing the biological tank volume to be reduced compared to competitive systems.

1-800-MEMCOR4

- MEMCOR's Global Service Organization allows us to provide, free of charge to our customers, 24/7 process support via our global MEMCOR helpline.
- If you call this number any time, day or night, you will be connected to a certified MEMCOR Process Technician with real answers to your process challenges.
- This service is available to you as long as you operate a MEMCOR plant at no additional cost.

Remote Monitoring

- Our FloWatch remote monitoring system provides cloud-based data storage and regular performance reports from Evoqua. This allows Evoqua process engineers to analyze system performance and optimize the system configuration for your specific application.

Service Capabilities

Evoqua combines our in-depth system knowledge with our extensive company owned service organization to provide you with qualified local personnel that can manage the preventive and on-going service needs of the proposed MBR system. Our service programs are individually designed to meet the needs of each customer situation. Our service programs can be designed to provide any of the following services:

- Remote data analysis with actionable summary reports
- Completion of on-site membrane clean-in-place procedures
- Treatment system audits and membrane fiber analysis
- Completion of preventive maintenance and parts replacement

We would like to thank you again for your interest in Evoqua's line of MEMCOR Products. We believe that every MEMCOR product comes with more than just equipment – it includes the expansive knowledge of MEMCOR's dedicated team of membrane scientists, engineers, and technicians who stand behind every installation. We are eager to share this expertise with those responsible for providing the world with clean, consistent, and high-quality water.

Should you have any questions regarding this quotation, or would like to request any additional information please contact us the Technical Sales Manager or the Evoqua Regional Representative listed below.

Evoqua Water Technologies LLC:

Anthony Zamarro
Product Lead, MemPulse MBR
Telephone: 774.329.4575
Facsimile: 978-323-0854
Anthony.Zamarro@evoqua.com

TABLE OF CONTENTS

1. Project Overview

The following table summarizes the contents of this quotation:

MEMCOR® MODEL	2 X 144B40N
Biological System	Biological Blowers
2 x 144 B40N Modules	Filtrate and Air Headers
Filtrate Pumping System	RAS Pumping System
Internal Recycle Pumping System	Membrane System Blowers
Chemical Transfer System	Custom Tool Package
Compressed Air System	Warranties
Manufacturing Services (Commissioning and Training)	O&M Manuals
Budgetary Proposal Price:	USD $1,461,157

Please note that the pricing above does not include insurance, bonds, or any applicable taxes.

The scope of supply and pricing are based on Evoqua's standard equipment selection, standard terms of sale and warranty terms as described herein. Any variations from these standards may affect this budgetary quotation. Additionally, please note that this budgetary quotation is for review and informational purposes only and does not constitute an offer for acceptance.

Payment Terms: *10% on Order, net 30*
15% on Engineering Submittals, staged submittals allowed, net 30
25% on Order of major rotating equipment, net 30
45% on Delivery, partial deliveries accepted, net 30
5% on Start-up, net 30
Full payment not to exceed 120 days after shipment

Submittals: *One (1) pdf copy of submittal drawings, if required, will be issued electronically approximately 12 - 14 weeks after receipt and approval of purchase order.*

Manuals: *One (1) pdf copy of English language owner's manuals are included. Hardcopies of manuals can be provided, upon request, at an additional charge.*

Delivery: *Estimated 22 - 26 weeks after receipt of full information and approved drawings when required.*

Freight: *F.O.B. shipping point, with freight prepaid to the jobsite.*

2. Design Information

The proposed MBR system is sized to provide consistent filtrate quality based upon the hydraulic and feed water characteristics specified below.

2.1 Influent flows

HYDRAULIC CONDITIONS	VALUE	UNITS
Average Daily Flow	0.9	Millions of gallons per day (MGD)
Peak Daily Flow	1.8	MGD

2.2 Influent Water Quality

INFLUENT WATER QUALITY	VALUE	UNITS
Biochemical Oxygen Demand (BOD5)	250	milligrams/liter (mg/L)
Chemical Oxygen Demand (COD)	500*	mg/L
Total Suspended Solids (TSS)	388	mg/L
Ammonia Nitrogen (NH3-N)	13	mg/L
Total Kjeldahl Nitrogen (TKN)	19	mg/L
Total Phosphorus	2.1	mg/L
Alkalinity	*	mg/L as CaCO3
Fats, Oils & Grease (FOG), Freon extractable	< 80	mg/L
Maximum Influent Temperature	35	degrees Celsius (°C)
Minimum Influent Temperature	20*	degrees Celsius (°C)

Notes:

*1 * Denotes a value which was not specified in the RFQ. All values must be confirmed for any associated process guarantee and membrane warranty.*

2.3 Effluent Water Quality

The following effluent criteria are based on correspondence related to the opportunity.

EFFLUENT WATER QUALITY	VALUE	UNITS
BOD_5	<5	mg/L
Total Suspended Solids	<5	mg/L
Total Nitrogen(1)	<3.0	mg/L
Total Phosphorus	<1.0	mg/L
Turbidity	≤0.5	NTU
Fecal Coliforms(2)	<200	Geometric mean per 100 mL

Notes:

1 Chemical addition of a phosphorous (i.e. Phosphoric Acid) may be required to meet effluent total nitrogen requirement.

2 Evoqua can guarantee Fecal Coliforms effluent of 25 cfu/100 mL monthly geometric mean and <200 maximum for the membrane system.

3. Design Basis

3.1 System Design Basis

The Membrane Bioreactor System (MBR) has been designed around the following parameters.

DESIGN PARAMETER	VALUE
Membrane Pre-Screening	≤ 2.0 mm perforated (1.0 mm preferred) System designed to prevent screen bypass under all conditions
Grit Removal	> 95 % of particles > 50 mesh in size > 85 % of particles > 70 mesh but < 50 mesh in size > 70 % of particles > 100 mesh but < 70 mesh in size Removal efficiency shall meet or exceed these values across a flow range of 25 - 100 % of PHF. System designed to prevent Grit removal bypass under all conditions.
Raw Sewage	>90% Municipal
ML Capillary Suction Time (CST)	< 100 seconds
Sludge Retention Time (SRT)	8.5 days
Raw Sewage: Fats, Oils and Greases (FOG) Hydrocarbons	 < 80 mg/L < 5 mg/L
MLSS Temperature Range	20 – 35° C
Site Elevation	~30 ft above MSL
Effluent Soluble BOD_5	< 5 mg/L
Effluent Ammonia	< 1 mg/L
Coagulant Addition	Aluminum Sulfate ≤ 50 mg/L
Biological Mixed Liquor Suspended Solids (MLSS)	8,200 mg/L
Filtrate Pump and Pipework Design	> 9.5 PSI TMP
Bioreactor Foam / Scum Removal	Required Foam / scum removal to be carried out to control coverage to < 30 % of surface area

Notes

1 Any additional requirement for neutralization to be decided during detailed design.

2 If the wastewater alkalinity is less than the Table value, supplemental alkalinity may be required to ensure the pH does not inhibit bacterium growth.

3 Inhibitory Matter and Heavy Metals must be less than the threshold limits (or within any ranges specified), as defined on page 227 of WPCF Manual of Practice No. 8, 1977 Edition (See Appendix II) The wastewater shall also be free of any substance toxic or inhibitory to the biological treatment process as determined by treatability tests using Method 302B; OECD Guideline for Testing of Chemicals, Adopted 17 July 1992 or International Organization of Standardization, Evaluation of the Ultimate Aerobic Biodegradability of Organic Compounds, ISO/DIS 7827, IOS, Washington, D.C, 1983.

3.2 Biological Design Information

The following sections outline the design basis for the biological system. The parameters detailed below are based on max month flow conditions and the average wastewater concentrations outlined above in this proposal.

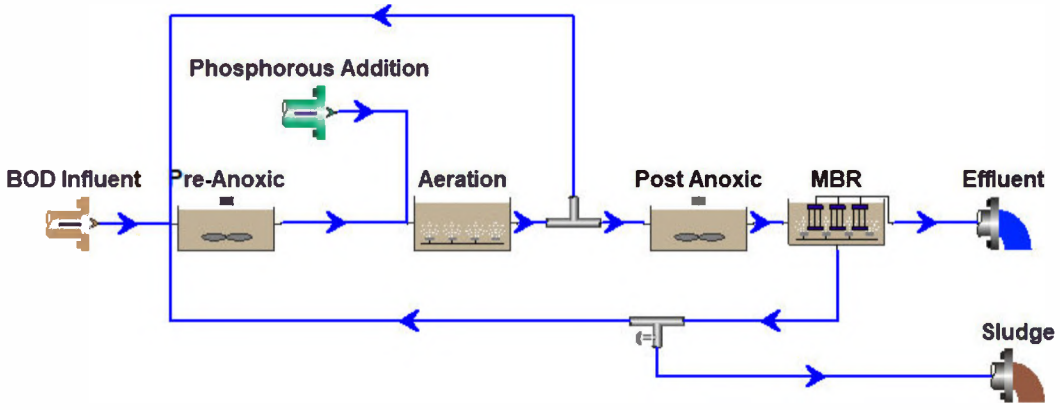
3.2.1 Configuration Information

The proposed biological system is designed with a pre-anoxic zone, aeration zone, and post anoxic zone. EWT has extensive experience with this arrangement, which we feel provides superior performance and flexibility when coupled with EWT's biological treatment expertise and controls architecture.

SYSTEM CONFIGURATION	TRAINS
Number of Parallel Aeration Trains	2
Number of Tanks per train	4

The adjacent tanks use common intermediate walls with the following tank configuration. The proposed configuration of each train is:

TANK	QUANTITY / TRAIN	LENGTH (FT)	WIDTH (FT)	SWD (FT)	VOLUME (GALLONS)	% VOLUME
Pre-Anoxic Zone	1	25.7	39.0	13.4	100,000	32.08%
Aeration Zone	1	38.5	39.0	13.4	150,000	48.12%
Post Anoxic Zone	1	12.8	39.0	13.4	50,000	16.04%
Membrane Operating System (MOS)	1	13.5	14.0	8.3	11,720	3.76%
Total					**311,720**	100.00%



3.2.2 Biological Design Parameters

The following design parameters were used as the basis of design for sizing the proposed biological system.

DESIGN PARAMETERS	VALUE	UNITS
Hydraulic Retention Time (HRT)	16.63	Hours
Mixed Liquor Suspended Solids (MLSS)	8,200	mg/L
System Organic Loading Rate	22.52	lb/1,000 ft^3/d
Solids Retention Time (SRT)	8.5	d
Return Sludge Pumping Rate	425	% of ADF
Internal Recirculation Rate	200	% of ADF
Sludge Yield	1.29	
Biosolids Produced	2,414	lb/d

3.2.3 Biological System Information

REACTOR	VOLUME SPLIT	AOR SPLIT	DO, MG/L	DIFFUSER AOR (LB/HR)	FCF DIFFUSERS (AOR/SOR)	DIFFUSER SOR (LB/HR)
Pre-Anoxic Zone	32.1%	25.0%	0.0	7.52	0.73	10.25
Aeration Zone	48.1%	75.0%	2.0	35.39	0.38	93.92
Total	**80.2%**	**100.0%**		**42.91**		**104.16**

REACTOR	NO. OF DIFFUSERS	DESIGN SCFM PER DIFFUSER	MAX SCFM PER DIFFUSER
Aeration Zone	516	1.5	3.0

3.3 Membrane Operating System Design

This section outlines the design basis for the MemPulse™ membrane system.

DESIGN CRITERIA	VALUE	UNITS
Module Type	B40N + MemPulse™	
Modules per Rack	16	
Weight of Wet Rack Assembly	1250	lbs
Weight of Fouled Rack Assembly	1800	lbs
Total Number of Membrane Tanks	2	
Number of Racks per Tank (installed)	9	
Spare Racks Slots per Tank	1	
No. of Modules Installed per Tank	144	
Membrane Area per Tank	62,000	ft^2
Tank Length	13.5	ft
Tank Width	13.0	ft
Tank Depth (top of concrete)	10.4	ft
Tank Weir Depth	8.3	ft

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3.3.1 Membrane System Operation

DESIGN FLUXES			
	ADF	**PDF**	Units
Flow Condition	0.9	1.8	MGD
No. of Membrane Tanks in Operation	1	2	—
No. of membrane Tanks in Standby	1	0	—
Net Flux	14.5	14.5	gfd
Net Flux (temperature-corrected)	14.5	14.5	gfd
Instantaneous Flux	15.9	15.9	gfd
Instantaneous Flux (temperature-corrected)	16.0	16.0	gfd

3.3.2 Membrane System Mixed Liquor Feed Requirements

The following table summarizes the mixed liquor feed flow during average and peak flow events, based on an average mixed liquor concentration in the bioreactor of 8,200 mg/L. The feed flow requirements are based on maintaining a MLSS concentration below the maximum allowable concentration in the membrane tank.

PARAMETER	ADF	PDF	UNITS
Operating MLSS in Membrane Tank	10,500	10,933	mg/L
Total Mixed Liquor Feed Flow Required	2,853	5,000	gpm

3.3.3 Membrane System Air Scour Requirements

The following table summarizes the air scour requirements during average and peak flow events.

PARAMETER	AVERAGE	PEAK	UNITS
Flux Rate	≤ 14.7	> 14.7	gfd
Air Flow per Tank: Installed Modules	407	452	SCFM (68°F)
Air Flow per Tank: Max Modules	633	709	SCFM (68°F)
Discharge pressure	4.6	4.7	psi

Notes:

1 The actual annual air usage will be dependent upon the frequency and duration of any peak flow events. This is because the aeration flow/module on the Evoqua MemPulse™ is flux dependent.

2 Units in short term storage (< 1 day and remaining in Mixed Liquor) must be aerated for 10 minutes every hour.

3 Upon the provision of expected annual & daily flow pattern an annual air usage value can be calculated.

3.3.4 Maintaining Membrane Performance

The following table summarizes the maintenance procedures to ensure optimal performance of the MemPulse™ membrane system at average daily flow (ADF).

PARAMETER	RELAXATION	MAINTENANCE CLEAN	SODIUM HYPOCHLORITE CIP	CITRIC ACID CIP
Interval Between Cycle	12 min	7 days	90 days	180 days
Cleaning Cycle Duration	60 sec	50 min	480 min	480 min

3.3.5 Hydraulic Design Basis

The hydraulic design capacities for the designs presented in this proposal are listed below:

DESIGN CONDITIONS	FLOW	UNITS	CONTINUOUS DURATION	MAXIMUM DURATION
Average Daily Flow (ADF)	0.9	MGD	365 consecutive days	N/A
Peak Daily Flow (PDF)	1.8	MGD	48 hours	140 hrs in 30 days

Notes:

1 Average Day Flow (ADF): this is the average flow for the plant measured on monthly basis. If flow is greater Diurnal Peak Flow for > 3 hrs per day a chlorine MW is required.

2 After a Peak Day event the filtrate flow will be returned to Average Day Flow for an equivalent period to that of the peak flow period before entering another peak flow operation.

3 After any Peak Day Flow event, a chlorine Maintenance Clean is required.

The expected chemical usage for average daily flow (ADF), including design margin is:

PURPOSE	CHEMICAL	BULK CHEMICAL CONC.	REQ'D SOLUTION CONC.	BULK CHEMICAL PER CIP[1]	DESIGN FREQUENCY	USE@ ADF GAL/YR[1,2]
Chlorine Maintenance Clean	Sodium Hypochlorite	12.5% w/v Liquid	200 ppm	5.0 GAL	7 days	263
Chlorine Clean-In-Place	Sodium Hypochlorite	12.5% w/v Liquid	1,000 ppm	61.1 GAL	90 days	248
Citric Acid Clean-In-Place	Citric Acid	50.0% w/w Liquid	0.5% w/w Liquid	73.9 GAL	180 days	300

Notes:

1 Excludes chemicals for neutralization (if required).

2 Based on continuous operation at ADF during the testing period.

3.3.6 Filtered Water Specification

The equipment offered will provide the following "Filtered Water" quality:

PARAMETER	UNITS	QUALITY (90 PERCENTILE)	QUALITY (MAXIMUM)
Suspended Solids	mg/L	≤ 5	N/S
Turbidity	NTU	≤ 0.2	0.5
Bacteria[2]	Log Removal	≥ 4	N/A
Virus[2]	Log Removal	≥ 2.0	N/A

Notes:

1 Sufficient samples to be taken such that two or more non-conforming results are required to demonstrate non-conformance.

2 As measured by filtrate turbidity.

Please find the *MemPulse™ Membrane Bioreactor (MBR) System* brochure and *MEMCOR® B40N Membrane Filtration Module Specification* sheet attached with this proposal.

4. MBR Scope of Supply

The following equipment is included with the proposed scope of supply.

Biological Process Equipment

QTY	DESCRIPTION
2	ORP Probe.
2	DO Probe.
4	Mounting Kits for Probes.
2	Controller for Probes.
2	Pre-Anoxic Mixers.
2	Post-Anoxic Mixers.
2	Submersible denitrification pumps. Includes valves, flow meter, and gauges. Two (2) duty for 100% capacity.
2	Modulating butterfly valves and flow meters to control blower flow.
2	Positive displacement aeration blowers. One (1) duty and One (1) stand-by.
516	Fine bubble diffusers.

Membrane Operating System Equipment

QTY	DESCRIPTION
244	B40N membrane submodules fabricated of oxidant-resistant polyvinylidene fluoride (PVDF) membrane material including MemPulse™ devices.
18	Rack assembly (16 module capacity) consisting of header assemblies, guide racks, mixing skirt, and air dropper tube.
1 Lot	Stainless Steel Cell kit for mounting racks.
1 Lot	Stainless Steel filtrate and air headers.
3	Rotary Lobe filtrate suction pump controlled by Variable Frequency Drive. Two (2) duty for 100% capacity.
2	Submersible RAS pump designed to return the mixed liquor from the membrane tanks. One Two (2) duty for 100% capacity.
2	Positive displacement membrane air scour blower designed to meet average and peak air flow requirements. One (1) duty and One (1) stand-by.
1 lot	Instrumentation integral to monitor and control the membrane system including level transmitters, level switches, flow meters, pressure transmitters, and pressure gauges.
2	Turbidimeter to measure the turbidity of the filtrate from each membrane tank.
1 lot	Valves required for equipment isolation and control of the membrane system including manual and automated valves with pneumatic actuators, check valves, and solenoid valves.
2	Filtrate air release systems.

1	Compressed air system to operate Evoqua supplied valves and leak testing with one air receiver and lead/lag rotary screw compressors.

CIP Chemical Dosing System Equipment

QTY	DESCRIPTION
1	Sodium hypochlorite dosing system skid. Includes Two (2) dosing pumps and valves and instruments necessary for proper operation and calibration.
1	Citric acid dosing system skid. Includes One (1) dosing pump and valves and instruments necessary for proper operation and calibration.
1	Phosphoric Acid dosing system skid. Includes One (1) dosing pump and valves and instruments necessary for proper operation and calibration.
1 lot	All valves and instruments necessary to monitor and control the CIP process, including: pneumatic valves, chemical injection quills, turbidimeter, pH probe analyzer, etc.

MBR Control System Equipment

QTY	DESCRIPTION
1	Allen Bradley Compact Logix PLC.
1	Allen Bradley touch screen Human Machine Interface (HMI).
1	Master Control Panel (MCP).
2	Slave Control Panels for O/I.
1	Remote monitoring system (i.e. Memlog). Includes modem, software, and hardware.
1 lot	Digital and Analog I/O (Input/Output) modules.

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Engineering Support

In addition to the mechanical components, instruments, electrical components and control system supplied, the proposed MemPulse™ MBR will be supported by Evoqua Water Technologies' experienced engineering team. The following table details the personal support your MemPulse™ MBR project will receive.

QTY	DESCRIPTION
PDF	MEMCOR MemPulse system submittal including: - Process Overview - Valve, Equipment and Instrumentation List - Manufacturer's Cut Sheets - Mechanical Drawings o Membrane System P&ID (showing Evoqua supplied equipment) o MBR Tank General Arrangement (including location of termination points) - I/O List - Electrical Bill of Materials - Electrical Drawings o Control Single Line o Three Phase Power Single Line o Field Interface Connections Process Control Panel diagrams
3 copies	Operation and maintenance manuals are included. Manuals will be to Evoqua's commercial standards. This shall include detailed project specific manufacturer drawings, equipment, valves, instruments and pipe schedules. No drawings, except those used internally by consultant/customer are to be reproduced without the expressed, written permission of Evoqua.
35	Eight-hour service-days for manufacturer's services at regular intervals during the project to ensure proper installation and assembly procedures are followed as well as commissioning and training of the MEMCOR MemPulse system. Additional services may be retained at MEMCOR scheduled rates of US$1650.00 per day, per person plus travel expenses at cost plus 5% mark up. The services included are: - On-site supervision that includes MEMCOR installation support and plant pre-commissioning, - On-site services for plant commissioning which includes startup, completion of functional test and initial performance test, - Training of operators and technical staff in conjunction of startup. Training will include; equipment description, field instrumentation, control panels, detailed component description, preventive maintenance and troubleshooting.

Equipment and Services Provided by Others

All other works and equipment necessary to complete the project and not shown as being supplied by Evoqua shall be supplied by others, including but not limited to:

- Civil works and any and all building modifications or construction to house the MEMCOR membrane filtration system equipment including all concrete work related with construction, grouting of equipment and else as applicable.
- Unloading, unpacking, storage (according to Evoqua's recommendation), installation, assembly and field erection of the MEMCOR system.
- Interconnecting pipework between the MEMCOR units, between the MEMCOR units and the ancillary equipment (including air scour, compressed air, and chemical cleaning systems), between the MEMCOR units or ancillary equipment and equipment Supplied By Others and between the ancillary equipment.
- Pipe support including pipe hangers for all piping supplied outside the MEMCOR units.
- Pneumatic lines supplying air to the pneumatic actuators.
- Neutralization system to process the chemical cleaning waste prior to disposal (if applicable)
- Headworks Equipment (Grit removal and fine screen).
- Mixed liquor re-screening.
- Effluent disinfection.
- Disposal system for rinse and CIP waste.
- Waste activated sludge (WAS) equipment or solids handling system.
- Supply and storage of all chemicals required for MEMCOR membrane filtration system cleaning, maintenance, and/or operation.
- SCADA system.
- Supply and installation of all VFDs, motor control centers, and disconnects, unless otherwise specified.
- Supply and installation of all control wiring, power cabling including cabling tray, conduits, fittings and supports as necessary.
- Installation of control panels.
- Instrumentation not specifically listed in the MEMCOR scope as specified herein.
- Spare Parts.
- Pump alignment and vibration analysis.
- Lubricants.
- Engineering services other than listed in the MEMCOR scope above including structural or foundation design.
- Supervision of installation.
- Anchor bolt and anchor bolt calculations (if required by the Engineer) for all equipment supplied in the MEMCOR scope.

5. Evoqua Water Technologies LLC – Standard Terms of Sale

1. **Applicable Terms.** These terms govern the purchase and sale of equipment, products, related services, leased products, and media goods if any (collectively herein "Work"), referred to in Seller's proposal ("Seller's Documentation"). Whether these terms are included in an offer or an acceptance by Seller, such offer or acceptance is expressly conditioned on Buyer's assent to these terms. Seller rejects all additional or different terms in any of Buyer's forms or documents.

2. **Payment.** Buyer shall pay Seller the full purchase price as set forth in Seller's Documentation. Unless Seller's Documentation specifically provides otherwise, freight, storage, insurance and all taxes, levies, duties, tariffs, permits or license fees or other governmental charges relating to the Work or any incremental increases thereto shall be paid by Buyer. If Seller is required to pay any such charges, Buyer shall immediately reimburse Seller. If Buyer claims a tax or other exemption or direct payment permit, it shall provide Seller with a valid exemption certificate or permit and indemnify, defend and hold Seller harmless from any taxes, costs and penalties arising out of same. All payments are due within 30 days after receipt of invoice. Buyer shall be charged the lower of 1 ½% interest per month or the maximum legal rate on all amounts not received by the due date and shall pay all of Seller's reasonable costs (including attorneys' fees) of collecting amounts due but unpaid. All orders are subject to credit approval by Seller. Back charges without Seller's prior written approval shall not be accepted.

3. **Delivery.** Delivery of the Work shall be in material compliance with the schedule in Seller's Documentation. Unless Seller's Documentation provides otherwise, delivery terms are ExWorks Seller's factory (Incoterms 2010). Title to all Work shall pass upon receipt of payment for the Work under the respective invoice. Unless otherwise agreed to in writing by Seller, shipping dates are approximate only and Seller shall not be liable for any loss or expense (consequential or otherwise) incurred by Buyer or Buyer's customer if Seller fails to meet the specified delivery schedule.

4. **Ownership of Materials and Licenses.** All devices, designs (including drawings, plans and specifications), estimates, prices, notes, electronic data, software and other documents or information prepared or disclosed by Seller, and all related intellectual property rights, shall remain Seller's property. Seller grants Buyer a non-exclusive, non-transferable license to use any such material solely for Buyer's use of the Work. Buyer shall not disclose any such material to third parties without Seller's prior written consent. Buyer grants Seller a non-exclusive, non-transferable license to use Buyer's name and logo for marketing purposes, including but not limited to, press releases, marketing and promotional materials, and web site content.

5. **Changes.** Neither party shall implement any changes in the scope of Work described in Seller's Documentation without a mutually agreed upon change order. Any change to the scope of the Work, delivery schedule for the Work, any Force Majeure Event, any law, rule, regulation, order, code, standard or requirement which requires any change hereunder shall entitle Seller to an equitable adjustment in the price and time of performance.

6. **Force Majeure Event.** Neither Buyer nor Seller shall have any liability for any breach or delay (except for breach of payment obligations) caused by a Force Majeure Event. If a Force Majeure Event exceeds six (6) months in duration, the Seller shall have the right to terminate the Agreement without liability, upon fifteen (15) days written notice to Buyer, and shall be entitled to payment for work performed prior to the date of termination. "Force Majeure Event" shall mean events or circumstances that are beyond the affected party's control and could not reasonably have been easily avoided or overcome by the affected party and are not substantially attributable to the other party. Force Majeure Event may include, but is not limited to, the following circumstances or events: war, act of foreign enemies, terrorism, riot, strike, or lockout by persons other than by Seller or its sub-suppliers, natural catastrophes or (with respect to on-site work), unusual weather conditions.

7. **Warranty.** Subject to the following sentence, Seller warrants to Buyer that the (i) Work shall materially conform to the description in Seller's Documentation and shall be free from defects in material and workmanship and (ii) the Services shall be performed in a timely and workmanlike manner. Determination of suitability of treated water for any use by Buyer shall be the sole and exclusive responsibility of Buyer. The foregoing warranty shall not apply to any Work that is specified or otherwise demanded by Buyer and is not manufactured or selected by Seller, as to which (i) Seller hereby assigns to Buyer, to the extent assignable, any warranties made to Seller and (ii) Seller shall have no other liability to Buyer under warranty, tort or any other legal theory. The Seller warrants the Work, or any components thereof, through the earlier of (i) eighteen (18) months from delivery of the Work or (ii) twelve (12) months from initial operation of the Work or ninety (90) days from the performance of services (the "Warranty Period"). If Buyer gives Seller prompt written notice of breach of this warranty within the Warranty Period, Seller shall, at its sole option and as Buyer's sole and exclusive remedy, repair or replace the subject parts, re-perform the Service or refund the purchase price. Unless otherwise agreed to in writing by Seller, (i) Buyer shall be responsible for any labor required to gain access to the Work so that Seller can assess the available remedies and (ii) Buyer shall be responsible for all costs of installation of repaired or replaced Work. If Seller determines that any claimed breach is not, in fact, covered by this warranty, Buyer shall pay Seller its then customary charges for any repair or replacement made by Seller. Seller's warranty is conditioned on Buyer's (a) operating and maintaining the Work in accordance with Seller's instructions, (b) not making any unauthorized repairs or alterations, and (c) not being in default of any payment obligation to Seller. Seller's warranty does not

cover (i) damage caused by chemical action or abrasive material, misuse or improper installation (unless installed by Seller) and (ii) media goods (such as, but not limited to, resin, membranes, or granular activated carbon media) once media goods are installed. THE WARRANTIES SET FORTH IN THIS SECTION 7 AND THE WARRANTY SET FOR IN THE "EXTENDED LOW PRESSURE MEMBRANE MODULE WARRANTY" SECTION OF EVOQUA'S PROPOSAL ARE THE SELLER'S SOLE AND EXCLUSIVE WARRANTIES AND ARE SUBJECT TO THE LIMITATION OF LIABILITY PROVISION BELOW. SELLER MAKES NO OTHER WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR PURPOSE.

8. **Indemnity.** Seller shall indemnify, defend and hold Buyer harmless from any claim, cause of action or liability incurred by Buyer as a result of third party claims for personal injury, death or damage to tangible property, to the extent caused by Seller's negligence. Seller shall have the sole authority to direct the defense of and settle any indemnified claim. Seller's indemnification is conditioned on Buyer (a) promptly, within the Warranty Period, notifying Seller of any claim, and (b) providing reasonable cooperation in the defense of any claim.

9. **Assignment.** Neither party may assign this Agreement, in whole or in part, nor any rights or obligations hereunder without the prior written consent of the other party; provided, however, the Seller may assign its rights and obligations under these terms to its affiliates or in connection with the sale or transfer of the Seller's business and Seller may grant a security interest in the Agreement and/or assign proceeds of the agreement without Buyer's consent.

10. **Termination.** Either party may terminate this agreement, upon issuance of a written notice of breach and a thirty (30) day cure period, for a material breach (including but not limited to, filing of bankruptcy, or failure to fulfill the material obligations of this agreement). If Buyer suspends an order without a change order for ninety (90) or more days, Seller may thereafter terminate this Agreement without liability, upon fifteen (15) days written notice to Buyer, and shall be entitled to payment for work performed, whether delivered or undelivered, prior to the date of termination.

11. **Dispute Resolution**. Seller and Buyer shall negotiate in good faith to resolve any dispute relating hereto. If, despite good faith efforts, the parties are unable to resolve a dispute or claim arising out of or relating to this Agreement or its breach, termination, enforcement, interpretation or validity, the parties will first seek to agree on a forum for mediation to be held in a mutually agreeable site. If the parties are unable to resolve the dispute through mediation, then *any dispute, claim or controversy arising out of or relating to this Agreement or the breach, termination, enforcement, interpretation or validity thereof, including the determination of the scope or applicability of this agreement to arbitrate, shall be determined by arbitration in Pittsburgh, Pennsylvania before three arbitrators* who are lawyers experienced in the discipline that is the subject of the dispute and shall be jointly selected by Seller and Buyer. *The arbitration shall be administered by JAMS pursuant to its Comprehensive Arbitration Rules and Procedures. The Arbitrators shall issue a reasoned decision* of a majority of the arbitrators, which shall be the decision of the panel. Judgment may be entered upon the arbitrators' decision in any court of competent jurisdiction. The substantially prevailing party as determined by the arbitrators shall be reimbursed by the other party for all costs, expenses and charges, including without limitation reasonable attorneys' fees, incurred by the prevailing party in connection with the arbitration. For any order shipped outside of the United States, any dispute shall be referred to and finally determined by the International Center for Dispute Resolution in accordance with the provisions of its International Arbitration Rules, enforceable under the New York Convention (Convention on the Recognition and Enforcement of Foreign Arbitral Awards) and the governing language shall be English.

12. **Export Compliance.** Buyer acknowledges that Seller is required to comply with applicable export laws and regulations relating to the sale, exportation, transfer, assignment, disposal and usage of the Work provided under this Agreement, including any export license requirements. Buyer agrees that such Work shall not at any time directly or indirectly be used, exported, sold, transferred, assigned or otherwise disposed of in a manner which will result in non-compliance with such applicable export laws and regulations. It shall be a condition of the continuing performance by Seller of its obligations hereunder that compliance with such export laws and regulations be maintained at all times. BUYER AGREES TO INDEMNIFY AND HOLD SELLER HARMLESS FROM ANY AND ALL COSTS, LIABILITIES, PENALTIES, SANCTIONS AND FINES RELATED TO NON-COMPLIANCE WITH APPLICABLE EXPORT LAWS AND REGULATIONS.

13. **LIMITATION OF LIABILITY.** NOTWITHSTANDING ANYTHING ELSE TO THE CONTRARY, SELLER SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER INDIRECT DAMAGES, AND SELLER'S TOTAL LIABILITY ARISING AT ANY TIME FROM THE SALE OR USE OF THE WORK, INCLUDING WITHOUT LIMITATION ANY LIABILITY FOR ALL WARRANTY CLAIMS OR FOR ANY BREACH OR FAILURE TO PERFORM ANY OBLIGATION UNDER THE CONTRACT, SHALL NOT EXCEED THE PURCHASE PRICE PAID FOR THE WORK. THESE LIMITATIONS APPLY WHETHER THE LIABILITY IS BASED ON CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY.

14. **Rental Equipment / Services.** Any leased or rented equipment ("Leased Equipment") provided by Seller shall at all times be the property of Seller with the exception of certain miscellaneous installation materials purchased by the Buyer, and no right or property interest is transferred to the Buyer, except the right to use any such Leased Equipment as provided herein. Buyer agrees that it shall not pledge, lend, or create a security interest in, part with possession of, or relocate the Leased Equipment. Buyer shall be responsible to maintain the Leased Equipment in good and efficient working order. At the end of the initial term specified in the order, the terms shall automatically renew for the identical period unless canceled in writing by Buyer or Seller not sooner than three (3) months nor later than one (1) month from termination of the initial order or any renewal terms. Upon any renewal, Seller shall have the right to issue notice of increased pricing which shall be effective for any renewed terms unless Buyer objects in writing within fifteen (15) days of issuance of said notice. If Buyer timely cancels service in writing prior to the end of the initial or any renewal term this shall not relieve Buyer of its obligations under the order for the monthly rental service charge which shall continue to be due and owing. Upon the expiration or termination of this Agreement, Buyer shall promptly make any Leased Equipment available to Seller for removal. Buyer hereby agrees that it shall grant Seller access to the Leased Equipment location and shall permit Seller to take possession of and remove the Leased Equipment without resort to legal process and hereby releases Seller from any claim or right of action for trespass or damages caused by reason of such entry and removal.

15. **Miscellaneous.** These terms, together with any Contract Documents issued or signed by the Seller, comprise the complete and exclusive statement of the agreement between the parties (the "Agreement") and supersede any terms contained in Buyer's documents, unless separately signed by Seller. No part of the Agreement may be changed or cancelled except by a written document signed by Seller and Buyer. No course of dealing or performance, usage of trade or failure to enforce any term shall be used to modify the Agreement. To the extent the Agreement is considered a subcontract under Buyer's prime contract with an agency of the United States government, in case of Federal Acquisition Regulations (FARs) flow down terms, Seller will be in compliance with Section 44.403 of the FAR relating to commercial items and those additional clauses as specifically listed in 52.244-6, Subcontracts for Commercial Items (OCT 2014). If any of these terms is unenforceable, such term shall be limited only to the extent necessary to make it enforceable, and all other terms shall remain in full force and effect. The Agreement shall be governed by the laws of the Commonwealth of Pennsylvania without regard to its conflict of laws provisions. Both Buyer and Seller reject the applicability of the United Nations Convention on Contracts for the international sales of goods to the relationship between the parties and to all transactions arising from said relationship.

6. Extended Low-Pressure Membrane Module Warranty

1. Term of the Membrane Module Warranty
   a. This Warranty shall commence ("Commencement Date") on the earlier of:
      i) wet startup of the equipment, or
      ii) 6 months after the delivery of the membrane modules to the Owner.
   b. This Warranty shall continue for a period of ten (10) years from the Commencement Date (the "Module Warranty Period").

2. Repair and Replacement Conditions
   a. In the event an individual membrane module(s) exhibits defects in material or workmanship, as defined in Paragraph 2.b. below, the Seller shall, at its sole option and as the Owner's sole remedy, conduct either of the following:
      i) Repair the membrane module at no cost to Owner; or
      ii) Provide replacement membrane modules per the warranty replacement schedule listed in Paragraph 5 below.
   b. Membrane modules shall be deemed to be exhibiting defects in material or workmanship under the following conditions:
      i) If the membrane module(s) fails Seller's standard integrity test for MBR and cannot be repaired by the Owner; or
      ii) If the membrane module(s) fail to meet the filtrate flow capacity, as outlined in the Design Basis in the Contract Documents; or
      iii) If the membrane module(s) cause the system to exceed the effluent turbidity and/or total suspended solids requirements for this project, as outlined in the Design Basis in the Contract Documents.
   c. Owner will return to Seller the end of each membrane module with the serial number to qualify for a replacement module.

3. Membrane Module Warranty Exclusions: The Owner recognizes that damage resulting from any of the following shall be excluded from coverage under the low pressure membrane module warranty:
   a. Any person other than an employee or representative of Seller has altered the membrane operating system without prior written approval by Seller;
   b. OWNER causing or permitting the membrane modules to dry or to have moisture content below that specified in the operating instructions either during storage or operation. Shutdown, storage, maintenance and start-up procedures of membranes must be as specified in the Operation & Maintenance Manual;
   c. Mixed liquor suspended solids concentration exceeding a maximum of 14,500 mg/L in the membrane tank:
   d. Unusual plant upsets, presence of other potential transients or other undefined operating conditions that can affect membrane performance or life. This includes but is not limited to polymer "dumps", fats, oil and grease content in excess of 100 mg/L entering the biological system, the use, malfunction or by-pass of any equipment which allows the accumulation of non-biodegradable material in the membrane tanks, any bypass of the pre-screen ahead of the aeration basins and/or basket strainers on the membrane tank inlet, rags or debris that fall into the biological or membrane tanks, toxic wastes entering the plant that upset the biological process;
   e. Any damage/defect caused by chemical or physical conditions such as (but not limited to) pH, temperature, chemicals, effluent COD is greater than 50 mg/L or climatic factors outside the recommended operating parameters in the appropriate section of the Operation & Maintenance Manual;

f. Any damage directly or indirectly related to PLC and/or HMI/SCADA modifications without Seller's express written consent.

g. Improper maintenance or operation of equipment (including failure to perform periodic chemical cleans) as defined in Seller supplied operating and maintenance manual.

h. Neutralization and/or reduction of chemical cleaning solutions are performed in the membrane tank without written authorization from Seller;

i. Supply of influent water exhibiting parameters inconsistent with the parameters determined or specified at time of bid and/or pilot testing.

j. Sludge retention time (SRT) is:

- less than 4 days over a 2-day history; or
- less than as determined by the equation below over any 30-day period:

  $SRT = 12 / 1.029^{(T-20)}$

  Where: SRT = minimum SRT for biological process (average for any 30-day period)

  T = wastewater temperature (°C); or
- greater than 80 days over a 30-day period.

4. Warranty Conditions: This warranty is conditioned upon Owner:

a. Not being in default of any payment obligations to Seller; and

b. Maintaining hand-written or electronic operational logs and providing such logs to Seller in the event of a warranty claim.

c. Unless the capillary suction time (CST) is less than 20 seconds for mixed liquor before the membrane tank, the CST method should be as defined in Standard Methods for the Examination of Wastewater Treatment (latest edition), except that a 10-mm diameter stainless steel reservoir should be utilized rather than an 18-mm diameter.

5. Warranty Replacement Schedule

a. **First 24 Months:** If a membrane module shall require replacement under the repair and replacement conditions described in section 2 above during the first twenty four (24) months of the "Module Warranty Period", a replacement will be supplied by Seller at no charge.

b. **Next 96 Months:** If a low-pressure membrane module shall require replacement under the repair and replacement conditions described in section 2 above during the next ninety six (96) months of the Module Warranty Period, a replacement will be supplied by Seller and invoiced based upon a pro-rata value of a total of one hundred and twenty (120) months. The pro-rata value shall be determined using a replacement price of US $1,400.00 per module adjusted by the increase in the North American Consumer Price Index (CPI) All Urban Consumers (US City Average), and reducing this price by 1/120th for each month remaining in the 120-month period.

c. Replacement modules supplied by the Seller to Owner under warranty shall assume the balance of the membrane module warranty that remained on the defective membrane module that was replaced under warranty.

d. Freight costs associated with the furnishing of replacement modules provided under the membrane module warranty is not included in the warranty replacement price. Accordingly, the shipping/delivery terms for replacement modules supplied under the membrane module warranty shall be "Ex Works Seller's Facility" and Seller shall arrange, and Owner shall pay for, transportation of replacement membrane modules to Owner's facility.

6. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INDIRECT, CONSEQUENTIAL, INCIDENTAL, SPECIAL, PUNITIVE OR OTHER DAMAGES AND SELLER'S TOTAL LIABILITY UNDER THIS MEMBRANE MODULE WARRANTY, WHEN ADDED TO ALL LIABILITY OF SELLER TO THE OWNER AND ANY END USER OF THE SYSTEM, IF DIFFERENT FROM THE OWNER, UNDER THE SYSTEM SALE CONTRACT, SHALL NOT EXCEED THE LIMITATION ON LIABILITY SET FORTH IN THE SYSTEM SALE CONTRACT. THE FOREGOING LIMITATIONS APPLY REGARDLESS OF WHETHER THE LIABILITIES OR DAMAGES ARISE OR ARE ALLEGED TO ARISE UNDER CONTRACT, TORT, STRICT LIABILITY OR ANY OTHER THEORY. The Warranty is expressly excluded from any performance bond(s) which may be furnished by the Seller.

Water Technologies & Solutions

budget proposal for the

Mid-County WWTP

ZeeWeed* membrane bioreactor system

submitted to:
Kimley-Horn and Associates
100 Second Avenue South, Suite 105N
St. Petersburg, FL, 33701

attention: Shelby Hughes, P.E.

April 5th, 2019

proposal number: 362188

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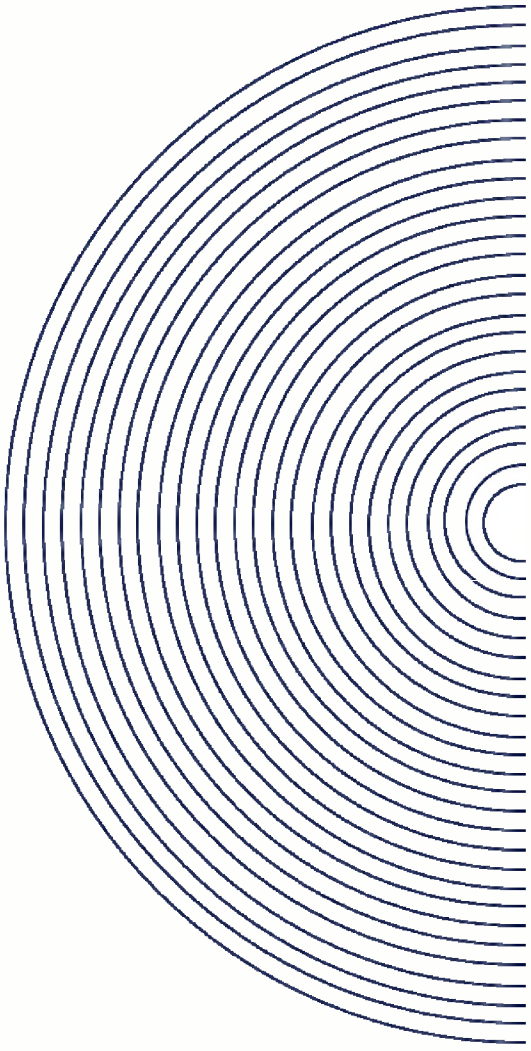

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table of contents

1 basis of design

The proposed ZeeWeed membrane bioreactor system for Mid-County WWTP is offered based on using the design parameters summarized in the following sections.

1.1 influent flow data

The influent design flows are summarized in the table below.

average day flow (ADF)	0.9	mgd
maximum month flow (MMF)	1.2	mgd
maximum day flow (MDF)	1.8	mgd
maximum flow with one train offline for maintenance or cleaning (for less than one month) [2]	0.675	mgd

note 1: any flow conditions that exceed the above-noted flow limits must be equalized prior to treatment in the ZeeWeed membrane bioreactor system.

note 2: the flow condition with one train offline is based on the EPA requirement for Class 1 Reliability, where the remaining treatment trains shall be capable of treating 75% of the average daily flow.

- ADF – the average flow rate occurring over a 24-hour period based on annual flow rate data.
- MMF – the average flow rate occurring over a 24-hour period during the 30-day period with the highest flow based on annual flow rate data.
- MDF – the maximum flow rate averaged over a 24-hour period occurring within annual flow rate data.

1.2 influent quality

The design solution proposed is based on the wastewater characteristics detailed below. The concentrations listed below are specific to the flow used for the biological design as listed in section 2.1 below.

design influent temperature [1]	20	ºC
BOD_5	250	mg/L
TSS [2]	325	mg/L
NH_3-N [1]	11.4	mg/L
TKN	19	mg/L
TP [3]	2.1	mg/L
alkalinity [4]	-	mg/L as $CaCO_3$

note 1: parameter value assumed.

note 2: average influent TSS was calculated using the plant operational data. Outlier data point of 6,100 mg/L from December 2017 was excluded from the calculation. Assumed an inert solids fraction of 20%.

note 3: influent phosphorous is not sufficient for the biological process. SUEZ has included a chemical dosing skid to add phosphoric acid into the membrane bioreactor feed.

note 4: SUEZ is assuming that sufficient influent alkalinity is available for proper performance of the biological system. Should influent alkalinity not be sufficient, chemical addition by buyer will be required.

1.3 effluent quality

The following performance parameters are expected upon equipment startup and once the biological system has stabilized based on the data listed in sections 1.1 and 1.2.

BOD_5	≤ 5	mg/L
TSS	≤ 5	mg/L
TN [1]	≤ 3	mg/L
TP	≤ 1	mg/L
turbidity	≤ 1	NTU

note 1: TN ≤ 3 mg/L corresponds to a minimum design temperature of 20°C and <1.5 mg/L recalcitrant dissolved organic nitrogen in the influent.

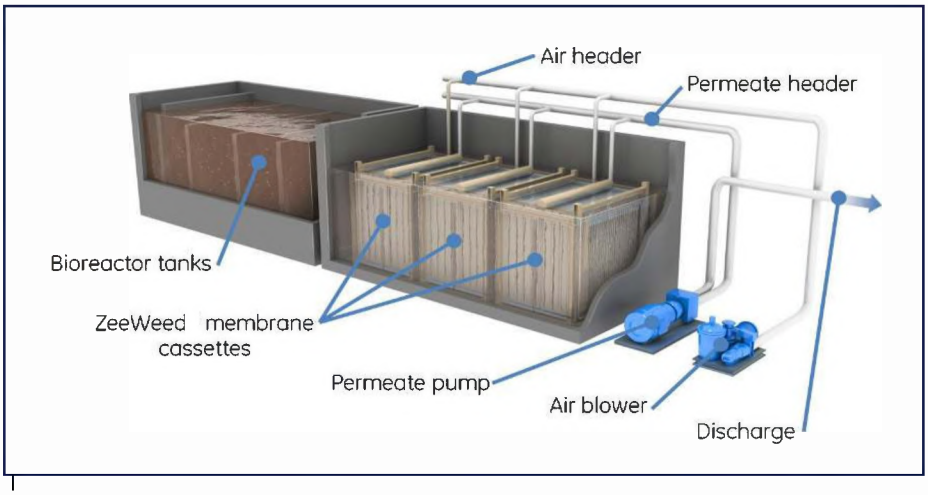
1.4 influent variability

Influent wastewater flows or loads in excess of the design criteria defined above must be equalized prior to entering the membrane tanks. In the event that the influent exceeds the specifications used in engineering this proposal, or the source of influent changes, the ability of the treatment system to produce the designed treated water quality and/or quantity may be impaired. Buyer may choose to continue to operate the system, but assumes the risk of damage to the system and/or additional costs due to increased membrane cleaning frequency, potential for biological upset and/or increased consumables usage.

2 system design and scope

The membrane bioreactor (MBR) process consists of a suspended growth biological reactor integrated with a membrane filtration system, using the ZeeWeed hollow fiber ultrafiltration membrane. The membrane filtration system essentially replaces the solids separation function of secondary clarifiers and tertiary sand filters used in a conventional activated sludge process.

ZeeWeed ultrafiltration membranes are directly immersed in mixed liquor. Using a permeate pump, a vacuum is applied to a header pipe connected to the membranes. The vacuum draws the treated water through the hollow fiber membranes. Permeate is then directed to downstream disinfection or discharge facilities. Air, in the form of large bubbles, is introduced below the bottom of the membrane modules, producing turbulence that scours the outer surface of the hollow fibers to keep them clean.



The proposed MBR design utilizes LEAPmbr, SUEZ's latest technology for wastewater treatment, which offers the lowest cost of ownership in the industry. LEAPmbr incorporates several innovations, including the latest ZeeWeed 500 module with increased membrane surface area, increased productivity through proven membrane design flux improvements, an optimized membrane tank design, along with a more efficient membrane aeration system (known as LEAPmbr aeration technology) that simplifies the aeration system and reduces aeration requirements. These innovations combine to offer:

- 15% productivity improvement
- 20% footprint reduction
- 50% reduction in membrane aeration equipment
- 30% membrane aeration energy savings

The use of LEAPmbr offers some of the most important benefits of a ZeeWeed MBR systems – simplicity, reliability, and lowest life-cycle cost.

simplicity

Over the years, SUEZ has continually improved the design of ZeeWeed MBR systems, making them the simplest MBR systems in the industry to operate and maintain. The system is fully automated, with operators having the ability to review operation, adjust set points, or schedule operating tasks through the easy-to-understand HMI graphical display.

A fully automated suite of membrane maintenance procedures will ensure long-term, successful operation, including:

- in situ chemical membrane cleaning performed directly in the membrane process tanks so your operators don't waste time moving cassettes;
- the ability to increase or decrease the frequency of maintenance cleans to fit the operating conditions;
- the ability to backpulse when needed to greatly improve your operator's ability to recover from non-design conditions.

The above cleaning systems are automated resulting in operators having available a full suite of comprehensive cleaning systems which are simple to use and initiate.

reliability

SUEZ's reinforced ZeeWeed hollow fiber membrane incorporates a patented internal support to which the membrane is bonded, creating the most robust membrane in the industry. In addition, SUEZ's automated manufacturing processes ensure a consistent membrane product meeting the highest standards of workmanship and quality. This exceptionally strong and reliable membrane forms the backbone of ZeeWeed MBR systems, which consistently exceeds the toughest regulatory standards around the world.

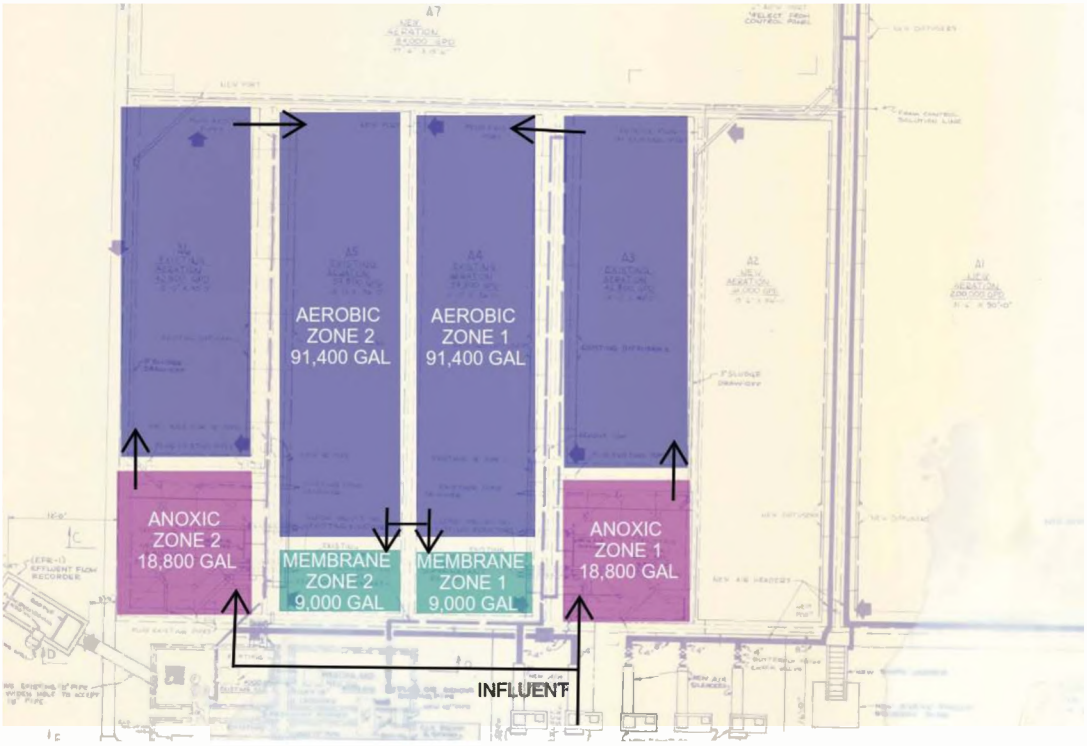
SUEZ is the world leader in MBR technology, with the majority of the industry's largest and longest-operating MBR plants. SUEZ now has over two decades of experience with the well-proven ZeeWeed membrane. The earliest MBR plants using the ZeeWeed 500 membrane, SUEZ's current standard for MBR applications, have now been in operation for over 10 years. SUEZ's long-term and wide-ranging MBR experience ensures that plant operators can count on many years of successful operation of the proposed ZeeWeed MBR plant.

lowest lifecycle cost

LEAPmbr aeration is a significant innovation for ZeeWeed MBR technology that offers a 30% reduction in air flow versus SUEZ's previous air cycling technology. When combined with LEAPmbr's other features, membrane aeration energy savings are almost 50% compared with the previous generation of ZeeWeed membranes. In addition to the substantial energy savings, LEAPmbr requires fewer membrane modules and cassettes, smaller membrane tanks, fewer valves and pipes, and lower connected horsepower. In many cases, a ZeeWeed MBR system using LEAPmbr technology has an equivalent lifecycle cost to conventional treatment options.

2.1 biological system design

The biological system for this project consists of two biological treatment trains containing anoxic and aerobic zones. For the proposed design, the some of the tanks from aeration train #1 of the existing WWTP will be retrofitted to create all the tankage for the membrane bioreactor system. Refer to the drawing below.



The total plant biological treatment volumes are listed in the table below.

flow basis for biological design (ADF)	0.9	mgd
total anoxic tank working volume	37,600	gal
total aerobic working volume (excluding membranes)	182,800	gal
total bioreactor working volume (excluding membranes)	220,400	gal
total design HRT	5.9	hours
aerobic design SRT [1]	7.7	days
waste sludge removal (based on ADF and 10 g/L)	19,000	gpd
design MLSS concentration in bioreactor	≤ 8,000	mg/L
AOR	2,000	lb O_2/day

design liquid depth in bioreactor	9.5	ft

note 1: the biological treatment is designed for installation within the existing concrete tanks supplied by buyer.

note 2: although SUEZ believes that the proposed SRT is sufficient given the minimum wastewater temperature, alternate designs are available to achieve a longer aerobic SRT that involve retrofitting additional tankage.

2.2 ultrafiltration system design

number of membrane trains	2
number of cassette spaces per train	2
number of cassettes installed per train	2
number of module spaces per cassette	52
number of modules installed per train	94
number of modules installed per plant	188
total number of cassettes installed per plant	4
spare space (%)	9.6
membrane tank internal dimensions (L x W x H) (ft)	9 x 15 x 10.83

note 1: tank dimensions and volumes are preliminary only and may change slightly once final detail design commences.

note 2: the membranes are designed for installation within the existing concrete tanks supplied by buyer.

2.3 scope of supply by SUEZ

quantity	description
The MBR system will consist of the following equipment:	
ZeeWeed membranes	
lot	membrane tank cassette mounting assemblies
4	ZeeWeed 500D membrane cassettes
188	ZeeWeed 500D membrane modules
2 sets	permeate collection & air distribution header piping
2	membrane tank level transmitters and level switches
ejector & associated equipment	
2	air ejector assembly w/ air supply assembly
master control panel	
1	NEMA 4X master control panel w/ Allen Bradley Compact Logix PLC and Panelview plus 6 1250 HMI and Flexlogic I/O
process pump & associated equipment	
2	positive displacement, reversible lobe process pump
2	required pump isolation valves
2	NEMA 4X train I/O panel - includes Allen Bradley Flexlogic I/O
2	pressure transmitters, pressure gauges, and flow transmitters
2	chemical injection ports and valves
2	turbidimeter - includes isolation valves, throttle valve and backplate
backpulse system	
incl	process pumps will also provide backpulse duty
1	flow through backpulse water storage tank - includes tank level transmitter and associated valves
membrane air scour blowers	
2+1	membrane air scour blowers (2 duty + 1 standby) - includes isolation valves, flow switches, pressure gauges, and acoustical enclosures
mixed liquor recirculation equipment	
2	mixed liquor recirculation pumps, used to transfer mixed liquor from the membrane tanks to the bioreactor
2	required pump isolation valves and check valves
2	pressure gauges and flow transmitters
1	WAS automatic isolation valve and flow transmitter
biological equipment	
2	fine bubble diffuser system for process aeration - loose shipped (without tank downcomer piping)
2+1	process blowers (2 duty + 1 standby) - includes isolation valves, flow switches, pressure gauges, and acoustical enclosures

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quantity	description
2	anoxic mixers
2	aerobic dissolved oxygen sensor
2	biological tank level transmitters and level switches
chemical dosing systems	
1	phosphoric acid dosing system - includes dosing pump, calibration column, and associated valving.
membrane cleaning systems	
1	sodium hypochlorite chemical feed system (maintenance clean) - includes dosing pump, calibration column, and associated valving
1	sodium hypochlorite chemical feed system (recovery clean) - includes dosing pump, calibration column, and associated valving
1	citric acid chemical feed system (maintenance and recovery clean) - includes dosing pump, calibration column, and associated valving
ancillary equipment	
1+1	air compressors (1 duty + 1 standby) mounted on a single receiver tank for pneumatic valve operation and refrigerated air driers (1 duty + 1 standby)
general	
included	P&IDs and equipment general arrangement and layout drawings for SUEZ supplied equipment
included	operating & maintenance manuals
included	field service and start-up assistance - 35 days support over 3 site visits from SUEZ field-service personnel for commissioning, plant start-up, and operator training
included	InSight Basic – digital asset monitoring - 1 year
included	24/7 emergency phone support - 1 year
included	equipment mechanical warranty - 1 year
included	membrane warranty - 10 year (2 year cliff and 8 year prorated)

note 1: additional man-hours will be billed separately from the proposed system capital cost at a rate of $1,300 per day plus living and traveling expenses. Detailed SUEZ service rates are available upon request.

note 2: all SUEZ supplied equipment is designed for installation in an unclassified area.

3 buyer scope of supply

The following items are for supply by buyer and will include but are not limited to:

- overall plant design responsibility
- review and approval of design parameters related to the biological process and membrane separation system
- review and approval of SUEZ-supplied tank and equipment drawings and specifications
- detail drawings of all termination points where SUEZ equipment or materials tie into equipment or materials supplied by buyer
- design, supply and installation of lifting devices including overhead traveling bridge crane and/or monorail able to lift 4,535 kg (10,000 lb) for membrane removal, lifting davits c/w a hoist, guide rails for submersible mixers and pumps etc.
- civil works, retrofit of main plant tank structure, buildings, equipment foundation pads etc. including but not limited to:
  - common channels, housekeeping pads, equipment access platforms, walkways, handrails, stairs etc.
  - equalization tank
  - bioreactor tanks – complete with anoxic and aerobic
- membrane tanks c/w tank covers or grating, and their support over membrane tanks.
- treated water storage tank, as required
- all chemical storage tanks, day tanks, and containments
- HVAC equipment design, specifications and installation (where applicable)
- UPS, power conditioner, emergency power supply and specification (where applicable)
- 2-mm pretreatment fine screens
- MCC, VFDs, and/ or motor starters for all SUEZ supplied equipment
- plant SCADA system
- process and utilities piping, pipe supports, hangers, valves, etc. including but not limited to:
  - piping, pipe supports and valves between SUEZ-supplied equipment and other plant process equipment
  - interconnecting piping between loose-supplied SUEZ equipment
  - process tank aeration system air piping, equalization tank system piping, etc.

- electrical wiring, conduit and other appurtenances required to provide power connections as required from the electrical power source to the SUEZ control panel and from the control panel to any electrical equipment, pump motors and instruments external to the SUEZ-supplied enclosure
- supply and installation of suitable, secure remote internet connection for 24/7 emergency telephone technical support service and InSight remote monitoring & diagnostics service
- design, supply and installation of equipment anchor bolts and fasteners for SUEZ supplied equipment. All seismic structural analysis and anchor bolt sizing
- receiving (confirmation versus packing list), unloading and safe storage of SUEZ-supplied equipment at site until ready for installation
- installation on site of all SUEZ supplied equipment
- alignment of rotating equipment
- raw materials, chemicals, and utilities during equipment start-up and operation
- disposal of initial start-up wastewater and associated chemicals
- supply of seed sludge for biological process start-up purposes
- laboratory services, operating and maintenance personnel during equipment checkout, start-up and operation
- touch up primer and finish paint surfaces on equipment as required at the completion of the project
- weather protection as required for SUEZ-supplied equipment. Electrical panels will require a sun shade

4 commercial

4.1 pricing

Pricing for the proposed equipment and services, as outlined in section 2.3, is summarized in the table below. All pricing is based on the design operating conditions and influent characteristics detailed in section 1. The pricing herein is for budgetary purposes only and does not constitute an offer of sale. No sales, consumer use or other similar taxes or duties are included in the pricing below.

price: all equipment & services	
ZeeWeed membrane bioreactor system	$ 990,000 USD

4.2 equipment shipment and delivery

Equipment shipment is estimated at 26 to 35 weeks after order acceptance. The buyer and seller will arrange a kick-off meeting after contract acceptance to develop a firm shipment schedule.

typical drawing submission and equipment shipment schedule

		8-12 weeks	2-3 weeks	16-20 weeks		2 weeks
acceptance of PO						
submission of drawings						
drawings approval						
equipment manufacturing						
equipment shipment						
plant operations manuals						

4.3 freight terms

The following freight terms used are as defined by INCOTERMS 2010.

All pricing is CIP to Mid-County WWTP project site.

4.4 terms and conditions of sale

This proposal has been prepared and is submitted based on seller's standard terms and conditions of sale.

WEDECO
a xylem brand

Budget Proposal

Mid-County, FL

Kimley-Horn
Sara Ecker

October 25, 2019

WEDECO
a xylem brand

Table of Content

WEDECO
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1 Xylem Overview

Xylem is a leading global water technology provider, enabling customers to transport, treat, test and efficiently use water in public utility, residential and commercial building services, industrial and agricultural settings. The company does business in more than 150 countries through a number of market-leading product brands, and its people bring broad applications expertise with a strong focus on finding local solutions to the world's most challenging water and wastewater problems.

Xylem's treatment business offers a portfolio of products and systems designed to effectively meet the demands and challenges of treating water and wastewater. From smarter aeration to advanced filtration to chemical-free disinfection, Xylem leverages its well-known Treatment brands, Flygt, Leopold, Sanitaire, and Wedeco, to offer hundreds of solutions backed by a comprehensive, integrated portfolio of services designed to ensure we can meet our customers' needs in a number of different industries including municipal water and wastewater, aquaculture, biogas and agriculture, food and beverages, pharmaceuticals, and mining.

Our scientists and engineers utilize their deep applications expertise and continually listen and learn from our customers' situations to create solutions that not only use less energy and reduce life-cycle costs, but also promote the smarter use of water.

WEDECO
a xylem brand

Wedeco has accepted the challenge of the 21st century. With the Wedeco brand for UV Disinfection, ozone oxidation & AOP solutions, we own the advanced technologies for chemical-free and environmentally friendly treatment of drinking water, wastewater and process water as well as further industrial treatment processes. We constantly invest a large portion of our energy in the development of high-tech components, systems and equipment, as well as in the study of new areas of application for UV, ozone & AOP. In doing so, we have always given special attention to the increase in energy efficiency of our Products equipped with our unique UV lamps and ozone electrodes.

WEDECO
a xylem brand

The special characteristics of the Wedeco Ecoray UV lamp are its special doping and the unique long-life coating. Because of these features, a constantly high UV light yield is achieved with a substantially extended lamp service life at the same time. In addition, by using this technology it is not necessary to apply liquid mercury inside the lamp. Wedeco UV lamps cannot be surpassed in economic efficiency.

In relation to expenditure of energy, the High-Intensity/Low-Pressure Technology provides a light yield three times higher than comparable UV lamps of widely used Medium Pressure Technology. A higher light yield also means a lower heat generation at the same time.

Thanks to this, Wedeco UV lamps become less susceptible to varying water temperatures. Even the formation of deposits on the quartz sleeves as well as lamp aging is considerably lower than with alternative UV lamp technologies in Herford and Essen.

WEDECO Ecoray UV lamp

Xylem's Wedeco ozone systems combine maximum flexibility and reliable operating characteristics for small to large ozone capacities. The ozone generator system and control unit can be combined and supplemented with option sets that allow for various application requirements.

Effizon evo 2G ozone electrodes are the core of our technology and achieve an unmatched level of reliability and energy efficiency. The electrodes are manufactured completely from inert materials, without the need for fuses or coatings, making them highly resistant to corrosion. This means that the Wedeco ozone generators are practically maintenance free with no need for regular cleaning or replacement of the electrodes.

We rely on consistently high-quality standards in all divisions of the company. Moreover, product quality and manufacturing operations are constantly monitored and optimized in continuous improvement processes. Established quality controls give Xylem and you the security of knowing that Wedeco UV, Ozone & AOP systems will always operate reliably.

WEDECO Effizon® evo 2G Ozone electrode

For more information please visit us at
http://www.xylem.com/treatment/

WEDECO
a xylem brand

2 General Process Description

2.1 DESIGN

• Design Flow Rates	
– Peak Design Flow	1.8 MGD
– Average Design Flow	0.7 MGD
• Total Suspended Solids (Maximum)	2 NTU
• Allowable Effluent Temperature Range	41-86°F
• UV Transmittance at 253.7 nm	60%, minimum
• Effluent Disinfection Standard	
– Fecal Coliforms (30 day geometric mean) (Surface Discharge)	200 Fecal Coliforms/100 mL
– Fecal Coliforms (30 day geometric mean) – Fecal Coliforms (75% non-detect)	25 Fecal Coliforms/100 mL
• UV Dose	
– Minimum Design UV Dose – Surface Discharge (based on IUVA/UVDGM (T1) bioassay)	15 mJ/cm²
– Minimum Design UV Dose (based on NWRI 2003 (MS2) bioassay)	100 mJ/cm² with one unit out of service at 75% Peak Flow (FL Class 1 reliability)

2.2 PROCESS DESCRIPTION

The proposed UV system is based upon a properly functioning activated sludge process producing a tertiary effluent meeting the above requirements.

The system is designed to operate with one unit in service to meet the discharge requirements for surface discharge by producing a UV dose calculated to result in a 3 log reduction in fecal coliform.

WEDECO
a xylem brand

3 Technical Description

CONFIGURATION:	LBX 1000e	
DESCRIPTION	**UNITS**	**VALUE**
Number of 316L SS vessels Number of lamps per vessel Number of intensity sensors per vessel Total number of lamps		3 40 1 120
REACTOR DIMENSIONS:	Inches	See attached drawing
HEADLOSS PER VESSEL (at peak flow):	Inches	5.85 (one unit in service)
POWER CONSUMPTION: Total Connected System Power	kW	 48

WEDECO
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4 Price & Scope of Supply

4.1 WEDECO SCOPE OF SUPPLY

- Cylindrical 316L stainless steel reactor with integrated baffle plates
- 40 low pressure, high intensity WEDECO Ecoray® UV lamps per vessel
- One (1) Type 4X, Air-conditioned, 304 Stainless Steel electrical enclosure per vessel
- Calibrated UV intensity monitoring system (UV sensor ÖNORM certified)
- Electronic UV lamp supervision system
- WEDECO EcoTouch Controller with Touchscreen HMI (one per vessel)
- Dose pacing incl. variable lamp power
- One (1) Master PLC Control Panel with Allen Allen Bradley PLC and HMI and Type 4X, 304 Stainless Steel enclosure
- Automatic wiping system (Electric)
- 39 ft (12 m) lamp cables
- Manufacturer's field service on site [3 trip(s) / 9 days]
- Electrical supply: 480 V, 3 phase, 60 Hz, 4 wire + ground

4.2 BUDGET PRICE

LBX Standard Equipment	
Total	***$395,000***

WEDECO
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5 Commercial Terms & Conditions

Commercial Details	
Submittal time:	8 weeks after approved purchase order
Delivery time:	18 weeks after approved submittals
Terms of Delivery:	All prices are FCA factory with full freight allowed to the job site.
Terms of Payment:	This proposal is based upon WEDECO's General Terms of Business. Price is based upon the following payment terms (net 30 days): • 10% net 30 days upon initial submittal of mechanical/electrical drawings for approval • 80% net 30 days from the date of the respective shipments of the product • 5% installation of the Xylem equipment, NTE 150 days after shipment • 5% start-up / training on the Xylem equipment, NTE 180 days after shipment
Warranties:	Lamp Warranty: Guaranteed 14,000 hours of operation, prorated after 9,000 hours. System Warranty: 18 months from date of delivery or 12 months from date of substantial completion of UV equipment whichever comes first.

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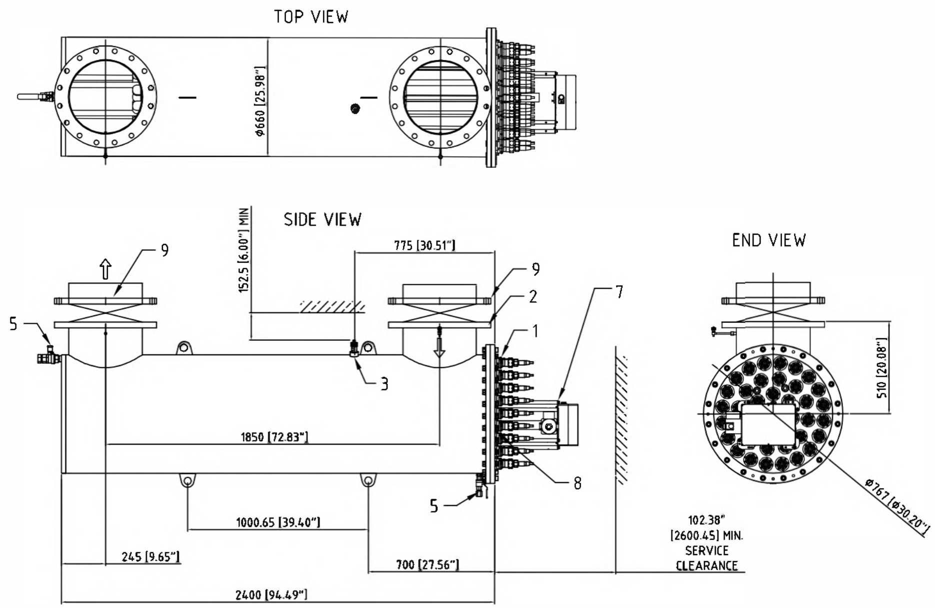
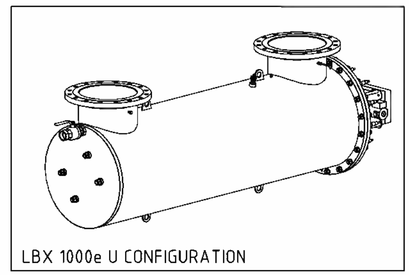
6 Attachments

6.1 BROCHURES / DRAWINGS / OTHERS



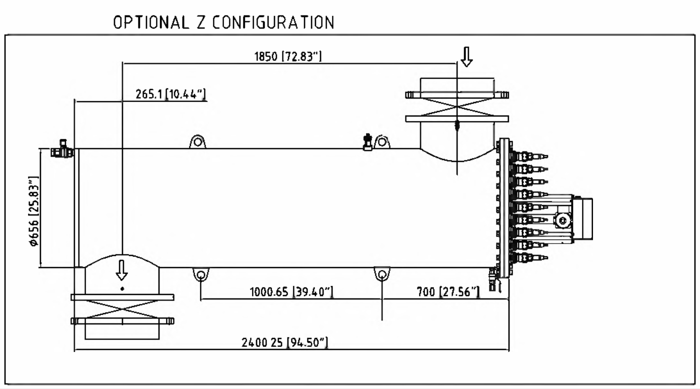


NOTES:

1 The dimensions given on this drawing are required to ensure correct installation operation and performance of the WEDECO UV equipment All Modifications from this drawing must be approved by WEDECO
2. Before installation of the UV Equipment all piping must be flushed to prevent objects like sand or stones from damaging components inside the UV vessel
3 All flow isolation equipment is supplied by others.
4. ALL field wiring and conduits required to connect power and controls to the electrical enclosure and ~~optional~~ wiping unit shall be sized, supplied, and installed by others All governing Local/state and national electrical codes/regulations apply (for example but not limited to state, local, CE, NEC, cUL)
5 ALL equipment shall be located in accordance with all state local, and national electrical codes and per dimensions shown on this drawing
6 Protect your eyes and skin against UV light. Extended exposure causes sun burn and eye irritation.

ANMERKUNGEN:

1. Alle Maßangaben dieser Zeichnung sind erforderlich, um eine korrekte Installation, Betrieb und Funktion sicher zu stellen Alle Änderungen mussen von Wedeco genehmigt werden
2. Vor der Installation der UV-Anlage mussen alle Rohrleitungen gespült werden, damit Sand, Steine o.ä. keine Komponenten im UV-Reaktor beschadigen können.
3 Alle Absperreinrichtungen sind nicht im Lieferumfang von Wedeco.
4 Alle Verkabelungen, Kabelkanäle und elektrische Anschlüsse des Schaltkastens, sind durch Dritte zu liefern und zu installieren Alle lokal zutreffenden Gesetze, Normen und Regularien, (z B EN, IEC, NEC, cUL, etc) sind zu berücksichtigen.
5. Die Anlage ist entsprechend den jeweils lokal gültigen Normen, Gesetze und Regularien und gemäß der angegebenen Dimensionen zu installieren
6 UV-Licht kann Augen und Haut schadigen. Schützen Sie Augen und Haut.



MOUNTING/EINBAU: PREFERABLY HORIZONTAL/ BEVORZUGT HOTIZONTAL

LBX 1000e DN400/ ANSI 16 "

Item	Description/Beschreibung	Notes/Bemerkungen	Material
1	Lamp Connector/cable to electrical Cabinet/Lampenanschluß /Kabel zum Schaltschrank	40 per Unit/40 je Einheit	-
2	Inlet / outlet flanges/ Eingangs- und Ausgangsflansch	DN400/PN10 EN 1092-1/02 or16" ANSI B16.5 150 lbs.	ASTM316 (1.4571)
3	UV Sensor	1per Unit/ 1je Einheit, cable provided for connection to Cabinet Kabel für Anschluß an Schaltschrank bereitstellen	-
4	Ground Connector/ Erdungsanschluß	-	ASTM316 (1.4571)
5	Cleaning and drain/vent valve/ Reinigungs-und Spülventil	2 per Unit/ 2 je Einheit, R 1 Din 2999 (1" NPT with/mit ANSI units)	ASTM316 (1.4571)
6	Sample valve (Optional)/Absperrarmatur (optional)	1 or 2 per Unit/1 / 2je Einheit	-
7	Wiping system (Optional)/Wischersystem (optional)	1per Unit/1 je Einheit requires power/controls connection to Cabinet Anschluß an Schaltschrank erforderlich	-
8	High temperature switch/ Temperaturschalter	1per Unit, cable provided for connection to Cabinet Kabel für Anschluß an Schaltschrank bereitstellen	-
9	Isolation Valve/ Absperrarmatur	By Others / durch Dritte	ASTM316 (1.4571) recommended
10	Straight Pipe length equal to 0.5 X pipe diameter. Rohrlänge gleich 0.5 x Rohrdurchmesser	By Others / durch Dritte	only required for butterfly type valves nur bei Absperrklappe erforderlich
11	Sign of flowdirection/ Kennzeichnungspfeil der Durchflußrichtung		
12	Nameplate/ Typenschild		

NOT FOR CONSTRUCTION!

FOR DISCUSSION PURPOSES ONLY!

Xylem Water Solutions Herford GmbH
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Tel +49 5221 930-0 Fax +49 5221 930 222
Info@xyleminc com
www xyleminc com

WEDECO a xylem brand

Proprietary notice pursuant to DIN ISO 16016 to be observed!

Project: LBX 1000e DN400/ ANSI 16 "

Scale: NTS

Measurements without tolerances according to ISO 2768- 1m/2K
Surface according to DIN ISO 1302 Reihe 2

Title: GENERAL ARRANGEMENT DRAWING
UV REACTOR

	Date	Name
Drawn	02.06 2013	D.Raymond
Chkd		

Material: | Weight: | Article-ID: | Drawing Nr: U-86625-0 | sht | of

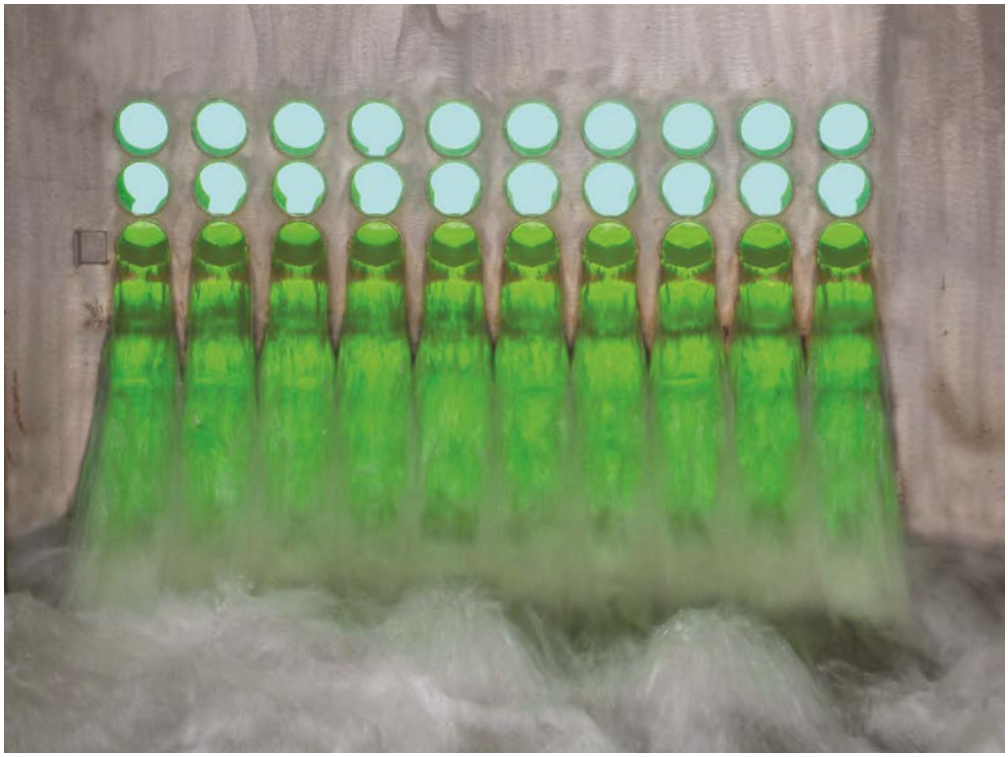
Rev. | Description | Date | Name | EDV Nr. U-86625.dwg

A2

SUNSHINE WATER SERVICES COMPANY
APPENDIX D TO EXHIBIT ST-2
WITNESS: SEÁN TWOMEY
PAGE 288 OF 349

NON-CONTACT UV DISINFECTION SYSTEM

CONCEPT LEVEL PROPOSAL



Mid County, FL- WWTP Improvements.

Mid-County Services Inc.

Prepared for:

Shelby Hughes, P.E.

Kimley-Horn

100 Second Avenue South, Suite 300S

St. Petersburg, FL. 33701

DOCUMENT REVISION HISTORY

Name	Date	Reason for Change	Revision #
Concept Level Proposal	1/29/2019	N/A	0

ENAQUA
A Grundfos Company
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Phone: (+1)7605992644
Fax: (+1)7605992642
www.enaqua.com

Name: Arijit Sarkar
Direct:760 599 2644 x 1102
Email: asarkar@grundfos.com
Date January 29, 2019

Shelby Hughes, P.E.
Kimley-Horn
100 Second Avenue South, Suite 300S
St. Petersburg, FL. 33701

REF: Mid County, FL- WWTP Improvements **Enaqua Ref # ASR_B19USFL01**
SUB: Proposal for UV Disinfection System.

Dear Shelby,

Enaqua is pleased to provide a concept level proposal for Non-Contact UV Disinfection Systems for the above referenced project.

The budgetary pricing for the proposed UV system is US $566,975.00.

Enaqua Non-Contact UV Disinfection Systems have been proven to provide superior performance, resistance to fouling and scaling, combined with electrical efficiency and minimum maintenance. The lack of quartz sleeves and seals completely eliminate the need for automated cleaning systems, acid baths, hoists, and the replacement cost of the quartz sleeves housing the lamps.

Please do not hesitate to contact us with any questions you may have regarding this proposal, or the Enaqua Non-Contact UV Disinfection system operation. Thank you for your interest in in Enaqua and the opportunity to provide you with this proposal.

Regards,

Arijit Sarkar
Applications Manager

Your Local Sales Representative:

Cory N. Peavy
Environmental Equipment Services
3616 Harden Blvd, #337
Lakeland, FL 33803
Phone: (863)640-0201
Email: cnp@ees-fl.com

Your Enaqua Sales Contact:

Rick McIntyre (Regional Sales Manager)
Office: 203-269-9890
Cell: 760-936-1979
E-Mail: rmcintyre@grundfos.com

SUMMARY:

The details of the reactor(s), scope of supply, reactor drawings, summarized O & M information, and other pertinent information are provided in the sections below.

1. DESIGN CRITERIA:

The flow rates and water quality parameters used for reactor sizing are listed in the Table 1.1 below:

Table 1.1: UV Design Criteria

Peak Disinfection Flow Rate	1.2/ 834.0	(MGD)/(GPM)
Plant Permit Capacity	.9/ 625.0	(MGD)/(GPM)
Average Disinfection Flow rate	.7/ 486.2	(MGD)/(GPM)
UV Transmittance	60.0	% UVT (Minimum)
Number of UV Trains	1	Active at peak flow
Total Suspended Solids	10.0	mg/l (30-day average)
Total BOD	10.0	mg/l (30-day average)
Permit Limit 1: Fecal Coliform Permit Limit- **FL Public Access Reuse**	75% of samples ND/25.0 CFU	75.0% of effluent samples non-detect for Fecal Coliform. Single sample max of 25.0 CFU/100 ml.
Permit Limit 2: Fecal Coliform Permit Limit- **Surface Discharge**	200.00	Monthly geometric mean of < 200.00 CFU/100 ml.
Disinfection UV Dose +	100.0	Minimum MS2 RED of 100.0 mJ/cm^2. UV Dose calculated per Independent Third-Party Bioassay conducted in accordance with NWRI 2012- after applying certified- Lamp End of Lamp Life (EOLL) of 87%, and Fouling Factor of 89%.
Mean Particle Size*	<10.0	Microns
Total Iron*	0.3	mg/l
Effluent Turbidity*	<2.0	NTU
Equipment Redundancy	25.0%	1 out of 4 UV banks per channel at Peak Disinfection Flow Rate

+ Note: Per NWRI 2012

*Note: Industry standard parameter used for this concept level proposal.

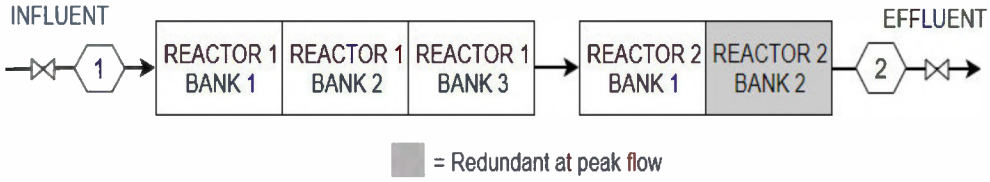
2. PROPOSED PROCESS FLOW & DESIGN REDUNDANCY:

The proposed configuration for consists of two in-pipe flanged reactors in series. The first reactor has three banks in series and the second reactor has two banks in series for a total of five banks. With four banks active, the UV system is designed to disinfect 100% of the peak disinfection flow rate by applying

the design MS2 UV dose, given the water quality parameters in Table 1.1. With the fifth bank on stand-by at 1.2 MGD, this configuration offers 25% redundancy of banks at peak flow.

The proposed process flow and recommended piping arrangement is provided in Figure 1. The operational ranges of the proposed UV reactor are presented in the Table 2.1 below.

Figure 1: Recommended Process Flow and Piping



Note: Valves and piping by others

Table 2.1: Process Flow-Option 1

Tag	Description	Reactor 1, Bank 1-3; Reactor 2, Bank 1 - Peak Disinfection flow rate MGD / GPM	Reactor 2, Bank 2 - Peak Disinfection flow rate MGD / GPM	Total - Peak Disinfection Flow Rate MGD / GPM
1	Influent to UV System	1.2/ 834.0	.3/ 209.0	1.2/ 834.0
2	Disinfected effluent from UV System	1.2/ 834.0	.3/ 209.0	1.2/ 834.0

3. SCOPE OF SUPPLY:

Summary details of the proposed reactors and ancillary equipment selected to meet the effluent permit criteria (based on the water quality parameters listed in Table 1.1) are provided in Table 3.1-3.3 below:

Table 3.1: Scope of Supply for REACTOR 1

Reactor Model Number	C3t.06063
Reactor Designation	Reactor 1
Reactor type	In-Pipe
Process Connection	12.00" ø CL 150 Flange
Installation notes	Indoor Installation
Reactor Configuration	Validated per NWRI 2012
UV Lamps	145 W Low Pressure High Intensity Non-Amalgam
Non-contact Reactor Material	C Series AFP840™ Tube
Material of construction	316 Stainless Steel for all wetted parts
UV REACTOR	
Number of proposed UV reactor(s)	1
Number of banks per reactor	3
Number of AFP tubes per reactor	36 (In three bank length)
Number of lamp racks per bank	7
Number of lamps per lamp rack	8
Number of lamps per bank	56
Number of ballasts per bank	56

Total number of lamps per reactor	168
THERMAL CONTROL MECHANISM	
Air to Air Heat Exchangers with air circulation fans	6 (Two per bank)
UV INTENSITY SENSORS/ Reactor	
Number of UV intensity Monitors- Enaqua part number: 560.601902	3 (One per bank)
CONTROLS & ELECTRICAL	
ADRX. Local Control Panel with LCD screen, HOA Switches, and UV status Lamps	3 (One per bank)
EDC GEN 2 (Ensure Dosing Controller) - Enaqua Part number: 062.01003700	1 (One per UV Reactor)
MISCELLANEOUS EQUIPMENT	
Ultrasonic Level Sensor	1 (One per UV reactor)

Table 3.2: Scope of Supply for REACTOR 2

Reactor Model Number	C3t.06062
Reactor Designation	Reactor 2
Reactor type	In-Pipe
Process Connection	12.00" ø CL 150 Flange
Installation notes	Indoor Installation
Reactor Configuration	Validated per NWRI 2012
UV Lamps	145 W Low Pressure High Intensity Non-Amalgam
Non-contact Reactor Material	C Series AFP840™ Tube
Material of construction	316 Stainless Steel for all wetted parts
UV REACTOR	
Number of proposed UV reactor(s)	1
Number of banks per reactor	2
Number of AFP tubes per reactor	36 (In two bank length)
Number of lamp racks per bank	7
Number of lamps per lamp rack	8
Number of lamps per bank	56
Number of ballasts per bank	56
Total number of lamps per reactor	112
THERMAL CONTROL MECHANISM	
Air to Air Heat Exchangers with air circulation fans	4 (Two per bank)
UV INTENSITY SENSORS/ Reactor	
Number of UV intensity Monitors- Enaqua part number: 560.601902	2 (One per bank)
CONTROLS & ELECTRICAL	
ADRX. Local Control Panel with LCD screen, HOA Switches, and UV status Lamps	2 (One per bank)
EDC GEN 2 (Ensure Dosing Controller) - Enaqua Part number: 062.01003700	1 (One per UV Reactor)

MISCELLANEOUS EQUIPMENT	
Ultrasonic Level Sensor	1 (One per UV reactor)

Table 3.3: Common Control Components for REACTOR 1 and REACTOR 2

CONTROLS & ELECTRICAL	
UV System Master Control PLC. AB CompactLogix PLC. AB Part # 1769-L16ER-BB1B. OIT for UV Master PLC. AB PanelView Plus 7, 10"wide, Standard. AB Part # 2711P-T10C21D8S. AB 4pt Analog Current Input Module. 1734-IE4C	1
UV Control Panel- HMI Panel: 19.00" Touch Screen Color HMI (Panel PC)- Enaqua part Number 064.01000542 installed in NEMA 4 X SS- RITTAL Model WM363012N4. 48.00" x 36.00" x 12.00" Enclosure.	1 (UV Control Panel Houses Enaqua Control Components, HMI, UV Master PLC, OIT, and all IO components.)
MISCELLANEOUS EQUIPMENT	
By-Pass UVT% Analyzer. Realtech REALUV M3000 Analyzer with Real Pump Clean System I.	1

4. OPERATING CONDITIONS:

4.1 - REACTOR HEAD LOSS

The head loss through the UV reactor is provided in Table 4.1 below.

Table 4.1: Operating Conditions- Head loss through UV system

Calculated Flange to Flange Head Loss per Reactor	
Head loss through reactor 1 at 1.20 MGD	< 4.25 inches
Head loss through reactor 2 at 1.20 MGD	< 3.75 inches
Total head loss through both reactors at 1.20 MGD	< 8.00 inches

*Note: Flange to flange head loss through each UV reactor at flow. Major losses from process piping, and minor losses from valves and fittings not included in calculated head loss.

4.2 - ELECTRICAL LOAD

Total connected load information/ UV reactor is provided in Table 4.1 & 4.2 below.

Table 4.1: Total Connected Loads per UV Reactor 1 @ 480V 3Ø

UV Reactor - C3t.06063 (Three banks)	
Total connected Load (kW) ^	26.71
Total connected Load (kVA) calculated with a PF of .95)	28.11
Total connected Load (Amps)	33.81

^Note: The total connected load per UV reactor with controls and reactor cooling mechanism.

Table 4.2: Total Connected Loads per UV Reactor 2 @ 480V 3Ø

UV Reactor - C3t.06062 (Two banks)	
Total connected Load (kW) ^	17.81
Total connected Load (kVA) calculated with a PF of .95)	18.74
Total connected Load (Amps)	22.55

^Note: The total connected load per UV reactor with controls and reactor cooling mechanism.

5. OPERATIONS & MAINTENANCE INFORMATION:

The estimated power usage at average dry weather flow (kW), and the projected lamp replacement costs based on 24/7 operations at daily average flow are provided in Table 5.1 below:

Table 5.1: Option 3-Power usage at daily average flow and lamp replacement

Power Usage (kW)		**Lamp Replacement Costs ($)**	
Average daily flow of 0.7 MGD	26.2 kW*	Number of lamps / year	98+
		Price per Lamp ($)	90
		Annual Lamp Replacement Cost ($)	8,820.00

*Note: Assumed two reactors and four banks operating using level pacing. Four vertical rows of tubes (24 AFP Tubes) per UV reactor flooded and associated lamps associated lamps active to disinfect the average flow of 0.7 MGD.

+ Note: Based on 168 UV Lamps in three UV Banks at average flow of 0.7 MGD, and an annual lamp replacement factor of .584 {(24 hrs. /day x 365 days a year)/ (15,000 Hr. lamp Life)}

GENERAL MAINTENANCE:

The AFP840™ Tube reactors are the only UV transmitting reactor component that is in contact with waste water, and the AFP840™ tubes have been demonstrated to have high resistance to fouling. No cleaning chemicals are required/ necessary for cleaning of the AFP840™ tubes. The cleaning procedure is very simple and cleaning instructions are provided in the O&M manual and the brush attachment for manual cleaning is supplied with the reactors.

6. ELECTRICAL REQUIREMENTS:

The electrical requirements for the proposed reactor are provided in Table 6.1 & 6.2 below:

Table 6.1: Electrical requirements- UV Reactor 1 (C3t.06063)

1. Each Reactor requires an electrical supply of Three (3) 480V/3P 4 wire (plus ground) – 15.0 A, one per bank
2. Each Reactor temperature management and controls requires an electrical supply of Three (3)120V/1P/ 2 wire – 20 A, one per bank
3. UV Control Panel requires an electrical supply of one (1) 120V/ 1P/ 2 wire – 20 A
4. By pass UVT% analyzer an electrical supply of one (1) 120V/ 1P/ 2 wire – 10 A

Table 6.2: Electrical requirements- UV Reactor 2 (C3t.06062)

1. Each Reactor requires an electrical supply of Two (2) 480V/3P 4 wire (plus ground) – 15.0 A, one per bank
2. Each Reactor temperature management and controls requires an electrical supply of Two (2) 120V/1P/ 2 wire – 20 A, one per bank
3. UV Control Panel requires an electrical supply of one (1) 120V/ 1P/ 2 wire – 20 A
4. By pass UVT% analyzer an electrical supply of one (1) 120V/ 1P/ 2 wire – 10 A

The UV system controls and operation can be integrated into the plants existing SCADA system via MODBUS TCP/IP.

7. STANDARD EQUIPMENT WARRANTIES:

A. The equipment furnished (excluding lamps, ballasts) shall be warranted to be free of defects in material and workmanship, including damages that may be incurred during shipping for the lesser of a period of 12 months from substantial completion of the installed UV system or 18 months from receipt of all equipment supplied by the contractor and received in good condition by owner.

B. **UV LAMPS**: UV lamps shall be warranted for a minimum of 15,000 hours operating time under the conditions specified herein prorated after 12,000 hours. In the event of premature UV lamp failure, the UV system supplier shall offer the following

   I. Lamp failure before 12,000 hours – send a replacement lamp free of charge

   II. Lamp failure after 12,000 hours – issue a credit proportional to the hours not used.

C. **BALLASTS**: Electronic ballasts are fully warranted for 3 years, extended to five years with first purchase of (1:1) replacement lamps from ENAQUA lamps within three years of installation.

8. PERFORMANCE WARRANTY:

A. Manufacturer shall guarantee the specified performance (system shall meet minimum UV dose of 100.00 mJ/cm^2 under the conditions specified in the design criteria section) for a period of two (2) calendar years following equipment startup and acceptance to allow evaluation of performance under the specified water quality conditions. The effluent quality exiting the UV system must be equal to or better than the specification requirements, as long as the wastewater flow and quality remains in the range(s) specified in the Design Criteria in Section 1.3.B, and the UV reactors are operated in accordance with the UVSS O& M Manual.

B. If the UV disinfection system fails to meet the performance guarantee criteria or fail to demonstrate performance, the manufacturer shall modify, change, or add equipment as necessary to meet performance requirements. The manufacturer shall be responsible for any additional costs due to changes (including piping, mechanical, structural or electrical changes) or additional equipment as necessary to meet performance requirements. This includes design, engineering, construction, as well as equipment.

9. BUDGETARY PRICING:

Budgetary pricing for the proposed UV reactor is provided in Table 9.1, spares included in proposal provided in Table 9.2 and Enaqua's standard Terms listed in Table 9.3.

Table 9.1: Budgetary Pricing in US $

DESCRIPTION	QTY
UV Reactor 1 – C3t.06063	1
UV Reactor 2 – C3t.06062	1
UV Power Panels	5
UV Control Panel (UV PLC, OIT, HMI Panel)	1
Start-up and Commissioning^	1
Spare Parts	Per Table 3.8
Shipping and handling	1
Net sales price	$566,975.00
***TOTAL**	**$566,975.00**

Note: Shipping is FOB Mid County WWTP, FL.

*Note: Budgetary prices valid for 6 months from the date of this proposal.
^ Note: Travel time and three eight-hour work days included in estimate for startup and commissioning services.

Table 9.2: Spare parts included in the proposal includes:

ITEM	QTY
UV lamp racks (fully populated with 8 lamps and 8 ballasts)	2
UV Sensors	1
Operator's safety kit	2
Cleaning Kit	2

Table 9.3: Terms of Payment: Net 30 upon completion of the milestones listed below:

Order acceptance (prior to shipping)	30	%
Upon approval of shop drawings	30	%
Upon delivery of all goods, or six weeks after declaration of "ready to ship"	30	%
After start up and commissioning of UV system	10	%

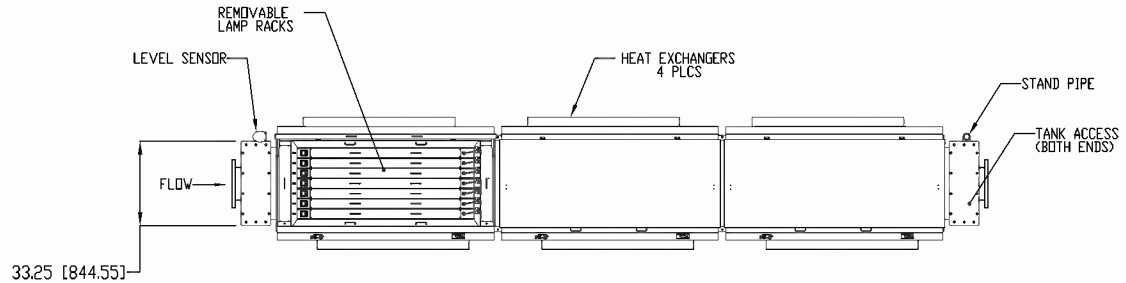
10. MECHANICAL DRAWINGS:

The following drawings are provided:

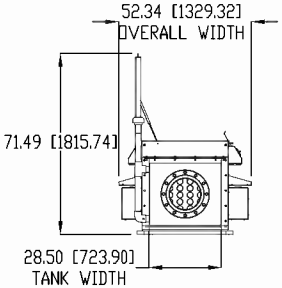
- Figure 2- Sales Engineering drawings of the proposed UV reactor 1 (C3t.06063)
- Figure 3- Sales Engineering drawings of the proposed UV reactor 2 (C3t.06062)
- Figure 4- Preliminary General arrangement drawing of the proposed UV reactors, process piping, control panel, etc.

Figure 2- Sales Engineering drawings of the proposed UV reactor 1 (C3t.06063)

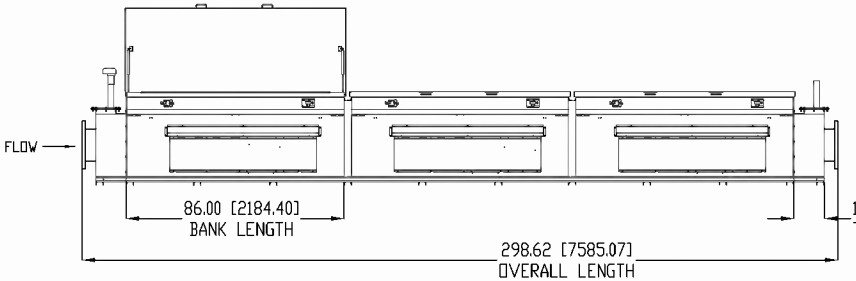
REVISIONS				
REV.	ECM#	DESCRIPTION	APPROVED	DATE



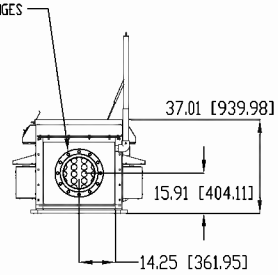
TOP VIEW



INLET VIEW



FRONT VIEW



OUTLET VIEW

NOTES (UNLESS OTHERWISE SPECIFIED):

1. DRAWING IN ACCORDANCE WITH ASME Y14.5-2009.
2. ALL DIMENSIONS IN INCHES OR [MILLIMETERS].
3. REMOVE ALL SHARP EDGES.

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES/[mm]

TOLERANCES:
X.X ± .1 [2.54]
X.XX ± .03 [.76]
X.XXX ± .010 [.25]

ANGLES: ±X1°
±X.5°
.XX ± .25°

FRACTIONS: ± 1/16"

ERP NO:
SERIES:
MATERIAL:
FINISH:
WEIGHT:

DO NOT SCALE DRAWING

APPROVALS	DATE
DRAWN WIM	1/28/2019
CHECKED	
ENG	
CAD FILE	

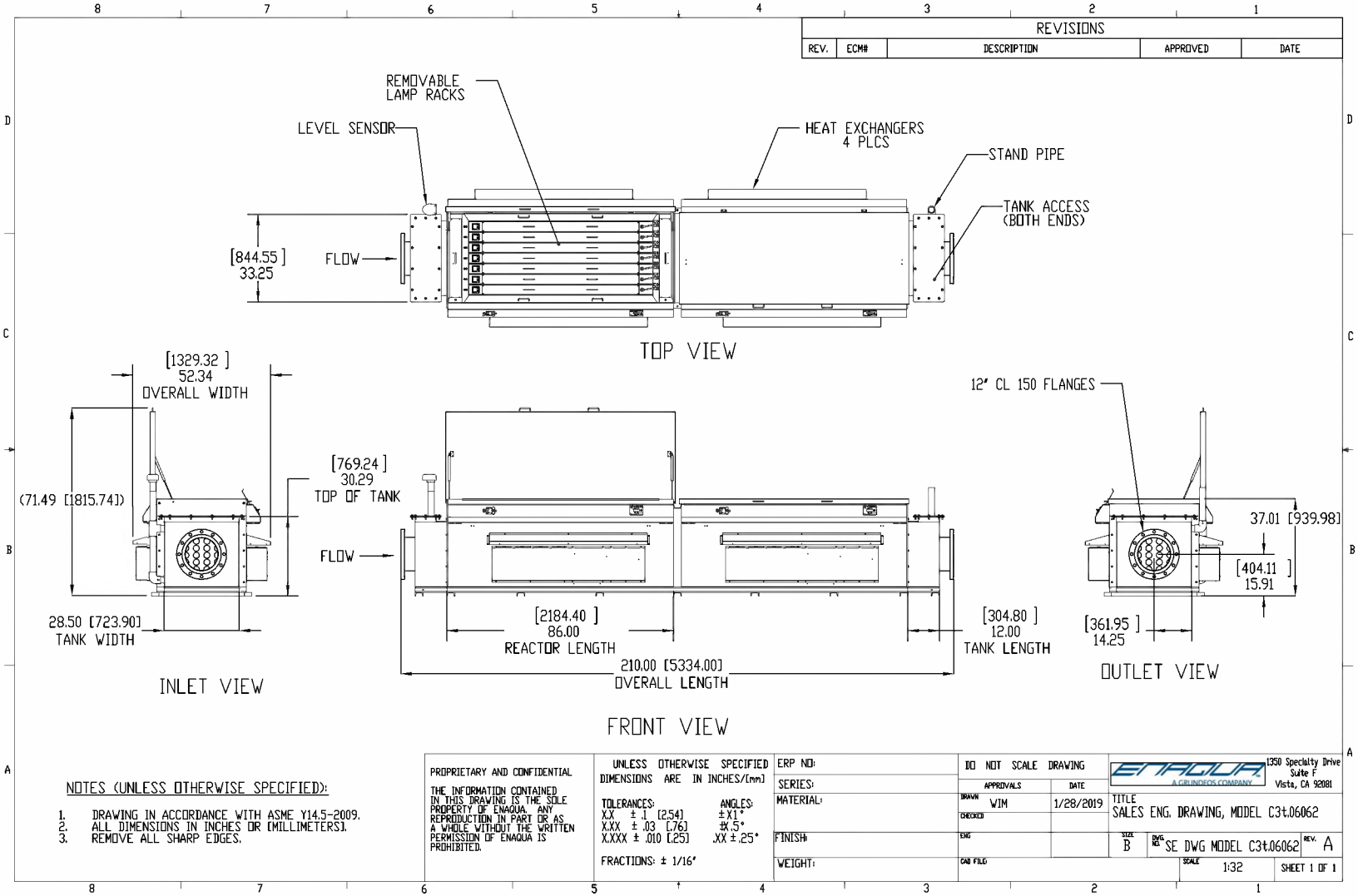
ENAQUA A GRUNDFOS COMPANY
1350 Specialty Drive Suite F
Vista, CA 92081

TITLE
SALES ENG. DRAWING, MODEL C3t.06063

SIZE B | DWG NO. SE DWG MODEL C3t.06063 | REV. A
SCALE 1:40 | SHEET 1 OF 1

000353

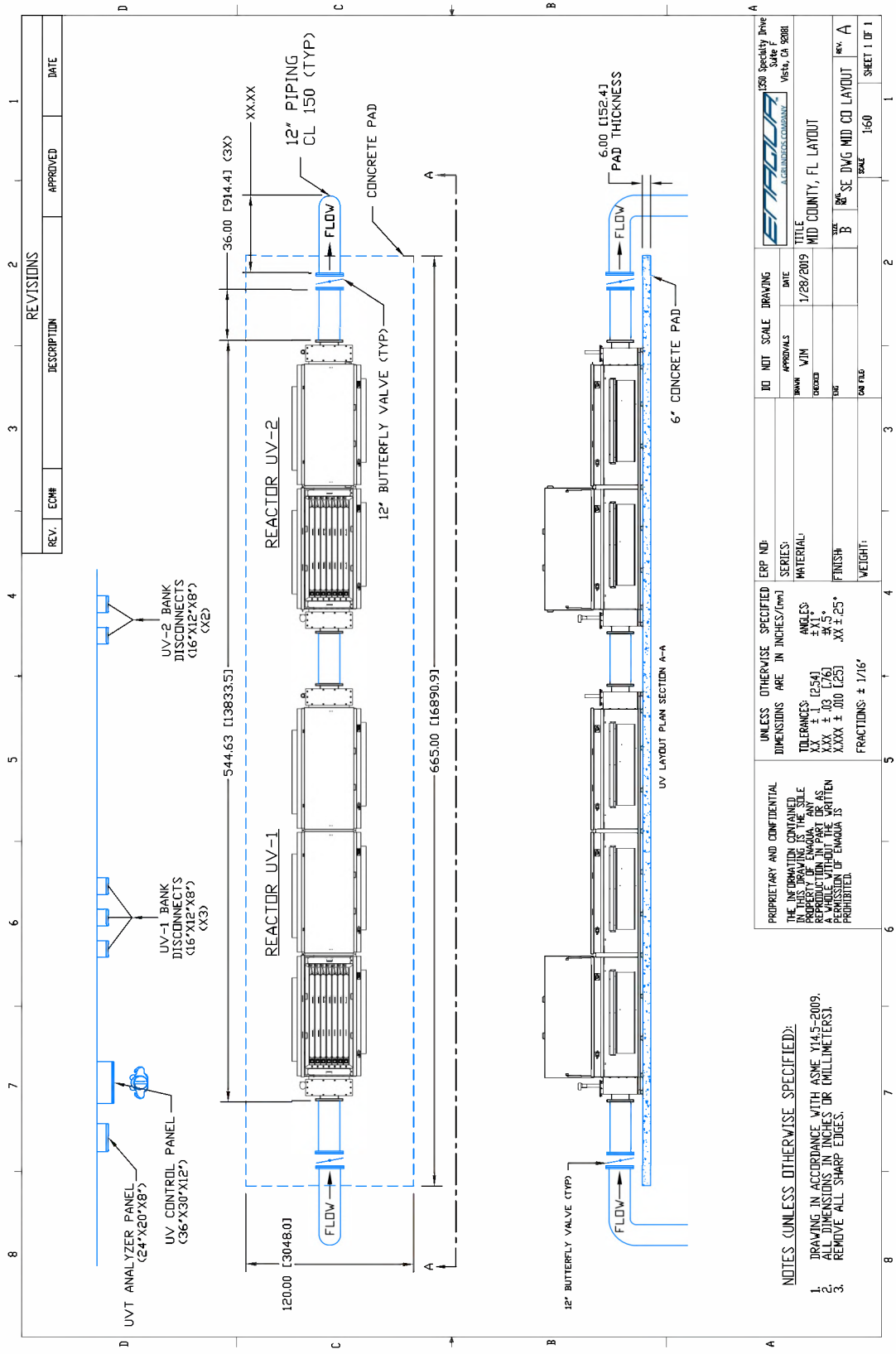
Figure 3- Sales Engineering drawings of the proposed UV reactor 2 (C3t.06062)



000355

SUNSHINE WATER SERVICES COMPANY
APPENDIX D TO EXHIBIT ST-2
WITNESS: SEÁN TWOMEY
PAGE 302 OF 349

Figure 4- Preliminary General arrangement drawing of the proposed UV reactors, process piping, control panel, etc.


REVISIONS
REV.
ECN#
DESCRIPTION
APPROVED
DATE
UV ANALYZER PANEL (24"X20"X8")
UV CONTROL PANEL (36"X30"X12")
UV-1 BANK DISCONNECTS (16"X12"X8") (X3)
UV-2 BANK DISCONNECTS (16"X12"X8") (X2)
REACTOR UV-1
REACTOR UV-2
12" PIPING CL 150 (TYP)
12" BUTTERFLY VALVE (TYP)
CONCRETE PAD
FLOW
XX.XX
36.00 [914.4] (3X)
544.63 [13833.5]
665.00 [16890.9]
120.00 [3048.0]
6.00 [152.4] PAD THICKNESS
6" CONCRETE PAD
UV LAYOUT PLAN SECTION A-A
NOTES (UNLESS OTHERWISE SPECIFIED):
1. DRAWING IN ACCORDANCE WITH ASME Y14.5-2009.
2. ALL DIMENSIONS IN INCHES OR [MILLIMETERS].
3. REMOVE ALL SHARP EDGES.
PROPRIETARY AND CONFIDENTIAL
THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF EMAQUA. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT THE WRITTEN PERMISSION OF EMAQUA IS PROHIBITED.
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES/[mm]
TOLERANCES:
X.X ± 1 [2.54]
X.XX ± .03 [.76]
X.XXX ± .010 [.25]
ANGLES: ±1°
X.X ±.5°
X.XX ±.25°
FRACTIONS: ± 1/16"
ERP NO:
SERIES:
MATERIAL:
FINISH
WEIGHT:
DO NOT SCALE DRAWING
APPROVALS
DATE
DRAWN VJM
1/28/2019
CHECKED
ENG
CAM FILE
1350 Specialty Drive Suite F Vista, CA 92081
TITLE
MID COUNTY, FL LAYOUT
SIZE B
DWG NO SE DWG MID CO LAYOUT
REV. A
SCALE 1:60
SHEET 1 OF 1

APPENDIX A-

BIOASSAY VALIDATION CERTIFICATE

Engineers...Working Wonders With Water®

Validation Test Certification

for the
Enaqua Enlight Non-Contact Ultraviolet Disinfection System

This Document certifies that validation testing was conducted on the Enaqua Enlight Non-Contact UV disinfection system, manufactured by Enaqua.

The validation testing was conducted by Carollo Engineers in accordance with the Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse (National Water Research Institute [NWRI]/American Water Works Association Research Foundation [AwwaRF], August 2012) and the Uniform Protocol for Wastewater UV Validation Applications (International Ultraviolet Association [IUVA], 2011). The UV System was validated at the San Vicente Wastewater Treatment Plant in Ramona, California in August and September 2015.

The tested Enlight Non-Contact UV disinfection system was validated with 60 millimeter (mm) tubes at 19.9 to 94.2 gallons per minute per tube, 36.2 to 80.8 percent UVT, with 1 to 4 banks in series.

Carollo Engineers conducted oversight on all validation testing, analyzed the test data, and developed the performance models. All microbiology services were conducted by GAP Laboratories, Canada.

REGISTERED PROFESSIONAL ENGINEER
ANDREW THOMAS SALVESON
No. 56902
CIVIL
STATE OF CALIFORNIA

Water Reuse Practice Director

REGISTERED PROFESSIONAL ENGINEER
NICOLA A. FONTAINE
No. 76863
CIVIL
STATE OF CALIFORNIA

Principal Technologist

2700 Ygnacio Valley Road, Suite 300, Walnut Creek, California 94598
P. 925.932.1710 F. 925.930.0208
carollo.com

ONE (1) 48" SINGLE CHANNEL 2.0 ROTARY FAN PRESS SKID SYSTEM PROPOSAL FOR:

UTILITIES INC.

(Mid-County WWTP, Dunedin, FL)

PRIME SOLUTION, INC.
610 S. PLATT STREET
OTSEGO, MI 49078 USA
(269) 694-6666
www.psirotary.com

Prime Solution Regional Sales Manager: Mr. Joe Dendel / PH: (616) 540-0500 / Joe@psirotary.com

PRIME SOLUTION

PROPOSAL #P-191010JD1 Date: October 10, 2019

To: Utilities Inc.
Mid-County WWTP
Dunedin, FL 34698

Firm: Kimley-Horn
Contact: Sarah Ecker, E.I.
Phone: 727-498-2329
E-Mail: Sarah.Ecker@kimley-horn.com

Sales Rep: The GK Solution
Contact: Gion Leone
Phone: 352-566-4016
E-Mail: G.Leone@TheGKSolution.com

PROJECT DETAILS	
Project Name:	Utilities Inc. – Mid-County WWTP
Application:	Municipal
Plant MGD:	
Sludge Type:	Secondary
Sludge Process:	MBR
Sludge Conditioning Aid(s):	-
Volatile Solids:	-
Sludge Age:	-
Hours of Operation/Day:	8 hrs/day for 1 day/wk
Dewatering Flow Rate:	40 GPM (MAX)
Feed Solids:	1% TS
Solids Loading:	200.2 d.s. lbs/hr * 8 hrs/day = 1601.6 d.s. lbs/day

**Note: A sample has not been analyzed nor pilot test completed; once a sample has been analyzed and a pilot test completed, more refined numbers and process limitations can be provided.*

We hereby submit specifications and estimates for: One (1) 48" Single Channel 2.0 Rotary Fan Press Skid System as listed below in this Scope of Supply. All equipment listed below in Scope of Supply is factory tested, pre-plumbed/wired and ready for field installation and integration by others. Sludge type, feed solids, volatile solids, pretreatment, polymer selection, desired cake solids and process variations will affect performance of the equipment. Installation, system integration, utility and piping connections not included unless listed below in this Scope of Supply shall be provided by others.

ROTARY FAN PRESS EQUIPMENT SCOPE OF SUPPLY

a) One (1) RFP2.0-48S – 48" single channel 2.0 rotary fan press, 5.0 hp direct gear drive system, epoxy coated carbon steel housings and base, pneumatic sludge discharge gate control, pneumatic flow control, all 304 stainless steel/hard chromed tapered slotted filter screens with stainless steel support wheels.
b) One (1) RFP skid platform, epoxy coated carbon steel welded construction. Anchor bolts to be provided by others.
c) One (1) Wash manifold assembly.
d) One (1) Dewatering channel mixing elements, 0.25 hp gearbox/channel.
e) One (1) Stainless steel cake discharge chutes.
f) One (1) In-line static mixers.
g) One (1) PVC sludge retention manifold with clear site tube cleanout and sludge sampler.
h) One (1) PVC filtrate collection piping assembly.
i) One (1) Pneumatic sludge by-pass control valve.
j) One (1) Sludge feed magnetic flow meter.
k) One (1) Sludge feed pump (rotary lobe) with VFD gear drive direct coupled on common base.

PRIME SOLUTION

PROPOSAL #P-191010JD1 Date: October 10, 2019

l) One (1) Emulsion polymer feed/blend system, with integrated controls.
m) One (1) Process control package (semi-unattended operation) for system as listed in this proposal.
n) One (1) Central operator panel with touch screen controls, ten inch (10") display, lamps and main disconnect power. System to include operation of associated dewatering equipment as listed in this scope of supply, 480 volt/3 phase/60 hertz (unless specified otherwise), NEMA 4X rated enclosure.
o) Two (2) Hardcopies & one (1) electronic copy of operational/maintenance manual
p) One (1) Standard limited workmanship warranty.
q) One (1) On-site start-up/commissioning/training for a total of twenty-four (24) man-hours.

We Propose to furnish material as stated, FOB Utilities Inc Mid-County WWTP, Dunedin, FL 34698 , freight allowed to job site (offloading by others), complete and in accordance with the above specifications for the sum of:

U.S. Dollars: $243,000.00

Process & Services packages are available for quotation upon request.

All fees and bonding are the full responsibility of the Purchaser/Customer and not included as part of this proposal. Any non-payment amounts, fines, fees, expenses caused thereof shall be the full payment responsibility of the Purchaser/Customer to any and all parties and/or authorities as the case may be.

Please reference this proposal number on the purchase order.

Completion: 10 - 14 weeks from receipt of firm purchase order, receipt of down payment and approval of submittal(s) (one time shipment only).

Submittals: 20 working days from receipt of purchase order with complete project information supplied by Purchaser/Customer.

Clarifications, Exceptions & Recommendations:

Any system integration, ancillary equipment, services, access platforms, stairs and/or handrails, etc. not listed in this Scope of Supply shall not be part of this proposal and shall be provided by others if required.

Any presses, conveyors, equipment, etc. made with any steel that may have increases in price, a surcharge may be added to the price listed in this proposal to cover these price increases.

All equipment offloading, site storage, installation and interconnecting wiring and piping between all equipment listed and other ancillary equipment or sources shall be by others as selected or retained by the Purchaser/Customer. Any and all required chemistry (pretreatments/polymers, etc.), testing fees, etc. not listed as included in the Prime Solution, Inc. Equipment Scope of Supply shall be provided and/or paid for by others. The original Purchaser understands and agrees that the type of sludge, pretreatment process, pretreatment chemistry, polymer selection, feed solids, volatile solids, sludge age, any/all changes (temperature, pH, etc.) to the sludge/slurry characteristic(s) not clearly defined in any written documentation will affect the sludge's/slurry's ability to be dewatered and performance/capacity of the equipment. The original Purchaser shall be responsible to provide all suitable pretreatment chemistry for obtaining a suitable and stable flocculated sludge/slurry for mechanical dewatering to achieve any performance requirements. Prime Solution, Inc. can only estimate production performance based upon information supplied by the Purchaser and does not take any responsibility for final equipment performance. Any changes and/or omissions in any way to the type of sludge/slurry listed in any specifications that affects dewaterability of the sludge/slurry shall release Prime Solution, Inc. of any/all responsibility.

Prime Solution, Inc. is furnishing the dewatering equipment as listed in the Scope of Supply only and is only subject to the Limited Workmanship Warranty terms. All equipment, material and components manufactured by others used in the design of the dewatering system shall have the same warranty afforded to Prime Solution, Inc. and is subject to and stipulated by the respective manufacturer's

PRIME SOLUTION

PROPOSAL
#P-191010JD1
Date: October 10, 2019

warranty provided that the required maintenance has been performed. Prime Solution, Inc. does not provide any guarantee or warranty of the process, chemistry or other parts and products purchased/supplied by others whatsoever, whether expressed, implied or statutory, including but not limited to, any warranty of merchantability or fitness for a particular purpose or any warranty that the contents of those parts and products will be suitable and error free. Any damages to the Prime Solution, Inc. equipment caused by parts, products or services provided by others will not be covered by the Limited Workmanship Warranty.

In no respect shall Prime Solution, Inc. incur any liability for any damages, direct, indirect, special, or consequential arising out of, resulting from, or any way connected to the use of those parts or products provided by others, whether or not based upon warranty, contract, tort, or otherwise; whether or not injury was sustained by persons or property or otherwise; and whether or not loss was sustained from, or arose out of, the results of parts and products or any services provided by others.

If there are any delays in shipment by the Purchaser, the Purchaser agrees to pay storage charges equal to 0.5% of the total project order per month the order is held by Prime Solution, Inc. for shipment along with full payment is due with terms in this proposal using the completion date as the ship date for payment purposes.

Should any additional service trips, equipment, supplies and/or labor be required by Prime Solution, Inc. to assist the Purchaser/Customer beyond what is listed in this Scope of Supply, these charges shall be in addition to the price listed in this Scope of Supply. On-site service after installation and start-up will be subject to additional charges and is not included in the Limited Workmanship Warranty.

Terms: (10%) due upon approved submittals, (80%) due net 30 days from shipment date, balance (10%) due net 30 days after approved start-up not to exceed 60 days from shipment.

Terms listed in this proposal only apply with approved credit application.
Terms different than those stated above must be approved in writing prior to submission of submittals.

Payment terms may not be changed without the written authorization of Prime Solution, Inc. Any shipments delayed by Purchaser/Customer, Prime Solution, Inc. reserves the right to invoice and when full payment is received, pass title to the Purchaser/Customer; Purchaser/Customer agrees to remit the amount due at the times stated, as if equipment had shipped. Any and all costs of storage shall be at the Purchaser's/Customer's expense.

Unauthorized retention of payment by Purchaser/Customer for any reason shall be subjected to a service charge of 2% compounded per month and any collection expenses will be added to total amount due by the Purchaser/Customer.

All orders shall be considered final and the Purchaser/Customer shall be responsible for payments as listed above. Should the Purchaser/Customer wish to cancel this order at any time, the Purchaser/Customer shall be responsible to reimburse/pay Prime Solution, Inc. within fifteen (15) days of the cancellation notice for all costs Prime Solution, Inc. has associated with this order. The Purchaser/Customer also recognizes that ownership for this order does not pass to the Purchaser/Customer until payment in full is received by Prime Solution, Inc. Prime Solution, Inc. reserves the right to take back the possession of any/all items delivered to the Purchaser/Customer that full and final payment is not received within thirty (30) days of the terms as outlined above. Any and all costs, including but not limited to actual attorney fees associated with the recovery of items and for non-payment, or to obtain payment, shall be the responsibility of the Purchaser/Customer.

This Proposal is the complete agreement between Prime Solution, Inc. and the Purchaser/Customer, and supersedes any prior discussions, negotiations, representations or understanding of the parties. No other agreements, representations, or understandings not specifically contained herein shall be binding upon the Parties to this Proposal.

All material is guaranteed to be as specified in this Scope of Supply. All work is to be completed in a professional manner according to standard practices. Any alteration or deviation from the above specifications which involve extra costs will be made only upon receipt of an authorized written change order and will be shown on subsequent invoices as amounts over above the original estimate.

PRIME SOLUTION

PROPOSAL #P-191010JD1 Date: October 10, 2019

It is understood that Prime Solution, Inc. will not be penalized for delays caused by change orders, strikes, accidents, war or rebellion, acts of terrorism or delays caused by acts of nature. Our workers are covered by Worker's Compensation Insurance.

Purchaser/Customer agrees to furnish all other appropriate and necessary insurance's coverage's. It is the intent of the Parties that this proposal be non-modifiable unless such modification or variation is agreed to in writing. Given this specific intent, this Proposal may not be varied or modified in any manner whatsoever, except in subsequent writing that is executed and signed by an authorized representative of both Parties.

Any controversy or claim between or among the Parties, including but not limited to those arising out of or relating to this Agreement, including any claim based on or arising from an alleged tort, shall be determined by and through binding arbitration. The arbitration shall be commenced and conducted in accordance with the Commercial Arbitration Rules of the American Arbitration Association. The arbitration shall be conducted before one (1) arbitrator selected either by the parties, or, if the Parties cannot agree, by an arbitrator selected by the American Arbitration Association. This Proposal shall be governed and controlled in all respects by the laws of the State of Michigan, USA, and any arbitration shall resort only to the laws of the State of Michigan, USA. The Arbitrator shall give effect to statutes of limitation in determining any claim. Any controversy concerning whether an issue is subject to arbitration will be determined by the arbitrator. The arbitration shall be conducted in the County of Allegan, State of Michigan, USA. Any arbitration award may be entered in any Court having jurisdiction. Jurisdiction and venue of any proceeding to enter the arbitration award or to otherwise enforce the arbitration award shall lie in Allegan County, Michigan, USA, and shall be binding on the Purchaser/Customer no matter the location of the Purchaser/Customer. Receipt of a purchase order relating in any way to this Proposal from the Purchaser/Customer is deemed the same as signing this Acceptance of Proposal, agreeing to all terms and limitations included herein.

NOTE: This Proposal Is Valid For Sixty (60) Days. Pricing is valid for delivery of equipment on site for 1 year.

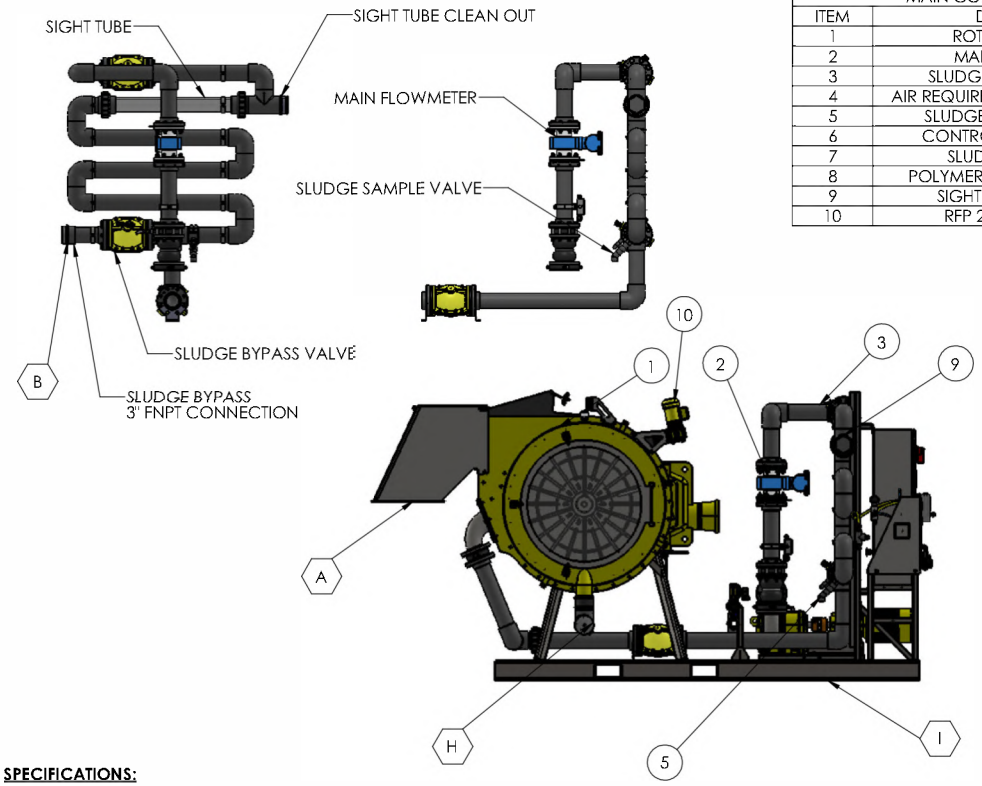
Acceptance Of Proposal: - The above prices, specifications and conditions are satisfactory and are accepted. You are authorized to do the work as specified and payments will be made as outlined above.

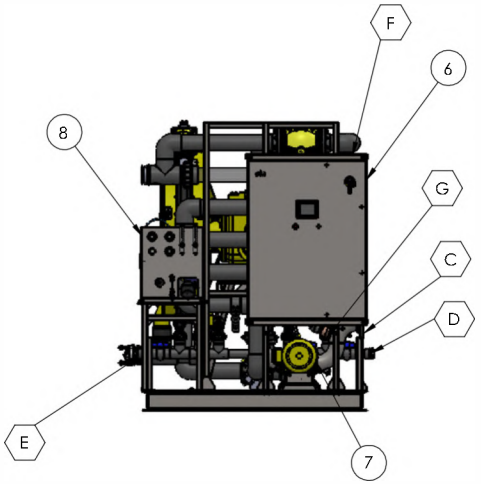
Signature: _____ Date of Acceptance: _____

Print: _____ Title: _____

Regards,

Mr. Joe Dendel
Regional Sales Manager
PH: (616) 540-0500
Joe@psirotary.com





MAIN COMPONENTS	
ITEM	DESCRIPTION
1	ROTARY FAN PRESS
2	MAIN FLOW METER
3	SLUDGE RETENTION ASSY.
4	AIR REQUIREMENT 4DFM @ 80 PSIG
5	SLUDGE SAMPLING VALVE
6	CONTROL PANEL NEMA 4X
7	SLUDGE PUMP ASSY.
8	POLYMER FEED/BLEND SYSTEM
9	SIGHT TUBE CLEAN OUT
10	RFP 2.0 SCREW DRIVE

CONNECTIONS	
ITEM	DESCRIPTION
A	CAKE DISCHARGE CHUTE
B	SLUDGE BYPASS 4" FNPT
C	SLUDGE INLET 4" #150 FLANGE
D	REUSE WATER 2"FNPT
E	FRESH WATER 2" FNPT
F	RFP MAIN POWER SUPPLY
G	POLYMER FEED TUBE
H	FILTRATE DISCHARGE 4" FNPT
I	PRESS SKID

SPECIFICATIONS:

SUPPLY VOLTAGE: 480VAC, 3Ph, 60Hz, 27.79 FULL LOAD AMPS

SUPPLY WATER: PRIME BLEND POLYMER SYSTEM
10 GPM AVG. @ 45 PSI MIN. (RECOMMEND FRESH WATER)

INTERMITTENT: 20 GPM INTERMITTENT (DOES NOT INCLUDE FLUSH VALVE)

CONNECTIONS: SLUDGE FEED 4" 150# FLANGE SLUDGE BYPASS 4" FNPT
FILTRATE DISCHARGE 4" FNPT SUPPLY WATER 2" FNPT

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES
FRACTIONAL ±1/16
ANGULAR MACH ± 5° BEND ±1°
TWO PLACE DECIMAL ± 01
THREE PLACE DECIMAL ± 005
FINISH

DRAWN BY	SJM
DATE	8/5/2019
MATERIAL	SEE DETAILS

PRIME SOLUTION
610 S PLATT ST , OTSEGO, MI 49078
T:(269) 694-6666 F:(269) 694-1298

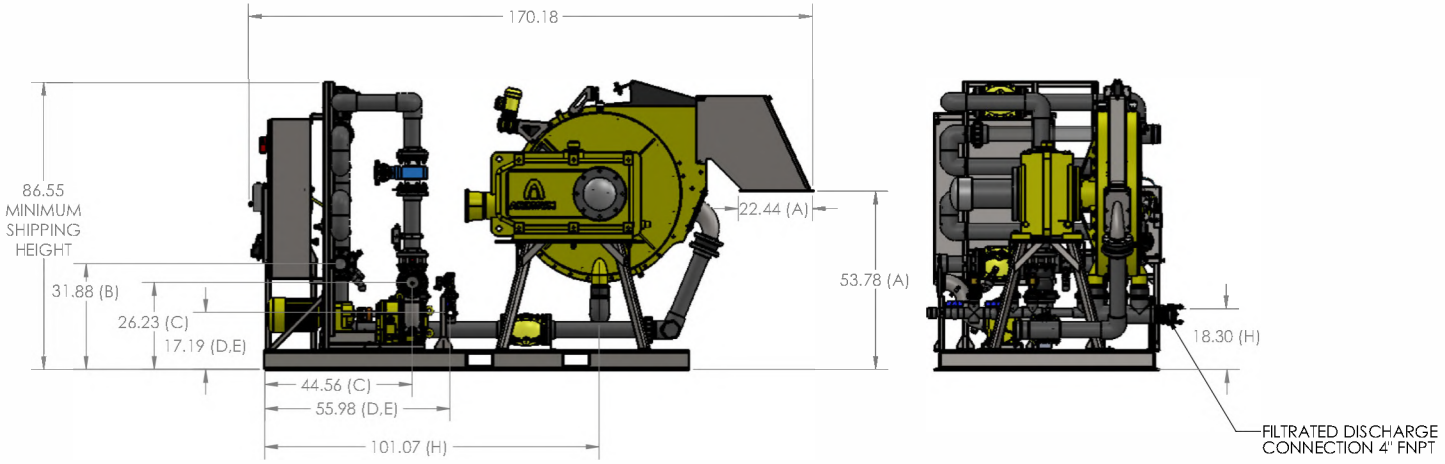
TITLE: 48S, BF, RFP2.0, SKID ASSEMBLY

PART NO: RFP2.0-48S-BF-SKE REV -

WEIGHT: 4509.41lbs SCALE: 1:30 SIZE B SHEET: SHEET 1 OF 3

MAIN COMPONENTS	
ITEM	DESCRIPTION
1	ROTARY FAN PRESS
2	MAIN FLOW METER
3	SLUDGE RETENTION ASSY.
4	AIR REQUIREMENT 4DFM @ 80 PSIG
5	SLUDGE SAMPLING VALVE
6	CONTROL PANEL NEMA 4X
7	SLUDGE PUMP ASSY.
8	POLYMER FEED/BLEND SYSTEM
9	SIGHT TUBE CLEAN OUT
10	RFP 2.0 SCREW DRIVE

CONNECTIONS	
ITEM	DESCRIPTION
A	CAKE DISCHARGE CHUTE
B	SLUDGE BYPASS 4" FNPT
C	SLUDGE INLET 4" #150 FLANGE
D	REUSE WATER 2"FNPT
E	FRESH WATER 2" FNPT
F	RFP MAIN POWER SUPPLY
G	POLYMER FEED TUBE
H	FILTRATE DISCHARGE 4" FNPT
I	PRESS SKID



SPECIFICATIONS:

SUPPLY VOLTAGE: 480VAC, 3Ph, 60Hz, 27.79 FULL LOAD AMPS

SUPPLY WATER: PRIME BLEND POLYMER SYSTEM
10 GPM AVG. @ 45 PSI MIN. (RECOMMEND FRESH WATER)

INTERMITTENT: 20 GPM INTERMITTENT (DOES NOT INCLUDE FLUSH VALVE)

CONNECTIONS: SLUDGE FEED 4" 150# FLANGE SLUDGE BYPASS 4" FNPT
FILTRATE DISCHARGE 4" FNPT SUPPLY WATER 2" FNPT

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES
FRACTIONAL ±1/16
ANGULAR MACH ± 5° BEND ±1°
TWO PLACE DECIMAL ± 01
THREE PLACE DECIMAL ± 005
FINISH

DRAWN BY	SJM
DATE	8/5/2019
MATERIAL	SEE DETAILS

PRIME SOLUTION
610 S PLATT ST , OTSEGO, MI 49078
T:(269) 694-6666 F:(269) 694-1298

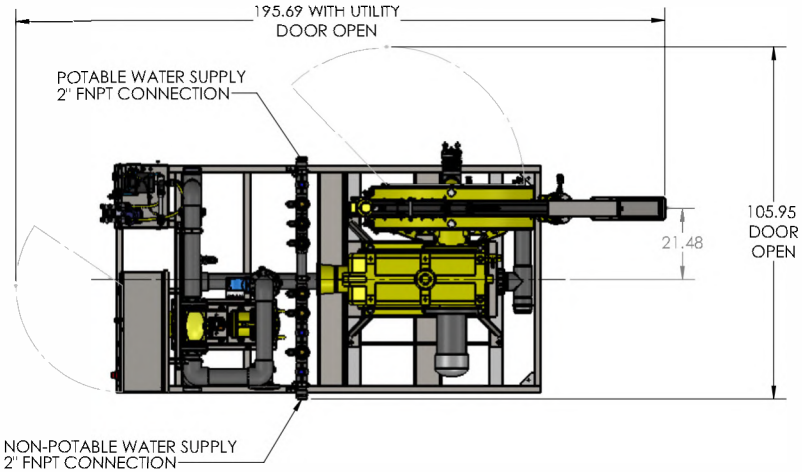
TITLE: 48S, BF, RFP2.0, SKID ASSEMBLY

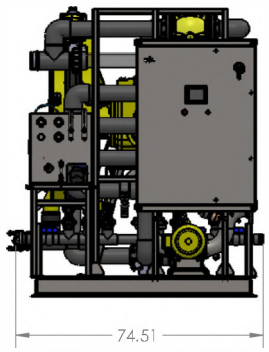
PART NO: RFP2.0-48S-BF-SKE REV -

WEIGHT: 4509.41lbs SCALE: 1:30 SIZE B SHEET: SHEET 2 OF 3

MAIN COMPONENTS	
ITEM	DESCRIPTION
1	ROTARY FAN PRESS
2	MAIN FLOW METER
3	SLUDGE RETENTION ASSY.
4	AIR REQUIREMENT 4DFM @ 80 PSIG
5	SLUDGE SAMPLING VALVE
6	CONTROL PANEL NEMA 4X
7	SLUDGE PUMP ASSY.
8	POLYMER FEED/BLEND SYSTEM
9	SIGHT TUBE CLEAN OUT
10	RFP 2.0 SCREW DRIVE

CONNECTIONS	
ITEM	DESCRIPTION
A	CAKE DISCHARGE CHUTE
B	SLUDGE BYPASS 4" FNPT
C	SLUDGE INLET 4" #150 FLANGE
D	REUSE WATER 2"FNPT
E	FRESH WATER 2" FNPT
F	RFP MAIN POWER SUPPLY
G	POLYMER FEED TUBE
H	FILTRATE DISCHARGE 4" FNPT
I	PRESS SKID





SPECIFICATIONS:

SUPPLY VOLTAGE: 480VAC, 3Ph, 60Hz, 20.12 FULL LOAD AMPS (9.7 KW)

SUPPLY WATER: PRIME BLEND POLYMER SYSTEM
4 - 8 GPM AVG. @ 45 PSI MIN. (RECOMMEND FRESH WATER)

INTERMITTENT: INNER & OUTERWASH 80 GPH @ 45 PSI MIN. PER CHANNEL
(FILTRATE REUSE WATER ACCEPTABLE)

CONNECTIONS: SLUDGE FEED 4" 150# FLANGE SLUDGE BYPASS 4" FNPT
FILTRATE DISCHARGE 4" FNPT SUPPLY WATER 2" FNPT

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES
TOLERANCES
FRACTIONAL ±1/16
ANGULAR MACH ± 5° BEND ±1°
TWO PLACE DECIMAL ± 01
THREE PLACE DECIMAL ± 005
FINISH

DRAWN BY: SJM
DATE: 8/5/2019
MATERIAL: SEE DETAILS

PRIME SOLUTION
610 S PLATT ST , OTSEGO, MI 49078
T:(269) 694-6666 F:(269) 694-1298

TITLE: 48S, BF, RFP2.0, SKID ASSEMBLY

PART NO: RFP2.0-48S-BF-SKE
REV: -

WEIGHT: 4509.41lbs SCALE: 1:30 SIZE: B SHEET: SHEET 3 OF 3

LIFE CYCLE COST

EQUIPMENT

Model No.:	RFP2.0-48S
Dewatering Channel:	1
Screen Diameter:	48"
System Dimensions:	150" L x 76" W x 94" H
System Weight:	8,500 Lbs. (approximate)
Rotary Fan Press Drive:	5 HP / 3.7 kW / 6.50 FLA @ 480/3/60
2.0 Mixing Element Drive:	0.25 HP / 0.18 kW / 0.56 FLA @ 480/3/60

OPERATION

Operator Start-Up/Shutdown:	0.5 Hours Total
Yearly Routine General Maintenance:	5 Hours Total
Pneumatic Retention Gates:	.3 CFM @ 60 psi
Standard Wash Water Intermittent Requirements:	Outer Wash: 14 GPM & Inner Wash: 20 GPM - Wash Water Intermittent Requirements are set and controlled by Operator / Facility once Press is installed. Re-Use water that is Filtered to 200 microns or less may be used.

PARTS & SERVICE

Scraper Caps	Service Life:	5,000 – 10,000 Hours
	Current Cost:	$250.00
	Lead Time:	1 Week
	Labor Hours:	1 – 2 hours
Gearbox Oil Change	Service Life:	10,000 Hours or 2 Years
	Current Cost:	Market Price
	Lead Time:	>1 Week
	Labor Hours:	1 – 2 Hours
Parts & Service Location		Prime Solution, Inc. 610 S. Platt Street Otsego, MI 49078 Ph: (269) 694-6666

*The Parts/Pricing Listed Above Covers The One (1) Dewatering Channel of The RFP2.0-48S.

*Service life hours are estimates only as many factors will influence the wear/life of the parts listed above (type of sludge, process variations, feed solids concentration, temperature, chemical selection, desired results, etc.) and in no way is the listed information a guarantee of performance. Pricing is subject to change without notice, please contact Prime Solution for the most current pricing.

HUBER TECHNOLOGY
WASTE WATER Solutions

Budgetary Proposal

Huber Technology, Inc.
9735 Northcross Center Court
Suite A
Huntersville, NC 28078
Office 704-949-1010
Fax 704-949-1020

Project: Mid-County, Pinellas, FL
Equipment: Q-Press 620.2
Proposal Date: October 15, 2019
Revision: 0

Scope of Supply

Q-Press Design Information

	Q-Press Technical Data	
Sludge Type	Waste Activated Sludge	
Design Feed Rate	65	*gpm*
Inlet Sludge Concentration	1.0	% TS
Design Hydraulic Loading (per unit)	65	*gpm*
Maximum Hydraulic Loading (per unit)	66 at 1.0%	*gpm*
Alternate Hydraulic Loading (per unit)	66 at 1.0%	*gpm*
Estimated Thickened Sludge Solids	16-21	*% DS*
Estimated Capture Rate	95.0	*%*
Estimated Polymer Consumption	25-35	*lb/DT*
Spray Water Requirement	61.9	*gph*
Spray Water Pressure	72.5	*psi*
Spray Water Connection	1.25	*inch*
Sludge Inlet Diameter	4	*inch*
Filtrate Discharge Diameter	6	*inch*
Approximate Empty Weight	5,950	*lbs*
Approximate Loaded Weight	7,280	*lbs*

NOTE: All performance given is an estimate based on typical Q-Press performance. Bench and pilot testing are required for performance guarantee.

Q-Press Details

Model	***Q-Press 620.2***
Quantity	1
Frame Material	316L stainless steel construction; picked and passivated in acid bath
Basket Material	wire mesh; 316L stainless steel
Auger Inclination	12.5°
Supports	316L stainless steel
Wiper Material	Wear resistant polyurethane
Anchor Bolts	M12, 316L stainless steel
Motor Data	3 HP, 480 VAC, 3ph, 60 Hz, S.F. 1.15 | spraywash drive 0.25 hp, 480 VAC, 3ph, 60 Hz
Polymer Feed	Polymer injection ring and mixing valve (upstream of flocculation reactor
Feed Flow	Thin sludge feed flow meter
Control Panel(s)	NEMA 4X stainless steel enclosure, Allen Bradley MicroLogixPLC
	Allen Bradley PanelView 7" OIT
	Preprogrammed and factory tested

Pricing

EQUIPMENT	MODEL	QUANTITY	PRICE
Q-Press	Q-Press 620.2	1	Included
Q-Press Control Panel	--	1	Included
Standard Manufacturer's Services & Freight		6 days, 2 trips	Included
TOTAL:			**$315,000.00**

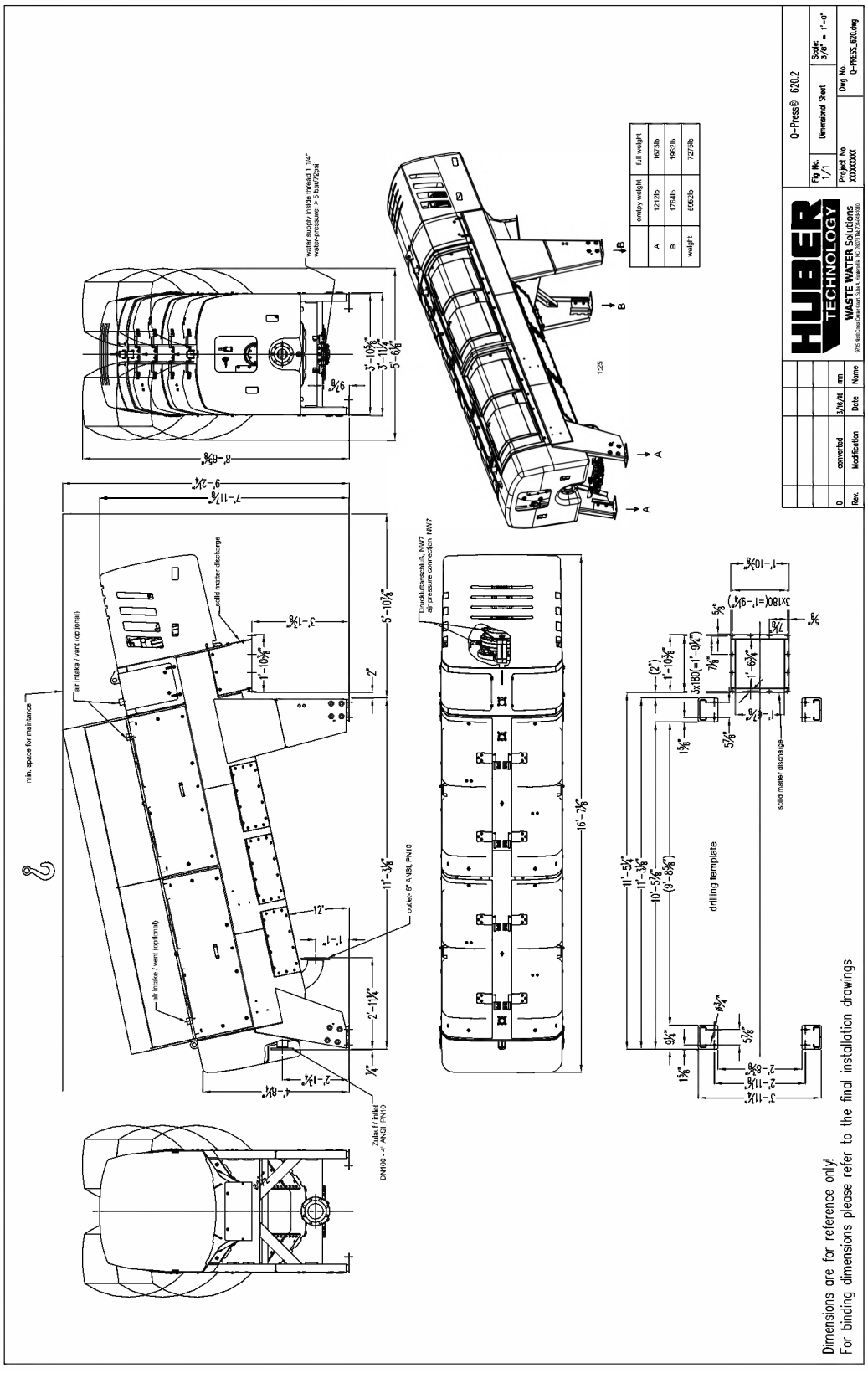
Thank you for your interest in Huber Technology, Inc.'s Q-Press Sludge Dewatering unit. If you have any questions, please do not hesitate to contact our Regional Sales Director or our local sales representative.

Huber Sales
Name: Brian Baker
Title: Regional Sales Director - East
Phone: 704-840-3085
Email: Brian.Baker@hhusa.net

Representative
Firm: Moss Kelley
Name: Cameron Young
Phone: (407) 805-0063
Email: cjy@mosskelley.com

Technical Clarifications

1. Equipment specification is available upon request.
2. If there are site-specific hydraulic constraints that must be applied, please consult the manufacturer's representative to ensure compatibility with the proposed system.
3. Electrical disconnects required per local NEC code are not included in this proposal.
4. Huber Technology warrants all components of the system against faulty workmanship and materials for a period of 12 months from date of start-up or 18 months after shipment whichever occurs first.
5. Budget estimate is based on Huber Technology's standard equipment and is quoted in US$ unless otherwise stated.
6. Huber has estimated the Control Panel cost based Huber's standard control panel configuration. Huber reserves the right to change the scope, price, and delivery times at time of bid based on the final plans and specifications.
7. Any item not specifically listed above is not considered part of this scope of supply. Please contact the Huber Technology representative listed above for further clarification.


Q-Press® 620.2
HUBER TECHNOLOGY
WASTE WATER Solutions
Fig No. 1/1
Dimensional Sheet
Scale: 3/8" = 1'-0"
Project No. XXXXXXXXX
Dwg No. Q-PRESS_620.dwg
Dimensions are for reference only!
For binding dimensions please refer to the final installation drawings
min. space for maintance
air intake / vent (optional)
solid matter discharge
outlet: 6" ANSI, PN10
Zuluft / Inlet DN100 - 4" ANSI PN10
Druckluftanschluß, NW7
air pressure connection NW7
water supply / inlet thread 1 1/4"
water-pressure: > 5 bar/72psi
drilling template
empty weight
full weight
A
B
weight:

September 20, 2019

To: Kimley Horn Engineering.

Alfa Laval, Inc.
10470 Deer Trail Drive
Houston, TX 77038
USA
Tel: +1 800-362-9041
Fax: +1 281-449-1324

Subject: BFP for Mid County
Budget Proposal: Belt Filter Press Skid Dewatering System

On behalf of Alfa Laval, Inc. and MTS, we thank you for the opportunity to offer this budget proposal for your consideration.

One (1) Alfa Laval AS-H Belt Press G3 100 (Klampress®) Dewatering System Skid

Each Dewatering System contains the following components:

One (1) Alfa Laval AS-H Belt Press G3 100 (Klampress®), 1.0 meter Belt Filter Press (BFP) complete with hydraulic system for belt tensioning and steering. All components will be fabricated of the finest in corrosion resistant materials: the frame will be carbon steel, hot dipped galvanized, chicane rods and holders shall be carbon steel galvanized, and all sheet metal components will be Type 316L stainless steel..

One (1) Main Control Panel, will be powered from a 480 VAC power source, supplied by others. IEC style motor starters will be supplied for the hydraulic pump, conveyor, and washwater pump, with Allen Bradley PowerFlex style VFDs for the belt drive and sludge pump. 120 VAC power for the polymer system will be provided. All other starters / controllers will be supplied by others.

The BFP Control Panel will be a NEMA 4X Stainless Steel air conditioned enclosure. The controls for the BFP and ancillary equipment will be manually controlled. START/STOP pushbuttons with RUNNING status lights will be provided for control of the washwater pump/valve, hydraulic pump, belt drive, conveyor, sludge pump, and polymer pump.

Speed control and speed/flow indication will be provided for the belt drive, polymer pump, and sludge pump.

Operator interface will be accomplished using Allen Bradley, Type 800H pilot devices. All logic will be performed via relays and timers, with NO network communication capabilities.

One (1) Non-clog, variable orifice mixer, complete with injection manifold system and a four port vortex

polymer injection ring. The mixer shall be constructed of aluminum.

One (1) Polymer System, which shall be a liquid emulsion polymer system. The system includes the mixing system, metering pump, check valve, rotameter, and pressure gauges which will be mounted on a 304 stainless steel frame.

One (1) Wash Water Pump, which shall be a vertical in-line centrifugal pump. The pump shall be capable of increasing the wash water pressure by 90 psi differential.

One (1) Sludge Feed Pump, which will be a progressive feed pump. The pump shall be capable of pumping 25-125 gpm.

One (1) Lot Interconnecting piping and wiring, all components mounted on the skid will be completely wired and piped.

One (1) Equipment Skid, all components listed above will be mounted on the skid. The skid will be carbon steel, hot dipped galvanized.

(1) Lot Field service, one service technician shall be supplied as follows:
Up to One Trip and Five Days for start-up and training.

(1) Lot Freight, FOB, Houston, TX, INCOTERMS 2010.

Also included in the pricing:
- Operation and Maintenance Manuals
- Submittals with drawings

Not included in pricing are the following:
- Interconnecting piping and wiring between Alfa Laval ASH equipment and other ancillary equipment
- Equipment installation
- Polymer and Lab services for the performance test and start up (unless noted otherwise)
- Local motor disconnect devices and / or local motor lockouts.
- Offloading at jobsite
- Storage and Handling charges

BUDGET PRICE FOR ONE (1) ALFA LAVAL AS-H Belt Press (Klampress®) Dewatering System Skid:
$ 325,000.00

WASH WATER REQUIREMENTS:
- 40 GPM at minimum of 85 PSI at the BFP
- 2-20 GPM (Polymer Feed System)

POWER REQUIREMENTS:

Budget Proposal: Belt Filter Press Skid Dewatering System
September 20, 2019

- 1.5 HP BELT DRIVE UNIT, 1 HP HYDRAULIC UNIT
- 7.5 HP SLUDGE FEED PUMP
- 5 HP WASHWATER PUMP

NOTES OF CLARIFICATION:

1. Warranty covers defects in materials and workmanship for twelve (12) months after startup or beneficial use or eighteen (18) months after shipment whichever comes sooner. Alfa Laval reserves the right to review operating and maintenance records to ensure compliance.

2. Any additional service time resulting from non-warranty delays will be charged in accordance with the field service rate schedule in effect at the time of service.

3. The process performance (cake solids, capture, hydraulic throughput, etc.) achieved by the belt filter press can be guaranteed after confirmation of the quality of the feed sludge through the analysis of a representative sample.

4. Installing contractor is responsible for maintaining all relevant electrical codes.

5. Anything not explicitly stated in this proposal is not included.

6. This is a budgetary quotation and it should not be considered binding.

If you have any questions or require any additional information, please contact me at 713-906-0505.

Sincerely,

Mark Schlitzkus
Regional Manager

CC: Bob Bierhorst, MTS Environmental

Budget Proposal: Belt Filter Press Skid Dewatering System
September 20, 2019

TERMS AND CONDITIONS OF SALE

These Terms and Conditions of Sale ("Terms and Conditions") apply to all quotations, orders, and contracts for Alfa Laval Inc. products (hereafter "Equipment") and associated services ("Services") As used in these Terms and Conditions, the word "Equipment" includes all hardware, parts, components, software and options.

1. **ACCEPTANCE**: Our sale to you is limited to and expressly made conditional on your assent to these Terms and Conditions and, if applicable, on the attendant quotation, both of which form a part of the contract between us and which supersede and reject all prior agreements, representations, discussions or negotiations, whether written or oral, with respect to this sale and any conflicting terms and conditions of yours, whether or not signed by you. Any terms and conditions contained in your purchase order or request for quotation or other form which are different from, in addition to, or vary from these Terms and Conditions are expressly rejected, shall not be binding upon us, and are void and of no force or effect. These Terms and Conditions may not be changed except by the written agreement of both parties.

2. **PRICES**: Unless otherwise specified in writing, all quoted prices are in U.S. Dollars and are firm for thirty (30) days from the date of offer. Prices quoted are exclusive of taxes, freight and insurance, and you agree to pay any and all sales, revenue, excise or other taxes (exclusive of taxes based on our net income) applicable to the purchase of Equipment. If you claim an exemption from any such taxes you shall provide us with a tax exemption certificate acceptable to the taxing authorities.

3. **DELIVERY**: Dates for the furnishing of Services and/or delivery or shipment of Equipment are approximate only and are subject to change. Quoted lead times are figured from the date of receipt of complete technical data and approved drawings as such may be necessary. We shall not be liable, directly or indirectly, for any delay in or failure to deliver caused by carriers or delays from labor difficulties, shortages, strikes or stoppages of any sort, failure or delay in obtaining materials from ordinary sources, fires, floods, storms, accidents, or other acts of God or *force majeure,* by any statute, regulation, administrative order or decree or order or judgment of a court of law or other causes beyond our reasonable control. Unless otherwise specifically agreed in writing by us, in no event shall we be liable for any damages or penalties whatsoever, or however designated, resulting from our failure to perform or delay in performing due to any of the causes specified in this paragraph 3.

4. **SHIPMENT, RISK OF LOSS, TITLE**: All sales are made F.O.B. Alfa Laval shipping point, unless otherwise noted. Duty, brokerage fees, insurance, packing and handling as applicable are not included unless otherwise noted. Our liability for delivery ceases upon making delivery of Equipment to the carrier at the shipping point in good condition. The carrier shall be your agent. Risk of loss shall pass to you upon such delivery. Regardless of the delivery term specified, we shall retain title to the Equipment until final payment thereof has been made.

5. **CREDIT AND PAYMENT**: Payment terms are (30) days net, unless agreed otherwise by us in writing. *Pro rata* payments shall become due with partial shipments. Any discount period which may be granted by us begins on the invoice date and all payments are due 30 days after the invoice date. All payments shall be made without deduction, deferment, set-off, lien or counterclaim of any nature. All amounts due not paid

within 30 days after the date such amounts are due and payable shall bear interest at the lesser of 1.5 percent per month or the maximum rate of interest allowed by law. We reserve the right at any time to suspend credit or to change credit terms provided herein, when, in our sole opinion, your financial condition so warrants. Failure to pay invoices when such invoices are due and payable, at our election, shall make all subsequent invoices immediately due and payable irrespective of terms, and we may withhold all subsequent deliveries until the full account is settled. We shall not, in such event, be liable for delay of performance or nonperformance of contract in whole or in part subsequent to such event.

6. **SECURITY AGREEMENT:** You hereby grant us a security interest in the Equipment, including a purchase money security interest, and in such materials, proceeds and accessories thereof, to secure payment of the purchase price of the Equipment. You authorize us to file or record a purchase order or copy thereof or any UCC financing statement showing our interest in the Equipment in all jurisdictions where we may determine filing to be appropriate, and you agree to sign all such documents reasonably related thereto promptly following our request. You will not encumber the Equipment with any mortgage, lien, pledge or other attachment prior to payment in full of the price therefor.

7. **CANCELLATIONS AND CHANGES**: Orders which have been accepted by us are not subject to cancellation or changes in specification except upon prior written agreement by us and upon terms that will indemnify us against all losses resulting from or arising out of such cancellation or change in specifications. In the absence of such indemnification, we shall be entitled to recover all damages and costs of whatever nature permitted by the Uniform Commercial Code.

8. **DEFERRED SHIPMENT**: If shipment is deferred at your request, payment of the contract price shall become due when you are notified that the Equipment is ready for shipment. If you fail to make payment or furnish shipping instructions we may either extend the time for so doing or cancel the contract. In case of deferred shipment at your request, storage and other reasonable expenses attributable to such delay shall be payable by you.

9. **EQUIPMENT WARRANTY AND REMEDY**:

(a) For new Equipment only, we warrant to you that the Equipment that is the subject of this sale is free from defects in design (provided that we have design responsibility), material and workmanship. The duration of this warranty is twelve (12) months from start-up or eighteen (18) months from delivery to you, whichever occurs first (the "Warranty Period"). If you discover within the Warranty Period a defect in design, material or workmanship, you must promptly notify us in writing. Within a reasonable time after such notification, we shall repair, replace, or, at our option, refund you the price of the defective Equipment or part thereof.

(b) For repairs, parts and Services provided by us, we warrant to you that the repairs, parts and Services we provide to you will be free from defects in material and workmanship. The duration of this warranty is ninety (90) days from as applicable (i) the date the Equipment which required the repairs, parts or Services is returned to you by us, (ii) the date of your receipt of the part, or (iii) the date of completion of the repair or other Services, if performed at your facility. If during this ninety day period you discover a defect in the repairs, parts or Services you must promptly notify us in writing and we shall correct such defect with either new or used replacement parts or reperform the Services as applicable. If we are unable to correct the

defect after a reasonable number of attempts, we will provide a refund of the price paid for the defective repair, parts or Services.

(c) All warranty service is subject to our prior examination and approval and will be performed by us at your facility or at service centers designated by us. All transportation to and from the designated service center will be at our expense. The remedies set forth above are your exclusive remedies for breach of warranty. Unless otherwise agreed in writing by us, our warranty extends only to you and is not assignable to or assumable by any subsequent purchaser, in whole or in part, and any such attempted transfer shall render all warranties provided hereunder null and void and of no further force or effect.

(d) The warranties set forth above are inapplicable to and exclude any product, components or parts not manufactured by us or covered by the warranty of another manufacturer. We shall have no responsibility for defects, loss or damage to the extent caused by (i) normal wear and tear, (ii) your failure to follow all installation and operation instructions or manuals or to provide normal maintenance, (iii) repairs or modifications by you or by others not under our direct supevision, or (iv) a product or component part which we did not design, manufacture, supply or repair.

(e) **DISCLAIMER OF IMPLIED WARRANTIES**. THE WARRANTIES SET FORTH ABOVE AND IN SECTION 12 BELOW ARE IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

10. **LIMITATION OF LIABILITY**: In no event shall we be liable, and you hereby waive any claims against us and release us from liability to you, for any indirect, special, punitive, incidental, or consequential damages whatsoever based upon breach of warranty, breach of contract, negligence, strict tort, or any other legal theory. In no circumstance, shall we be liable for, however such damages are characterized, loss of profits, loss of savings or revenue, loss of use of the Equipment or any associated equipment, cost of capital, cost of any substitute Equipment, facilities or services, downtime, or loss of prospective economic advanrtage. OUR AGGREGATE LIABILITY FOR FAILURE TO PERFORM, BREACH OF WARRANTY OR BREACH OF OTHER CONTRACTUAL OBLIGATIONS SHALL NOT EXCEED THE TOTAL PRICE PAID TO US FOR THE EQUIPMENT AND SERVICES THAT ARE THE SUBJECT OF ANY CLAIM BY YOU.

11. **OWNERSHIP:** All drawings, designs, specifications, data and other proprietary rights supplied by us (including without limitation in connection with the Equipment) have been prepared or assembled by us and are (and shall remain) exclusivelyour property, and upon our request you agree to execute any additional documents needed to give effect to the foregoing. Such drawings, designs and specifications have been furnished in order to provide full documentation and on the condition that they shall not be disclosed, reproduced or copied in any manner whatsoever, in whole or in part, except for your internal use as necessary, and upon the further condition that, as our sole property, they shall not be used for furnishing information and/or disclosed, in whole or in part, to others or otherwise for any purpose not specifically authorized in a writing signed by one of our corporate officers.

12. **PATENT INFRINGEMENT**

(a) We make no express or implied warranties of non-infringement with respect to the Equipment. We will, however, defend, indemnify and hold you harmless from any third party apparatus

claims based upon an issued U.S. patent to the extent such claim relates to the Equipment supplied and sold to you; provided, however, that we undertake no indemnification in respect of third-party rights (i) where the alleged patent infringement is based upon or related to any method, process or design claims in third-party U.S. patents, any combination of the Equipment with other equipment not supplied by us, or any modifications of the Equipment made by you and not approved by us, or (ii) to the extent the alleged infringement is directly attributable to the negligence or intentional misconduct of you or otherwise for which you are obligated to indemnify us for under paragraph 12(c).

(b) We shall assume defense of a claim at our expense in accordance with these Terms and Conditions, provided you shall notify us within 30 days of your receipt of notice of an alleged third-party claim that you believe would entitle you to patent infringement indemnification pursuant to paragraph 12(a). You acknowledge and agree that we shall have the sole right to settle or otherwise compromise such a third-party claim, including but not limited to the right to either (i) modify the Equipment to avoid infringement if you are agreeable to the modification, (ii) repurchase the Equipment from you at a price equal to the then-current fair market value of the Equipment, or (iii) secure rights by assignment or license to permit continued use of the Equipment.

(c) If a third party charges us with patent infringement relating to Equipment sold by us to you, we shall have the right to either (i) modify the Equipment to avoid infringement if you are agreeable to the modification, (ii) repurchase the Equipment from you at a price equal to the then-current fair market value of the Equipment, or (iii) secure rights by assignment or license to permit continued use of the Equipment. If a third party charges us with patent infringement on the bases set forth in paragraph 12(a)(i) or (ii), you shall indemnify and hold us harmless for all expenses as well as any awards of damage assessed against us, and, without limiting any of our other rights and remedies available at law or in equity, we shall also have the right to modify or repurchase the Equipment or to secure rights for continued use by way of assignment or license as set forth in this paragraph.

13. **INSPECTION**: Upon prior written notice, you may make reasonable inspections of Equipment at our facility. We reserve the right to determine the reasonableness of the request and to select an appropriate time and location for such inspection. You agree to execute appropriate confidentiality provisions upon our request prior to visiting our facility. All costs of inspection shall be solely determined by us and shall be payable by you. No inspection or expediting by you at the facilities of our suppliers is authorized.

14. **SOFTWARE PROVISIONS**: If software is provided hereunder (whether such is integrated into the Equipment or otherwise operates alongside the same), you are hereby granted a non-exclusive, non-sublicenseable, non-transferable, royalty free license to access and use such software as provided and as intended with our Equipment. Without limiting the foregoing, under the foregoing license you may specifically: (i) use our software in machine readable object code only and only with the Equipment provided; (ii) copy our software into any machine readable object code form solely for back up purposes in support of your use of our software on the Equipment provided in accordance with these Terms and Conditions; and (iii) create one additional copy of the software for archival purposes only. This license may only be assigned, sublicensed or otherwise transferred by you with our prior written consent. You hereby recognize and acknowledge that the software provided to you hereunder comprises valuable trade secret and/or copyright property of Alfa Laval (or its licensors) and you covenant that you will take adequate precautions against

access to the software by, or disclosure of the software to, anyone not authorized hereunder to use or have access to the software as contemplated herein. The software is subject to the confidentiality obligations set forth below in paragraph 15.

15. **CONFIDENTIALITY:** Subject to any non-disclosure or confidentiality agreement already in effect between us, any drawings, data, software or other information exchanged between us is proprietary or confidential to us and shall not be used or disclosed by you without our prior written consent. Confidential information shall not be any information that (i) is known previously to you under no obligation of secrecy; (ii) becomes known to the public through no breach of an obligation of secrecy by you; or (iii) is independently developed by you without use or reference to any of the confidential information or materials provided to you by us.

16. **INAPPLICABILITY OF CISG:** The parties specifically agree that the United Nations Convention on Contracts for the International Sale of Goods shall not apply to any sale or order or the contract between us.

17. **GOVERNING LAW & VENUE**: These Terms and Conditions and any dispute or claim arising out of or related to an order or the contract between us shall be finally decided in accordance with the laws of the Commonwealth of Virginia, without giving effect to the provisions thereof relating to conflict of laws. You agree that the venue for any such dispute shall lie in the United States District Court for the Eastern District of Virginia, Richmond Division. In the event that federal jurisdiction cannot be established pursuant to 28 U.S.C. §§ 1331 or 1332, the venue for any such dispute shall lie in the Circuit Court of Henrico County, Virginia. You expressly submit and waive any objection to the sole and exclusive jurisdiction of such courts.

18. **GENERAL:** All previous agreements or understandings between us, either oral or written, with regard to the subject order, with the exception of a pre-existing non-disclosure agreement between us, are void and these Terms and Conditions constitute the entire agreement between us with respect to the matters addressed herein. Neither of usshall assign an order or contract to which these Terms and Conditions apply without the prior written consent of the other party, which consent shall not be unreasonably withheld. If any provision of these Terms and Conditions is held to be invalid or unenforceable, such holding shall not affect the validity or enforceability of any other provision herein. No waiver by either of usof any default or breach by the other party will operate as or be deemed a waiver of any subsequent default or breach.

APPENDIX C: Opinion of Probable Construction Costs

Prepared By:
Kimley»Horn

OPINION OF PROBABLE CONSTRUCTION COSTS UTILITIES INC. MID-COUNTY WWTP: SUMMARY OF PROPOSED IMPROVEMENTS					
ITEM	**DESCRIPTION**	**QUANTITY**		**10.02.2019 AMOUNT**	**VALUE ENGINEERING AMOUNT**
I. PROPOSED IMPROVEMENTS					
1	Master Lift Station	1	LS	1,619,100.00	1,077,600.00
2	Headworks	1	LS	1,511,400.00	1,078,500.00
3	Biological Nutrient Removal (including MBR)	1	LS	6,410,400.00	5,994,000.00
4	Disinfection	1	LS	824,400.00	642,600.00
5	Dewatering	1	LS	765,000.00	403,200.00
			TOTAL	**$ 11,130,300**	**$ 9,195,900**

Costs estimated based on equipment vender budgetary proposals and comparable projects in construction. These opinion of probable costs are based on the preliminary evaluation information that are conceptual in nature and do not reflect engineering design documents.

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Prepared By:
Kimley»Horn

OPINION OF PROBABLE CONSTRUCTION COSTS UTILITIES INC. MID-COUNTY WWTP: MASTER LIFT STATION					
ITEM	**DESCRIPTION**	**QUANTITY**		**UNIT PRICE**	**AMOUNT**
I. GENERAL					
1	Mobilization (10%)	1	LS	73,000.00	73,000.00
2	Permiting	1	LS	5,000.00	5,000.00
3	Erosion and Sedimentation Control	1	LS	15,000.00	15,000.00
4	Temporary Bypass Pumping Connections and Assembly	1	LS	75,000.00	75,000.00
				SUBTOTAL	**$ 168,000**
II. PROPOSED IMPROVEMENTS					
5	Demolish Existing Lift Station Concrete Retaining Wall and Top Slab, Electrical Equipment, Control Panel, Access Hatches and Pump Station Piping System including Pumps, Valves and Associated Appurtenances	1	LS	40,000.00	40,000.00
6	Convert Existing Lift Station Into Terminal Manhole	1	LS	80,000.00	80,000.00
7	10 FT Diameter Wet Well and Valve Vault Structural Concrete	1	LS	350,000.00	350,000.00
8	Two (2) Submersible Pumps and Controls including Automatic Pump Level Sensor, Flush Valve, Control Panel, Guide Rails, Brackets, Pump Level Sensor, Floats, Aluminum Frame, and Cover	1	LS	150,000.00	150,000.00
9	Lift Station Valves, Piping, Supports, Pressure Gauges	1	LS	60,000.00	60,000.00
10	SCADA Integration, Electrical I&C Upgrades	1	LS	25,000.00	25,000.00
11	Force Main to Headworks including Valves, Fittings, Restraints	1	LS	25,000.00	25,000.00
				SUBTOTAL	**$ 730,000**
I. GENERAL					**$ 168,000**
II. PROPOSED IMPROVEMENTS					**$ 730,000**
				SUBTOTAL	**$ 898,000**
				CONTINGENCY (20%)	**$ 179,600**
				CONSTRUCTION TOTAL	**$ 1,077,600**

Costs estimated based on equipment vender budgetary proposals and comparable projects in construction. These opinion of probable costs are based on the preliminary evaluation information that are conceptual in nature and do not reflect engineering design documents.

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Prepared By:
Kimley»Horn

OPINION OF PROBABLE CONSTRUCTION COSTS UTILITIES INC. MID-COUNTY WWTP: HEADWORKS					
ITEM	**DESCRIPTION**	**QUANTITY**		**UNIT PRICE**	**AMOUNT**
I. GENERAL					
1	Mobilization (10%)	1	LS	81,250.00	81,250.00
2	Permitting	1	LS	5,000.00	5,000.00
				SUBTOTAL	**$ 86,250**
II. PROPOSED IMPROVEMENTS					
3	Site Grading	1	LS	15,000.00	15,000.00
4	Fine Screen System	1	EA	310,000.00	310,000.00
5	Grit Removal System	1	LS	337,500.00	337,500.00
6	Process Piping, Valves, Fittings, and Supports	1	LS	50,000.00	50,000.00
7	Structural Platform including Stairway	1	LS	60,000.00	60,000.00
8	Electrical, Instrumentation, and Controls	1	LS	40,000.00	40,000.00
				SUBTOTAL	**$ 812,500**
I. GENERAL					**$ 86,250**
II. PROPOSED IMPROVEMENTS					**$ 812,500**
				SUBTOTAL	**$ 898,750**
				CONTINGENCY (20%)	**$ 179,750**
				CONSTRUCTION TOTAL	**$ 1,078,500**

Costs estimated based on equipment vender budgetary proposals and comparable projects in construction. These opinion of probable costs are based on the preliminary evaluation information that are conceptual in nature and do not reflect engineering design documents.

The Engineer has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Engineer at this time and represent only the Engineer's judgment as a design professional familiar with the construction industry. The Engineer cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

Prepared By:
Kimley»Horn

OPINION OF PROBABLE CONSTRUCTION COSTS UTILITIES INC. MID-COUNTY WWTP: BIOLOGICAL NUTRIENT REMOVAL					
ITEM	**DESCRIPTION**	**QUANTITY**		**UNIT PRICE**	**AMOUNT**
I. GENERAL					
1	Mobilization (10%)	1	LS	440,000.00	440,000.00
2	Permitting	1	LS	5,000.00	5,000.00
3	Bypassing/Temporary Equalization Tank	1	LS	150,000.00	150,000.00
				SUBTOTAL	**$ 595,000**
II. PROPOSED IMPROVEMENTS					
4	Demolition of Existing Equipment and Structures	1	LS	90,000.00	90,000.00
5	Cleaning, Cementitious Rehabilitation and Coating of Existing Tanks	1	LS	250,000.00	250,000.00
6	Membrane Bioreactors (MBRs) including equipment associated with the modifications to the biological treatment process and equipment and instrumentation to operate and maintain the MBRs and system installation	1	LS	3,750,000.00	3,750,000.00
7	Process Piping, Fittings, Valves and Appurtenances	1	LS	100,000.00	100,000.00
8	Electrical, Instrumentation, Control Modifications and Incorporation with existing SCADA	1	LS	150,000.00	150,000.00
9	Equipment Room	1	LS	60,000.00	60,000.00
				SUBTOTAL	**$ 4,400,000**
I. GENERAL					**$ 595,000**
II. PROPOSED IMPROVEMENTS					**$ 4,400,000**
				SUBTOTAL	**$ 4,995,000**
				CONTINGENCY (20%)	**$ 999,000**
				CONSTRUCTION TOTAL	**$ 5,994,000**

Costs estimated based on equipment vender budgetary proposals and comparable projects in construction. These opinion of probable costs are based on the preliminary evaluation information that are conceptual in nature and do not reflect engineering design documents.

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Prepared By:
Kimley»Horn

OPINION OF PROBABLE CONSTRUCTION COSTS UTILITIES INC. MID-COUNTY WWTP: DISINFECTION					
ITEM	**DESCRIPTION**	**QUANTITY**		**UNIT PRICE**	**AMOUNT**
I. GENERAL					
1	Mobilization (5%)	1	LS	25,500.00	25,500.00
				SUBTOTAL	**$ 25,500**
II. PROPOSED IMPROVEMENTS					
2	UV Disinfection Equipment and Installation	1	LS	500,000.00	500,000.00
3	Process Piping, Fittings, Valves and Appurtenances	1	LS	10,000.00	10,000.00
				SUBTOTAL	**$ 510,000**
I. GENERAL					**$ 25,500**
II. PROPOSED IMPROVEMENTS					**$ 510,000**
				SUBTOTAL	**$ 535,500**
				CONTINGENCY (20%)	**$ 107,100**
				CONSTRUCTION TOTAL	**$ 642,600**

Costs estimated based on equipment vender budgetary proposals and comparable projects in construction. These opinion of probable costs are based on the preliminary evaluation information that are conceptual in nature and do not reflect engineering design documents.

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Prepared By:
Kimley»Horn

OPINION OF PROBABLE CONSTRUCTION COSTS UTILITIES INC. MID-COUNTY WWTP: DEWATERING					
ITEM	**DESCRIPTION**	**QUANTITY**		**UNIT PRICE**	**AMOUNT**
I. GENERAL					
1	Mobilization (5%)	1	LS	16,000.00	16,000.00
				SUBTOTAL	**$ 16,000**
II. PROPOSED IMPROVEMENTS					
2	Demolition of Existing Equipment	1	LS	5,000.00	5,000.00
3	Dewatering Equipment and Installation including polymer system, wash water pump, sludge feed pump, and control panel	1	LS	300,000.00	300,000.00
4	Process Piping, Fittings, Valves and Appurtenances	1	LS	15,000.00	15,000.00
				SUBTOTAL	**$ 320,000**
I. GENERAL					**$ 16,000**
II. PROPOSED IMPROVEMENTS					**$ 320,000**
				SUBTOTAL	**$ 336,000**
				CONTINGENCY (20%)	**$ 67,200**
				CONSTRUCTION TOTAL	**$ 403,200**

Costs estimated based on equipment vender budgetary proposals and comparable projects in construction. These opinion of probable costs are based on the preliminary evaluation information that are conceptual in nature and do not reflect engineering design documents.

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APPENDIX D: Operator Surveys

MBR OPERATOR SURVEY **Date: 6/25/19**

General: Rotonda WRF (Charlotte County)

MBR System: Suez

Installation Date: Dec 2008 (10yrs) – New tank for Membranes, Existing tanks for BNR (1970's)

New or Retrofit: Retrofit Previous treatment method?

Approximate Footprint: Extended Air

Rated Capacity (ADF/PDF): 2.0 MGD ADF (4.0 peak), Membranes - 4.0 MGD ADF (8.0 peak)

Approximate HRT (process + MBR):

Influent Parameters:

Seasonal Flow Variation? I&I? Yes 60s-70s (VCP pipe), High NH_4 / low CBOD, reuse hard to give

Treatment Requirements:

Alternatives Analysis Completed?

Annual inspections completed by outside consultant to assess remaining service life

Existing Facilities >10yrs? Old pipes, BNR tanks (70s)

Installation

Screening: 2mm drum (2008 original), Baycore – extensive maintenance, doesn't like drum screen

Grit Removal: Yes – grit snail/pumps

Chemical storage: No BNR, only H_2Cl for disinfection

Misc. Required Equipment: 1 blower, 1 permeate pump, and 1 RAS pump per train (4)

Startup Time/Requirements:

Operator Training:

Dan – on site, Suez – regular visits, John – Cleveland, Ohio.

Maintenance

Routine Maintenance:

Chlorine is placed automatically overnight during a 2-week process to clean all 4 trains every 6 months - 16hr rinse, 16hr chloric acid. Weekly, just H_2Cl is added.

A crane is rented and used to lift out membranes for hand cleaning annually.

Frequency of backwashing: Cyclic – 10/10 (high) – 10/30 (low) What triggers backwashing?

Air Scouring: Flow-based

Chemicals: Chlorine (automatic)

MBR OPERATOR SURVEY **Date: 6/25/19**

Other cleaning: How often? How long? Require bypassing?

Bypassing – for CIP

Common wear components: cracked headers

Replacement frequency: Fibers are rarely replaced, cassette has never been replaced

Ease of repairs/replacement? Completed Internally?

Crane is rented

Support Services:

Annual audit possible by Suez (stress test), Annual life cycle manager

Operation

Automatic Operation Components: Frequency

Cl cleaning process

Manual Operation Components: Frequency

System Controls

HMI, functionality, incorporation with SCADA, overall use?

Scandia technologies, 3 communications – rest of plant. Suez for membranes

Other

Impacts on other plant processes:

Existing clarifiers, called digestors but just used as holding tank.

Modifications or Upgrades since installation?

No, but plan to install LEAP air system to reduce to 1 aeration 1 permeate

Misc. Components:

Backwash water: Treated water is stored in a permeate tank and used for cleaning with Cl

Solids wasting: nightly – set volume of 0.016 automatically removed, hauled away every 2 weeks

Below 2500 MLSS bugs eat membrane, keep above 4000 Mg/L MLSS

Data Collection:

Turbidity range: 0.12NTU – 0.07NTU, TMP is tracked once per week per train

Digestor=9100 Mg/L, Wasting=3180 Mg/L

D.O is tracked from BNR, no limit for Nitrogen, NTUs, NH_4, and MLSS are tracked, but most important value is the F:M ratio, which is kept at 0.08, with a 25-day retention time.

MBR OPERATOR SURVEY **Date: 6/25/19**

General: Glades County WWTF

MBR System: Suez – Reinforced fiber (2 MBR, 1 air). Roof over equipment.

Installation Date: 2002 – First retrofit, 2004 – Second retrofit

New or Retrofit

Retrofit

Previous treatment method?

Standard aeration, 25 years ago

Approximate Footprint:

Rated Capacity (ADF/PDF): 0.36 MGD ADF, 0.405 including old train

Approximate HRT (process + MBR):

Influent Parameters:

Seasonal Flow Variation? I&I? Not very much, relatively new system

Treatment Requirements:

Alternatives Analysis Completed? City wants to use membrane system to save expansion space

Existing Facilities >10yrs?

One membrane is 15 years old.

Installation

Screening: 2mm

Grit Removal: Not regularly, tanks are cleaned to remove grit (once in the last 10 years)

Chemical storage: No chemicals

Misc. Required Equipment: 5 blowers, only 2 needed for MBR Trains

Startup Time/Requirements:

Operator Training: Annual users group operators meeting

Maintenance

Routine Maintenance:

CIP – Turbulence / Fiberglass covers. Total Membrane Pressure (TMP) of 8psi needed for membrane cleaning.

Frequency of backwashing:

What triggers backwashing?

Air Scouring -

Chemicals – Citric Clean

MBR OPERATOR SURVEY **Date: 6/25/19**

Other cleaning: How often? How long? Require bypassing?

Monthly clean – Crane is used to lift membranes and check for sludge. Every 2 months a chlorine soak is performed.

Bypassing – Used for maintenance on membrane, conventional train is used

Common wear components:

Replacement frequency – How to identify fouled membrane?

Ease of repairs/replacement? Completed Internally?

Recommended every 8-10 years because permeability decreases. Yes, Lift used

Support Services:

Budget replacement available – one train per year, payment plan option, 5-15 year contract.

Operation

Automatic Operation Components: Frequency

Manual Operation Components: Frequency

Discharge to pond

System Controls

HMI, functionality, incorporation with SCADA, overall use?

Can be programmed. Allen Bradley currently coordinates plant SCADA, Frank Ellis would be used in the future.

Other

Impacts on other plant processes:

Phosphorus used for BNR, chlorine for disinfection.

Modifications or Upgrades since installation?

Energy Consumption?

Comparable to standard. Permeate pumps 3%, aeration larger

Misc. Components:

Backwash water:

Solids wasting: Manual valve, every other day. 1000 MLSS.

Delphos, OH -Kruger/FibreCast

Operators – Todd, Joe, Andy

Funding and Debt Forgiveness:

- "Failed Technology" – Loan Forgiveness
- Energy Audit – Rebates
- Pilot Study – Waive Permit Coordination
- Findings and Orders – Confirm
- Adaboray – Solar Panel Project – Selling Credits

Installation

- 2006 - Greenfield Construction – Kubota Membranes (EK400) – 52,000 plates @ $150/plate
- 2009 –Membrane performance Issues (solids buildups, membrane tears along edges 3-5 yrs after installation
    - Difficult to balance aeration and permeate
    - Difficult with combined air header
    - Solenoid valves not reactive enough for control – since switched to pnematic
- 2014-2015 - Retrofit with new membranes (FibreCast)

Plant Influent Characteristics

- ADF/MDF: 3.8MGD/7.6MGD
- Combined Sewer: Peak up to 12 MGD
- Industrial influent – high CBOD – pretreatment, monitor influent
- Plant Design for 70,000 – serves a 7,000 people
- Currently treating 1-2 MGD through FiberCast membranes (use storage ponds for higher flows)

Plant Processes

- Screens – RecScore Drum Screens (Two(2) at 7.6MGD max capacity)
    - Customized by operators: 500-750 micros, specific to fit existing space, panels can be replaced
    - Previous screen was 3mm step screen – insufficient – experienced carry-over
- Grit Removal – removed from basin via suction > discharged to trough > grit washer and clarifier
    - Not necessary – screen captures and removes most grit
- Grease – removed from channel via screw auger (flows under wall and removed from surface)

MBRs

- Currently retrofitting existing tankage used for Kubota membranes to FiberCast membranes
    - Uses less tankage for same treatment capacity
    - Multiple points of permeate
    - Membranes are "self-healing" – membranes produce effluent meeting requirements despite tears by preventing flow-through
    - Currently have two trains in operation, one with coarse bubbler, one with fine bubbler
- BNR process

- Travels over and under weirs to maintain velocities to avoid settling
- Anoxic>Aeration>Membrane>RAS/WAS
- Use 5Q for RAS (Typically 2Q) – keeps suspended solids – consistency

- Cleaning
  - Once a weak – in-situ chlorine cleaning (20 gallons)
  - Recovery clean – annually – drain and soak with citric acid & hypo
  - Keep chemicals in totes
  - Back pulse and aeration – vibration to dislodge solids (decrease TMP)
    - Permeate water is held in holding tank for back pulsing
  - Monitor membrane pressures to determine cleaning (can be easily scheduled)
  - Aeration/Relaxing – switch between basins to allow more time for membrane relaxing
  - MLSS concentration maintained at 7500 – 9500 mg/l
- Membrane removal
  - Quick disconnects – air and permeate piping
  - Cranes required to pull- 10,000 – 20,000lbs lifting required (clean v fouled)
- Aeration
  - Both Fine and Coarse Diffusers being used
  - Prefer isolated blowers per membrane zone and separation from aeration; single redundant blower than can work for any process
  - Pneumatic Valves – quicker response
  - Screening is critical to prevent diffuser blockage
- Biosolids
  - MLSS wasted when exceeding 9,500 mg/l
  - Belt presses (2) used for thickening and dewatering
    - Thickening – 2-7% - polymer added – 3 days operation a week
    - Dewatering – 20-25% - polymer added – 1 day a week
  - Process: APAD Thermo Sys - Thickening –Digestor (130deg 8hr retention) – Holding tank (denitrification, cooling temps, aeration to control pH) – dewatering
  - Class A solids produced – used by farmers (200 tons/yr)
- UV Disinfection – for e.coli – permitted but not really used
- Finished Effluent
  - Discharged to surface water – creek
  - 0.2 NTUs Turbidity

Support Services

- Remote services
- Warranty – can be chosen at cost (8-10 yrs?)

SCADA

- Planning on combining their SCADA system – but keeping the FiberCast separate
- Have mobile access capability
- User interface is navigable and it is simple to create set points for cleaning and back pulsing

MBR OPERATOR SURVEY - Marion County Utilities **Date: 6/5/19**

General

MBR System: Aeration -> anoxic -> membrane

Installation Date: 5 years ago

New or Retrofit: New Previous treatment method?

Approximate Footprint: Small trailer park

Rated Capacity (ADF/PDF): 90,000 / 0.25 of permitted capacity

Approximate HRT (process + MBR):

Influent Parameters: 250-300 BOD -> design

Seasonal Flow Variation? I&I?

Treatment Requirements: Very low CL required for disinfection, most is done by membranes

Alternatives Analysis Completed?

Remove N, anoxic zone, removes filtration

Installation

Screening:

Grit Removal:

Chemical storage:

Misc. Required Equipment: Blowers – used for air scouring and oxygen delivery for aerobic bacteria. Recommended that they be designated for a specific task

Startup Time/Requirements: $1.5 million cost

Operator Training: Ovivo human interface

Maintenance

Routine Maintenance:

30 min daily check 5 days per week, online weekend check

Frequency of backwashing: every couple of months

What triggers backwashing? Below 50 permeability

Air Scouring – needs consistent, balanced flow against plate

Chemicals – Chlorine (24 hour soaking)

Other cleaning: How often? How long? Require bypassing?

MBR OPERATOR SURVEY - Marion County Utilities **Date: 6/5/19**

Have used citric acid before, have never had to take out membranes for pressure washing

Bypassing

Common wear components:

Replacement frequency:

Ease of repairs/replacement? Completed Internally?

10-year warranty

Support Services:

Remote troubleshooting 24 hours

Operation

Automatic Operation Components: Frequency

Manual Operation Components: Frequency

Wasting volume – manual valve. 4 open, automatically splits, watch reader so that MLSS stays within range, flow rate is arbitrary.

System Controls

HMI, functionality, incorporation with SCADA, overall use?

10%-15% higher energy consumption than traditional plants

Other

Impacts on other plant processes:

Modifications or Upgrades since installation?

Kubota came out to check the membranes, supply blowers and pump.

Large tent was installed above the plant to prevent pine needles and leaves from falling down from the surrounding brush and damaging the membrane

Misc. Components:

Backwash water:

Solids wasting:

Turbidity – 0.067 NTU @ 14:39

MBR OPERATOR SURVEY - City of Deltona **Date: 6/5/19**

General

MBR System: Kubota – Split 3 ways, MLSS <- Balanced, pump assisted gravity flow

Installation Date: Designed in 2008, bid in 2013, installed May 2016

New or Retrofit: New Previous treatment method?

Approximate Footprint: relatively small – room for expansion

Rated Capacity (ADF/PDF): 380,000 ADF, 1 MGD / 2.4 MGD, everything is 3Q

Approximate HRT (process + MBR):

Influent Parameters:

Seasonal Flow Variation? I&I? BOD Variations, reject before LS (extra surge for I&I events). Collection system leading to the plant is about 30 years old, may lead to seasonal variation in flow due to groundwater entering the pipes.

Treatment Requirements:

Alternatives Analysis Completed?

Baskeraville-Donovan – Engineer (Brian Sal)

Class AA Biosolids – doesn't work

MBR - $ meet any requirements (Solids & Treatment capacity)

Installation

Screening: Huber fine Screens, 2mm, washer and compactor

Grit Removal: Grit King, phosphates, 12' diameter vortex design

Chemical storage: on time deliveries

Misc. Required Equipment: Crane must be rented to pull

Startup Time/Requirements: Difficult electrical controls, Blowers, programming

Operator Training: Sacramento MBR Training, field study

Maintenance

Routine Maintenance:

12.5% diluted sodium hypochloride, 1800 gallon soaking volume, 3-6 hours

MBR OPERATOR SURVEY - City of Deltona **Date: 6/5/19**

Frequency of backwashing: What triggers backwashing?

Permeability rates between 0.8-0.9

Air Scouring – 7am and 4pm for 10 minutes, with a 75-120 second relax time

Chemicals – four times per year (CIP), every 64-90 days depending on permeate effluent

Other cleaning: How often? How long? Require bypassing?

Haven't had to remove membranes yet

Bypassing – redundancy -> for CIP just drop gates

Common wear components:

Replacement frequency:

Ease of repairs/replacement? Completed Internally?

Support Services:

Training session can be done in Ohio. Moss-Kelly orders parts

Operation

Automatic Operation Components: Frequency

Automatic cleaning can be scheduled based on events or time of year (e.g. Hurricane season). Membranes can be cleaned without being worn out

Manual Operation Components: Frequency

System Controls

HMI, functionality, incorporation with SCADA, overall use?

5MGD reclaim, 3MGD reject tank, EQ tank to reject tank. Control of depth based on MLSS/Chemicals

Other

Impacts on other plant processes:

MBR OPERATOR SURVEY - City of Deltona **Date: 6/5/19**

Aluminum, biosolids

Modifications or Upgrades since installation?

Taps on each permeate pipe, see which is brown to determine which stack needs repair or replacement

Misc. Components:

Backwash water:

Solids wasting:

Trench drain under sample point

Turbidity - Tapped to permeate line, not sump (avoids sand).

Turb = 0.05, Nitrates = 2.8 AA, TSS = 0.3, MLSS = 82, MCRT = 40 days, 25 days design

Zurn becomes FCV

Coarse bubbler better than fine bubbler

Kubota/Moss-Kelly can help with contractors

Worten Smith – vendor/manufacturer

Ruby Collins - smaller

MBR OPERATOR SURVEY - City of Deltona **Date: 6/5/19**

General

MBR System: Kubota – Split 3 ways, MLSS <- Balanced, pump assisted gravity flow

Installation Date: Designed in 2008, bid in 2013, installed May 2016

New or Retrofit: New Previous treatment method?

Approximate Footprint: relatively small – room for expansion

Rated Capacity (ADF/PDF): 380,000 ADF, 1 MGD / 2.4 MGD, everything is 3Q

Approximate HRT (process + MBR):

Influent Parameters:

Seasonal Flow Variation? I&I? BOD Variations, reject before LS (extra surge for I&I events). Collection system leading to the plant is about 30 years old, may lead to seasonal variation in flow due to groundwater entering the pipes.

Treatment Requirements:

Alternatives Analysis Completed?

Baskeraville-Donovan – Engineer (Brian Sal)

Class AA Biosolids – doesn't work

MBR - $ meet any requirements (Solids & Treatment capacity)

Installation

Screening: Huber fine Screens, 2mm, washer and compactor

Grit Removal: Grit King, phosphates, 12' diameter vortex design

Chemical storage: on time deliveries

Misc. Required Equipment: Crane must be rented to pull

Startup Time/Requirements: Difficult electrical controls, Blowers, programming

Operator Training: Sacramento MBR Training, field study

Maintenance

Routine Maintenance:

12.5% diluted sodium hypochloride, 1800 gallon soaking volume, 3-6 hours

MBR OPERATOR SURVEY - City of Deltona **Date: 6/5/19**

Frequency of backwashing: What triggers backwashing?

Permeability rates between 0.8-0.9

Air Scouring – 7am and 4pm for 10 minutes, with a 75-120 second relax time

Chemicals – four times per year (CIP), every 64-90 days depending on permeate effluent

Other cleaning: How often? How long? Require bypassing?

Haven't had to remove membranes yet

Bypassing – redundancy -> for CIP just drop gates

Common wear components:

Replacement frequency:

Ease of repairs/replacement? Completed Internally?

Support Services:

Training session can be done in Ohio. Moss-Kelly orders parts

Operation

Automatic Operation Components: Frequency

Automatic cleaning can be scheduled based on events or time of year (e.g. Hurricane season). Membranes can be cleaned without being worn out

Manual Operation Components: Frequency

System Controls

HMI, functionality, incorporation with SCADA, overall use?

5MGD reclaim, 3MGD reject tank, EQ tank to reject tank. Control of depth based on MLSS/Chemicals

Other

Impacts on other plant processes:

MBR OPERATOR SURVEY - City of Deltona **Date: 6/5/19**

Aluminum, biosolids

Modifications or Upgrades since installation?

Taps on each permeate pipe, see which is brown to determine which stack needs repair or replacement

Misc. Components:

Backwash water:

Solids wasting:

Trench drain under sample point

Turbidity - Tapped to permeate line, not sump (avoids sand).

Turb = 0.05, Nitrates = 2.8 AA, TSS = 0.3, MLSS = 82, MCRT = 40 days, 25 days design

Zurn becomes FCV

Coarse bubbler better than fine bubbler

Kubota/Moss-Kelly can help with contractors

Worten Smith – vendor/manufacturer

Ruby Collins - smaller

Appendix E: Mid-County Executed Consent Order #21-0663

FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Interim Secretary

August 16, 2021

Mr. Gary Rudkin
President of Operations
Utilities, Inc. of Florida
200 Weathersfield Ave.
Altamonte Springs, FL 32714
Gary.Rudkin@corix.com

Re: Executed Consent Order OGC File No. 21-0663
Mid-County WWTP
Facility ID No. FL0034789
Pinellas County

Dear Mr. Rudkin:

Enclosed please find the executed Consent Order OGC No. 21-0663 regarding the above referenced facility. The effective date of the Order is the filing date entered by the designated Department Clerk on the signature page.

Should you have any questions, please contact Ms. Margaret Dorge at (813) 470-5703, or via e-mail: Margaret.Dorge@floridadep.gov. Thank you for your cooperation.

Sincerely yours,

Kelley M. Boatwright
Southwest District Director
Florida Department of Environmental Protection

KB/md

Enclosures: Mid County Executed Consent Order 21-0663
Exhibit A In-Kind Project - Utilities, Inc of Florida

cc: Lea Crandall, DEP, Lea.Crandall@floridadep.gov
Adrienne Pennington, DEP, adrienne.pennington@floridadep.gov
Lance Kautz, DEP-SWD, Lance.Kautz@FloridaDEP.gov
Erica Peck, DEP-SWD, Erica.Peck@FloridaDEP.gov

Steve Thompson, DEP-SWD, Steve.Thompson@FloridaDEP.gov
Pamala Vazquez, DEP-SWD, Pamala.Vazquez@dep.state.fl.us
Margaret Dorge, FDEP-SWD, Margaret.Dorge@FloridaDEP.gov
Mike Wilson, mike.wilson@uiwater.com
Lee Neal, lee.neal@uiwater.com
Seyd Matteson, seyd.matteson@uiwater.com

FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Interim Secretary

July 29, 2021

Mr. Gary Rudkin, President
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, Florida 32714

SUBJECT: Department of Environmental Protection v. Utilities, Inc. of Florida, OGC File No.: 21-0663
Mid-County Wastewater Treatment Plant – FL0034789

Mr. Rudkin:

The State of Florida Department of Environmental Protection ("Department") finds that Utilities, Inc. of Florida – Mid-County WWTP ("Respondent") is in violation of Sections 403.121 (3)(b), Florida Statutes (F.S.), Rule 62-604.130 (1) Florida Administrative Code (F.A.C.) regarding unauthorized discharges of 1,143,600 gallons of partially treated wastewater that bypassed the denitrification filters on September 11, 2020, November 12, 2020 and July 6, 2021. Although there are no actions required to correct the violations, the Respondent remains subject to civil penalties as a result of the violations. The Respondent is also responsible for costs incurred by the Department during the investigation of this matter.

The Department's Offer

Based on the violations described above, the Department is seeking $18,000 in civil penalties, $1,886.94 in economic benefit, $9,000 for history of non-compliance and $250.00 for costs and expenses the Department has incurred in investigating this matter, which amounts to a total of $29,136.94. The civil penalty in this matter includes 3 violations of $2,000.00 or more.

However, in lieu of making cash payment of $28,886.94 in penalties, Respondent may elect to off-set this amount by implementing an in-kind penalty project, which must be approved by the Department. An in-kind project must be either an environmental enhancement, environmental restoration, or a capital/facility improvement project. The Department may also consider the donation of environmentally sensitive land as an in-

kind project. The value of the in-kind penalty project shall be one and a half times the civil penalty off-set amount, which in this case is the equivalent of **at least $43,330.41**. If Respondent chooses to implement an in-kind project, Respondent shall notify the Department of its election by electronic mail to Margaret Dorge at Margaret.Dorge@FloridaDEP.gov within **15 days** of the effective date of this Consent Order.

Notwithstanding the election to implement an in-kind project, payment of the remaining $250.00 in costs must be paid by September 27, 2021.

If Respondent elects to implement an in-kind project, then Respondent shall comply with all of the requirements and timeframes in Exhibit A entitled In-Kind Projects.

Respondent's Acceptance

If you wish to accept this offer and fully resolve the enforcement matter pending against the Respondent, please sign this letter and return it to the Department at Southwest District Office, 13051 N. Telecom Parkway, Suite 101, Temple Terrace, Florida 33637 by **August 12, 2021**. The Department will then countersign it and file it with a designated clerk of the Department. Once the document is filed with the designated clerk, it will constitute a final order of the Department pursuant to Section 120.52(7), F.S. and will be effective unless a request for an administrative hearing is filed by a third party in accordance with Chapter 120, F.S. and the attached Notice of Rights.

By accepting this offer you, Gary Rudkin:

(1) certify that you are authorized and empowered to negotiate, enter into, and accept the terms of this offer in the name and on behalf of Respondent;

(2) acknowledge and waive Respondent's right to an administrative hearing pursuant to Sections 120.569 and 120.57, F.S., on the terms of this offer, once final;

(3) acknowledge and waive Respondent's right to an appeal pursuant to Section 120.68, F.S.

The Department acknowledges that the Respondent's acceptance of this offer does not constitute an admission of liability for the violation(s) referenced above.

Respondent's Performance

After signing and returning this document to the Department,

(1) You must implement the In-Kind Project in accordance with the requirements identified in the attached Exhibit A. **Also, payment of the $250.00 for costs and expenses must be made by September 27, 2021.**

(2) If Respondent declines to implement an In-Kind Project, payment in full of $29,136.94 is due by September 27, 2021.

(3) Respondent shall make all payments required by this Order by cashier's check, money order or on-line payment. Cashier's check or money order shall be made payable to the "Department of Environmental Protection" and shall include both the OGC number assigned to this Order and the notation "Water Quality Assurance Trust Fund." Online payments by e-check can be made by going to the DEP Business Portal at: http://www.fldepportal.com/go/pay/ It will take a number of days after this order is final, effective and filed with the Clerk of the Department before ability to make online payment is available.

The Department may enforce the terms of this document, once final, and seek to collect monies owed pursuant to Sections 120.69 and 403.121, F.S.

Until clerked by the Department, this letter is only a settlement offer and not a final agency action. Consequently, neither the Respondent nor any other party may request an administrative hearing to contest this letter pursuant to Chapter 120, F.S. Once this letter is clerked and becomes a final order of the Department, as explained above, the attached Notice of Rights will apply to parties, other than the Respondent, whose interests will be substantially affected.

Electronic signatures or other versions of the parties' signatures, such as .pdf or facsimile, shall be valid and have the same force and effect as originals. No modifications of the terms of this Order will be effective until reduced to writing, executed by both Respondent and the Department, and filed with the clerk of the Department.

Please be aware that if the Respondent declines to respond to the Department's offer, the Department will assume that the Respondent is not interested in resolving the matter and will proceed accordingly.

If you have any questions, please contact Margaret Dorge at (813) 470-5703 or at Margaret.Dorge@FloridaDEP.gov.

Sincerely,

For Kelley M. Boatwright
District Director
Southwest District

FOR THE RESPONDENT:

I, Gary Rudkin [Type or Print Name], **HEREBY ACCEPT THE TERMS OF THE SETTLEMENT OFFER IDENTIFIED ABOVE.**

By: _____ Date: 8/12/2021
[Signature]

Title: President
[Type or Print]

FOR DEPARTMENT USE ONLY

DONE AND ORDERED this 16th day of August, 2021, in Orange County, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Pamala Vazquez

Kelley M. Boatwright
District Director
Southwest District

Filed, on this date, pursuant to section 120.52, F.S., with the designated Department Clerk, receipt of which is hereby acknowledged.

_____ August 16, 2021
Clerk Date

Attachments: Notice of Rights
Exhibit A - In-Kind Projects

Final clerked copy furnished to:
Lea Crandall, Agency Clerk (lea.crandall@dep.state.fl.us)

DEP v. Utilities, Inc. of Florida
Mid-County WWTP
Consent Order OGC File No. 21-0663

Exhibit - A

In-Kind Projects

I. Introduction

Proposal

a. Within 60 days of the effective date of this Consent Order, or, of the Department's notification that applying stipulated penalties to an in-kind project is acceptable, Respondent shall submit, either electronically or by certified mail, a detailed in-kind project proposal to the Department for evaluation. The proposal shall include a summary of benefits, proposed schedule for implementation and documentation of the estimated costs which are expected to be incurred to complete the project. These costs shall not include those incurred in developing the proposal or obtaining approval from the Department for the in-kind project.

Proposal Certification Form

b. The proposal shall also include a Certification by notarized affidavit from a senior management official for Utilities Inc. of Florida who shall testify as follows:

> My name is _____ (print or type name of senior management official) and do hereby testify under penalty of law that:
>
> A. I am a person with management responsibilities for Utilities Inc. of Florida budget and finances. During the eighteenth month period prior to the effective date of Consent Order OGC Case No.: _____ there has not been any transfer or use of funds obtained by the Utilities Inc. of Florida from the collection of sewer rates for any purpose not related to the management, operation, or maintenance of the Sewer System or to any capital improvement needs of the Sewer System.
>
> B. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowingly submitting false information in this certification.

DEP v. Utilities, Inc. of Florida
Mid-County WWTP
Consent Order OGC File No. 21-0663

Sworn to and subscribed before me, by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 2021 by

_____

Personally, known or by Production of the following Identification _____

Notary Public, State of Florida

Printed/typed or stamped name:

My Commission Expires: _____

Commission/Serial No.: _____

Annual Certification Form

My name is _____ (print or type name of senior management official) and do hereby testify under penalty of law that:

A. I am a person with management responsibilities for Utilities Inc. of Florida budget and finances. During the twelve month period immediately preceding the notary date on this Certification, there has not been any transfer or use of funds obtained by the Utilities Inc. of Florida from the collection of sewer rates for any purpose not related to the management, operation, or maintenance of the Sewer System or to any capital improvement needs of the Sewer System.

B. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowingly submitting false information in this certification.

Sworn to and subscribed before me, by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 20___ by

_____

Personally, known or by Production of the following Identification _____

Notary Public, State of Florida

Printed/typed or stamped name:

My Commission Expires: _____

Commission/Serial No.: _____

c. If the Department requests additional information or clarification due to a partially incomplete in-kind project proposal or requests modifications due to deficiencies with Department guidelines, Respondent shall submit, either electronically or by certified mail, all requested additional information, clarification, and modifications within 15 days of receipts of written notice.

d. If upon review of the in-kind project proposal, the Department determines that the project cannot be accepted due to a substantially incomplete proposal or due to substantial deficiencies with minimum Department guidelines, Respondent shall be notified, in writing, of the reason(s) which prevent the acceptance of the proposal. Respondent shall correct and redress all the matters at issue and submit, either electronically or by certified mail, a new proposal within 30 days of receipt of written notice. In the event that the revised proposal is not approved by the Department, Respondent shall make cash payment of the civil penalties as set forth in the Consent Order, within 30 days of Department notice.

e. Within 120 days of the effective date of this Consent Order, or, of the Department's notification that applying stipulated penalties to an in-kind project is acceptable Respondent shall obtain approval for an in-kind project from the Department. If an in-kind project proposal is not approved by the Department within 120 days of the effective date of this Consent Order, or, of the Department's notification that applying stipulated penalties to an in-kind project is acceptable then Respondent shall make cash payment of the penalties as set forth in the Consent Order, within 30 days of Department notice.

DEP v. Utilities, Inc. of Florida
Mid-County WWTP
Consent Order OGC File No. 21-0663

f. Within 180 days of obtaining Department approval for the in-kind proposal or in accordance with the approved schedule submitted pursuant to (a) above, Respondent shall complete the entire in-kind project.

g. During the implementation of the in-kind project, Respondent shall place appropriate sign(s) at the project site indicating that Respondent's involvement with the project is the result of a Department enforcement action. Respondent may remove the sign(s) after the project has been completed. However, after the project has been completed Respondent shall not post any sign(s) at the site indicating that the reason for the project was anything other than a Department enforcement action.

h. In the event, Respondent fails to timely submit any requested information to the Department, fails to complete implementation of the in-kind project or otherwise fails to comply with any provision of this paragraph, the in-kind penalty project option shall be forfeited, and the entire amount of penalties shall be due from the Respondent to the Department within 30 days of Department notice. If the in-kind penalty project is terminated and Respondent timely remits the penalty, no additional penalties shall be assessed for failure to complete the requirement of this paragraph.

i. Within 15 days of completing the in-kind project, Respondent shall notify the Department, either electronically or by certified mail, of the project completion and request a verification letter from the Department. Respondent shall submit supporting information verifying that the project was completed in accordance with the approved proposal and documentation showing the actual costs incurred to complete the project. These costs shall not

include those incurred in developing the proposal or obtaining approval from the Department for the project.

j. If upon review of the notification of completion, the Department determines that the project cannot be accepted due to a substantially incomplete notification of completion or due to substantial deviations from the approved in-kind project; Respondent shall be notified, in writing, of the reason(s) which prevent the acceptance of the project. Respondent shall correct and redress all the matters at issue and submit, either electronically or by certified mail, a new notification of completion within 15 days of receipt of the Department's notice. If upon review of the new submittal, the Department determines that the in-kind project is still incomplete or not in accordance with the approved proposal, the in-kind penalty project option shall be forfeited, and the entire amount of the penalty shall be due from the Respondent to the Department within 30 days of Department notice. If the in-kind penalty project is terminated and Respondent timely remits the penalty, no additional penalties shall be assessed for failure to complete the requirements of this paragraph.

Appendix F: Mid-County Closure Ltr CO#21-0663

FLORIDA DEPARTMENT OF Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

June 15, 2022

Gary Rudkin, President
Sunshine Water
200 Weathersfield Avenue
Altamonte Springs, Florida 32714
Gary.Rudkin@SunshineWater.com

Re: Case Closure Letter - OGC File No. 21-0663
Mid-County Utilities
Facility ID Number FL0034789
Pinellas County

Dear Mr. Rudkin:

Thank you for your letter dated April 22, 2022 transmitting the final status report for the In-Kind Project performed under Consent Order OGC File No. 21-0663. Please allow this letter to serve as acknowledgement that the requirements of Exhibit A of the Order have been completed. As all the conditions of the Consent Order have been met, the Department is closing this case file.

For inquiries, you may contact Margaret Dorge at 813-470-5703, or by email at Margaret.Dorge@FloridaDEP.gov.

Sincerely,

Kelley M. Boatwright
Southwest District Director
Florida Department of Environmental Protection

KMB/md

cc: Water Compliance Assurance Program, FDEP, WCAPHQ@dep.state.fl.us
Erica Peck, FDEP-SWD, Erica.peck@floridadep.gov
Margaret Dorge, FDEP – SWD, Margaret.Dorge@floridadep.gov
Seyd Matteson, Sunshine Water, Seyd.Matteson@SunshineWater.com
Mike Wilson, Sunshine Water, Mike.Wilson@SunshineWater.com
Lee Neal, Sunshine Water, Lee.Neal@SunshineWater.com

Appendix G: Mid-County MFR Design, Permitting, Bidding, Construction, and Cost

SUNSHINE WATER SERVICES COMPANY								
WASTEWATER LIMITED PROCEEDING								
SCHEDULE OF PLANT INCREASES - PRIMARY ACCOUNT AND COMPONENTS								
			(a)	(b)	(c)		(d)	(e)
Line No.	NARUC A/C	Description	Construction/ Engineering Costs	Captime	AFUDC		Completion Date	Total Construction Costs
1	354.4	Mid-County - WWTP MBR Construction Improvements - Engineering	$1,654,533	$34,633	$236,749		4/30/2026	$1,925,915
2	355.4	Mid-County - WWTP MBR Construction Improvements - Electrical and Instrumentation	7,098,260	143,582	1,015,698		4/30/2026	8,257,540
3	380.4	Mid-County - WWTP MBR Construction Improvements - MBR Treatment	9,437,904	190,908	1,350,480		4/30/2026	10,979,292
4	354.4	Mid-County - WWTP MBR Construction Improvements - Plant Improvements	3,801,142	76,889	543,910		4/30/2026	4,421,940
5	380.4	Mid-County - WWTP MBR Construction Improvements - Dewatering Improvements	1,215,161	24,580	173,879		4/30/2026	1,413,620
6	380.4	Mid-County - WWTP MBR Construction Improvements - Disinfection Improvements	840,304	16,997	120,240		4/30/2026	977,542
		Total	**$24,047,304**	**$487,588**	**$3,440,956**			**$27,975,848**
Total Eningeering			**$ 1,654,533**					
Total Construction			**$22,392,771**					

Mid-County - WWTP MBR Construction Improvements - Engineering				
Document	**Date**	**Vendor**	**Value**	**Name**
1	8/9/2021	Kimley Horn	$ 91,000.00	01 - 08.09.21 - Mid-County WWTP - Amendment 01 - Additional Design Services - $91,000
2	1/11/2021	Kimley Horn	$ 446,423.00	02 - 01.11.21 - Mid County WWTP MBR - $446,423
3	4/18/2022	Kimley Horn	$ 105,000.00	03 - 04.18.22 - Mid-County WWTP MBR - Task Order - $105,000
4	7/10/2022	Kimley Horn	$ 844,730.00	04 - 07.10.22- Task Order CPS Kimley Horn - Executed - $844,730
5	2/24/2025	Kimley Horn	$ 166,800.00	05 - 02.24.25 - Task Order - Mid-County MBR WWTP Improvements - Additional CPS - $166,800
Total			**$ 1,653,953.00**	

FORM OF TASK ORDER

Mid-County Wastewater Treatment Plant Improvements – Amendment 01

This Task Order is made August 9, 2021 by and between **Utilities, Inc. of Florida** ("**Corix**" or "**UIF**") and **Kimley-Horn and Associates, Inc.** ("**Engineer**" or "**Kimley-Horn**") pursuant to the terms and conditions set forth in the Master Engineering Services Agreement dated effective March 31, 2021 (the "**Agreement**") between Corix and Engineer.

1. The scope of work to be performed by Engineer under this Task Order is as follows:

Task 1 – Additional Services During Design (Civil, Process, and Mechanical)

(a) Kimley-Horn completed biological modeling of the proposed process changes to evaluate alternatives and construction phasing limitations.

(b) Kimley-Horn updated front end specification documents to reflect UIF standard EJCDC standard contract conditions.

(c) Kimley-Horn revised the process design for the North Train per direction from UIF including blower sizing, mixers, sludge decanting, and adjustments to bypassing and construction phasing. North Train blowers designed to supplement existing aeration basins, existing chorine contact chambers, and sludge digestion in the proposed design.

(d) Kimley-Horn designed additional plant components including: chemical dosing system improvements, site layout and grading for buildings, ferric sulfate tank replacement, sludge dewatering slab and pole barn, chlorine contact chamber rehabilitation/modifications, plant water tank, pumps, and distribution piping.

(e) Kimley-Horn assisted in the negotiation of short-form consent orders from the plant and will continue to provide permitting support for the operating permit renewal.

Task 2 – Additional Services During Design (Structural)

(a) Kimley-Horn completed the following additional structural design for components not identified under the original project scope:

i. Slab design of elevated internal recycle pump station slab (this particular design included finite element analysis)
ii. Slab design for new equalization pump station
iii. Slab design for two new electrical buildings
iv. Slab design for new sludge dewatering equipment pole barn
v. Slab design for new chlorination tank/plant water tank pole barn
vi. Wall design for the South Train to partition anaerobic/anoxic/aeration/post anoxic zones

Task 3 – Additional Services During Design (Electrical – Bailey Engineering Consultants, Inc. (BEC))

(a) Electrical and instrumentation design associated with replacement of the sludge tank blowers and associated north electrical room. All electrical currently served from this location will be removed and re fed from the proposed electrical building 1 and 2.

(b) Design associated with the replacement of the existing WWTP SCADA HMI system. New system design will include redundant servers and VT SCADA HMI platform. The new HMI platform will be integrated to poll all new and existing plant PLC systems.

(c) Additional electrical design to provide dual redundant electrical design. This will include the replacement of the main electrical switchgear.

(d) BEC will attend meetings to answer questions relating to electrical design.

(e) Deliverables:

a. 60% Drawings and specifications with 60% cost estimate
b. 90% Drawings and specifications with 90% cost estimate
c. 100% Drawings and Specifications with 100% cost estimate BEC shall submit up to three (3) complete set of 11" x 17" drawings and up to three (3) complete set of 24" x 36" drawings for bidding submittal. BEC shall submit one (1) electronic copy in AutoCAD Version 2019 and pdf format. All additional reproduction shall be completed by others.

(f) BEC shall submit one (1) electronic copy in Word for the project specifications. All additional reproduction shall be completed by others.

Services Not Included

(a) Any other services, including but not limited to the following, are not included in this Task Order:

- Wastewater Sampling/Testing
- Surveying
- Geotechnical Services
- Subsurface Utility Investigation
- Environmental Services
- Public Involvement

2. The schedule for the scope of work is as follows:

Amendment for work already completed or anticipated to be completed during construction.

Task durations that exceed the schedule estimates may be considered a scope change; provided that the reason for the schedule estimates being exceeded is not the result of the acts or omissions of Engineer, and subject to written approval in advance by Corix.

3. Corix will pay Engineer for the scope of work covered under this Task Order as follows:

(a) Total Lump Sum for this scope of work is detailed below. All dollar amounts expressed are in U.S. currency. A breakdown of each task is provided below.

Task 1 – Additional Services During Design (Civil, Process, Mech)	$44,000.00
Task 2 – Additional Services During Design (Structural)	$12,000.00
Task 3 – Additional Services During Design (Electrical - BEC)	*$35,000.00*
TOTAL LUMP SUM FEE	**$91,000.00**

(b) Corix shall have no obligation or liability to pay Engineer for any amount greater than the amount specified above unless Corix has given Engineer its express prior written approval to exceed such amount.

(c) Engineer acknowledges and agrees that payment will be made on the basis of the Services actually and fully performed.

4. Engineer shall prepare and submit to the Corix Representative on a monthly basis (or such other basis as the Corix Representative may require) a detailed status report on the Services that shall include the following items:

(a) Engineer's costs for the preceding period with a notation of percentage complete for each task and a brief description of the Services performed,

(b) Engineer's total costs to date; and

(c) an update on the status of the Services.

5. Change Orders. The Corix Representative may by a written change order change, add to or delete from the scope of Services and Engineer shall be required to perform the Services as amended. Where such a change in the Services warrants additional payment, the rate shall be mutually agreed by the parties. No amount in addition to the fees set out in Section 4 of this Task Order shall be paid to Engineer unless authorized by the Corix Representative in writing and in advance.

6. Witness. Engineer shall, if requested, act as a competent witness to testify to Engineer's scope of services and deliverables.

TO EVIDENCE THEIR AGREEMENT the parties have executed this Task Order effective as of the date set out above.

KIMLEY-HORN AND ASSOCIATES, INC.

Per: _____
Name: Wayne White, P.E.
Title: Vice President

UTILITIES, INC. OF FLORIDA

Per: _____
Name: Gary Rudkin
Title: President

Kimley»Horn

January 11, 2021

Patrick Flynn
Utilities Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, FL 32714

Re: Professional Services Agreement for Mid-County WWTP Improvements
Utilities Inc. of Florida
Pinellas County, Florida

Dear Mr. Flynn:

Kimley-Horn and Associates, Inc. ("Kimley-Horn" or "Consultant") is pleased to submit this letter agreement (the "Agreement") to Utilities Inc. of Florida ("UIF" or "Client") for providing design, permitting, bidding and construction phase services for the Mid-County WWTP Improvements.

Project Understanding and Schedule

The Mid-County WWTP is an extended aeration, Type I facility with high level disinfection. The Mid-County WWTP is currently operating under Permit No FL0034789 that will expire August 4th, 2021. The Mid-County WWTP is permitted for an annual average daily flow (AADF) of 0.90 million gallons per day (MGD). The existing plant configuration does not provide adequate capacity to handle peak flow events during wet weather and cannot provide redundancy for maintenance activities or equipment failures. Additionally, existing infrastructure is reaching the end of its useful life and is at risk of failure. Kimley-Horn completed an engineering analysis outlining required capital improvements to improve the operation of the Mid-County WWTP, increase system redundancy, and alleviate overloading during wet weather conditions.

The following improvements were recommended:

1. Master Lift Station Replacement
2. Headworks and Grit Removal System Improvements
3. Extended Aeration to Membrane Bioreactors (MBR) Plant Conversion
4. UV Disinfection
5. Sludge Processing Improvements

Kimley-Horn completed the design, permitting, and bidding services for improvements 1 and 2, the Master Lift Station and the Headworks and Grit Removal System. The intent of this Scope of Services is to complete improvements 3, 4 and 5. The outline of the schedule of improvements is shown below. The construction phase start date is not indicative of the Notice to Proceed date or construction schedule provided by the selected contractors. The estimated substantial completion date is based on assumptions of time required for procurement of materials, submittal reviews, and execution of the agreement form and notice to proceed.

Kimley»Horn

Improvement	Design Permitting Bidding	Construction Timeframe	Construction Phase Start Date	Estimated Substantial Completion Date
Master Lift Station	Complete	6 - 8 Months	July 2020	January 2021
Headworks and Grit Removal	Complete	12 Months	January 2020	December 2021
MBR Conversion UV Disinfection Sludge Processing	10-12 Months	12 – 36 Months	*To Be Determined*	*To Be Determined*

Kimley-Horn will complete the Scope of Services for each task outlined below.

Scope of Services

To maintain the existing plant footprint and increase capacity and reliability, an MBR treatment system is recommended to supplement the biological treatment process. MBR separates the mixed liquor from the total solids during the aeration process, effectively eliminating the need for clarifiers. Anoxic zones will provide denitrification to meet permitted effluent limitations, eliminating the need for methanol dosing and denitrification filters. The reduction of required tankage would allow unused tank volume to be used as additional equalization volume. Retrofitting the plant with the MBR system would increase the overall treatment capacity and provide greater redundancy and reliability.

Kimley-Horn will design the proposed improvements required for the conversion from an extended aeriation treatment system to an MBR system. System improvements include:

- Conversion of the North Treatment Train to provide biological treatment and MBR Zones
- Demolition/rehabilitation of existing clarifiers
- Rehabilitation of existing digesters/sludge holding tanks
- Demolition and replacement of existing blowers and pumping equipment
- Conversion of the South Treatment Train to provide equalization volume
- Demolition of flow splitter box
- Demolition of unused facilities and piping including, but not limited to, coarse screen, denitrification filters, and methanol dosing system
- Modifications to site piping, grading and drainage and site lighting
- Electrical and instrumentation control improvements
- Rehabilitation and replacement of disinfection system
- Rehabilitation and replacement of sludge handling equipment

TASK 1 – PRELIMINARY (30%) DESIGN AND OPC
Estimated Time for Completion: 2-4 MONTHS

Kimley-Horn will complete the 30% Design. Plans will be delivered to the Client electronically for review and comment. Kimley-Horn will meet with staff on site to review and discuss any comments. Kimley-Horn will revise the plans and resubmit to the Client up to one (1) time per submittal.

Construction plans will be set up in 11" x 17" format. 30% Plans will include the following sheets:

- Standard Cover Sheet
- Yard Piping Plan

Kimley»Horn

- Conceptual tank modification and piping plan for MBR improvements
- Preliminary hydraulic profile
- Preliminary I&C plan (to be completed by electrical engineer)
- Conceptual Structural Modification Plan
- Conceptual tank modification and piping plan for disinfection improvements
- Conceptual equipment and piping plan for sludge handling improvements

Kimley-Horn will coordinate with the manufacturers for the initial design criteria, biological modeling, and cost estimates.

Kimley-Horn will prepare quantity take-offs and an opinion of probable cost and inform Client during the design process of cost changes caused by significant design changes that increase the project construction cost. The Consultant has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Consultant at this time and represent only the Consultant's judgment as a design professional familiar with the construction industry. The Consultant cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

TASK 2 – BID DESIGN DOCUMENTS
Estimated Time for Completion: 8-10 MONTHS

Kimley-Horn will complete the 60%, 90% and Bid Design. Plans will be delivered to the Client electronically for review and comment at the 60% and 90% design phases. Kimley-Horn will meet with staff on site to review and discuss any comments. Kimley-Horn will revise the plans and resubmit to the Client up to one (1) time per submittal.

Construction plans will be set up in 11" x 17" format. 60% Plans, 90% Plans and Bid Plans will include the following sheets:

- Standard Cover Sheet
- General Notes and Legend
- Existing Site Plan
- Hydraulic Profile
- Process Flow Diagram
- Demolition Plan
- Site Plan
- Dimensional Control Plan
- Grading and Drainage Plan
- Yard Piping Plan
- MBR Installation Plans and Details
- Equalization Basin Plans and Details
- Structural Plans and Details
- Sludge Handling Equipment Installation Plans and Details
- Disinfection Equipment Installation Plans and Details
- Bypassing and Construction Phasing Plan
- Electrical and Instrumentation Plans (to be completed by electrical engineer)
- Construction Details

Biological modeling for treatment parameters will be provided by selected MBR manufacturer.

Kimley-Horn will prepare front-end and technical specifications for the 90% submittal based on standard specifications utilized by UIF. Specifications, including bid form, schedule, and measurement and payment

sections will be updated to reflect project specific content.

Kimley-Horn will prepare quantity take-offs and an opinion of probable cost and inform Client during the design process of cost changes caused by significant design changes that increase the project construction cost. The Consultant has no control over the cost of labor, materials, equipment, or over the Contractor's methods of determining prices or over competitive bidding or market conditions. Opinions of probable costs provided herein are based on the information known to Consultant at this time and represent only the Consultant's judgment as a design professional familiar with the construction industry. The Consultant cannot and does not guarantee that proposals, bids, or actual construction costs will not vary from its opinions of probable costs.

TASK 3 – PERMITTING
Estimated Time for Completion: 3-4 MONTHS (CONCURRENT WITH TASK 2)

The Consultant will prepare the Wastewater Permit Application Form 1 and Form 2A for Domestic Wastewater Facilities required for the permit renewal, **due February 04, 2021**.

- The consultant will prepare the associated documents required for the operating permit renewal including the Capacity Analysis Report (CAR) and the Operating, Maintenance and Performance Report (OMPR) per FAC Chapter 62-600.405 requirements.
- The consultant will submit the renewal package to FDEP and address up to one round of comments.
- Permitting Fees are included in this task, which is $5,000 for a Type I facility.

The Consultant will assist the Client in applying for a Pinellas County Site Plan permit. This permitting task will include the following:

- Pre-Application Meeting with County
- Site Plan Checklist
- Site Plan Review Application
    - The permit fee for this item will be determined in pre-application meeting and therefore is not included as part of this proposal.

Permitting Fees are included in this task.

TASK 4 – BIDDING AND SERVICES DURING CONSTRUCTION

Kimley-Horn will coordinate with a minimum of five (5) pre-selected contractors for distribution of plans. Kimley-Horn will tabulate the bids received and evaluate compliance of bids with the bidding documents. Kimley-Horn will provide clarifications during the bidding phase to technical inquiries received and provide language for addenda, as necessary, and issue them to the contractor. Following receipt of the bids, Kimley-Horn will provide a bid tabulation to the Client to identify the lowest responsive bidder.

Kimley-Horn will coordinate a pre-construction conference prior to commencement of work at the site. Kimley-Horn will provide five (5) copies of signed and sealed Conformed Documents to the contractor for the Pinellas County building permit or right-of-way permit if required.

Kimley-Horn will review and approve or take other appropriate action in respect to shop drawings and samples and other data which Contractor is required to submit based on permit conditions, but only for conformance with the information given in the Contract Documents. Such review and approvals or other

action will not extend to means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction or to related safety precautions and programs.

Kimley-Horn will provide on-site construction observation services during the construction phase of the project. Kimley-Horn will make up to thirty (30) site visits during construction to observe the progress of the Work. Such visits and observations by Kimley-Horn are not intended to be exhaustive or to extend to every aspect of Contractor's work in progress. Observations are to be limited to spot checking, selective measurement, and similar methods of general observation of the Work based on Consultant's exercise of professional judgment. Based on information obtained during such visits and such observations, Consultant will evaluate whether Contractor's work is generally proceeding in accordance with the Contract Documents, and Consultant will keep Client informed of the general progress of the Work.

The purpose of Kimley-Horn's site visits will be to enable Consultant to better carry out the duties and responsibilities specifically assigned in this Agreement to Consultant, and to provide Client a greater degree of confidence that the completed Work will conform in general to the Contract Documents. Consultant shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct, or have control over Contractor's work, nor shall Kimley-Horn have authority over or responsibility for the means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction selected by Contractor, for safety precautions and programs incident to Contractor's work, nor for any failure of Contractor to comply with laws and regulations applicable to Contractor's furnishing and performing the work. Accordingly, Consultant neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract Documents.

Consultant will, promptly after notice from Contractor that it considers the entire work ready for its intended use, in company with Client and Contractor, conduct a site visit to determine if the work is substantially complete. Work will be considered substantially complete following satisfactory completion of all items with the exception of those identified on a final punch list. If after considering any objections of Client, Consultant considers the Work substantially complete, Consultant will notify Client and Contractor.

Consultant will conduct two (2) additional site visits to determine if the completed Work of Contractor is generally in accordance with the Contract Documents and the final punch list so that Consultant may recommend, in writing, final payment to Contractor. Accompanying the recommendation for final payment, Consultant shall also provide a notice that the Work is generally in accordance with the Contract Documents to the best of Consultant's knowledge, information, and belief based on the extent of its services and based upon information provided to Consultant upon which it is entitled to rely.

Consultant shall not be responsible for the acts or omissions of any Contractor, or of any of their subcontractors, suppliers, or of any other individual or entity performing or furnishing the work. Consultant shall not have the authority or responsibility to stop the work of any Contractor.

Services Not Included

Any other services, including but not limited to the following, are not included in this Agreement:

- Biological Modeling
- Subsurface Utility Investigation
- Environmental Services
- Public Involvement
- Geotechnical Engineering

- Surveying

Information Provided By Client

We shall be entitled to rely on the completeness and accuracy of all information provided by the Client or the Client's consultants or representatives.

- As-Builts

Responsibilities of Client

In addition to other responsibilities set out in this Agreement, the Client shall:

- Access to the Site

Kimley»Horn

Fee and Expenses

Kimley-Horn will perform the services listed above for the total lump sum fee as shown below. Individual task amounts are informational only. All permitting, application, and similar project fees will be paid directly by the Consultant.

Task 1 – PRELIMINARY (30%) DESIGN AND OPC		**$55,447.00**
Task 2 – BID DESIGN DOCUMENTS		**$246,231.00**
Fee Includes:		
Electrical Engineering – MBR	*$20,000.00*	
Electrical Engineering – Disinfection	*$10,000.00*	
Electrical Engineering – Sludge Handling	*$10,000.00*	
Task 3 – PERMITTING		**$28,042.00**
Fee Includes:		
Permitting Fees	*$7,973.00*	
Task 4 – BIDDING AND SERVICES DURING CONSTRUCTION		**$116,703.00**
Fee Includes:		
Electrical Services During Construction	*$35,000.00*	
TOTAL LUMP SUM FEE		**$446,423.00**

Lump sum fees will be invoiced monthly based upon the overall percentage of services performed. Payment will be due within 25 days of your receipt of the invoice and should include the invoice number and Kimley-Horn project number.

Closure

In addition to the matters set forth herein, our Agreement shall include and be subject to, and only to, the attached Standard Provisions, which are incorporated by reference. As used in the Standard Provisions, "Consultant" shall refer to Kimley-Horn and Associates, Inc., and "Client" shall refer to Utilities Inc. of Florida.

Kimley-Horn, in an effort to expedite invoices and reduce paper waste, submits invoices via email in an Adobe PDF format. We can also provide a paper copy via regular mail if requested. Include the invoice number and Kimley-Horn project number with all payments. Please provide the following information:

_X_ Please email all invoices to mawilson@uiwater.com_____

____ Please copy _____

If you concur in all the foregoing and wish to direct us to proceed with the services, please have authorized persons execute both copies of this Agreement in the spaces provided below, retain one copy, and return the other to us. We will commence services after we have received a fully-executed agreement. Fees and times stated in this Agreement are valid for sixty (60) days after the date of this letter.

To ensure proper set up of your projects so that we can get started, please complete and return with the signed copy of this Agreement the attached Request for Information. Failure to supply this information could result in delay in starting work on your project.

We appreciate the opportunity to provide these services to you. Please contact me if you have any questions.

Very truly yours,

KIMLEY-HORN AND ASSOCIATES, INC.

By: Shelby N. Hughes, P.E.
Project Manager

Wayne White, P.E.
Vice President

Kimley»Horn

Utilities Inc. of Florida
A Corporation

By:

_____, President/Vice President

January 18, 2021
(Date)

Patrick C. Flynn
(Print or Type Name)

patrick.flynn@uiwater.com
(Email Address)

KIMLEY-HORN AND ASSOCIATES, INC.

STANDARD PROVISIONS

(1) **Consultant's Scope of Services and Additional Services.** The Consultant's undertaking to perform professional services extends only to the services specifically described in this Agreement. However, if requested by the Client and agreed to by the Consultant, the Consultant will perform Additional Services, which shall be governed by these provisions. Unless otherwise agreed to in writing, the Client shall pay the Consultant for any Additional Services an amount based upon the Consultant's then-current hourly rates plus an amount to cover certain direct expenses including telecommunications, in-house reproduction, postage, supplies, project related computer time, and local mileage. Other direct expenses will be billed at 1.15 times cost.

(2) **Client's Responsibilities.** In addition to other responsibilities described herein or imposed by law, the Client shall:
(a) Designate in writing a person to act as its representative with respect to this Agreement, such person having complete authority to transmit instructions, receive information, and make or interpret the Client's decisions.
(b) Provide all information and criteria as to the Client's requirements, objectives, and expectations for the project including all numerical criteria that are to be met and all standards of development, design, or construction.
(c) Provide to the Consultant all previous studies, plans, or other documents pertaining to the project and all new data reasonably necessary in the Consultant's opinion, such as site survey and engineering data, environmental impact assessments or statements, upon all of which the Consultant may rely.
(d) Arrange for access to the site and other private or public property as required for the Consultant to provide its services.
(e) Review all documents or oral reports presented by the Consultant and render in writing decisions pertaining thereto within a reasonable time so as not to delay the services of the Consultant.
(f) Furnish approvals and permits from governmental authorities having jurisdiction over the project and approvals and consents from other parties as may be necessary for completion of the Consultant's services.
(g) Cause to be provided such independent accounting, legal, insurance, cost estimating and overall feasibility services as the Client may require.
(h) Give prompt written notice to the Consultant whenever the Client becomes aware of any development that affects the scope, timing, or payment of the Consultant's services or any defect or noncompliance in any aspect of the project.
(i) Bear all costs incidental to the responsibilities of the Client.

(3) **Period of Services.** Unless otherwise stated herein, the Consultant will begin work timely after receipt of a properly executed copy of this Agreement and any required retainer amount. This Agreement is made in anticipation of conditions permitting continuous and orderly progress through completion of the services. Times for performance shall be extended as necessary for delays or suspensions due to circumstances that the Consultant does not control. If such delay or suspension extends for more than six months (cumulatively), Consultant's compensation shall be renegotiated.

(4) **Method of Payment.** Compensation shall be paid to the Consultant in accordance with the following provisions:
(a) Invoices will be submitted periodically for services performed and expenses incurred. Payment of each invoice will be due within 25 days of receipt. The Client shall also pay any applicable sales tax. All retainers will be held by the Consultant for the duration of the project and applied against the final invoice. Interest will be added to accounts not paid within 25 days at the maximum rate allowed by law. If the Client fails to make any payment due to the Consultant under this or any other agreement within 30 days after the Consultant's transmittal of its invoice, the Consultant may, after giving notice to the Client, suspend services and withhold deliverables until all amounts due are paid in full and may commence proceedings, including filing liens, to secure its right to payment under this Agreement.
(b) If the Client relies on payment or proceeds from a third party to pay Consultant and Client does not pay Consultant's invoice within 60 days of receipt, Consultant may communicate directly with such third party to secure payment.
(c) If the Client objects to an invoice, it must advise the Consultant in writing giving its reasons within 14 days of receipt of the invoice or the Client's objections will be waived, and the invoice shall conclusively be deemed due and owing. If the Client objects to only a portion of the invoice, payment for all other portions remains due within 25 days of receipt.
(d) The Client agrees that the payment to the Consultant is not subject to any contingency or condition. The Consultant may negotiate payment of any check tendered by the Client, even if the words "in full satisfaction" or words intended to have similar effect appear on the check without such negotiation being an accord and satisfaction of any disputed debt and without prejudicing any right of the Consultant to collect additional amounts from the Client.

(5) **Use of Documents.** All documents, including but not limited to drawings, specifications, reports, and data or programs stored electronically, prepared by the Consultant are related exclusively to the services described in this Agreement, and may be used only if the Client has satisfied all of its obligations under this Agreement. They are not intended or represented to be suitable for use, partial use or reuse by the Client or others on extensions of this project or on any other project. Any modifications made by the Client to any of the Consultant's documents, or any use, partial use or reuse of the documents without written authorization or adaptation by the Consultant will be at the Client's sole risk and without liability to the Consultant, and the Client shall indemnify, defend and hold the Consultant harmless from

all claims, damages, losses and expenses, including but not limited to attorneys' fees, resulting therefrom. The Consultant's electronic files and source code developed in the development of application code remain the properly of the Consultant and shall be provided to the Client only if expressly provided for in this Agreement. Any electronic files not containing an electronic seal are provided only for the convenience of the Client, and use of them is at the Client's sole risk. In the case of any defects in the electronic files or any discrepancies between them and the hardcopy of the documents prepared by the Consultant, the hardcopy shall govern. Because data stored in electronic media format can deteriorate or be modified without the Consultant's authorization, the Client has 60 days to perform acceptance tests, after which it shall be deemed to have accepted the data.

(6) **Opinions of Cost.** Because the Consultant does not control the cost of labor, materials, equipment or services furnished by others, methods of determining prices, or competitive bidding or market conditions, any opinions rendered as to costs, including but not limited to opinions as to the costs of construction and materials, shall be made on the basis of its experience and represent its judgment as an experienced and qualified professional, familiar with the industry. The Consultant cannot and does not guarantee that proposals, bids or actual costs will not vary from its opinions of cost. If the Client wishes greater assurance as to the amount of any cost, it shall employ an independent cost estimator. Consultant's services required to bring costs within any limitation established by the Client will be paid for as Additional Services.

(7) **Termination.** The obligation to provide further services under this Agreement may be terminated by either party upon seven days' written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof through no fault of the terminating party, or upon thirty days' written notice for the convenience of the terminating party. If any change occurs in the ownership of the Client, the Consultant shall have the right to immediately terminate this Agreement. In the event of any termination, the Consultant shall be paid for all services rendered and expenses incurred to the effective date of termination, and other reasonable expenses incurred by the Consultant as a result of such termination. If the Consultant's compensation is a fixed fee, the amount payable for services will be a proportional amount of the total fee based on the ratio of the amount of the services performed, as reasonably determined by the Consultant, to the total amount of services which were to have been performed.

(8) **Insurance.** The Consultant carries Workers' Compensation insurance, professional liability insurance in the amount of $2,000,000 per claim, and general liability insurance. If the Client directs the Consultant to obtain increased insurance coverage, the Consultant will take out such additional insurance, if obtainable, at the Client's expense.

(9) **Standard of Care.** The standard of care applicable to Consultant's services will be the degree of care and skill ordinarily exercised by consultants performing the same or similar services in the same locality at the time the services are provided. No warranty, express or implied, is made or intended by the Consultant's undertaking herein or its performance of services, and it is agreed that the Consultant is not a fiduciary with respect to the Client.

(10) **LIMITATION OF LIABILITY.** In recognition of the relative risks and benefits of the Project to the Client and the Consultant, the risks have been allocated such that the Client agrees, to the fullest extent of the law, and notwithstanding any other provisions of this Agreement or the existence of applicable insurance coverage, that the total liability, in the aggregate, of the Consultant and the Consultant's officers, directors, employees, agents, and subconsultants to the Client or to anyone claiming by, through or under the Client, for any and all claims, losses, costs or damages whatsoever arising out of, resulting from or in any way related to the services under this Agreement from any cause or causes, including but not limited to, the negligence, professional errors or omissions, strict liability or breach of contract or any warranty, express or implied, of the Consultant or the Consultant's officers, directors, employees, agents, and subconsultants, shall not exceed twice the total compensation received by the Consultant under this Agreement or $50,000, whichever is greater. Higher limits of liability may be negotiated for additional fee. Under no circumstances shall the Consultant be liable for extra costs or other consequences due to changed conditions, or for costs related to the failure of contractors to perform work in accordance with the plans and specifications. This Section 10 is intended solely to limit the remedies available to the Client or those claiming by or through the Client, and nothing in this Section 10 shall require the Client to indemnify the Consultant.

(11) **Mutual Waiver of Consequential Damages.** In no event shall either party be liable to the other for any consequential, incidental, punitive, or indirect damages including but not limited to loss of income or loss of profits.

(12) **Certifications.** The Consultant shall not be required to execute certifications or third-party reliance letters that are inaccurate, that relate to facts of which the Consultant does not have actual knowledge, or that would cause the Consultant to violate applicable rules of professional responsibility.

(13) **Dispute Resolution.** All claims by the Client arising out of this Agreement or its breach shall be submitted first to mediation in accordance with the Construction Industry Mediation Procedures of the American Arbitration Association as a condition precedent to litigation.

(14) **Hazardous Substances and Conditions.** In no event shall Consultant be a custodian, transporter, handler, arranger, contractor, or remediator with respect to hazardous substances and conditions. Consultant's services will be limited to professional analysis, recommendations, and reporting, including, when agreed to, plans and specifications for isolation, removal, or remediation. The Consultant shall notify the Client of hazardous substances or conditions not contemplated in the scope of services of which the Consultant actually becomes aware. Upon such notice by the Consultant, the Consultant may stop affected portions of its services until the hazardous substance or condition is eliminated.

(15) **Construction Phase Services.**
(a) If the Consultant's services include the preparation of documents to be used for construction and the Consultant is not retained to make periodic site visits, the Client assumes all responsibility for interpretation of the documents and for construction observation, and the Client waives any claims against the Consultant in any way connected thereto.
(b) If the Consultant provides construction phase services, the Consultant shall have no responsibility for any contractor's means, methods, techniques, equipment choice and usage, sequence, schedule, safety programs, or safety practices, nor shall Consultant have any authority or responsibility to stop or direct the work of any contractor. The Consultant's visits will be for the purpose of endeavoring to provide the Client a greater degree of confidence that the completed work of its contractors will generally conform to the construction documents prepared by the Consultant. Consultant neither guarantees the performance of contractors, nor assumes responsibility for any contractor's failure to perform its work in accordance with the contract documents.
(c) The Consultant is not responsible for any duties assigned to the design professional in the construction contract that are not expressly provided for in this Agreement. The Client agrees that each contract with any contractor shall state that the contractor shall be solely responsible for job site safety and for its means and methods; that the contractor shall indemnify the Client and the Consultant for all claims and liability arising out of job site accidents; and that the Client and the Consultant shall be made additional insureds under the contractor's general liability insurance policy.

(16) **No Third-Party Beneficiaries; Assignment and Subcontracting.** This Agreement gives no rights or benefits to anyone other than the Client and the Consultant, and all duties and responsibilities undertaken pursuant to this Agreement will be for the sole benefit of the Client and the Consultant. The Client shall not assign or transfer any rights under or interest in this Agreement, or any claim arising out of the performance of services by Consultant, without the written consent of the Consultant. The Consultant reserves the right to augment its staff with subconsultants as it deems appropriate due to project logistics, schedules, or market conditions. If the Consultant exercises this right, the Consultant will maintain the agreed-upon billing rates for services identified in the contract, regardless of whether the services are provided by in-house employees, contract employees, or independent subconsultants.

(17) **Confidentiality.** The Client consents to the use and dissemination by the Consultant of photographs of the project and to the use by the Consultant of facts, data and information obtained by the Consultant in the performance of its services. If, however, any facts, data or information are specifically identified in writing by the Client as confidential, the Consultant shall use reasonable care to maintain the confidentiality of that material.

(18) **Miscellaneous Provisions.** This Agreement is to be governed by the law of the State of Florida. This Agreement contains the entire and fully integrated agreement between the parties and supersedes all prior and contemporaneous negotiations, representations, agreements or understandings, whether written or oral. Except as provided in Section 1, this Agreement can be supplemented or amended only by a written document executed by both parties. Provided, however, that any conflicting or additional terms on any purchase order issued by the Client shall be void and are hereby expressly rejected by the Consultant. Any provision in this Agreement that is unenforceable shall be ineffective to the extent of such unenforceability without invalidating the remaining provisions. The non-enforcement of any provision by either party shall not constitute a waiver of that provision.

(19) PURSUANT TO FS 558.0035, EMPLOYEES OF CONSULTANT MAY NOT BE HELD INDIVIDUALLY LIABLE FOR DAMAGES RESULTING FROM NEGLIGENCE UNDER THIS AGREEMENT.

PROJECT WORK PLAN PERSON-HOUR ESTIMATE

Project Name: Mid County MBR
Estimated By: Shelby Hughes

KHA Task # Subtask ID Number	KHA Task Name Subtask Name/Description	Direct Labor (Person-Hours)								Misc. Direct Expense
		Principal	Senior PM	Senior Eng	Sr Project Engineer	Project Eng/Const Manager	Designer	Admin Asst	KHA Labor Total	
1	**Preliminary Design**									
	Site Visit				4	4				
	MBR Equipment Manufacturer Coordination				8	20				
	Sludge Manufacturer Coordination				4	20				
	UV Manufacturer Coordination				4	20				
	30% Drawings		16							
	Cover Sheet				2	8				
	Yard Piping Plan				8	20				
	Conceptual Tank Use and Piping Plan				8	40				
	Preliminary Hydraulic Profile				8	10				
	Conceptual Structural Modification Plan			30		40				
	Conceptual Disinfection Improvements		4		8	30				
	Conceptual Sludge Improvements		4		8	30				
	Opinion of Probable Costs				20	40				
	30% Review Meeting				4	4				
	Subtotal (Hours)	0	24	30	86	286	0	0		$0
	Task Total (Dollars)	$0	$4,620	$5,250	$13,545	$32,032	$0	$0	**$55,447**	**$0**
2	**Design**									
	Site Visits				12	12				
	Equipment Manufacturer Coordination - MBR		2		20	40				
	Equipment Manufacturer Coordination - Disinfection		2		12	20				
	Equipment Manufacturer Coordination - Sludge		2		12	20				
	Hydraulic Design		8		20	120				
	60% Drawings		30							
	Cover Sheet/General Notes/Legend				2	8				
	Existing Site Plan				1	1				
	Hydraulic Profile				2	8				
	Process Flow Diagram				2	8				
	Demolition Plan				2	8				
	Site Plan/SWPPP				2	12				
	Dimensional Control Plan				2	10				
	Grading and Drainage Plan				2	10				
	Yard Piping Plan				20	50				
	MBR Installation Plans & Details				10	50				
	Equalization Basin Plans & Details				10	20				
	Structural Modification Plans & Details			40		120				
	Disinfection Equipment Installation Plans and Details		2	10	20	80				
	Sludge Handling Equipment Installation Plans and Details		2	10	20	80				
	Bypassing and Construction Phasing Plan				30	30				
	Construction Details				2	10				
	Refined Opinion of Probable Costs		2		12	40				
	60% Review Meeting				4	8				
	Specifications		4		10	80		20		

PROJECT WORK PLAN PERSON-HOUR ESTIMATE

Project Name: Mid County MBR
Estimated By: Shelby Hughes

KHA Task # Subtask ID Number	KHA Task Name Subtask Name/Description	Direct Labor (Person-Hours)								Misc. Direct Expense
		Principal	Senior PM	Senior Eng	Sr Project Engineer	Project Eng/Const Manager	Designer	Admin Asst	KHA Labor Total	
	90% Drawings		8	30	30	140				
	Opinion of Probable Costs				2	20				
	90% Review Meeting				4	4				
	Specifications		4		20	80				
	Bid Plans and Specifications				20	60				
	Subtotal (Hours)	0	66	90	305	1149	0	20		$0
	Task Total (Dollars)	$0	$12,705	$15,750	$48,038	$128,688	$0	$1,050	**$206,231**	**$0**
3	**Permitting**									
	FDEP WW Permit Applications		2		4	12				$7,500
	CAR/OMPR/PDR		6		16	50				
	Submittal and Coordination				8	10				
	Pinellas County DO/ROW Permit				10	40				$473
	Subtotal (Hours)	0	8	0	38	112	0	0		$7,973
	Task Total (Dollars)	$0	$1,540	$0	$5,985	$12,544	$0	$0	**$20,069**	**$7,973**
4	**Bidding and Construction Phase Services**									
	Preparation of Final Packages; Bidding				10	20				
	Contractor Coordination During Bidding				20	40				
	RFI's and Addendums				20	80				
	Contract Documents and Front End Specifications				20	20				
	Pre-construction Conference				4	8				
	Shop Drawing Reviews				20	80		6		
	Conduct 30 site visits to observe the progress of the work and report observations to the Client. Pressure Tests. Prepare punch list items to be corrected or completed at the substantial completion stage of the work				90	90				
	Provide recommendations of changes, if necessary, which may be required within the scope of the project during construction. Prepare discretionary item work directive changes, and change orders, if required, for County approval				20	40				
	As-builts, Certifications				4	20				
	Final Site Visit prior to warranty, to confirm final punch list items				8	16				
	Expenses									$1,000
	Subtotal (Hours)	**0**	**0**	0	216	414	0	6		$1,000
	Task Total (Dollars)	$0	$0	$0	$34,020	$46,368	$0	$315	**$80,703**	**$1,000**

PROJECT WORK PLAN PERSON-HOUR ESTIMATE

Project Name: Mid County MBR
Estimated By: Shelby Hughes

KHA Task # Subtask ID Number	KHA Task Name Subtask Name/Description	Direct Labor (Person-Hours)								Misc. Direct Expense
		Principal	Senior PM	Senior Eng	Sr Project Engineer	Project Eng/Const Manager	Designer	Admin Asst	KHA Labor Total	
5	**Sub-Consultants**									
	Electrical									$40,000
	Electrical During Construction									$35,000
	Subtotal (Hours)	0	0	0	0	0	0	0		$75,000
	Task Total (Dollars)	$0	$0	$0	$0	$0	$0	$0	**$0**	**$75,000**
	Subtotal (Hours)								$362,450	$83,973
	Task Total (Dollars)								**$446,423.00**	

FORM OF TASK ORDER

Mid-County Wastewater Treatment Plant Improvements – Additional Services

This Task Order is made April 18, 2022 by and between **Sunshine Water Services** ("**Corix**" or "**SWS**" or "**Client**") and **Kimley-Horn and Associates, Inc.** ("**Engineer**" or "**Consultant**" or "**Kimley-Horn**") pursuant to the terms and conditions set forth in the Master Engineering Services Agreement dated effective March 31, 2021 (the "**Agreement**") between Corix and Engineer.

1. The scope of work to be performed by the Engineer under this Task Order is as follows:

Task 1 – Re-Permitting

(a) Kimley-Horn will coordinate with SWS and FDEP to propose a re-rate of the Mid-County Wastewater Treatment Plant (WWTP) from 1.2 MGD AADF to the facility's current discharge capacity of 0.9 MGD AADF.

(b) Kimley-Horn will prepare the associated documents required for the operating permit revisions, including a revised preliminary design report to reflect changes in capacity if required by FDEP.

(c) Permitting Fees are included in this task, which is $5,000 for a Type I facility.

(d) Kimley-Horn will assist SWS in resubmittig for a Pinellas County Site Plan permit including revised site considerations.

Task 2 – Re-Bidding

(a) Kimley-Horn will revise the bid plan set from November 2021 to address the questions/comments received during the initial bid phase and to address comments received by equipment manufacturers after the issuance of bids, including:

- MBR influent weir structural design modifcations
- Update chemical pump tubing material
- Modify anaerobic/pre-anoxic RAS split
- Increase anaerobic zone volume
- Electrical and I&C revisions

(b) Kimley-Horn will update front end specification documents

(c) Kimley-Horn will coordinate with a minimum of five (5) pre-selected contractors for the distribution of plans. Kimley-Horn will tabulate the bids received and evaluate compliance of bids with the bidding documents. Kimley-Horn will provide clarifications during the bidding phase to technical inquiries received and provide language for addenda, as necessary, and issue them to the contractor. Following receipt of the bids, Kimley-Horn will provide a bid tabulation to the Client to identify the lowest responsive bidder.

(d) Kimley-Horn will coordinate a pre-bid conference prior to the bid due date.

Task 3 – Value Engineering (Civil, Process, and Mechanical)

(a) Kimley-Horn will complete value engineering for the following components upon selection of a contractor and as approved by SWS:

- Reduce rental supplemental equalization volume
- Evaluate reducing MBR installation from 4 to 3 cassettes
- Reduce mixer hoists number (1 hoist per 2 mixers, instead of 1 hoist:1 mixer)
- Remove headworks overflow emergency piping (increase equalization volume)
- Evaluate wasting rate to reduce sludge holding tank volume and equipment
- Blower selection
- Internal Recycle pump station modifications (on grade slab in lieu of overhead slab)
- Remove solids handling improvements

Task 4 – Additional Services During Design (Electrical – Bailey Engineering Consultants, Inc, (BEC))

(a) Electrical and instrumentation design associated with updating the plans and specifications to reflect owner comments and updates from contractor questions during the last bid.

(b) 100% Drawings and Specifications with 100% cost estimate BEC shall submit up to three (3) complete set of 11" x 17" drawings and up to three (3) complete set of 24" x 36" drawings for bidding submittal. BEC shall submit one (1) electronic copy in AutoCAD Version 2019 and pdf format. All additional reproduction shall be completed by others.

Services Not Included

(a) Any other services, including but not limited to the following, are not included in this Task Order:

- Wastewater Sampling/Testing
- Surveying
- Geotechnical Services
- Subsurface Utility Investigation
- Environmental Services
- Public Involvement

2. The schedule for the scope of work is as follows:

Task 1: 1 Month
Task 2: 2 Months (Completed by June 1, 2022)
Task 3 and 4: Concurrent, 3 Months

Task durations that exceed the schedule estimates may be considered a scope change; provided that the reason for the schedule estimates being exceeded is not the result of the acts or omissions of the Engineer, and is subject to written approval in advance by Corix.

3. Corix will pay the Engineer for the scope of work covered under this Task Order as follows:

(a) Total Lump Sum for this scope of work is detailed below. All dollar amounts expressed are in U.S. currency. A breakdown of each task is provided below.

Task 1 – Re-Permitting	$15,000.00
Task 2 – Re-Bidding	$32,000.00
Task 3 – Value Engineering	$42,500.00
Task 4 – Additional Services During Design (Electrical - BEC)	*$15,500.00*
TOTAL LUMP SUM FEE	**$105,000.00**

(b) Corix shall have no obligation or liability to pay Engineer for any amount greater than the amount specified above unless Corix has given Engineer its express prior written approval to exceed such amount.

(c) Engineer acknowledges and agrees that payment will be made on the basis of the Services actually and fully performed.

4. Engineer shall prepare and submit to the Corix Representative on a monthly basis (or such other basis as the Corix Representative may require) a detailed status report on the Services that shall include the following items:

(a) Engineer's costs for the preceding period with a notation of percentage complete for each task and a brief description of the Services performed,

(b) Engineer's total costs to date; and

(c) an update on the status of the Services.

5. Change Orders. The Corix Representative may by a written change order change, add to or delete from the scope of Services and Engineer shall be required to perform the Services as amended. Where such a change in the Services warrants additional payment, the rate shall be mutually agreed by the parties. No amount in addition to the fees set out in Section 4 of this Task Order shall be paid to Engineer unless authorized by the Corix Representative in writing and in advance.

6. Witness. Engineer shall, if requested, act as a competent witness to testify to Engineer's scope of services and deliverables.

TO EVIDENCE THEIR AGREEMENT the parties have executed this Task Order effective as of the date set out above.

KIMLEY-HORN AND ASSOCIATES, INC.

Per: _____
Name: Wayne White, P.E.
Title: Vice President

UTILITIES, INC. OF FLORIDA

Per: _____
Name: Gary Rudkin
Title: President

FORM OF TASK ORDER

Mid-County WWTP MBR Improvements – Construction Phase Services

This Task Order is made July 10, 2022, by and between **Sunshine Water Services** ("**Corix**" or "**SWS**" or "**OWNER**") and **Kimley-Horn and Associates, Inc.** ("**Engineer**" or "**Kimley-Horn**" or "**KH**") pursuant to the terms and conditions set forth in the Master Engineering Services Agreement dated effective March 31, 2021 (the "**Agreement**") between Corix and Engineer.

1. The scope of work to be performed by the Engineer under this Task Order is as follows:

Task 1 – Services During Construction - Civil, Process, Structural and Mechanical (Lump Sum)

1. Kimley-Horn will coordinate a Pre-Construction Conference prior to the commencement of work at the site.

2. Kimley-Horn will review shop drawings, samples, and other data that the Contractor is required to submit based on permit conditions, but only for conformance with the information given in the Contract Documents. Such review and approvals or other action will not extend to means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction or related safety precautions and programs.

3. Kimley-Horn will attend bi-weekly virtual construction progress meetings for the duration of the project (estimated at two per month for thirty months). Kimley-Horn will issue electronic meeting minutes and project updates following each progress meeting.

4. Kimley-Horn will provide on-site construction observation services during the construction phase of the project. Kimley-Horn will make up to thirty (30) visits during construction under this task to observe the progress of the Work. Such visits and observations by Kimley-Horn are not intended to be exhaustive or to extend to every aspect of the Contractor's work in progress. Observations are to be limited to spot-checking, selective measurement, and similar methods of general observation of the Work-based on Kimley-Horn's exercise of professional judgment. Based on information obtained during such visits and such observations, Kimley-Horn will evaluate whether the Contractor's work is generally proceeding by the Contract Documents, and Kimley-Horn will keep the Client informed of the general progress of the Work.

5. The purpose of Kimley-Horn's site visits will be to enable Kimley-Horn to better carry out the duties and responsibilities specifically assigned in this Agreement to Kimley-Horn, and to provide the Client a greater degree of confidence that the completed Work will conform in general to the Contract Documents. Kimley-Horn shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct, or have control over Contractor's work, nor shall Kimley-Horn have authority over or responsibility for the means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction selected by Contractor, for safety precautions and programs incident to Contractor's work, nor for any failure of Contractor to comply with laws and regulations applicable to Contractor's furnishing and performing the work. Accordingly, Kimley-Horn neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract Documents.

6. Kimley-Horn may require special inspections or tests of the Contractor's work as Kimley-Horn deems appropriate, and may receive and review certificates of inspections within Kimley-Horn's area of responsibility or tests and approvals required by laws and regulations or the Contract Documents. Kimley-Horn's review of such certificates will be for the purpose of determining that the results certified indicate compliance with the Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests, or approvals comply with the requirements of the Contract Documents. Kimley-Horn shall be entitled to rely on the results of such tests and the facts being certified.

7. Kimley-Horn will, promptly after notice from Contractor that it considers the entire work ready for its intended use, in company with Client and Contractor, conduct a site visit to determine if the work is substantially complete. Work will be considered substantially complete following satisfactory completion of all items except those identified on a final punch list. If after considering any objections of the Client, Kimley-Horn considers the Work substantially complete, Kimley-Horn will notify the Client and Contractor.

8. Kimley-Horn will conduct a total of five pre-final, and five final site visits (one pre-final and one final visit after each phase of the project) to determine if the completed Work of the Contractor is generally in accordance with the Contract Documents and the final punch list so that Kimley-Horn may recommend, in writing, final payment to Contractor. Accompanying the recommendation for final payment, Kimley-Horn shall also provide a notice that the Work is generally in accordance with the Contract Documents to the best of Kimley-Horn's knowledge, information, and belief based on the extent of its services and based upon information provided to Kimley-Horn upon which it is entitled to rely.

9. Kimley-Horn will coordinate and attend start-ups following substantial completion of each phase. This project was designed and permitted to have four (4) substantial phases where start-up will be required to verify operation of the facility is in accordance with the contract documents. It is anticipated that each start-up will require two (2) days of on-site coordination with the Contractor and SWS Operators. Kimley-Horn will assist SWS in the coordination of operator training by manufacturers, but will not be present during all on-site training unless requested as part of the hourly task defined in Task 2.

10. Kimley-Horn will review and compile construction records including as-builts, shop drawings, O&M manuals, and, engineer records following each phase of construction. Kimley-Horn will assist SWS in the preparation of certification and close-out documents for applicable FDEP and Pinellas County Site Plan and Habitat Permit. Kimley-Horn will submit record drawings and certification submittals to FDEP and Pinellas County upon receipt of documentation from the Contractor.

11. Kimley-Horn shall not be responsible for the acts or omissions of any Contractor, or of any of their subcontractors, suppliers, or of any other individual or entity performing or furnishing the work. Kimley-Horn shall not have the authority or responsibility to stop the work of any Contractor.

Task 2 – On-Site Field Representative (Hourly)

1. Kimley-Horn will provide on-site construction observation services during the construction phase of the project. Kimley-Horn will be on-site as requested by the client and act as the on-site field representative. This task will be billed on an hourly, not to exceed, basis and assumes a Kimley-Horn representative will be on-site for up to three days per week, eight hours per day, for eighteen months of active construction.

2. The purpose of Kimley-Horn's on-site construction observation as a field representative will be to enable Kimley-Horn to better carry out the duties and responsibilities specifically assigned in this Agreement to Kimley-Horn, and to provide the Client a greater degree of confidence that the completed Work will conform in general to the Contract Documents. Kimley-Horn shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct, or have control over Contractor's work, nor shall Kimley-Horn have authority over or responsibility for the means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction selected by Contractor, for safety precautions and programs incident to Contractor's work, nor for any failure of Contractor to comply with laws and regulations applicable to Contractor's furnishing and performing the work. Accordingly, Kimley-Horn neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract Documents.

3. Kimley-Horn may require special inspections or tests of the Contractor's work as Kimley-Horn deems appropriate, and may receive and review certificates of inspections within Kimley-Horn's area of

responsibility or of tests and approvals required by laws and regulations or the Contract Documents. Kimley-Horn's review of such certificates will be for the purpose of determining that the results certified indicate compliance with the Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests, or approvals comply with the requirements of the Contract Documents. Kimley-Horn shall be entitled to rely on the results of such tests and the facts being certified.

Task 3 –Services During Construction - Electrical (BEC) – Proposal Attached

Kimley-Horn will utilize electrical sub-consultant, Bailey Engineering Consultants ("BEC" or "Consultant") to provide services during construction as outlined by BEC below:

BEC will perform project administration and provide professional services during the construction phase that will implement the facility modifications. BEC shall not have authority or responsibility to supervise, direct, or control the Contractor's work or the Contractor's means and methods, techniques, sequences, or procedures of construction. BEC shall not have authority or responsibility for safety precautions and programs incident to the Contractor's work or for any failure of the Contractor to comply with laws, regulations, rules, ordinances, codes, or orders applicable to the Contractor furnishing and performing the work. Consultant reviews shall not relieve the Contractor of any of his contractual responsibilities. Specific services to be performed by the Consultant are as follows:

Shop Drawing Review - Review and approve (or take other appropriate action in respect of) Shop Drawings and samples, the results of tests and inspections, and other data which each Contractor is required to submit, but only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents (but such review and approval or other action shall not exceed to means, methods, sequences, techniques or procedures of construction or to safety precautions and programs incident thereto); and receive and review (for general content as required by the Specifications) maintenance and operating schedules and instruction, guarantees, bonds and certificates of inspection which are to be assembled by Contractor(s) is in accordance with the Contract Documents.

Issue Clarifications - Issue all instructions of OWNER to Contractor(s); issue necessary interpretations and clarifications of the Contract Documents; have authority, as OWNER's representative to require special inspection or testing of the work; act as an initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the work thereunder, and make decisions on all claims of OWNER and Contractor(s) relating to the acceptability of the work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the work. The Consultant shall render all interpretations or decisions in good faith and in accordance with the requirements of the Contract Documents.

Site Visits - Make site visits to the site at periods appropriate to the various stages of construction to observe, as an experienced and qualified professional, the progress and quality of the executed work of Contractor(s) and to determine in general if such work is proceeding in accordance with the Contract Documents. Prepare trip reports to document observations made during these inspections. Consultant shall not be responsible for the means, methods, techniques, sequences, or procedures of construction selected by Contractor(s) or the safety precautions and programs incident to the work of Contractor(s). Consultant's efforts will be directed toward providing a greater degree of confidence for OWNER that the completed work of Contractor(s) will conform to the Contract Drawings, but Consultant shall not be responsible for the failure of Contractor(s) to perform the work in accordance with the Contract Drawings.

During such visits and based on on-site observations, Consultant shall keep OWNER informed of the progress of the work, shall endeavor to guard OWNER against defects and deficiencies in such work, and may disapprove or reject work failing to conform to the Contract Documents.

Startup - BEC shall assist KH, the OWNER and Contractor with start-up support and testing assistance for the project, witnessing field tests, and other startups needed to demonstrate successful operation of the system. It is assumed that the Contractor has performed all of the preliminary testing required to troubleshoot any and all systems prior to the field start-up of equipment, and the installation of the equipment has been reviewed by the Contractor and appropriate equipment manufacturers for conformance with the Contract Documents.

Substantial Completion: BEC shall provide site visits to assist the OWNER in determining if the electrical work, or portions of the electrical work, have been substantially completed in general accordance with the construction contract documents and that the definition of substantial completion has been met. BEC will assist KH in preparation of a final punch list as it relates to the electrical system improvements.

Final Completion: BEC shall perform a final site visit to assist the OWNER in determining if the electrical work has been completed in accordance with the construction contract documents; that the work is complete, including submission of all final documentation required by the Contractor.

Record Drawings: BEC shall prepare record drawings incorporating changes made during construction based on as-built information furnished by the Contractor; and provide one (1) set of electronic construction record drawings and electronic files of the record drawings in AutoCAD 2019 format.

Services Not Included

(a) Any other services, including but not limited to the following, are not included in this Task Order:

- Wastewater Influent/Effluent Sampling/Testing
- Surveying
- Geotechnical Services
- Subsurface Utility Investigation
- Environmental Services
- HVAC Services
- Public Involvement

2. The schedule for the scope of work is as follows:

To be determined based on construction schedule.

Task durations that exceed the schedule estimates may be considered a scope change; provided that the reason for the schedule estimates being exceeded is not the result of the acts or omissions of Engineer, and subject to written approval in advance by Corix.

3. Corix will pay Engineer for the scope of work covered under this Task Order as follows:

(a) Estimated sum for this scope of work is detailed below. All dollar amounts expressed are in U.S. currency. A breakdown of each task is provided below.

Kimley-Horn will perform the Services in Task 2 on a labor fee plus expense basis. Labor fee will be billed on an hourly basis according to our then-current rates. Based on current information, Kimley-Horn estimates labor fees as outlined below. Fee estimates in this Agreement are for general budgeting purposes only. Kimley-Horn will perform the services in Tasks 1 and 3 for the total lump sum labor fee below. Individual task amounts are informational only.

Direct reimbursable expenses such as express delivery services, fees, air travel, and other direct expenses will be billed at 1.15 times cost. A percentage of labor fee will be added to each invoice to cover certain other expenses such as telecommunications, in-house reproduction, postage, supplies, project related computer time, and local mileage. Administrative time related to the project will be billed hourly. All permitting, application, and similar project fees will be paid directly by the Client.

Task 1 – Services During Construction - Civil, Process, Structural and Mechanical (Lump Sum)	$373,020.00
Task 2 – On-Site Field Representative (Hourly, Not to Exceed)	$245,000.00
Task 3 – Services During Construction - Electrical (BEC) (Lump Sum)	*$226,710.00*
TOTAL ESTIMATED FEE	**$844,730.00**

(b) Corix shall have no obligation or liability to pay Engineer for any amount greater than the amount specified above unless Corix has given Engineer its express prior written approval to exceed such amount.

(c) Engineer acknowledges and agrees that payment will be made on the basis of the Services actually and fully performed.

4. Engineer shall prepare and submit to the Corix Representative on a monthly basis (or such other basis as the Corix Representative may require) a detailed status report on the Services that shall include the following items:

(a) Engineer's costs for the preceding period with a notation of percentage complete for each task and a brief description of the Services performed,

(b) Engineer's total costs to date; and

(c) an update on the status of the Services.

5. Change Orders. The Corix Representative may by a written change order change, add to or delete from the scope of Services and Engineer shall be required to perform the Services as amended. Where such a change in the Services warrants additional payment, the rate shall be mutually agreed by the parties. No amount in addition to the fees set out in Section 4 of this Task Order shall be paid to Engineer unless authorized by the Corix Representative in writing and in advance.

6. Witness. Engineer shall, if requested, act as a competent witness to testify to Engineer's scope of services and deliverables.

TO EVIDENCE THEIR AGREEMENT the parties have executed this Task Order effective as of the date set out above.

KIMLEY-HORN AND ASSOCIATES, INC.

Per: _____
Name: Wayne White, P.E.
Title: Vice President

SUNSHINE WATER SERVICES

Per: _____
Name: ~~Gary Rudkin~~ J Bryce Mendenhall
Title: President

PROJECT WORK PLAN PERSON-HOUR ESTIMATE

Project Name: Mid-County MBR
Project Number:
Date Prepared: 7/1/2022
Estimated By: SNH

KHA Task # Subtask ID Number	KHA Task Name Subtask Name/Description	Direct Labor (Person-Hours) Principal	Senior Engineer	Project Engineer II	Project Engineer	Designer/ Inspector	Admin Asst.	KHA Labor Total	Misc. Direct Expense
1	**Construction Phase Services (Lump Sum)**								
	Preparation of Final Conformed Documents		8		10	20			
	Pre-construction Conference	2	8		12	8			
	Shop Drawing Reviews		60	60	120	120			
	Bi-weekly Progress Meetings (2 per month; 30 months)	20	120	60	120	60			
	Conduct 30 site visits to observe the progress of the work and report observations to the Client. Includes start-ups, and structural reviews. Prepare punch list items to be corrected or completed at the substantial completion stage of the work	16	120	120	120	60			
	Provide recommendations of changes, if necessary, which may be required within the scope of the project during construction. Prepare discretionary item work directive changes, and change orders, if required, for County approval	12	80	120	120	80			
	As-builts, Certifications	2	20	20	80	40			
	Pre-Final/Final Site Visits after each phase prior to warranty, to confirm final punch list items	20	40	20	20	20			
	Subtotal (Hours)	72	456	400	602	408	0		$0
	Task Total (Dollars)	$23,040	$118,560	$84,000	$90,300	$57,120	$0	**$373,020**	**$0**
2	**Construction Phase Services - On-Site Field Rep (Hourly CPM)**								
	Hourly On-Site Services				700	1000			
	Subtotal (Hours)	0	0	0	700	1000	0		$0
	Task Total (Dollars)	$0	$0	$0	$105,000	$140,000	$0	**$245,000**	**$0**
3	**Electrical Construction Phase Services (Lump Sum)**								
	See attached task order								$226,710
	Subtotal (Hours)	0	0	0	0	0	0		$226,710
	Task Total (Dollars)	$0	$0	$0	$0	$0	$0	**$0**	**$226,710**
	Subtotal (Hours)							$618,020	$226,710
	Task Total (Dollars)								**$844,730.00**

June 24, 2022

Ms. Shelby Hughes, P.E.
Kimley-Horn and Associates, Inc.
100 Second Avenue South, Suite 105N
St. Petersburg, FL. 33701

Re: Mid-County WWTP Improvements
Utilities Inc. of Florida

Dear Ms. Hughes:

We are pleased to submit our proposal for engineering services for the above project. The following serves to provide an overview of the engineering services Bailey Engineering Consultants, Inc. (BEC) intends to furnish on the above referenced project to Kimley-Horn (KH). This letter contract represents an overview of the work and provides the agreed upon lump sum fee amount. Our scope of work shall include the following:

Task 1 – General Services during Construction

BEC will perform project administration and provide professional services during the construction phase that will implement the facility modifications. BEC shall not have authority or responsibility to supervise, direct, or control the Contractor's work or the Contractor's means and methods, techniques, sequences, or procedures of construction. BEC shall not have authority or responsibility for safety precautions and programs incident to the Contractor's work or for any failure of the Contractor to comply with laws, regulations, rules, ordinances, codes, or orders applicable to the Contractor furnishing and performing the work. Consultant reviews shall not relieve the Contractor of any of his contractual responsibilities. Specific services to be performed by Consultant are as follows:

1. Shop Drawing Review: Review and approve (or take other appropriate action in respect of) Shop Drawings and samples, the results of tests and inspections and other data which each Contractor is required to submit, but only for conformance with the design concept of the Project and compliance with the information given in the Contract Documents (but such review and approval or other action shall not exceed to means, methods, sequences, techniques or procedures of construction or to safety precautions and programs incident thereto); and receive and review (for general content as required by the Specifications) maintenance and operating schedules and instruction, guarantees, bonds and certificates of inspection which are to be assembled by Contractor(s) is in accordance with the Contract Documents.

10620 GRIFFIN ROAD, SUITE 202 • COOPER CITY, FL• 33328
PHONE: 954-448-7930• FAX: 954-713-9959

2. Issue Clarifications: Issue all instructions of OWNER to Contractor(s); issue necessary interpretations and clarifications of the Contract Documents; have authority, as OWNER's representative to require special inspection or testing of the work; act as initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the work thereunder, and make decisions on all claims of OWNER and Contractor(s) relating to the acceptability of the work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the work. The ENGINEER shall render all interpretations or decisions in good faith and in accordance with the requirements of the Contract Documents.

3. Site Visits: Make site visits to observe, as an experienced and qualified professional, the progress and quality of the executed work of Contractor(s) and to determine in general if such work is proceeding in accordance with the Contract Documents. Prepare trip reports to document observations made during these inspections. ENGINEER shall not be responsible for the means, methods, techniques, sequences or procedures of construction selected by Contractor(s) or the safety precautions and programs incident to the work of Contractor(s). ENGINEER's efforts will be directed toward providing a greater degree of confidence for OWNER that the completed work of Contractor(s) will conform to the Contract Drawings, but ENGINEER shall not be responsible for the failure of Contractor(s) to perform the work in accordance with the Contract Drawings. During such visits and on the basis of on-site observations, ENGINEER shall keep OWNER informed of the progress of the work, shall endeavor to guard OWNER against defects and deficiencies in such work and may disapprove or reject work failing to conform to the Contract Documents. Consultant will provide to the GPU a list of items to be completed, if any.

4. Startup: BEC shall assist KH, the OWNER and Contractor with start-up support and testing assistance for the project, witnessing field tests, and other startups needed to demonstrate successful operation of the system. It is assumed that the Contractor has performed all of the preliminary testing required to troubleshoot any and all systems prior to the field start-up of equipment, and the installation of the equipment has been reviewed by the Contractor and appropriate equipment manufacturers for conformance with the Contract Documents.

5. Substantial Completion: BEC shall provide site visits to assist the OWNER in determining if the electrical work, or portions of the electrical work, have been substantially completed in general accordance with the construction contract documents and that the definition of substantial completion has been met. BEC will assist KH in preparation of a final punch list as it relates to the electrical system improvements.

6. Final Completion: BEC shall perform a final site visit to assist the OWNER in determining if the electrical work has been completed in accordance with the construction contract documents; that the work is complete, including submission of all final documentation required by the Contractor.

7. Record Drawings: BEC shall prepare record drawings incorporating changes made during construction based on as-built information furnished by the Contractor; and provide one (1) set of electronic construction record drawings and electronic files of the record drawings in AutoCAD 2019 format.

The attached spreadsheet provides an estimate of our anticipated work effort. Compensation for all services, materials, supplies, and any other items or requirements necessary to complete the work defined in this Task Assignment will be based upon a Lump Sum Amount of $226,710.00. At no time shall work fees exceed said amount of compensation without a written and executed amendment. Our scope of work shall be as outlined above. Services not specifically outlined above are excluded.

Very truly yours,

Stephen E. Bailey, P.E.

ACCEPTED_____DATE_____

KH-22-010G

Mid-County Wastewater Treatment Plant Improvements
Utilities Inc., FL

Estimate of Work Effort & Fee

Date: 6/24/2022

	Principal		Senior Engineer		Instrumentation Engineer		Field Superintendent		Clerical/Admin		Totals	
	Hourly Rate	$225.00	Hourly Rate	$180.00	Hourly Rate	$180.00	Hourly Rate	$125.00	Hourly Rate	$75.00		
Task 1 – General Services during Construction	man-hours	Total	man-hours	Total	man-hours	Total	man-hours	Total	man-hours	Total	man-hours	Total
Shop Drawing Review	80	$ 18,000.00	140	$ 25,200.00	80	$ 14,400.00	40	$ 5,000.00	24	$ 1,800.00	364	$ 64,400.00
Issue Clarifications	60	$ 13,500.00	120	$ 21,600.00	80	$ 14,400.00	60	$ 7,500.00	40	$ 3,000.00	360	$ 60,000.00
Site Visits/Meetings	40	$ 9,000.00	16	$ 2,880.00	40	$ 7,200.00	240	$ 30,000.00	0	$ -	336	$ 49,080.00
Startup (5 total)	40	$ 9,000.00	8	$ 1,440.00	60	$ 10,800.00	80	$ 10,000.00	0	$ -	188	$ 31,240.00
Substantial Completion	16	$ 3,600.00	0	$ -	16	$ 2,880.00	16	$ 2,000.00	0	$ -	48	$ 8,480.00
Final Completion	8	$ 1,800.00	0	$ -	8	$ 1,440.00	8	$ 1,000.00	0	$ -	24	$ 4,240.00
Record Drawings / O&M	6	$ 1,350.00	24	$ 4,320.00	20	$ 3,600.00	0	$ -	0	$ -	50	$ 9,270.00
Task 1 – General Services during Construction Total	**250**	**$ 56,250.00**	**308**	**$ 55,440.00**	**304**	**$ 54,720.00**	**444**	**$ 55,500.00**	**64**	**$ 4,800.00**	**1370**	**$ 226,710.00**
Total:	**250**	**$ 56,250.00**	**308**	**$ 55,440.00**	**304**	**$ 54,720.00**	**444**	**$ 55,500.00**	**64**	**$ 4,800.00**	**1370**	**$ 226,710.00**

FORM OF TASK ORDER

Mid-County WWTP MBR Improvements – Additional Construction Phase Services

This Task Order is made February 24th, 2025 by and between Sunshine Water Services Company ("SWSC") and Kimley-Horn and Associates, Inc. ("Engineer") pursuant to the terms and conditions set forth in the Master Engineering Services Agreement dated effective March 1, 2024 (the "Agreement") between SWSC and Engineer.

Background: The construction schedule for the Mid-County WWTP MBR Improvements project is now scheduled for substantial completion in January 2026. The existing Construction Phase Services (CPS) Task Order executed on 11/21/2022 between Kimley-Horn and SWS included 18 months of active construction, originally anticipated to be complete in April 2025. Based on hourly service performed to date, budget is available for on-site representation to be provided until June 30th, 2025. Additional Construction Phase Services including Civil, Process, Structural, Mechanical and On-site Field Representation were requested for the remainder of the project, approximately nine (9) additional months of active construction. Per the construction scheduled issued on 1/25/25, construction is anticipated to be complete in early 2026. The objective of this task order is to extend CPS from July 1st, 2025 until February 1st, 2026.

1. The scope of work to be performed by the Engineer under this Task Order is as follows:

Task 1 – Services During Construction – Civil, Process, Structural, Mechanical and On-Site Field Representative (Hourly)

1. Kimley-Horn will attend bi-weekly virtual construction progress meetings for the duration of the project (up to two per month for seven months). Kimley-Horn will issue electronic meeting minutes and project updates following each progress meeting.

2. Kimley-Horn will provide on-site construction observation services during the construction phase of the project. Kimley-Horn will be on-site as requested by the client and act as the on-site field representative. This task will be billed on an hourly, not to exceed, basis and assumes a Kimley-Horn representative will be on-site for up to two days per week, up to eight hours per day, for up to seven months of active construction.

3. The purpose of Kimley-Horn's on-site construction observation as a field representative will be to enable Kimley-Horn to better carry out the duties and responsibilities specifically assigned in this Agreement to Kimley-Horn, and to provide the Client a greater degree of confidence that the completed Work will conform in general to the Contract Documents. Kimley-Horn shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct, or have control over Contractor's work, nor shall Kimley-Horn have authority over or responsibility for the means, methods, techniques, equipment choice and usage, sequences, schedules, or procedures of construction selected by Contractor, for safety precautions and programs incident to Contractor's work, nor for any failure of Contractor to comply with laws and regulations applicable to Contractor's furnishing and performing the work. Accordingly, Kimley-Horn neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract Documents.

4. Kimley-Horn may require special inspections or tests of the Contractor's work as Kimley-Horn deems appropriate and may receive and review certificates of inspections within Kimley-Horn's area of responsibility or of tests and approvals required by laws and regulations or the Contract Documents. Kimley-Horn's review of such certificates will be for the purpose of determining that the results certified indicate compliance with the Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests, or approvals comply with the requirements of the Contract Documents. Kimley-Horn shall be entitled to rely on the results of such tests and the facts being certified.

5. Kimley-Horn shall not be responsible for the acts or omissions of any Contractor, or of any of their subcontractors, suppliers, or of any other individual or entity performing or furnishing the work. Kimley-Horn shall not have the authority or responsibility to stop the work of any Contractor.

Task 2 –Services During Construction - Electrical (BEC)

Kimley-Horn will utilize electrical sub-consultant, Bailey Engineering Consultants ("BEC" or "Consultant") to provide services during construction as outlined by BEC below:

BEC will provide on-site construction observation services during the construction phase of the project. Kimley-Horn will be on-site as required by the client.

BEC will attend bi-weekly virtual construction progress meetings for the duration of the project (up to two per month for seven months).

BEC will perform project administration and provide professional services during the construction phase that will implement the facility modifications. BEC shall not have authority or responsibility to supervise, direct, or control the Contractor's work or the Contractor's means and methods, techniques, sequences, or procedures of construction. BEC shall not have authority or responsibility for safety precautions and programs incident to the Contractor's work or for any failure of the Contractor to comply with laws, regulations, rules, ordinances, codes, or orders applicable to the Contractor furnishing and performing the work. Consultant reviews shall not relieve the Contractor of any of his contractual responsibilities. Specific services to be performed by the Consultant are as follows:

Issue Clarifications - Issue all instructions of OWNER to Contractor(s); issue necessary interpretations and clarifications of the Contract Documents; have authority, as OWNER's representative to require special inspection or testing of the work; act as an initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the work thereunder, and make decisions on all claims of OWNER and Contractor(s) relating to the acceptability of the work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the work. The Consultant shall render all interpretations or decisions in good faith and in accordance with the requirements of the Contract Documents.

Services Not Included

(a) Any other services, including but not limited to the following, are not included in this Task Order:

- Wastewater Influent/Effluent Sampling/Testing
- Environmental Services
- HVAC Services
- Public Involvement
- Design
- Value Engineering
- Permitting

2. The schedule for the scope of work is as follows:

This scope of work shall commence on June 1st, 2025 and end 30 weeks later on February 1st, 2026. Any additional construction phase services required after February 1st, 2026 are not included in this scope.

Task durations that exceed the schedule estimates may be considered a scope change; provided that the reason for the schedule estimates being exceeded is not the result of the acts or omissions of Engineer, and subject to written approval in advance by SWSC.

If the schedule for the performance of the work extends beyond the Term, then the Term of the Agreement shall extend to the termination of the work set forth in the Task Order for the purpose of this Task Order only.

3. The deliverables to be provided by Engineer under this Task Order are as follows:

(a) Meeting Minutes for each bi-weekly construction progress meeting including Field Observation Reports

4. SWSC will pay Engineer for the scope of work covered under this Task Order as follows:

(a) Estimated sum for this scope of work is detailed below. All dollar amounts expressed are in U.S. currency. A breakdown of each task is provided below.

Kimley-Horn will perform the Services in Task 1 on a labor fee plus expense basis. Labor fee will be billed on an hourly basis according to our then-current rates. Based on current information, Kimley-Horn estimates labor fees as outlined below. Fee estimates in this Agreement are for general budgeting purposes only. Kimley-Horn will perform the services in Tasks 2 for the total lump sum labor fee below. Individual task amounts are informational only.

Direct reimbursable expenses such as express delivery services, fees, air travel, and other direct expenses will be billed at 1.15 times cost. A percentage of labor fee will be added to each invoice to cover certain other expenses such as telecommunications, in-house reproduction, postage, supplies, project related computer time, and local mileage. Administrative time related to the project will be billed hourly. All permitting, application, and similar project fees will be paid directly by the Client.

Task 1 – Services During Construction – Civil, Process, Structural, Mechanical, and On-Site Field Representative (Hourly)	$121,800.00
Task 2 – Services During Construction – Electrical (BEC)	$45,000.00
TOTAL ESTIMATED FEE	**$166,800.00**

(b) SWSC shall have no obligation or liability to pay Engineer for any amount greater than the amount specified above unless SWSC has given Engineer its express prior written approval to exceed such amount.

(c) Engineer acknowledges and agrees that payment will be made on the basis of the Services actually and fully performed.

5. Engineer shall prepare and submit to the SWSC Representative on a monthly basis (or such other basis as the SWSC Representative may require) a detailed status report on the Services that shall include the following items:

(a) Engineer's costs for the preceding period with a breakdown of the hours for each task and a brief description of the Services performed;

(b) Notation of percentage complete for each line item;

(c) Engineer's total costs to date; and

(d) an update on the status of the Services.

6. Change Orders. The SWSC Representative may by a written change order change, add to or delete from the scope of Services and Engineer shall be required to perform the Services as amended. Where such a change in the Services warrants additional payment, the rate shall be mutually agreed by the parties. No amount in addition to the fees set out in Section 4 of this Task Order shall be paid to Engineer unless authorized by the SWSC Representative in writing and in advance.

7. Witness. Engineer shall, if requested, act as a competent witness to testify to Engineer's scope of services and deliverables.

8. Status Report.
Engineer shall prepare and submit to the Utility Representative on a monthly basis (or such other basis as the Utility Representative may require) a detailed progress report on the Services that shall include the following items:
(a) Engineer's costs for the preceding period with a breakdown of the hours for each task and a brief description of the Services performed;
(b) Notation of percentage complete for each line item;
(c) Engineer's total costs to date; and
(d) An update on the status of the Services.

TO EVIDENCE THEIR AGREEMENT the parties have executed this Task Order effective as of the date set out above.

KIMLEY-HORN AND ASSOCIATES, INC.

Per: _____
Name: Shelby Hughes, P.E.
Title: Associate

SUNSHINE WATER SERVICES COMPANY

Sean Twomey
Per: 1AFC192BDD01A0C6722031C0547111C9 contractworks
Name: Sean Twomey
Title: President

PROJECT WORK PLAN PERSON-HOUR ESTIMATE

Project Name: Mid-County WWTP MBR - Additional CPS
Project Number:
Date Prepared: 2/24/2025
Estimated By: KTM

KHA Task # Subtask ID Number	KHA Task Name Subtask Name/Description	Direct Labor (Person-Hours) Principal	Senior Engineer	Project Engineer II	Project Engineer	Designer/ Inspector	Admin Asst.	KHA Labor Total	Misc. Direct Expense
1	**Construction Phase Services - Civil, Process, Structural, Mechanical, On-Site Field Representative**								
	Bi-Weekly Progress Meetings , Status Report calls and Email Updates		60		60				
	Provide recommendations of changes, if necessary, which may be required within the scope of the project during construction. Prepare discretionary item work directive changes and change orders		40		40				
	Hourly On-Site Services		80		400				
	Subtotal (Hours)	0	180	0	500	0	0		$0
	Task Total (Dollars)	$0	$46,800	$0	$75,000	$0	$0	**$121,800**	**$0**
2	**Electrical Construction Phase Services (Lump Sum)**								
	Electrical Construction Phase Services (Lump Sum)								$45,000
	Subtotal (Hours)	0	0	0	0	0	0		$45,000
	Task Total (Dollars)	$0	$0	$0	$0	$0	$0	**$0**	**$45,000**
	Subtotal (Hours)							$121,800	$45,000
	Task Total (Dollars)								**$166,800.00**

Mid-County - WWTP MBR Construction Improvements - Construction Contracts and Proposals				
Document	**Date**	**Vendor**	**Value**	**Name**
1	8/22/2024	Hydra Services Inc	$ 54,085.00	01 - 08.22.24 - HSI Atlas Copco Bypass Pump #1 - $54,085
2	9/17/2024	Hydra Services Inc	$ 57,870.95	02 - 09.17.24 - Bypass Pump #2 - $57,871
3	10/22/2022	Vogel Pros. Building Co	$ 22,090,018.00	03-10..22.22 - Mid-County WWTP MBR Improvements - Executed EJCDC - $22,090,018
4	10/21/2025	Odyssey Manufacturing	$ 167,836.69	04 - 10.21.25 - Odor Control System Replacement Proposal - $167,837
Total			**$ 22,369,810.64**	

Hydra Service, Inc.

SPECIALIST IN FLUID MOVEMENT

250 Springview Commerce Drive
Debary Florida 32713
Phone: 407 330 3456
Phone: 800 323 1731
Fax: 407 330 3404

Sales Representative
Contact Information
Cell Phone: 407-790-9751

TO: **Sunshine Water Services**
ATTN: **Dominic Gentilucci**

FROM: **Tim Estep**
EMAIL: Tim Estep
DATE: **July 31, 2024**

QUOTE: **Q-240731-1TE**

PH: **352-242-6573**
EMAIL: dominic.gentilucci@sunshinewater.com

REF: **Sunshine Water Services**
4" Diesel Driven Bypass Pump

Atlas Copco 4" Diesel driven By-pass pump, trailer mounted with Silencing enclosure and automatic start and stop

1 Atlas Copco model PAS 100 HFS T4F KD trailer mounted diesel driven self-priming bypass pump to include the following:
- 4" x 4" centrifugal solids-handling pump, cast iron construction, ductile iron semi-open impeller with cast iron adjustable wear plate, single mechanical seal (tungsten carbide / tungsten carbide). Patented hinged door on pump suction allows for easy access to impeller and wear plate.
- Oil-free diaphragm vacuum pump, 29.6 CFM nominal air capacity, for rapid dry priming.
- Kohler KDI 1903TCR turbo diesel engine, rated at 49hp at 2200 rpm.
- Link belt provides for ease of maintenance and quick replacement in the field.
- Sound attenuated enclosure with hinged & removable locking doors.
- Atlas Copco PW 1000 digital controller with standard engine monitoring, warnings, shutdown, emergency stop, and auto start / stop functions.
- Integral corrosion-free polyethylene fuel tank, 30 US Gallon capacity.
- Single axle trailer with adjustable pintle hitch, jack stands, and DOT light package.

1 Atlas Copco float kit for auto start/stop operation, 40' cables.
$860.00

1 Additional options to include the following:
- Factory installed solar trickle charger.
- Spare link belt.
- 4" Camlock fitting on suction & discharge connections.

$1,100.00 charge for above options

1 Freight charge
Freight charges Included

1 Local and State taxes
Included

TOTAL PRICE, F.O.B. JOB, FREIGHT INCLUDED **$54,085.00** PLUS ANY FEDERAL, STATE OR LOCAL TAXES WHICH MAY APPLY. TERMS ARE NET **30** DAYS. PRICES ARE FIRM 30 DAYS **"HYDRA SERVICE INC TERMS & CONDITIONS APPLY" PAYMENT TERMS NET 30 DAYS.**
ESTIMATED DELIVERY: **8-12** WEEKS AFTER RECEIPT IN OUR OFFICE OF COMPLETE APPROVED SUBMITTAL DATA AND SIGNED PROPOSAL.
THESE TERMS ARE INDEPENDENT OF, AND ARE NOT CONTINGENT UPON THE TIME OR MANNER IN WHICH PURCHASER MAY RECEIVE PAYMENT FROM OTHERS.
0 TRIP OF FACTORY START-UP SERVICE IS INCLUDED AND REQUIRED FOR WARRANTY. PAYMENT FOR MATERIALS WILL BE REQUIRED BEFORE THE AUTHORIZED START-UP IS CONDUCTED.

ACCEPTED DATE 8/2/2024
Dominic Gentilucci
NAME OF PURCHASER

Review Date: 7/31/2024
Tim Estep
REVIEWED BY HYDRA SERVICE PUMP REP.

Hydra Service, Inc.

SPECIALIST IN FLUID MOVEMENT

250 Springview Commerce Drive
Debary Florida 32713
Phone: 407 330 3456
Phone: 800 323 1731
Fax: 407 330 3404

Sales Representative
Contact Information
Cell Phone: 407-212-1787

TO: **Sunshine Water Services**
ATTN: **Domenic Gentilucci**

PH: **407-948-9839**
EMAIL: domenic.gentilucci@nexuswg.com

FROM: **Tim Estep**
EMAIL: Tim@Hydraservice.net
DATE: **September 17, 2024**

QUOTE: **Q-240731-1TE rev1**

REF: **Sunshine Water Services**
4" Diesel Driven Bypass Pump

Atlas Copco 4" Diesel driven By-pass pump, trailer mounted with Silencing enclosure and automatic start and stop

1 Atlas Copco model PAS 100 HFS T4F KD trailer mounted diesel driven self-priming bypass pump to include the following:
- 4" x 4" centrifugal solids-handling pump, cast iron construction, ductile iron semi-open impeller with cast iron adjustable wear plate, single mechanical seal (tungsten carbide / tungsten carbide). Patented hinged door on pump suction allows for easy access to impeller and wear plate.
- Oil-free diaphragm vacuum pump, 29.6 CFM nominal air capacity, for rapid dry priming.
- Kohler KDI 1903TCR turbo diesel engine, rated at 49hp at 2200 rpm.
- Link belt provides for ease of maintenance and quick replacement in the field.
- Sound attenuated enclosure with hinged & removable locking doors.
- Atlas Copco PW 1000 digital controller with standard engine monitoring, warnings, shutdown, emergency stop, and auto start / stop functions.
- Integral corrosion-free polyethylene fuel tank, 30 US Gallon capacity.
- Single axle trailer with adjustable pintle hitch, jack stands, and DOT light package.

1 Atlas Copco float kit for auto start/stop operation, 40' cables.
$860.00

1 Additional options to include the following:
- Factory installed solar trickle charger.
- 4" Camlock fitting on suction & discharge connections.

$1,100.00 charge for above options.

Freight charge
1 *Freight charges included*

Total unit price **$54,085.00**
1 **Local and State taxes** **$3,785.95**

TOTAL PRICE, F.O.B. JOB, FREIGHT INCLUDED **$57,870.95** PLUS ANY FEDERAL, STATE OR LOCAL TAXES WHICH MAY APPLY. TERMS ARE NET **30** DAYS. PRICES ARE FIRM 30 DAYS
"HYDRA SERVICE INC TERMS & CONDITIONS APPLY" PAYMENT TERMS NET 30 DAYS.
ESTIMATED DELIVERY: **2 to 3** WEEKS AFTER RECEIPT IN OUR OFFICE OF COMPLETE APPROVED SUBMITTAL DATA AND SIGNED PROPOSAL.
THESE TERMS ARE INDEPENDENT OF, AND ARE NOT CONTINGENT UPON THE TIME OR MANNER IN WHICH PURCHASER MAY RECEIVE PAYMENT FROM OTHERS.
0 TRIP OF FACTORY START-UP SERVICE IS INCLUDED AND REQUIRED FOR WARRANTY. PAYMENT FOR MATERIALS WILL BE REQUIRED BEFORE THE AUTHORIZED START-UP IS CONDUCTED.

ACCEPTED DATE 9/17/24 Review Date: 9/17/2024

NAME OF PURCHASER

Tim Estep
REVIEWED BY HYDRA SERVICE PUMP REP.

SECTION 00520

AGREEMENT BETWEEN OWNER AND CONTRACTOR
FOR CONSTRUCTION CONTRACT (LUMP SUM)

1.01 This Agreement is by and between **Sunshine Water Services** ("Owner") and **Vogel Bros. Building Co.** ("Contractor").

Terms used in this Agreement have the meanings stated in the General Conditions and the Supplementary Conditions.

1.02 Owner and Contractor hereby agree as follows:

A. SCOPE OF WORK

Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

1. Conversion of the existing South Treatment Train into an MBR treatment facility including rehabilitation and modification of the existing concrete tanks in preparation for installation of the proposed equipment, installation of equipment related to the MBR treatment process including anaerobic and anoxic submersible mixers, internal recycle pumps/piping, aeration system piping, blowers, and diffusers, isolation gates, valves, submersible membrane units and covers, chemical feed systems, permeate pumps, waste activated sludge pumps, recycle activate sludge pumps, flow meters, pressure gauges, and related equipment. Included in this rehabilitation is the application of a structural liner on all the South Treatment train tanks' interior surfaces.

2. Rehabilitation of the existing North Treatment Train concrete tanks including new equalization pumps, mixers, valves, piping, isolation gates, level sensors, blowers, diffusers, and related equipment. Included in this rehabilitation is the coating of the interior concrete wall surfaces of the existing tanks.

3. Rehabilitation of the chlorine contact chamber and dechlorination chamber including chemical feed pumps, sample pumps, turbidity meter, and related equipment, piping, valves, and associated appurtenances. Included in this rehabilitation is the coating of the interior CMU wall surfaces of the existing tanks.

4. Plant reuse/CIP water supply pumps, tank, valves, and associated piping.

5. New solids dewatering equipment including, sludge feed pumps, polymer feed system, conveyor, dumpster, pole barn and associated piping, valves, and related appurtenances.

6. Electrical upgrades, motor control center facilities, instrumentation and controls for process control and monitoring using a SCADA system including prefabricated electrical buildings.

7. New prefabricated storage building.
8. All associated on-site yard piping and below grade utilities.
9. All associated site work, concrete slabs, drainage, and grading.
10. Any necessary dewatering or associated construction requirements.
11. As-built drawings including survey of underground piping and O&M manuals of installed equipment.

B. CONTRACT TIMES

Time is of the Essence

All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

Contract Times

The Work will be substantially complete within **660 days** after the date when the Contract Times commence to run as provided in Article 4 of the General Conditions and completed and ready for final payment within **750 days** after the date when the Contract Times commence to run.

C. LIQUIDATED DAMAGES

Contractor and Owner recognize that time is of the essence as stated above and that Owner will suffer financial and other losses if the Work is not completed within the Contract Times, as duly modified. The parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty):

1. *Substantial Completion*: Contractor shall pay Owner $1,000.00, not to exceed 10% of the contract value, for each calendar day that expires after the time (as duly adjusted pursuant to the Contract) specified above for Substantial Completion, until the Work is substantially complete.

If Owner recovers liquidated damages for a delay in completion by Contractor, then such liquidated damages are Owner's sole and exclusive remedy for such delay, and Owner is precluded from recovering any other damages, whether actual, direct, excess, or consequential, for such delay, except for special damages (if any) specified in this Agreement.

D. SPECIAL DAMAGES

1. Contractor shall reimburse Owner (1) for any fines or penalties imposed on Owner as a direct result of the Contractor's failure to attain Substantial Completion according to the Contract Times, and (2) for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified for

Substantial Completion (as duly adjusted pursuant to the Contract), until the Work is substantially complete.

2. After Contractor achieves Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Times, Contractor shall reimburse Owner for the actual costs reasonably incurred by Owner for engineering, construction observation, inspection, and administrative services needed after the time specified for Work to be completed and ready for final payment (as duly adjusted pursuant to the Contract), until the Work is completed and ready for final payment.

3. The special damages imposed in this paragraph are supplemental to any liquidated damages for delayed completion established in this Agreement.

E. CONTRACT PRICE

Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents, the amounts that follow, subject to adjustment under the Contract:

For all Work as specified or indicated in the Contract Documents, a fixed-price sum of $22,090,018.00.

F. PAYMENT PROCEDURES

1. *Submittal and Processing of Payments*

   Contractor shall submit Applications for Payment in accordance with Article 15 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

2. *Progress Payments; Retainage*

   Owner shall make monthly progress payments on the basis of Contractor's Applications for Payment submitted each month before the 24th day of the month during performance of the Work as provided in Paragraph F.2.a. below, provided that such Applications for Payment have been submitted in a timely manner and otherwise meet the requirements of the Contract. All such payments will be measured by the Schedule of Values established as provided in the General Conditions or, in the event there is no Schedule of Values, as provided elsewhere in the Contract.

   a. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Owner may withhold, including but not limited to liquidated damages, in accordance with the Contract.

      1) 90 percent of the value of the Work completed (with the balance being retainage).

      2) 80 percent of cost of stored materials and equipment.

b. Upon Substantial Completion, Owner has the discretion to pay an amount sufficient to increase total payments to Contractor up to 95 percent of the Work completed.

3. *Final Payment*

Upon final completion and acceptance of the Work, Owner shall pay the remainder of the Contract Price less any liquidated damages owed.

4. *Consent of Surety*

Owner will not make final payment or return or release retainage at Substantial Completion or any other time, unless Contractor submits written consent of the surety to such payment, return, or release.

G. CONTRACT DOCUMENTS

1. The Contract Documents consist of all of the following:
   a. This Agreement.
   b. Performance and Payment bonds (together with power of attorney).
   c. General Conditions.
   d. Supplementary Conditions.
   e. Specifications as listed in the table of contents of the project manual.
   f. Drawings (not attached but incorporated by reference) provided in the bid.
   g. Addenda which pertain to the bid
   h. The following which may be delivered or issued on or after the Effective Date of the Contract and are not attached hereto:
      1) Notice to Proceed.
      2) Work Change Directives.
      3) Change Orders.
      4) Field Orders.
      5) Warranty Bond, if any.
2. The Contract Documents listed in Paragraph G.1 are attached to this Agreement (except as expressly noted otherwise above).
3. There are no Contract Documents other than those listed above in this Article G.
4. The Contract Documents may only be amended, modified, or supplemented as provided in the Contract.

1.03 REPRESENTATIONS, CERTIFICATIONS, AND STIPULATIONS

A. CONTRACTOR'S REPRESENTATIONS. In order to induce Owner to enter into this Contract, Contractor makes the following representations:

1. Contractor has examined and carefully studied the Contract Documents, including Addenda.
2. Contractor has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Contractor is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
4. Contractor has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Contractor has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Contractor has considered the information known to Contractor itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor; and (c) Contractor's safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Contractor agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.
9. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
10. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
11. Contractor's entry into this Contract constitutes an incontrovertible representation by Contractor that without exception all prices in the Agreement are premised upon performing and furnishing the Work required by the Contract Documents.

B. **CONTRACTOR'S CERTIFICATIONS**. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process or in the Contract execution;
2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;
3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and
4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

1.04 STANDARD GENERAL CONDITIONS

A. Owner stipulates that if the General Conditions that are made a part of this Contract are EJCDC® C-700, Standard General Conditions for the Construction Contract (2018), published by the Engineers Joint Contract Documents Committee, and if Owner is the party that has furnished said General Conditions, then Owner has plainly shown all modifications to the standard wording of such published document to the Contractor, through a process such as highlighting or "track changes" (redline/strikeout), or in the Supplementary Conditions.

1.05 ENGINEER

A. The Owner has retained Kimley-Horn and Associates, Inc. ("Engineer") to act as one of Owner's representatives, assume all duties and responsibilities of Engineer, and have the rights and authority assigned to Engineer in the Contract Documents.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement which will be effective as of the last date of signature below.

Owner:	Contractor:
Sunshine Water Services *(typed or printed name of organization)*	Vogel Bros. Building Co. *(typed or printed name of organization)*
By: Gary Rudkin *(individual's signature)*	By: *(individual's signature)*
Date: 10/22/2022 *(date signed)*	Date: 10-6-22 *(date signed)*
Name: Gary Rudkin *(typed or printed)*	Name: Darren Vogel *(typed or printed)*
Title: President *(typed or printed)*	Title: Vice President of Operations *(typed or printed)*
Attest: Michael A. Wilson *(individual's signature)*	Attest: R Leigh Wagner *(individual's signature)*
Title: Director, State Operations/West Region *(typed or printed)*	Title: Asst Secretary *(typed or printed)*
Address for giving notices: 200 Weathersfield Avenue Altamonte Springs, FL 32714	Address for giving notices: 2720 Drane Field Rd Lakeland, FL 33811
Designated Representative: Name: Michael A. Wilson *(typed or printed)* Title: Director, State Operations/ West Region *(typed or printed)* Address: 200 Weathersfield Avenue Altamonte Springs, FL 32714	Designated Representative: Name: Darren Vogel *(typed or printed)* Title: Vice President of Operations *(typed or printed)* Address: 2720 Drane Field Rd Lakeland, FL 33811
Phone: 407-468-3268 Email: Mike.Wilson@SunshineWater.com	Phone: 352-262-6127 Email: darrenvogel@vogelbldg.com License No.: CGC1509018 *(where applicable)* State: Florida

END OF SECTION

ODYSSEY
MANUFACTURING CO.

QUOTE **October 21, 2025**

From:	Stephen Nelson, P.E. - Project Manager
To:	Cesar Pastrana – Project Manager
Location:	Sunshine Water Services Company - Mid County WWTP
Subject:	Quote for Replacement Odor Control System

Project Background

Odyssey Manufacturing Co., in partnership with Heyward Florida, Inc., proposes the replacement of the existing Bio-Sponge odor control system at the Sunshine Water Services Mid County WWTP with a Heyward HIBOCS-200 biological odor control system. The existing Bio-Sponge system is in poor condition and in need of replacement. Based on site evaluation, the recommended replacement is a HIBOCS-200 wet scrubber, which is designed to handle current and future odor loads. The existing 6" Schedule 80 PVC pick points, ductwork, and valves are in good condition and will be reused to maintain connection to the headworks structure.

A carbon polishing unit (HICARB-50) is not included under this quote. A carbon polishing unit serves as a final treatment stage to capture any residual H_2S or VOCs that may pass through the HIBOCS biological system during peak loading or atypical system fluctuations. Incorporating a carbon polishing unit provides enhanced odor removal reliability, ensures compliance under varying conditions, and offers added protection for sensitive receptors nearby. Our base scope supplies a fully functional HIBOCS-200 system. A carbon polishing unit is recommended where additional reliability or regulatory margin is desired.

Scope of Work

Provide turnkey installation of the proposed HIBOCS odor control system. The odor control equipment will be procured, handled, and installed by Odyssey to provide a fully functional odor control system. Odyssey will develop and submit a conceptual site plan drawing and submit for review and approval. This plan will illustrate equipment layout, mechanical piping routes, and electrical feed locations to ensure concurrence with the proposed approach prior to construction. All work will comply with applicable local and state codes and regulations.

- Demolition: Remove and dispose of the existing Bio-Sponge system, interconnecting piping, and control panel. Repurpose existing 460V 3PH power.
- Equipment Supply & Install: Supply and install proposed HIBOCS-200, Control Skid, and 2-hp blower. Interconnecting piping between the odor control vessels will be 6" Schedule 40 PVC. Connections to equipment will utilize Fernco flexible fittings for ease of maintenance and vibration control.

- Electrical: The existing power control panel will be removed and 460V 3PH power repurposed and fed to the HIBOCS control skid and 2 hp blower.
- Commissioning: Upon completion of installation, Heyward will perform a full system startup and commissioning procedure. This process will include:
  - Verification of all mechanical and electrical connections
  - Functional testing of the system
  - Biological seeding
  - H_2S concentration measurements using a calibrated Acrulog H_2S meter to confirm removal efficiency
  - An electronic Operation & Maintenance (O&M) Manual

The following supporting documentation is provided under this proposal as enclosures:
- Enclosure (1) – Equipment Proposal and Specifications

Schedule

Odyssey will furnish and install all equipment described herein by December 31, 2025, with exception of the FRP tank vessel. The Tank is subject to a factory lead time currently estimated at 12–14 weeks. We are working with the manufacturer to improve this lead time; however, no acceleration is guaranteed. All other equipment will be set and installed by the Year-End Completion Date and invoiced on or before December 31, 2025 for work completed. Odyssey guarantees that all work will be performed in accordance with this agreement, applicable specifications, and approved submittals. Upon Tank delivery, Odyssey will promptly schedule installation and commissioning.

Pricing

The total cost to complete the proposed scope of work is **$167,836.69**.
A detailed breakdown for these improvements is included below.

COST BREAKDOWN

QUANTITY	DISCRIPTION	UNIT COST	COST
1	HIBOCS-200 Odor Control System	$ 144,650.00	$ 144,650.00
1	Mechanical (PVC, Valves, Fittings, Hardware, Supports)	$ 4,596.69	$ 4,596.69
1	Electrical (Conduit, Power Cable, Hardware)	$ 1,720.00	$ 1,720.00
1	Equipment Transportation/Delivery/Offloading/Lull rental	$ 1,420.00	$ 1,420.00
		MATERIAL/EQUIPMENT COST	**$ 152,386.69**
18	Regular Time Rate - Engineering (Project Management)	$ 150.00	$ 2,700.00
60	Regular Time Rate - Service Technician (Tech and Electrician)	$ 125.00	$ 7,500.00
70	Regular Time Rate - Helper	$ 75.00	$ 5,250.00
		LABOR COST	**$ 15,450.00**
		TOTAL COST	**$ 167,836.69**

Terms and Conditions

- **Payment:** Odyssey will invoice in alignment with the Schedule. All equipment furnished and installed by December 31, 2025, excluding the FRP tank vessel will be invoiced on or before December 31, 2025 for work completed. The remaining balance associated with the FRP tank vessel will be invoiced upon completion of Tank installation and commissioning.
- **Shipping & Handling:** FOB is included in the total purchase price. Delivery of equipment will be coordinated with the Sunshine Water designated point of contact. Odyssey will be responsible for offloading and handling of all equipment and materials.
- **Warranty:** All equipment is warranted against defects in material and workmanship for a period of 36 months after the date of start-up through Heyward. In the event it is determined that a defect exists in such equipment, Heyward's sole obligation shall be to repair or replace the defective equipment. This is extended to peripheral items such as blowers, pumps, control panels. Consumables such as the carbon media are excluded.

Exclusions

The following items are excluded from this proposal unless explicitly stated otherwise:

- Trenching, excavation, or underground installations
- Control wiring and automation to the WWTP existing SCADA system
- Permitting
- Structural modifications or repair of existing infrastructure to support the proposed equipment
- Asphalt or concrete cutting and restoration
- Spare parts, carbon media refills, or extended warranty provisions beyond what is specified

Company Qualifications

Odyssey Manufacturing Co. has been a trusted provider of turnkey odor control solutions throughout Florida for over a decade, partnering with municipalities, utilities, and contractors to deliver reliable, cost-effective odor control and chemical systems. Our team has successfully installed and maintained more than 40 Heyward Florida HIBOCS and HICARB biological and carbon-based odor control systems across the state. Odyssey's services include Engineering design, installation, and ongoing maintenance support. A detailed list of odor control installations and references is available upon request.

Please do not hesitate to contact me at (800) ODYSSEY or cellular (727) 248-5678 if we can provide any more information.

Best Regards,

Stephen Nelson, P.E.
Project Manager
Odyssey Manufacturing Co.

Heyward
FLORIDA INCORPORATED

"Serving the Southeast Since 1908"
415 Country Club Drive - Winter Park, FL 32789 - PH:407.628.1880

HIBOCS/HICARB ODOR CONTROL SYSTEMS

"Simple.....Economical.....Effective!"

"ARREST YOUR ODORS"

Date: ***08/04/2025***
Offered by: ***Heyward Florida Incorporated***
Contact: ***Jason Hopp – (863)701-3082***

PROJECT NAME		**Sunshine Water – Mid-County WWTF Headworks Odor Control**
CONTRACTOR		**Odyssey Manufacturing**
Biotrickling Filter	**HIBOCS MODEL#**	One (1) HIBOCS-200
Carbon Polisher	***HICARB*** **MODEL#**	
Warranty		Three (3) years on entire system Ten (10) years on media

Parameter	Units	Min	Max	Avg	Comments / Notes
Airflow	CFM		900	600	EBRT @ 600 cfm = 20 seconds
H2S Inlet	PPM	50	300	100	
H2S Removal	%		95	99	24 hour average
Water Usage	GPD			1,000	
Drain Water	pH			2-3	

System Components:

- One (1) 7'-0" diameter x 11'-7" tall (plus 2' exhaust stack) HIBOCS-200 Biotrickling filter constructed of a UV resistant isophthalic fiberglass resin system in accordance with ASTM D3299, ASTM D4097, and PS15-69 as applicable. Vessel shall be constructed of 3/8" thick fiberglass as described above. All Biotrickling filter internals are non-fragile materials that are resistant to chemical attack of acids and alkalis. Spray header shall be designed for easy removal. Biotrickling filter shall contain 200-cubic feet of HIHP-98 "high surface" synthetic media for microbial attachment.

  HIBOCS-200 shall include the following:

  - 6" dia. inlet
  - 8" dia. outlet
  - Internal media support system and 62" synthetic media bed
  - Removable spray nozzles
  - Top access door and three side access doors
  - Two (2) 2" drain fittings with plus
  - Two (2) 1/2" differential pressure sensor fittings with plugs
  - Eight (8) 316 SST anchor clips
  - Four (4) 316 SST Lifting lugs
  - Room for 62" (200-ft^3) of HIHP-98 media
  - 12" demisting media bed

- One (1) 600-cfm @ 6" w.c. 12" cast aluminum blower with 2-hp stainless steel washdown/inverter duty motor

- One (1) – HIBOCS-CS100 control skid for biological odor control system. The HIBOCS-CS100 is a completely assembled skid for the operation of the HIBOCS biological odor control system. The skid shall include a Power Distribution Panel in a NEMA 4X 316 SST enclosure, a blower VFD with integral disconnect switch in a NEMA 4X enclosure, a HIBOCS-WCP20 Water/Nutrient Feed System with pressure reducing valve, flow adjustment valve and rotameter, motor actuated water control valve, 30-GPD nutrient feed pump, a Timer Control Panel with 3-timers to control the water and nutrient feed in NEMA 4X FRP enclosure, and a 110V transformer. All the items listed above to be mounted on an HDPE skid, prewired and plumbed ready for connection to owner utilities.

- One (1) 4'-0" diameter X 7'1" tall (plus 3' exhaust stack) **HICARB-50** carbon polisher constructed of UV resistant isophthalic fiberglass resin system in accordance with ASTM D3299, ASTM D4097, and PS15-69 as applicable. Vessel shall be constructed of 3/8" thick fiberglass as described above. All Biotrickling filter internals are non-fragile materials that are resistant to chemical attack from acids and alkalis.

  HICARB-50 shall include the following:

  EXCLUDED FROM QUOTE

  - 8" dia. inlet
  - 8" dia. x 24" long outlet with 1" outlet air sampling assembly and cap
  - Internal media support system
  - 50-cubic feet of blended carbon polishing media
  - Two (2) 2" drain fittings with plus
  - Three (3) 1/2" air quality sampling assemblies

Warranties:

Equipment: All equipment supplied by Heyward Florida Incorporated is warranted against defects in material and workmanship for a period of **36 months after date of start-up** In the event it is determined that a defect exists in such equipment, Heyward Florida Incorporated's sole obligation shall be to repair or replace the defective equipment. This is extended to the peripheral items such blowers, pumps, control panels.

Biological Media: Heyward Florida Incorporated warrants the synthetic media against defects in material and workmanship for a period of ten (10) years from equipment delivery. In the event it is determined that a defect exists in the media, Heyward Florida Incorporated's sole obligation shall be to provide replacement media.

PROCESS DESCRIPTION

HIBOCS biological odor control systems utilize a synthetic media to provide an optimal site for growth of microorganisms (aka: biomass). This media has a high surface/high void area for optimal treatment in a small footprint. Microorganisms that attach to the media are capable of removing H2S and other odorous VOC's when they are contacted by these compounds in the odorous air stream. A blower sends the odorous air from the odor source to the media at the bottom of the vessel where the air passes upward through the vessel and media. As the air travels upward it comes in contact with the biomass growing on the media. The media is supplied with water and nutrients via a recycle pump which keeps the biological population healthy. The ***HIBOCS*** biological odor control systems counter-current flow of air and water/nutrients enhances the mass transfer to the media where the biological sulfur reduction takes place degrading the odorous compounds to sulfuric acid and other soluble sulfates which are removed in the drain water.

ADVANTAGES OF A *HIBOCS* SYSTEM

The ***HIBOCS*** biological odor control systems offer the following advantages:

- Minimum energy consumption due to low pressure loss through system
- Small footprint
- No use of dangerous and expensive chemicals such as caustic soda and bleach
- Simple process that requires minimal maintenance and operator attention
- Simple control system with no PLC's or pH meters requiring constant calibration
- All control panel components are "off the shelf" and can be locally obtained
- Media that does not require replacement or disposal
- Proven technology
- Local, knowledgeable reps for on-site technical help when needed

Should you have any questions concerning our offering, or if we may be of any further service, please do not hesitate to contact us.

Kindest regards,

Jason Hopp

Southwest Florida Sales Representative
863-701-3082 (cell)

Mid-County - WWTP MBR Construction Improvements - Construction				
Document	**Date**	**Vendor**	**Value**	**Name**
1	2/20/2025	Atlantic Pipe Services LLC	$ 11,600.00	01 - 02.20.25 - 250263 - 20633 - Sunshine Water Services - $11,600
2	3/26/2025	Atlantic Pipe Services LLC	$ 3,100.00	02 - 03.26.25 - 250263 - 20632 - Sunshine Water Services - $3,100
3	8/25/2025	Ellis Automation Corporation	$ 320.00	03 - 08.25.25 - Invoice_5587_from_Ellis_Automated_Corporation - $320
4	8/25/2025	Ellis Automation Corporation	$ 990.00	04 - 08.25.25 - Invoice_5589_from_Ellis_Automated_Corporation - $990
5	9/24/2025	Ellis Automation Corporation	$ 440.00	05 - 09.24.25 - Invoice_5659_from_Ellis_Automated_Corporation - $440
6	9/24/2025	Ellis Automation Corporation	$ 560.00	06 - 09.24.25 - Invoice_5680_from_Ellis_Automated_Corporation - $560
7	10/2/2025	Ellis Automation Corporation	$ 890.00	07 - 10.02.25 - Invoice_5685_from_Ellis_Automated_Corporation - $890
8	7/11/2025	Huber Technology	$ 5,595.75	08 - 7.11.25 - Huber Technology Invoice CD10029115 REV 1 - $5,596
Total			**$ 23,495.75**	

Atlantic Pipe Services
1420 Martin Luther King Jr Blvd
Sanford, FL 32771

INVOICE

PO# P91-2410-111631

Bill To: SUNSHINE WATER SERVICES
500 West Monroe St. Suite 3600
Chicago, IL 60661

Service Location: Eq Tank CIP (MidCounty WWTP)
2299 Spanish Vistas Dr.
Pinellas
Dunedin, IL 34698

WO#	Quote ID	Service Site	PO	Invoice #	Invoice Date	Due Date	Terms
3732	6591	250263	N/A	20633	02/20/25	03/22/25	Net 30

Description	Quantity	Unit Price	UM	Total
Specialty Cleaning (8 Hr Minimum)	8.00	325.00	HRS	2,600.00
Specialty Cleaning (8 Hr Minimum)	8.00	325.00	HRS	2,600.00
Specialty Cleaning (8 Hr Minimum)	8.00	325.00	HRS	2,600.00
Fuel Recovery - Vac Truck (Per Mobilization)	3.00	150.00	EA	450.00
Water Meter Acquisition	1.00	350.00	EA	350.00
Storm Licensed Disposal	3.00	1,000.00	EA	3,000.00

Work Description:
Work Dates - 2/20* Night

PO Not Provided

Subtotal	11,600.00
Tax	0.00
Less Retainage	0.00
Total Due	11,600.00

Make all checks payable to Atlantic Pipe Services, LLC or you may pay by Credit Card. We accept all major credit cards (some fees may apply). If you have any questions concerning this invoice, contact Accounts Receivable at (407)792-1360 X 304 or AR@atlanticpipe.us

Atlantic Pipe Services
1420 Martin Luther King Jr Blvd
Sanford, FL 32771

INVOICE

PO# P91-2410-111631

Bill To: SUNSHINE WATER SERVICES
500 West Monroe St. Suite 3600
Chicago, IL 60661

Service Location: Mid County WWTP Master Lift Station
2299 Spanish Vistas Dr.
Pinellas
Dunedin, IL 34698

WO#	Quote ID	Service Site	PO	Invoice #	Invoice Date	Due Date	Terms
3744	6874	250263	Not Provided	20632	02/24/25	03/26/25	Net 30

Description	Quantity	Unit Price	UM	Total
Specialty Cleaning (6 Hr Minimum)	6.00	325.00	HRS	1,950.00
Sewer Licensed Disposal	1.00	1,000.00	EA	1,000.00
Fuel Recovery - Vac Truck (Per Mobilization)	1.00	150.00	EA	150.00

Work Description:
Work Dates - 2/24

*PO Not Provided
Invoice will need to be resubmitted.

Subtotal	3,100.00
Tax	0.00
Less Retainage	0.00
Total Due	3,100.00

Make all checks payable to Atlantic Pipe Services, LLC or you may pay by Credit Card. We accept all major credit cards (some fees may apply). If you have any questions concerning this invoice, contact Accounts Receivable at (407)792-1360 X 304 or AR@atlanticpipe.us

PO# P91-2410-112687

Ellis Automated Corporation
9200 Jasmine Blvd
New Port Richey, FL 34654
+17272430013
ellisautomated@gmail.com

BILL TO
Cesar Pastrana
Sunshine water

SHIP TO
Cesar Pastrana
Sunshine water
remote VT Integration

INVOICE 5587

DATE 08/25/2025 **TERMS** Net 30

DUE DATE 09/24/2025

ACTIVITY	QTY	RATE	AMOUNT
Labor:All Labor Service dates : August 6th,18th Aug 6 mid county ls data sent via email for vt integration 2 hrs 1 man rt frank Aug 18 2 hrs 1 man rt frank additional information sent from servers and other via email with complete modbus addressing	4	80.00	320.00

SUBTOTAL	320.00
TAX	0.00
TOTAL	320.00
TOTAL DUE	**$320.00**

PO# P91-2410-112687

Ellis Automated Corporation
9200 Jasmine Blvd
New Port Richey, FL 34654
+17272430013
ellisautomated@gmail.com

BILL TO
Cesar Pastrana
Sunshine water

SHIP TO
Cesar Pastrana
Sunshine water

INVOICE 5589

DATE 08/25/2025 **TERMS** Net 30

DUE DATE 09/24/2025

ACTIVITY	QTY	RATE	AMOUNT
Labor:All Labor Service date August 19th, Kevin and Gage from Vogel Bros called last week (Friday) wanted us to set up clamp on ultrasonic flow meter on 16" discharge pipe so they could figure out how to throttle the piping valves that split the flow between the two new tank set up. I mentioned possibly wouldn't get flow because where they want to read from is a vertical discharge pipe Set up flow meter in a weather proof case. Set parameters in flow meter for the 16" DI pipe. Installed sensors on the discharge pipe they wanted to check flow on and we got no signal/flow. Brought our calibration flow meter and installed ,also got no signal. Moved the sensors to vertical section of pipe that we knew had fluid in it and still, no signal. Changed sensor mounting configuration from V to Z , changed parameters in flow meter and installed sensors, now getting signal/ flow. Calibrated our meter to match the flow on inline flow meter they have. Moved sensors back over to the discharge pipe they want flow from and getting no signal. Double checked all parameters, sensor installation and got nothing. Moved sensors back to pipe we know is full and immediately got signal and flow. We believe pipe they want flow from does not stay full enough and has turbulence impeding the meter from reading .	1	990.00	990.00

SUBTOTAL	990.00
TAX	0.00
TOTAL	990.00
TOTAL DUE	**$990.00**

Ellis Automated Corporation
9200 Jasmine Blvd
New Port Richey, FL 34654
+17272430013
ellisautomated@gmail.com

BILL TO
Cesar Pastrana
Sunshine water

SHIP TO
Cesar Pastrana
Sunshine water

INVOICE 5659

DATE 09/24/2025 **TERMS** Net 30

DUE DATE 10/24/2025

ACTIVITY	QTY	RATE	AMOUNT
Labor:All Labor Service date Sept 10th, travelled to site, while waiting for meeting, setup programming for vtscada on local computer and worked with Doug got passwords updated, backed up systems, job postponed to next week.	4	110.00	440.00

SUBTOTAL	440.00
TAX	0.00
TOTAL	440.00
TOTAL DUE	**$440.00**

Ellis Automated Corporation
9200 Jasmine Blvd
New Port Richey, FL 34654
+17272430013
ellisautomated@gmail.com

BILL TO
Cesar Pastrana
Sunshine water

SHIP TO
Cesar Pastrana
Sunshine water
(plant expansion)

INVOICE 5680

DATE 09/26/2025 **TERMS** Net 30

DUE DATE 10/26/2025

ACTIVITY	QTY	RATE	AMOUNT
Labor:All Labor Service date Sept 18th,er scada and vt scada programming, plc and radio programming, change ip addresses complete tags, add alarms test systems	7	80.00	560.00

SUBTOTAL	560.00
TAX	0.00
TOTAL	560.00
TOTAL DUE	**$560.00**

Ellis Automated Corporation
9200 Jasmine Blvd
New Port Richey, FL 34654
+17272430013
ellisautomated@gmail.com

BILL TO
Cesar Pastrana
Sunshine water

SHIP TO
Cesar Pastrana
Sunshine water
Vogel Mid County IP

INVOICE 5685

DATE 10/02/2025 **TERMS** Net 30

DUE DATE 11/01/2025

ACTIVITY	QTY	RATE	AMOUNT
Labor:All Labor Service date Sept 24th, Reprogrammed all scada plcs and touch screens for connection to vtscada MLS 172.28.27.80 BS 172.28.27.90 BS cmore 172.82.27.91 Pre cl2 192.168.0.65 to 172.28.27.75 Post cl2 192.168.0.62 to 172.28.27.72 Office remote 192.168.0.67 to 172.28.27.77 Cl2 backup 192.168.0.63 to 172.28.27.73 Office 1 192.168.0.60 to 172.28.27.74 Office 2 192.168.0.71 to 172.28.27.76 Other misc	1	890.00	890.00

SUBTOTAL	890.00
TAX	0.00
TOTAL	890.00
TOTAL DUE	**$890.00**

HUBER Technology, Inc.

PO# P91-2410-112694

Billing Address
Sunshine Water Services
500 W. Monroe, Suite 3600
Chicago, IL 60661-3779
UNITED STATES

Delivery Address
Mid County WWTP-Attn: Kevin O'Neill
2299 Spanish Vista Drive
Dunedin, FL 34698
UNITED STATES

Invoice

Invoice No.:	CD10029115
Invoice Date:	7/11/25
Customer No.:	125613

Order No.:	C3000739	Date printed:	7/11/25
Order Date:	6/23/25	Our Reference:	Clayton Watson
Project:	Mid County, FL (13010698)	Phone:	+1 704-990-2409
Your Reference:	Signed Quote Jeffrey Maricle	Email:	Clayton.Watson@hhusa.net

Pos	Quantity	Unit	Item Description	Price USD	Total USD Tax %
10/1	1.00	pcs	10537591 Labor (1 Tech)	5,279	5,279 6%

Total net	**USD**	**5,279**
Including Sales Tax	**USD**	**316.74**
Total gross	**USD**	5,595.74

Terms of payment: 30 days net
Due Date: 8/10/25

Electronic (ACH) Payment originating within the US
To process payment via ACH, please use the following bank details:
Bank Name: PNC Bank
Account Title: Huber Technology Inc
Routing Number: [redacted]
Account Number: [redacted]
Account Type: Checking
Note: When making payment, please include the invoice number(s) in the payment reference.

Purchase Orders

Document	MFR Ref	Contract or Invoice	Date	Vendor	Value	PO	Name
1	1	01 - 08.09.21 - Mid-County WWTP - Amendment 01 - Additional Design Services - $91,000	10/14/2021	Kimley Horn	$ 91,000.00	P91-2410-102939	PO_3000000006283474_P91-2410-102939_0 - $91,000
2	1	02 - 01.11.21 - Mid County WWTP MBR - $446,423	4/22/2021	Kimley Horn	$ 446,423.00	P91-2410-101293	PO_3000000006283474_P91-2410-101293_0 - $446,423
			5/18/2022		$ 23,500.00	P91-2410-104339	104339
			6/17/2022		$ 28,250.00	P912410-104532	104532
			7/18/2022		$ 10,750.00	P91-2410-104737	104737
			8/19/2022		$ 14,875.00	P91-2410-104949	104949
			9/16/2022		$ 21,500.00	P91-2410-105143	105143
3	1	03 - 04.18.22 - Mid-County WWTP MBR - Task Order - $105,000	10/27/2022	Kimley Horn	$ 6,375.00	P91-2410-105426	105426
4	1	04 - 07.10.22 - Task Order CPS Kimley Horn - Executed - $844,730	12/16/2022	Kimley Horn	$ 844,730.00	P91-2410-105809	PO - KH Project Management - $844,730
5	1	05 - 02.24.25 - Task Order - Mid-County MBR WWTP Improvements - Additional CPS - $166,800	4/8/2025	Kimley Horn	$ 166,800.00	P91-2410-105809	PO_P91-2410-105809_3 - $844,730 Plus Change Order $166,800
6	2 to 6	01 - 08.22.24 - HSI Atlas Copco Bypass Pump #1 - $54,085	3/26/2024	Hydra Services Inc	$ 54,085.00	P91-2410-109101	PO_P91-2410-109101_0
7	2 to 6	02 - 09.17.24 - Bypass Pump #2 - $57,871	8/18/2024	Hydra Services Inc	$ 57,870.95	P91-2410-110237	PO_P91-2410-110237_0
8	2 to 6	03-10..22.22 - Mid-County WWTP MBR improvements - Executed FICDC - $22,090,018	11/10/2023	Vogel Bros. Building Co	$ 22,090,018.00	P91-2410-105887	PO_P91-2410-105887_0
9	2 to 6	04 - 10.21.25 - Odor Control System Replacement Proposal - $167,837	10/22/2025	Odyssey Manufacturing Co.	$ 167,836.69	P91-2410-112935	PO_P91-2410-112935_0
		01 - 02.20.25 - 250263 - 20633 - Sunshine Water Services - $11,600					
10	2 to 6	02 - 03.26.25 - 250263 - 20632 - Sunshine Water Services - $3,100	4/3/2025	Atlantic Pipe Services LLC	$ 14,700.00	P91-2410-111631	PO_P91-2410-111631_0
11	2 to 6	08 - 7.11.25 - Huber Technology Invoice CD100291115 REV 1 - $5,595	7/11/2025	Huber Technology	$ 5,595.74	P91-2410-112694	PO_P91-2410-112694_0
12	2 to 6	03 - 08.25.25 - Invoice_5587_from_Ellis_Automated_Corporation - $320		Ellis Automation Corporation			
13	2 to 6	04 - 08.25.25 - Invoice_5589_from_Ellis_Automated_Corporation - $990	9/15/2025	Ellis Automation Corporation	$ 1,310.00	P91-2410-112687	PO_P91-2410-112687_0
14	2 to 6	05 - 09.24.25 - Invoice_5659_from_Ellis_Automated_Corporation - $440		Ellis Automation Corporation			
15	2 to 6	06 - 09.24.25 - Invoice_5680_from_Ellis_Automated_Corporation - $560		Ellis Automation Corporation			
16	2 to 6	07 - 10.02.25 - Invoice_5685_from_Ellis_Automated_Corporation - $890	10/28/2025	Ellis Automation Corporation	$ 1,890.00	P91-2410-112959	PO_P91-2410-112959_0
Total					$ 24,047,509.38		

Utilities, Inc. of Florida

PO# P91-2410-102939

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	0
Order Date	14-OCT-2021
Change Order Date	14-OCT-2021
Total Ordered Amount	91,000.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
KIMLEY-HORN AND ASSOC, INC. Attn: P.O. BOX 932520 ATLANTA,GA 31193	2410-Utilities, Inc. of Florida 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Utilities, Inc. of Florida 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
deneane.rippy@bluegranitewaterco.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 25	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		Change Order 1 / Amendment 01 Mid County MBR Plant design and engineering project # 2021051, Additional services required during design phase of project. **Supplier Item #:** **Delivery Date:** 10/21/2021			$ 91,000.00	$ 91,000.00

Comments or Special Instructions — **Total Ordered USD** **$ 91,000.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

Please visit us at https://www.corix.com/suppliers for our full Purchase Terms and Conditions

Utilities, Inc. of Florida

PO# P91-2410-101293

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	0
Order Date	04-FEB-2021
Change Order Date	04-FEB-2021
Total Ordered Amount	446,423.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
KIMLEY-HORN AND ASSOC, INC. Attn: P.O. BOX 932520 ATLANTA,GA 31193	2410-Utilities, Inc. of Florida 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Utilities, Inc. of Florida 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Michael Wilson
mike.wilson@uiwater.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 25	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		Mid County WWTP Upgrades - Engineering CP 2021051 **Supplier Item #:** **Delivery Date:** 12/31/2021			$ 446,423.00	$ 446,423.00

Comments or Special Instructions | **Total Ordered USD** | **$ 446,423.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

Please visit us at https://www.corix.com/suppliers for our full Purchase Terms and Conditions

Sunshine Water Services

PO# P91-2410-104339 Change Order 1

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	1
Order Date	18-MAY-2022
Change Order Date	
Total Ordered Amount	23,500.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
KIMLEY-HORN AND ASSOC, INC. Attn: P.O. BOX 932520 ATLANTA,GA 31193	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 25	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		CP 2021051 - Reengineering and rebid of Mid Co. MBR project. **Supplier Item #:** **Delivery Date:** 05/23/2022			$ 23,500.00	$ 23,500.00

Comments or Special Instructions — **Total Ordered USD** **$ 23,500.00**

Invoice #21256666

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

Please visit us at Policies | Nexus Water Group **for our full Purchase Terms and Conditions**

Sunshine Water Services

PO# P91-2410-104532 Change Order 1

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	1
Order Date	17-JUN-2022
Change Order Date	
Total Ordered Amount	28,250.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
KIMLEY-HORN AND ASSOC, INC. Attn: P.O. BOX 932520 ATLANTA,GA 31193	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 25	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		CP 2021051 - Mid County MBR Engineering for project changes. **Supplier Item #:** **Delivery Date:** 06/24/2022			$ 28,250.00	$ 28,250.00

Comments or Special Instructions

Total Ordered USD **$ 28,250.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

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Sunshine Water Services

PO# P91-2410-104737 Change Order 1

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	1
Order Date	18-JUL-2022
Change Order Date	
Total Ordered Amount	10,750.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
KIMLEY-HORN AND ASSOC, INC. Attn: P.O. BOX 932520 ATLANTA,GA 31193	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 25	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		CP 2021051 - Mid County Rebid of MBR WWTP project. **Supplier Item #:** **Delivery Date:** 07/25/2022			$ 10,750.00	$ 10,750.00

Comments or Special Instructions — **Total Ordered USD** **$ 10,750.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

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PO# P91-2410-104949 Change Order 1

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	1
Order Date	19-AUG-2022
Change Order Date	
Total Ordered Amount	14,875.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
KIMLEY-HORN AND ASSOC, INC. Attn: P.O. BOX 932520 ATLANTA,GA 31193	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 25	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		CP 2021051 Mid Co. MBR Plant project **Supplier Item #:** **Delivery Date:** 08/26/2022			$ 14,875.00	$ 14,875.00

Comments or Special Instructions

Total Ordered USD **$ 14,875.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

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Sunshine Water Services

PO# P91-2410-105143 Change Order 1

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	1
Order Date	16-SEP-2022
Change Order Date	
Total Ordered Amount	21,250.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
KIMLEY-HORN AND ASSOC, INC. Attn: P.O. BOX 932520 ATLANTA,GA 31193	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 25	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		CP 2021051 - Engineering support for Mid County WWTP Improvements - MBR project **Supplier Item #:** **Delivery Date:** 09/23/2022			$ 21,250.00	$ 21,250.00

Comments or Special Instructions | **Total Ordered USD** | **$ 21,250.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

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Sunshine Water Services

PO# P91-2410-105426 Change Order 1

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	1
Order Date	27-OCT-2022
Change Order Date	
Total Ordered Amount	6,375.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
KIMLEY-HORN AND ASSOC, INC. Attn: P.O. BOX 932520 ATLANTA,GA 31193	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 25	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		Mid county - Value Engineering for Re-Bid of the MBR project. CP 2021051 **Supplier Item #:** **Delivery Date:** 11/03/2022			$ 6,375.00	$ 6,375.00

Comments or Special Instructions | **Total Ordered USD** **$ 6,375.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

Please visit us at Policies | Nexus Water Group for our full Purchase Terms and Conditions

Sunshine Water Services

PO# P91-2410-105809

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	0
Order Date	16-DEC-2022
Change Order Date	16-DEC-2022
Total Ordered Amount	844,730.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
KIMLEY-HORN AND ASSOC, INC. Attn: P.O. BOX 932520 ATLANTA,GA 31193	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
deneane.rippy@bluegranitewaterco.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 25	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		MPPO - CP 2021051 - Contract KH project support service for Project Management of Mid County MBR project. **Supplier Item #:** **Delivery Date:** 12/23/2022			$ 844,730.00	$ 844,730.00

Comments or Special Instructions

Total Ordered USD **$ 844,730.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

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Sunshine Water Services

PO# P91-2410-105809 Change Order 3

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	3
Order Date	16-DEC-2022
Change Order Date	08-APR-2025
Total Ordered Amount	1,012,569.74 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
KIMLEY-HORN AND ASSOC, INC. Attn: P.O. BOX 932520 ATLANTA,GA 31193	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 25	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		MPPO - CP 2021051 - Contract KH project support service for Project Management of Mid County MBR project. **Supplier Item #:** **Delivery Date:** 12/23/2022			$ 1,012,569.74	$ 1,012,569.74

Comments or Special Instructions | **Total Ordered USD** **$ 1,012,569.74**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

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Sunshine Water Services

PO# P91-2410-109101

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	0
Order Date	26-MAR-2024
Change Order Date	26-MAR-2024
Total Ordered Amount	54,085.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
HYDRA SERVICES INC. Attn: Tim Estep PO BOX 365 WARRIOR,AL 35180	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
deneane.rippy@bluegranitewaterco.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 30	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		Q-240308-3TE Purchase CP#2021051 - Atlas Copco 4" Diesel driven By-pass pump, trailer mounted with silencing enclosure and automatic start and stop. **Supplier Item #:** **Delivery Date:** 04/02/2024	1	EA	$ 54,085.00	$ 54,085.00

Comments or Special Instructions

Total Ordered USD **$ 54,085.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

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Sunshine Water Services

PO# P91-2410-110237

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	0
Order Date	18-SEP-2024
Change Order Date	18-SEP-2024
Total Ordered Amount	57,870.95 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
HYDRA SERVICES INC. Attn: Tim Estep PO BOX 365 WARRIOR,AL 35180	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 30	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		Purchase CP#2021051 - Atlas Copco 4" Diesel driven By-pass pump, trailer mounted with silencing enclosure and automatic start and stop. **Supplier Item #:** **Delivery Date:** 09/24/2024	1	EA	$ 57,870.95	$ 57,870.95

Comments or Special Instructions

Total Ordered USD **$ 57,870.95**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

Please visit us at Policies | Nexus Water Group for our full Purchase Terms and Conditions

Sunshine Water Services

PO# P91-2410-105877 Change Order 2

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	2
Order Date	30-DEC-2022
Change Order Date	10-NOV-2023
Total Ordered Amount	22,090,018.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
Vogel Bros. Building Co Attn: Leigh Wagner 2720 Drane Field Rd Lakeland,FL 33811	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
deneane.rippy@bluegranitewaterco.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 30	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		CP 2021051 - MPPO for conversion of WWTP from Ex Air to MBR process. **Supplier Item #:** **Delivery Date:** 01/03/2023			$ 22,090,018.00	$ 22,090,018.00

Comments or Special Instructions

Total Ordered USD **$ 22,090,018.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

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Sunshine Water Services

PO# P91-2410-112935

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	0
Order Date	22-OCT-2025
Change Order Date	22-OCT-2025
Total Ordered Amount	167,836.69 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
ODYSSEY MANUFACTURING CO. Attn: Jackson Reeves 1484 MASSARO BLVD. TAMPA,FL 33619	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 30	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		Construction Services. CP#2021051. Mid-County MBR Improvements. Odor Control System Replacement **Supplier Item #:** **Delivery Date:** 10/29/2025			$ 167,836.69	$ 167,836.69

Comments or Special Instructions — **Total Ordered USD** **$ 167,836.69**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

Please visit us at Policies | Nexus Water Group for our full Purchase Terms and Conditions

Sunshine Water Services

PO# P91-2410-111631

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	0
Order Date	03-APR-2025
Change Order Date	03-APR-2025
Total Ordered Amount	14,700.00 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
ATLANTIC PIPE SERVICE LLC. Attn: 1420 MARTIN LUTHER KING JR BLVD SANFORD,FL 32771	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 30	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		CP# 2021051. Mid-County MBR Construction Improvements. North Plant EQ Tank Cleaning 2/21/25. **Supplier Item #:** **Delivery Date:** 04/08/2025			$ 14,700.00	$ 14,700.00

Comments or Special Instructions — **Total Ordered USD** **$ 14,700.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

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PO# P91-2410-112694

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	0
Order Date	15-SEP-2025
Change Order Date	15-SEP-2025
Total Ordered Amount	5,595.74 USD

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
HUBER TECHNOLOGY INC. Attn: 1009 AIRLIE PARKWAY DENVER,NC 28037	2410-Sunshine Water Services 2299 Spanish Vista Dr. Dunedin, FL 34698 United States	Sunshine Water Services 500 W Monroe St, Suite 3600 Chicago, IL 60661 United States

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 30	None	None	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		CP#2021051. Mid-County WWTP MBR Improvements. Headworks Gear Box Repair. **Supplier Item #:** **Delivery Date:** 09/19/2025			$ 5,595.74	$ 5,595.74

Comments or Special Instructions — **Total Ordered USD** **$ 5,595.74**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

Please visit us at Policies | Nexus Water Group for our full Purchase Terms and Conditions

PO# P91-2410-112687

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	**0**
Order Date	**15-SEP-2025**
Change Order Date	**15-SEP-2025**
Total Ordered Amount	**1,310.00 USD**

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
ELLIS AUTOMATED CORP. **Attn:** ANTHONY ELLIS **9200 JASMINE BLVD** **NEW PORT RICHEY,FL 34654**	**2410-Sunshine Water Services** **2299 Spanish Vista Dr.** **Dunedin, FL 34698** **United States**	**Sunshine Water Services** **500 W Monroe St, Suite 3600** **Chicago, IL 60661** **United States**

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 30	**None**	**None**	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		CP#2021051. Mid-County MBR Construction Improvements. Vogel/Cogburn/SWS SCADA information request from Ellis Automated. **Supplier Item #:** **Delivery Date:** 09/19/2025			$ 1,310.00	$ 1,310.00

Comments or Special Instructions

Total Ordered USD **$ 1,310.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

Please visit us at Policies | Nexus Water Group **for our full Purchase Terms and Conditions**

Sunshine Water Services

PO# P91-2410-112959

Show this purchase order number on all correspondence, invoices, Shipping papers and packages.

Change Order	**0**
Order Date	**28-OCT-2025**
Change Order Date	**28-OCT-2025**
Total Ordered Amount	**1,890.00 USD**

Please submit invoices to:
elcq.fin.invoices@elcq-opcwf.mail.us2.oraclecloud.com
or by Posted Mail:

Supplier	Ship To	Bill To
ELLIS AUTOMATED CORP. **Attn:** ANTHONY ELLIS **9200 JASMINE BLVD** **NEW PORT RICHEY,FL 34654**	**2410-Sunshine Water Services** **2299 Spanish Vista Dr.** **Dunedin, FL 34698** **United States**	**Sunshine Water Services** **500 W Monroe St, Suite 3600** **Chicago, IL 60661** **United States**

Confirm To (Buyer)
Virginia Rippy
Deneane.Rippy@nexuswg.com

-EXT

Payment Terms	Freight Terms	FOB	Shipping Method
Net 30	**None**	**None**	

Line	Item Number	Description	Quantity	UOM	Unit Price	Total Line Price
1		CP#2021051. Mid-County MBR Improvements. Vogel/SWS VTSCADA Programming Invoices **Supplier Item #:** **Delivery Date:** 11/03/2025			$ 1,890.00	$ 1,890.00

Comments or Special Instructions | **Total Ordered USD** **$ 1,890.00**

Unless the parties have otherwise agreed in writing, the contract of sale evidenced by this document is subject to the attached standard Terms and Conditions of Purchase, which are hereby incorporated into and form part of the contract of sale.

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Appendix H: Mid-County WWTP CAR

FEBRUARY 2021

MID-COUNTY
Capacity Analysis Report

Prepared for:
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, FL 32714

Prepared by:
Kimley-Horn and Associates, Inc.
100 Second Avenue South 105N
St. Petersburg, FL 33701

Capacity Analysis Report

Mid-County Wastewater Treatment Plant

Pinellas County, Florida

Operating Permit Number: FL0034789
Permit Expiration Date: August 4, 2021
Report Date: February 2021

Prepared For:
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, FL 32714

Prepared By:
Kimley-Horn and Associates, Inc.
100 Second Avenue South, Suite 105N
St. Petersburg, FL 33701

CA 00000696
February 2021
St. Petersburg, Florida
140056022

Certifications

PERMITTEE:

I am fully aware and intend to comply with the recommendations and schedules included in this Capacity Analysis Report for the Mid-County WWTP, prepared by Kimley-Horn and Associates, Inc.

5/12/2021
Date

Michael A. Wilson

Michael Wilson
Director, State Operations
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, Florida 32714
Phone: (321) 972-1374

PROFESSIONAL ENGINEER

The information contained in this Capacity Analysis Report for the Mid-County WWTP is true and correct to the best of my knowledge. The report was prepared in accordance with sound engineering principles and the permittee is aware of the recommendations and schedules.

06/07/2021
Date

SHELBY NICHOLE HUGHES LICENSE No. 86419 STATE OF FLORIDA PROFESSIONAL ENGINEER 06/07/2021

Shelby N. Hughes, P.E.
Florida Registration No. 86419
Kimley-Horn and Associates, Inc.
100 Second Avenue, South, Suite 105N
St. Petersburg, FL 33701
Phone: (727) 547-3999

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APPENDICES

INTRODUCTION

Utilities, Inc. of Florida (UIF) authorized Kimley-Horn and Associates, Inc. (Kimley-Horn) to prepare a Capacity Analysis Report (CAR) for the Mid-County Wastewater Treatment Plant (Mid-County WWTP) in accordance with the Florida Department of Environmental Protection (FDEP) and Rule 62-600.405 of the Florida Administrative Code (FAC).

UIF owns and operates the Mid-County WWTP under the existing Operating Permit No. FL0034789 (**Appendix A**) The existing operating permit will expire August 4, 2021. The CAR is required as part of the permit renewal. The Mid-County WWTP is currently permitted for an annual average daily flow (AADF) of 0.900 million gallons per day (MGD).

The proposed plant capacity to accommodate additional connections and population density increases within the service area is 1.200 MGD AADF. The master lift station and headworks replacement are currently under construction to accommodate the increased capacity and provide redundancy. The master lift station is anticipated to be placed into service in March 2021; the headworks is anticipated to be placed into service in December 2021. The remaining plant components, including, biological treatment, disinfection, and sludge dewatering are currently under contract for design and permitting for the necessary expansion and increased capacity. The expansion and miscellaneous improvements are expected to be complete by July 2023.

EXISTING CONDITIONS

The Mid-County WWTP is located at 2299 Spanish Vistas Drive, Dunedin, FL. The facility treats wastewater from a service area consisting of primarily commercial, single and multi-family residential properties along US 19 from SR 580 to the intersection of CR 39 and CR 95. An exhibit of the Mid-County Service Area showing the sanitary sewer system is included in **Appendix B.** The sanitary sewer system owned and operated by private utility owners and UIF that discharges to the Mid-County WWTP includes:

Table 1: Mid-County Collection System

Asset	UIF	Private	Total
Lift Stations	19	8	27
Force Main (2 – 8-inch)			6.02 Miles
Gravity Main (6 – 10-inch)	25.3 Miles	10.5 Miles	35.8 Miles
Wastewater Connections[1]			2,276

[1] Wastewater connections are estimated based on Pinellas County billing data

Facility Description

As stated previously, the Mid-County WWTP is currently permitted for 0.900 MGD AADF. The facility is permitted to discharge 0.900 MGD AADF into Curlew Creek (WBID 1538A), a Class III Fresh Water body. The Mid-County WWTP is a Type 1, advanced wastewater treatment facility with high level disinfection. The facility consists of following components:

- Static screen
  - Static Screen is currently being replaced with the following improvements:
    - (2) Fine Drum Screens
    - Grit Removal System
- (1) 200,000-gallon surge tank
- (1) Flow splitter box
- (1) 0.300 MGD treatment train:
  - 349,000 gallons of aeration
  - (1) 92,000-gallon clarifier
- (1) 0.600 MGD treatment train:
  - 600,000 gallons of aeration
  - (1) 98,000-gallon clarifier
- (4) 5,000-gallon clarified effluent dosing tanks
- (3) Denitrification filters (367 square feet of total surface area)
- (1) 16,000-gallon filtered effluent holding tank
- (1) 34,000-gallon disinfection tank
- (1) 3,400-gallon de-chlorination chamber
- (1) 41,000-gallon sludge holding tank
- (1) 43,500-gallon sludge holding tank
- (1) 37,400-gallon sludge dewatering box

The schematic process flow diagram of the Mid-County WWTP is shown in **Appendix C**. The flow schematic shows the addition of the fine screens and grit removal system. The master lift station is anticipated to be placed into service in March 2021; the headworks is anticipated to be placed into service in December 2021.

The remaining plant components, including, biological treatment, disinfection, and sludge dewatering are currently under contract for design and permitting for the necessary expansion for increased capacity. The improvements are expected to be complete by July 2023.

Historical Flows

Mid-County WWTP Daily Monitoring Reports (DMRs), which are self-monitoring reports as required by FDEP, were utilized for historical flow and sampling data. See **Appendix E** for the DMR Data Summary from January 2016 to December 2020. The DMR data includes the following flow scenarios for the respective reporting period:

- Monthly average daily flows (January 2016 – December 2020)
- Three-month average daily flows (January 2016 – December 2020)
- Annual average daily flows (January 2016 – December 2020)

The DMR flow data is collected using the onsite effluent ultrasonic flow meter located before the discharge to Curlew Creek. The onsite flow meter was most recently calibrated in February 2020 by plant operations staff.

The minimum and maximum monthly average daily flows, three-month average daily flows, and annual average daily flows are summarized in **Table 2** below. The average AADF from 2016 – 2020 is approximately 0.814 MGD or 90% of the permitted capacity.

Table 2: Mid-County Historical Flow Summary

Flow Scenario		Flow (MGD)	Year
Monthly Average Daily Flow (MADF)	Min	0.657	2016
	Max	1.262	2019
Three-Month Average Daily Flow (3MADF)	Min	0.659	2017
	Max	1.170	2019
Annual Average Daily Flow (AADF)	Min	0.714	2017
	Average	0.814	2016-2020
	Max	0.901	2019

Historical flow data is shown in **Figure 1** below. Based on this data, the facility operates at an average of 90% of its permitted capacity annually and exceeded the permitted AADF capacity in 2019. The historical AADF trend shows an approximate 2% annual increase. The 30-day (or monthly) ADF consistently peaks during wet weather months.

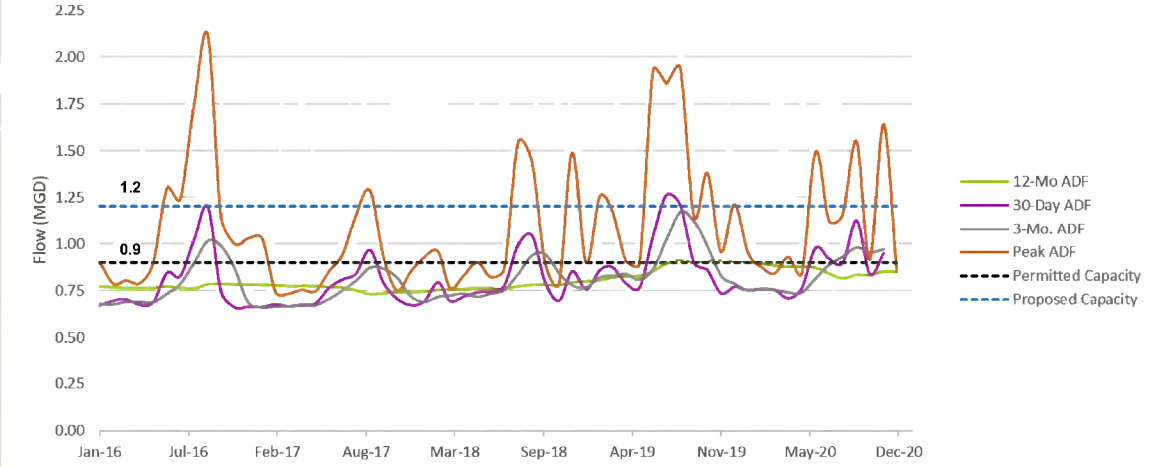

Figure 1: Mid-County WWTP Historical Flow

Seasonal Variations in Flow

The seasonal variation is shown in the 30-day average daily flow per year in **Figure 2** below. The Mid-County WWTP service area has a seasonal population that generally consists of 'snowbirds' coming to the area during the winter. While the flow in the wet weather months (June – November) is consistently higher, the baseline flow from the service area population during the dry season is higher than the baseline flows during the summer. The flow in the wet season increases due to inflow and infiltration (I&I) contributions. It should be noted that during the wet season the average flows are higher but the respective peaking hourly factor is effectively reduced. Additionally, due to the high I&I contributions the biological loading is low effectively increasing the biological treatment capacity of the existing facility.

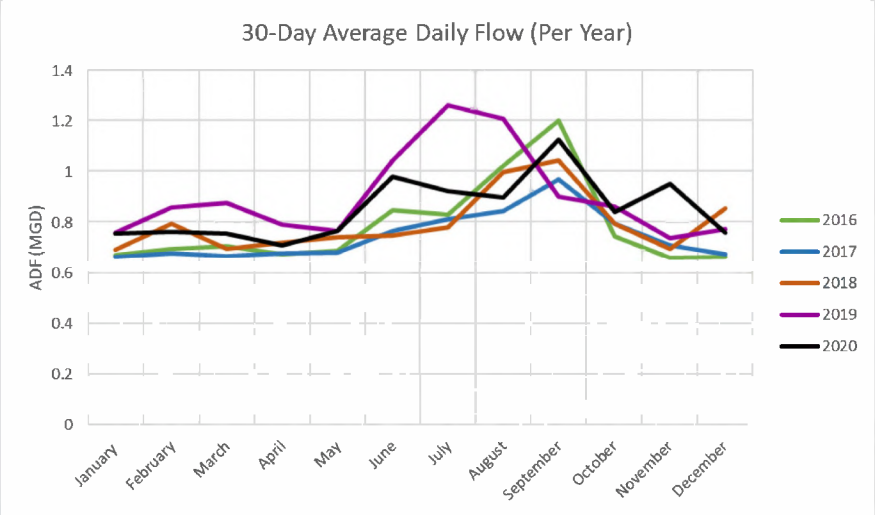

Figure 2: Mid-County WWTP 30-Day ADF Per Year

Flow and Loading Information

Operating Permit No. FL0034789 states the effluent parameters, monitoring requirements, and the associated limitations the Mid-County WWTP is required to maintain. **Table 3** summarizes the effluent limitations as stated in the operating permit.

Table 3: Permit Effluent Limitations

Parameter	Min/Max	Limitation	Condition
Flow to Discharge	Max	0.900 MGD	Annual Average
BOD_5 & TSS	Max	5.0 mg/L	Annual Average
	Max	6.25 mg/L	Monthly Average

	Max	10.0 mg/L	Single Sample
Total Nitrogen	Max	3.0 mg/L	Annual Average
	Max	3.75 mg/L	Monthly Average
	Max	6.0 mg/L	Single Sample
Total Phosphorous	Max	1.0 mg/L	Annual Average
	Max	1.25 mg/L	Monthly Average
	Max	2.0 mg/L	Single Sample
pH	Min	6.0	Single Sample
	Max	8.5	Single Sample
Fecal Coliform (% less than detection)	Min	75%	Monthly Total
Fecal Coliform	Max	25 #/100mL	Single Sample
Chlorine (Total Residual for Disinfection)	Min	1.0 mg/L	Single Sample
Chlorine (Total Residual for Dechlorination)	Max	0.01 mg/L	Single Sample
Dissolved Oxygen	Min	5.0 mg/L	Single Sample

Per the operating permit, the Mid-County WWTP monitors and submits monthly effluent levels of the parameters listed above. Per the DMR data, **Table 4** summarizes the annual average effluent levels for loading parameters monitored on an annual basis. The annual average effluent results do not exceed the permitted limitations.

Table 4: Annual Average Effluent Monitoring Results

Year	Effluent BOD5	Effluent TSS	Total Nitrogen	Total Phosphorous
	Annual Average (mg/L)	Annual Average (mg/L)	Annual Average (mg/L)	Annual Average (mg/L)
	Limit: 5.0 mg/L	*Limit: 5.0 mg/L*	*Limit: 3.0 mg/L*	*Limit: 1.0 mg/L*
2016	2.87	0.70	1.66	0.49
2017	3.09	1.21	1.95	0.41
2018	4.64	1.29	1.63	0.35
2019	3.03	1.27	0.88	0.22
2020	2.27	1.00	0.74	0.14

The DMR Exceedances per parameter and statistical base are shown in **Table 5** below, demonstrating that the facility has operated outside of its permitted effluent limitations on several instances. The increased nutrient loading in 2017 and 2018 is partially due to the failure of the clarifier mechanism in Treatment Train # 2 in December 2017.This caused the clarifier to be taken out of service for fifteen (15) days which reduced the effective capacity of the plant to 0.30 MGD (Train # 1). Operating the plant using only Train # 1 created operational issues and overloaded the filters. This caused the plant to exceed its permitted parameters during this timeframe.

Table 5: DMR Exceedances					
Date of Exceedance	**Parameter**	**Result**	**Permitted Limit**	**Unit**	**Statistical Base**
2019	AADF	0.901	0.900	MGD	Annual
11/31/2018	BOD, Carbonaceous 5 day, 20C	7.30	6.25	mg/L	MK-Monthly
08/31/2018	Nitrogen, Total	2.67	2.12	ton/yr	AD – Annual Total
07/31/2018	Nitrogen, Total	2.60	2.12	ton/yr	AD – Annual Total
06/31/2018	Nitrogen, Total	2.56	2.12	ton/yr	AD – Annual Total
05/31/2018	Nitrogen, Total	2.50	2.12	ton/yr	AD – Annual Total
04/30/2018	Nitrogen, Total	2.25	2.12	ton/yr	AD – Annual Total
03/31/2018	BOD, Carbonaceous 5 day, 20C	8.53	6.25	mg/L	MK-Monthly
03/31/2018	BOD, Carbonaceous 5 day, 20C	15	10.0	mg/L	MB-Maximum
03/31/2018	Nitrogen, Total	2.14	2.12	ton/yr	AD – Annual Total
02/28/2018	Nitrogen, Total	2.20	2.12	ton/yr	AD – Annual Total
01/31/2018	BOD, Carbonaceous 5 day, 20C	6.34	6.25	mg/L	MK-Monthly
01/31/2018	BOD, Carbonaceous 5 day, 20C	14	10.0	mg/L	MB-Maximum
01/31/2018	Nitrogen, Total	2.20	2.12	ton/yr	AD – Annual Total
12/31/2017	Solids, Total Suspended	24	5.0	mg/L	MB-Maximum
12/31/2017	Nitrogen, Total	18	6.0	mg/L	MB-Maximum
12/31/2017	Nitrogen, Total	8.1	3.75	mg/L	MK-Monthly
12/31/2017	Coliform, Fecal	48	25.0	#/100	MB-Maximum
12/31/2017	Nitrogen, Total	2.17	2.12	ton/yr	AD – Annual Total
11/30/2017	BOD, Carbonaceous 5 day, 20C	19	10.0	mg/L	MB-Maximum
11/30/2017	BOD, Carbonaceous 5 day, 20C	7.8	6.25	mg/L	MK-Monthly
07/31/2017	Solids, Total Suspended	18	5.0	mg/L	MB-Maximum
06/30/2017	Solids, Total Suspended	18	5.0	mg/L	MB-Maximum
05/31/2017	Solids, Total Suspended	9.2	5.0	mg/L	MB-Maximum
10/31/2016	Coliform, Fecal	32	25.0	#/100	MB-Maximum
07/31/2016	Coliform, Fecal	58	25.0	#/100	MB-Maximum
03/31/2016	Nitrogen, Total	9.6	6.0	mg/L	MB-Maximum
03/31/2016	Nitrogen, Total	4.5	3.75	mg/L	MK-Monthly

Due to these exceedances, FDEP issued a consent order (No. 18-1197), dated November 2018, for the Mid-County WWTP. The consent order identifies the exceedances shown above. The consent order was subsequently closed on December 21, 2020 after interim monitoring limits were consistently met and the recommendations for improvements to the clarifier were addressed.

FUTURE CONDITIONS

As stated previously, the Mid-County WWTP serves approximately 1,600 acres of commercial, single, and multi-family residential properties with approximately 2,276 wastewater connections within unincorporated Pinellas County. Wastewater connections were verified using Pinellas County billing data. Please note that the previously reported number of connections (2,758) was based on parcel data within the service area and does not accurately reflect the number of service connections maintained by UIF.

Based on the Pinellas County property appraiser, there are approximately 4,984 tax parcels within the service area. Please note that the previously reported number of tax parcels (2,847 tax parcels) consolidated privately owned developments and mobile home parks under one parcel number. These parcels are no longer consolidated, resulting in the seemingly large increase in tax parcels. Many of the wastewater connections are master metered and receive flow from a private lift station. According to the existing land use parcel data, approximately 89 parcels are vacant. This indicates that the Mid-County service area is nearly built-out. The Pinellas County Comprehensive Plan, dated November 22, 2016, details the future land use of the Mid-County service area. A review of both the existing zoning and the future land use maps shows that anticipated rezoning may continue to slightly increase the AADF of the Mid-County WWTP. See **Appendix D** for the Mid-County Zoning and Future Land Use Map.

Population Projection

According to the ESRI Time Series Profile and Community Profile Projections based on U.S. Census Bureau, Census 2010, the Mid-County service area population grew from 10,144 in 2016 to 10,331 in 2020, representing an annual growth rate of approximately 0.5%. The growth rate from 2020 to 2025 is anticipated to be 0.41%. See **Appendix F** for the ESRI Time Series Profile and Community Profile Report. **Table 6** below shows the historical populations and population projections for the next 5 years, compared to the AADF at the plant and the gallons per day per capita. The projected flows utilize the per capita average from 2018 – 2020 to better reflect the current per capita flow rate.

Table 6: Population Projection

Year	Estimated Population	AADF (MGD)
2016	10,144	0.7811
2017	10,180	0.7417
2018	10,221	0.7946
2019	10,231	0.9013

2020	10,331	0.8501
2021	10,373	0.858
2022	10,416	0.861
2023	10,459	0.865
2024	10,501	0.869
2025	10,545	0.872

While the service area is primarily built-out, additional connections and redevelopment of this area has contributed to the increase of the AADF experienced at the WWTP. Additionally, the Mid-County WWTP experiences seasonal variations in flow due to I&I within the wastewater collection system. While UIF is actively investigating I&I sources and is improving the condition of the gravity system to reduce overall plant flows through I&I abatement, a significant flow reduction from these efforts is not anticipated in the near future.

Projected Flows

The projected flows were evaluated using two methods. The first method analyzed the per capita flow rate based on population density increases and the development of vacant parcels extrapolated over five years. The second method averaged the increase of flow from 2016 to 2020 and assumed a linear increase for 2021 – 2025. **Figure 3** below shows the flow projections from 2016 to 2020 for both methods.

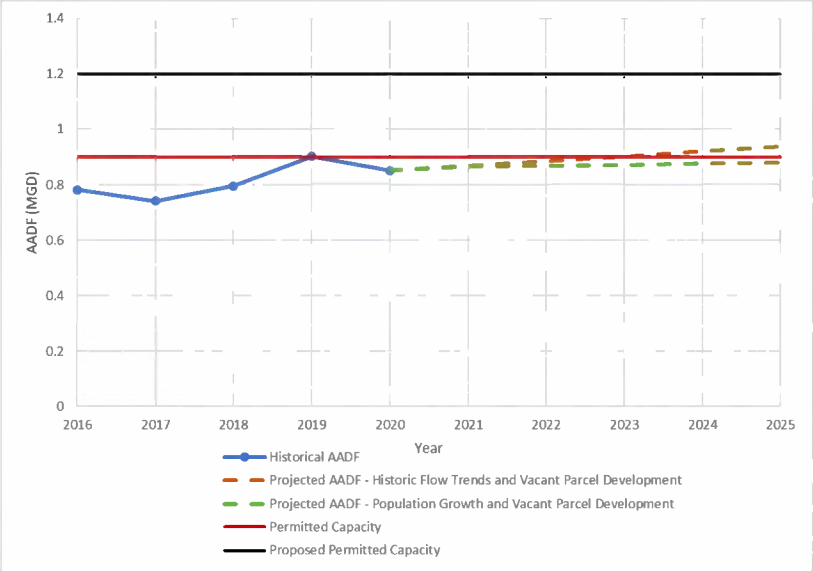

Figure 3: Historical and Projected AADF vs Permitted Capacity

As shown in the above projections, the Mid-County WWTP is expected to exceed the permitted capacity of 0.9 MGD AADF in the next five years based on the annual average increase in flow. A table summarizing the projected flows compared to the existing and proposed plant capacity is shown in **Table 7** below.

Table 7: AADF Flow Projection

Year	Projected AADF (MGD)	Percent of Existing Plant Capacity (0.9 MGD)	Percent of Proposed Plant Capacity (1.2 MGD)
2021	0.873	97.0%	72.8%
2022	0.891	99.0%	74.2%
2023	0.908	100.9%	75.7%
2024	0.926	102.9%	77.2%
2025	0.945	105.0%	78.7%

SUMMARY AND RECOMMENDATIONS

Time Required to Reach Permitted Capacity

As discussed in the previous section, the Mid-County WWTP is expected to exceed the permitted capacity within the next five (5) years without expansion.

Recommendation for Expansion

Based on the flow projections above, it is recommended UIF continue with the Mid-County WWTP expansion plans.

Expansion Schedule

UIF has authorized Kimley-Horn to proceed with the design and permitting of the Mid-County WWTP improvements to increase plant capacity and provide redundancy. Kimley-Horn has completed the design and permitting of the master lift station, headworks and grit removal system, all of which are currently under construction. Additionally, Kimley-Horn is in the design process for the biological treatment plant components, including the retrofit from an extended aeration plant to a membrane bioreactor treatment mechanism, allowing an increased capacity within the same plant footprint. Kimley-Horn is also in the design process for a disinfection system and sludge dewatering system. **Table 8** below shows a timeline for design, permitting, bidding and construction for the proposed improvements. Influent parameters, design data, and equipment recommendations are included in the Preliminary Design Report accompanying this submittal.

Table 8: Expansion Schedule				
Improvement	**Design & Permitting**		**Bidding & Construction**	
	Start	**Completion**	**Start**	**Completion**
Master Lift Station	Complete		July 2020	March 2021
Headworks & Grit Removal	Complete		January 2021	December 2021
MBR Conversion	January 2021	November 2021	November 2021	July 2023

APPENDICES

APPENDIX A: Mid-County WWTP Operating Permit No. FL0034789-013-DW1P/NR

FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

July 22, 2020

PERMITTEE:
Mr. Patrick C. Flynn, Vice President of Operations
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, Florida 32714
pcflynn@uiwater.com

Re: Minor Revision
Mid-County WWTF
PA File No. FL0034789-014-DW1/MR
Pinellas County

Dear Mr. Flynn:

In accordance with Rule 62-620.325(2), Florida Administrative Code, the Department completed minor revisions of the above-referenced domestic wastewater facility permit, FL0034789, which expires on August 4, 2021.

The current permit description was revised to include the construction of a new headworks including fine screens and a grit removal system. This modification did not change the current Discharge Monitoring Reports (DMRs).

The revised permit is enclosed. Please replace the previous documents in their entirety. Please note that the original permit issuance and expiration dates still apply.

Also, please note that monitoring requirements under this permit are effective immediately. If you have any questions, you may contact Alexandria Moorehead at (813) 470-5704 or via email at Alexandria.Moorehead@FloridaDEP.gov.

Sincerely,

Pamala Vazquez
Program Administrator
Permitting & Waste Cleanup Program
Southwest District

cc:
EPA Region IV – Water Management, r4npdespermits@epa.gov
Monica Sudano, FDEP-Tallahassee, Monica.Sudano@floridadep.gov
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FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Ron DeSantis
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Noah Valenstein
Secretary

STATE OF FLORIDA
DOMESTIC WASTEWATER FACILITY PERMIT

PERMITTEE:
Mid-County Services, Inc.

PERMIT NUMBER: FL0034789 (Minor)
FILE NUMBER: FL0034789-013-DW1P/NR
ISSUANCE DATE: August 5, 2016
PA FILE NUMBER: FL0034789-014-DW1/MR
REVISION DATE: **July 22, 2020**
EXPIRATION DATE: August 4, 2021

RESPONSIBLE OFFICIAL:
Mr. Patrick C. Flynn, Vice President of Operations
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, Florida 32714-4027
(407) 869-1919
pcflynn@uiwater.com

FACILITY:

Mid-County WWTP
2299 Spanish Vista Drive
Dunedin, FL 34698-9438
Pinellas County
Latitude: 28°2' 16 " N Longitude: 82°44' 31" W

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and applicable rules of the Florida Administrative Code (F.A.C.) and constitutes authorization to discharge to waters of the state under the National Pollutant Discharge Elimination System. This permit does not constitute authorization to discharge wastewater other than as expressly stated in this permit. The above-named permittee is hereby authorized to operate the facilities in accordance with the documents attached hereto and specifically described as follows:

WASTEWATER TREATMENT

An existing 0.90 million gallons per day (MGD) Annual Average Daily Flow (AADF), Type I, advanced wastewater treatment facility consisting of two separate treatment trains: flow is directed through one static screen, followed by one equalization basin of 200,000 gallons total volume and then a flow splitter box which separates the flow into a 0.30 million gallons per day (MGD) treatment train and 0.60 million gallons per day (MGD) treatment train. The 0.30 million gallons per day (MGD) treatment train consists of six aeration basins, 349,000 gallons of total aeration volume and one clarifier of 92,000 gallons total volume with 1,025 square feet total surface area. The 0.60 million gallons per day (MGD) treatment train consists of two 300,000-gallon aeration basins, 600,000 gallons of total aeration volume and one clarifier of 98,000 gallons total volume with 1,086 square feet total square area. The two treatment trains are combined into four 5,000 gallon clarified effluent holding tanks, three deep-bed denitrification filters of 48,000 gallons total volume and 367 square feet of total surface area, one effluent holding tank of 16,000 gallons total volume, a chlorination/dechlorination chamber of 37,400 gallons total volume comprised of a 34,000 gallon chlorine contact chamber and a 3,400 gallon dechlorination chamber, one aerobic digester of 41,000 gallons total volume, and one sludge holding tank of 43,500 gallons total volume. This facility is operated to provide advanced wastewater treatment and high-level disinfection.

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-014-DW1/MR
FACILITY: Mid-County WWTP

MODIFICATION

Removal of the existing static screen and associated grating and the construction of a new headworks including fine screens and a grit removal system.

AFTER MODIFICATION

An existing 0.90 million gallons per day (MGD) Annual Average Daily Flow (AADF), Type I, advanced wastewater treatment facility consisting of two separate treatment trains. Flow is pumped from the Master Lift Station to the Headworks Structure, which includes fine screening and grit removal and is then routed to one equalization basin of 200,000 gallons total volume. The flow is pumped to a flow splitter box which separates the flow into a 0.30 million gallons per day (MGD) treatment train and 0.60 million gallons per day (MGD) treatment train. The 0.30 million gallons per day (MGD) treatment train consists of six aeration basins, 349,000 gallons of total aeration volume and one clarifier of 92,000 gallons total volume with 1,025 square feet total surface area. The 0.60 million gallons per day (MGD) treatment train consists of two 300,000-gallon aeration basins, 600,000 gallons of total aeration volume and one clarifier of 98,000 gallons total volume with 1,086 square feet total square area. The two treatment trains are combined into four 5,000 gallon clarified effluent holding tanks, three deep-bed denitrification filters of 48,000 gallons total volume and 367 square feet of total surface area, one effluent holding tank of 16,000 gallons total volume, a chlorination/dechlorination chamber of 37,400 gallons total volume comprised of a 34,000 gallon chlorine contact chamber and a 3,400 gallon dechlorination chamber, one aerobic digester of 41,000 gallons total volume, and one sludge holding tank of 43,500 gallons total volume. This facility is operated to provide advanced wastewater treatment and high-level disinfection.

REUSE OR DISPOSAL:

Surface Water Discharge D-001: An existing 0.90 million gallons per (MGD) Annual Average Daily Flow (AADF) discharge into the Class III Fresh waters of Curlew Creek, WBID 1538A. Curlew Creek flows into WBID 1538 of Curlew Creek Tidal Segment, Class III Marine waters, thence WBID 1528C of Clearwater Harbor (north), Class III Marine waters. The point of discharge is located approximately at latitude 28° 02' 18" N, longitude 82 ° 44' 32" W.

IN ACCORDANCE WITH: The limitations, monitoring requirements, and other conditions set forth in these cover sheets and Part I through Part IX on pages 3 through 22 of this permit.

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to Curlew Creek. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.B.7:

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow, to D-001	MGD	Max	0.90	Annual Average	Monthly	Calculated	FLW-01	See I.A.3
Flow, to D-001	MGD	Max	Report	Monthly Average	5 Days/Week	Recording Flow Meter with Totalizer	FLW-01	See I.A.3
BOD, Carbonaceous 5 day, 20C	mg/L	Max	5.0	Annual Average	Monthly	Calculated	EFD-01	
BOD, Carbonaceous 5 day, 20C	mg/L	Max Max	6.25 10.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
Solids, Total Suspended	mg/L	Max	5.0	Annual Average	Monthly	Calculated	EFD-01	
Solids, Total Suspended	mg/L	Max Max	6.25 10.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	See I.A.6
Solids, Total Suspended	mg/L	Max	5.0	Single Sample	4 Days/Week	Grab	EFB-01	
Nitrogen, Total	mg/L	Max	3.0	Annual Average	Monthly	Calculated	EFD-01	
Nitrogen, Total	mg/L	Max Max	3.75 6.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
Phosphorus, Total (as P)	mg/L	Max	1.0	Annual Average	Monthly	Calculated	EFD-01	
Phosphorus, Total (as P)	mg/L	Max Max	1.25 2.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
pH	s.u.	Min Max	6.0 8.5	Single Sample Single Sample	5 Days/Week	Meter	EFD-01	
Coliform, Fecal, % less than detection	percent	Min	75	Monthly Total	Monthly	Calculated	EFA-01	See I.A.4
Coliform, Fecal	#/100mL	Max	25	Single Sample	4 days/Week	Grab	EFA-01	See I.A.4
Chlorine, Total Residual (For Disinfection)	mg/L	Min	1.0	Single Sample	5 Days/Week	Meter	EFA-01	See I.A.5
Chlorine, Total Residual (For Dechlorination)	mg/L	Max	0.01	Single Sample	Weekly	Grab	EFD-01	
Oxygen, Dissolved (DO)	mg/L	Min	5.00	Single Sample	5 Days/Week	Grab	EFD-01	
Nitrogen, Total	ton/mth	Max	Report	Monthly Total	Monthly	Calculated	EFD-01	See I.A.7

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-014-DW1/MR
FACILITY: Mid-County WWTP

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Nitrogen, Total	ton/yr	Max	2.12	Annual Total	Monthly	Calculated	EFD-01	See I.A.7
Chronic Whole Effluent Toxicity, 7-Day IC25 (Ceriodaphnia dubia)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFD-01	See I.A.6
Chronic Whole Effluent Toxicity, 7-Day IC25 (Pimephales promelas)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFD-01	See I.A.6

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-014-DW1/MR
FACILITY: Mid-County WWTP

2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I.A.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-01	Flow meter prior to discharge to Curlew Creek.
EFD-01	After dechlorination and prior to surface water discharge to Curlew Creek.
EFA-01	After disinfection and prior to dechlorination.
EFB-01	After filtration and prior to disinfection.

3. Recording flow meters and totalizers shall be utilized to measure flow and calibrated at least annually. *[62-600.660(1)]*

4. Over a 30-day period, at least 75 percent of the fecal coliform values shall be below the detection limits. No sample shall exceed 25 fecal coliforms per 100 mL. No sample shall exceed 5.0 mg/L of total suspended solids (TSS) at a point before the application of the disinfectant. Note: To report the "% less than detection," count the number of fecal coliform observations that were less than detection, divide by the total number of fecal coliform observations in the month, and multiply by 100% (round to the nearest integer). *[62-600.440(6)(a)]*

5. A minimum of 1.0 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow. *[62-600.440(5)(c), (6)(b), and (7)(c)]*

6. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.

   a. Effluent Limitation
      (1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) for reproduction or growth shall not be less than 100% effluent. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]
      (2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. [Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]

   b. Monitoring Frequency
      (1) Routine toxicity tests shall be conducted once every six months, the first starting within 60 days of the effective date of this permit and lasting for the duration of this permit.

   c. Sampling Requirements
      (1) For each routine test or additional follow-up test conducted, a total of three flow proportional 24-hr composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.
      (2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.
      (3) Samples for routine and additional follow-up tests shall not be collected on the same day.

   d. Test Requirements
      (1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%**, **50%**, **25%**, **12.5%**, and **6.25%** final effluent.
      (2) The permittee shall conduct a daphnid, **Ceriodaphnia dubia**, Survival and Reproduction Test and a fathead minnow, **Pimephales promelas**, Larval Survival and Growth Test, concurrently.
      (3) All test species, procedures and quality assurance criteria used shall be in accordance with **Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms**, 4th Edition, EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.
      (4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.2.3.

e. Quality Assurance Requirements
(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.
(2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or the "test acceptability criteria" are not met, the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (**Ceriodaphnia dubia**) and Section 11.11 (**Pimephales promelas**). The repeat test shall begin within 21 days after the last day of the invalid test.
(3) If 100% mortality occurs in all effluent concentrations for either test species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.
(4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-013, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

f. Reporting Requirements
(1) Results from all required tests shall be reported on the Discharge Monitoring Report (DMR) as follows:
(a) Routine and Additional Follow-up Test Results: The calculated IC25 for reproduction or growth for each test species shall be entered on the DMR.
(2) A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-013, Section 10, Report Preparation and Test Review, and mailed to the Department at the address below within 30 days after the last day of the test.
(3) For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-013, Section 10, and mailed within 30 days after the last day of the second valid additional follow-up test.
(4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.
(5) The same bioassay data shall not be reported as the results of more than one test.
(6) All bioassay laboratory reports shall be sent to:

Florida Department of Environmental Protection
Southwest District Office
13051 N Telecom Pkwy
Temple Terrace, Florida 33637-0926
Phone Number - (813) 470-5700
FAX Number - (813) 470-5996
swd_dw@dep.state.fl.us

g. Test Failures
(1) A test fails when the test results do not meet the limits in I.A.6.a.(1).
(2) Additional Follow-up Tests:
(a) If a routine test does not meet the chronic toxicity limitation in I.A.6.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with I.A.6.d.
(b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.
(c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5%, and 6.25% effluent. The permittee may modify the dilution series in the second additional follow-up test to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control (0%

effluent) are run. All test results shall be analyzed according to the procedures in EPA-821-R-02-013.

(3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.
   (a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.
   (b) The Department shall review and approve the plan before initiation.
   (c) The plan shall be initiated within 30 days following the Department's written approval of the plan.
   (d) Progress reports shall be submitted quarterly to the Department at the address above.
   (e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with I.A.6.d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in I.A.6.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-013, a repeat test shall be initiated within 21 days after the last day of the invalid routine test.
   (f) Upon completion of four consecutive quarterly valid routine tests that demonstrate compliance with the effluent limitation in I.A.6.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the facility has passed at least four consecutive quarterly valid routine whole effluent toxicity tests. If a test within the sequence of the four is deemed invalid, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive quarterly valid routine tests for the purpose of terminating the plan.

(4) If chronic toxicity test results indicate greater than 50% mortality within 96 hours in an effluent concentration equal to or less than the effluent concentration specified as the acute toxicity limit in I.A.6.a.(2), the Department may revise this permit to require acute definitive whole effluent toxicity testing.

(5) The additional follow-up testing and the plan do not preclude the Department taking enforcement action for acute or chronic whole effluent toxicity failures.

[62-4.241, 62-620.620(3)]

7. In accordance with Rule 62-304.645(13)(a), F.A.C., the Total Maximum Daily Load for Total Nitrogen from this facility shall be 2.12 tons/year (annual total). The Total Nitrogen loading shall be calculated from the monthly average Total Nitrogen concentrations as follows:

Monthly Total (Mt)
$Mt_n = \frac{\text{(Monthly Average Total Nitrogen Concentration, mg/l)(Total Monthly Flow, MG)(8.3454)}}{\text{2000 lbs}}$
Mt_n = Tons/Month

The Annual Total shall be calculated as a 12-month rolling total based on the cumulative total of TN tons discharged during the reporting month (Mt_n) plus the total of TN tons discharged during the preceding 11 consecutive months.

Annual Total (At)*
Annual Total at the end of the n^{th} Month: $At = Mt_{n-11} + Mt_{n-10} \ldots Mt_n$

*The Annual Total will be calculated and reported as an accumulation of each monthly TN load after this permit monitoring effective date until twelve (12) months of data are collected, after which the rolling total will be reported.

[62-304.645(13)(a)]

8. Ambient Monitoring Program
The permittee shall conduct a surface water-monitoring program to evaluate the impacts of the discharge on the water quality of the receiving body of water. The monitoring described below shall be conducted semi-annual basis (wet and dry season). The monitoring reports shall be submitted to the Department's SW District Office annually. The reports shall include discussion and interpretation of the water quality results.

Ambient sampling should always be conducted in conjunction with a surface water discharge sampling event.

a. Sampling locations

i. Test site 1 shall be located 300 feet upstream of the outfall to Curlew Creek.
ii. Test site 2 shall be located 300 feet downstream of the outfall to Curlew Creek.
iii. Outfall D-001 (effluent): At the outfall (effluent shall be collected just prior to mixing with the surface waters).

b. Sampling Depths

i. Mid-depth samples shall be collected at the two ambient sites.

c. Sampling Parameters

i. Surface (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity and specific conductance shall be measured at 0.1 meter below the surface of the water.
ii. Mid-depth (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity, specific conductivity, total suspended solids, $CBOD_5$, total Kjeldahl nitrogen, nitrite-nitrate, total ammonia nitrogen, total phosphorous, ortho-phosphorus, chlorophyll a corrected, fecal coliform bacteria and turbidity.
iii. Outfall (effluent): pH, dissolved oxygen, temperature, specific conductivity, total suspended solids, $CBOD_5$, total Kjeldahl nitrogen, nitrite-nitrate, total ammonia nitrogen, total phosphorus, ortho-phosphorus and fecal coliform bacteria.
iv. Bottom (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity and specific conductivity shall be measured at 0.1 meter above the bottom.

d. Secchi Depth: Secchi depth shall be measured at both ambient sites.

e. Ambient Conditions: Air temperature, rainfall, cloud cover and flow direction of receiving water body shall be noted at each sampling site.

f. Chain of Custody: Time/date of sampling and name of persons who obtained the sample shall be noted at each sampling site.

g. Report: A report containing the data from the Ambient Monitoring Program shall be submitted to FDEP's Southwest District outlining the results in electronic format. The report shall also include all chain of custody forms, laboratory results as reported by the laboratory and the physiochemical raw data sheets. *[62-302.300]*

B. Other Limitations and Monitoring and Reporting Requirements

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the treatment facility shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.B.7.:

			Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow, Total Plant	MGD	Max	0.9	Annual Average	Monthly	Calculated	FLW-01	See I.B.4
Flow, Total Plant	MGD	Max Max	Report Report	Monthly Average 3-Month Rolling Average	5 Days/Week	Recording Flow Meter with Totalizer	FLW-01	SeeI.B.4
Percent Capacity, (TMADF/Permitted Capacity) x 100	percent	Max	Report	Monthly Average	Monthly	Calculated	INF-01	
BOD, Carbonaceous 5 day, 20C (Influent)	mg/L	Max	Report	Monthly Average	Monthly	16-hr FPC	INF-01	See I.B.3
Solids, Total Suspended (Influent)	mg/L	Max	Report	Monthly Average	Monthly	16-hr FPC	INF-01	See I.B.3

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2. Samples shall be taken at the monitoring site locations listed in Permit Condition I.B.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-01	Flow meter prior to discharge to Curlew Creek.
INF-01	Influent sampling point at the head works prior to treatment and ahead of the return activated sludge line.

3. Influent samples shall be collected so that they do not contain digester supernatant or return activated sludge, or any other plant process recycled waters. *[62-600.660(4)(a)]*

4. Recording Flow meters and totalizers shall be utilized to measure flow and calibrated at least annually. [*62-600.200(25)*]

5. The sample collection, analytical test methods and method detection limits (MDLs) applicable to this permit shall be conducted using a sufficiently sensitive method to ensure compliance with applicable water quality standards and effluent limitations and shall be in accordance with Rule 62-4.246, Chapters 62-160 and 62-600, F.A.C., and 40 CFR 136, as appropriate. The list of Department established analytical methods, and corresponding MDLs (method detection limits) and PQLs (practical quantitation limits), which is titled "FAC 62-4 MDL/PQL Table (April 26, 2006)" is available at http://www.dep.state.fl.us/labs/library/index.htm. The MDLs and PQLs as described in this list shall constitute the minimum acceptable MDL/PQL values and the Department shall not accept results for which the laboratory's MDLs or PQLs are greater than those described above unless alternate MDLs and/or PQLs have been specifically approved by the Department for this permit. Any method included in the list may be used for reporting as long as it meets the following requirements:

   a. The laboratory's reported MDL and PQL values for the particular method must be equal or less than the corresponding method values specified in the Department's approved MDL and PQL list;

   b. The laboratory reported MDL for the specific parameter is less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Parameters that are listed as "report only" in the permit shall use methods that provide an MDL, which is equal to or less than the applicable water quality criteria stated in 62-302, F.A.C.; and

   c. If the MDLs for all methods available in the approved list are above the stated permit limit or applicable water quality criteria for that parameter, then the method with the lowest stated MDL shall be used.

   When the analytical results are below method detection or practical quantitation limits, the permittee shall report the actual laboratory MDL and/or PQL values for the analyses that were performed following the instructions on the applicable discharge monitoring report.

   Where necessary, the permittee may request approval of alternate methods or for alternative MDLs or PQLs for any approved analytical method. Approval of alternate laboratory MDLs or PQLs are not necessary if the laboratory reported MDLs and PQLs are less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Approval of an analytical method not included in the above-referenced list is not necessary if the analytical method is approved in accordance with 40 CFR 136 or deemed acceptable by the Department. *[62-4.246, 62-160]*

6. The permittee shall provide safe access points for obtaining representative samples which are required by this permit. *[62-600.650(2)]*

7. Monitoring requirements under this permit are effective on the first day of the second month following the effective date of the permit. Until such time, the permittee shall continue to monitor and report in accordance with previously effective permit requirements, if any. During the period of operation authorized by this permit, the permittee shall complete and submit to the Department Discharge Monitoring Reports (DMRs) in accordance with the frequencies specified by the REPORT type (i.e. monthly, quarterly, semiannual, annual, etc.) indicated on the DMR forms attached to this permit. Unless specified otherwise in this permit, monitoring results for each

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monitoring period shall be submitted in accordance with the associated DMR due dates below. DMRs shall be submitted for each required monitoring period including periods of no discharge.

REPORT Type on DMR	Monitoring Period	Mail or Electronically Submit by
Monthly	first day of month - last day of month	28th day of following month
Quarterly	January 1 - March 31 April 1 - June 30 July 1 - September 30 October 1 - December 31	April 28 July 28 October 28 January 28
Semiannual	January 1 - June 30 July 1 - December 31	July 28 January 28
Annual	January 1 - December 31	January 28

The permittee may submit either electronic or paper DMR forms before December 21, 2016. As of December 21, 2016, the permittee is required to submit electronic DMR forms.

If submitting electronic DMR forms, the permittee shall use the electronic DMR system approved by the Department (EzDMR) and shall electronically submit the completed DMR forms using the DEP Business Portal at http://www.fldepportal.com/go/. Reports shall be submitted to the Department by the twenty-eighth (28th) of the month following the month of operation. Data submitted in electronic format is equivalent to data submitted on signed and certified paper DMR forms.

If submitting paper DMR forms, the permittee shall make copies of the attached DMR forms, without altering the original format or content unless approved by the Department, and shall mail the completed DMR forms to the Department by the twenty-eighth (28th) of the month following the month of operation at the address specified below:

Florida Department of Environmental Protection
Wastewater Compliance Evaluation Section, Mail Station 3551
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

[62-620.610(18)][62-600.680(1)]

8. Unless specified otherwise in this permit, all reports and other information required by this permit, including 24-hour notifications, shall be submitted to or reported to, as appropriate, the Department's Southwest District Office at the address specified below:

Florida Department of Environmental Protection
Southwest District Office
13051 N Telecom Pkwy
Temple Terrace, Florida 33637-0926
Phone Number - (813) 470-5700
FAX Number - (813) 470-5996
swd_dw@dep.state.fl.us
[62-620.305]

9. All reports and other information shall be signed in accordance with the requirements of Rule 62-620.305, F.A.C.
[62-620.305]

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II. BIOSOLIDS MANAGEMENT REQUIREMENTS

A. Basic Requirements

1. Biosolids generated by this facility may be transferred to a Biosolids Treatment Facility (BTF) or disposed of in a Class I solid waste landfill. Transferring biosolids to an alternative biosolids treatment facility does not require a permit modification. However, use of an alternative biosolids treatment facility requires submittal of a copy of the agreement pursuant to Rule 62-640.880(1)(c), F.A.C., along with a written notification to the Department at least 30 days before transport of the biosolids. *[62-620.320(6), 62-640.880(1)]*

2. The permittee shall monitor and keep records of the quantities of biosolids generated, received from source facilities, treated, distributed and marketed, land applied, used as a biofuel or for bioenergy, transferred to another facility, or landfilled. These records shall be kept for a minimum of five years. *[62-640.650(4)(a)]*

3. Biosolids quantities shall be monitored by the permittee as specified below. Results shall be reported on the permittee's Discharge Monitoring Report for Monitoring Group RMP-Q in accordance with Condition I.B.7.

			Biosolids Limitations		Monitoring Requirements		
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number
Biosolids Quantity (Transferred)	dry tons	Max	Report	Monthly Total	Monthly	Calculated	RMP-1
Biosolids Quantity (Landfilled)	dry tons	Max	Report	Monthly Total	Monthly	Calculated	RMP-2

[62-640.650(5)(a)1]

4. Biosolids quantities shall be calculated as listed in Permit Condition II.3 and as described below:

Monitoring Site Number	Description of Monitoring Site Calculations
RMP-1	Biosolids Quantity (Transferred to Biosolids Treatment Facility)
RMP-2	Biosolids Quantity (Landfilled)

5. The treatment, management, transportation, use, land application, or disposal of biosolids shall not cause a violation of the odor prohibition in subsection 62-296.320(2), F.A.C. *[62-640.400(6)]*

6. Storage of biosolids or other solids at this facility shall be in accordance with the Facility Biosolids Storage Plan. *[62-640.300(4)]*

7. Biosolids shall not be spilled from or tracked off the treatment facility site by the hauling vehicle. *[62-640.400(9)]*

B. Disposal

8. Disposal of biosolids, septage, and "other solids" in a solid waste disposal facility, or disposal by placement on land for purposes other than soil conditioning or fertilization, such as at a monofill, surface impoundment, waste pile, or dedicated site, shall be in accordance with Chapter 62-701, F.A.C. *[62-640.100(6)(b) & (c)]*

C. Transfer

9. The permittee shall not be held responsible for treatment and management violations that occur after its biosolids have been accepted by a permitted biosolids treatment facility with which the source facility has an agreement in accordance with subsection 62-640.880(1)(c), F.A.C., for further treatment, management, or disposal. *[62-640.880(1)(b)]*

10. The permittee shall keep hauling records to track the transport of biosolids between the facilities. The hauling records shall contain the following information:

Source Facility	Biosolids Treatment Facility or Treatment Facility
1. Date and time shipped	1. Date and time received
2. Amount of biosolids shipped	2. Amount of biosolids received
3. Degree of treatment (if applicable)	3. Name and ID number of source facility
4. Name and ID Number of treatment facility	4. Signature of hauler
5. Signature of responsible party at source facility	5. Signature of responsible party at treatment facility
6. Signature of hauler and name of hauling firm	

A copy of the source facility hauling records for each shipment shall be provided upon delivery of the biosolids to the biosolids treatment facility or treatment facility. The treatment facility permittee shall report to the Department within 24 hours of discovery any discrepancy in the quantity of biosolids leaving the source facility and arriving at the biosolids treatment facility or treatment facility.

[62-640.880(4)]

D. Receipt

11. If the permittee intends to accept biosolids from other facilities, a permit revision is required pursuant to paragraph 62-640.880(2)(d), F.A.C. *[62-640.880(2)(a)]*

III. GROUND WATER REQUIREMENTS

1. Section III is not applicable to this facility.

IV. ADDITIONAL REUSE AND LAND APPLICATION REQUIREMENTS

1. Section IV is not applicable to this facility.

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V. OPERATION AND MAINTENANCE REQUIREMENTS

A. Staffing Requirements

1. During the period of operation authorized by this permit, the wastewater facilities shall be operated under the supervision of a(n) operator(s) certified in accordance with Chapter 62-602, F.A.C. In accordance with Chapter 62-699, F.A.C., this facility is a Category I, Class B facility and, at a minimum, operators with appropriate certification must be on the site as follows:

   A Class C or higher operator 8 hours/day for 7 days/week. The 8 hours/day of staffing shall occur during the 8-hour period of greatest influent flow. The lead/chief operator must be a Class B operator, or higher.

   [62-620.630(3)][62-699.310][62-699.311(5)(a)2.] [62-610.462]

2. The lead/chief operator shall be employed at the plant full time. "Full time" shall mean at least 4 days per week, working a minimum of 35 hours per week, including leave time. A licensed operator shall be on-site and in charge of each required shift for periods of required staffing time when the lead/chief operator is not on-site. An operator meeting the lead/chief operator class for the treatment plant shall be available during all periods of plant operation. "Available" means able to be contacted as needed to initiate the appropriate action in a timely manner. *[62-699.311(10), (6) and (1)]*

B. Capacity Analysis Report and Operation and Maintenance Performance Report Requirements

1. The application to renew this permit shall include an updated capacity analysis report prepared in accordance with Rule 62-600.405, F.A.C. *[62-600.405(5)]*

2. The application to renew this permit shall include a detailed operation and maintenance performance report prepared in accordance with Rule 62-600.735, F.A.C. *[62-600.735(1)]*

C. Recordkeeping Requirements

1. The permittee shall maintain the following records and make them available for inspection on the site of the permitted facility.
   a. Records of all compliance monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, including, if applicable, a copy of the laboratory certification showing the certification number of the laboratory, for at least three years from the date the sample or measurement was taken;
   b. Copies of all reports required by the permit for at least three years from the date the report was prepared;
   c. Records of all data, including reports and documents, used to complete the application for the permit for at least three years from the date the application was filed;
   d. Monitoring information, including a copy of the laboratory certification showing the laboratory certification number, related to the biosolids use and disposal activities for the time period set forth in Chapter 62-640, F.A.C., for at least five years from the date of sampling or measurement;
   e. A copy of the current permit;
   f. A copy of the current operation and maintenance manual as required by Chapter 62-600, F.A.C.;
   g. A copy of any required record drawings;
   h. Copies of the licenses of the current certified operators;

i. Copies of the logs and schedules showing plant operations and equipment maintenance for three years from the date of the logs or schedules. The logs shall, at a minimum, include identification of the plant; the signature and license number of the operator(s) and the signature of the person(s) making any entries; date and time in and out; specific operation and maintenance activities, including any preventive maintenance or repairs made or requested; results of tests performed and samples taken, unless documented on a laboratory sheet; and notation of any notification or reporting completed in accordance with Rule 62-602.650(3), F.A.C. The logs shall be maintained on-site in a location accessible to 24-hour inspection, protected from weather damage, and current to the last operation and maintenance performed; and

j. Records of biosolids quantities, treatment, monitoring, and hauling for at least five years.

[62-620.350, 62-602.650, 62-640.650(4)]

VI. SCHEDULES

1. The following improvement actions shall be completed according to the following schedule:

Improvement Action	Completion Date
a. Submit Notification of Completion of Constructions for Wastewater Facilities or Activities, DEP Form 62-620.910(12), prior to placing headworks into operation.	Prior to placing headworks into operation.
b. Submit Notification of Availability of Record Drawings and Final Operation and Maintenance Manuals, DEP Form 62-620.910(13).	Within 6 months of placing headworks into operation.
c. Submit an application for renewal as required in permit Conditions VI.2. a.	At least 180 days before the permit expiration date.

2. The permittee is not authorized to discharge to waters of the state after the expiration date of this permit, unless:

a. The permittee has applied for renewal of this permit at least 180 days before the expiration date of this permit using the appropriate forms listed in Rule 62-620.910, F.A.C., and in the manner established in the Department of Environmental Protection Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620, F.A.C., including submittal of the appropriate processing fee set forth in Rule 62-4.050, F.A.C.; or

b. The permittee has made complete the application for renewal of this permit before the permit expiration date.

Please note, effluent testing shall be conducted for each outfall in accordance with the instructions provided in Sections 3.A.12., 13., and 14. of the application form. A minimum of three samples shall be taken within four and one-half years prior to the date of the permit application and must be representative of the seasonal variation in the discharge from each outfall. *[62-620.335(1) - (4)]*

VII. INDUSTRIAL PRETREATMENT PROGRAM REQUIREMENTS

1. This facility is not required to have a pretreatment program at this time. *[62-625.500]*

VIII. OTHER SPECIFIC CONDITIONS

1. In the event that the treatment facilities or equipment no longer function as intended, are no longer safe in terms of public health and safety, or odor, noise, aerosol drift, or lighting adversely affects neighboring developed areas at the levels prohibited by Rule 62-600.400(2)(a), F.A.C., corrective action (which may include additional maintenance or modifications of the permitted facilities) shall be

taken by the permittee. Other corrective action may be required to ensure compliance with rules of the Department. Additionally, the treatment, management, use or land application of residuals shall not cause a violation of the odor prohibition in Rule 62-296.320(2), F.A.C. *[62-600.410(5) and 62-640.400(6)]*

2. The deliberate introduction of stormwater in any amount into collection/transmission systems designed solely for the introduction (and conveyance) of domestic/industrial wastewater; or the deliberate introduction of stormwater into collection/transmission systems designed for the introduction or conveyance of combinations of storm and domestic/industrial wastewater in amounts which may reduce the efficiency of pollutant removal by the treatment plant is prohibited, except as provided by Rule 62-610.472, F.A.C. *[62-604.130(3)]*

3. Collection/transmission system overflows shall be reported to the Department in accordance with Permit Condition IX. 20. *[62-604.550] [62-620.610(20)]*

4. The operating authority of a collection/transmission system and the permittee of a treatment plant are prohibited from accepting connections of wastewater discharges which have not received necessary pretreatment or which contain materials or pollutants (other than normal domestic wastewater constituents):

   a. Which may cause fire or explosion hazards; or

   b. Which may cause excessive corrosion or other deterioration of wastewater facilities due to chemical action or pH levels; or

   c. Which are solid or viscous and obstruct flow or otherwise interfere with wastewater facility operations or treatment; or

   d. Which result in the wastewater temperature at the introduction of the treatment plant exceeding $40^{o}C$ or otherwise inhibiting treatment; or

   e. Which result in the presence of toxic gases, vapors, or fumes that may cause worker health and safety problems.

   [62-604.130(5)]

5. The treatment facility, storage ponds for Part II systems, rapid infiltration basins, and/or infiltration trenches shall be enclosed with a fence or otherwise provided with features to discourage the entry of animals and unauthorized persons. *[62-600.400(2)(b)]*

6. Screenings and grit removed from the wastewater facilities shall be collected in suitable containers and hauled to a Department approved Class I landfill or to a landfill approved by the Department for receipt/disposal of screenings and grit. *[62-701.300(1)(a)]*

7. Where required by Chapter 471 or Chapter 492, F.S., applicable portions of reports that must be submitted under this permit shall be signed and sealed by a professional engineer or a professional geologist, as appropriate. *[62-620.310(4)]*

8. The permittee shall provide verbal notice to the Department's Southwest District Office as soon as practical after discovery of a sinkhole or other karst feature within an area for the management or application of wastewater, wastewater biosolids (sludges), or reclaimed water. The permittee shall immediately implement measures appropriate to control the entry of contaminants, and shall detail these measures to the Department's Southwest District Office in a written report within 7 days of the sinkhole discovery. *[62-620.320(6)]*

9. The permittee shall provide notice to the Department of the following:

   a. Any new introduction of pollutants into the facility from an industrial discharger which would be subject to Chapter 403, F.S., and the requirements of Chapter 62-620, F.A.C., if it were directly discharging those pollutants; and

   b. Any substantial change in the volume or character of pollutants being introduced into that facility by a source which was identified in the permit application and known to be discharging at the time the permit was issued.

   Notice shall include information on the quality and quantity of effluent introduced into the facility and any anticipated impact of the change on the quantity or quality of effluent or reclaimed water to be discharged from the facility.

   [62-620.625(2)]

10. Reopener Clause:

   a. The permit shall be revised, or alternatively, revoked and reissued in accordance with the provisions contained in Rules 62-620.325 and 62-620.345, F.A.C., if applicable, or to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2) and 307(a)(2) of the Clean Water Act (the Act), as amended, if the effluent standards, limitations, or water quality standards so issued or approved:
      (1) Contains different conditions or is otherwise more stringent than any condition in the permit/or;
      (2) Controls any pollutant not addressed in the permit.
      (3) The permit as revised or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

   b. The permit may be reopened to adjust effluent limitations or monitoring requirements should future Water Quality Based Effluent Limitation determinations, water quality studies, DEP approved changes in water quality standards, or other information show a need for a different limitation or monitoring requirement.

   c. The Department may develop a Total Maximum Daily Load (TMDL) during the life of the permit. Once a TMDL has been established and adopted by rule, the Department shall revise this permit to incorporate the final findings of the TMDL.

   [62-620.325 & 62-620.345]

IX. GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are binding and enforceable pursuant to Chapter 403, Florida Statutes. Any permit noncompliance constitutes a violation of Chapter 403, Florida Statutes, and is grounds for enforcement action, permit termination, permit revocation and reissuance, or permit revision. *[62-620.610(1)]*

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviations from the approved drawings, exhibits, specifications, or conditions of this permit constitutes grounds for revocation and enforcement action by the Department. *[62-620.610(2)]*

3. As provided in subsection 403.087(7), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor authorize any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit or authorization

that may be required for other aspects of the total project which are not addressed in this permit. *[62-620.610(3)]*

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title. *[62-620.610(4)]*

5. This permit does not relieve the permittee from liability and penalties for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted source; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department. The permittee shall take all reasonable steps to minimize or prevent any discharge, reuse of reclaimed water, or residuals use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. *[62-620.610(5)]*

6. If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee shall apply for and obtain a new permit. *[62-620.610(6)]*

7. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control, and related appurtenances, that are installed and used by the permittee to achieve compliance with the conditions of this permit. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to maintain or achieve compliance with the conditions of the permit. *[62-620.610(7)]*

8. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit revision, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. *[62-620.610(8)]*

9. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, including an authorized representative of the Department and authorized EPA personnel, when applicable, upon presentation of credentials or other documents as may be required by law, and at reasonable times, depending upon the nature of the concern being investigated, to:

   a. Enter upon the permittee's premises where a regulated facility, system, or activity is located or conducted, or where records shall be kept under the conditions of this permit;

   b. Have access to and copy any records that shall be kept under the conditions of this permit;

   c. Inspect the facilities, equipment, practices, or operations regulated or required under this permit; and

   d. Sample or monitor any substances or parameters at any location necessary to assure compliance with this permit or Department rules.

   [62-620.610(9)]

10. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data, and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except as such use is proscribed by Section 403.111, F.S., or Rule 62-620.302, F.A.C. Such evidence shall only be

used to the extent that it is consistent with the Florida Rules of Civil Procedure and applicable evidentiary rules. *[62-620.610(10)]*

11. When requested by the Department, the permittee shall within a reasonable time provide any information required by law which is needed to determine whether there is cause for revising, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also provide to the Department upon request copies of records required by this permit to be kept. If the permittee becomes aware of relevant facts that were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be promptly submitted or corrections promptly reported to the Department. *[62-620.610(11)]*

12. Unless specifically stated otherwise in Department rules, the permittee, in accepting this permit, agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard. *[62-620.610(12)]*

13. The permittee, in accepting this permit, agrees to pay the applicable regulatory program and surveillance fee in accordance with Rule 62-4.052, F.A.C. *[62-620.610(13)]*

14. This permit is transferable only upon Department approval in accordance with Rule 62-620.340, F.A.C. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department. *[62-620.610(14)]*

15. The permittee shall give the Department written notice at least 60 days before inactivation or abandonment of a wastewater facility or activity and shall specify what steps will be taken to safeguard public health and safety during and following inactivation or abandonment. *[62-620.610(15)]*

16. The permittee shall apply for a revision to the Department permit in accordance with Rules 62-620.300, F.A.C., and the Department of Environmental Protection Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620, F.A.C., at least 90 days before construction of any planned substantial modifications to the permitted facility is to commence or with Rule 62-620.325(2), F.A.C., for minor modifications to the permitted facility. A revised permit shall be obtained before construction begins except as provided in Rule 62-620.300, F.A.C. *[62-620.610(16)]*

17. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The permittee shall be responsible for any and all damages which may result from the changes and may be subject to enforcement action by the Department for penalties or revocation of this permit. The notice shall include the following information:

    a. A description of the anticipated noncompliance;

    b. The period of the anticipated noncompliance, including dates and times; and

    c. Steps being taken to prevent future occurrence of the noncompliance.

    [62-620.610(17)]

18. Sampling and monitoring data shall be collected and analyzed in accordance with Rule 62-4.246 and Chapters 62-160, 62-600, and 62-610, F.A.C., and 40 CFR 136, as appropriate.

a. Monitoring results shall be reported at the intervals specified elsewhere in this permit and shall be reported on a Discharge Monitoring Report (DMR), DEP Form 62-620.910(10), or as specified elsewhere in the permit.

b. If the permittee monitors any contaminant more frequently than required by the permit, using Department approved test procedures, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

c. Calculations for all limitations which require averaging of measurements shall use an arithmetic mean unless otherwise specified in this permit.

d. Except as specifically provided in Rule 62-160.300, F.A.C., any laboratory test required by this permit shall be performed by a laboratory that has been certified by the Department of Health Environmental Laboratory Certification Program (DOH ELCP). Such certification shall be for the matrix, test method and analyte(s) being measured to comply with this permit. For domestic wastewater facilities, testing for parameters listed in Rule 62-160.300(4), F.A.C., shall be conducted under the direction of a certified operator.

e. Field activities including on-site tests and sample collection shall follow the applicable standard operating procedures described in DEP-SOP-001/01 adopted by reference in Chapter 62-160, F.A.C.

f. Alternate field procedures and laboratory methods may be used where they have been approved in accordance with Rules 62-160.220, and 62-160.330, F.A.C.

[62-620.610(18)]

19. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule detailed elsewhere in this permit shall be submitted no later than 14 days following each schedule date. *[62-620.610(19)]*

20. The permittee shall report to the Department's Southwest District Office any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance including exact dates and time, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

    a. The following shall be included as information which must be reported within 24 hours under this condition:
        (1) Any unanticipated bypass which causes any reclaimed water or effluent to exceed any permit limitation or results in an unpermitted discharge,
        (2) Any upset which causes any reclaimed water or the effluent to exceed any limitation in the permit,
        (3) Violation of a maximum daily discharge limitation for any of the pollutants specifically listed in the permit for such notice, and
        (4) Any unauthorized discharge to surface or ground waters.

    b. Oral reports as required by this subsection shall be provided as follows:
        (1) For unauthorized releases or spills of treated or untreated wastewater reported pursuant to subparagraph IX.20.(a)4. that are in excess of 1,000 gallons per incident, or where information indicates that public health or the environment will be endangered, oral reports shall be provided to the STATE WATCH OFFICE TOLL FREE NUMBER (800) 320-0519, as soon as practical, but no later than 24 hours from the time the permittee becomes aware of the

discharge. The permittee, to the extent known, shall provide the following information to the State Watch Office:
(a) Name, address, and telephone number of person reporting;
(b) Name, address, and telephone number of permittee or responsible person for the discharge;
(c) Date and time of the discharge and status of discharge (ongoing or ceased);
(d) Characteristics of the wastewater spilled or released (untreated or treated, industrial or domestic wastewater);
(e) Estimated amount of the discharge;
(f) Location or address of the discharge;
(g) Source and cause of the discharge;
(h) Whether the discharge was contained on-site, and cleanup actions taken to date;
(i) Description of area affected by the discharge, including name of water body affected, if any; and
(j) Other persons or agencies contacted.

(2) Oral reports, not otherwise required to be provided pursuant to subparagraph IX.20.b.1 above, shall be provided to the Department's Southwest District Office within 24 hours from the time the permittee becomes aware of the circumstances.

c. If the oral report has been received within 24 hours, the noncompliance has been corrected, and the noncompliance did not endanger health or the environment, the Department's Southwest District Office shall waive the written report.

[62-620.610(20)]

21. The permittee shall report all instances of noncompliance not reported under Permit Conditions IX.17., IX.18., or IX.19. of this permit at the time monitoring reports are submitted. This report shall contain the same information required by Permit Condition IX.20. of this permit. *[62-620.610(21)]*

22. Bypass Provisions.

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment works.

b. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless the permittee affirmatively demonstrates that:
(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and
(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
(3) The permittee submitted notices as required under Permit Condition IX.22.c. of this permit.

c. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least 10 days before the date of the bypass. The permittee shall submit notice of an unanticipated bypass within 24 hours of learning about the bypass as required in Permit Condition IX.20. of this permit. A notice shall include a description of the bypass and its cause; the period of the bypass, including exact dates and times; if the bypass has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the bypass.

d. The Department shall approve an anticipated bypass, after considering its adverse effect, if the permittee demonstrates that it will meet the three conditions listed in Permit Condition IX.22.b.(1) through (3) of this permit.

e. A permittee may allow any bypass to occur which does not cause reclaimed water or effluent limitations to be exceeded if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Permit Condition IX.22.b. through d. of this permit.

[62-620.610(22)]

23. Upset Provisions.

a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee.
   (1) An upset does not include noncompliance caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, careless or improper operation.
   (2) An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of upset provisions of Rule 62-620.610, F.A.C., are met.

b. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:
   (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
   (2) The permitted facility was at the time being properly operated;
   (3) The permittee submitted notice of the upset as required in Permit Condition IX.20. of this permit; and
   (4) The permittee complied with any remedial measures required under Permit Condition IX.5. of this permit.

c. In any enforcement proceeding, the burden of proof for establishing the occurrence of an upset rests with the permittee.

d. Before an enforcement proceeding is instituted, no representation made during the Department review of a claim that noncompliance was caused by an upset is final agency action subject to judicial review.

[62-620.610(23)]

Executed in Hillsborough County, Florida.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

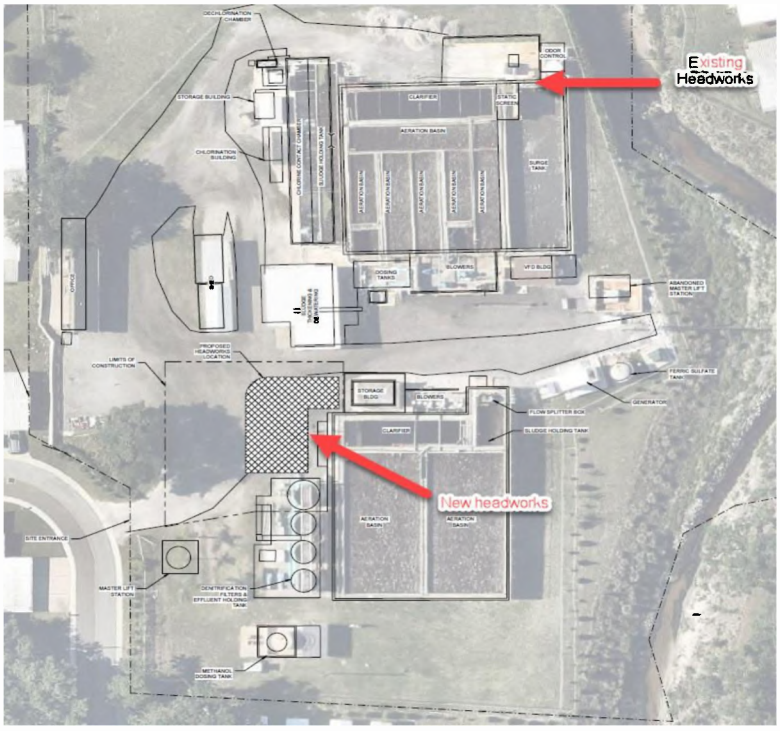
Pamala Vazquez
Program Administrator
Permitting & Waste Cleanup Program
Southwest District

AMENDMENT TO THE FACT SHEET
FOR
STATE OF FLORIDA DOMESTIC WASTEWATER FACILITY PERMIT

PERMIT NUMBER:	FL0034789-014 (Minor)
FACILITY NAME:	Mid-County WWTP
FACILITY LOCATION:	2299 Spanish Vista Drive, Dunedin, Florida 34698-9438 Pinellas County
NAME OF PERMITTEE:	Mid-County Services, Inc.
PERMIT WRITER:	Alexandria Moorehead

I. Comments by the Permittee Requesting Changes to the Permit and Fact Sheet

The permittee requested changes to the current permit for the Mid-County WWTP in correspondence received by the Department on July 7, 2020. The existing headworks structure is reaching the end of its useful service and needs replacement. The proposed headworks and grit removal system were upgraded to provide fine screening and grit removal.



The permit with file number FL0034789-013-DW1P/NR was revised to incorporate the following modification:

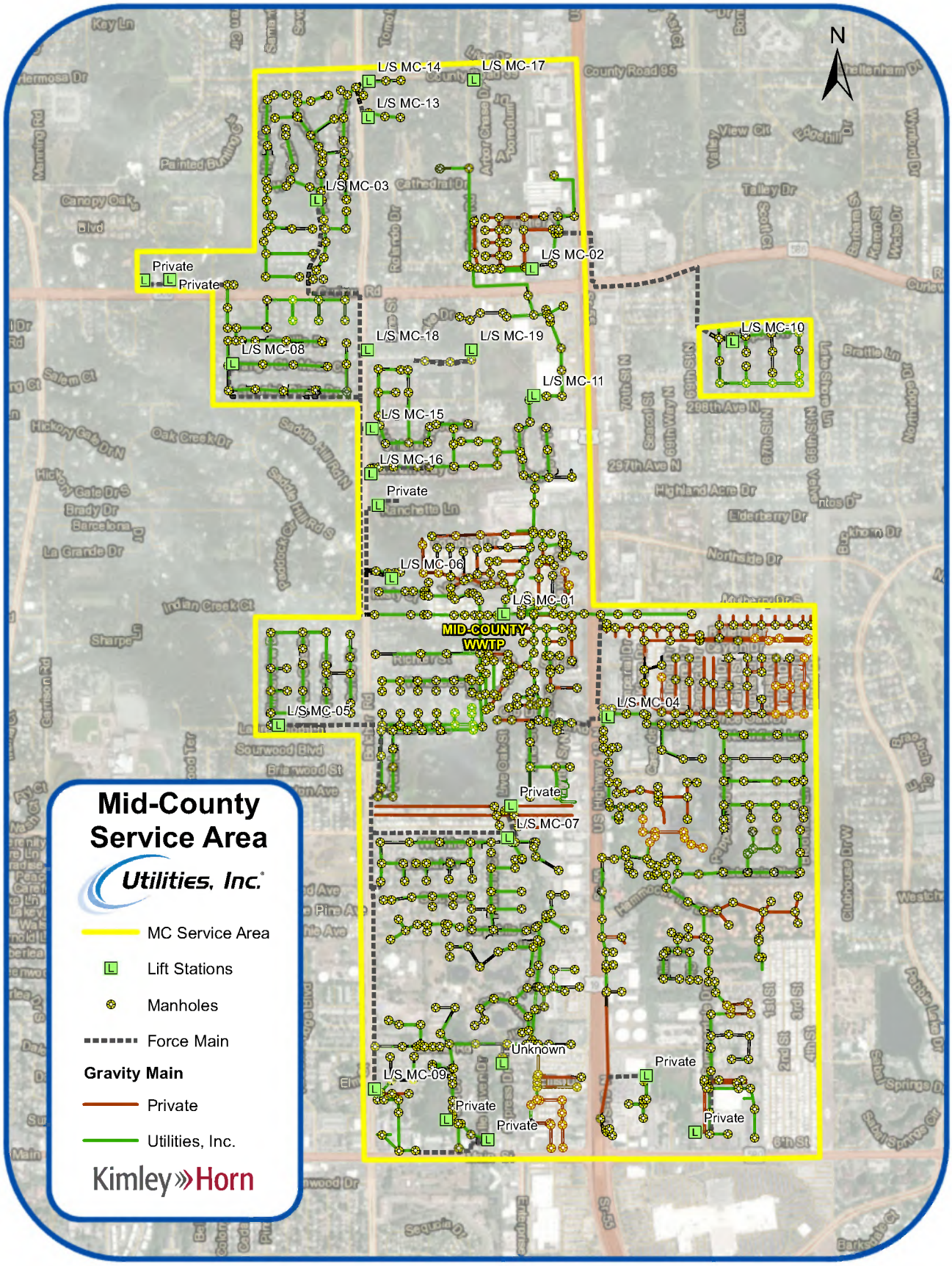
1. Remove the existing static screen and associated grating; and
2. Construct a new headworks including fine screens and a grit removal system.

As a result, the permit description was updated accordingly. Additionally, section VI. Schedules was modified to include the following:

Improvement Action	Completion Date
a. Submit Notification of Completion of Constructions for Wastewater Facilities or Activities, DEP Form 62-620.910(12), prior to placing headworks into operation.	Prior to placing headworks into operation.
b. Submit Notification of Availability of Record Drawings and Final Operation and Maintenance Manuals, DEP Form 62-620.910(13).	Within 6 months of placing headworks into operation.

This revision will become applicable after the proposed construction for the WWTP is completed. Changes to the current permit for the Mid-County WWTP did not substantially change any permit requirements such as flow rating of the plant, treatment type and effluent disposal.

APPENDIX B: Mid-County Service Area Exhibit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MID-COUNTY
WWTP
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Mid-County
Service Area
Utilities, Inc.
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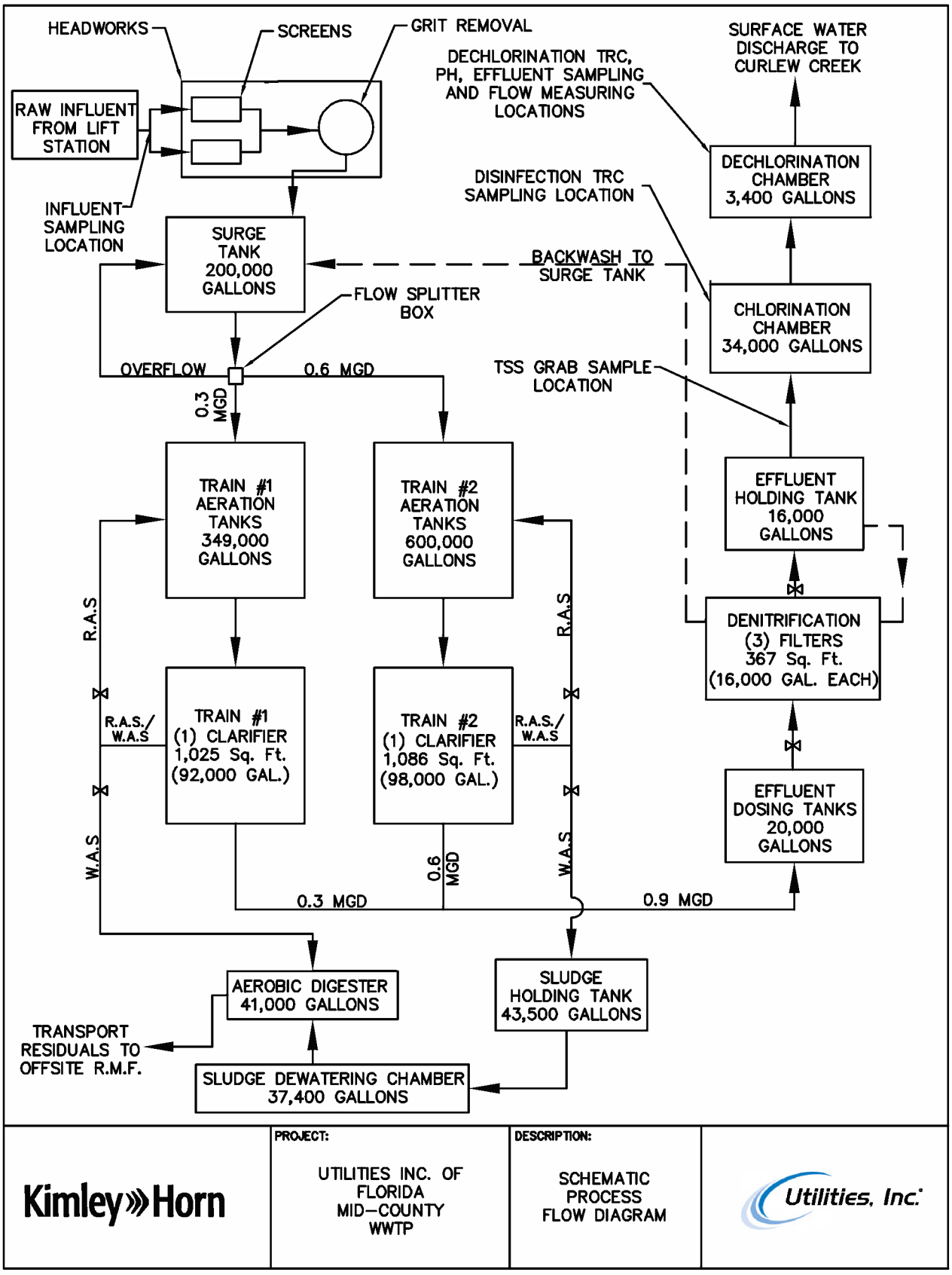
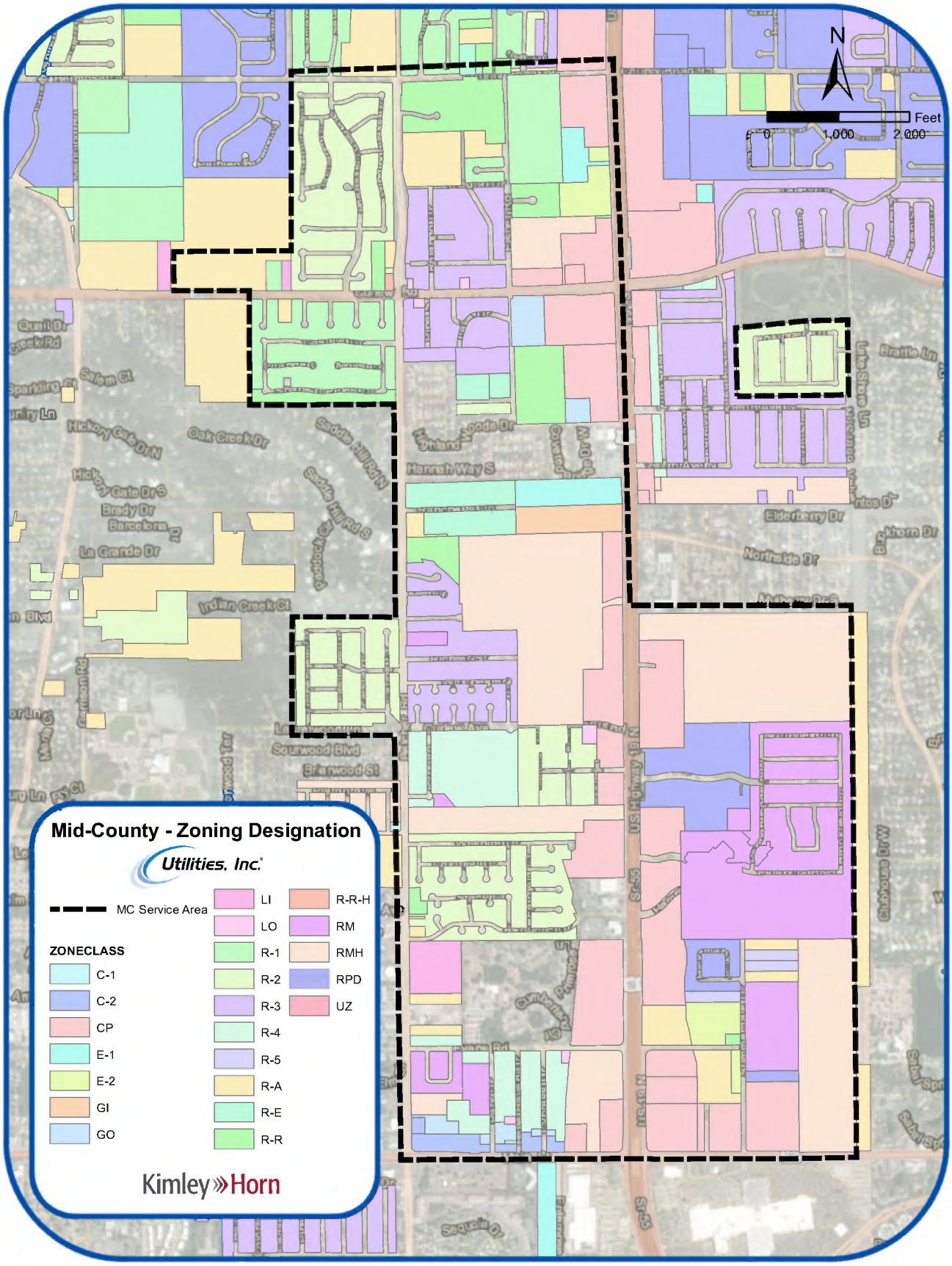
Lift Stations
Manholes
Force Main
Gravity Main
Private
Utilities, Inc.
Kimley»Horn

APPENDIX C: Flow Schematic Diagram



Kimley»Horn	PROJECT: UTILITIES INC. OF FLORIDA MID-COUNTY WWTP	DESCRIPTION: SCHEMATIC PROCESS FLOW DIAGRAM	Utilities, Inc.

APPENDIX D: Mid-County Zoning and Future Land Use Map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Mid-County - Zoning Designation
Utilities, Inc.
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Kimley»Horn
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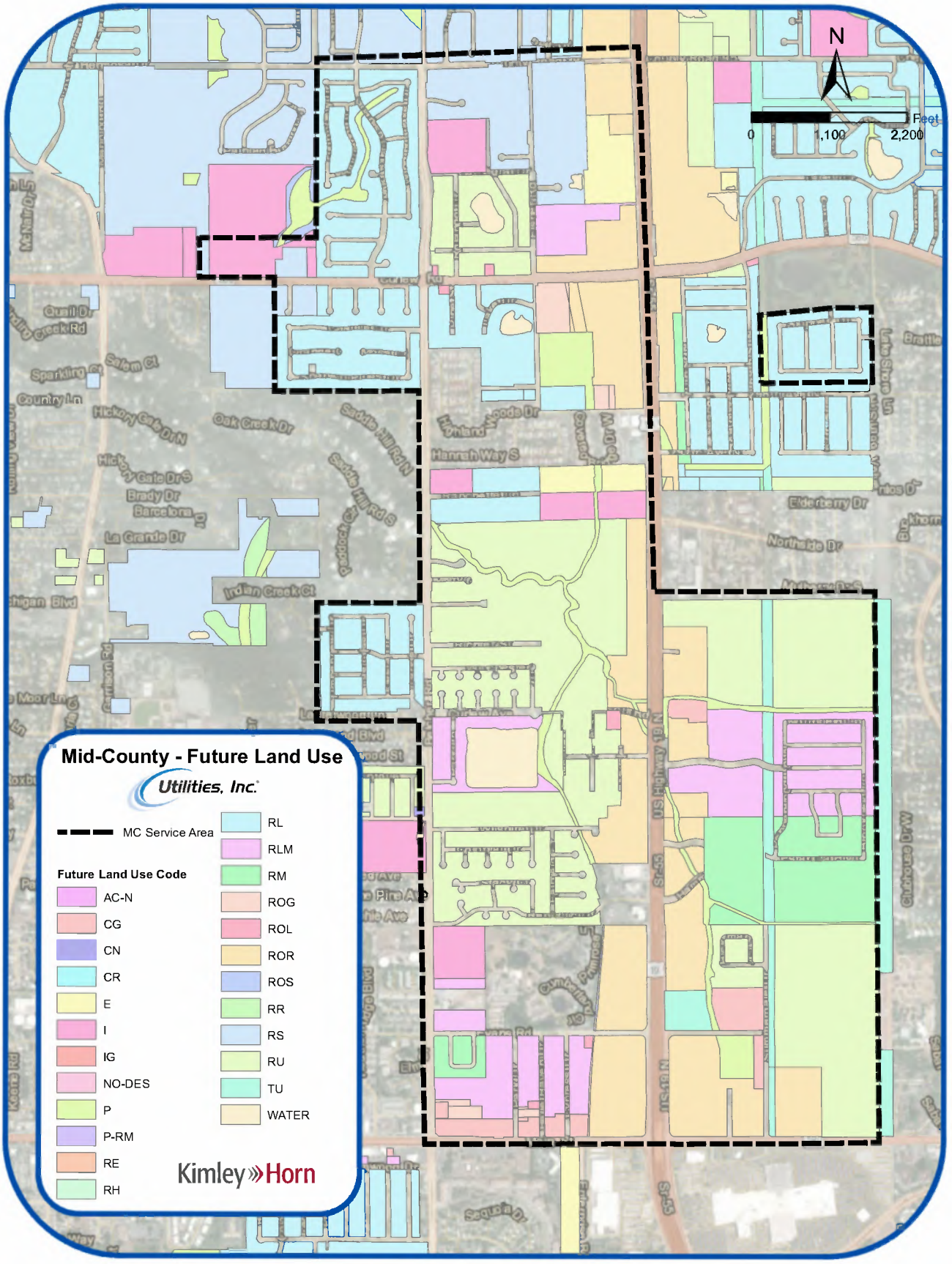
Oak Creek Dr
Saddle Hill Rd N
Saddle Hill Rd S
Hannah Way S
Elderberry Dr
Northside Dr
La Grande Dr
Indian Creek Ct
Sourwood Blvd
Briarwood St
US Highway 19 N
SR 55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Utilities, Inc.
MC Service Area
Future Land Use Code
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ROR
ROS
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RS
RU
TU
WATER
Kimley»Horn

APPENDIX E: DMR Data Summary 2016 – 2020

Date	30 Day ADF (mgd)	3 Mo. ADF (mgd)	12 Mo. ADF (mgd)	Peak (mgd)	Weekly Influent BOD (mg/L)	Weekly Influent TSS (mg/L)	Weekly Effluent BOD (mg/L)	Weekly Effluent TSS (mg/L)	Daily Grab Effluent TSS (mg/L)	Weekly BOD Efficiency (%)	Weekly TSS Efficiency (%)	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	pH Minimum (su)	pH Maximum (su)	Fecal Coliform (#/100mL)	Total Residual Chlorine (for Disinfection) (mg/L)	Total Residual Chlorine (for Dechlorination) (mg/L)	Dissolved Oxygen (mg/L)
Jan 16	0.668	0.677	0.056	0.903	259	330	2.7	1	1	99.07%	99.70%	0.66	0.41	6.7	7.6	1	1.65	0.01	7.3
Feb 16	0.694	0.676	0.114	0.787	310	420	3.05	0.75	1.4	99.02%	99.82%	0.66	0.43	6.9	7.5	1	2.05	0.01	7.1
Mar 16	0.702	0.688	0.172	0.804	230	300	4.35	1	1.2	98.11%	99.67%	4.5	0.8	6.8	7.5	1	1.2	0.01	6.7
Apr 16	0.671	0.693	0.228	0.789	400	320	2.63	1	1.4	99.34%	99.69%	2.38	0.78	6.8	7.5	1	1.3	0.01	6.02
May 16	0.685	0.686	0.285	0.896	270	340	5.3	0.25	1.4	98.04%	99.59%	0.94	0.82	6.8	7.5	1	1.55	0.01	6.83
Jun 16	0.845	0.734	0.355	1.3	430	570	2.16	0.7	2	99.50%	99.88%	1.38	0.59	6.4	7.43	1	1.09	0.01	6.68
Jul 16	0.827	0.786	0.424	1.24	620	330	3.1	0.35	2	99.50%	99.71%	1.44	0.41	6.5	7.44	58	1.4	0.01	6.16
Aug 16	1.022	0.898	0.510	1.75	220	220	2	0.2	1.6	99.09%	99.31%	1.34	0.19	6.5	7.6	2	1.3	0.01	6.21
Sep 16	1.138	1.016	0.609	2.117	220	150	0.75	0.7	1.6	99.66%	99.53%	2.52	0.17	6.3	7.5	1	1.15	0.01	5.6
Oct 16	0.743	0.988	0.671	1.143	210	350	2.25	1	3	99.22%	99.71%	1.62	0.15	6.3	7.8	32	1	0.01	5.66
Nov 16	0.657	0.866	0.726	0.998	180	260	3	0.4	1.8	98.33%	99.85%	0.93	0.32	6.6	7.82	1	1.5	0.01	6.32
Dec 16	0.661	0.687	0.781	1.028	220	250	3.2	0.43	1.6	98.55%	99.83%	1.54	0.77	6.6	7.45	1	1.5	0.01	7.2
Jan 17	0.66	0.659	0.780	1.029	180	260	3.7	1	1.6	97.94%	99.62%	1.44	0.27	6.7	7.5	1	1.2	0.01	7.2
Feb 17	0.674	0.665	0.779	0.74	310	370	4.13	0.7	2.4	98.67%	99.81%	1.11	0.34	6.2	7.32	1	1.5	0.01	7.2
Mar 17	0.663	0.666	0.776	0.732	230	260	5.28	1.08	2.2	97.70%	99.58%	1.71	0.45	6.22	7.3	1	1.5	0.01	7.29
Apr 17	0.673	0.67	0.776	0.754	280	270	2.8	1.9	1.6	99.00%	99.30%	0.8	0.56	6.6	7.2	1	1.4	0.01	6.32
May 17	0.673	0.671	0.775	0.746	210	170	2.15	1.48	9.2	98.98%	99.13%	0.86	0.43	6.4	7.6	1	1.4	0.01	6.5
Jun 17	0.764	0.705	0.768	0.853	410	410	0.84	1.48	18	99.80%	99.64%	0.9	0.58	6.76	7.6	1	1.55	0.01	6.65
Jul 17	0.809	0.751	0.767	0.942	360	170	2.7	0.84	18	98.31%	99.51%	1.39	0.34	6.57	7.7	1	1.3	0.01	5.86
Aug 17	0.841	0.805	0.752	1.155	360	450	2.43	0.8	1.5	99.33%	99.82%	1.52	0.24	6.7	7.6	1	1.5	0.01	6.08
Sep 17	0.967	0.872	0.733	1.287	320	810	2.38	0.6	2	99.26%	99.93%	1.08	0.27	6.49	7.32	1	2	0.01	5.37
Oct 17	0.794	0.867	0.737	0.937	270	280	2.1	0.8	0.9	99.22%	99.71%	2.95	0.31	6.73	7.38	1	1	0.01	6
Nov 17	0.706	0.822	0.741	0.75	140	690	7.8	1.5	1.8	94.43%	99.78%	1.55	0.63	6.96	7.9	1	1.75	0.01	6.1
Dec 17	0.67	0.723	0.742	0.848	880	6100	0.8	2.3	24	99.91%	99.96%	8.1	0.46	7	7.81	48	1.75	0.01	5.8
Jan 18	0.688	0.688	0.744	0.926	290	510	6.34	1.16	4.2	97.81%	99.77%	1.79	0.28	7.08	7.71	1	1.5	0.01	7
Feb 18	0.794	0.717	0.754	0.96	200	300	4.88	1.6	2.2	97.56%	99.47%	0.91	0.45	6.9	7.87	1	1.1	0.01	5.5
Mar 18	0.692	0.725	0.756	0.764	270	180	8.53	1.2	2.2	96.84%	99.33%	0.92	0.51	6.99	7.6	1	1.8	0.01	6.7
Apr 18	0.718	0.735	0.760	0.833	240	170	1.75	0.5	3.6	98.75%	99.71%	1.98	0.33	6.2	7.75	1	1.3	0.01	6.8
May 18	0.74	0.717	0.765	0.9	240	260	4.62	1.48	1.55	97.99%	99.43%	3.48	0.1	6.92	7.36	1	2.2	0.01	6.84
Jun 18	0.747	0.735	0.764	0.821	220	1000	4.30	2.00	1.70	98.05%	99.80%	1.56	0.62	7.04	7.42	1	2.1	0.01	6.92
Jul 18	0.777	0.755	0.761	0.867	230	320	4.40	1.70	1.33	98.09%	99.47%	1.78	0.34	7.17	7.48	1	2.3	0.01	6.73
Aug 18	0.995	0.840	0.774	1.546	180	250	3.30	1.00	1.47	98.17%	99.60%	1.86	0.06	6.72	7.29	1	2.3	0.01	6.75
Sep 18	1.044	0.939	0.780	1.442	61	100	2.48	1.00	1.15	95.94%	99.00%	1.48	0.10	6.69	7.22	1	2.3	0.01	6.90
Oct 18	0.794	0.944	0.780	0.898	220	240	3.17	1.00	1.20	97.36%	99.58%	1.44	0.71	7.13	7.48	1	2.0	0.01	6.84
Nov 18	0.694	0.844	0.773	0.787	190	1	7.30	1	1	96.16%	1.66	0.64	7.06	7.64	1	2.0	0.01	7.27
Dec 18	0.852	0.780	0.795	1.491	90	58	4.40	1.80	1.40	95.11%	96.80%	0.72	0.11	7.10	7.47	1	2.1	0.01	8.16
Jan 19	0.756	0.767	0.800	0.897	200	200	5.90	1.80	1.67	97.05%	99.10%	1.77	0.60	7.13	7.63	1	2.1	0.01	7.69
Feb 19	0.858	0.822	0.806	1.255	180	150	3.70	3.00	1.60	97.94%	98.00%	0.83	0.34	7.00	7.48	1	2.2	0.01	7.17
Mar 19	0.874	0.829	0.821	1.176	92	180	4.03	1.40	1.10	95.62%	99.22%	0.93	0.10	6.95	7.57	1	1.9	0.01	7.00
Apr 19	0.788	0.840	0.827	0.909	240	190	4.20	1	1.2	97.00%	99.47%	0.86	0.16	6.80	7.44	1	1.9	0.01	7.40
May 19	0.765	0.809	0.829	0.83	150	230	4.50	1.00	1.10	97.00%	99.57%	0.98	0.29	6.87	7.60	1	1.9	0.01	7.53
Jun 19	1.042	0.865	0.853	1.592	150	260	2.00	1.00	1.80	98.67%	99.82%	0.72	0.13	6.85	7.51	1	1.7	0.01	7.75
Jul 19	1.262	1.023	0.894	1.861	210	250	2.00	1.00	1.00	99.05%	99.60%	0.68	0.48	6.89	7.48	1	1.7	0.01	7.39
Aug 19	1.207	1.170	0.911	1.944	140	120	2.00	1.00	1.00	98.57%	99.17%	0.26	0.30	6.63	7.18	1	1.9	0.01	7.27
Sep 19	1.03	1.123	0.893	1.151	110	220	2.00	1	1	98.18%	99.55%	0.34	0.05	6.60	7.60	1	1.8	0.01	7.39
Oct 19	0.953	0.989	0.905	1.38	270	130	2.00	1.00	1.00	98.52%	99.83%	0.53	0.05	7.20	7.70	1	1.9	0.01	7.40
Nov 19	0.794	0.871	0.908	0.957	250	290	2.00	1.00	1.00	99.20%	99.57%	2.00	0.05	7.20	7.70	1	1.9	0.01	7.48
Dec 19	0.77	0.788	0.901	0.951	200	230	2.00	1.00	1.00	99.20%	99.67%	0.25	0.05	7.40	7.70	1	1.7	0.01	7.60
Jan 20	0.76	0.752	0.893	0.873	210	190	3.83	1.00	1.00	98.32%	99.47%	0.46	0.07	7.19	7.63	1	2.3	0.01	7.56
Feb 20	0.752	0.755	0.883	0.842	210	250	2.10	1.00	1	99.00%	99.52%	0.35	0.05	7.20	7.61	1	1.8	0.01	7.42
Mar 20	0.708	0.740	0.876	0.93	210	210	2.40	1.00	1.00	98.59%	0.88	0.05	7.28	7.90	1	2.1	0.01	7.11
May 20	0.764	0.741	0.876	0.843	150	170	2.00	1.00	1.00	98.67%	99.41%	0.36	0.05	7.00	7.50	1	2.1	0.01	7.19
Jun 20	0.978	0.817	0.871	1.484	280	190	2.10	1.00	1.00	99.25%	99.47%	0.34	0.05	6.98	7.67	1	2.0	0.01	7.09
Jul 20	0.92	0.867	0.842	1.126	250	120	2.18	1	1.00	99.13%	98.17%	0.53	0.15	7.11	7.59	1	2.0	0.01	6.83
Aug 20	0.897	0.932	0.816	1.156	170	210	2.00	1.00	1.00	98.82%	99.52%	0.775	0.17	7.17	7.68	1	2.0	0.01	6.77
Sep 20	1.126	0.981	0.835	1.553	250	360	2.22	1.00	1.00	99.11%	99.74%	0.59	0.15	7.17	7.53	1	2.2	0.01	6.60
Oct 20	0.839	0.954	0.833	0.914	110	480	2.23	1	1	97.98%	99.79%	0.67	0.43	7.16	7.76	1	2.2	0.01	6.85
Nov 20	0.949	0.971	0.851	1.643	240	400	2.25	1.00	1.00	98.75%	99.06%	1.735	0.31	7.10	7.64	1	2.0	0.01	7.00
Dec 20	0.756	0.848	0.851	0.9501	200	130	2.20	1	1	98.90%	99.23%	0.515	0.151	7.4	7.9	1	1.913	0.01	7.352

Utilities, Inc.

APPENDIX F: ESRI Population Data

Community Profile

Polygon
Area: 2.44 square miles

Prepared by Esri

Population Summary	
2000 Total Population	9,148
2010 Total Population	9,846
2020 Total Population	10,331
2020 Group Quarters	5
2025 Total Population	10,544
2020-2025 Annual Rate	0.41%
2020 Total Daytime Population	11,058
Workers	4,893
Residents	6,165
Household Summary	
2000 Households	4,683
2000 Average Household Size	1.95
2010 Households	5,000
2010 Average Household Size	1.97
2020 Households	5,167
2020 Average Household Size	2.00
2025 Households	5,253
2025 Average Household Size	2.01
2020-2025 Annual Rate	0.33%
2010 Families	2,622
2010 Average Family Size	2.63
2020 Families	2,695
2020 Average Family Size	2.67
2025 Families	2,738
2025 Average Family Size	2.68
2020-2025 Annual Rate	0.32%
Housing Unit Summary	
2000 Housing Units	5,523
Owner Occupied Housing Units	63.7%
Renter Occupied Housing Units	21.1%
Vacant Housing Units	15.2%
2010 Housing Units	6,055
Owner Occupied Housing Units	60.2%
Renter Occupied Housing Units	22.4%
Vacant Housing Units	17.4%
2020 Housing Units	6,161
Owner Occupied Housing Units	59.8%
Renter Occupied Housing Units	24.1%
Vacant Housing Units	16.1%
2025 Housing Units	6,237
Owner Occupied Housing Units	60.6%
Renter Occupied Housing Units	23.6%
Vacant Housing Units	15.8%
Median Household Income	
2020	$47,175
2025	$51,642
Median Home Value	
2020	$161,900
2025	$219,002
Per Capita Income	
2020	$35,953
2025	$40,418
Median Age	
2010	52.2
2020	56.1
2025	57.6

Data Note: Household population includes persons not residing in group quarters. Average Household Size is the household population divided by total households. Persons in families include the householder and persons related to the householder by birth, marriage, or adoption. Per Capita Income represents the income received by all persons aged 15 years and over divided by the total population.

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2020 and 2025 Esri converted Census 2000 data into 2010 geography.

February 01, 2021

Community Profile

Polygon
Area: 2.44 square miles

Prepared by Esri

2020 Households by Income	
Household Income Base	5,167
<$15,000	8.5%
$15,000 - $24,999	12.6%
$25,000 - $34,999	13.9%
$35,000 - $49,999	17.5%
$50,000 - $74,999	15.6%
$75,000 - $99,999	9.5%
$100,000 - $149,999	12.7%
$150,000 - $199,999	5.8%
$200,000+	3.9%
Average Household Income	$71,215
2025 Households by Income	
Household Income Base	5,253
<$15,000	7.4%
$15,000 - $24,999	11.2%
$25,000 - $34,999	13.0%
$35,000 - $49,999	17.0%
$50,000 - $74,999	15.1%
$75,000 - $99,999	9.8%
$100,000 - $149,999	14.7%
$150,000 - $199,999	7.1%
$200,000+	4.7%
Average Household Income	$80,365
2020 Owner Occupied Housing Units by Valu	
Total	3,685
<$50,000	16.8%
$50,000 - $99,999	8.2%
$100,000 - $149,999	21.9%
$150,000 - $199,999	13.0%
$200,000 - $249,999	8.5%
$250,000 - $299,999	9.3%
$300,000 - $399,999	7.5%
$400,000 - $499,999	8.4%
$500,000 - $749,999	5.6%
$750,000 - $999,999	0.5%
$1,000,000 - $1,499,999	0.0%
$1,500,000 - $1,999,999	0.0%
$2,000,000 +	0.4%
Average Home Value	$216,312
2025 Owner Occupied Housing Units by Value	
Total	3,778
<$50,000	9.4%
$50,000 - $99,999	9.3%
$100,000 - $149,999	15.9%
$150,000 - $199,999	9.3%
$200,000 - $249,999	15.8%
$250,000 - $299,999	13.6%
$300,000 - $399,999	6.5%
$400,000 - $499,999	10.7%
$500,000 - $749,999	8.5%
$750,000 - $999,999	0.5%
$1,000,000 - $1,499,999	0.0%
$1,500,000 - $1,999,999	0.0%
$2,000,000 +	0.4%
Average Home Value	$255,901

Data Note: Income represents the preceding year, expressed in current dollars. Household income includes wage and salary earnings, interest dividends, net rents, pensions, SSI and welfare payments, child support, and alimony.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2020 and 2025 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Polygon
Area: 2.44 square miles

Prepared by Esri

2010 Population by Age	
Total	9,847
0 - 4	3.9%
5 - 9	3.7%
10 - 14	4.2%
15 - 24	8.3%
25 - 34	9.1%
35 - 44	10.9%
45 - 54	14.[illegible]%
55 - 64	17.4%
65 - 74	15.0%
75 - 84	9.8%
85 +	3.7%
18 +	85.7%
2020 Population by Age	
Total	10,331
0 - 4	3.3%
5 - 9	3.6%
10 - 14	3.9%
15 - 24	7.1%
25 - 34	8.9%
35 - 44	9.2%
45 - 54	12.3%
55 - 64	17.0%
65 - 74	19.4%
75 - 84	11.0%
85 +	4.3%
18 +	87.0%
2025 Population by Age	
Total	10,544
0 - 4	3.2%
5 - 9	3.4%
10 - 14	3.9%
15 - 24	7.1%
25 - 34	8.2%
35 - 44	9.5%
45 - 54	11.0%
55 - 64	15.9%
65 - 74	20.6%
75 - 84	13.1%
85 +	4.2%
18 +	87.1%
2010 Population by Sex	
Males	4,589
Females	5,257
2020 Population by Sex	
Males	4,869
Females	5,463
2025 Population by Sex	
Males	5,010
Females	5,534

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2020 and 2025 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Polygon
Area: 2.44 square miles

Prepared by Esri

2010 Population by Race/Ethnicity	
Total	9,846
White Alone	90.3%
Black Alone	2.2%
American Indian Alone	0.3%
Asian Alone	2.7%
Pacific Islander Alone	0.0%
Some Other Race Alone	2.5%
Two or More Races	1.9%
Hispanic Origin	8.1%
Diversity Index	30.4
2020 Population by Race/Ethnicity	
Total	10,332
White Alone	88.2%
Black Alone	2.4%
American Indian Alone	0.3%
Asian Alone	3.4%
Pacific Islander Alone	0.0%
Some Other Race Alone	3.3%
Two or More Races	2.5%
Hispanic Origin	10.9%
Diversity Index	37.2
2025 Population by Race/Ethnicity	
Total	10,543
White Alone	86.8%
Black Alone	2.5%
American Indian Alone	0.3%
Asian Alone	3.8%
Pacific Islander Alone	0.0%
Some Other Race Alone	3.8%
Two or More Races	2.8%
Hispanic Origin	12.9%
Diversity Index	41.4
2010 Population by Relationship and Household Type	
Total	9,846
In Households	99.9%
In Family Households	71.6%
Householder	26.7%
Spouse	20.0%
Child	19.7%
Other relative	3.1%
Nonrelative	1.6%
In Nonfamily Households	28.3%
In Group Quarters	0.1%
Institutionalized Population	0.0%
Noninstitutionalized Population	0.1%

Data Note: Persons of Hispanic Origin may be of any race. The Diversity Index measures the probability that two people from the same area will be from different race/ethnic groups.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2020 and 2025 Esri converted Census 2000 data into 2010 geography.

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esri

Community Profile

Polygon
Area: 2.44 square miles

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2020 Population 25+ by Educational Attainment	
Total	8,482
Less than 9th Grade	2.6%
9th - 12th Grade, No Diploma	5.3%
High School Graduate	27.6%
GED/Alternative Credential	5.5%
Some College, No Degree	27.5%
Associate Degree	7.6%
Bachelor's Degree	17.3%
Graduate/Professional Degree	6.5%
2020 Population 15+ by Marital Status	
Total	9,213
Never Married	22.2%
Married	43.6%
Widowed	13.1%
Divorced	21.1%
20 Civilian Population 16+ in Labor Force	
Civilian Population 16+	4,510
Population 16+ Employed	93.2%
Population 16+ Unemployment rate	6.8%
Population 16-24 Employed	7.0%
Population 16-24 Unemployment rate	12.5%
Population 25-54 Employed	56.8%
Population 25-54 Unemployment rate	6.5%
Population 55-64 Employed	26.1%
Population 55-64 Unemployment rate	6.1%
Population 65+ Employed	10.1%
Population 65+ Unemployment rate	6.0%
2020 Employed Population 16+ by Industry	
Total	4,204
Agriculture/Mining	0.0%
Construction	4.7%
Manufacturing	5.6%
Wholesale Trade	2.2%
Retail Trade	10.9%
Transportation/Utilities	4.9%
Information	2.8%
Finance/Insurance/Real Estate	10.9%
Services	53.7%
Public Administration	4.3%
2020 Employed Population 16+ by Occupation	
Total	4,205
White Collar	69.9%
Management/Business/Financial	14.3%
Professional	17.7%
Sales	10.0%
Administrative Support	27.8%
Services	17.0%
Blue Collar	13.2%
Farming/Forestry/Fishing	0.0%
Construction/Extraction	2.0%
Installation/Maintenance/Repair	3.6%
Production	2.9%
Transportation/Material Moving	4.7%

Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2020 and 2025 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Polygon
Area: 2.44 square miles

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2010 Households by Type	
Total	5,001
Households with 1 Person	40.3%
Households with 2+ People	59.7%
Family Households	53.7%
Husband-wife Families	40.3%
With Related Children	10.5%
Other Family (No Spouse Present)	12.1%
Other Family with Male Householder	3.5%
With Related Children	1.8%
Other Family with Female Householder	8.6%
With Related Children	4.5%
Nonfamily Households	7.3%
All Households with Children	17.1%
Multigenerational Households	1.7%
Unmarried Partner Households	6.2%
Male-female	5.3%
Same-sex	1.0%
2010 Households by Size	
Total	4,999
1 Person Household	40.3%
2 Person Household	39.5%
3 Person Household	10.0%
4 Person Household	6.2%
5 Person Household	2.7%
6 Person Household	0.8%
7 + Person Household	0.5%
2010 Households by Tenure and Mortgage Status	
Total	5,000
Owner Occupied	72.9%
Owned with a Mortgage/Loan	36.3%
Owned Free and Clear	36.6%
Renter Occupied	27.1%
2020 Affordability, Mortgage and Wealth	
Housing Affordability Index	147
Percent of Income for Mortgage	14.7%
Wealth Index	86
2010 Housing Units By Urban/ Rural Status	
Total Housing Units	6,055
Housing Units Inside Urbanized Area	100.0%
Housing Units Inside Urbanized Cluster	0.0%
Rural Housing Units	0.0%
2010 Population By Urban/ Rural Status	
Total Population	9,846
Population Inside Urbanized Area	100.0%
Population Inside Urbanized Cluster	0.0%
Rural Population	0.0%

Data Note: Households with children include any households with people under age 18, related or not. Multigenerational households are families with 3 or more parent-child relationships. Unmarried partner households are usually classified as nonfamily households unless there is another member of the household related to the householder. Multigenerational and unmarried partner households are reported only to the tract level. Esri estimated block group data, which is used to estimate polygons or non-standard geography.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2020 and 2025 Esri converted Census 2000 data into 2010 geography.

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Community Profile

Polygon
Area: 2.44 square miles

Prepared by Esri

Top 3 Tapestry Segments	
1.	Senior Escapes (9D)
2.	Set to Impress (11D)
3.	The Elders (9C)
2020 Consumer Spending	
Apparel & Services: Total $	$8,646,463
Average Spent	$1,673.40
Spending Potential Index	78
Education: Total $	$6,435,819
Average Spent	$1,245.56
Spending Potential Index	70
Entertainment/Recreation: Total $	$13,501,946
Average Spent	$2,613.11
Spending Potential Index	80
Food at Home: Total $	$22,696,980
Average Spent	$4,392.68
Spending Potential Index	82
Food Away from Home: Total $	$15,455,919
Average Spent	$2,991.28
Spending Potential Index	79
Health Care: Total $	$25,299,618
Average Spent	$4,896.38
Spending Potential Index	85
HH Furnishings & Equipment: Total $	$9,063,490
Average Spent	$1,754.11
Spending Potential Index	80
Personal Care Products & Services: Total $	$3,914,298
Average Spent	$757.56
Spending Potential Index	82
Shelter: Total $	$79,430,411
Average Spent	$15,372.64
Spending Potential Index	79
Support Payments/Cash Contributions/Gifts in Kind: Total $	$11,078,082
Average Spent	$2,144.01
Spending Potential Index	92
Travel: Total $	$10,273,295
Average Spent	$1,988.25
Spending Potential Index	82
Vehicle Maintenance & Repairs: Total $	$5,026,438
Average Spent	$972.80
Spending Potential Index	84

Data Note: Consumer spending shows the amount spent on a variety of goods and services by households that reside in the area. Expenditures are shown by broad budget categories that are not mutually exclusive. Consumer spending does not equal business revenue. Total and Average Amount Spent Per Household represent annual figures. The Spending Potential Index represents the amount spent in the area relative to a national average of 100.
Source: Consumer Spending data are derived from the 2017 and 2018 Consumer Expenditure Surveys, Bureau of Labor Statistics. Esri.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2020 and 2025 Esri converted Census 2000 data into 2010 geography.

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Time Series Profile

Polygon
Area: 2.44 square miles

Prepared by Esri

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Median
Population													
Total	9,801	9,732	9,762	9,835	9,929	9,996	10,144	10,180	10,221	10,231	10,331	10,015	9,996
Change	-	-69	30	73	94	67	148	36	41	10	100	53	54
Percent Change	-	-0.7%	0.3%	0.7%	1.0%	0.7%	1.5%	0.4%	0.4%	0.1%	1.0%	0.5%	0.6%
Annual Rate	-	-0.7%	-0.2%	0.1%	0.3%	0.4%	0.6%	0.5%	0.5%	0.5%	0.5%	0.3%	0.5%

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Median
Households													
Total	4,977	4,936	4,945	4,974	5,013	5,039	5,109	5,118	5,129	5,123	5,167	5,048	5,039
hange	-	-41	9	29	39	26	70	9	11	-6		1	19
Percent Change	-	-0.8%	0.2%	0.6%	0.8%	0.5%	1.4%	0.2%	0.2%	-0.1%	0.9%	0.4%	0.3%
Annual Rate	-	-0.8%	-0.3%	0.0%	0.2%	0.2%	0.4%	0.4%	0.4%	0.3%	0.4%	0.1%	0.3%

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Average	Median
Housing Units													
Total	6,036	5,979	5,985	6,015	6,050	6,068	6,136	6,127	6,127	6,111	6,161	6,072	6,068
Change	-	-57	6	30	35	18	68	-9	0	-16	50	13	12
Percent Change	-	-0.9%	0.1%	0.5%	0.6%	0.3%	1.1%	-0.1%	0.0%	-0.3%	0.8%	0.2%	0.2%
Annual Rate	-	-0.9%	-0.4%	-0.1%	0.1%	0.1%	0.5%	0.2%	0.2%	0.1%	0.2%	0.0%	0.1%

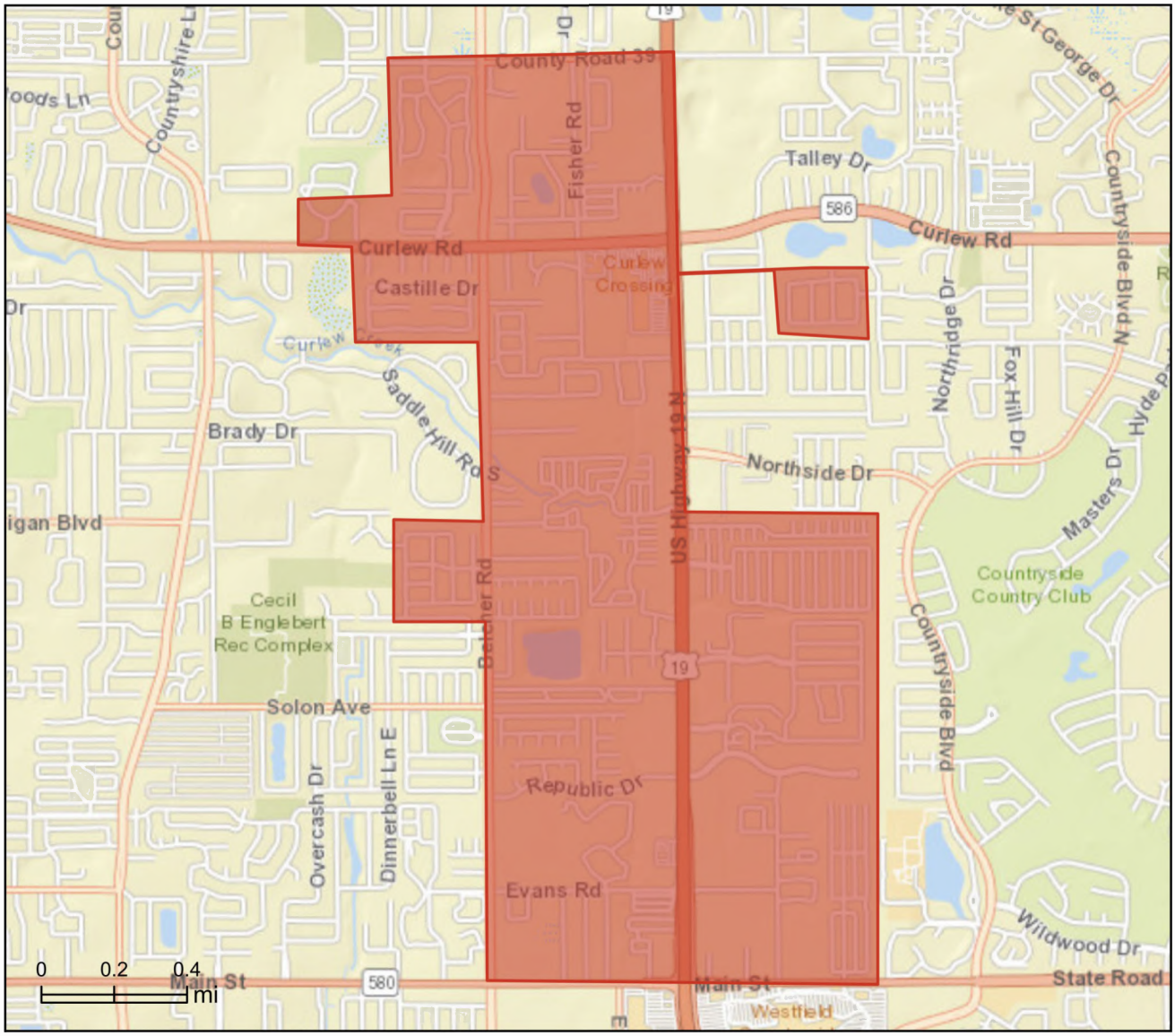
Data Note: The Esri Vintage 2020 Time Series (2010 thru 2020) represents July 1 annual estimates in 2020 geography. With each annual release, the entire Time Series is revised.
Source: U.S. Census Bureau, Census 2010 Summary File 1. Esri forecasts for 2020 and 2025.

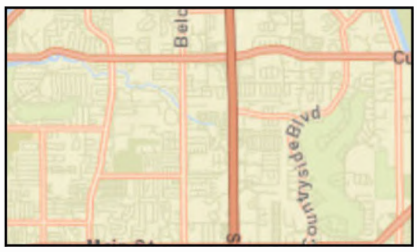
February 01, 2021

Site Map

Polygon
Area: 2.44 square miles

Prepared by Esri





February 01, 2021

Appendix I: Mid-County WWTP OMPR

FEBRUARY 2021

MID-COUNTY
Operation and Maintenance Performance Report

Prepared for:
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, FL 32714

Prepared by:
Kimley-Horn and Associates, Inc.
Suite 105N
100 Second Avenue South
St. Petersburg, FL 33701

Operation and Maintenance Performance Report

Mid-County Wastewater Treatment Plant
Pinellas County, Florida

Operating Permit Number: FL0034789
Permit Expiration Date: August 4, 2021
Report Date: February 2021

Prepared For:
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, FL 32714

Prepared By:
Kimley-Horn and Associates, Inc.
100 Second Avenue South, Suite 105N
St. Petersburg, FL 33701

CA 00000696
February 2021
St. Petersburg, Florida
140056022

Certifications

PERMITTEE:

I am fully aware and intend to comply with the recommendations and schedules included in this Operation and Maintenance Performance Report for the Mid-County WWTP, prepared by Kimley-Horn and Associates, Inc.

5/12/2021

Date

Michael A. Wilson

Michael Wilson
Director, State Operations
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, Florida 32714
Phone: (321) 972-1374

OPERATOR:

I am fully aware and intend to comply with the recommendations and schedules included in this Operation and Maintenance Performance Report for the Mid-County WWTP, prepared by Kimley-Horn and Associates, Inc.

Certification Number: B-13390

2-2-21

Date

Kevin Hugh O'Neill

Kevin Hugh O'Neill
Lead Operator
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, Florida 32714
Phone: (407) 869-1919

PROFESSIONAL ENGINEER:

The information contained in this Operation and Maintenance Performance Report for the Mid-County WWTP is true and correct to the best of my knowledge, the report was prepared in accordance with sound engineering principles, and I discussed the recommendations and schedules with the permittee or the permittee's delegated representative and the lead operator and agrees that if the recommended schedules for corrective action are met, the facilities, when properly operated and maintained, will comply with all applicable statutes of the State of Florida and rules of the Department, or for temporary operation permits, that the wastewater facilities, when properly operated and maintained, will discharge an effluent that complies with the limitations specified in the permit application.

SHELBY NICHOLE HUGHES
LICENSE
No. 86419
STATE OF FLORIDA
PROFESSIONAL ENGINEER

February 3, 2021
Date

Shelby N. Hughes
Florida Registration No. 86419
Kimley-Horn and Associates, Inc
100 Second Avenue South, Suite 105N
St. Petersburg, FL 33701
Phone: (727) 547-3999

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INTRODUCTION

Utilities, Inc. of Florida (UIF) authorized Kimley-Horn and Associates, Inc. (Kimley-Horn) to prepare an Operation and Maintenance Performance Report (OMPR) for the Mid-County Wastewater Treatment Plant (Mid-County WWTP) in accordance with the Florida Department of Environmental Protection (FDEP) and Rule 62-600.735 of the Florida Administrative Code (FAC).

UIF owns and operates the Mid-County WWTP under the existing Operating Permit No. FL0034789 (**Appendix A**) The existing operating permit will expire August 4, 2021. The Mid-County WWTP is permitted for an annual average daily flow (AADF) of 0.900 million gallons per day (MGD). The updated OMPR is required as part of the permit renewal.

The Mid-County WWTP is located at 2299 Spanish Vistas Drive, Dunedin, FL. The facility treats wastewater from a service area consisting of primarily commercial, single and multi-family residential properties along US 19 from SR 580 to the intersection of CR 39 and CR 95 and west to Belcher Road. An exhibit of the Mid-County Service Area showing the sanitary sewer system is included in **Appendix B.**

COLLECTION SYSTEM EVALUATION

The sanitary sewer collection system owned and operated by private utility owners and UIF that discharges to the Mid-County WWTP includes:

Table 1: Mid-County Collection System

Asset	UIF	Private	Total
Lift Stations	19	8	27
Force Main (2 – 8-inch)			6.02 Miles
Gravity Main (6 – 10-inch)	25.3 Miles	10.5 Miles	35.8 Miles
Wastewater Connections			2,276

Kimley-Horn completed the Mid-County I&I Analysis, dated December 2018 and concluded that the wastewater collection system experiences large inflows during rain events with consistent infiltration in wet weather months. The I&I Analysis makes recommendations on collection system improvements intended to reduce the seasonal fluctuations experienced by the facility. UIF is currently investigating sources of I&I and implementing a rehabilitation program for I&I reduction, including cast in place pipe (CIPP) lining, manhole lining and rehabilitation, and point repairs. Septic wastewater has not been a problem at this facility. There are no industrial contributions to this facility.

PLANT EVALUATION

Facility Description

As stated previously, the Mid-County WWTP is currently permitted for 0.900 MGD AADF. The facility is permitted to discharge 0.900 MGD AADF into Curlew Creek (WBID 1538A), a Class III Fresh Water

body. The Mid-County WWTP is a Type 1, advanced wastewater treatment facility with high level disinfection. The facility consists of following components:

- Static screen
  - Static Screen is being replaced with the following improvements:
    - (2) Fine Screens
    - Grit Removal System
- (1) 200,000-gallon surge tank
- (1) flow splitter box
- (1) 0.300 MGD treatment train:
  - 349,000 gallons of aeration
  - (1) 92,000-gallon clarifier
- (1) 0.600 MGD treatment train:
  - 600,000 gallons of aeration
  - (1) 98,000-gallon clarifier
- (4) 5,000-gallon clarified effluent dosing tanks
- (3) Denitrification filters (367 square feet of total surface area)
- (1) 16,000-gallon filtered effluent holding tank
- (1) 37,400-gallon disinfection tank:
  - 34,000-gallon chlorine contact chamber
  - 3,400-gallon de-chlorination chamber
- (1) 41,000-gallon aerobic digester (total volume for 0.30 MGD Train)
- (1) 43,500-gallon sludge holding tank (total volume for 0.60 MGD Train)
- (1) 37,400-gallon sludge dewatering chamber (total volume)

The schematic process flow diagram of the Mid-County WWTP is shown in **Appendix C**. The flow schematic shows the addition of the fine screens and grit removal system. These improvements are currently under construction and are anticipated to be placed into service in December 2021.

PHYSICAL CONDITONS

The most recent site visit to complete an evaluation of the Mid-County WWTP was conducted on January 16, 2021 by Kimley-Horn, plant operators, and additional UIF staff. Several additional site visits have been completed from 2016 – 2021 to evaluate individual process components and the overall plant condition. The following is a description of each of the unit process, the operational capacity, and the conditions observed during site visits.

EXISTING MASTER LIFT STATION:

Lift Station MC-01 is the master lift station that conveys the collected raw wastewater from the Mid-County service area to an enclosed static screen utilized for pre-treatment. The lift station operates in a suction-lift configuration. Currently, two (2) 650 gallon per minute (gpm) T635 Gorman-Rupp pumps are in operation. Ferric sulfate is injected at this location by a 240 GPD Pulsafeeder Ferric Pump. The existing well is a prefabricated arched-wall tank.

The existing master lift station does not have operational reliability for peak flow rates and surcharges the upstream gravity system. The existing wet well has aggregate and rebar exposure and the control panel is corroded and inaccessible. While the lift station is functioning properly and meets the applicable requirements of 62-600.400, it has reached the end of its useful life and has been permitted for replacement.

PROPOSED MASTER LIFT STATION (IN CONSTRUCTION):

Kimley-Horn completed the design and permitting of the new master lift station in 2020. The proposed lift station is a duplex submersible station with two (2) FLYGT NP 3202 45 HP pumps with a design point of 2,000 GPM @ 50 FT total dynamic head (TDH). The new lift station components include a 10-foot diameter wet well, mechanical piping, rails, control panels, variable frequency drives (VFDs), pressure transducer, above ground valves, ultrasonic flow meter, associated fittings and appurtenances, and a built-in bypass header pipe and above ground bypass port. The ferric sulfate tank and injection pump will be replaced and relocated near the new master lift station.

The new lift station is in construction as of January 2021 and is anticipated to be placed into service in March 2021. During the initial phase of operation, the VFDs will be utilized to ensure the capacity of the downstream processes is not exceeded. The new lift station meets all applicable requirements of 62-600.400 and was designed with adequate safety features for operation.

EXISTING PRE-TREATMENT:

Coarse solids and rags are removed from the incoming sewage prior to entering the WWTP by an enclosed SWECO static screen with Boston Auger dewatering screw. An odor control system is used to vent off the odors and minimize corrosion from the raw influent entering the static screen enclosure. The existing screen capacity is rated for a 1,300 gpm maximum flow from the master lift station. The screens are operational; however, multiple daily cleanings are required as regular maintenance during wet weather events to remove grit and grease buildup. Grease buildup on the screens can clog the screen openings causing the influent to flow across the screen rather than the openings as necessary for effective debris removal. This 'blinding' of the screen reduces the effective capacity of the screen. The metal grate walkways show signs of corrosion near the static screen.

While the existing static screen is functioning properly and meets the applicable requirements of 62-600.400, it does not provide redundancy and requires additional maintenance. Additionally, future improvements identified for the Mid-County WWTP require fine screening and grit removal. The existing screen has been permitted for replacement.

PROPOSED PRE-TREATMENT (IN CONSTRUCTION):

Kimley-Horn completed the design and permitting of the new headworks and grit removal system in 2020. The minor modification permit for this project is FL0034789-014-DW1/MR. The proposed headworks has two (2) Huber ROTAMAT fine drum screens with 2 mm perforated openings. To accommodate peak flows and to provide redundancy for future maintenance, each screen has a rated capacity of 3 MGD. The screens are in an elevated concrete channel and discharge to the grit removal system.

The grit removal system is the Hydro International Grit King and it removes abrasive particles from the influent flow such as sand and silt than can wear on the plant's downstream equipment. The Grit King

has a rated capacity of 3 MGD. Redundancy for the grit removal system is not provided, but a bypass channel is included to divert flow around the grit removal system during necessary maintenance cycles.

The new headworks and grit removal system is in construction as of January 2021 and is anticipated to be placed into service in November 2021. During the initial phase of operation, temporary piping modifications are required to discharge to the existing surge tank. The headworks and grit removal system meet all applicable requirements of 62-600.400 and was designed with adequate safety features for operation.

FLOW EQUALIZATION:

Following pre-treatment, raw wastewater is conveyed into a 200,000-gallon equalization tank. The equalization tank is a separate single compartment integral to the 0.300 MGD treatment train (Train #1 or North Plant). Flow is transferred to the flow splitter box located on the 0.600 MGD treatment train (Train #2 or South Plant) by two (2) submersible variable frequency drive (VFD) pumps located within the equalization tank. A Sutorbuilt rotary blower provides forced air mixing that prevents solids from settling in the equalization tank. UIF authorized the removal of accumulated grit from the bottom of the tank in December 2018 and made adjustments to the filter backwash operations in January 2018. These improvements were completed to improve the efficiency of the system.

The system appeared to be functioning properly and in good condition, meeting the applicable requirements of 62-600.400. The system appeared to have the adequate safety features and to be operating safely.

AERATION:

The aeration basins are split into two separate treatment trains. Train #1 consists of six (6) aerobic basins with a combined 349,000 gallons of aeration. Train #2 consists of two (2) aerobic basins with a combined 600,000 gallons of aeration. Wastewater enters the aeration tanks to achieve biological oxidation of the organic matter by adding diffused air. This system causes the liquid to mix, promoting the introduction of oxygen into the process to support microbial activity that stabilizes and decomposes organic material contained in the raw wastewater. The total aeration volume is 949,000 gallons with a detention time of 18-36 hours. The BOD_5 loading rate is 11.24 #BOD/1,000 CF and is within the design parameter range of 10 to 25 #BOD/1,000 CF.

Air is provided to the aeration basins by blowers. Train #1 is aerated by two (2) alternating Lamson centrifugal blowers. Train #2 is aerated by alternating three (3) Sutorbilt rotary blowers. In March 2016 a blower failed and was temporarily offline. This decreased the facility's biological treatment capability and nitrogen was exceeded. The blower has since been repaired and currently operates sufficiently. Over time, the aerobic basin accumulates grit and other non-organic solids that are not collected in pre-treatment. In January 2019, UIF removed 96 tons of sand and grit from these basins. According to operations staff, grit removal from the aeration basins is completed every two to three years.

The system did not appear to be hydraulically or organically overloaded. The system appeared to be functioning properly and in good condition, meeting the applicable requirements of 62-600.400. The system appeared to have adequate safety features and to be operating safely.

CLARIFICATION:

Following the aeration basins, the mixed liquor enters the clarifiers in the respective treatment train where the suspended solids removal process is initiated. A summary of the clarifier properties is shown in **Table 2** below. The clarifiers are equipped with scum troughs, skimmers, and airlift pump systems. The blowers mentioned in the aeration basin section provide air to the clarifier airlift systems in their associated treatment trains. The clarifiers each utilize a single ramp twin hopper with a mechanical skimmer and a right-angle drive motor to collect the activated sludge. The activated sludge is transferred as return activated sludge (RAS) to the aeration tank or as waste activated sludge (WAS) to the sludge holding tank.

Table 2: Clarifier Properties

	Clarifier Volume (Gallons)	Surface Area (SF)	Overflow Rate (GPD/SF)	Overflow Rate Design Parameter (GPD/SF)
Train 1	92,000	1,025	292.68	200-600
Train 2	98,000	1,086	552.49	200-600

In December 2017, the Train # 2 clarifier chain/sprocket system failed resulting in the clarifier being out of service for 15 days. This event temporarily reduced the facility's treatment capacity to 0.300 MGD (Train # 1's nominal capacity). The Train # 1 aeration basins were undersized to sufficiently treat the influent. Therefore, the Train #2 aeration basins were bypassed, and a portion of the headworks effluent was transferred directly to the denitrification filters. Without adequate nitrification, the filters' s denitrification process was severely limited. Each clarifier can only operate within its respective treatment train. In the event of equipment failure, the upstream aeration basins also cannot be in operation and the capacity of the WWTP is effectively reduced to that of treatment train remaining in service. The lack of redundancy and omittance of flexible operational design has made the clarifiers a critical process and a pinch point of plant operation.

Repairs to the Train #2 clarifier were completed in December 2017. Replacement equipment and spare parts for the Train #1 clarifier were also purchased and stored on-site to reduce procurement lag time in the event Train #1 fails. Following repairs made to Train #2, the system appeared to be functioning properly, meeting the applicable requirements of 62-600.400. The system did not appear to be hydraulically or organically overloaded for the rated plant capacity. The system appeared to have adequate safety features and to be operating safely.

EFFLUENT HOLDING/FILTRATION:

The clarifier effluent flows to four (4) 5,000 gallon clarified effluent methanol dosing tanks. In 2016, a ChemScan analyzer system was installed in addition to methanol dosing pumps to improve the efficiency and reliability of the nitrogen removal process.

Three submersible pumps situated within the effluent dosing tanks are used to transfer the effluent to the denitrification filters (three 122.3 SF circular filters) for nitrogen removal. The filters are deep bed sand filters with a combined surface area of 367 SF and provide a hydraulic loading rate of 1.7 GPM/SF. The filters were installed in 1994. Approximately 19 tons of media were added to the filters (approximately 11-inches of sand in each filter) in February 2018. Upon installation, the filters were designed to handle an ADF of 1.1 MGD (2.08 gpm/SF) and a maximum flow of 2.2 MGD (4.15 gpm/SF).

The filters' mechanical equipment and media are in good condition. The existing denitrification filters are designed to operate successfully at flow rates in excess of the peak flows that the Mid-County plant regularly experiences. UIF. authorized the field staff of De Nora, the manufacturer of the Tetra Denite Deep Bed filters, to evaluate the performance of the three deep bed filters in January 2019 as well as the methanol dosing system. De Nora staff recommended operational changes to optimize the filters and provided improved denitrification capabilities through a wider range of operating conditions.

The filtered effluent flows through one (1) adjacent 16,000-gallon filtered effluent holding tank where TSS compliance sampling is taken prior to flowing to the chlorination/dechlorination chamber.

By incorporating the new operating procedures, the system has been functioning properly, meeting the applicable requirements of 62-600.400. The system appeared to have the adequate safety features and to be operating safely.

RESIDUAL MANAGEMENT:

The sludge handling system includes one 41,000-gallon sludge holding tank, one 43,500-gallon sludge holding tank and one 37,400-gallon sludge dewatering chamber with a combined volume of 121,900 gallons. Based on a minimum solids retention time of 15 days, the sludge holding tanks have enough capacity to provide for approximately 22.81 days retention of solids at the required sludge-wasting rate of approximately 5,344 gallons per day at 900,000 GPD Annual Average Daily Flow (AADF). The WAS is pumped from the clarifiers into the associated sludge holding tank. A sludge thickening system comprised of a 2.5 GPH LMI Polymer Pump and FloTrend Dewatering Box is used to thicken the residuals by removing some of the water from the sludge prior to transport to the offsite residuals management facility.

The system appeared to be functioning properly and is in good condition, meeting the applicable requirements of 62-600.400. The system appeared to have adequate safety features in place and to be operating safely.

CHLORINATION/DECHLORINATION:

Following filtration, the effluent flows into the chlorine contact chamber (CCC) for high-level disinfection then dechlorination prior to disposal in Curlew Creek. Properties of the chlorination system are shown in **Table 3** below.

Table 3: Chlorination System				
Tank Volume (Gallons)	Detention Time during ADF (Minutes)	Detention Time during ADF Required (Minutes)	Detention Time during PHF (Minutes)	Detention Time during PHF Required (Minutes)
34,000	54.4	30	27.2	15

The total chlorine contact chamber tank volume is 34,000 gallons and the dechlorination chamber adjacent to the CCC is 3,400 gallons. The chlorination detention time is specified in the WWTP's operating permit. Dechlorination contact time is not specified. In-line analyzers continuously measure pH, chlorine residual pre- and post-dechlorination, and flow.

The disinfection system is comprised of two (2) 850-gallon HDPE sodium hypochlorite solution storage tanks, one (1) flow proportional Pulsafeeder chemical pump and one (1) residual proportional Pulafeeder chemical pump. The dechlorination system is comprised of one (1) 300-gallon HDPE sodium bisulfite solution storage tank, one (1) 55-gallon backup drum of sodium bisulfite and (1) bisulfite Pulsafeeder chemical pump.

While the CCC tank has adequate volume to provide the required contact time for disinfection, the hydraulic design and lack of adequate baffling increases the potential of short-circuiting and subsequent inconsistency of achieved retention times. The system appeared to be functioning properly and in good condition for the rated plant capacity, meeting the applicable requirements of 62-600.400. The system appeared to have adequate safety features in place and to be operating safely.

EFFLUENT DISPOSAL:

The effluent leaves the dechlorination chamber and flows by gravity into the Class III fresh waters of Curlew Creek, WBID 1538A. Curlew Creek flows into WBID 1538 of Curlew Creek Tidal Segment, Class III Marine waters, then into WBID 1528C of Clearwater Harbor (north), Class III Marine waters.

Per the operating permit conditions, the effluent is tested once every six months to evaluate chronic whole effluent toxicity. In addition, ambient monitoring is conducted on the water quality of the discharge waters on a semi-annual basis including 300 feet upstream of the Curlew Creek discharge location, 300 feet downstream of the Curlew Creek discharge location, and at the discharge pipe prior to mixing with the waters of Curlew Creek.

FLOW MEASUREMENT

Influent flow is measured with a Yantai Auto Instrument Making Co. WFD-DN200 Electromagnetic Flowmeter. This strap-on flow meter is located on the riser pipe from the equalization basin to the flow splitter box. This strap-on meter will be relocated to the proposed headworks riser pipe.

Effluent discharged to Curlew Creek is measured with a 90-degree V-notch weir as the primary flow meter, a K-teck KSonic I Ultrasonic Level Flow Meter as a secondary flow meter that provides input to

the chlorine feed pump, and a Honeywell DR4300 circular chart recorder located adjacent to the dechlorination chamber.

SCADA

The facility is continuously monitored by SCADA equipment housed in the Mid-County field office.

CHLORINE AND pH MONITORING

The disinfected effluent is continuously monitored using the HACH CL17 Analyzer to ensure the Total Residual Chlorine (TRC) concentration meets the disinfection limits identified in the operating permit.

The finished effluent is continuously monitored using a second HACH CL17 Analyzer and Honeywell DR4300 circular chart recorder to ensure the TRC concentration in the finished effluent meets the dechlorination limits. In addition, the finished effluent is continuously monitored by a GLI Pro Inline pH Meter/Probe and Honeywell DR4300 circular chart recorder.

Flow and Loading Information

Operating Permit No. FL0034789 states the effluent parameters, monitoring requirements, and the associated limitations the Mid-County WWTP is required to maintain. **Table 4** summarizes the effluent limitations as stated in the operating permit.

Table 4: Permit Effluent Limitations

Parameter	Min/Max	Limitation	Condition
Flow to Discharge	Max	0.9 MGD	Annual Average
BOD_5 & TSS	Max	5.0 mg/L	Annual Average
	Max	6.25 mg/L	Monthly Average
	Max	10.0 mg/L	Single Sample
Total Nitrogen	Max	3.0 mg/L	Annual Average
	Max	3.75 mg/L	Monthly Average
	Max	6.0 mg/L	Single Sample
Total Phosphorous	Max	1.0 mg/L	Annual Average
	Max	1.25 mg/L	Monthly Average
	Max	2.0 mg/L	Single Sample
pH	Min	6.0	Single Sample
	Max	8.5	Single Sample
Fecal Coliform (% less than detection)	Min	75%	Monthly Total
Fecal Coliform	Max	25 #/100mL	Single Sample
Chlorine (Total Residual for Disinfection)	Min	1.0 mg/L	Single Sample
Chlorine (Total Residual for Dechlorination)	Max	0.01 mg/L	Single Sample
Dissolved Oxygen	Min	5.0 mg/L	Single Sample

Per the operating permit, the Mid-County WWTP staff monitors and submits monthly effluent levels of the parameters listed above. UIF provided the Mid-County WWTP Daily Monitoring Reports (DMRs) which are self-monitoring reports as required by FDEP. Per the DMR data, **Table 5** summarizes the annual average effluent levels for loading parameters monitored on an annual basis. See **Appendix D** for the DMR Data Summary from January 2016 to December 2020. The annual average effluent results do not exceed the permitted limitations.

Table 5: Annual Average Effluent Monitoring Results

Year	Effluent BOD5	Effluent TSS	Total Nitrogen	Total Phosphorous
	Annual Average (mg/L)	Annual Average (mg/L)	Annual Average (mg/L)	Annual Average (mg/L)
	Limit: 5.0 mg/L	*Limit: 5.0 mg/L*	*Limit: 3.0 mg/L*	*Limit: 1.0 mg/L*
2016	2.87	0.70	1.66	0.49
2017	3.09	1.21	1.95	0.41
2018	4.64	1.29	1.63	0.35
2019	3.03	1.27	0.88	0.22
2020	2.27	1.00	0.74	0.14

The DMR Exceedances per parameter and statistical base are shown in **Table 6** below, demonstrating that the facility has operated outside of its permitted effluent limitations on several instances.

Table 6: DMR Exceedances

Date of Exceedance	Parameter	Result	Permitted Limit	Unit	Statistical Base
2019	AADF	0.901	0.900	MGD	Annual
11/31/2018	BOD, Carbonaceous 5 day, 20C	7.30	6.25	mg/L	MK-Monthly
08/31/2018	Nitrogen, Total	2.67	2.12	ton/yr	AD – Annual Total
07/31/2018	Nitrogen, Total	2.60	2.12	ton/yr	AD – Annual Total
06/31/2018	Nitrogen, Total	2.56	2.12	ton/yr	AD – Annual Total
05/31/2018	Nitrogen, Total	2.50	2.12	ton/yr	AD – Annual Total
04/30/2018	Nitrogen, Total	2.25	2.12	ton/yr	AD – Annual Total
03/31/2018	BOD, Carbonaceous 5 day, 20C	8.53	6.25	mg/L	MK-Monthly
03/31/2018	BOD, Carbonaceous 5 day, 20C	15	10.0	mg/L	MB-Maximum
03/31/2018	Nitrogen, Total	2.14	2.12	ton/yr	AD – Annual Total
02/28/2018	Nitrogen, Total	2.20	2.12	ton/yr	AD – Annual Total
01/31/2018	BOD, Carbonaceous 5 day, 20C	6.34	6.25	mg/L	MK-Monthly
01/31/2018	BOD, Carbonaceous 5 day, 20C	14	10.0	mg/L	MB-Maximum

01/31/2018	Nitrogen, Total	2.20	2.12	ton/yr	AD – Annual Total
12/31/2017	Solids, Total Suspended	24	5.0	mg/L	MB-Maximum
12/31/2017	Nitrogen, Total	18	6.0	mg/L	MB-Maximum
12/31/2017	Nitrogen, Total	8.1	3.75	mg/L	MK-Monthly
12/31/2017	Coliform, Fecal	48	25.0	#/100	MB-Maximum
12/31/2017	Nitrogen, Total	2.17	2.12	ton/yr	AD – Annual Total
11/30/2017	BOD, Carbonaceous 5 day, 20C	19	10.0	mg/L	MB-Maximum
11/30/2017	BOD, Carbonaceous 5 day, 20C	7.8	6.25	mg/L	MK-Monthly
07/31/2017	Solids, Total Suspended	18	5.0	mg/L	MB-Maximum
06/30/2017	Solids, Total Suspended	18	5.0	mg/L	MB-Maximum
05/31/2017	Solids, Total Suspended	9.2	5.0	mg/L	MB-Maximum
10/31/2016	Coliform, Fecal	32	25.0	#/100	MB-Maximum
07/31/2016	Coliform, Fecal	58	25.0	#/100	MB-Maximum
03/31/2016	Nitrogen, Total	9.6	6.0	mg/L	MB-Maximum
03/31/2016	Nitrogen, Total	4.5	3.75	mg/L	MK-Monthly

UIF attributes several contributing factors to the permitted effluent limitation exceedances. These events were detailed in the FDEP Warning Letter # WL18-21DW52SWD and are listed below:

- August 2015: Extreme rainfall (over 30-inches of rain recorded in seven weeks) led to an influx of excessive I&I within the Mid-County WWTP collection system. This caused the denitrification filters to be hydraulically inundated causing suspended solids values to exceed the effluent limits.
- March 2016: A blower failed and was temporarily offline. This decreased the facility's biological treatment capability causing nitrogen limits to be exceeded.
- July and October 2016: An operator sampling error caused unrepresentative fecal coliform sample results to be reported to FDEP in error.
- December 2017: The Train # 2 clarifier's chain/sprocket system failed resulting in the clarifier being out of service for 15 days. This event temporarily reduced the facility's treatment capacity to 0.300 MGD (Train # 1's nominal capacity) and overloaded the filters. Consequently, the nitrogen concentration in the plant's effluent exceeded the permit's limits.

Due to these exceedances, FDEP issued a consent order (No. 18-1197), dated November 2018, for the Mid-County WWTP. The consent order identifies the exceedances shown above. The consent order was subsequently closed on December 21, 2020 after interim monitoring limits were consistently met and the recommendations for improvements to the clarifier were addressed.

PERFORMANCE TRENDS

Flow and effluent data were analyzed by utilizing the DMR's mentioned in the previous section. The DMR data include the following flow scenarios for the respective reporting period:

- Monthly average daily flows (January 2016 – December 2020)
- Three-month average daily flows (January 2016 – December 2020)
- Annual average daily flows (January 2016 – December 2020)

The DMR flow data is collected using the onsite effluent ultrasonic flow meter located before the discharge to Curlew Creek. The onsite flow meter was most recently calibrated in February 2020 by plant operations staff. The minimum and maximum monthly average daily flows, three-month average daily flows, and annual average daily flows are summarized in **Table 7** below. The average AADF from 2016 – 2020 is approximately 0.814 MGD or 90% of the permitted capacity.

Table 7: Mid-County Historical Flow Summary

Flow Scenario		Flow (MGD)	Year
Monthly Average Daily Flow (MADF)	Min	0.657	2016
	Max	1.262	2019
Three-Month Average Daily Flow (3MADF)	Min	0.659	2017
	Max	1.170	2019
Annual Average Daily Flow (AADF)	Min	0.714	2017
	Average	0.814	2016-2020
	Max	0.901	2019

Historical flow data is shown in **Figure 1** below. The facility's AADF was exceed in 2019 and is on-average operating at 90% of the permitted capacity. The AADF is showing an overall increase. The 30-day (or monthly) ADF consistently peaks in months coinciding with wet weather.

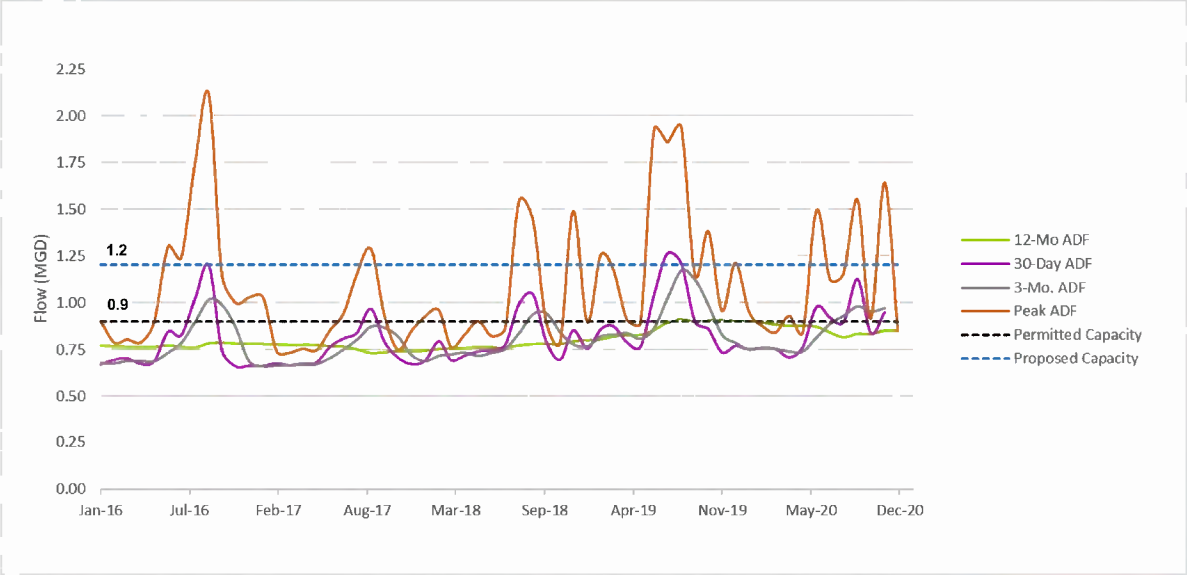

Figure 1: Mid-County WWTP Historical Flow

Seasonal Variations in Flow

The seasonal variation is shown in the 30-day average daily flow per year in **Figure 2** below. The Mid-County WWTP service area has a seasonal population that generally consists of 'snowbirds' coming to the area during the winter. While the flow in the wet weather months (June – November) is consistently higher, the baseline flow from the service area population during the dry season is higher than the baseline flows during the summer. The flow in the wet season increases due to inflow and infiltration (I&I) contributions. It should be noted that during the wet season the average flows are higher, but the respective peaking hourly factor is effectively reduced. Additionally, due to the high I&I contributions the biological loading is low effectively increasing the biological treatment capacity of the existing facility.

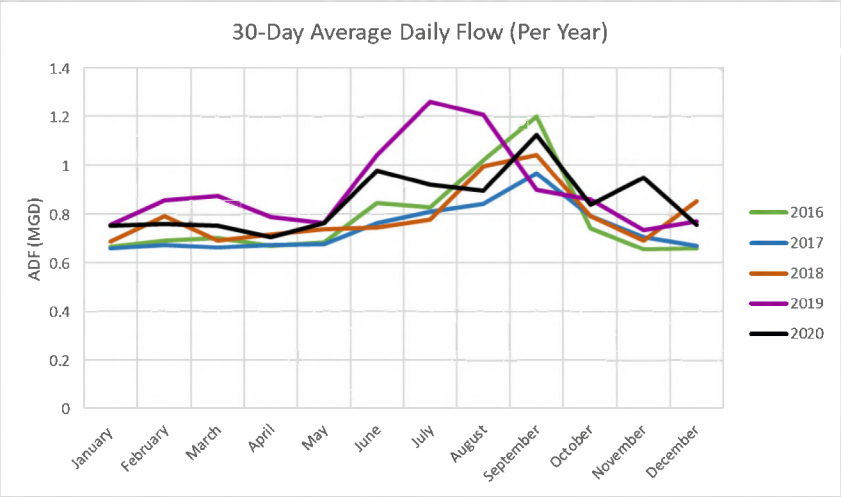

Figure 2: Mid-County WWTP 30-Day ADF Per Year

BOD_5/TSS

Effluent water quality data was obtained from the DMR's submitted to FDEP from 2016-2020. The facility's average BOD_5 removal rate was 98.0% and the TSS removal rate was 100%. Based on these results, the facility exceeded the minimum 90% treatment efficiency for both BOD_5 and TSS in all measured occasions. Due to the high I&I contributions in wet weather months, the biological loading is reduced during that time period. The BOD_5 and TSS trend from the DMR data shown in **Figure 3** below is based on weekly sample results.

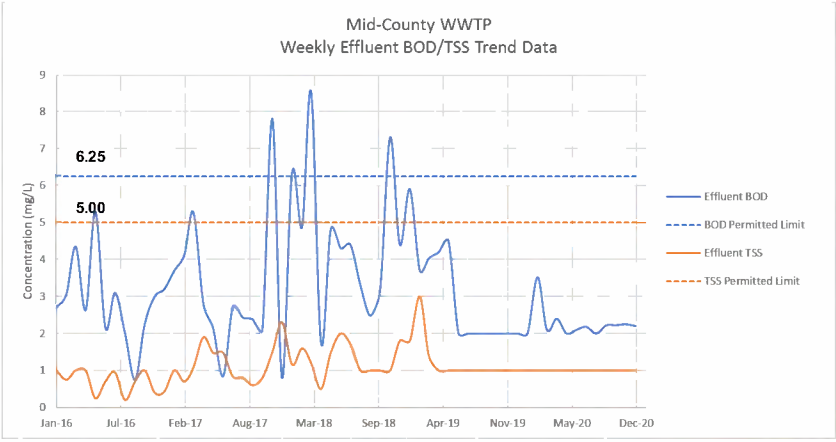

Figure 3: Mid-County WWTP Weekly BOD5 and TSS Effluent Results

Phosphorus

Phosphorus removal consistently meets permit limits based on every statistical measurement since December 2011. The Phosphorus trend from the DMR data taken from monthly sample results is shown in **Figure 4** below.

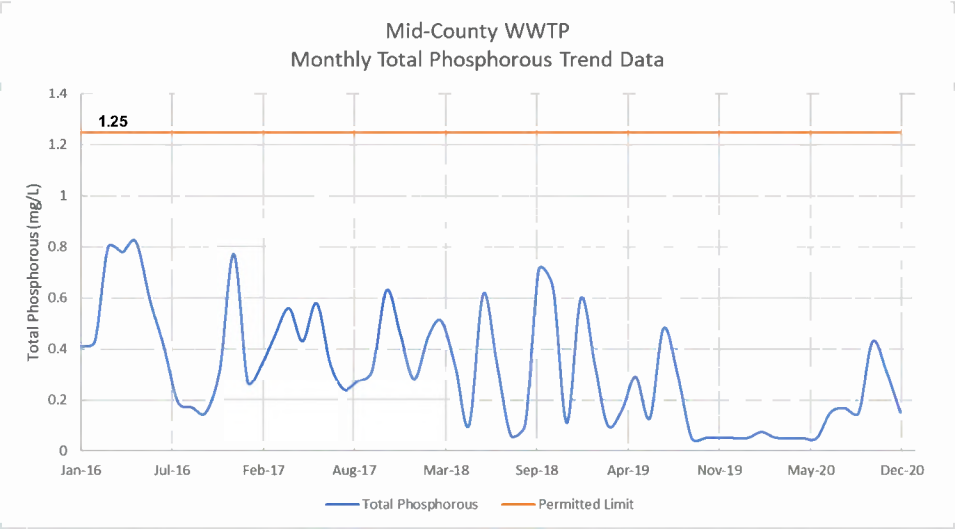

Figure 4: Mid-County WWTP Phosphorous Effluent Results

Total Nitrogen

The facility's total effluent Nitrogen was exceeded on three statistical base measurements. In 2018, these exceedances were primarily caused by the Train #2 clarifier being taken out of service in December 2017, as discussed above. Additionally, inefficient operation of the filters reduced the overall level of denitrification. It is expected that the Mid-County WWTP will meet permitted limitations following corrective actions and maintenance of the system discussed below. The total nitrogen trend from the DMR data is shown in **Figure 5** below for total nitrogen per month in mg/L.

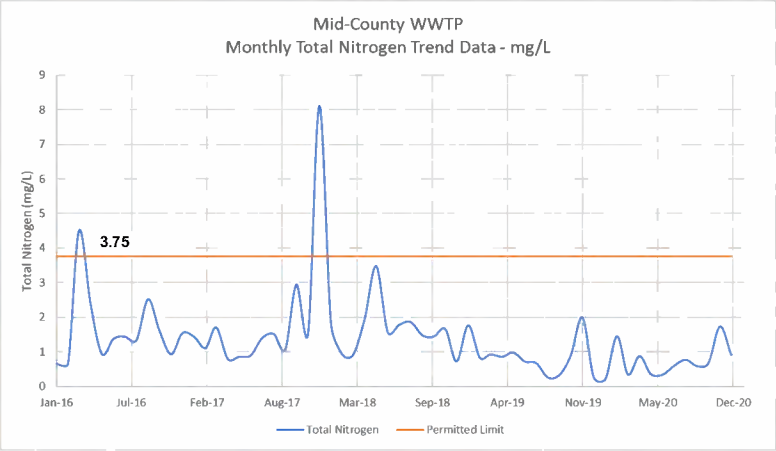

Figure 5: Mid-County WWTP Nitrogen Effluent Results – Monthly Total (mg/L)

The total nitrogen trend in tons per year is shown in **Figure 6** below.

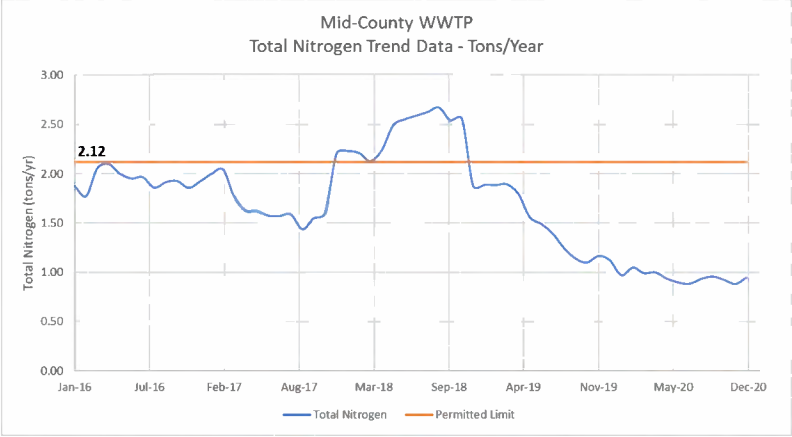

Figure 6: Mid-County WWTP Nitrogen Effluent Results – Yearly Total (tons/year)

OPERATIONS AND MAINTENANCE PROGRAM

Mid-County WWTP is a Category I, Class B facility. A Class C or higher certified operator must be on site 8 hours a day, 7 days a week during the time of greatest influent flow. The lead operator must be Class B or higher and be employed full time at the plant. The operator maintains an up-to-date operations and maintenance log and sampling program. All laboratory tests required by the FDEP are performed by a certified HRS laboratory.

RECORD DRAWINGS:

As-builts showing the WWTP components are kept at the facility.

OPERATION AND MAINTENANCE MANUAL AND LOG:

An up-to-date Operation and Maintenance Manual in accordance with 62-600.720(1) and an up-to-date operation and maintenance log including the information required by 62-602.360(1)(e), F.A.C. is kept at the facility.

INFLUENT AND EFFLUENT SAMPLING:

Influent samples are taken from the raw influent main entering the equalization tank. TSS grab samples are taken prior to disinfection. Disinfection TRC is tested by taking a sample after chlorination and prior to dechlorination. Dechlorination TRC and all other effluent parameters are taken from the finished effluent prior to discharge to Curlew Creek.

PROBLEMS, DEFICIENCIES, AND CORRECTIVE ACTION

Plant Expansion

Overall, the Mid-County WWTP is operational however, redundancy is limited, preventing overall treatment reliability. Due to the property limits and the existing plant configuration, the plant cannot be expanded by constructing additional tankage for treatment or adequate equalization volume to handle influxes in flow. As outlined in the Capacity Analysis Report, the Mid-County WWTP is expected to exceed the permitted capacity within the next five (5) years without expansion.

Kimley-Horn was authorized by UIF to perform an Engineering Analysis to analyze potential improvements to the Mid-County WWTP in November 2019. The intent of the evaluation was to identify alternatives that could be implemented within the same plant footprint, maintain permitted nutrient removal levels, address the existing process and operational deficiencies, and to provide overall plant reliability and redundancy based on an increased capacity of 1.200 MGD AADF.

The recommended improvements to the WWTP involve upgrading the facility's primary method of treatment from a conventional extended aeration system to a Membrane Biological Reactor (MBR) system. Equipment and installation alternatives were analyzed for the master lift station, headworks, biological treatment process, disinfection, and sludge handling along with MBR system alternatives. Each alternative was evaluated based on capital cost, operation and maintenance requirements, constructability, reliability, and compatibility with an MBR system.

UIF has authorized Kimley-Horn to proceed with the design and permitting of the Mid-County WWTP improvements to increase plant capacity and provide redundancy. Kimley-Horn has completed the

design and permitting of the master lift station, headworks and grit removal system, all of which are currently in construction. Additionally, Kimley-Horn is in the design process for the biological treatment plant components, including the retrofit from extended aeration to MBR, allowing an increased capacity within the same plant footprint. Kimley-Horn is also in the design process for a disinfection system and sludge dewatering system. **Table 8** below shows a timeline for design, permitting, bidding and construction for the proposed improvements. Influent parameters, design data, and equipment recommendations are included in the Preliminary Design Report accompanying this submittal.

Table 8: Expansion Schedule

Improvement	Design & Permitting		Bidding & Construction	
	Start	Completion	Start	Completion
Master Lift Station	Complete		July 2020	March 2021
Headworks & Grit Removal	Complete		January 2021	December 2021
MBR Conversion	January 2021	November 2021	November 2021	July 2023

Inflow and Infiltration

The Mid-County WWTP experiences seasonal fluctuations in influent flow to the facility which is indicative of I&I in the collection system. Additionally, Kimley-Horn completed the Mid-County I&I Analysis, dated December 2018 and concluded that the wastewater collection system experiences large inflows during rain events with consistent infiltration in wet weather months. UIF is currently investigating sources of I&I and has implemented a rehabilitation program to reduce I&I within the portions of the system they own.

APPENDICES

APPENDIX A: Mid-County WWTP Operating Permit No. FL0034789-013-DW1P/NR

FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

July 22, 2020

PERMITTEE:
Mr. Patrick C. Flynn, Vice President of Operations
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, Florida 32714
pcflynn@uiwater.com

Re: Minor Revision
Mid-County WWTF
PA File No. FL0034789-014-DW1/MR
Pinellas County

Dear Mr. Flynn:

In accordance with Rule 62-620.325(2), Florida Administrative Code, the Department completed minor revisions of the above-referenced domestic wastewater facility permit, FL0034789, which expires on August 4, 2021.

The current permit description was revised to include the construction of a new headworks including fine screens and a grit removal system. This modification did not change the current Discharge Monitoring Reports (DMRs).

The revised permit is enclosed. Please replace the previous documents in their entirety. Please note that the original permit issuance and expiration dates still apply.

Also, please note that monitoring requirements under this permit are effective immediately. If you have any questions, you may contact Alexandria Moorehead at (813) 470-5704 or via email at Alexandria.Moorehead@FloridaDEP.gov.

Sincerely,

Pamala Vazquez
Program Administrator
Permitting & Waste Cleanup Program
Southwest District

cc:
EPA Region IV – Water Management, r4npdespermits@epa.gov
Monica Sudano, FDEP-Tallahassee, Monica.Sudano@floridadep.gov
Shelby Hughes, P.E., Kimley-Horn, shelby.hughes@kimley-horn.com
Sarah Ecker, E.I., Kimley-Horn, sarah.ecker@kimley-horn.com
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Astrid Flores-Thiebaud, DEP SWD, astrid.floresthiebaud@floridadep.gov
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Erica Peck, DEP SWD, erica.peck@floridadep.gov
Alexandria Moorehead, DEP SWD, alexandria.moorehead@floridadep.gov

FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Ron DeSantis
Governor

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Lt. Governor

Noah Valenstein
Secretary

STATE OF FLORIDA
DOMESTIC WASTEWATER FACILITY PERMIT

PERMITTEE:
Mid-County Services, Inc.

PERMIT NUMBER: FL0034789 (Minor)
FILE NUMBER: FL0034789-013-DW1P/NR
ISSUANCE DATE: August 5, 2016
PA FILE NUMBER: FL0034789-014-DW1/MR
REVISION DATE: **July 22, 2020**
EXPIRATION DATE: August 4, 2021

RESPONSIBLE OFFICIAL:
Mr. Patrick C. Flynn, Vice President of Operations
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, Florida 32714-4027
(407) 869-1919
pcflynn@uiwater.com

FACILITY:

Mid-County WWTP
2299 Spanish Vista Drive
Dunedin, FL 34698-9438
Pinellas County
Latitude: 28°2' 16 " N Longitude: 82°44' 31" W

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and applicable rules of the Florida Administrative Code (F.A.C.) and constitutes authorization to discharge to waters of the state under the National Pollutant Discharge Elimination System. This permit does not constitute authorization to discharge wastewater other than as expressly stated in this permit. The above-named permittee is hereby authorized to operate the facilities in accordance with the documents attached hereto and specifically described as follows:

WASTEWATER TREATMENT

An existing 0.90 million gallons per day (MGD) Annual Average Daily Flow (AADF), Type I, advanced wastewater treatment facility consisting of two separate treatment trains: flow is directed through one static screen, followed by one equalization basin of 200,000 gallons total volume and then a flow splitter box which separates the flow into a 0.30 million gallons per day (MGD) treatment train and 0.60 million gallons per day (MGD) treatment train. The 0.30 million gallons per day (MGD) treatment train consists of six aeration basins, 349,000 gallons of total aeration volume and one clarifier of 92,000 gallons total volume with 1,025 square feet total surface area. The 0.60 million gallons per day (MGD) treatment train consists of two 300,000-gallon aeration basins, 600,000 gallons of total aeration volume and one clarifier of 98,000 gallons total volume with 1,086 square feet total square area. The two treatment trains are combined into four 5,000 gallon clarified effluent holding tanks, three deep-bed denitrification filters of 48,000 gallons total volume and 367 square feet of total surface area, one effluent holding tank of 16,000 gallons total volume, a chlorination/dechlorination chamber of 37,400 gallons total volume comprised of a 34,000 gallon chlorine contact chamber and a 3,400 gallon dechlorination chamber, one aerobic digester of 41,000 gallons total volume, and one sludge holding tank of 43,500 gallons total volume. This facility is operated to provide advanced wastewater treatment and high-level disinfection.

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-014-DW1/MR
FACILITY: Mid-County WWTP

MODIFICATION

Removal of the existing static screen and associated grating and the construction of a new headworks including fine screens and a grit removal system.

AFTER MODIFICATION

An existing 0.90 million gallons per day (MGD) Annual Average Daily Flow (AADF), Type I, advanced wastewater treatment facility consisting of two separate treatment trains. Flow is pumped from the Master Lift Station to the Headworks Structure, which includes fine screening and grit removal and is then routed to one equalization basin of 200,000 gallons total volume. The flow is pumped to a flow splitter box which separates the flow into a 0.30 million gallons per day (MGD) treatment train and 0.60 million gallons per day (MGD) treatment train. The 0.30 million gallons per day (MGD) treatment train consists of six aeration basins, 349,000 gallons of total aeration volume and one clarifier of 92,000 gallons total volume with 1,025 square feet total surface area. The 0.60 million gallons per day (MGD) treatment train consists of two 300,000-gallon aeration basins, 600,000 gallons of total aeration volume and one clarifier of 98,000 gallons total volume with 1,086 square feet total square area. The two treatment trains are combined into four 5,000 gallon clarified effluent holding tanks, three deep-bed denitrification filters of 48,000 gallons total volume and 367 square feet of total surface area, one effluent holding tank of 16,000 gallons total volume, a chlorination/dechlorination chamber of 37,400 gallons total volume comprised of a 34,000 gallon chlorine contact chamber and a 3,400 gallon dechlorination chamber, one aerobic digester of 41,000 gallons total volume, and one sludge holding tank of 43,500 gallons total volume. This facility is operated to provide advanced wastewater treatment and high-level disinfection.

REUSE OR DISPOSAL:

Surface Water Discharge D-001: An existing 0.90 million gallons per (MGD) Annual Average Daily Flow (AADF) discharge into the Class III Fresh waters of Curlew Creek, WBID 1538A. Curlew Creek flows into WBID 1538 of Curlew Creek Tidal Segment, Class III Marine waters, thence WBID 1528C of Clearwater Harbor (north), Class III Marine waters. The point of discharge is located approximately at latitude 28° 02' 18" N, longitude 82 ° 44' 32" W.

IN ACCORDANCE WITH: The limitations, monitoring requirements, and other conditions set forth in these cover sheets and Part I through Part IX on pages 3 through 22 of this permit.

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-014-DW1/MR
FACILITY: Mid-County WWTP

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to Curlew Creek. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.B.7:

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow, to D-001	MGD	Max	0.90	Annual Average	Monthly	Calculated	FLW-01	See I.A.3
Flow, to D-001	MGD	Max	Report	Monthly Average	5 Days/Week	Recording Flow Meter with Totalizer	FLW-01	See I.A.3
BOD, Carbonaceous 5 day, 20C	mg/L	Max	5.0	Annual Average	Monthly	Calculated	EFD-01	
BOD, Carbonaceous 5 day, 20C	mg/L	Max Max	6.25 10.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
Solids, Total Suspended	mg/L	Max	5.0	Annual Average	Monthly	Calculated	EFD-01	
Solids, Total Suspended	mg/L	Max Max	6.25 10.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	See I.A.6
Solids, Total Suspended	mg/L	Max	5.0	Single Sample	4 Days/Week	Grab	EFB-01	
Nitrogen, Total	mg/L	Max	3.0	Annual Average	Monthly	Calculated	EFD-01	
Nitrogen, Total	mg/L	Max Max	3.75 6.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
Phosphorus, Total (as P)	mg/L	Max	1.0	Annual Average	Monthly	Calculated	EFD-01	
Phosphorus, Total (as P)	mg/L	Max Max	1.25 2.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
pH	s.u.	Min Max	6.0 8.5	Single Sample Single Sample	5 Days/Week	Meter	EFD-01	
Coliform, Fecal, % less than detection	percent	Min	75	Monthly Total	Monthly	Calculated	EFA-01	See I.A.4
Coliform, Fecal	#/100mL	Max	25	Single Sample	4 days/Week	Grab	EFA-01	See I.A.4
Chlorine, Total Residual (For Disinfection)	mg/L	Min	1.0	Single Sample	5 Days/Week	Meter	EFA-01	See I.A.5
Chlorine, Total Residual (For Dechlorination)	mg/L	Max	0.01	Single Sample	Weekly	Grab	EFD-01	
Oxygen, Dissolved (DO)	mg/L	Min	5.00	Single Sample	5 Days/Week	Grab	EFD-01	
Nitrogen, Total	ton/mth	Max	Report	Monthly Total	Monthly	Calculated	EFD-01	See I.A.7

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-014-DW1/MR
FACILITY: Mid-County WWTP

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Nitrogen, Total	ton/yr	Max	2.12	Annual Total	Monthly	Calculated	EFD-01	See I.A.7
Chronic Whole Effluent Toxicity, 7-Day IC25 (Ceriodaphnia dubia)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFD-01	See I.A.6
Chronic Whole Effluent Toxicity, 7-Day IC25 (Pimephales promelas)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFD-01	See I.A.6

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-014-DW1/MR
FACILITY: Mid-County WWTP

2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I.A.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-01	Flow meter prior to discharge to Curlew Creek.
EFD-01	After dechlorination and prior to surface water discharge to Curlew Creek.
EFA-01	After disinfection and prior to dechlorination.
EFB-01	After filtration and prior to disinfection.

3. Recording flow meters and totalizers shall be utilized to measure flow and calibrated at least annually. *[62-600.660(1)]*

4. Over a 30-day period, at least 75 percent of the fecal coliform values shall be below the detection limits. No sample shall exceed 25 fecal coliforms per 100 mL. No sample shall exceed 5.0 mg/L of total suspended solids (TSS) at a point before the application of the disinfectant. Note: To report the "% less than detection," count the number of fecal coliform observations that were less than detection, divide by the total number of fecal coliform observations in the month, and multiply by 100% (round to the nearest integer). *[62-600.440(6)(a)]*

5. A minimum of 1.0 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow. *[62-600.440(5)(c), (6)(b), and (7)(c)]*

6. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.

   a. Effluent Limitation
      (1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) for reproduction or growth shall not be less than 100% effluent. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]
      (2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. [Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]

   b. Monitoring Frequency
      (1) Routine toxicity tests shall be conducted once every six months, the first starting within 60 days of the effective date of this permit and lasting for the duration of this permit.

   c. Sampling Requirements
      (1) For each routine test or additional follow-up test conducted, a total of three flow proportional 24-hr composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.
      (2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.
      (3) Samples for routine and additional follow-up tests shall not be collected on the same day.

   d. Test Requirements
      (1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%**, **50%**, **25%**, **12.5%**, and **6.25%** final effluent.
      (2) The permittee shall conduct a daphnid, **Ceriodaphnia dubia**, Survival and Reproduction Test and a fathead minnow, **Pimephales promelas**, Larval Survival and Growth Test, concurrently.
      (3) All test species, procedures and quality assurance criteria used shall be in accordance with **Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms**, 4th Edition, EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.
      (4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.2.3.

e. Quality Assurance Requirements
(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.
(2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or the "test acceptability criteria" are not met, the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (**Ceriodaphnia dubia**) and Section 11.11 (**Pimephales promelas**). The repeat test shall begin within 21 days after the last day of the invalid test.
(3) If 100% mortality occurs in all effluent concentrations for either test species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.
(4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-013, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

f. Reporting Requirements
(1) Results from all required tests shall be reported on the Discharge Monitoring Report (DMR) as follows:
(a) Routine and Additional Follow-up Test Results: The calculated IC25 for reproduction or growth for each test species shall be entered on the DMR.
(2) A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-013, Section 10, Report Preparation and Test Review, and mailed to the Department at the address below within 30 days after the last day of the test.
(3) For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-013, Section 10, and mailed within 30 days after the last day of the second valid additional follow-up test.
(4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.
(5) The same bioassay data shall not be reported as the results of more than one test.
(6) All bioassay laboratory reports shall be sent to:

Florida Department of Environmental Protection
Southwest District Office
13051 N Telecom Pkwy
Temple Terrace, Florida 33637-0926
Phone Number - (813) 470-5700
FAX Number - (813) 470-5996
swd_dw@dep.state.fl.us

g. Test Failures
(1) A test fails when the test results do not meet the limits in I.A.6.a.(1).
(2) Additional Follow-up Tests:
(a) If a routine test does not meet the chronic toxicity limitation in I.A.6.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with I.A.6.d.
(b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.
(c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5%, and 6.25% effluent. The permittee may modify the dilution series in the second additional follow-up test to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control (0%

effluent) are run. All test results shall be analyzed according to the procedures in EPA-821-R-02-013.

(3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.
   (a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.
   (b) The Department shall review and approve the plan before initiation.
   (c) The plan shall be initiated within 30 days following the Department's written approval of the plan.
   (d) Progress reports shall be submitted quarterly to the Department at the address above.
   (e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with I.A.6.d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in I.A.6.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-013, a repeat test shall be initiated within 21 days after the last day of the invalid routine test.
   (f) Upon completion of four consecutive quarterly valid routine tests that demonstrate compliance with the effluent limitation in I.A.6.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the facility has passed at least four consecutive quarterly valid routine whole effluent toxicity tests. If a test within the sequence of the four is deemed invalid, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive quarterly valid routine tests for the purpose of terminating the plan.

(4) If chronic toxicity test results indicate greater than 50% mortality within 96 hours in an effluent concentration equal to or less than the effluent concentration specified as the acute toxicity limit in I.A.6.a.(2), the Department may revise this permit to require acute definitive whole effluent toxicity testing.

(5) The additional follow-up testing and the plan do not preclude the Department taking enforcement action for acute or chronic whole effluent toxicity failures.

[62-4.241, 62-620.620(3)]

7. In accordance with Rule 62-304.645(13)(a), F.A.C., the Total Maximum Daily Load for Total Nitrogen from this facility shall be 2.12 tons/year (annual total). The Total Nitrogen loading shall be calculated from the monthly average Total Nitrogen concentrations as follows:

Monthly Total (Mt)
$Mt_n = \frac{\text{(Monthly Average Total Nitrogen Concentration, mg/l)(Total Monthly Flow, MG)(8.3454)}}{\text{2000 lbs}}$
Mt_n = Tons/Month

The Annual Total shall be calculated as a 12-month rolling total based on the cumulative total of TN tons discharged during the reporting month (Mt_n) plus the total of TN tons discharged during the preceding 11 consecutive months.

Annual Total (At)*
Annual Total at the end of the n^{th} Month: $At = Mt_{n-11} + Mt_{n-10} \ldots Mt_n$

*The Annual Total will be calculated and reported as an accumulation of each monthly TN load after this permit monitoring effective date until twelve (12) months of data are collected, after which the rolling total will be reported.

[62-304.645(13)(a)]

8. Ambient Monitoring Program
The permittee shall conduct a surface water-monitoring program to evaluate the impacts of the discharge on the water quality of the receiving body of water. The monitoring described below shall be conducted semi-annual basis (wet and dry season). The monitoring reports shall be submitted to the Department's SW District Office annually. The reports shall include discussion and interpretation of the water quality results.

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Ambient sampling should always be conducted in conjunction with a surface water discharge sampling event.

a. Sampling locations

i. Test site 1 shall be located 300 feet upstream of the outfall to Curlew Creek.
ii. Test site 2 shall be located 300 feet downstream of the outfall to Curlew Creek.
iii. Outfall D-001 (effluent): At the outfall (effluent shall be collected just prior to mixing with the surface waters).

b. Sampling Depths

i. Mid-depth samples shall be collected at the two ambient sites.

c. Sampling Parameters

i. Surface (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity and specific conductance shall be measured at 0.1 meter below the surface of the water.
ii. Mid-depth (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity, specific conductivity, total suspended solids, $CBOD_5$, total Kjeldahl nitrogen, nitrite-nitrate, total ammonia nitrogen, total phosphorous, ortho-phosphorus, chlorophyll a corrected, fecal coliform bacteria and turbidity.
iii. Outfall (effluent): pH, dissolved oxygen, temperature, specific conductivity, total suspended solids, $CBOD_5$, total Kjeldahl nitrogen, nitrite-nitrate, total ammonia nitrogen, total phosphorus, ortho-phosphorus and fecal coliform bacteria.
iv. Bottom (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity and specific conductivity shall be measured at 0.1 meter above the bottom.

d. Secchi Depth: Secchi depth shall be measured at both ambient sites.

e. Ambient Conditions: Air temperature, rainfall, cloud cover and flow direction of receiving water body shall be noted at each sampling site.

f. Chain of Custody: Time/date of sampling and name of persons who obtained the sample shall be noted at each sampling site.

g. Report: A report containing the data from the Ambient Monitoring Program shall be submitted to FDEP's Southwest District outlining the results in electronic format. The report shall also include all chain of custody forms, laboratory results as reported by the laboratory and the physiochemical raw data sheets. *[62-302.300]*

B. Other Limitations and Monitoring and Reporting Requirements

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the treatment facility shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.B.7.:

			Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow, Total Plant	MGD	Max	0.9	Annual Average	Monthly	Calculated	FLW-01	See I.B.4
Flow, Total Plant	MGD	Max Max	Report Report	Monthly Average 3-Month Rolling Average	5 Days/Week	Recording Flow Meter with Totalizer	FLW-01	SeeI.B.4
Percent Capacity, (TMADF/Permitted Capacity) x 100	percent	Max	Report	Monthly Average	Monthly	Calculated	INF-01	
BOD, Carbonaceous 5 day, 20C (Influent)	mg/L	Max	Report	Monthly Average	Monthly	16-hr FPC	INF-01	See I.B.3
Solids, Total Suspended (Influent)	mg/L	Max	Report	Monthly Average	Monthly	16-hr FPC	INF-01	See I.B.3

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2. Samples shall be taken at the monitoring site locations listed in Permit Condition I.B.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-01	Flow meter prior to discharge to Curlew Creek.
INF-01	Influent sampling point at the head works prior to treatment and ahead of the return activated sludge line.

3. Influent samples shall be collected so that they do not contain digester supernatant or return activated sludge, or any other plant process recycled waters. *[62-600.660(4)(a)]*

4. Recording Flow meters and totalizers shall be utilized to measure flow and calibrated at least annually. [*62-600.200(25)*]

5. The sample collection, analytical test methods and method detection limits (MDLs) applicable to this permit shall be conducted using a sufficiently sensitive method to ensure compliance with applicable water quality standards and effluent limitations and shall be in accordance with Rule 62-4.246, Chapters 62-160 and 62-600, F.A.C., and 40 CFR 136, as appropriate. The list of Department established analytical methods, and corresponding MDLs (method detection limits) and PQLs (practical quantitation limits), which is titled "FAC 62-4 MDL/PQL Table (April 26, 2006)" is available at http://www.dep.state.fl.us/labs/library/index.htm. The MDLs and PQLs as described in this list shall constitute the minimum acceptable MDL/PQL values and the Department shall not accept results for which the laboratory's MDLs or PQLs are greater than those described above unless alternate MDLs and/or PQLs have been specifically approved by the Department for this permit. Any method included in the list may be used for reporting as long as it meets the following requirements:

   a. The laboratory's reported MDL and PQL values for the particular method must be equal or less than the corresponding method values specified in the Department's approved MDL and PQL list;

   b. The laboratory reported MDL for the specific parameter is less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Parameters that are listed as "report only" in the permit shall use methods that provide an MDL, which is equal to or less than the applicable water quality criteria stated in 62-302, F.A.C.; and

   c. If the MDLs for all methods available in the approved list are above the stated permit limit or applicable water quality criteria for that parameter, then the method with the lowest stated MDL shall be used.

   When the analytical results are below method detection or practical quantitation limits, the permittee shall report the actual laboratory MDL and/or PQL values for the analyses that were performed following the instructions on the applicable discharge monitoring report.

   Where necessary, the permittee may request approval of alternate methods or for alternative MDLs or PQLs for any approved analytical method. Approval of alternate laboratory MDLs or PQLs are not necessary if the laboratory reported MDLs and PQLs are less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Approval of an analytical method not included in the above-referenced list is not necessary if the analytical method is approved in accordance with 40 CFR 136 or deemed acceptable by the Department. *[62-4.246, 62-160]*

6. The permittee shall provide safe access points for obtaining representative samples which are required by this permit. *[62-600.650(2)]*

7. Monitoring requirements under this permit are effective on the first day of the second month following the effective date of the permit. Until such time, the permittee shall continue to monitor and report in accordance with previously effective permit requirements, if any. During the period of operation authorized by this permit, the permittee shall complete and submit to the Department Discharge Monitoring Reports (DMRs) in accordance with the frequencies specified by the REPORT type (i.e. monthly, quarterly, semiannual, annual, etc.) indicated on the DMR forms attached to this permit. Unless specified otherwise in this permit, monitoring results for each

monitoring period shall be submitted in accordance with the associated DMR due dates below. DMRs shall be submitted for each required monitoring period including periods of no discharge.

REPORT Type on DMR	Monitoring Period	Mail or Electronically Submit by
Monthly	first day of month - last day of month	28th day of following month
Quarterly	January 1 - March 31 April 1 - June 30 July 1 - September 30 October 1 - December 31	April 28 July 28 October 28 January 28
Semiannual	January 1 - June 30 July 1 - December 31	July 28 January 28
Annual	January 1 - December 31	January 28

The permittee may submit either electronic or paper DMR forms before December 21, 2016. As of December 21, 2016, the permittee is required to submit electronic DMR forms.

If submitting electronic DMR forms, the permittee shall use the electronic DMR system approved by the Department (EzDMR) and shall electronically submit the completed DMR forms using the DEP Business Portal at http://www.fldepportal.com/go/. Reports shall be submitted to the Department by the twenty-eighth (28th) of the month following the month of operation. Data submitted in electronic format is equivalent to data submitted on signed and certified paper DMR forms.

If submitting paper DMR forms, the permittee shall make copies of the attached DMR forms, without altering the original format or content unless approved by the Department, and shall mail the completed DMR forms to the Department by the twenty-eighth (28th) of the month following the month of operation at the address specified below:

Florida Department of Environmental Protection
Wastewater Compliance Evaluation Section, Mail Station 3551
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

[62-620.610(18)][62-600.680(1)]

8. Unless specified otherwise in this permit, all reports and other information required by this permit, including 24-hour notifications, shall be submitted to or reported to, as appropriate, the Department's Southwest District Office at the address specified below:

Florida Department of Environmental Protection
Southwest District Office
13051 N Telecom Pkwy
Temple Terrace, Florida 33637-0926
Phone Number - (813) 470-5700
FAX Number - (813) 470-5996
swd_dw@dep.state.fl.us
[62-620.305]

9. All reports and other information shall be signed in accordance with the requirements of Rule 62-620.305, F.A.C.
[62-620.305]

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II. BIOSOLIDS MANAGEMENT REQUIREMENTS

A. Basic Requirements

1. Biosolids generated by this facility may be transferred to a Biosolids Treatment Facility (BTF) or disposed of in a Class I solid waste landfill. Transferring biosolids to an alternative biosolids treatment facility does not require a permit modification. However, use of an alternative biosolids treatment facility requires submittal of a copy of the agreement pursuant to Rule 62-640.880(1)(c), F.A.C., along with a written notification to the Department at least 30 days before transport of the biosolids. *[62-620.320(6), 62-640.880(1)]*

2. The permittee shall monitor and keep records of the quantities of biosolids generated, received from source facilities, treated, distributed and marketed, land applied, used as a biofuel or for bioenergy, transferred to another facility, or landfilled. These records shall be kept for a minimum of five years. *[62-640.650(4)(a)]*

3. Biosolids quantities shall be monitored by the permittee as specified below. Results shall be reported on the permittee's Discharge Monitoring Report for Monitoring Group RMP-Q in accordance with Condition I.B.7.

			Biosolids Limitations		Monitoring Requirements		
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number
Biosolids Quantity (Transferred)	dry tons	Max	Report	Monthly Total	Monthly	Calculated	RMP-1
Biosolids Quantity (Landfilled)	dry tons	Max	Report	Monthly Total	Monthly	Calculated	RMP-2

[62-640.650(5)(a)1]

4. Biosolids quantities shall be calculated as listed in Permit Condition II.3 and as described below:

Monitoring Site Number	Description of Monitoring Site Calculations
RMP-1	Biosolids Quantity (Transferred to Biosolids Treatment Facility)
RMP-2	Biosolids Quantity (Landfilled)

5. The treatment, management, transportation, use, land application, or disposal of biosolids shall not cause a violation of the odor prohibition in subsection 62-296.320(2), F.A.C. *[62-640.400(6)]*

6. Storage of biosolids or other solids at this facility shall be in accordance with the Facility Biosolids Storage Plan. *[62-640.300(4)]*

7. Biosolids shall not be spilled from or tracked off the treatment facility site by the hauling vehicle. *[62-640.400(9)]*

B. Disposal

8. Disposal of biosolids, septage, and "other solids" in a solid waste disposal facility, or disposal by placement on land for purposes other than soil conditioning or fertilization, such as at a monofill, surface impoundment, waste pile, or dedicated site, shall be in accordance with Chapter 62-701, F.A.C. *[62-640.100(6)(b) & (c)]*

C. Transfer

9. The permittee shall not be held responsible for treatment and management violations that occur after its biosolids have been accepted by a permitted biosolids treatment facility with which the source facility has an agreement in accordance with subsection 62-640.880(1)(c), F.A.C., for further treatment, management, or disposal. *[62-640.880(1)(b)]*

10. The permittee shall keep hauling records to track the transport of biosolids between the facilities. The hauling records shall contain the following information:

Source Facility	Biosolids Treatment Facility or Treatment Facility
1. Date and time shipped	1. Date and time received
2. Amount of biosolids shipped	2. Amount of biosolids received
3. Degree of treatment (if applicable)	3. Name and ID number of source facility
4. Name and ID Number of treatment facility	4. Signature of hauler
5. Signature of responsible party at source facility	5. Signature of responsible party at treatment facility
6. Signature of hauler and name of hauling firm	

A copy of the source facility hauling records for each shipment shall be provided upon delivery of the biosolids to the biosolids treatment facility or treatment facility. The treatment facility permittee shall report to the Department within 24 hours of discovery any discrepancy in the quantity of biosolids leaving the source facility and arriving at the biosolids treatment facility or treatment facility.

[62-640.880(4)]

D. Receipt

11. If the permittee intends to accept biosolids from other facilities, a permit revision is required pursuant to paragraph 62-640.880(2)(d), F.A.C. *[62-640.880(2)(a)]*

III. GROUND WATER REQUIREMENTS

1. Section III is not applicable to this facility.

IV. ADDITIONAL REUSE AND LAND APPLICATION REQUIREMENTS

1. Section IV is not applicable to this facility.

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V. OPERATION AND MAINTENANCE REQUIREMENTS

A. Staffing Requirements

1. During the period of operation authorized by this permit, the wastewater facilities shall be operated under the supervision of a(n) operator(s) certified in accordance with Chapter 62-602, F.A.C. In accordance with Chapter 62-699, F.A.C., this facility is a Category I, Class B facility and, at a minimum, operators with appropriate certification must be on the site as follows:

   A Class C or higher operator 8 hours/day for 7 days/week. The 8 hours/day of staffing shall occur during the 8-hour period of greatest influent flow. The lead/chief operator must be a Class B operator, or higher.

   [62-620.630(3)][62-699.310][62-699.311(5)(a)2.] [62-610.462]

2. The lead/chief operator shall be employed at the plant full time. "Full time" shall mean at least 4 days per week, working a minimum of 35 hours per week, including leave time. A licensed operator shall be on-site and in charge of each required shift for periods of required staffing time when the lead/chief operator is not on-site. An operator meeting the lead/chief operator class for the treatment plant shall be available during all periods of plant operation. "Available" means able to be contacted as needed to initiate the appropriate action in a timely manner. *[62-699.311(10), (6) and (1)]*

B. Capacity Analysis Report and Operation and Maintenance Performance Report Requirements

1. The application to renew this permit shall include an updated capacity analysis report prepared in accordance with Rule 62-600.405, F.A.C. *[62-600.405(5)]*

2. The application to renew this permit shall include a detailed operation and maintenance performance report prepared in accordance with Rule 62-600.735, F.A.C. *[62-600.735(1)]*

C. Recordkeeping Requirements

1. The permittee shall maintain the following records and make them available for inspection on the site of the permitted facility.
   a. Records of all compliance monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, including, if applicable, a copy of the laboratory certification showing the certification number of the laboratory, for at least three years from the date the sample or measurement was taken;
   b. Copies of all reports required by the permit for at least three years from the date the report was prepared;
   c. Records of all data, including reports and documents, used to complete the application for the permit for at least three years from the date the application was filed;
   d. Monitoring information, including a copy of the laboratory certification showing the laboratory certification number, related to the biosolids use and disposal activities for the time period set forth in Chapter 62-640, F.A.C., for at least five years from the date of sampling or measurement;
   e. A copy of the current permit;
   f. A copy of the current operation and maintenance manual as required by Chapter 62-600, F.A.C.;
   g. A copy of any required record drawings;
   h. Copies of the licenses of the current certified operators;

i. Copies of the logs and schedules showing plant operations and equipment maintenance for three years from the date of the logs or schedules. The logs shall, at a minimum, include identification of the plant; the signature and license number of the operator(s) and the signature of the person(s) making any entries; date and time in and out; specific operation and maintenance activities, including any preventive maintenance or repairs made or requested; results of tests performed and samples taken, unless documented on a laboratory sheet; and notation of any notification or reporting completed in accordance with Rule 62-602.650(3), F.A.C. The logs shall be maintained on-site in a location accessible to 24-hour inspection, protected from weather damage, and current to the last operation and maintenance performed; and

j. Records of biosolids quantities, treatment, monitoring, and hauling for at least five years.

[62-620.350, 62-602.650, 62-640.650(4)]

VI. SCHEDULES

1. The following improvement actions shall be completed according to the following schedule:

Improvement Action	Completion Date
a. Submit Notification of Completion of Constructions for Wastewater Facilities or Activities, DEP Form 62-620.910(12), prior to placing headworks into operation.	Prior to placing headworks into operation.
b. Submit Notification of Availability of Record Drawings and Final Operation and Maintenance Manuals, DEP Form 62-620.910(13).	Within 6 months of placing headworks into operation.
c. Submit an application for renewal as required in permit Conditions VI.2. a.	At least 180 days before the permit expiration date.

2. The permittee is not authorized to discharge to waters of the state after the expiration date of this permit, unless:

a. The permittee has applied for renewal of this permit at least 180 days before the expiration date of this permit using the appropriate forms listed in Rule 62-620.910, F.A.C., and in the manner established in the Department of Environmental Protection Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620, F.A.C., including submittal of the appropriate processing fee set forth in Rule 62-4.050, F.A.C.; or

b. The permittee has made complete the application for renewal of this permit before the permit expiration date.

Please note, effluent testing shall be conducted for each outfall in accordance with the instructions provided in Sections 3.A.12., 13., and 14. of the application form. A minimum of three samples shall be taken within four and one-half years prior to the date of the permit application and must be representative of the seasonal variation in the discharge from each outfall. *[62-620.335(1) - (4)]*

VII. INDUSTRIAL PRETREATMENT PROGRAM REQUIREMENTS

1. This facility is not required to have a pretreatment program at this time. *[62-625.500]*

VIII. OTHER SPECIFIC CONDITIONS

1. In the event that the treatment facilities or equipment no longer function as intended, are no longer safe in terms of public health and safety, or odor, noise, aerosol drift, or lighting adversely affects neighboring developed areas at the levels prohibited by Rule 62-600.400(2)(a), F.A.C., corrective action (which may include additional maintenance or modifications of the permitted facilities) shall be

taken by the permittee. Other corrective action may be required to ensure compliance with rules of the Department. Additionally, the treatment, management, use or land application of residuals shall not cause a violation of the odor prohibition in Rule 62-296.320(2), F.A.C. *[62-600.410(5) and 62-640.400(6)]*

2. The deliberate introduction of stormwater in any amount into collection/transmission systems designed solely for the introduction (and conveyance) of domestic/industrial wastewater; or the deliberate introduction of stormwater into collection/transmission systems designed for the introduction or conveyance of combinations of storm and domestic/industrial wastewater in amounts which may reduce the efficiency of pollutant removal by the treatment plant is prohibited, except as provided by Rule 62-610.472, F.A.C. *[62-604.130(3)]*

3. Collection/transmission system overflows shall be reported to the Department in accordance with Permit Condition IX. 20. *[62-604.550] [62-620.610(20)]*

4. The operating authority of a collection/transmission system and the permittee of a treatment plant are prohibited from accepting connections of wastewater discharges which have not received necessary pretreatment or which contain materials or pollutants (other than normal domestic wastewater constituents):

   a. Which may cause fire or explosion hazards; or

   b. Which may cause excessive corrosion or other deterioration of wastewater facilities due to chemical action or pH levels; or

   c. Which are solid or viscous and obstruct flow or otherwise interfere with wastewater facility operations or treatment; or

   d. Which result in the wastewater temperature at the introduction of the treatment plant exceeding $40^{o}C$ or otherwise inhibiting treatment; or

   e. Which result in the presence of toxic gases, vapors, or fumes that may cause worker health and safety problems.

   [62-604.130(5)]

5. The treatment facility, storage ponds for Part II systems, rapid infiltration basins, and/or infiltration trenches shall be enclosed with a fence or otherwise provided with features to discourage the entry of animals and unauthorized persons. *[62-600.400(2)(b)]*

6. Screenings and grit removed from the wastewater facilities shall be collected in suitable containers and hauled to a Department approved Class I landfill or to a landfill approved by the Department for receipt/disposal of screenings and grit. *[62-701.300(1)(a)]*

7. Where required by Chapter 471 or Chapter 492, F.S., applicable portions of reports that must be submitted under this permit shall be signed and sealed by a professional engineer or a professional geologist, as appropriate. *[62-620.310(4)]*

8. The permittee shall provide verbal notice to the Department's Southwest District Office as soon as practical after discovery of a sinkhole or other karst feature within an area for the management or application of wastewater, wastewater biosolids (sludges), or reclaimed water. The permittee shall immediately implement measures appropriate to control the entry of contaminants, and shall detail these measures to the Department's Southwest District Office in a written report within 7 days of the sinkhole discovery. *[62-620.320(6)]*

9. The permittee shall provide notice to the Department of the following:

   a. Any new introduction of pollutants into the facility from an industrial discharger which would be subject to Chapter 403, F.S., and the requirements of Chapter 62-620, F.A.C., if it were directly discharging those pollutants; and

   b. Any substantial change in the volume or character of pollutants being introduced into that facility by a source which was identified in the permit application and known to be discharging at the time the permit was issued.

   Notice shall include information on the quality and quantity of effluent introduced into the facility and any anticipated impact of the change on the quantity or quality of effluent or reclaimed water to be discharged from the facility.

   [62-620.625(2)]

10. Reopener Clause:

   a. The permit shall be revised, or alternatively, revoked and reissued in accordance with the provisions contained in Rules 62-620.325 and 62-620.345, F.A.C., if applicable, or to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2) and 307(a)(2) of the Clean Water Act (the Act), as amended, if the effluent standards, limitations, or water quality standards so issued or approved:
      (1) Contains different conditions or is otherwise more stringent than any condition in the permit/or;
      (2) Controls any pollutant not addressed in the permit.
      (3) The permit as revised or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

   b. The permit may be reopened to adjust effluent limitations or monitoring requirements should future Water Quality Based Effluent Limitation determinations, water quality studies, DEP approved changes in water quality standards, or other information show a need for a different limitation or monitoring requirement.

   c. The Department may develop a Total Maximum Daily Load (TMDL) during the life of the permit. Once a TMDL has been established and adopted by rule, the Department shall revise this permit to incorporate the final findings of the TMDL.

   [62-620.325 & 62-620.345]

IX. GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are binding and enforceable pursuant to Chapter 403, Florida Statutes. Any permit noncompliance constitutes a violation of Chapter 403, Florida Statutes, and is grounds for enforcement action, permit termination, permit revocation and reissuance, or permit revision. *[62-620.610(1)]*

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviations from the approved drawings, exhibits, specifications, or conditions of this permit constitutes grounds for revocation and enforcement action by the Department. *[62-620.610(2)]*

3. As provided in subsection 403.087(7), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor authorize any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit or authorization

that may be required for other aspects of the total project which are not addressed in this permit. *[62-620.610(3)]*

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title. *[62-620.610(4)]*

5. This permit does not relieve the permittee from liability and penalties for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted source; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department. The permittee shall take all reasonable steps to minimize or prevent any discharge, reuse of reclaimed water, or residuals use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. *[62-620.610(5)]*

6. If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee shall apply for and obtain a new permit. *[62-620.610(6)]*

7. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control, and related appurtenances, that are installed and used by the permittee to achieve compliance with the conditions of this permit. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to maintain or achieve compliance with the conditions of the permit. *[62-620.610(7)]*

8. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit revision, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. *[62-620.610(8)]*

9. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, including an authorized representative of the Department and authorized EPA personnel, when applicable, upon presentation of credentials or other documents as may be required by law, and at reasonable times, depending upon the nature of the concern being investigated, to:

   a. Enter upon the permittee's premises where a regulated facility, system, or activity is located or conducted, or where records shall be kept under the conditions of this permit;

   b. Have access to and copy any records that shall be kept under the conditions of this permit;

   c. Inspect the facilities, equipment, practices, or operations regulated or required under this permit; and

   d. Sample or monitor any substances or parameters at any location necessary to assure compliance with this permit or Department rules.

   [62-620.610(9)]

10. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data, and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except as such use is proscribed by Section 403.111, F.S., or Rule 62-620.302, F.A.C. Such evidence shall only be

used to the extent that it is consistent with the Florida Rules of Civil Procedure and applicable evidentiary rules. *[62-620.610(10)]*

11. When requested by the Department, the permittee shall within a reasonable time provide any information required by law which is needed to determine whether there is cause for revising, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also provide to the Department upon request copies of records required by this permit to be kept. If the permittee becomes aware of relevant facts that were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be promptly submitted or corrections promptly reported to the Department. *[62-620.610(11)]*

12. Unless specifically stated otherwise in Department rules, the permittee, in accepting this permit, agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard. *[62-620.610(12)]*

13. The permittee, in accepting this permit, agrees to pay the applicable regulatory program and surveillance fee in accordance with Rule 62-4.052, F.A.C. *[62-620.610(13)]*

14. This permit is transferable only upon Department approval in accordance with Rule 62-620.340, F.A.C. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department. *[62-620.610(14)]*

15. The permittee shall give the Department written notice at least 60 days before inactivation or abandonment of a wastewater facility or activity and shall specify what steps will be taken to safeguard public health and safety during and following inactivation or abandonment. *[62-620.610(15)]*

16. The permittee shall apply for a revision to the Department permit in accordance with Rules 62-620.300, F.A.C., and the Department of Environmental Protection Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620, F.A.C., at least 90 days before construction of any planned substantial modifications to the permitted facility is to commence or with Rule 62-620.325(2), F.A.C., for minor modifications to the permitted facility. A revised permit shall be obtained before construction begins except as provided in Rule 62-620.300, F.A.C. *[62-620.610(16)]*

17. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The permittee shall be responsible for any and all damages which may result from the changes and may be subject to enforcement action by the Department for penalties or revocation of this permit. The notice shall include the following information:

    a. A description of the anticipated noncompliance;

    b. The period of the anticipated noncompliance, including dates and times; and

    c. Steps being taken to prevent future occurrence of the noncompliance.

    [62-620.610(17)]

18. Sampling and monitoring data shall be collected and analyzed in accordance with Rule 62-4.246 and Chapters 62-160, 62-600, and 62-610, F.A.C., and 40 CFR 136, as appropriate.

a. Monitoring results shall be reported at the intervals specified elsewhere in this permit and shall be reported on a Discharge Monitoring Report (DMR), DEP Form 62-620.910(10), or as specified elsewhere in the permit.

b. If the permittee monitors any contaminant more frequently than required by the permit, using Department approved test procedures, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

c. Calculations for all limitations which require averaging of measurements shall use an arithmetic mean unless otherwise specified in this permit.

d. Except as specifically provided in Rule 62-160.300, F.A.C., any laboratory test required by this permit shall be performed by a laboratory that has been certified by the Department of Health Environmental Laboratory Certification Program (DOH ELCP). Such certification shall be for the matrix, test method and analyte(s) being measured to comply with this permit. For domestic wastewater facilities, testing for parameters listed in Rule 62-160.300(4), F.A.C., shall be conducted under the direction of a certified operator.

e. Field activities including on-site tests and sample collection shall follow the applicable standard operating procedures described in DEP-SOP-001/01 adopted by reference in Chapter 62-160, F.A.C.

f. Alternate field procedures and laboratory methods may be used where they have been approved in accordance with Rules 62-160.220, and 62-160.330, F.A.C.

[62-620.610(18)]

19. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule detailed elsewhere in this permit shall be submitted no later than 14 days following each schedule date. *[62-620.610(19)]*

20. The permittee shall report to the Department's Southwest District Office any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance including exact dates and time, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

    a. The following shall be included as information which must be reported within 24 hours under this condition:
        (1) Any unanticipated bypass which causes any reclaimed water or effluent to exceed any permit limitation or results in an unpermitted discharge,
        (2) Any upset which causes any reclaimed water or the effluent to exceed any limitation in the permit,
        (3) Violation of a maximum daily discharge limitation for any of the pollutants specifically listed in the permit for such notice, and
        (4) Any unauthorized discharge to surface or ground waters.

    b. Oral reports as required by this subsection shall be provided as follows:
        (1) For unauthorized releases or spills of treated or untreated wastewater reported pursuant to subparagraph IX.20.(a)4. that are in excess of 1,000 gallons per incident, or where information indicates that public health or the environment will be endangered, oral reports shall be provided to the STATE WATCH OFFICE TOLL FREE NUMBER (800) 320-0519, as soon as practical, but no later than 24 hours from the time the permittee becomes aware of the

discharge. The permittee, to the extent known, shall provide the following information to the State Watch Office:
(a) Name, address, and telephone number of person reporting;
(b) Name, address, and telephone number of permittee or responsible person for the discharge;
(c) Date and time of the discharge and status of discharge (ongoing or ceased);
(d) Characteristics of the wastewater spilled or released (untreated or treated, industrial or domestic wastewater);
(e) Estimated amount of the discharge;
(f) Location or address of the discharge;
(g) Source and cause of the discharge;
(h) Whether the discharge was contained on-site, and cleanup actions taken to date;
(i) Description of area affected by the discharge, including name of water body affected, if any; and
(j) Other persons or agencies contacted.

(2) Oral reports, not otherwise required to be provided pursuant to subparagraph IX.20.b.1 above, shall be provided to the Department's Southwest District Office within 24 hours from the time the permittee becomes aware of the circumstances.

c. If the oral report has been received within 24 hours, the noncompliance has been corrected, and the noncompliance did not endanger health or the environment, the Department's Southwest District Office shall waive the written report.

[62-620.610(20)]

21. The permittee shall report all instances of noncompliance not reported under Permit Conditions IX.17., IX.18., or IX.19. of this permit at the time monitoring reports are submitted. This report shall contain the same information required by Permit Condition IX.20. of this permit. *[62-620.610(21)]*

22. Bypass Provisions.

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment works.

b. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless the permittee affirmatively demonstrates that:
(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and
(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
(3) The permittee submitted notices as required under Permit Condition IX.22.c. of this permit.

c. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least 10 days before the date of the bypass. The permittee shall submit notice of an unanticipated bypass within 24 hours of learning about the bypass as required in Permit Condition IX.20. of this permit. A notice shall include a description of the bypass and its cause; the period of the bypass, including exact dates and times; if the bypass has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the bypass.

d. The Department shall approve an anticipated bypass, after considering its adverse effect, if the permittee demonstrates that it will meet the three conditions listed in Permit Condition IX.22.b.(1) through (3) of this permit.

e. A permittee may allow any bypass to occur which does not cause reclaimed water or effluent limitations to be exceeded if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Permit Condition IX.22.b. through d. of this permit.

[62-620.610(22)]

23. Upset Provisions.

a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee.
   (1) An upset does not include noncompliance caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, careless or improper operation.
   (2) An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of upset provisions of Rule 62-620.610, F.A.C., are met.

b. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:
   (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
   (2) The permitted facility was at the time being properly operated;
   (3) The permittee submitted notice of the upset as required in Permit Condition IX.20. of this permit; and
   (4) The permittee complied with any remedial measures required under Permit Condition IX.5. of this permit.

c. In any enforcement proceeding, the burden of proof for establishing the occurrence of an upset rests with the permittee.

d. Before an enforcement proceeding is instituted, no representation made during the Department review of a claim that noncompliance was caused by an upset is final agency action subject to judicial review.

[62-620.610(23)]

Executed in Hillsborough County, Florida.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

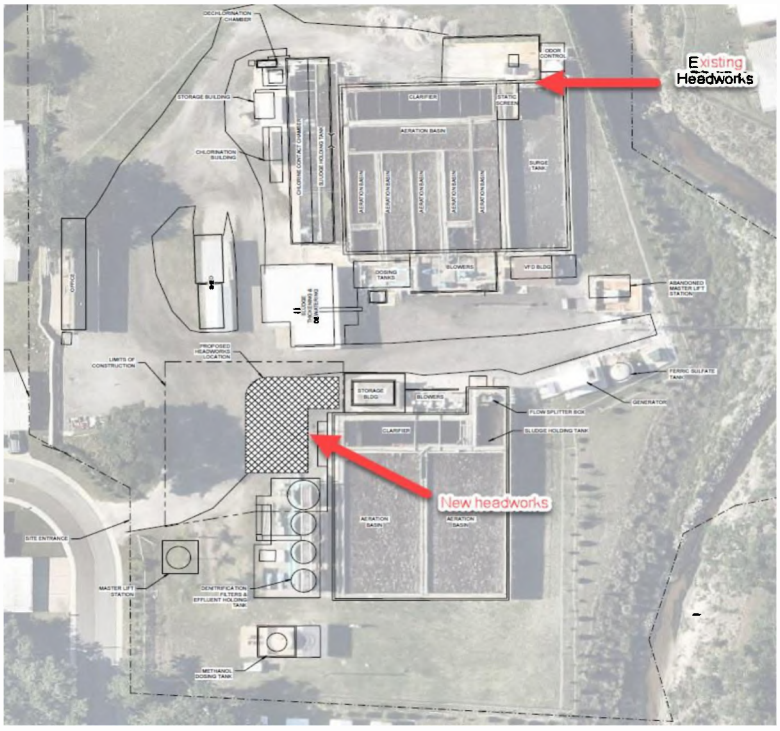
Pamala Vazquez
Program Administrator
Permitting & Waste Cleanup Program
Southwest District

AMENDMENT TO THE FACT SHEET
FOR
STATE OF FLORIDA DOMESTIC WASTEWATER FACILITY PERMIT

PERMIT NUMBER:	FL0034789-014 (Minor)
FACILITY NAME:	Mid-County WWTP
FACILITY LOCATION:	2299 Spanish Vista Drive, Dunedin, Florida 34698-9438 Pinellas County
NAME OF PERMITTEE:	Mid-County Services, Inc.
PERMIT WRITER:	Alexandria Moorehead

I. Comments by the Permittee Requesting Changes to the Permit and Fact Sheet

The permittee requested changes to the current permit for the Mid-County WWTP in correspondence received by the Department on July 7, 2020. The existing headworks structure is reaching the end of its useful service and needs replacement. The proposed headworks and grit removal system were upgraded to provide fine screening and grit removal.



The permit with file number FL0034789-013-DW1P/NR was revised to incorporate the following modification:

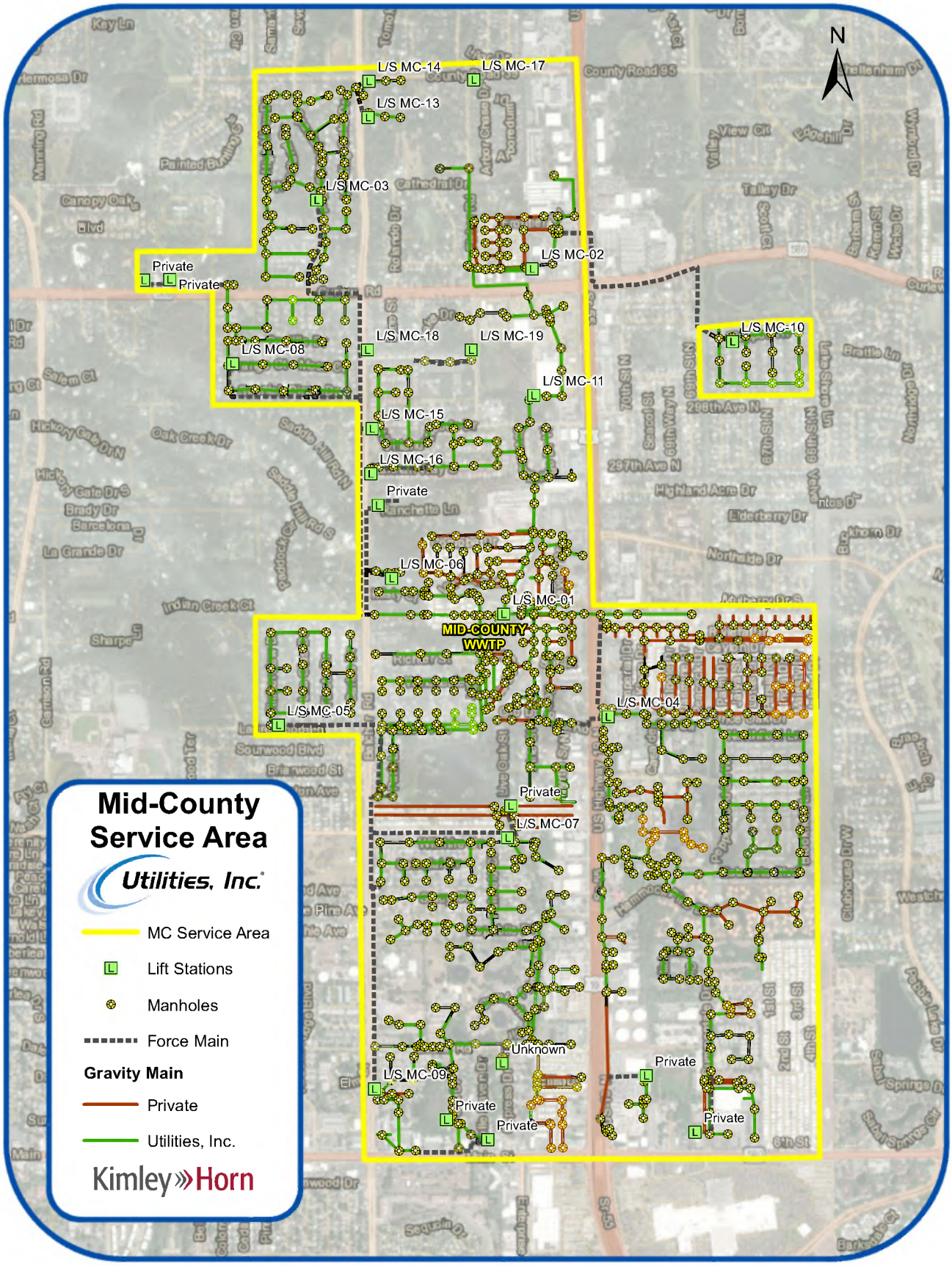
1. Remove the existing static screen and associated grating; and
2. Construct a new headworks including fine screens and a grit removal system.

As a result, the permit description was updated accordingly. Additionally, section VI. Schedules was modified to include the following:

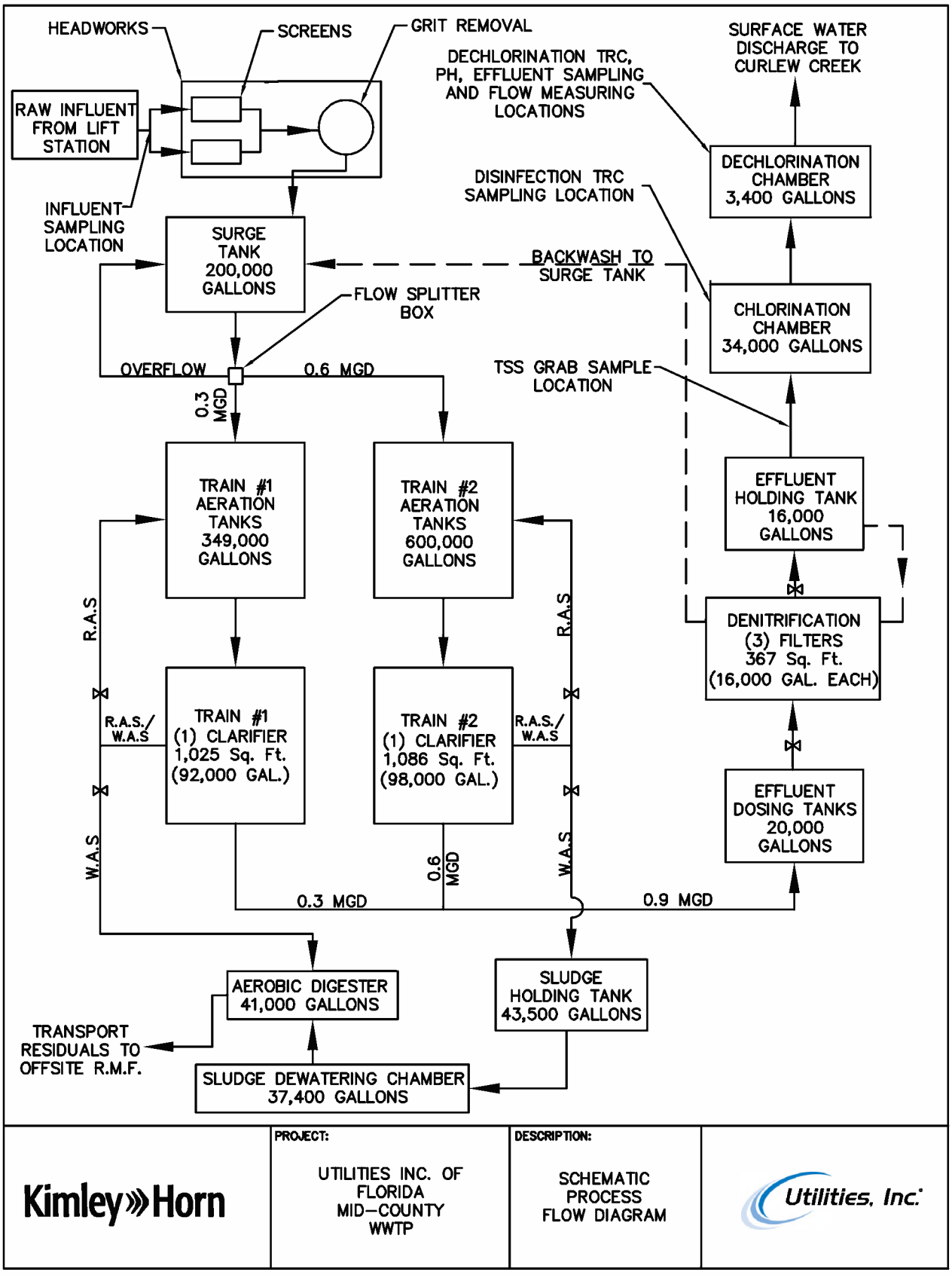
Improvement Action	Completion Date
a. Submit Notification of Completion of Constructions for Wastewater Facilities or Activities, DEP Form 62-620.910(12), prior to placing headworks into operation.	Prior to placing headworks into operation.
b. Submit Notification of Availability of Record Drawings and Final Operation and Maintenance Manuals, DEP Form 62-620.910(13).	Within 6 months of placing headworks into operation.

This revision will become applicable after the proposed construction for the WWTP is completed. Changes to the current permit for the Mid-County WWTP did not substantially change any permit requirements such as flow rating of the plant, treatment type and effluent disposal.

APPENDIX B: Mid-County Service Area Exhibit


N
L/S MC-14
L/S MC-17
L/S MC-13
L/S MC-03
L/S MC-02
Private
Private
L/S MC-08
L/S MC-18
L/S MC-19
L/S MC-10
L/S MC-11
L/S MC-15
L/S MC-16
Private
L/S MC-06
L/S MC-01
MID-COUNTY WWTP
L/S MC-05
L/S MC-04
Private
L/S MC-07
Unknown
L/S MC-09
Private
Private
Private
Private
Mid-County Service Area
Utilities, Inc.
MC Service Area
Lift Stations
Manholes
Force Main
Gravity Main
Private
Utilities, Inc.
Kimley»Horn

APPENDIX C: Flow Schematic Diagram


HEADWORKS
SCREENS
GRIT REMOVAL
RAW INFLUENT FROM LIFT STATION
INFLUENT SAMPLING LOCATION
SURGE TANK 200,000 GALLONS
FLOW SPLITTER BOX
OVERFLOW
0.6 MGD
0.3 MGD
TRAIN #1 AERATION TANKS 349,000 GALLONS
TRAIN #2 AERATION TANKS 600,000 GALLONS
R.A.S
R.A.S./ W.A.S
W.A.S
TRAIN #1 (1) CLARIFIER 1,025 Sq. Ft. (92,000 GAL.)
TRAIN #2 (1) CLARIFIER 1,086 Sq. Ft. (98,000 GAL.)
0.6 MGD
0.3 MGD
0.9 MGD
AEROBIC DIGESTER 41,000 GALLONS
SLUDGE HOLDING TANK 43,500 GALLONS
TRANSPORT RESIDUALS TO OFFSITE R.M.F.
SLUDGE DEWATERING CHAMBER 37,400 GALLONS
DECHLORINATION TRC, PH, EFFLUENT SAMPLING AND FLOW MEASURING LOCATIONS
SURFACE WATER DISCHARGE TO CURLEW CREEK
DECHLORINATION CHAMBER 3,400 GALLONS
DISINFECTION TRC SAMPLING LOCATION
BACKWASH TO SURGE TANK
CHLORINATION CHAMBER 34,000 GALLONS
TSS GRAB SAMPLE LOCATION
EFFLUENT HOLDING TANK 16,000 GALLONS
DENITRIFICATION (3) FILTERS 367 Sq. Ft. (16,000 GAL. EACH)
EFFLUENT DOSING TANKS 20,000 GALLONS
Kimley»Horn
PROJECT:
UTILITIES INC. OF FLORIDA MID-COUNTY WWTP
DESCRIPTION:
SCHEMATIC PROCESS FLOW DIAGRAM
Utilities, Inc.

APPENDIX D: DMR Data Summary 2016 -2020

Date	30 Day ADF (mgd)	3 Mo. ADF (mgd)	12 Mo. ADF (mgd)	Peak (mgd)	Weekly Influent BOD (mg/L)	Weekly Influent TSS (mg/L)	Weekly Effluent BOD (mg/L)	Weekly Effluent TSS (mg/L)	Daily Grab Effluent TSS (mg/L)	Weekly BOD Efficiency (%)	Weekly TSS Efficiency (%)	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	pH Minimum (su)	pH Maximum (su)	Fecal Coliform (#/100mL)	Total Residual Chlorine (for Disinfection) (mg/L)	Total Residual Chlorine (for Dechlorination) (mg/L)	Dissolved Oxygen (mg/L)
Jan 16	0.668	0.677	0.056	0.903	259	330	2.7	1	1	99.07%	99.70%	0.66	0.41	6.7	7.6	1	1.65	0.01	7.3
Feb 16	0.694	0.676	0.114	0.787	310	420	3.05	0.75	1.4	99.02%	99.82%	0.66	0.43	6.9	7.5	1	2.05	0.01	7.1
Mar 16	0.702	0.688	0.172	0.804	230	300	4.35	1	1.2	98.11%	99.67%	4.5	0.8	6.8	7.5	1	1.2	0.01	6.7
Apr 16	0.671	0.693	0.228	0.789	400	320	2.63	1	1.4	99.34%	99.69%	2.38	0.78	6.8	7.5	1	1.3	0.01	6.02
May 16	0.685	0.686	0.285	0.896	270	340	5.3	0.25	1.4	98.04%	99.59%	0.94	0.92	6.8	7.5	1	1.55	0.01	6.83
Jun 16	0.845	0.734	0.355	1.3	430	570	2.16	0.7	2	99.50%	99.88%	1.38	0.59	6.4	7.43	1	1.09	0.01	6.68
Jul 16	0.827	0.786	0.424	1.24	620	330	3.1	0.35	2	99.50%	99.71%	1.44	0.41	6.5	7.44	58	1.4	0.01	6.16
Aug 16	1.022	0.898	0.510	1.75	220	220	2	0.2	1.6	99.09%	99.31%	1.34	0.19	6.5	7.6	2	1.3	0.01	6.21
Sep 16	1.138	1.016	0.609	2.117	220	150	0.75	0.7	1.6	99.66%	99.53%	2.52	0.17	6.3	7.5	1	1.15	0.01	5.6
Oct 16	0.743	0.988	0.671	1.143	210	350	2.25	1	3	99.22%	99.71%	1.62	0.15	6.3	7.8	32	1	0.01	5.66
Nov 16	0.657	0.866	0.726	0.998	180	260	3	0.4	1.8	98.33%	99.85%	0.93	0.32	6.6	7.82	1	1.5	0.01	6.32
Dec 16	0.661	0.687	0.781	1.028	220	250	3.2	0.43	1.6	98.55%	99.83%	1.54	0.77	6.6	7.45	1	1.5	0.01	7.2
Jan 17	0.66	0.659	0.780	1.029	180	260	3.7	1	1.6	97.94%	99.62%	1.44	0.27	6.7	7.5	1	1.2	0.01	7.2
Feb 17	0.674	0.665	0.779	0.74	310	370	4.13	0.7	2.4	98.67%	99.81%	1.11	0.34	6.2	7.32	1	1.5	0.01	7.2
Mar 17	0.663	0.666	0.776	0.732	230	260	5.28	1.08	2.2	97.70%	99.58%	1.71	0.45	6.22	7.3	1	1.5	0.01	7.29
Apr 17	0.673	0.67	0.776	0.754	280	270	2.8	1.9	1.6	99.00%	99.30%	0.8	0.56	6.6	7.2	1	1.4	0.01	6.32
May 17	0.673	0.671	0.775	0.746	210	170	2.15	1.48	9.2	98.98%	99.13%	0.86	0.43	6.4	7.6	1	1.4	0.01	6.5
Jun 17	0.764	0.705	0.768	0.853	410	410	0.84	1.48	18	99.80%	99.64%	0.9	0.58	6.76	7.6	1	1.55	0.01	6.65
Jul 17	0.809	0.751	0.767	0.942	360	170	2.7	0.84	18	98.31%	99.51%	1.39	0.34	6.57	7.7	1	1.3	0.01	5.86
Aug 17	0.841	0.805	0.752	1.155	360	450	2.43	0.8	1.5	99.33%	99.82%	1.52	0.24	6.7	7.6	1	1.5	0.01	6.08
Sep 17	0.967	0.872	0.733	1.287	320	810	2.38	0.6	2	99.26%	99.93%	1.08	0.27	6.49	7.32	1	2	0.01	5.37
Oct 17	0.794	0.867	0.737	0.937	270	280	2.1	0.8	0.9	99.22%	99.71%	2.95	0.31	6.73	7.38	1	1	0.01	6
Nov 17	0.706	0.822	0.741	0.75	140	690	7.8	1.5	1.8	94.43%	99.78%	1.55	0.63	6.96	7.9	1	1.75	0.01	6.1
Dec 17	0.67	0.723	0.742	0.848	880	6100	0.8	2.3	24	99.91%	99.96%	8.1	0.46	7	7.81	48	1.75	0.01	5.8
Jan 18	0.688	0.688	0.744	0.926	290	510	6.34	1.16	4.2	97.81%	99.77%	1.79	0.28	7.08	7.71	1	1.5	0.01	7
Feb 18	0.794	0.717	0.754	0.96	200	300	4.88	1.6	2.2	97.56%	99.47%	0.91	0.45	6.9	7.87	1	1.1	0.01	5.5
Mar 18	0.692	0.725	0.756	0.764	270	180	8.53	1.2	2.2	96.84%	99.33%	0.92	0.51	6.99	7.6	1	1.8	0.01	6.7
Apr 18	0.718	0.735	0.760	0.833	340	170	1.75	0.5	3.6	98.75%	99.71%	1.98	0.33	6.2	7.75	1	1.3	0.01	6.8
May 18	0.74	0.717	0.765	0.9	240	260	4.82	1.48	1.55	97.99%	99.43%	3.48	0.1	6.92	7.36	1	2.2	0.01	6.84
Jun 18	0.747	0.735	0.764	0.821	220	1000	4.30	2.00	1.70	98.05%	99.80%	1.56	0.62	7.04	7.42	1	2.1	0.01	6.92
Jul 18	0.777	0.755	0.761	0.867	230	320	4.40	1.70	1.33	98.09%	99.47%	1.78	0.34	7.17	7.48	1	2.3	0.01	6.73
Aug 18	0.995	0.840	0.774	1.546	180	250	3.30	1.00	1.47	98.17%	99.60%	1.86	0.06	6.72	7.26	1	2.3	0.01	6.75
Sep 18	1.044	0.939	0.780	1.442	61	100	2.48	1.00	1.15	95.94%	99.00%	1.48	0.10	6.69	7.22	1	2.3	0.01	6.90
Oct 18	0.794	0.944	0.780	0.898	120	240	3.17	1.00	1.20	97.36%	99.58%	1.44	0.71	7.13	7.48	1	2.0	0.01	6.84
Nov 18	0.694	0.844	0.773	0.787	190	1	7.30	1	1	96.16%	1.66	1.66	0.64	7.06	7.64	1	2.0	0.01	7.27
Dec 18	0.852	0.780	0.795	1.491	90	58	4.40	1.80	1.40	95.11%	96.90%	0.72	0.11	7.10	7.47	1	2.1	0.01	8.16
Jan 19	0.756	0.767	0.800	0.897	200	200	5.90	1.80	1.67	97.05%	99.10%	1.77	0.60	7.13	7.63	1	2.1	0.01	7.69
Feb 19	0.858	0.822	0.806	1.255	180	150	3.70	3.00	1.60	97.94%	98.00%	0.83	0.34	7.00	7.48	1	2.2	0.01	7.17
Mar 19	0.874	0.829	0.821	1.176	92	180	4.03	1.40	1.10	95.62%	99.22%	0.93	0.10	6.95	7.57	1	1.9	0.01	7.00
Apr 19	0.788	0.840	0.827	0.909	240	190	4.20	1	1.2	97.00%	99.47%	0.86	0.16	6.80	7.44	1	1.9	0.01	7.40
May 19	0.765	0.809	0.829	0.83	150	230	4.50	1.00	1.10	97.00%	99.57%	0.98	0.29	6.87	7.60	1	1.9	0.01	7.53
Jun 19	1.042	0.865	0.853	1.592	150	260	2.00	1.00	1.80	98.67%	99.62%	0.72	0.13	6.85	7.51	1	1.7	0.01	7.75
Jul 19	1.262	1.023	0.894	1.861	210	250	2.00	1.00	1.00	99.05%	99.60%	0.68	0.48	6.89	7.48	1	1.7	0.01	7.39
Aug 19	1.207	1.170	0.911	1.944	140	120	2.00	1.00	1.00	98.57%	99.17%	0.26	0.30	6.63	7.18	1	1.9	0.01	7.27
Sep 19	1.03	1.123	0.893	1.151	110	220	2.00	1	1.00	98.18%	99.55%	0.34	0.05	6.60	7.60	1	1.8	0.01	7.30
Oct 19	0.953	0.989	0.905	1.38	270	130	2.00	1.00	1.00	98.82%	99.83%	0.53	0.05	7.20	7.70	1	1.9	0.01	7.40
Nov 19	0.794	0.871	0.908	0.957	250	290	2.00	1.00	1.00	99.20%	99.57%	2.00	0.05	7.20	7.70	1	1.9	0.01	7.48
Dec 19	0.77	0.788	0.901	0.951	200	230	2.00	1.00	1.00	99.00%	99.43%	0.25	0.05	7.40	7.70	1	1.7	0.01	7.60
Jan 20	0.752	0.752	0.893	0.873	220	190	3.53	1.00	1.00	98.32%	99.43%	0.46	0.07	7.19	7.68	1	2.3	0.01	7.96
Feb 20	0.752	0.755	0.883	0.842	210	250	2.10	1.00	1	99.00%	99.52%	0.35	0.05	7.20	7.61	1	2.2	0.01	7.53
Mar 20	0.708	0.740	0.876	0.93	210	210	2.40	1.00	1.00	98.59%	0.88	0.05	7.28	7.90	1	2.1	0.01	7.42
Apr 20	0.764	0.741	0.876	0.843	150	170	2.00	1.00	1.00	98.67%	0.36	0.05	7.00	7.50	1	2.1	0.01	7.19
May 20	0.978	0.817	0.871	1.484	280	190	2.10	1.00	1.00	99.25%	0.34	0.05	6.98	7.67	1	2.0	0.01	7.09
Jun 20	0.92	0.897	0.842	1.126	250	120	2.18	1	1.00	99.13%	0.53	0.15	7.11	7.59	1	2.0	0.01	6.83
Jul 20	0.897	0.932	0.816	1.156	170	210	2.00	1.00	1.00	98.82%	99.52%	0.775	0.17	7.17	7.68	1	2.0	0.01	6.77
Aug 20	1.126	0.981	0.835	1.553	250	360	2.22	1.00	1.00	99.11%	99.74%	0.59	0.15	7.17	7.53	1	2.2	0.01	6.60
Sep 20	0.839	0.954	0.833	0.914	110	480	2.23	1	1	97.98%	99.79%	0.67	0.43	7.16	7.76	1	2.2	0.01	6.85
Oct 20	0.949	0.971	0.851	1.643	240	400	2.25	1.00	1.00	98.75%	1.785	0.31	7.10	7.64	1	2.0	0.01	7.00
Nov 20	0.756	0.848	0.8501	0.851	200	130	2.20	1	1	98.90%	99.23%	0.515	0.151	7.4	7.9	1.913	0.01	7.352	

Appendix J: Mid-County WWTP PDR

JUNE 2021

Preliminary Design Report

Prepared for:

Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, FL 32714

Prepared by:

Kimley-Horn and Associates, Inc.
Suite 105N
100 Second Avenue South
St. Petersburg, FL 33701

Preliminary Design Report

Mid-County Wastewater Treatment Plant

Pinellas County, Florida

Operating Permit Number: FL0034789
Permit Expiration Date: August 4, 2021
Report Date: June 2021

Prepared For:
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, FL 32714

Prepared By:
Kimley-Horn and Associates, Inc.
100 Second Avenue South, Suite 105N
St. Petersburg, FL 33701

CA 00000696
June 2021
St. Petersburg, Florida
140056022

Certifications

PERMITTEE:

I am fully aware and intend to comply with the recommendations and schedules included in this Preliminary Design Report for the Mid-County WWTP, prepared by Kimley-Horn and Associates, Inc.

5/12/2021
Date

Michael A. Wilson

Michael Wilson
Director, State Operations
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, Florida 32714
Phone: (321) 972-1374

PROFESSIONAL ENGINEER

The information contained in this Preliminary Design Report for the Mid-County WWTP is true and correct to the best of my knowledge. The report was prepared in accordance with sound engineering principles and the permittee is aware of the recommendations and schedules.

06/07/2021
Date

SHELBY NICHOLE HUGHES LICENSE No. 86419 STATE OF FLORIDA PROFESSIONAL ENGINEER 06/07/21

Shelby N. Hughes, P.E.
Florida Registration No. 86419
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EXECUTIVE SUMMARY

Kimley-Horn and Associates (Kimley-Horn) was authorized by Utilities, Inc. of Florida (UIF) to complete a Preliminary Design Report (PDR) for the Mid-County Wastewater Treatment Plant (Mid-County WWTP) for proposed improvements to increase capacity, maintain permitted nutrient removal levels, address the existing process and operational deficiencies, and to provide overall plant reliability and redundancy.

Overall, the Mid-County WWTP is operational; however, it is expected to exceed the permitted capacity within the next five (5) years without expansion. In addition, process redundancy is limited, preventing overall treatment reliability. Due to the plant property limitations and the existing plant configuration, the WWTP cannot be expanded within the site boundary by adding additional treatment tankage volume that would traditionally be constructed in an expansion.

The recommended improvements to the WWTP involve upgrading the facility's primary method of treatment from a conventional extended aeration system to a Membrane Biological Reactor (MBR) system. Switching to an MBR system allows the plant to reallocate the clarifiers and thus reduce the overall footprint required to achieve the new capacity. Kimley-Horn completed an Engineering Analysis to analyze alternatives for each treatment plant component in November 2019. Equipment and installation alternatives were analyzed for the master lift station, headworks, biological treatment process, disinfection, and sludge handling along with MBR system alternatives. Each alternative was evaluated based on capital cost, operation and maintenance requirements, constructability, reliability, and compatibility with an MBR system. This PDR reflects the final selection for equipment and preliminary design for the proposed WWTP improvements. The design parameters for the proposed WWTP improvements are summarized in the table below.

Basis of Design Parameters			
Flow Parameter	**Historical Flow 2018-2020 (GPD)**	**Current Permitted Design Flow (GPD)**	**Proposed Permitted Design Flow (GPD)**
AADF: Annual average daily flow	850,000	900,000	1,200,000
MMADF: Maximum month average daily flow	1,260,000	-	1,800,000
PHF: Peak hourly flow	NA	-	2,880,000
Effluent Parameter	**Design Limit**		
$cBOD_5$	≤ 5 mg/L		
TSS	≤ 5 mg/L		
Total Nitrogen	≤ 3 mg/L		
Total Phosphorous	≤ 1 mg/L		
pH	≥ 6.5 and ≤ 8.5		
High Level Disinfection	FAC Chapter 62-600.440		

Kimley-Horn has completed the design and permitting of the master lift station, headworks and grit removal system. The master lift station replacement was completed in March 2021 and the headworks improvements are currently in construction. Additionally, Kimley-Horn has been authorized to complete the design of the biological treatment process improvement, including the retrofit from extended aeration system to a MBR, that will allow increased treatment capacity within the existing site footprint. Kimley-Horn is also completing the redesign of the disinfection system and sludge dewatering system. The table below shows a timeline for design, permitting, bidding and construction for the proposed improvements.

Expansion Schedule				
Improvement	**Design & Permitting**		**Bidding & Construction**	
	Start	**Completion**	**Start**	**Completion**
Master Lift Station	Complete		July 2020	March 2021
Headworks & Grit Removal	Complete		January 2021	December 2021
MBR Conversion	January 2021	November 2021	November 2021	July 2023

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ABBREVIATIONS

AADF	Annual average daily flow
AWT	Advanced wastewater treatment
CAS	Conventional Activated Sludge
$cBOD_5$	Carbonaceous Biochemical Oxygen Demand
CEC	Contaminant of Emerging Concern
Cf	Cubic feet
EQ	Equalization
Ft	Feet
gpd	Gallons per day
gph	Gallons per hour
gpm	Gallons per minute
HDPE	High-density polyethylene
HGL	Hydraulic Grade Line
Hp	Horsepower
MBR	Membrane biological reactor
MCL	Maximum Containment Level
MG	Million gallons
MGD	Million gallons per day
MLE	Modified Ludzack-Ettinger
MLR	Mixed liquor return
MLSS	Mixed liquor suspended solids
MMADF	Maximum month average daily flow
MPN	Most Probable Number
NaOCL	Sodium hypochlorite
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and maintenance
PHF	Peak Hour Flow
ppd	Pounds per Day
RAS	Return activated sludge
scfm	Standard cubic feet per minute
sf	Square feet
SRT	Solids retention time
TKN	Total Kjeldhal Nitrogen
TRC	Total residual Chlorine
TSS	Total suspended solids
USEPA	United States Environmental Protection Agency
VFD	Variable Frequency Drive
WAS	Waste Activated Sludge
WRF	Water Reclamation Facility
WWTP	Wastewater Treatment Plant

FLOW DEFINITIONS

Average Annual Daily Flow (AADF) – The total volume of wastewater flowing into a wastewater facility during any consecutive 365 days, divided by 365 days and expressed in units of Million Gallons per Day (MGD).

Three-month Average Daily Flow (3MADF) – The total volume of wastewater flowing into a wastewater facility during a period of three consecutive months, divided by the number of days in this three-month period and expressed in units of MGD. The three-month average daily flow can also be calculated by adding the three monthly average daily flows observed during this three-month period and dividing by three. The three-month average daily flow is a rolling average.

Maximum Month Average Daily Flow (MMADF) – The total volume of wastewater flowing into a wastewater facility for the month with the highest flow, divided by the number of days in the month and expressed in units of MGD.

Maximum Day Flow (MDF) – The total volume of wastewater flowing into a wastewater facility for the day with the highest wastewater flow during the year and expressed in units of MGD.

Maximum Day Flow – Wet Weather (MDWWF) – The total volume of wastewater flowing into a wastewater facility for the day with the highest wastewater flow during the year and expressed in units of MGD during abnormal wet weather events.

Maximum Day Flow – Dry Wet Weather (MDDWF) – The total volume of wastewater flowing into a wastewater facility for the day with the highest wastewater flow during the year and expressed in units of MGD excluding wet weather events.

Maximum Week Flow (MWF) – The total volume of wastewater flowing into a wastewater facility for seven consecutive (7) days with the highest wastewater flow, divided by seven (7) days and expressed in units of MGD.

Minimum 24-hour Flow (M24HF) – The total volume of wastewater flowing into a wastewater facility for the day with the lowest wastewater flow during the year and expressed in units of MGD.

Peak Hourly Flow (PHF) – The wastewater flowing into a wastewater facility for the highest peak hour of the year, expressed as a daily flow and in units of MGD.

Dry Weather Period – Defined as the period when the rainfall and groundwater are low.

Wet Weather Period – Defined as the period when rainfall and groundwater levels are high.

TERMS

Biological Nutrient Removal (BNR) – The use of microorganisms to remove nutrients from wastewater.

Biological Oxygen Demand (BOD_5) – The biochemical oxygen demand of wastewater during decomposition occurring over a 5-day period. A measure of the organic content of wastewater.

Carbonaceous Biological Oxygen Demand ($cBOD_5$) – The carbonaceous biochemical oxygen demand of wastewater during decomposition occurring over a 5-day period. A measure of the organic content of wastewater.

Cascade Control – Method of control combining two feedback loops, with the output of one controller (the primary controller) adjusting the set-point of a second controller (the secondary controller).

Conventional Activated Sludge (CAS) – Conventional activated sludge treatment method that commonly includes an aeration tank and secondary clarifier. Aerobic biomass reduces the biochemical oxygen demand (BOD) and ammonia concentrations in the aeration tank. Biomass then flows to the secondary clarifier, where it is separated into clarified water and thickened biomass by gravity sedimentation. The clarified treated water overflows at the top of the secondary clarifier, and the thickened biomass is recycled to the aeration tank or managed with the use of sludge dewatering facilities.

Clarifier – Also known as a settling tank, removes solids from wastewater by gravity settling or by coagulation.

Denitrification – The biological process by which microorganisms reduce nitrate (NO_3) to nitrogen gas (N_2). Denitrification is typically carried out in unaerated (anoxic) wastewater treatment tanks. The microorganisms use the nitrate for energy and, in the process, release nitrogen gas. The nitrogen gas, a major constituent of air, is released into the atmosphere.

Diffused Air – The technique by which air under pressure is forced into the wastewater process in an aeration tank. The air is pumped into the tank through a perforated pipe and moves as bubbles through the aeration tank.

Disposal – The discharge of effluent to injection wells and other facilities utilized strictly for the release of effluents into the environment.

Disinfection – The selective destruction of pathogens in reclaimed water, wastewater effluents, and residuals.

Effluent – The treated liquid that discharges from a treatment plant after completion of the treatment process.

Influent – The water, wastewater, or other liquid flowing into a reservoir, basin or treatment plant, or any unit thereof.

Membrane Bioreactor (MBR) – A term used to define wastewater treatment processes where a membrane (e.g. microfiltration or ultrafiltration) is integrated with a biological process − specifically a suspended growth bioreactor. While the CAS process uses a secondary clarifier or settlement tank for solid/liquid separation, an MBR uses a membrane for this function.

Nitrification – The biological process by which aerobic microorganisms oxidize ammonia (ammonium ions, NH_4^+) to nitrite (NO_2) and then nitrate (NO_3). Nitrification is typically carried out in aerated (oxic) wastewater treatment tanks. Enough oxygen must be supplied in the aerated tanks to meet the carbonaceous and nitrogenous demand.

Nutrients – Elements or compounds essential as raw materials for plant and animal growth and development.

Public Access – An area that is intended to be accessible to the general public; such as golf courses, cemeteries, parks, landscape areas, hotels, motels, and highway medians. Public access areas include private property that is not open to the public-at-large but is intended for frequent use by many persons. Public access areas also include residential dwellings.

Reclaimed water – Water that has received at least secondary treatment and basic disinfection and is reused after flowing out of a domestic wastewater treatment facility.

Residuals – Biosolids. The solid, semisolid, or liquid residue generated during the treatment of domestic wastewater in a domestic wastewater treatment facility, also known as "domestic wastewater residuals" or "residuals." Not included is the treated effluent or reclaimed water from a domestic wastewater treatment plant. Also not included are solids removed from pump stations and lift stations, screenings and grit removed from the preliminary treatment components of domestic wastewater treatment facilities.

Secondary Treatment – The second stage in most wastewater treatment systems in which microorganisms consume the organic matter in wastewater. Regulations define secondary treatment as meeting minimum removal standards for BOD, TSS, and pH in the effluent discharged from municipal wastewater treatment facilities.

Sequencing Batch Reactor (SBR) – A fill-and-draw activated sludge system of wastewater treatment. Wastewater is added to a single "batch" reactor, treated to remove undesirable components, and then discharged. Equalization, aeration, nitrification, denitrification, and clarification can all be achieved using a single batch reactor. Typically requires post-equalization.

Tertiary Filtration – Tertiary filtration provides a final treatment stage to raise effluent quality before it is discharged to the receiving environment. Tertiary treatment is commonly used as a Reclaimed Water technology to meet various regulatory guidelines for water re-use projects. Filtration processes are typically either depth (or packed-bed) filtration or surface filtration. Depth filtration involves the removal of residual suspended solids by passing the liquid through a filter bed comprised of a granular filter medium (e.g., sand). Surface filtration involves the removal of particulate material by mechanical sieving as the liquid passes through a thin septum (i.e., membrane, cloth, or metal medium). Filtration does not remove dissolved solids.

Total Kjeldahl Nitrogen (TKN) – The sum of free ammonia and organic nitrogen compounds in water or wastewater, expressed as elemental nitrogen, N.

Total Suspended Solids (TSS) – Total suspended solids include all particles suspended in water which will not pass through a filter.

Variable Frequency Drive (VFD) – A variable frequency drive is used for adjusting the pumped flow to the actual demand. It controls the frequency of the electrical power supplied to the pump. Significant power savings can be achieved when using a VFD. Also known as adjustable speed drives

1 INTRODUCTION

Kimley-Horn and Associates, Inc. (Kimley-Horn) was authorized by Utilities, Inc. of Florida (UIF) to prepare a Preliminary Design Report (PDR) for the Mid-County Wastewater Treatment Plant (Mid-County WWTP) for proposed improvements to increase capacity, maintain permitted nutrient removal levels, address the existing process and operational deficiencies, and to provide overall plant reliability and redundancy.

The existing Mid-County WWTP is an extended aeration, Type I facility that operates under Operating Permit No. FL0034789 (**Appendix A**). The current operating permit expires August 4, 2021. The Mid-County WWTP is permitted for an annual average daily flow (AADF) of 0.900 million gallons per day (MGD) that is split between two (2) treatment trains; a 0.300 MGD train (North) and a 0.600 MGD train (South). Both treatment trains utilize conventional extended aeration biological treatment, deep bed sand filters, and chlorine contact chambers to provide advanced wastewater treatment (AWT) and high-level disinfection for surface water discharge to Curlew Creek.

1.1 Purpose

This PDR is submitted to the Florida Department of Environmental Protection (FDEP) in support of the operating permit renewal and substantial modifications in a domestic wastewater facility permit application. The purpose of this PDR is to describe the proposed facility improvements and demonstrate that the proposed facility will be reasonably expected not to cause or contribute to a violation of water quality standards. The PDR has been written in accordance with the FDEP *Guidelines to Permitting Wastewater Facilities or Activities under Chapter 62-620 FAC (Effective July 9, 2006)*.

Overall, the Mid-County WWTP is operational; however, its daily flow is expected to exceed the plant's permitted capacity within the next five (5) years without expansion. Per 62-600.405.8(c) FAC, a complete permit application for the necessary expansion, including the PDR herein, is required. In addition, process redundancy is limited, preventing overall treatment reliability. Based on flow projections, the proposed re-rated plant capacity will be 1.200 MGD AADF. The current permitted nutrient limits will be maintained in the proposed process improvements.

2 BACKGROUND & EXISTING CONDITIONS

2.1 Collection System

The Mid-County WWTP is located at 2299 Spanish Vistas Drive, Dunedin, FL. The facility treats wastewater from a service area consisting of primarily single and multi-family residential properties and commercial properties along US 19 from SR 580 to the intersection of CR 39 and CR 95 in Pinellas County. An exhibit of the Mid-County Service Area showing the sanitary sewer system is included in **Figure 1** below. A summary of the sanitary sewer collection system that discharges to the Mid-County WWTP is shown in **Table 1**.

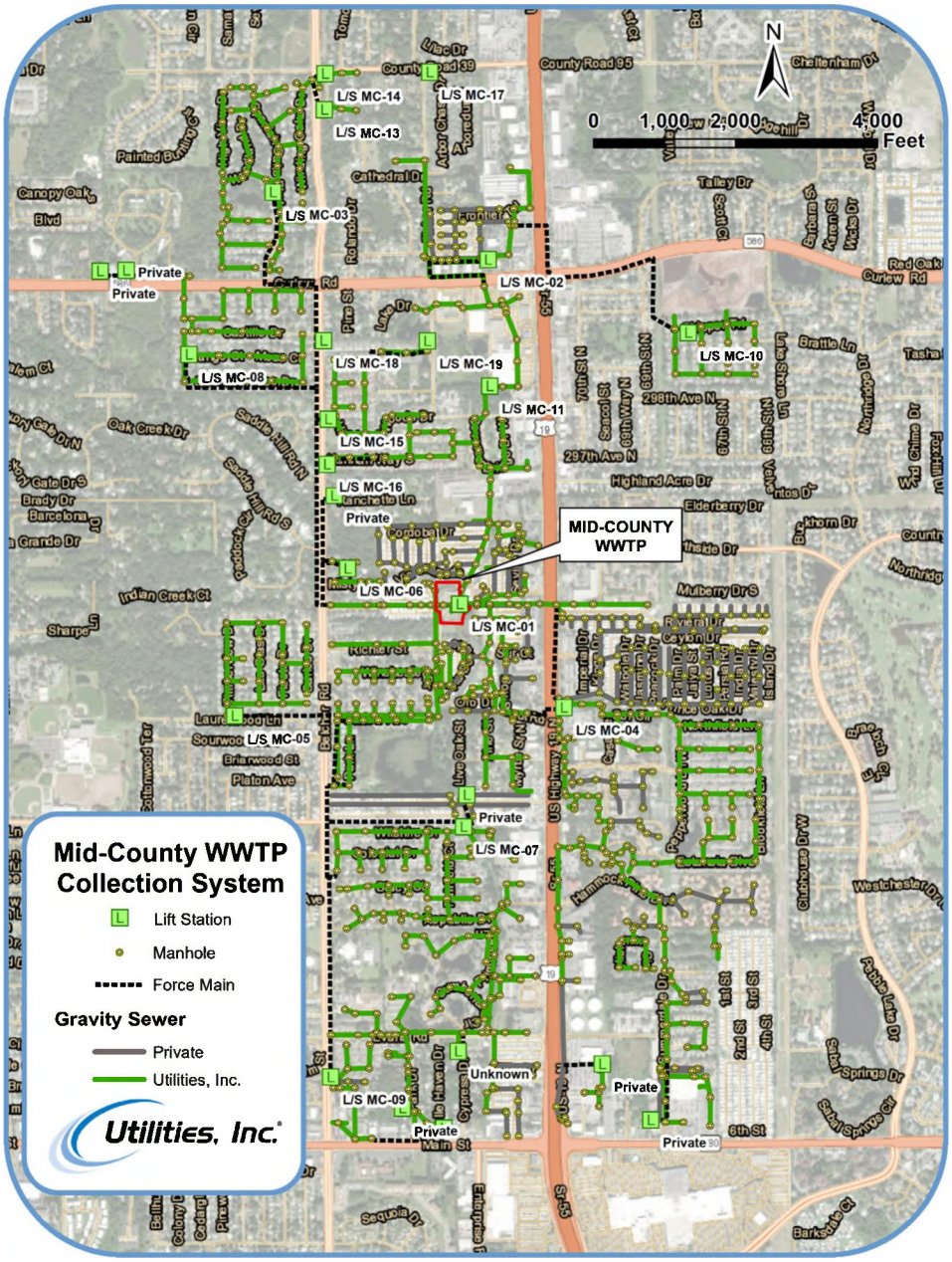
Table 1: Mid-County Collection System

Asset	UIF	Private	Total
Lift Stations	19	8	27
Force Main (2 – 8-inch)			6.02 Miles
Gravity Main (6 – 10-inch)	25.3 Miles	10.5 Miles	35.8 Miles
Wastewater Connections[1]			2,276

[1] Wastewater connections are estimated based on Pinellas County billing data

The existing gravity collection system was mainly constructed in the 1970's. The system is primarily composed of vitrified clay pipe (VCP) and is impacted by inflow and infiltration (I&I) during the wet weather season. UIF is implementing an annually funded rehabilitation program to reduce I&I throughout the collection system using cured-in-place pipe (CIPP) lining and manhole restoration methods.

Figure 1: Mid-County WWTP Collection System



2.2 Existing Facility

As stated previously, the Mid-County WWTP is currently permitted for 0.900 MGD AADF. The facility is permitted to discharge 0.900 MGD AADF into Curlew Creek (WBID 1538A), a Class III Fresh Water body. The Mid-County WWTP is a Type 1, advanced wastewater treatment facility with high level disinfection.

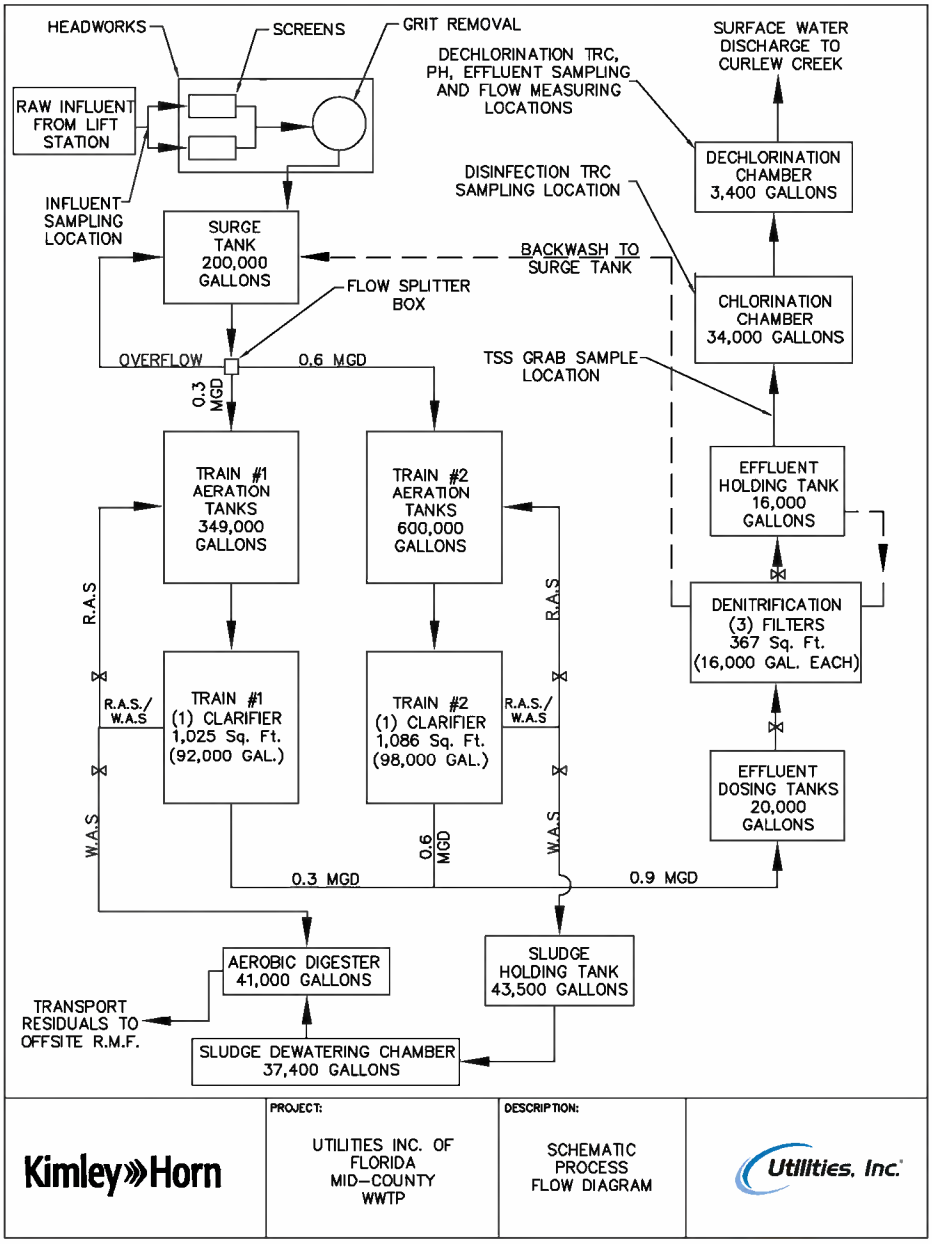
The master lift station was placed into service in March 2021; the headworks and grit removal system was permitted in October 2020 and is anticipated to be placed into service in December 2021. A summary of the existing Mid-County WWTP process components and associated capacity is shown in **Table 2** below.

Table 2: Existing Plant Components

Treatment Stage		Equipment	Capacity	Total Volume/ Surface Area
Pre-Treatment		Master Lift Station (Duplex)	2,000 GPM	-
		Fine Screens	3.0 MGD	-
		Grit Removal	3.0 MGD	-
		Surge Tank	90,000 Gal	200,000 Gal
		Flow Splitter Box	-	-
Biological	North Train	(6) Aeration Basins	0.3 MGD (ADF)	349,000 Gal
		Clarifier		92,000 Gal
	South Train	(2) Aeration Basins	0.6 MGD (ADF)	600,000 Gal
		Clarifier		98,000 Gal
Denitrification/Filtration		(4) Dosing Tanks	-	20,000 Gal
		(3) Denitrification Filters	1.1 MGD (ADF)	367 SF
		Effluent Holding Tank	15,000 Gal	16,000 Gal
Disinfection		Chlorination Chamber	-	34,000 Gal
		Dechlorination Chamber	-	3,400 Gal
Biosolids		Aerobic Digester (North Train)	-	41,000 Gal
		Aerobic Digester (South Train)	-	43,500 Gal
		Sludge Dewatering Chamber	-	37,400 Gal

The existing schematic process flow diagram of the existing Mid-County WWTP is shown in **Figure 2.** The flow schematic shows the addition of the new headworks including the fine screens and grit removal system.

Figure 2: Existing Mid-County WWTP Process Flow Diagram



2.3 Historical Flows

Mid-County WWTP Discharge Monitoring Reports (DMRs), which are monthly self-monitoring reports as required by FDEP, were utilized for historical flow and sampling data. See **Appendix B** for the DMR Data Summary from January 2016 to December 2020. The DMR data includes the following flow scenarios for the respective reporting period:

- Monthly average daily flows (January 2016 – December 2020)
- Three-month average daily flows (January 2016 – December 2020)
- Annual average daily flows (January 2016 – December 2020)

The DMR flow data was collected using the onsite effluent ultrasonic flow meter located before the discharge to Curlew Creek. The onsite flow meter was recently calibrated in March 2021. The minimum and maximum monthly average daily flows, three-month average daily flows, and annual average daily flows are summarized in **Table 3** below. The average AADF from 2016 – 2020 is approximately 0.814 MGD or 90% of the permitted capacity.

Table 3: Mid-County Historical Flow Summary

Flow Scenario		Flow (MGD)	Year
Monthly Average Daily Flow (MADF)	Min	0.657	2016
	Max	1.262	2019
Three-Month Average Daily Flow (3MADF)	Min	0.659	2017
	Max	1.170	2019
Annual Average Daily Flow (AADF)	Min	0.714	2017
	Average	0.814	2016-2020
	Max	0.901	2019

Historical flow data is represented graphically in **Figure 3** below. Based on these data, the facility operates at an average of 90% of its permitted capacity annually and exceeded the permitted AADF capacity in 2019. The historical AADF (or 12-month ADF) trend shows an approximate 2% annual increase. The 30-day (or monthly) ADF consistently peaks during wet weather months.

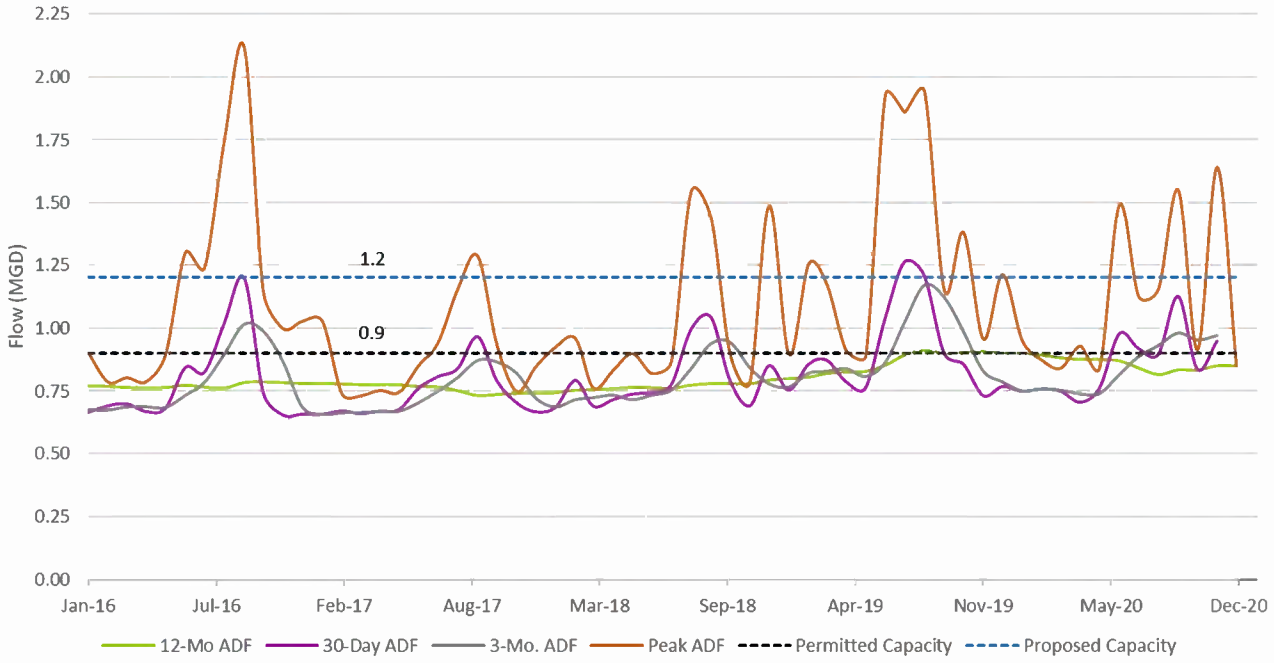


Figure 3: Mid-County WWTP Historical Flow

2.4 Effluent Parameters

As included in the Mid-County WWTP Operating Permit, the effluent parameters and their respective monitoring limitations are summarized in **Table 4**.

Table 4: Permit Effluent Limitations

Parameter	Min/Max	Limitation	Condition
Flow to Discharge	Max	0.9 MGD	Annual Average
BOD_5 & TSS	Max	5.0 mg/L	Annual Average
	Max	6.25 mg/L	Monthly Average
	Max	10.0 mg/L	Single Sample
Total Nitrogen	Max	3.0 mg/L	Annual Average
	Max	3.75 mg/L	Monthly Average
	Max	6.0 mg/L	Single Sample
Total Phosphorous	Max	1.0 mg/L	Annual Average
	Max	1.25 mg/L	Monthly Average
	Max	2.0 mg/L	Single Sample
pH	Min	6 S.U.'s	Single Sample
	Max	8.5 S.U.'s	Single Sample
Fecal Coliform (% less than detection)	Min	0.75 S.U.'s	Monthly Total
Fecal Coliform	Max	25 #/100mL	Single Sample
Chlorine (Total Residual for Disinfection)	Min	1.0 mg/L	Single Sample
Chlorine (Total Residual for Dechlorination)	Max	0.01 mg/L	Single Sample
Dissolved Oxygen	Min	5.0 mg/L	Single Sample

As required by the current operating permit, the Mid-County WWTP staff monitors and submits monthly effluent levels of the parameters listed above. Per the DMR data from 2016-2020, **Table 5** shows a summary of the annual average effluent levels for loading parameters monitored on an annual basis. See **Appendix B** for the DMR Data Summary from January 2016 to December 2020. The annual average effluent results do not exceed the permitted limitations.

Table 5: Annual Average Effluent Monitoring Results

Year	Effluent BOD5	Effluent TSS	Total Nitrogen	Total Phosphorous
	Annual Average (mg/L)	Annual Average (mg/L)	Annual Average (mg/L)	Annual Average (mg/L)
	Limit: 5.0 mg/L	*Limit: 5.0 mg/L*	*Limit: 3.0 mg/L*	*Limit: 1.0 mg/L*
2016	2.87	0.70	1.66	0.49
2017	3.09	1.21	1.95	0.41
2018	4.64	1.29	1.63	0.35
2019	3.03	1.27	0.88	0.22
2020	2.27	1.00	0.74	0.14

3 PERMITTING REQUIREMENTS

3.1 Permitting Wastewater Facilities Requirements

To facilitate the regulatory review process, the required information from the *Guidelines to Permitting Wastewater Facilities* is summarized in **Table 6** with applicable PDR sections referenced:

Table 6: Guidelines to Permitting Wastewater Facilities Requirements

FDEP Guidelines to Permitting Wastewater Facilities Requirements	***Reference Section***
Population - current and design year projections for the population to be served	Section 4.1
Description and map of service area and land use projections for the current and design years	See Figure 2 Section 2.1
Forecasts of flow and wastewater characteristics for current and design years of:	
Physical, chemical, and biological characteristics and concentrations;	Section 4.4
Wastewater flow patterns described in terms of maximum monthly average daily flow, three-month average daily flow, annual average daily flow, maximum daily flow, minimum 24-hour flow and peak hourly flow during current and design years;	Section 4.3
Domestic, industrial, and infiltration/inflow contributions	Section 4.3
Site plan showing operations and unit processes; 100-year and 25-year flood elevations; approximate finish elevations for all major treatment units, pumping stations, and sanitary manholes; and a stormwater management plan;	See Figure 5 Section 6.1
An assessment of environmental effects of the project, including odor and noise control, public accessibility, proximity to existing and proposed residential areas, flood protection, lighting, and aerosol drift	Section 6.0
Disposal methods or reuse options selected;	Section 5.7
Required levels of treatment;	Section 4.5
Selected treatment processes;	Section 5.0

Table 6: Guidelines to Permitting Wastewater Facilities Requirements	
FDEP Guidelines to Permitting Wastewater Facilities Requirements	***Reference Section***
Technical information and design criteria for treatment facilities, including:	
Hydraulic and organic loadings - minimum, average, and maximum quantities for the liquid and solids treatment processes	Section 4.3 Section 4.4
Flow metering and sampling provision	Section 5.2.2 Section 5.7.1
Recycle flows within the treatment plant	Section 5.4.1
Chemical addition facilities, including disinfection and technical information addressing dechlorination, if applicable	Section 5.4.1 Section 5.5 Section 5.6
Removals, reclaimed water or effluent concentrations with separate tabulation for each unit handling solid and liquid fractions with supporting data including design calculations –	Appendix C, Preliminary Biological Treatment Process Design Calculations and Mass Balance
Documentation supporting chlorine doses and residuals and contact times used as the basis of design, if chlorine is used for disinfection, and –	Section 5.6
Residuals treatment, management, and disposal including on-site storage needs or alternate disposal methods –	Section 5.8
Process diagrams, including: Expected dimensions of unit operations and processes, capacities and volumes,	
Process configuration,	See Figure 6
Hydraulic profile,	See Figure 7
Organic loading profile,	Appendix C, Preliminary Biological Treatment Process Design Calculations and Mass Balance

Table 6: Guidelines to Permitting Wastewater Facilities Requirements	
FDEP Guidelines to Permitting Wastewater Facilities Requirements	***Reference Section***
Solids profile,	Appendix C, Preliminary Biological Treatment Process Design Calculations and Mass Balance
Solids control system, and	Appendix C, Preliminary Biological Treatment Process Design Calculations and Mass Balance
Flow diagram with capacities;	Appendix C, Preliminary Biological Treatment Process Design Calculations and Mass Balance
Operation and control strategies included for prevention of upsets	Section 7.0
Alternate disposal methods	Section 5.7
Reliability classification and features	Section 7.2
Design information for outfalls discharging to coastal or open ocean waters	Not Applicable
Design information for all outfalls discharging to surface waters –	Section 5.7
Additional requirements for the preliminary design report are:	
For reuse of reclaimed water and land application systems –	Not Applicable
For new Class I and V underground injection facilities or modification of such facilities –	Not Applicable
For residuals management and land application –	Not Applicable
For wetlands treatment and discharge systems –	Not Applicable

4 DESIGN WASTEWATER FLOW & CHARACTERISTICS

4.1 Projected Population

The Mid-County WWTP serves approximately 1,600 acres of commercial, single, and multi-family residential properties with approximately 2,276 wastewater connections within unincorporated Pinellas County. Wastewater connections were verified using Pinellas County water billing data. Based on the Pinellas County property appraiser, there are approximately 4,984 tax parcels within the service area. According to the existing land use parcel data, approximately 89 parcels are vacant.

According to the ESRI Time Series Profile and Community Profile Projections based on U.S. Census Bureau, Census 2010, the Mid-County service area population grew from 10,144 in 2016 to 10,331 in 2020, representing an average annual growth rate of approximately 0.5%. Based on this source, the annual growth rate from 2020 to 2025 is anticipated to be 0.41%. **Table 7** below shows the historical population and population projections for the next 5 years compared to the AADF at the plant and the gallons per day per capita. The projected flows utilize the per capita average from 2018 – 2020 to better reflect the current per capita flow rate.

Table 7: Population Projection

Year	Estimated Population	AADF (MGD)
2016	10,144	0.7811
2017	10,180	0.7417
2018	10,221	0.7946
2019	10,231	0.9013
2020	10,331	0.8501
2021	10,373	0.858
2022	10,416	0.861
2023	10,459	0.865
2024	10,501	0.869
2025	10,545	0.872

While the service area is primarily built-out, additional connections and redevelopment of this area has contributed to the increase of the AADF recorded at the WWTP. Additionally, the Mid-County WWTP experiences seasonal variations in flow due to I&I within the wastewater collection system. UIF is actively investigating I&I sources and is improving the condition of the collection system to reduce overall plant flows through I&I abatement, however, the anticipated reduction in flow rates to the WWTP do not alleviate the need to increase the plant's treatment capacity.

4.2 Flow Projection

The projected flows were evaluated using two methods. The first method analyzed the per capita flow rate based on population density increases and the development of vacant parcels extrapolated over five years. The second method averaged the increase in annual average daily flow at the WWTP from 2016 to 2020 and assumed a linear increase for 2021 – 2025. **Figure 4** below shows the flow projections from 2016 to 2020 for both flow projection methods.

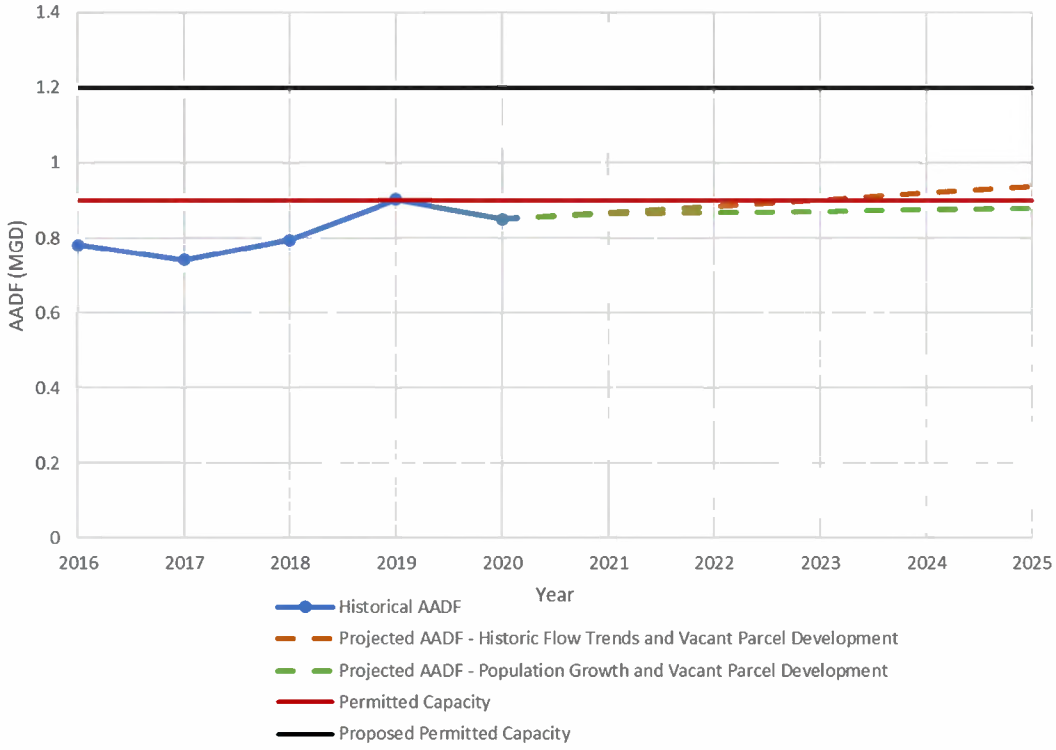


Figure 4: Historical and Projected AADF vs Permitted Capacity

As shown in the above projections, the Mid-County WWTP is expected to exceed the permitted capacity of 0.9 MGD AADF within the next five years based on a linear annual average increase in flow.

Table 8 below summarizes the most conservative flow projection (based on historical flow trends and vacant parcel development) compared to the existing and proposed plant capacity.

Table 8: AADF Flow Projection

Year	Projected AADF (MGD)	Percent of Existing Plant Capacity (0.9 MGD)	Percent of Proposed Plant Capacity (1.2 MGD)
2021	0.873	97.0%	72.8%
2022	0.891	99.0%	74.2%
2023	0.908	100.9%	75.7%
2024	0.926	102.9%	77.2%
2025	0.945	105.0%	78.7%

4.3 Design Flow Parameters

Based on the analysis of historical WWTP flow and the projected flow within the Mid-County service area, process improvements to increase the plant's permitted capacity is recommended. The proposed plant capacity is 1.200 MGD AADF, a 33% increase from the existing permitted flow.

Table 9 below summarizes the historical influent flow rate and peaking factors compared to the projected influent flow rate conditions that were used for the expansion design criteria.

Table 9: Influent Flow Design Parameters

Flow Parameter	Historical Flow 2018-2020 (GPD)	Historical Peak Factors	Design (GPD)	Design Peak Factors
AADF: Annual average daily flow	850,000	NA	1,200,000	NA
3MADF: Three-month average daily flow	819,000	0.96	1,380,000	1.15
MMADF: Maximum month average daily flow	1,260,000	1.48	1,800,000	1.50
MDF: Maximum daily flow	1,940,000	2.28	2,400,000	2.00
M24HF: Minimum 24-hour flow	600,000	0.71	847,059	0.71
PHF: Peak hourly flow	NA	NA	2,880,000	NA

It is expected that residential and commercial customers, as currently permitted, will remain as the main contributors to the wastewater flow received by the WWTP. Addition of industrial waste discharges is not anticipated in the Mid-County service area. Although UIF is currently implementing programs to reduce impacts of I&I within the collection system, historical peak flow rates were considered in the design of the proposed treatment plant improvements.

4.4 Design Loading Characteristics

A combination of historical sampling data and typical raw wastewater characteristics for domestic wastewater uninfluenced by industrial flow were used to establish the design influent loadings.

Table 10 below summarizes the projected influent concentrations and mass loading conditions that were used for the design criteria of the WWTP improvements. It should be noted that the projected mass loading conditions were based on the proposed permitted capacity of 1.200 MGD AADF.

Table 10: Design Influent Constituent and Loading Data

Influent Constituent Data	Low	High	Average
$cBOD_5$ (mg/L)	100	300	192
$cBOD_5$ (lbs/day)	1,001	3,002	1,922
TSS (mg/L)	100	350	230
TSS (lbs/day)	1,001	3,503	2,302
Total Nitrogen (mg/L)	25	72	49
Total Nitrogen (lbs/day)	250	721	490
Total Phosphorus (mg/L)	4.0	8.0	6.5
Total Phosphorus (lbs/day)	40	80	65
pH	6.0	8.5	7.25
Temperature (deg C)	20	28	24

4.5 Effluent Discharge Basis of Design Criteria

The following effluent discharge criteria is expected to be maintained from the existing operating permit and was utilized for the proposed treatment process design. **Table 11** below summarizes the effluent discharge basis of design criteria.

Table 11: Effluent Discharge Basis of Design Criteria

Parameter	Permitted Effluent Limit
$cBOD_5$	≤ 5 mg/L
TSS	≤ 5 mg/L
Total Nitrogen	≤ 3 mg/L
Total Phosphorus	≤ 1 mg/L
High Level Disinfection	FAC Chapter 62-600.440(6)
pH	≥ 6.5 and ≤ 8.5

5 DESCRIPTION OF PROPOSED FACILITIES

Based on the established basis of design criteria, the proposed improvements to the WWTP will utilize a 5-stage membrane bioreactor (MBR) Bardenpho process designed for advanced nutrient removal with the ability to achieve effluent discharge parameters within the existing plant footprint. The intent of the proposed improvements is to increase the plant's hydraulic capacity, maintain permitted effluent limits, address existing process and operational inefficiencies, and provide increased overall plant reliability within the existing plant footprint.

5.1 Unit Process Selection

The WWTP will employ treatment technologies designed to provide effluent quality that meets or exceeds the existing permitted effluent limits. The WWTP will have a high degree of reliability and safeguards designed to provide consistent quality under the full range of flow conditions. Proposed treatment process components include:

- Master Lift Station (complete)
- Headworks Structure (in construction)
    - Fine Screening System
    - Screening Washing and Compaction
    - Grit Removal
    - Grit Classification
- Flow Equalization
- 5-Stage MBR Bardenpho Biological Treatment
- Membrane Filtration (Immersed Membrane Bioreactors)
- High Level Disinfection
- Aerated Sludge Holding
- Biosolids Dewatering

The preliminary site plan is shown in **Figure 5** below and provides an overview of the proposed plant improvements. The process flow diagram shown in **Figure 6** provides an overview of the major treatment components. The preliminary hydraulic profile is shown in **Figure 7**.

Figure 5: Proposed Mid-County WWTP Site Plan

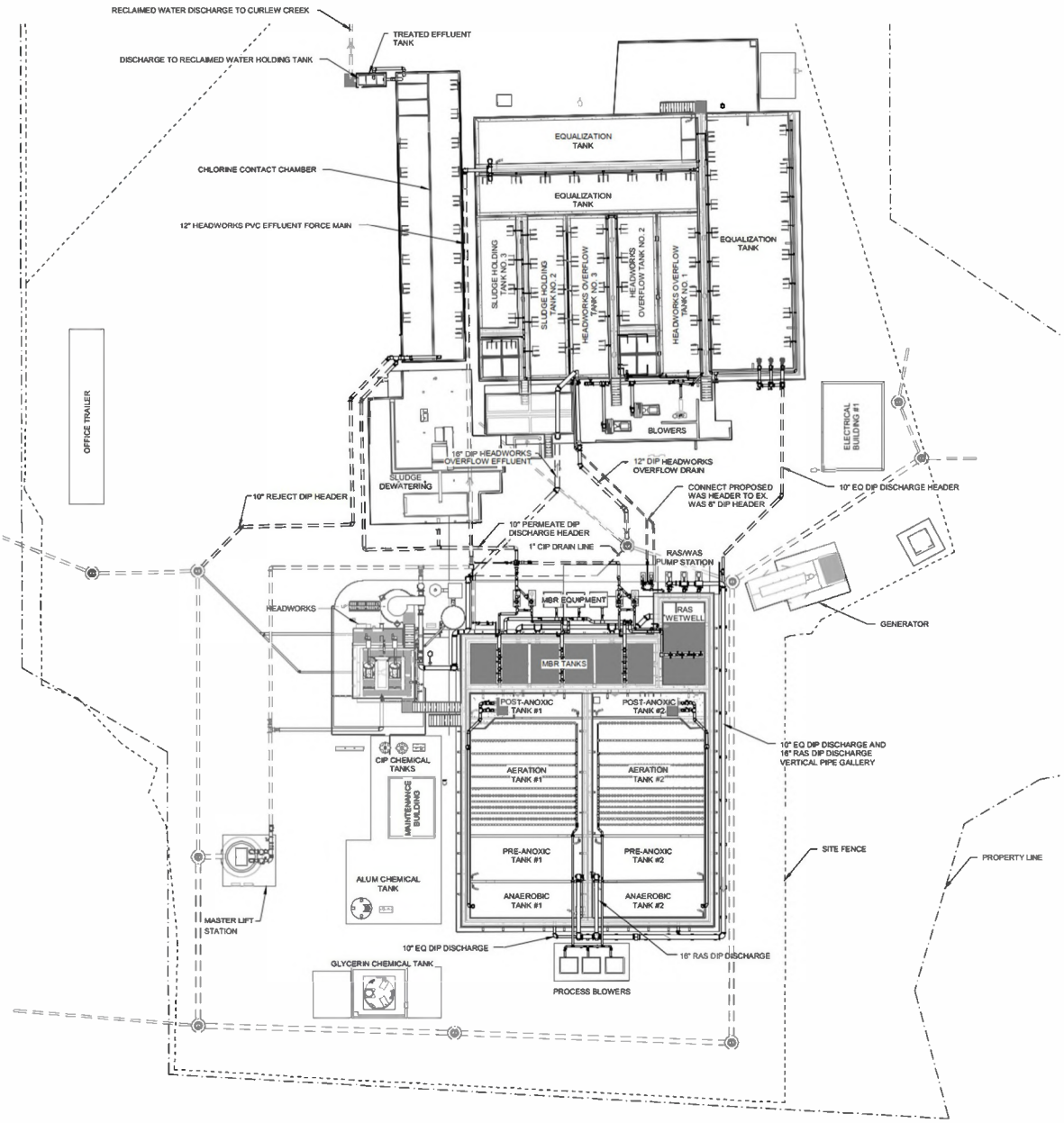


Figure 6: Proposed Improvements Process Flow Diagram

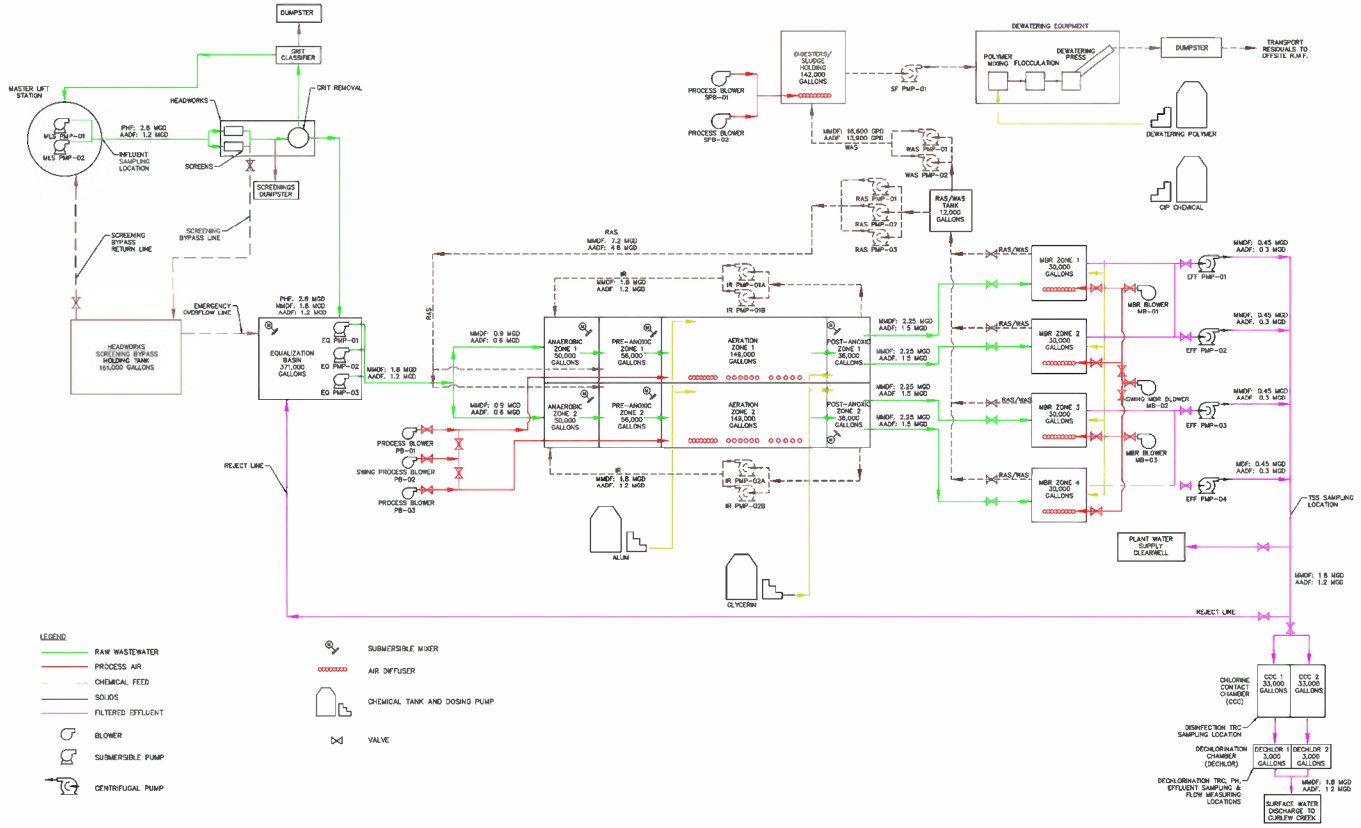
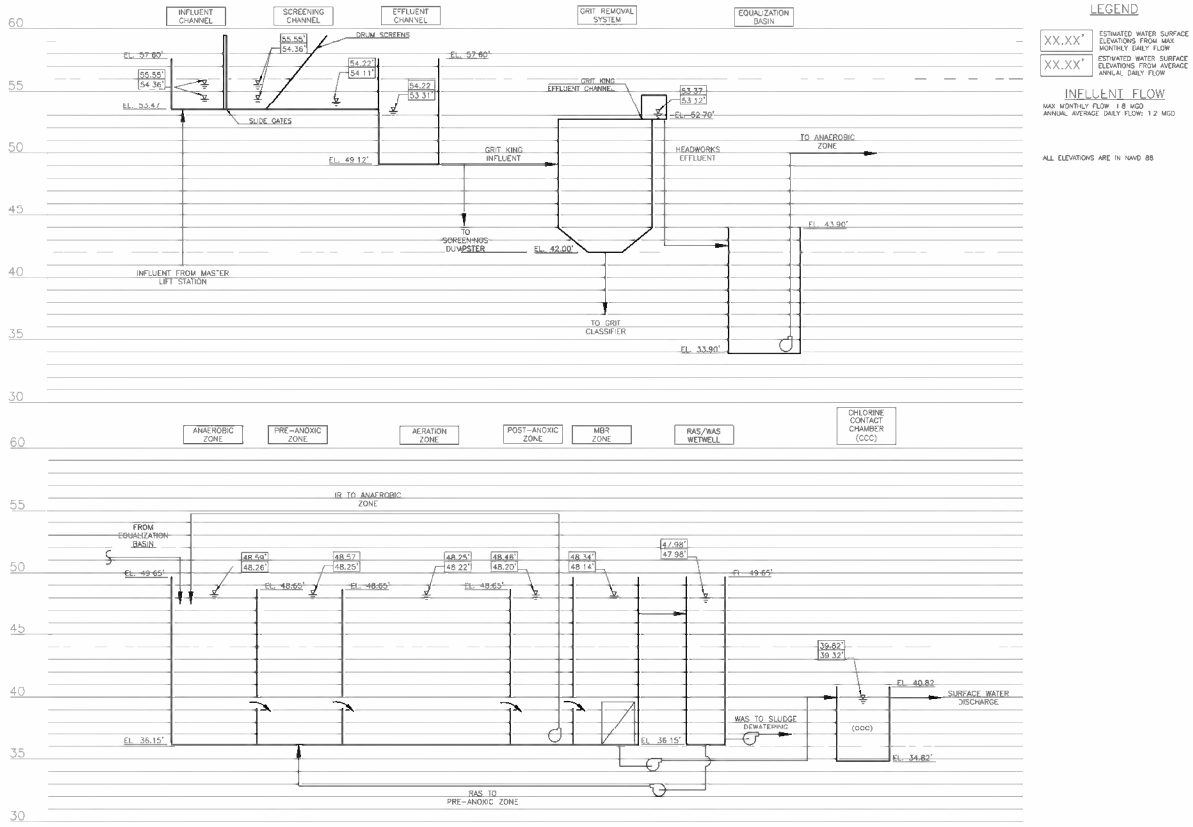


Figure 7: Preliminary Hydraulic Profile



5.2 Preliminary Treatment: Master Lift Station and Headworks

Raw wastewater from the collection system will be received by the onsite master lift station. The lift station will discharge to the headworks, where wastewater will be screened prior to entering the biological treatment process to remove items such as rags, fibers, and other debris. Influent screening and grit removal protects the downstream treatment processes and equipment, assists in maximizing the associated treatment efficiency, and minimizes downstream operational and maintenance issues. Improvements to the master lift station were completed in March 2021 and the headworks improvements are currently under construction. The design information is included below for reference.

5.2.1 Master Lift Station

Kimley-Horn completed the design of the master lift station replacement in 2020. Since the proposed master lift station was a replacement of an existing master lift station on site, the master lift station replacement was exempt from FDEP permitting. The lift station is a duplex submersible station with two (2) FLYGT NP 3202 45 HP pumps with a design point of 2,000 GPM @ 50 FT total dynamic head (TDH). The new lift station components include a 10-foot diameter wet well, mechanical piping, rails, control panels, variable frequency drives (VFDs), pressure transducer, aboveground valves, associated fittings and appurtenances, and a built-in bypass header pipe and above ground bypass port.

The new master lift station was placed into service in March 2021. During the initial phase of operation, the VFDs will be utilized to ensure the capacity of the downstream processes is not exceeded. The new master lift station meets all applicable requirements of FAC 62-600.400. Adequate and up to date safety features were integrated into the design of the lift station including fall protection grating.

5.2.2 Influent Flow Measurement and Sampling

Influent flow will be measured via electromagnetic flow meter. Prior to the completion of the new headworks structure which includes new fine screening and grit removal equipment, the existing flow meter installed on the influent force main will be used to measure influent flow. Once the proposed headworks is completed, a flow meter will be installed on the new header piping where flow is pumped from the master lift station to the fine screen influent channel of the headworks structure. In both phases, the flow meter will measure influent flow prior to the introduction of any recycle flows.

A flow-proportioned composite sampler will be installed at the master lift station to monitor influent wastewater characteristics. The sampler will be used to collect samples required for analyses specified in the operating permit, as well as those required for operational process control. The location of the sampling and monitoring equipment will be prior to the introduction of any recycle flows that will be generated within the overall treatment process.

5.2.3 Headworks & Grit Removal

Kimley-Horn completed the design and permitting of the headworks and grit removal system in 2020. The minor modification permit for this project is FL0034789-014-DW1/MR. The proposed headworks has two (2) Huber ROTAMAT fine drum screens with 2 mm perforated openings. To accommodate peak flows and to provide redundancy for future maintenance, each screen has a rated capacity of 3 MGD. The screens will be in an elevated concrete channel and discharge to the new grit removal

system. The existing odor control system will be relocated and utilized at the proposed headworks on a continuous basis.

The grit removal system is the Hydro International Grit King, which is designed to remove abrasive particles from the influent flow such as sand and silt than can otherwise wear on the plant's downstream equipment and reduce the functional volume of downstream tanks. The Grit King has a rated capacity of 3 MGD. Redundancy for the grit removal system is not provided, but a bypass channel is included to divert flow around the grit removal system during necessary maintenance cycles.

The new headworks and grit removal system is under construction and is anticipated to be placed into service in December 2021. The headworks and grit removal system meet all applicable requirements of FAC 62-600.400.

5.3 Flow Equalization

Wastewater treatment performance can be improved when the variance between low flow periods and peak flows are reduced. Introducing flow equalization to the treatment scheme offers the means to stabilize the hydraulic and biological loadings by temporarily storing portions of the peak influent flow, then introducing it back into the treatment process during low flow periods. Additionally, flow equalization is typically used prior to the MBR process to help reduce the stress of peak flows on the membranes.

The existing flow equalization (EQ) tank will be maintained during construction of the proposed improvements for in-line equalization. Following construction of the proposed biological treatment improvements outlined in Section 5.4, existing tankage from the existing process trains will be converted to provide additional EQ volume. The EQ tanks will receive flow from the screens and grit removal system, then pump the equalized flow to the biological treatment trains using VFD's to optimize the hydraulic loading rate.

The industry standard used to determine the required volume of flow equalization beyond current conditions is 20 to 30 percent of the projected average daily flow. See **Table 12** for a summary of the flow equalization tank preliminary design.

Table 12: Flow Equalization Tank	
Number of Tanks	3
Total Operating Tank Volume	371,000 gallons
Actual Volume of Flow Equalization Compared to Proposed Design Annual Average Daily Flow	30.9%
Number of Equalization Pumps	3
Pump Design Flow (each)	1,000 GPM

Existing air piping and diffusers will be utilized to maintain adequate mixing in the converted EQ tanks in which they are currently installed. Otherwise, submerged mixers will be installed for mixing. Equalization pumps will pump directly into the biological treatment process by modulating pump speeds as required to regulate and optimize flow.

5.4 Biological Treatment Process

The function of the biological treatment process is to remove soluble and particulate organic matter, suspended and non-settleable colloidal solids, nitrogen, and phosphorous from the wastewater to below acceptable effluent limits. The selected biological treatment method will be activated sludge using the suspended growth, five-stage MBR Bardenpho process that uses biomass suspended in the wastewater to perform the required biological transformations. A recycle stream will be used to maintain the microorganism population within the treatment process. Appropriate solids retention times to achieve adequate biological treatment will be maintained. Nitrogen will be removed in the biological treatment process through the two-step process of nitrification and denitrification. Phosphorus will be removed in the biological treatment process through an initial anaerobic zone to promote the release and subsequent uptake of phosphorus by the microorganism population. Chemical phosphorus removal will also be utilized as necessary based on influent mass loading.

5.4.1 Biological Treatment Process – Five-Stage MBR Bardenpho

The five-stage Bardenpho process has been used successfully to meet total nitrogen limits of 3.0 mg/L and total phosphorus limits of 1.0 mg/L. The five-stage Bardenpho process will include two process trains with both consisting of an initial anaerobic reactor followed by the initial anoxic zones, aeration zones, post-anoxic zones and finally the MBR zones. The biological treatment process will flow in series through the existing basin structures with internal baffling and piping designed to separate the anoxic and aerobic zones to minimize potential short-circuiting and back-mixing between zones. The biological treatment process will incorporate the following process design features:

5.4.1.1 Anaerobic Zone

The first-stage anaerobic zone is used for biological phosphorus removal while the remaining anoxic and aeration zones are primarily for carbon and nitrogen removal. The anerobic zones will receive raw wastewater and internally recycled flow pumped from the end of the post-anoxic zones. This internal recycle allows for the recycle and growth of phosphate accumulating organisms (PAOs) which are necessary for biological phosphorous removal. While in the anaerobic zones, the PAOs uptake BOD from the raw influent wastewater and release orthophosphate. The PAOs reuptake this orthophosphate in larger quantities in the subsequent anoxic and aeration zones.

5.4.1.2 Pre-Anoxic and Aeration Zones

Flow first enters the anoxic zone and is mixed with RAS from the liquid-solids separation (membrane) process. Aeration is not provided in the pre-anoxic zone. The combination of raw wastewater and RAS under anoxic conditions promotes denitrification, where microorganisms in the mixed liquor use nitrate (NO_3) as their oxygen source to metabolize the organic material in the raw wastewater, reducing nitrate, and releasing nitrogen gas to the atmosphere. In the aerobic zone, influent ammonia is converted to nitrite and then nitrate by nitrifying microorganisms.

The aeration zones will be equipped with fine bubble diffusers to provide process air for biological treatment. The diffuser density will be the highest at the start the aeration zone and decrease as the flow travels through the zone to achieve a tapered aeration effect. Tapered aeration increases process control and improves energy efficiency by providing more air

(more diffusers) in at the start of the aeration zone and the least amount of air at the end of the aeration zone. A supplemental chemical feed to the aerobic zone will provide chemical phosphorous removal to assist with meet the permitted effluent limits as required.

5.4.1.3 Post-Anoxic Zone

The post-anoxic zone is provided for additional denitrification to further reduce the effluent total nitrogen. The anoxic zones will be equipped with submersible mixers to keep the mixed liquor in suspension and well mixed. A supplemental carbon feed to the post-anoxic zone will provide sufficient food (carbon) to complete the denitrification reactions as required. Internal recycle pumps within the post-anoxic zone will pump up to 200% of the influent flow rate back to the anaerobic zone to continue biological nutrient removal.

5.4.1.4 Membrane Bioreactor

The five-stage MBR Bardenpho process configuration does not require a dedicated reaeration zone since the membrane bioreactor zone can provide reaeration through membrane air scour. The membrane bioreactor process (fifth stage in MBR Bardenpho process) provides the solids-liquid separation process with membrane filtration as the final step in the activated sludge, suspended growth biological treatment process.

To minimize the solids buildup near the membrane surface, which would reduce the flow of water through the membranes, an air scour system is used to scour the membrane surface. Permeate pumps pull water through the membrane by creating a partial vacuum. The biomass solids are too large (size exclusion) to pass though the membrane pores and remain in the mixed liquor. An air scour diffuser system will be located at the base of each membrane unit providing air scour to the membrane surface.

RAS flow will be transferred from the MBR tanks to a RAS holding tank. RAS pumps will pump the RAS from the RAS holding tank back to the pre-anoxic zones at a rate of up to 400% of the influent flow rate to improve biological nutrient removal. Waste activated sludge will be periodically removed to control MLSS concentration in the MBR zones. The WAS will be transferred to the aerated sludge holding tanks for biosolids management using a dedicated pumping system.

See **Table 13** for a summary of the preliminary design of the biological treatment process tankage.

Table 13: Biological Treatment Process Tanks	
Anaerobic Zone	
No. of Process Trains	2
Total Volume per Train	50,000 gal
Total Volume of Anaerobic	100,000 gal
Pre-Anoxic Zone	
No. of Process Trains	2
Total Volume per Train	56,000 gal
Total Volume of Pre-Anoxic	112,000 gal

Aeration Zone	
No. of Process Trains	2
Total Volume per Train	149,000 gal
Total Volume of Aeration	298,000 gal
Post-Anoxic Zone	
No. of Process Trains	2
Total Volume per Train	36,000 gal
Total Volume of Post-Anoxic	72,000 gal
Membrane Bioreactors	
No. of Process Trains	4
Total Volume per Train	30,000 gal
Total Volume	120,000 gal
Total Treatment Volume	**702,000 gal**

5.5 Membrane Filtration

The WWTP improvements will utilize microfiltration (MF) membrane elements in a low-pressure application. Solids removal is achieved through size exclusion in which particles larger than the membrane pore size are retained on the membrane surface and filtered water passes through the membrane (filtrate). The membrane elements will be air scoured on a frequent cycle to physically remove solids accumulated on the membrane surface. Periodic chemical cleaning is required to remove scaling and prevent long-term fouling. MF processes are capable of reliably producing a high-quality effluent with turbidity less than 0.1 NTU.

Membrane filtration is achieved in a compact footprint due to the associated high loading rates. For this reason, the proposed MBR conversion allows for an increase in treatment capacity within the existing tankage without the need to construct additional tanks. The key design parameter for membrane filtration is the flux through the membrane elements where flux describes the rate of water filtered through the membrane element measured in gallons per day per square foot of membrane area (gfd). The design flux includes the MBR system operating with all trains in service and with one tank out-of-service (n-1). See **Table 14** for a summary of the membrane filtration design details.

Table 14: Membrane Filtration System	
Manufacturer	Kubota
Membrane Size	Microfiltration (0.2 micron)
Type	Flat Plate
Membrane Surface Area (sf) per Unit	4,843.8
Number of Membrane Tanks	4
Number of Units per Tank	6
Total Number of Units	24
Total Membrane Surface Area (sf)	116,251

Total Membrane Surface Area with One Tank Out of Service (sf)	87,188
Design Flux – AADF (gfd)	15.5
Design Flux – MDF (gfd)	28
Available Capacity at Design Flux at AADF (Factor of Safety)	50%
Available Capacity at Design Flux at MDF (Factor of Safety)	36%
Flux – AADF (gfd)	10.3
Flux – MMADF (gfd)	15.5
Flux – MDF (gfd)	20.6
Flux – PHF (gfd)	24.8
Flux (Class I) – AADF (gfd)	13.8
Flux (Class I) – MMADF (gfd)	20.6
Flux (Class I) – MDF (gfd)	27.5
Flow at Design Flux – MDF (MGD)	3.25
Flow at Design Flux – MDF (Class I) (MGD)	2.44
Flux (Class I) – PHF	Not Applicable with Flow Equalization

The primary method used to mitigate membrane fouling is air scour cleaning and membrane relax cycling. The membrane relax process involves the suspension of permeate while allowing the air scour to continue operating during an operator defined time interval. Following the end of this defined time interval, membrane filtration will automatically resume operation.

However, the membrane units will also require periodic maintenance cleaning after organic and inorganic materials build up on the membrane surface. The maintenance cleaning process is typically carried out in-situ without the need to drain the mixed liquor. To clean the membranes, one MBR tank will be taken offline at a time by stopping the flow of mixed liquor to the basin. In addition, all aeration and permeating will stop to that tank. The chemicals required are sodium hypochlorite and oxalic or citric acid for organic and inorganic materials, respectively. The cleaning chemicals will be dosed directly to the membrane elements. The diluted cleaning chemicals are transferred to the inside of the membrane elements, displacing the permeate from inside the membrane cartridges. After cleaning, the diluted chemicals remain in the mixed liquor and are processed with the wastewater thereby avoiding the need for disposal of spent cleaning solution.

5.6 Disinfection Treatment Process

Disinfection is the inactivation, or killing, of pathogens in water. This process is a necessary barrier to prevent the transmission of waterborne diseases by microorganisms. All wastewater treatment systems must provide disinfection of treated wastewater. In general, the disinfection requirement for wastewater is to achieve pathogen inactivation and fecal coliform reduction. When treated wastewater is distributed to through a reclaimed water system, maintenance of disinfection residuals is required to prevent bacterial growth within the system. This is typically achieved using chlorine disinfection. When treated wastewater is discharged to a surface water body, disinfection is also required, however if chlorination is used as the method of disinfection, dechlorination is also required prior to discharge to a surface water body to prevent the formation of toxins.

5.6.1 Disinfection Design Criteria

Disinfection requirements outlined by 62-610, Part III, FAC will be satisfied using sodium hypochlorite solution addition followed by detention in a chlorine contact chamber. To achieve high-level disinfection, the effluent will be membrane filtered to reduce TSS to less than 5 mg/L, then sodium hypochlorite solution will be added to meet the minimum Concentration Time (CT) value. Rule 62-600.440, FAC indicates that for high level disinfection, a minimum CT value of 25 milligrams per liter per minute (mg/L-min) must be obtained at peak hourly flow if the fecal coliform count in the effluent is less than 1,000 per 100 mL while higher CT values between 40 mg/L-min and 120 mg/L-min are required for fecal counts in excess of this amount. Utilizing membrane filtration, the fecal count is expected to be much less than 100 per 100 mL and a CT value of 25 mg/L-min is used for the design. However, the chlorine feed system will be designed with the ability to provide up to a CT of 40 mg/l-min during MDF flows if required.

5.6.2 Chlorine Contact Chamber (CCC)

The existing CCC tank and adjacent solids holding tank will be rehabilitated to create parallel redundant CCCs. The chlorine contact chambers will be designed so each basin can be operated independently. Each will be designed to provide plug flow conditions and constructed to provide a serpentine pattern, to minimize short-circuiting and ensure that the minimum contact time is achieved. To improve the hydraulic performance of the chlorine contact chambers, the addition of submerged baffles, deflection guide vanes, or the combination of the two will be considered during the design phase. The disinfected effluent will be continuously monitored using a chlorine analyzer to ensure the Total Residual Chlorine (TRC) concentration meets the disinfection limits identified in the operating permit.

The preliminary design details of the chlorine contact chamber improvements are shown in **Table 15**.

Table 15: Disinfection - Chlorine Contact Chambers	
Number of CCCs	2
Number of CCCs with Largest Unit out of Service	1
Volume of Each (gal)	33,000
Volume Total (gal)	66,000
Detention Time at PHF (min)	16.5
Detention Time at PHF with Largest Unit out of Service (min)	16.5

Dechlorination of the treated effluent will be achieved by using sodium bisulfite dosing. The sodium bisulfite will be injected into the dechlorination chamber at the end of the CCCs. The finished effluent will be continuously monitored using a second chlorine analyzer to ensure the TRC concentration in the finished effluent meets the dechlorination limits prior to surface water discharge.

5.7 Effluent Disposal

The treated effluent will flow via gravity from the CCCs and dechlorination chamber to a final effluent chamber prior to being discharged to Curlew Creek via outfall D-001. The treated effluent discharge location is within the Curlew Creek Freshwater Segment WBID 1538A, classified as Class III fresh waters. The Curlew Creek Freshwater Segment flows into the Curlew Creek Tidal Segment WBID 1538,

Class III Marine waters, then into WBID 1528C of Clearwater Harbor (north), Class III Marine waters. Class III protected waterbodies are designated for use of recreation, propagation, and maintenance of a healthy, well-balanced population of fish and wildlife.

To aid in the protection of surface water quality, the proposed WWTP improvements include the conversion of existing tankage in the North Train to reject water storage. If influent flow bypasses the fine screens, this flow will be diverted to the reject tanks to prevent unscreened influent from entering the treatment process and damaging the membranes. This will allow plant operators time to address any issues without compromising the downstream processes. Additionally, reject water from the disinfection process will be routed back to the EQ tanks for retreatment. The incorporation of reject volume and the additional process and equipment redundancy will help minimize exceedance of effluent limits.

In April 2021, Florida Senate Bill 64 (SB 64) was passed in the House and Senate. Once it becomes law, certain domestic wastewater treatment plants will be required to submit a plan to eliminate nonbeneficial surface water discharges. In consideration of the implications of SB 64, the proposed WWTP improvements will be designed with the intent of providing reclaimed water in place of surface water discharge in the future. Any proposed changes to the WWTP effluent disposal will be routed through the appropriate permitting and approval processes prior to implementation.

5.7.1 Effluent Flow Measurement and Sampling

The treated effluent flow rate will be measured via flow meter or via v-notch weir and ultrasonic transducer in the effluent chamber prior to being discharged to Curlew Creek through outfall D-001. No additional outfall locations are proposed as a part of the WWTP improvements.

The existing permitted sampling requirements will be maintained in the proposed WWTP improvements. The sampling required will be taken from the final effluent chamber according to the sampling methods included in the operating permit. Refer to the proposed improvements process flow diagram (**Figure 6**) for the locations of the sampling points.

Additionally, the discharge from outfall D-001 will be tested once every six months to evaluate chronic whole effluent toxicity. Ambient monitoring will also be continued on a semi-annual basis to monitor the water quality of Curlew Creek. This includes sample test points 300 feet upstream of the Curlew Creek discharge location, 300 feet downstream of the Curlew Creek discharge location, and at the discharge pipe prior to mixing with the waters of Curlew Creek.

5.7.2 Antidegradation

In accordance with FAC Chapter 62-302.300 and 62-4.242, improvements and efforts consistent with the antidegradation policy were taken into account in the proposed treatment design.

5.7.2.1 Water Conservation

Potable water is supplied to the Mid-County WWTP service area by Pinellas County, therefore UIF cannot implement water conservation policies in an effort to reduce the flow of domestic wastewater to the plant. However, water conservation programs have been implemented in

Pinellas County in conjunction with Tampa Bay Water to provide rebates to residential and non-residential customers who purchase or implement new water saving devices and measures.

5.7.2.2 Infiltration/Inflow Reduction Measures

Historical influent flow data shows that the Mid-County WWTP collection system is impacted by I&I. UIF authorized Kimley-Horn to complete an I&I Analysis in 2018 to evaluate the impacts of I&I within the collection system and provide recommendations for I&I reductions programs. Using the results of the I&I Analysis, UIF implemented an annual manhole and pipe rehabilitation program in 2020 to mitigate I&I.

5.7.2.3 Reuse of Reclaimed Water

A reuse feasibility study was completed and submitted to FDEP in 2018 to evaluate the feasibility of providing public access reclaimed water. This evaluation identified that neighboring City of Dunedin has the capacity to accept reclaimed water from the Mid-County WWTP, however an agreement between the City of Dunedin and UIF was not executed, and the proposed improvements were not implemented. However, if an agreement is formulated in the future, the proposed plant improvements allow for AWT and high-level disinfection that should be sufficient to meet reuse standards. Additional provisions for the required residuals, storage, and effluent pumping would be required in this case.

In April 2021, a conceptual project was identified involving the provision of reclaimed water from the Mid-County WWTP to Pinellas County to satisfy additional reuse need from their golf course reclaimed water customers. This conceptual project would require additional provisions for the required residuals, storage, effluent pumping, and transmission line connecting to Pinellas County's facilities. Since it is in the concept phase, there has been only preliminary correspondence between UIF and Pinellas County regarding this project.

5.7.2.4 Alternate Discharge Locations

In the reuse feasibility study completed in 2018, it was recommended that reclaimed water be provided by the Mid-County WWTP through an interconnection with the City of Dunedin, however, an agreement was not finalized between the City and UIF. In April 2021, the conceptual project to supply reclaimed water to Pinellas was identified as a potential alternate discharge opportunity. Due to the plant location and site constraints, no other feasible alternate discharge locations were identified.

5.8 Biosolids Management

The solids removed from the wastewater include screenings, grit, scum, and solids generated during the treatment process. The screenings and grit that are removed from the wastewater at the headworks are dewatered and disposed of into a waste receptacle (dumpster) located at the lower level of the headworks structure. The screenings and grit will be hauled to a landfill for disposal. The remaining source of solids is WAS. This section identifies biosolids management strategies and describes biosolids thickening and dewatering.

5.8.1 Aerated Sludge Holding

The existing aeration bays in the existing North Treatment Train will be repurposed as aerated sludge holding tanks. Coarse bubble aeration will be used to completely mix and aerate the sludge. Clarified

liquid from aerobic sludge holding tanks will be decanted as supernatant to allow for solids thickening and increase solids storage time. See **Table 16** for a summary of the aerated sludge holding tank design.

Table 16: Aerated Sludge Holding Tank	
Total Sludge Holding Volume (gallons)	142,000
Number of Sludge Holding Tanks	3
Design SRT at AADF – Total (days)	11.0
Design SRT at MMADF – Total (days)	8.0

5.8.2 Biosolids Dewatering and Removal

Solids dewatering is commonly used in wastewater treatment facilities to concentrate combined or separate solid streams. Dewatering is beneficial for the purpose of reducing the volume of solid streams, reducing annual operating expense of storage, transportation and disposal of biosolids.

The PWTech Volute Dewatering Press is proposed to replace the existing biosolids dewatering process at the plant. The Volute Dewatering Press consists of the basic technology of a traditional screw press with additional spacers, fixed rings, and moving rings surrounding the screw that prevent clogging of the fine gaps and increases release of moisture. The proposed dewatering system includes polymer mixing, flocculation, and pressing of the biosolids in a single compact operation. The proposed Volute Dewatering Press is preliminarily designed for a maximum hydraulic capacity of 105 GPM and a maximum solids throughput of 1,050 dry pounds per hour. The dewatered solids will be hauled and treated at an offsite permitted biosolids treatment facility.

6 ENVIRONMENTAL EFFECTS

The purpose of this section is to examine the potential environmental effects associated with the proposed design, overall construction, and proposed operation of the treatment facilities.

6.1 Stormwater Management and Site Drainage

The majority of the existing site is located in FEMA Flood Zone A. This indicates the area is subject to inundation by the 1-percent-annual chance flood event. Additional modifications to the master lift station were made to provide protect against flooding, including, flood-tight hatches and above ground piping. In accordance with FAC Chapter 62-600.400(2)(c), the treatment facilities and structures including electrical and mechanical equipment will be protected from physical damage caused by a 100-year flood event. Additionally, mechanical equipment and electrical equipment is or will be further elevated on pads or mounted on walls to protect against future flood events.

6.2 Odor Control

Measures to reduce offensive odors, especially H_2S, which can be detected at very low concentrations, are in place and will be reused with the proposed improvements. The treatment technologies used for odor control will include a combination of treatment unit containment covers and an iron sponge odor control system.

6.3 Noise Control

The sound level from any of the facilities will not exceed 55 decibels on an A-rated scale (dBA) at the fence line. Throughout the design process, the areas in which noise attenuation is required will be evaluated. The odor control system, aeration blowers, backup power generator, and miscellaneous pumps and motors are expected to receive some type of noise attenuation.

6.4 Public Accessibility and Proximity to Residential Areas

The existing plant is located within the Doral Village manufactured home community and is located adjacent to residential properties. The overall site security will include a gate that will remain locked to prevent public access to the site. The existing site is fully fenced to provide site security.

6.5 Lighting

On-site lighting will be maintained for safety and operations visibility. Pole mounted LED lights will be provided in addition to existing site lighting as necessary.

6.6 Aerosol Drift

Land uses immediately adjacent to the plant are buffered by the Pinellas County required setback distance of 100-feet. The design will minimize the formation and potential of any aerosols drifting from the fine bubble aeration system, coarse bubble aeration systems, and submerged mechanical mixers.

7 OPERATION AND CONTROL STRATEGY

This section summarizes the operation and control strategies for the prevention of upsets including alternate disposal methods and Class I reliability classification/features. Overall, the improvements will be designed to:

- Avoid process upsets;
- Meet effluent disposal standards
- Meet Class I reliability standards and;
- Provide operational flexibility and treatment capacity (AWT)

7.1 Prevention of Process Failures

The 5-stage MBR Bardenpho process has historically documented data that indicate this process can accommodate large variations in flows and solids loadings. Operational flexibility has been incorporated into the aeration system, internal recycle pumping systems, RAS pumping systems, and WAS pumping to accommodate variable solid loading conditions. Additionally, the flexibility of the MBR process can be used to provide a higher microorganism population (i.e. MLVSS concentration) by increasing the solids in the tanks. The increased microorganism population provides additional treatment capacity and resistance to toxic loadings increasing the treatment process integrity. The membrane element design flux is selected to accommodate peak flow and solids loading rates for reliable removal of solids from the MBR Bardenpho process. Therefore, the use of the 5-stage MBR Bardenpho process in conjunction with sufficient unit volumes and operational flexibility makes process failures unlikely.

7.1.1 Operational Flexibility

The design of this treatment process will provide operators with sufficient operational and control flexibility to adapt to situations that may arise within the range of the basis of design criteria as previously described. Additionally, the improvements will provide increased redundancy and reliability. The increased capacity and equalization volume will offer the operators the means to maintain adequate treatment during peak flow events and seasonal wet weather timeframes. Operational flexibility within the unit processes will be provided in the proposed WWTP improvements, including the following:

- Sufficient flow equalization volume and feed forward pumping capacity
- Adjustable speed RAS pumping systems
- Adjustable speed internal recycle pumps
- Adjustable aeration system with DO controllers
- Adjustable metal salt addition for chemical TP removal (AWT)
- Adjustable supplemental carbon feed for AWT
- Reject tanks for fine screen bypass flow
- Reject lines for disinfection reject water

7.1.2 Staff Training

During construction of the improvements, operators will be trained in the proper operation and maintenance of the unit processes and equipment installed including process upset prevention,

operational procedures in case of a process failure, and optimization of biosolids dewatering operations.

7.1.3 Process Control, Monitoring, and Instrumentation

To provide automated process control and operational reporting, the design will include Programmable Logic Controllers (PLCs), continuous online probes, analyzers, monitoring devices, and a system-wide SCADA system. The preliminary proposed sampling and monitoring locations are included in **Figure 6**: Proposed Improvements Process Flow Diagram.

The automated control system will use PLCs strategically located throughout the plant. Operator interface with the control system will be provided through desktop workstations at the operations office. The SCADA software will be used for monitoring real time and historical information to improve operations, maintenance, and treatment efficiency. The process laboratory in the operations office will include the necessary equipment to perform process analyses and tests.

7.2 Class I Reliability

The *USEPA Technical Bulletin of Design Criteria for Mechanical, Electrical, and Fluid System and Component Reliability* is a document referenced by FAC Chapter 62-610 to define reliability requirements for wastewater treatment facilities. As previously discussed, the treatment processes and equipment will be designed to meet the USEPA Class I requirements, so that when the largest individual unit process and/or piece of equipment is out of service the treatment performance will not be compromised. The WWTP improvements will be designed to meet Class I Reliability requirements. The 5-stage MBR Bardenpho treatment process has two parallel treatment trains and backup mechanical equipment. The major treatment process will include:

- 2 parallel fine screens, each with the capacity to handle peak design flow
- 1 grit removal system
- 1 in-line flow equalization tank (three tanks with the ability to bring them offline for cleaning and maintenance)
- 2 biological process trains operated in parallel each with:
    - 1 anaerobic tanks
    - 1 pre-anoxic tanks
    - 1 aeration tanks
    - 1 post-anoxic tanks
    - 2 MBR tanks
- 2 parallel CCCs and dechlorination chambers
- 3 aerated sludge holding tanks.

The MBRs are designed to handle 100% of the maximum day design flow with 3 of the 4 MBR tanks in operation, which surpasses the Class I Reliability standard of 75% capacity with the largest unit out of service.

8 IMPLEMENTATION SCHEDULE

8.1 Implementation Schedule

Kimley-Horn has completed the design and permitting of the master lift station, headworks and grit removal system. The new master lift station was placed into operation in March 2021 and the headworks and grit removal improvements are currently under construction. Additionally, Kimley-Horn has been authorized to complete the design of the biological treatment process improvements, including the retrofit from extended aeration to MBR, that will allow increased treatment capacity within the same footprint. Kimley-Horn is simultaneously completing the design of the modifications to the disinfection system and sludge dewatering system. The table below shows a timeline for design, permitting, bidding and construction for the proposed improvements.

Table 17: Expansion Schedule

Improvement	Design & Permitting		Bidding & Construction	
	Start	Completion	Start	Completion
Master Lift Station	Complete		July 2020	March 2021
Headworks & Grit Removal	Complete		January 2021	December 2021
MBR Conversion	January 2021	November 2021	November 2021	July 2023

APPENDICES

APPENDIX A: Mid-County WWTP Operating Permit

FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Noah Valenstein
Secretary

July 22, 2020

PERMITTEE:
Mr. Patrick C. Flynn, Vice President of Operations
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, Florida 32714
pcflynn@uiwater.com

Re: Minor Revision
Mid-County WWTF
PA File No. FL0034789-014-DW1/MR
Pinellas County

Dear Mr. Flynn:

In accordance with Rule 62-620.325(2), Florida Administrative Code, the Department completed minor revisions of the above-referenced domestic wastewater facility permit, FL0034789, which expires on August 4, 2021.

The current permit description was revised to include the construction of a new headworks including fine screens and a grit removal system. This modification did not change the current Discharge Monitoring Reports (DMRs).

The revised permit is enclosed. Please replace the previous documents in their entirety. Please note that the original permit issuance and expiration dates still apply.

Also, please note that monitoring requirements under this permit are effective immediately. If you have any questions, you may contact Alexandria Moorehead at (813) 470-5704 or via email at Alexandria.Moorehead@FloridaDEP.gov.

Sincerely,

Pamala Vazquez
Program Administrator
Permitting & Waste Cleanup Program
Southwest District

cc:
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FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

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Noah Valenstein
Secretary

STATE OF FLORIDA
DOMESTIC WASTEWATER FACILITY PERMIT

PERMITTEE:
Mid-County Services, Inc.

PERMIT NUMBER: FL0034789 (Minor)
FILE NUMBER: FL0034789-013-DW1P/NR
ISSUANCE DATE: August 5, 2016
PA FILE NUMBER: FL0034789-014-DW1/MR
REVISION DATE: **July 22, 2020**
EXPIRATION DATE: August 4, 2021

RESPONSIBLE OFFICIAL:
Mr. Patrick C. Flynn, Vice President of Operations
Utilities, Inc. of Florida
200 Weathersfield Avenue
Altamonte Springs, Florida 32714-4027
(407) 869-1919
pcflynn@uiwater.com

FACILITY:

Mid-County WWTP
2299 Spanish Vista Drive
Dunedin, FL 34698-9438
Pinellas County
Latitude: 28°2' 16 " N Longitude: 82°44' 31" W

This permit is issued under the provisions of Chapter 403, Florida Statutes (F.S.), and applicable rules of the Florida Administrative Code (F.A.C.) and constitutes authorization to discharge to waters of the state under the National Pollutant Discharge Elimination System. This permit does not constitute authorization to discharge wastewater other than as expressly stated in this permit. The above-named permittee is hereby authorized to operate the facilities in accordance with the documents attached hereto and specifically described as follows:

WASTEWATER TREATMENT

An existing 0.90 million gallons per day (MGD) Annual Average Daily Flow (AADF), Type I, advanced wastewater treatment facility consisting of two separate treatment trains: flow is directed through one static screen, followed by one equalization basin of 200,000 gallons total volume and then a flow splitter box which separates the flow into a 0.30 million gallons per day (MGD) treatment train and 0.60 million gallons per day (MGD) treatment train. The 0.30 million gallons per day (MGD) treatment train consists of six aeration basins, 349,000 gallons of total aeration volume and one clarifier of 92,000 gallons total volume with 1,025 square feet total surface area. The 0.60 million gallons per day (MGD) treatment train consists of two 300,000-gallon aeration basins, 600,000 gallons of total aeration volume and one clarifier of 98,000 gallons total volume with 1,086 square feet total square area. The two treatment trains are combined into four 5,000 gallon clarified effluent holding tanks, three deep-bed denitrification filters of 48,000 gallons total volume and 367 square feet of total surface area, one effluent holding tank of 16,000 gallons total volume, a chlorination/dechlorination chamber of 37,400 gallons total volume comprised of a 34,000 gallon chlorine contact chamber and a 3,400 gallon dechlorination chamber, one aerobic digester of 41,000 gallons total volume, and one sludge holding tank of 43,500 gallons total volume. This facility is operated to provide advanced wastewater treatment and high-level disinfection.

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-014-DW1/MR
FACILITY: Mid-County WWTP

MODIFICATION

Removal of the existing static screen and associated grating and the construction of a new headworks including fine screens and a grit removal system.

AFTER MODIFICATION

An existing 0.90 million gallons per day (MGD) Annual Average Daily Flow (AADF), Type I, advanced wastewater treatment facility consisting of two separate treatment trains. Flow is pumped from the Master Lift Station to the Headworks Structure, which includes fine screening and grit removal and is then routed to one equalization basin of 200,000 gallons total volume. The flow is pumped to a flow splitter box which separates the flow into a 0.30 million gallons per day (MGD) treatment train and 0.60 million gallons per day (MGD) treatment train. The 0.30 million gallons per day (MGD) treatment train consists of six aeration basins, 349,000 gallons of total aeration volume and one clarifier of 92,000 gallons total volume with 1,025 square feet total surface area. The 0.60 million gallons per day (MGD) treatment train consists of two 300,000-gallon aeration basins, 600,000 gallons of total aeration volume and one clarifier of 98,000 gallons total volume with 1,086 square feet total square area. The two treatment trains are combined into four 5,000 gallon clarified effluent holding tanks, three deep-bed denitrification filters of 48,000 gallons total volume and 367 square feet of total surface area, one effluent holding tank of 16,000 gallons total volume, a chlorination/dechlorination chamber of 37,400 gallons total volume comprised of a 34,000 gallon chlorine contact chamber and a 3,400 gallon dechlorination chamber, one aerobic digester of 41,000 gallons total volume, and one sludge holding tank of 43,500 gallons total volume. This facility is operated to provide advanced wastewater treatment and high-level disinfection.

REUSE OR DISPOSAL:

Surface Water Discharge D-001: An existing 0.90 million gallons per (MGD) Annual Average Daily Flow (AADF) discharge into the Class III Fresh waters of Curlew Creek, WBID 1538A. Curlew Creek flows into WBID 1538 of Curlew Creek Tidal Segment, Class III Marine waters, thence WBID 1528C of Clearwater Harbor (north), Class III Marine waters. The point of discharge is located approximately at latitude 28° 02' 18" N, longitude 82 ° 44' 32" W.

IN ACCORDANCE WITH: The limitations, monitoring requirements, and other conditions set forth in these cover sheets and Part I through Part IX on pages 3 through 22 of this permit.

I. RECLAIMED WATER AND EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

A. Surface Water Discharges

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the permittee is authorized to discharge effluent from Outfall D-001 to Curlew Creek. Such discharge shall be limited and monitored by the permittee as specified below and reported in accordance with Permit Condition I.B.7:

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow, to D-001	MGD	Max	0.90	Annual Average	Monthly	Calculated	FLW-01	See I.A.3
Flow, to D-001	MGD	Max	Report	Monthly Average	5 Days/Week	Recording Flow Meter with Totalizer	FLW-01	See I.A.3
BOD, Carbonaceous 5 day, 20C	mg/L	Max	5.0	Annual Average	Monthly	Calculated	EFD-01	
BOD, Carbonaceous 5 day, 20C	mg/L	Max Max	6.25 10.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
Solids, Total Suspended	mg/L	Max	5.0	Annual Average	Monthly	Calculated	EFD-01	
Solids, Total Suspended	mg/L	Max Max	6.25 10.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	See I.A.6
Solids, Total Suspended	mg/L	Max	5.0	Single Sample	4 Days/Week	Grab	EFB-01	
Nitrogen, Total	mg/L	Max	3.0	Annual Average	Monthly	Calculated	EFD-01	
Nitrogen, Total	mg/L	Max Max	3.75 6.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
Phosphorus, Total (as P)	mg/L	Max	1.0	Annual Average	Monthly	Calculated	EFD-01	
Phosphorus, Total (as P)	mg/L	Max Max	1.25 2.0	Monthly Average Single Sample	Weekly	16-hr FPC	EFD-01	
pH	s.u.	Min Max	6.0 8.5	Single Sample Single Sample	5 Days/Week	Meter	EFD-01	
Coliform, Fecal, % less than detection	percent	Min	75	Monthly Total	Monthly	Calculated	EFA-01	See I.A.4
Coliform, Fecal	#/100mL	Max	25	Single Sample	4 days/Week	Grab	EFA-01	See I.A.4
Chlorine, Total Residual (For Disinfection)	mg/L	Min	1.0	Single Sample	5 Days/Week	Meter	EFA-01	See I.A.5
Chlorine, Total Residual (For Dechlorination)	mg/L	Max	0.01	Single Sample	Weekly	Grab	EFD-01	
Oxygen, Dissolved (DO)	mg/L	Min	5.00	Single Sample	5 Days/Week	Grab	EFD-01	
Nitrogen, Total	ton/mth	Max	Report	Monthly Total	Monthly	Calculated	EFD-01	See I.A.7

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-014-DW1/MR
FACILITY: Mid-County WWTP

			Effluent Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Nitrogen, Total	ton/yr	Max	2.12	Annual Total	Monthly	Calculated	EFD-01	See I.A.7
Chronic Whole Effluent Toxicity, 7-Day IC25 (Ceriodaphnia dubia)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFD-01	See I.A.6
Chronic Whole Effluent Toxicity, 7-Day IC25 (Pimephales promelas)	percent	Min	100	Single Sample	Semi-Annually; twice per year	24-hr FPC	EFD-01	See I.A.6

PERMITTEE: Mid-County Services, Inc. PERMIT NUMBER: FL0034789-014-DW1/MR
FACILITY: Mid-County WWTP

2. Effluent samples shall be taken at the monitoring site locations listed in Permit Condition I.A.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-01	Flow meter prior to discharge to Curlew Creek.
EFD-01	After dechlorination and prior to surface water discharge to Curlew Creek.
EFA-01	After disinfection and prior to dechlorination.
EFB-01	After filtration and prior to disinfection.

3. Recording flow meters and totalizers shall be utilized to measure flow and calibrated at least annually. *[62-600.660(1)]*

4. Over a 30-day period, at least 75 percent of the fecal coliform values shall be below the detection limits. No sample shall exceed 25 fecal coliforms per 100 mL. No sample shall exceed 5.0 mg/L of total suspended solids (TSS) at a point before the application of the disinfectant. Note: To report the "% less than detection," count the number of fecal coliform observations that were less than detection, divide by the total number of fecal coliform observations in the month, and multiply by 100% (round to the nearest integer). *[62-600.440(6)(a)]*

5. A minimum of 1.0 mg/L total residual chlorine must be maintained for a minimum contact time of 15 minutes based on peak hourly flow. *[62-600.440(5)(c), (6)(b), and (7)(c)]*

6. The permittee shall comply with the following requirements to evaluate chronic whole effluent toxicity of the discharge from outfall D-001.

   a. Effluent Limitation
      (1) In any routine or additional follow-up test for chronic whole effluent toxicity, the 25 percent inhibition concentration (IC25) for reproduction or growth shall not be less than 100% effluent. [Rules 62-302.530(61) and 62-4.241(1)(b), F.A.C.]
      (2) For acute whole effluent toxicity, the 96-hour LC50 shall not be less than 100% effluent in any test. [Rule 62-302.500(1)(a)4. and 62-4.241(1)(a), F.A.C.]

   b. Monitoring Frequency
      (1) Routine toxicity tests shall be conducted once every six months, the first starting within 60 days of the effective date of this permit and lasting for the duration of this permit.

   c. Sampling Requirements
      (1) For each routine test or additional follow-up test conducted, a total of three flow proportional 24-hr composite samples of final effluent shall be collected and used in accordance with the sampling protocol discussed in EPA-821-R-02-013, Section 8.
      (2) The first sample shall be used to initiate the test. The remaining two samples shall be collected according to the protocol and used as renewal solutions on Day 3 (48 hours) and Day 5 (96 hours) of the test.
      (3) Samples for routine and additional follow-up tests shall not be collected on the same day.

   d. Test Requirements
      (1) Routine Tests: All routine tests shall be conducted using a control (0% effluent) and a minimum of five test dilutions: **100%**, **50%**, **25%**, **12.5%**, and **6.25%** final effluent.
      (2) The permittee shall conduct a daphnid, **Ceriodaphnia dubia**, Survival and Reproduction Test and a fathead minnow, **Pimephales promelas**, Larval Survival and Growth Test, concurrently.
      (3) All test species, procedures and quality assurance criteria used shall be in accordance with **Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms**, 4th Edition, EPA-821-R-02-013. Any deviation of the bioassay procedures outlined herein shall be submitted in writing to the Department for review and approval prior to use. In the event the above method is revised, the permittee shall conduct chronic toxicity testing in accordance with the revised method.
      (4) The control water and dilution water shall be moderately hard water as described in EPA-821-R-02-013, Section 7.2.3.

e. Quality Assurance Requirements
(1) A standard reference toxicant (SRT) quality assurance (QA) chronic toxicity test shall be conducted with each species used in the required toxicity tests either concurrently or initiated no more than 30 days before the date of each routine or additional follow-up test conducted. Additionally, the SRT test must be conducted concurrently if the test organisms are obtained from outside the test laboratory unless the test organism supplier provides control chart data from at least the last five monthly chronic toxicity tests using the same reference toxicant and test conditions. If the organism supplier provides the required SRT data, the organism supplier's SRT data and the test laboratory's monthly SRT-QA data shall be included in the reports for each companion routine or additional follow-up test required.
(2) If the mortality in the control (0% effluent) exceeds 20% for either species in any test or the "test acceptability criteria" are not met, the test for that species (including the control) shall be invalidated and the test repeated. Test acceptability criteria for each species are defined in EPA-821-R-02-013, Section 13.12 (**Ceriodaphnia dubia**) and Section 11.11 (**Pimephales promelas**). The repeat test shall begin within 21 days after the last day of the invalid test.
(3) If 100% mortality occurs in all effluent concentrations for either test species prior to the end of any test and the control mortality is less than 20% at that time, the test (including the control) for that species shall be terminated with the conclusion that the test fails and constitutes non-compliance.
(4) Routine and additional follow-up tests shall be evaluated for acceptability based on the observed dose-response relationship as required by EPA-821-R-02-013, Section 10.2.6., and the evaluation shall be included with the bioassay laboratory reports.

f. Reporting Requirements
(1) Results from all required tests shall be reported on the Discharge Monitoring Report (DMR) as follows:
(a) Routine and Additional Follow-up Test Results: The calculated IC25 for reproduction or growth for each test species shall be entered on the DMR.
(2) A bioassay laboratory report for each routine test shall be prepared according to EPA-821-R-02-013, Section 10, Report Preparation and Test Review, and mailed to the Department at the address below within 30 days after the last day of the test.
(3) For additional follow-up tests, a single bioassay laboratory report shall be prepared according to EPA-821-R-02-013, Section 10, and mailed within 30 days after the last day of the second valid additional follow-up test.
(4) Data for invalid tests shall be included in the bioassay laboratory report for the repeat test.
(5) The same bioassay data shall not be reported as the results of more than one test.
(6) All bioassay laboratory reports shall be sent to:

Florida Department of Environmental Protection
Southwest District Office
13051 N Telecom Pkwy
Temple Terrace, Florida 33637-0926
Phone Number - (813) 470-5700
FAX Number - (813) 470-5996
swd_dw@dep.state.fl.us

g. Test Failures
(1) A test fails when the test results do not meet the limits in I.A.6.a.(1).
(2) Additional Follow-up Tests:
(a) If a routine test does not meet the chronic toxicity limitation in I.A.6.a.(1) above, the permittee shall notify the Department at the address above within 21 days after the last day of the failed routine test and conduct two additional follow-up tests on each species that failed the test in accordance with I.A.6.d.
(b) The first test shall be initiated within 28 days after the last day of the failed routine test. The remaining additional follow-up tests shall be conducted weekly thereafter until a total of two valid additional follow-up tests are completed.
(c) The first additional follow-up test shall be conducted using a control (0% effluent) and a minimum of five dilutions: 100%, 50%, 25%, 12.5%, and 6.25% effluent. The permittee may modify the dilution series in the second additional follow-up test to more accurately bracket the toxicity such that at least two dilutions above and two dilutions below the target concentration and a control (0%

effluent) are run. All test results shall be analyzed according to the procedures in EPA-821-R-02-013.

(3) In the event of three valid test failures (whether routine or additional follow-up tests) within a 12-month period, the permittee shall notify the Department within 21 days after the last day of the third test failure.
   (a) The permittee shall submit a plan for correction of the effluent toxicity within 60 days after the last day of the third test failure.
   (b) The Department shall review and approve the plan before initiation.
   (c) The plan shall be initiated within 30 days following the Department's written approval of the plan.
   (d) Progress reports shall be submitted quarterly to the Department at the address above.
   (e) During the implementation of the plan, the permittee shall conduct quarterly routine whole effluent toxicity tests in accordance with I.A.6.d. Additional follow-up tests are not required while the plan is in progress. Following completion or termination of the plan, the frequency of monitoring for routine and additional follow-up tests shall return to the schedule established in I.A.6.b.(1). If a routine test is invalid according to the acceptance criteria in EPA-821-R-02-013, a repeat test shall be initiated within 21 days after the last day of the invalid routine test.
   (f) Upon completion of four consecutive quarterly valid routine tests that demonstrate compliance with the effluent limitation in I.A.6.a.(1) above, the permittee may submit a written request to the Department to terminate the plan. The plan shall be terminated upon written verification by the Department that the facility has passed at least four consecutive quarterly valid routine whole effluent toxicity tests. If a test within the sequence of the four is deemed invalid, but is replaced by a repeat valid test initiated within 21 days after the last day of the invalid test, the invalid test will not be counted against the requirement for four consecutive quarterly valid routine tests for the purpose of terminating the plan.

(4) If chronic toxicity test results indicate greater than 50% mortality within 96 hours in an effluent concentration equal to or less than the effluent concentration specified as the acute toxicity limit in I.A.6.a.(2), the Department may revise this permit to require acute definitive whole effluent toxicity testing.

(5) The additional follow-up testing and the plan do not preclude the Department taking enforcement action for acute or chronic whole effluent toxicity failures.

[62-4.241, 62-620.620(3)]

7. In accordance with Rule 62-304.645(13)(a), F.A.C., the Total Maximum Daily Load for Total Nitrogen from this facility shall be 2.12 tons/year (annual total). The Total Nitrogen loading shall be calculated from the monthly average Total Nitrogen concentrations as follows:

Monthly Total (Mt)
$Mt_n = \frac{\text{(Monthly Average Total Nitrogen Concentration, mg/l)(Total Monthly Flow, MG)(8.3454)}}{\text{2000 lbs}}$
Mt_n = Tons/Month

The Annual Total shall be calculated as a 12-month rolling total based on the cumulative total of TN tons discharged during the reporting month (Mt_n) plus the total of TN tons discharged during the preceding 11 consecutive months.

Annual Total (At)*
Annual Total at the end of the n^{th} Month: $At = Mt_{n-11} + Mt_{n-10} \ldots Mt_n$

*The Annual Total will be calculated and reported as an accumulation of each monthly TN load after this permit monitoring effective date until twelve (12) months of data are collected, after which the rolling total will be reported.

[62-304.645(13)(a)]

8. Ambient Monitoring Program
The permittee shall conduct a surface water-monitoring program to evaluate the impacts of the discharge on the water quality of the receiving body of water. The monitoring described below shall be conducted semi-annual basis (wet and dry season). The monitoring reports shall be submitted to the Department's SW District Office annually. The reports shall include discussion and interpretation of the water quality results.

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Ambient sampling should always be conducted in conjunction with a surface water discharge sampling event.

a. Sampling locations

i. Test site 1 shall be located 300 feet upstream of the outfall to Curlew Creek.
ii. Test site 2 shall be located 300 feet downstream of the outfall to Curlew Creek.
iii. Outfall D-001 (effluent): At the outfall (effluent shall be collected just prior to mixing with the surface waters).

b. Sampling Depths

i. Mid-depth samples shall be collected at the two ambient sites.

c. Sampling Parameters

i. Surface (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity and specific conductance shall be measured at 0.1 meter below the surface of the water.
ii. Mid-depth (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity, specific conductivity, total suspended solids, $CBOD_5$, total Kjeldahl nitrogen, nitrite-nitrate, total ammonia nitrogen, total phosphorous, ortho-phosphorus, chlorophyll a corrected, fecal coliform bacteria and turbidity.
iii. Outfall (effluent): pH, dissolved oxygen, temperature, specific conductivity, total suspended solids, $CBOD_5$, total Kjeldahl nitrogen, nitrite-nitrate, total ammonia nitrogen, total phosphorus, ortho-phosphorus and fecal coliform bacteria.
iv. Bottom (at upstream and downstream sites): pH, dissolved oxygen, temperature, salinity and specific conductivity shall be measured at 0.1 meter above the bottom.

d. Secchi Depth: Secchi depth shall be measured at both ambient sites.

e. Ambient Conditions: Air temperature, rainfall, cloud cover and flow direction of receiving water body shall be noted at each sampling site.

f. Chain of Custody: Time/date of sampling and name of persons who obtained the sample shall be noted at each sampling site.

g. Report: A report containing the data from the Ambient Monitoring Program shall be submitted to FDEP's Southwest District outlining the results in electronic format. The report shall also include all chain of custody forms, laboratory results as reported by the laboratory and the physiochemical raw data sheets. *[62-302.300]*

B. Other Limitations and Monitoring and Reporting Requirements

1. During the period beginning on the effective date and lasting through the expiration date of this permit, the treatment facility shall be limited and monitored by the permittee as specified below and reported in accordance with condition I.B.7.:

			Limitations		Monitoring Requirements			
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number	Notes
Flow, Total Plant	MGD	Max	0.9	Annual Average	Monthly	Calculated	FLW-01	See I.B.4
Flow, Total Plant	MGD	Max Max	Report Report	Monthly Average 3-Month Rolling Average	5 Days/Week	Recording Flow Meter with Totalizer	FLW-01	SeeI.B.4
Percent Capacity, (TMADF/Permitted Capacity) x 100	percent	Max	Report	Monthly Average	Monthly	Calculated	INF-01	
BOD, Carbonaceous 5 day, 20C (Influent)	mg/L	Max	Report	Monthly Average	Monthly	16-hr FPC	INF-01	See I.B.3
Solids, Total Suspended (Influent)	mg/L	Max	Report	Monthly Average	Monthly	16-hr FPC	INF-01	See I.B.3

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2. Samples shall be taken at the monitoring site locations listed in Permit Condition I.B.1. and as described below:

Monitoring Site Number	Description of Monitoring Site
FLW-01	Flow meter prior to discharge to Curlew Creek.
INF-01	Influent sampling point at the head works prior to treatment and ahead of the return activated sludge line.

3. Influent samples shall be collected so that they do not contain digester supernatant or return activated sludge, or any other plant process recycled waters. *[62-600.660(4)(a)]*

4. Recording Flow meters and totalizers shall be utilized to measure flow and calibrated at least annually. [*62-600.200(25)*]

5. The sample collection, analytical test methods and method detection limits (MDLs) applicable to this permit shall be conducted using a sufficiently sensitive method to ensure compliance with applicable water quality standards and effluent limitations and shall be in accordance with Rule 62-4.246, Chapters 62-160 and 62-600, F.A.C., and 40 CFR 136, as appropriate. The list of Department established analytical methods, and corresponding MDLs (method detection limits) and PQLs (practical quantitation limits), which is titled "FAC 62-4 MDL/PQL Table (April 26, 2006)" is available at http://www.dep.state.fl.us/labs/library/index.htm. The MDLs and PQLs as described in this list shall constitute the minimum acceptable MDL/PQL values and the Department shall not accept results for which the laboratory's MDLs or PQLs are greater than those described above unless alternate MDLs and/or PQLs have been specifically approved by the Department for this permit. Any method included in the list may be used for reporting as long as it meets the following requirements:

   a. The laboratory's reported MDL and PQL values for the particular method must be equal or less than the corresponding method values specified in the Department's approved MDL and PQL list;

   b. The laboratory reported MDL for the specific parameter is less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Parameters that are listed as "report only" in the permit shall use methods that provide an MDL, which is equal to or less than the applicable water quality criteria stated in 62-302, F.A.C.; and

   c. If the MDLs for all methods available in the approved list are above the stated permit limit or applicable water quality criteria for that parameter, then the method with the lowest stated MDL shall be used.

   When the analytical results are below method detection or practical quantitation limits, the permittee shall report the actual laboratory MDL and/or PQL values for the analyses that were performed following the instructions on the applicable discharge monitoring report.

   Where necessary, the permittee may request approval of alternate methods or for alternative MDLs or PQLs for any approved analytical method. Approval of alternate laboratory MDLs or PQLs are not necessary if the laboratory reported MDLs and PQLs are less than or equal to the permit limit or the applicable water quality criteria, if any, stated in Chapter 62-302, F.A.C. Approval of an analytical method not included in the above-referenced list is not necessary if the analytical method is approved in accordance with 40 CFR 136 or deemed acceptable by the Department. *[62-4.246, 62-160]*

6. The permittee shall provide safe access points for obtaining representative samples which are required by this permit. *[62-600.650(2)]*

7. Monitoring requirements under this permit are effective on the first day of the second month following the effective date of the permit. Until such time, the permittee shall continue to monitor and report in accordance with previously effective permit requirements, if any. During the period of operation authorized by this permit, the permittee shall complete and submit to the Department Discharge Monitoring Reports (DMRs) in accordance with the frequencies specified by the REPORT type (i.e. monthly, quarterly, semiannual, annual, etc.) indicated on the DMR forms attached to this permit. Unless specified otherwise in this permit, monitoring results for each

monitoring period shall be submitted in accordance with the associated DMR due dates below. DMRs shall be submitted for each required monitoring period including periods of no discharge.

REPORT Type on DMR	Monitoring Period	Mail or Electronically Submit by
Monthly	first day of month - last day of month	28th day of following month
Quarterly	January 1 - March 31 April 1 - June 30 July 1 - September 30 October 1 - December 31	April 28 July 28 October 28 January 28
Semiannual	January 1 - June 30 July 1 - December 31	July 28 January 28
Annual	January 1 - December 31	January 28

The permittee may submit either electronic or paper DMR forms before December 21, 2016. As of December 21, 2016, the permittee is required to submit electronic DMR forms.

If submitting electronic DMR forms, the permittee shall use the electronic DMR system approved by the Department (EzDMR) and shall electronically submit the completed DMR forms using the DEP Business Portal at http://www.fldepportal.com/go/. Reports shall be submitted to the Department by the twenty-eighth (28th) of the month following the month of operation. Data submitted in electronic format is equivalent to data submitted on signed and certified paper DMR forms.

If submitting paper DMR forms, the permittee shall make copies of the attached DMR forms, without altering the original format or content unless approved by the Department, and shall mail the completed DMR forms to the Department by the twenty-eighth (28th) of the month following the month of operation at the address specified below:

Florida Department of Environmental Protection
Wastewater Compliance Evaluation Section, Mail Station 3551
Bob Martinez Center
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

[62-620.610(18)][62-600.680(1)]

8. Unless specified otherwise in this permit, all reports and other information required by this permit, including 24-hour notifications, shall be submitted to or reported to, as appropriate, the Department's Southwest District Office at the address specified below:

Florida Department of Environmental Protection
Southwest District Office
13051 N Telecom Pkwy
Temple Terrace, Florida 33637-0926
Phone Number - (813) 470-5700
FAX Number - (813) 470-5996
swd_dw@dep.state.fl.us
[62-620.305]

9. All reports and other information shall be signed in accordance with the requirements of Rule 62-620.305, F.A.C.
[62-620.305]

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II. BIOSOLIDS MANAGEMENT REQUIREMENTS

A. Basic Requirements

1. Biosolids generated by this facility may be transferred to a Biosolids Treatment Facility (BTF) or disposed of in a Class I solid waste landfill. Transferring biosolids to an alternative biosolids treatment facility does not require a permit modification. However, use of an alternative biosolids treatment facility requires submittal of a copy of the agreement pursuant to Rule 62-640.880(1)(c), F.A.C., along with a written notification to the Department at least 30 days before transport of the biosolids. *[62-620.320(6), 62-640.880(1)]*

2. The permittee shall monitor and keep records of the quantities of biosolids generated, received from source facilities, treated, distributed and marketed, land applied, used as a biofuel or for bioenergy, transferred to another facility, or landfilled. These records shall be kept for a minimum of five years. *[62-640.650(4)(a)]*

3. Biosolids quantities shall be monitored by the permittee as specified below. Results shall be reported on the permittee's Discharge Monitoring Report for Monitoring Group RMP-Q in accordance with Condition I.B.7.

			Biosolids Limitations		Monitoring Requirements		
Parameter	Units	Max/Min	Limit	Statistical Basis	Frequency of Analysis	Sample Type	Monitoring Site Number
Biosolids Quantity (Transferred)	dry tons	Max	Report	Monthly Total	Monthly	Calculated	RMP-1
Biosolids Quantity (Landfilled)	dry tons	Max	Report	Monthly Total	Monthly	Calculated	RMP-2

[62-640.650(5)(a)1]

4. Biosolids quantities shall be calculated as listed in Permit Condition II.3 and as described below:

Monitoring Site Number	Description of Monitoring Site Calculations
RMP-1	Biosolids Quantity (Transferred to Biosolids Treatment Facility)
RMP-2	Biosolids Quantity (Landfilled)

5. The treatment, management, transportation, use, land application, or disposal of biosolids shall not cause a violation of the odor prohibition in subsection 62-296.320(2), F.A.C. *[62-640.400(6)]*

6. Storage of biosolids or other solids at this facility shall be in accordance with the Facility Biosolids Storage Plan. *[62-640.300(4)]*

7. Biosolids shall not be spilled from or tracked off the treatment facility site by the hauling vehicle. *[62-640.400(9)]*

B. Disposal

8. Disposal of biosolids, septage, and "other solids" in a solid waste disposal facility, or disposal by placement on land for purposes other than soil conditioning or fertilization, such as at a monofill, surface impoundment, waste pile, or dedicated site, shall be in accordance with Chapter 62-701, F.A.C. *[62-640.100(6)(b) & (c)]*

C. Transfer

9. The permittee shall not be held responsible for treatment and management violations that occur after its biosolids have been accepted by a permitted biosolids treatment facility with which the source facility has an agreement in accordance with subsection 62-640.880(1)(c), F.A.C., for further treatment, management, or disposal. *[62-640.880(1)(b)]*

10. The permittee shall keep hauling records to track the transport of biosolids between the facilities. The hauling records shall contain the following information:

Source Facility	Biosolids Treatment Facility or Treatment Facility
1. Date and time shipped	1. Date and time received
2. Amount of biosolids shipped	2. Amount of biosolids received
3. Degree of treatment (if applicable)	3. Name and ID number of source facility
4. Name and ID Number of treatment facility	4. Signature of hauler
5. Signature of responsible party at source facility	5. Signature of responsible party at treatment facility
6. Signature of hauler and name of hauling firm	

A copy of the source facility hauling records for each shipment shall be provided upon delivery of the biosolids to the biosolids treatment facility or treatment facility. The treatment facility permittee shall report to the Department within 24 hours of discovery any discrepancy in the quantity of biosolids leaving the source facility and arriving at the biosolids treatment facility or treatment facility.

[62-640.880(4)]

D. Receipt

11. If the permittee intends to accept biosolids from other facilities, a permit revision is required pursuant to paragraph 62-640.880(2)(d), F.A.C. *[62-640.880(2)(a)]*

III. GROUND WATER REQUIREMENTS

1. Section III is not applicable to this facility.

IV. ADDITIONAL REUSE AND LAND APPLICATION REQUIREMENTS

1. Section IV is not applicable to this facility.

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V. OPERATION AND MAINTENANCE REQUIREMENTS

A. Staffing Requirements

1. During the period of operation authorized by this permit, the wastewater facilities shall be operated under the supervision of a(n) operator(s) certified in accordance with Chapter 62-602, F.A.C. In accordance with Chapter 62-699, F.A.C., this facility is a Category I, Class B facility and, at a minimum, operators with appropriate certification must be on the site as follows:

   A Class C or higher operator 8 hours/day for 7 days/week. The 8 hours/day of staffing shall occur during the 8-hour period of greatest influent flow. The lead/chief operator must be a Class B operator, or higher.

   [62-620.630(3)][62-699.310][62-699.311(5)(a)2.] [62-610.462]

2. The lead/chief operator shall be employed at the plant full time. "Full time" shall mean at least 4 days per week, working a minimum of 35 hours per week, including leave time. A licensed operator shall be on-site and in charge of each required shift for periods of required staffing time when the lead/chief operator is not on-site. An operator meeting the lead/chief operator class for the treatment plant shall be available during all periods of plant operation. "Available" means able to be contacted as needed to initiate the appropriate action in a timely manner. *[62-699.311(10), (6) and (1)]*

B. Capacity Analysis Report and Operation and Maintenance Performance Report Requirements

1. The application to renew this permit shall include an updated capacity analysis report prepared in accordance with Rule 62-600.405, F.A.C. *[62-600.405(5)]*

2. The application to renew this permit shall include a detailed operation and maintenance performance report prepared in accordance with Rule 62-600.735, F.A.C. *[62-600.735(1)]*

C. Recordkeeping Requirements

1. The permittee shall maintain the following records and make them available for inspection on the site of the permitted facility.
   a. Records of all compliance monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, including, if applicable, a copy of the laboratory certification showing the certification number of the laboratory, for at least three years from the date the sample or measurement was taken;
   b. Copies of all reports required by the permit for at least three years from the date the report was prepared;
   c. Records of all data, including reports and documents, used to complete the application for the permit for at least three years from the date the application was filed;
   d. Monitoring information, including a copy of the laboratory certification showing the laboratory certification number, related to the biosolids use and disposal activities for the time period set forth in Chapter 62-640, F.A.C., for at least five years from the date of sampling or measurement;
   e. A copy of the current permit;
   f. A copy of the current operation and maintenance manual as required by Chapter 62-600, F.A.C.;
   g. A copy of any required record drawings;
   h. Copies of the licenses of the current certified operators;

i. Copies of the logs and schedules showing plant operations and equipment maintenance for three years from the date of the logs or schedules. The logs shall, at a minimum, include identification of the plant; the signature and license number of the operator(s) and the signature of the person(s) making any entries; date and time in and out; specific operation and maintenance activities, including any preventive maintenance or repairs made or requested; results of tests performed and samples taken, unless documented on a laboratory sheet; and notation of any notification or reporting completed in accordance with Rule 62-602.650(3), F.A.C. The logs shall be maintained on-site in a location accessible to 24-hour inspection, protected from weather damage, and current to the last operation and maintenance performed; and

j. Records of biosolids quantities, treatment, monitoring, and hauling for at least five years.

[62-620.350, 62-602.650, 62-640.650(4)]

VI. SCHEDULES

1. The following improvement actions shall be completed according to the following schedule:

Improvement Action	Completion Date
a. Submit Notification of Completion of Constructions for Wastewater Facilities or Activities, DEP Form 62-620.910(12), prior to placing headworks into operation.	Prior to placing headworks into operation.
b. Submit Notification of Availability of Record Drawings and Final Operation and Maintenance Manuals, DEP Form 62-620.910(13).	Within 6 months of placing headworks into operation.
c. Submit an application for renewal as required in permit Conditions VI.2. a.	At least 180 days before the permit expiration date.

2. The permittee is not authorized to discharge to waters of the state after the expiration date of this permit, unless:

   a. The permittee has applied for renewal of this permit at least 180 days before the expiration date of this permit using the appropriate forms listed in Rule 62-620.910, F.A.C., and in the manner established in the Department of Environmental Protection Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620, F.A.C., including submittal of the appropriate processing fee set forth in Rule 62-4.050, F.A.C.; or

   b. The permittee has made complete the application for renewal of this permit before the permit expiration date.

   Please note, effluent testing shall be conducted for each outfall in accordance with the instructions provided in Sections 3.A.12., 13., and 14. of the application form. A minimum of three samples shall be taken within four and one-half years prior to the date of the permit application and must be representative of the seasonal variation in the discharge from each outfall. *[62-620.335(1) - (4)]*

VII. INDUSTRIAL PRETREATMENT PROGRAM REQUIREMENTS

1. This facility is not required to have a pretreatment program at this time. *[62-625.500]*

VIII. OTHER SPECIFIC CONDITIONS

1. In the event that the treatment facilities or equipment no longer function as intended, are no longer safe in terms of public health and safety, or odor, noise, aerosol drift, or lighting adversely affects neighboring developed areas at the levels prohibited by Rule 62-600.400(2)(a), F.A.C., corrective action (which may include additional maintenance or modifications of the permitted facilities) shall be

taken by the permittee. Other corrective action may be required to ensure compliance with rules of the Department. Additionally, the treatment, management, use or land application of residuals shall not cause a violation of the odor prohibition in Rule 62-296.320(2), F.A.C. *[62-600.410(5) and 62-640.400(6)]*

2. The deliberate introduction of stormwater in any amount into collection/transmission systems designed solely for the introduction (and conveyance) of domestic/industrial wastewater; or the deliberate introduction of stormwater into collection/transmission systems designed for the introduction or conveyance of combinations of storm and domestic/industrial wastewater in amounts which may reduce the efficiency of pollutant removal by the treatment plant is prohibited, except as provided by Rule 62-610.472, F.A.C. *[62-604.130(3)]*

3. Collection/transmission system overflows shall be reported to the Department in accordance with Permit Condition IX. 20. *[62-604.550] [62-620.610(20)]*

4. The operating authority of a collection/transmission system and the permittee of a treatment plant are prohibited from accepting connections of wastewater discharges which have not received necessary pretreatment or which contain materials or pollutants (other than normal domestic wastewater constituents):

   a. Which may cause fire or explosion hazards; or

   b. Which may cause excessive corrosion or other deterioration of wastewater facilities due to chemical action or pH levels; or

   c. Which are solid or viscous and obstruct flow or otherwise interfere with wastewater facility operations or treatment; or

   d. Which result in the wastewater temperature at the introduction of the treatment plant exceeding $40^{o}C$ or otherwise inhibiting treatment; or

   e. Which result in the presence of toxic gases, vapors, or fumes that may cause worker health and safety problems.

   [62-604.130(5)]

5. The treatment facility, storage ponds for Part II systems, rapid infiltration basins, and/or infiltration trenches shall be enclosed with a fence or otherwise provided with features to discourage the entry of animals and unauthorized persons. *[62-600.400(2)(b)]*

6. Screenings and grit removed from the wastewater facilities shall be collected in suitable containers and hauled to a Department approved Class I landfill or to a landfill approved by the Department for receipt/disposal of screenings and grit. *[62-701.300(1)(a)]*

7. Where required by Chapter 471 or Chapter 492, F.S., applicable portions of reports that must be submitted under this permit shall be signed and sealed by a professional engineer or a professional geologist, as appropriate. *[62-620.310(4)]*

8. The permittee shall provide verbal notice to the Department's Southwest District Office as soon as practical after discovery of a sinkhole or other karst feature within an area for the management or application of wastewater, wastewater biosolids (sludges), or reclaimed water. The permittee shall immediately implement measures appropriate to control the entry of contaminants, and shall detail these measures to the Department's Southwest District Office in a written report within 7 days of the sinkhole discovery. *[62-620.320(6)]*

9. The permittee shall provide notice to the Department of the following:

   a. Any new introduction of pollutants into the facility from an industrial discharger which would be subject to Chapter 403, F.S., and the requirements of Chapter 62-620, F.A.C., if it were directly discharging those pollutants; and

   b. Any substantial change in the volume or character of pollutants being introduced into that facility by a source which was identified in the permit application and known to be discharging at the time the permit was issued.

   Notice shall include information on the quality and quantity of effluent introduced into the facility and any anticipated impact of the change on the quantity or quality of effluent or reclaimed water to be discharged from the facility.

   [62-620.625(2)]

10. Reopener Clause:

   a. The permit shall be revised, or alternatively, revoked and reissued in accordance with the provisions contained in Rules 62-620.325 and 62-620.345, F.A.C., if applicable, or to comply with any applicable effluent standard or limitation issued or approved under Sections 301(b)(2)(C) and (D), 304(b)(2) and 307(a)(2) of the Clean Water Act (the Act), as amended, if the effluent standards, limitations, or water quality standards so issued or approved:
      (1) Contains different conditions or is otherwise more stringent than any condition in the permit/or;
      (2) Controls any pollutant not addressed in the permit.
      (3) The permit as revised or reissued under this paragraph shall also contain any other requirements of the Act then applicable.

   b. The permit may be reopened to adjust effluent limitations or monitoring requirements should future Water Quality Based Effluent Limitation determinations, water quality studies, DEP approved changes in water quality standards, or other information show a need for a different limitation or monitoring requirement.

   c. The Department may develop a Total Maximum Daily Load (TMDL) during the life of the permit. Once a TMDL has been established and adopted by rule, the Department shall revise this permit to incorporate the final findings of the TMDL.

   [62-620.325 & 62-620.345]

IX. GENERAL CONDITIONS

1. The terms, conditions, requirements, limitations, and restrictions set forth in this permit are binding and enforceable pursuant to Chapter 403, Florida Statutes. Any permit noncompliance constitutes a violation of Chapter 403, Florida Statutes, and is grounds for enforcement action, permit termination, permit revocation and reissuance, or permit revision. *[62-620.610(1)]*

2. This permit is valid only for the specific processes and operations applied for and indicated in the approved drawings or exhibits. Any unauthorized deviations from the approved drawings, exhibits, specifications, or conditions of this permit constitutes grounds for revocation and enforcement action by the Department. *[62-620.610(2)]*

3. As provided in subsection 403.087(7), F.S., the issuance of this permit does not convey any vested rights or any exclusive privileges. Neither does it authorize any injury to public or private property or any invasion of personal rights, nor authorize any infringement of federal, state, or local laws or regulations. This permit is not a waiver of or approval of any other Department permit or authorization

that may be required for other aspects of the total project which are not addressed in this permit. *[62-620.610(3)]*

4. This permit conveys no title to land or water, does not constitute state recognition or acknowledgment of title, and does not constitute authority for the use of submerged lands unless herein provided and the necessary title or leasehold interests have been obtained from the State. Only the Trustees of the Internal Improvement Trust Fund may express State opinion as to title. *[62-620.610(4)]*

5. This permit does not relieve the permittee from liability and penalties for harm or injury to human health or welfare, animal or plant life, or property caused by the construction or operation of this permitted source; nor does it allow the permittee to cause pollution in contravention of Florida Statutes and Department rules, unless specifically authorized by an order from the Department. The permittee shall take all reasonable steps to minimize or prevent any discharge, reuse of reclaimed water, or residuals use or disposal in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. *[62-620.610(5)]*

6. If the permittee wishes to continue an activity regulated by this permit after its expiration date, the permittee shall apply for and obtain a new permit. *[62-620.610(6)]*

7. The permittee shall at all times properly operate and maintain the facility and systems of treatment and control, and related appurtenances, that are installed and used by the permittee to achieve compliance with the conditions of this permit. This provision includes the operation of backup or auxiliary facilities or similar systems when necessary to maintain or achieve compliance with the conditions of the permit. *[62-620.610(7)]*

8. This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit revision, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition. *[62-620.610(8)]*

9. The permittee, by accepting this permit, specifically agrees to allow authorized Department personnel, including an authorized representative of the Department and authorized EPA personnel, when applicable, upon presentation of credentials or other documents as may be required by law, and at reasonable times, depending upon the nature of the concern being investigated, to:

   a. Enter upon the permittee's premises where a regulated facility, system, or activity is located or conducted, or where records shall be kept under the conditions of this permit;

   b. Have access to and copy any records that shall be kept under the conditions of this permit;

   c. Inspect the facilities, equipment, practices, or operations regulated or required under this permit; and

   d. Sample or monitor any substances or parameters at any location necessary to assure compliance with this permit or Department rules.

   [62-620.610(9)]

10. In accepting this permit, the permittee understands and agrees that all records, notes, monitoring data, and other information relating to the construction or operation of this permitted source which are submitted to the Department may be used by the Department as evidence in any enforcement case involving the permitted source arising under the Florida Statutes or Department rules, except as such use is proscribed by Section 403.111, F.S., or Rule 62-620.302, F.A.C. Such evidence shall only be

used to the extent that it is consistent with the Florida Rules of Civil Procedure and applicable evidentiary rules. *[62-620.610(10)]*

11. When requested by the Department, the permittee shall within a reasonable time provide any information required by law which is needed to determine whether there is cause for revising, revoking and reissuing, or terminating this permit, or to determine compliance with the permit. The permittee shall also provide to the Department upon request copies of records required by this permit to be kept. If the permittee becomes aware of relevant facts that were not submitted or were incorrect in the permit application or in any report to the Department, such facts or information shall be promptly submitted or corrections promptly reported to the Department. *[62-620.610(11)]*

12. Unless specifically stated otherwise in Department rules, the permittee, in accepting this permit, agrees to comply with changes in Department rules and Florida Statutes after a reasonable time for compliance; provided, however, the permittee does not waive any other rights granted by Florida Statutes or Department rules. A reasonable time for compliance with a new or amended surface water quality standard, other than those standards addressed in Rule 62-302.500, F.A.C., shall include a reasonable time to obtain or be denied a mixing zone for the new or amended standard. *[62-620.610(12)]*

13. The permittee, in accepting this permit, agrees to pay the applicable regulatory program and surveillance fee in accordance with Rule 62-4.052, F.A.C. *[62-620.610(13)]*

14. This permit is transferable only upon Department approval in accordance with Rule 62-620.340, F.A.C. The permittee shall be liable for any noncompliance of the permitted activity until the transfer is approved by the Department. *[62-620.610(14)]*

15. The permittee shall give the Department written notice at least 60 days before inactivation or abandonment of a wastewater facility or activity and shall specify what steps will be taken to safeguard public health and safety during and following inactivation or abandonment. *[62-620.610(15)]*

16. The permittee shall apply for a revision to the Department permit in accordance with Rules 62-620.300, F.A.C., and the Department of Environmental Protection Guide to Permitting Wastewater Facilities or Activities Under Chapter 62-620, F.A.C., at least 90 days before construction of any planned substantial modifications to the permitted facility is to commence or with Rule 62-620.325(2), F.A.C., for minor modifications to the permitted facility. A revised permit shall be obtained before construction begins except as provided in Rule 62-620.300, F.A.C. *[62-620.610(16)]*

17. The permittee shall give advance notice to the Department of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements. The permittee shall be responsible for any and all damages which may result from the changes and may be subject to enforcement action by the Department for penalties or revocation of this permit. The notice shall include the following information:

    a. A description of the anticipated noncompliance;

    b. The period of the anticipated noncompliance, including dates and times; and

    c. Steps being taken to prevent future occurrence of the noncompliance.

    [62-620.610(17)]

18. Sampling and monitoring data shall be collected and analyzed in accordance with Rule 62-4.246 and Chapters 62-160, 62-600, and 62-610, F.A.C., and 40 CFR 136, as appropriate.

a. Monitoring results shall be reported at the intervals specified elsewhere in this permit and shall be reported on a Discharge Monitoring Report (DMR), DEP Form 62-620.910(10), or as specified elsewhere in the permit.

b. If the permittee monitors any contaminant more frequently than required by the permit, using Department approved test procedures, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR.

c. Calculations for all limitations which require averaging of measurements shall use an arithmetic mean unless otherwise specified in this permit.

d. Except as specifically provided in Rule 62-160.300, F.A.C., any laboratory test required by this permit shall be performed by a laboratory that has been certified by the Department of Health Environmental Laboratory Certification Program (DOH ELCP). Such certification shall be for the matrix, test method and analyte(s) being measured to comply with this permit. For domestic wastewater facilities, testing for parameters listed in Rule 62-160.300(4), F.A.C., shall be conducted under the direction of a certified operator.

e. Field activities including on-site tests and sample collection shall follow the applicable standard operating procedures described in DEP-SOP-001/01 adopted by reference in Chapter 62-160, F.A.C.

f. Alternate field procedures and laboratory methods may be used where they have been approved in accordance with Rules 62-160.220, and 62-160.330, F.A.C.

[62-620.610(18)]

19. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule detailed elsewhere in this permit shall be submitted no later than 14 days following each schedule date. *[62-620.610(19)]*

20. The permittee shall report to the Department's Southwest District Office any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain: a description of the noncompliance and its cause; the period of noncompliance including exact dates and time, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

    a. The following shall be included as information which must be reported within 24 hours under this condition:
        (1) Any unanticipated bypass which causes any reclaimed water or effluent to exceed any permit limitation or results in an unpermitted discharge,
        (2) Any upset which causes any reclaimed water or the effluent to exceed any limitation in the permit,
        (3) Violation of a maximum daily discharge limitation for any of the pollutants specifically listed in the permit for such notice, and
        (4) Any unauthorized discharge to surface or ground waters.

    b. Oral reports as required by this subsection shall be provided as follows:
        (1) For unauthorized releases or spills of treated or untreated wastewater reported pursuant to subparagraph IX.20.(a)4. that are in excess of 1,000 gallons per incident, or where information indicates that public health or the environment will be endangered, oral reports shall be provided to the STATE WATCH OFFICE TOLL FREE NUMBER (800) 320-0519, as soon as practical, but no later than 24 hours from the time the permittee becomes aware of the

discharge. The permittee, to the extent known, shall provide the following information to the State Watch Office:
(a) Name, address, and telephone number of person reporting;
(b) Name, address, and telephone number of permittee or responsible person for the discharge;
(c) Date and time of the discharge and status of discharge (ongoing or ceased);
(d) Characteristics of the wastewater spilled or released (untreated or treated, industrial or domestic wastewater);
(e) Estimated amount of the discharge;
(f) Location or address of the discharge;
(g) Source and cause of the discharge;
(h) Whether the discharge was contained on-site, and cleanup actions taken to date;
(i) Description of area affected by the discharge, including name of water body affected, if any; and
(j) Other persons or agencies contacted.

(2) Oral reports, not otherwise required to be provided pursuant to subparagraph IX.20.b.1 above, shall be provided to the Department's Southwest District Office within 24 hours from the time the permittee becomes aware of the circumstances.

c. If the oral report has been received within 24 hours, the noncompliance has been corrected, and the noncompliance did not endanger health or the environment, the Department's Southwest District Office shall waive the written report.

[62-620.610(20)]

21. The permittee shall report all instances of noncompliance not reported under Permit Conditions IX.17., IX.18., or IX.19. of this permit at the time monitoring reports are submitted. This report shall contain the same information required by Permit Condition IX.20. of this permit. *[62-620.610(21)]*

22. Bypass Provisions.

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment works.

b. Bypass is prohibited, and the Department may take enforcement action against a permittee for bypass, unless the permittee affirmatively demonstrates that:
(1) Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; and
(2) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and
(3) The permittee submitted notices as required under Permit Condition IX.22.c. of this permit.

c. If the permittee knows in advance of the need for a bypass, it shall submit prior notice to the Department, if possible at least 10 days before the date of the bypass. The permittee shall submit notice of an unanticipated bypass within 24 hours of learning about the bypass as required in Permit Condition IX.20. of this permit. A notice shall include a description of the bypass and its cause; the period of the bypass, including exact dates and times; if the bypass has not been corrected, the anticipated time it is expected to continue; and the steps taken or planned to reduce, eliminate, and prevent recurrence of the bypass.

d. The Department shall approve an anticipated bypass, after considering its adverse effect, if the permittee demonstrates that it will meet the three conditions listed in Permit Condition IX.22.b.(1) through (3) of this permit.

e. A permittee may allow any bypass to occur which does not cause reclaimed water or effluent limitations to be exceeded if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of Permit Condition IX.22.b. through d. of this permit.

[62-620.610(22)]

23. Upset Provisions.

a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based effluent limitations because of factors beyond the reasonable control of the permittee.
   (1) An upset does not include noncompliance caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, careless or improper operation.
   (2) An upset constitutes an affirmative defense to an action brought for noncompliance with technology based permit effluent limitations if the requirements of upset provisions of Rule 62-620.610, F.A.C., are met.

b. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed contemporaneous operating logs, or other relevant evidence that:
   (1) An upset occurred and that the permittee can identify the cause(s) of the upset;
   (2) The permitted facility was at the time being properly operated;
   (3) The permittee submitted notice of the upset as required in Permit Condition IX.20. of this permit; and
   (4) The permittee complied with any remedial measures required under Permit Condition IX.5. of this permit.

c. In any enforcement proceeding, the burden of proof for establishing the occurrence of an upset rests with the permittee.

d. Before an enforcement proceeding is instituted, no representation made during the Department review of a claim that noncompliance was caused by an upset is final agency action subject to judicial review.

[62-620.610(23)]

Executed in Hillsborough County, Florida.

STATE OF FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

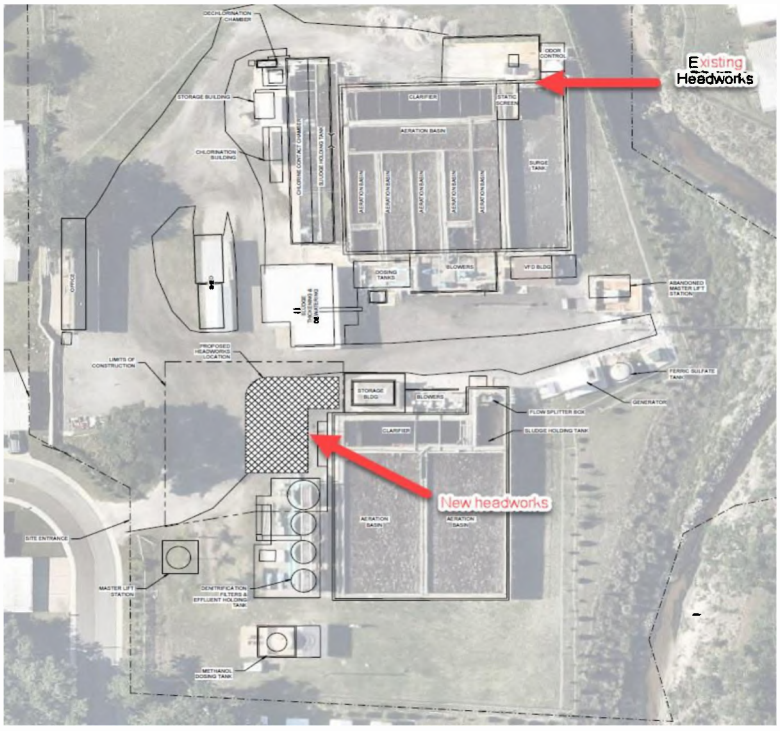
Pamala Vazquez
Program Administrator
Permitting & Waste Cleanup Program
Southwest District

AMENDMENT TO THE FACT SHEET
FOR
STATE OF FLORIDA DOMESTIC WASTEWATER FACILITY PERMIT

PERMIT NUMBER:	FL0034789-014 (Minor)
FACILITY NAME:	Mid-County WWTP
FACILITY LOCATION:	2299 Spanish Vista Drive, Dunedin, Florida 34698-9438 Pinellas County
NAME OF PERMITTEE:	Mid-County Services, Inc.
PERMIT WRITER:	Alexandria Moorehead

I. Comments by the Permittee Requesting Changes to the Permit and Fact Sheet

The permittee requested changes to the current permit for the Mid-County WWTP in correspondence received by the Department on July 7, 2020. The existing headworks structure is reaching the end of its useful service and needs replacement. The proposed headworks and grit removal system were upgraded to provide fine screening and grit removal.



The permit with file number FL0034789-013-DW1P/NR was revised to incorporate the following modification:

1. Remove the existing static screen and associated grating; and
2. Construct a new headworks including fine screens and a grit removal system.

As a result, the permit description was updated accordingly. Additionally, section VI. Schedules was modified to include the following:

Improvement Action	Completion Date
a. Submit Notification of Completion of Constructions for Wastewater Facilities or Activities, DEP Form 62-620.910(12), prior to placing headworks into operation.	Prior to placing headworks into operation.
b. Submit Notification of Availability of Record Drawings and Final Operation and Maintenance Manuals, DEP Form 62-620.910(13).	Within 6 months of placing headworks into operation.

This revision will become applicable after the proposed construction for the WWTP is completed. Changes to the current permit for the Mid-County WWTP did not substantially change any permit requirements such as flow rating of the plant, treatment type and effluent disposal.

APPENDIX B: 2016-2020 DMR Data

Date	30 Day ADF (mgd)	3 Mo. ADF (mgd)	12 Mo. ADF (mgd)	Peak (mgd)	Weekly Influent BOD (mg/L)	Weekly Influent TSS (mg/L)	Weekly Effluent BOD (mg/L)	Weekly Effluent TSS (mg/L)	Daily Grab Effluent TSS (mg/L)	Weekly BOD Efficiency (%)	Weekly TSS Efficiency (%)	Total Nitrogen (mg/L)	Total Phosphorus (mg/L)	pH Minimum (su)	pH Maximum (su)	Fecal Coliform (#/100mL)	Total Residual Chlorine (for Disinfection) (mg/L)	Total Residual Chlorine (for Dechlorination) (mg/L)	Dissolved Oxygen (mg/L)
Jan 16	0.668	0.677	0.056	0.903	259	330	2.7	1	1	99.07%	99.70%	0.66	0.41	6.7	7.6	1	1.65	0.01	7.3
Feb 16	0.694	0.676	0.114	0.787	310	420	3.05	0.75	1.4	99.02%	99.82%	0.66	0.43	6.9	7.5	1	2.05	0.01	7.1
Mar 16	0.702	0.688	0.172	0.804	230	300	4.35	1	1.2	98.11%	99.67%	4.5	0.8	6.8	7.5	1	1.2	0.01	6.7
Apr 16	0.671	0.693	0.228	0.789	400	320	2.63	1	1.4	99.34%	99.69%	2.38	0.78	6.8	7.5	1	1.3	0.01	6.02
May 16	0.685	0.686	0.285	0.896	270	340	5.3	0.75	1.4	98.04%	99.59%	0.94	0.92	6.8	7.5	1	1.55	0.01	6.83
Jun 16	0.845	0.734	0.355	1.3	430	570	2.16	0.7	2	99.50%	99.88%	1.38	0.59	6.4	7.43	1	1.09	0.01	6.68
Jul 16	0.827	0.786	0.424	1.24	620	330	3.1	0.95	2	99.50%	99.71%	1.44	0.41	6.5	7.44	58	1.4	0.01	6.16
Aug 16	1.022	0.898	0.510	1.75	220	220	2	0.2	1.6	99.09%	99.91%	1.34	0.19	6.5	7.6	2	1.3	0.01	6.21
Sep 16	1.138	1.016	0.609	2.117	220	150	0.75	0.7	1.6	99.66%	99.53%	2.52	0.17	6.3	7.5	1	1.15	0.01	5.6
Oct 16	0.743	0.988	0.671	1.143	220	350	2.25	1	3	99.22%	99.71%	1.62	0.15	6.3	7.8	32	1	0.01	5.66
Nov 16	0.657	0.866	0.726	0.998	180	260	3	0.4	1.8	98.33%	99.85%	0.93	0.32	6.6	7.82	1	1.5	0.01	6.32
Dec 16	0.661	0.687	0.781	1.028	220	250	3.2	0.43	1.6	98.55%	99.83%	1.54	0.77	6.6	7.45	1	1.5	0.01	7.2
Jan 17	0.66	0.659	0.780	1.029	180	260	3.7	1	1.6	97.94%	99.62%	1.44	0.27	6.7	7.5	1	1.2	0.01	7.2
Feb 17	0.674	0.665	0.779	0.74	310	370	4.13	0.7	2.4	98.67%	99.81%	1.11	0.34	6.2	7.32	1	1.5	0.01	7.2
Mar 17	0.663	0.666	0.776	0.732	230	260	5.28	1.08	2.2	97.70%	99.58%	1.71	0.45	6.22	7.3	1	1.5	0.01	7.29
Apr 17	0.673	0.67	0.776	0.754	280	270	2.8	1.9	1.6	99.00%	99.30%	0.8	0.56	6.6	7.2	1	1.4	0.01	6.32
May 17	0.673	0.671	0.775	0.746	210	170	2.15	1.48	9.2	98.98%	99.13%	0.86	0.43	6.4	7.6	1	1.4	0.01	6.5
Jun 17	0.764	0.705	0.768	0.853	410	410	0.84	1.48	18	99.80%	99.64%	0.9	0.58	6.76	7.6	1	1.55	0.01	6.65
Jul 17	0.809	0.751	0.767	0.942	360	170	2.7	0.84	18	98.31%	99.51%	1.39	0.34	6.57	7.7	1	1.3	0.01	5.86
Aug 17	0.841	0.805	0.752	1.155	360	450	2.43	0.8	1.5	99.33%	99.82%	1.52	0.24	6.7	7.6	1	1.5	0.01	6.08
Sep 17	0.967	0.872	0.733	1.287	320	810	2.38	0.6	2	99.26%	99.93%	1.08	0.27	6.49	7.32	1	2	0.01	5.37
Oct 17	0.794	0.867	0.737	0.937	270	280	2.1	0.8	0.9	99.22%	99.71%	2.95	0.31	6.73	7.38	1	1	0.01	6
Nov 17	0.706	0.822	0.741	0.75	140	690	7.8	1.5	1.8	94.43%	99.78%	1.55	0.63	6.96	7.9	1	1.75	0.01	6.1
Dec 17	0.67	0.723	0.742	0.848	880	6100	0.8	2.3	24	99.91%	99.96%	8.1	0.46	7	7.81	48	1.75	0.01	5.8
Jan 18	0.688	0.688	0.744	0.926	290	510	6.34	1.16	4.2	97.81%	99.77%	1.79	0.28	7.08	7.71	1	1.5	0.01	7
Feb 18	0.794	0.717	0.754	0.96	200	300	4.88	1.6	2.2	97.56%	99.47%	0.91	0.45	6.9	7.87	1	1.1	0.01	5.5
Mar 18	0.692	0.725	0.756	0.764	270	180	8.53	1.2	2.2	96.84%	99.33%	0.92	0.51	6.99	7.6	1	1.8	0.01	6.7
Apr 18	0.718	0.735	0.760	0.833	340	170	1.75	0.5	3.6	98.75%	99.71%	1.98	0.33	6.2	7.75	1	1.3	0.01	6.8
May 18	0.74	0.717	0.765	0.9	240	260	4.62	1.48	1.55	97.99%	99.43%	3.48	0.1	6.92	7.36	1	2.2	0.01	6.84
Jun 18	0.747	0.735	0.764	0.821	220	1000	4.30	2.00	1.70	98.05%	99.80%	1.56	0.62	7.04	7.42	1	2.1	0.01	6.92
Jul 18	0.777	0.755	0.761	0.867	230	320	4.40	1.70	1.33	98.09%	99.47%	1.78	0.34	7.17	7.48	1	2.3	0.01	6.73
Aug 18	0.995	0.840	0.774	1.546	180	250	3.30	1.00	1.47	98.17%	99.60%	1.86	0.06	6.72	7.29	1	2.3	0.01	6.75
Sep 18	1.044	0.939	0.780	1.442	61	100	2.48	1.00	1.15	95.94%	99.00%	1.48	0.10	6.69	7.22	1	2.3	0.01	6.90
Oct 18	0.794	0.944	0.780	0.898	220	240	3.17	1.00	1.20	97.36%	99.58%	1.44	0.71	7.13	7.48	1	2.0	0.01	6.84
Nov 18	0.694	0.844	0.773	0.787	190	1	7.30	1	1	96.16%	1.66	0.64	7.06	7.64	1	2.0	0.01	7.27
Dec 18	0.852	0.780	0.795	1.491	90	58	4.40	1.80	1.40	95.11%	96.90%	0.72	0.11	7.10	7.47	1	2.1	0.01	8.16
Jan 19	0.756	0.767	0.800	0.897	200	200	5.90	1.80	1.67	97.05%	99.10%	1.77	0.60	7.13	7.63	1	2.1	0.01	7.69
Feb 19	0.858	0.822	0.806	1.255	180	150	3.70	3.00	1.60	97.94%	98.00%	0.83	0.34	7.00	7.48	1	2.2	0.01	7.17
Mar 19	0.874	0.829	0.821	1.176	92	180	4.03	1.40	1.10	95.62%	99.22%	0.93	0.10	6.95	7.57	1	1.9	0.01	7.00
Apr 19	0.788	0.840	0.827	0.909	240	190	4.20	1	1.2	97.00%	99.47%	0.86	0.16	6.80	7.44	1	1.9	0.01	7.40
May 19	0.765	0.809	0.829	0.83	150	230	4.50	1.00	1.10	97.00%	99.57%	0.98	0.29	6.87	7.60	1	1.9	0.01	7.53
Jun 19	1.042	0.865	0.853	1.932	150	260	2.00	1.00	1.80	98.67%	99.82%	0.72	0.13	6.85	7.51	1	1.7	0.01	7.75
Jul 19	1.262	1.023	0.894	1.861	210	250	2.00	1.00	1.00	99.05%	99.60%	0.68	0.48	6.89	7.48	1	1.7	0.01	7.39
Aug 19	1.207	1.170	0.911	1.944	140	120	2.00	1.00	1.00	98.57%	99.17%	0.26	0.30	6.63	7.18	1	1.9	0.01	7.27
Sep 19	1.03	1.123	0.893	1.151	110	220	2.00	1	1	98.18%	99.55%	0.34	0.05	6.60	7.60	1	1.8	0.01	7.39
Oct 19	0.955	0.989	0.905	1.38	270	130	2.00	1.00	1.00	98.52%	99.63%	0.53	0.05	7.20	7.70	1	1.9	0.01	7.40
Nov 19	0.794	0.871	0.908	0.957	250	290	2.00	1.00	1.00	99.20%	99.57%	2.00	0.05	7.20	7.70	1	1.9	0.01	7.48
Dec 19	0.77	0.782	0.901	0.951	200	230	2.00	1.00	1.00	99.20%	99.43%	0.76	0.05	7.40	7.70	1	1.7	0.01	7.60
Jan 20	0.76	0.752	0.893	0.873	210	190	3.83	1.00	1.00	98.32%	99.43%	1.46	0.07	7.19	7.63	1	2.3	0.01	7.53
Feb 20	0.752	0.755	0.883	0.842	210	250	2.10	1	1.00	99.00%	99.52%	0.35	0.05	7.20	7.61	1	1.8	0.01	7.42
Mar 20	0.708	0.740	0.876	0.93	210	210	2.40	1.00	1.00	98.59%	99.67%	0.88	0.05	7.28	7.90	1	2.1	0.01	7.11
Apr 20	0.764	0.741	0.876	0.843	150	170	2.00	1.00	1.00	98.67%	99.41%	0.36	0.05	7.00	7.50	1	2.1	0.01	7.19
May 20	0.778	0.817	0.871	1.484	280	190	2.10	1.00	1.00	99.25%	99.47%	0.34	0.05	6.98	7.67	1	2.0	0.01	7.09
Jun 20	0.92	0.897	0.842	1.126	250	120	2.18	1	1.00	99.13%	99.17%	0.53	0.15	7.11	7.59	1	2.0	0.01	6.83
Jul 20	0.897	0.932	0.816	1.156	170	210	2.00	1.00	1.00	98.82%	99.52%	0.775	0.17	7.17	7.68	1	2.0	0.01	6.77
Aug 20	1.126	0.981	0.835	1.553	250	360	2.22	1.00	1.00	99.11%	99.74%	0.59	0.15	7.17	7.53	1	2.2	0.01	6.60
Sep 20	0.839	0.954	0.833	0.914	110	480	2.23	1	1	97.98%	99.79%	0.67	0.43	7.16	7.76	1	2.2	0.01	6.85
Oct 20	0.949	0.971	0.851	1.643	240	400	2.25	1.00	1.00	98.75%	99.75%	1.735	0.31	7.10	7.64	1	2.0	0.01	7.00
Nov 20	0.756	0.848	0.850	0.851	200	130	2.20	1	1	98.90%	99.23%	0.515	0.151	7.4	7.9	1	1.913	0.01	7.352
Dec 20																			

APPENDIX C: Preliminary Biological Treatment Process Design Calculations and Mass Balance

BioWin Summary Report

Project Details

Plant Name	Mid-County WWTP	**Flow Units**	gal/d
Project Name	Mid-County WWTP MBR Improvements	**Volume Units**	gallons
Project Number	Utilities, Inc. of Florida	**Area Units**	ft2
User Name		**Length/Depth Units**	ft

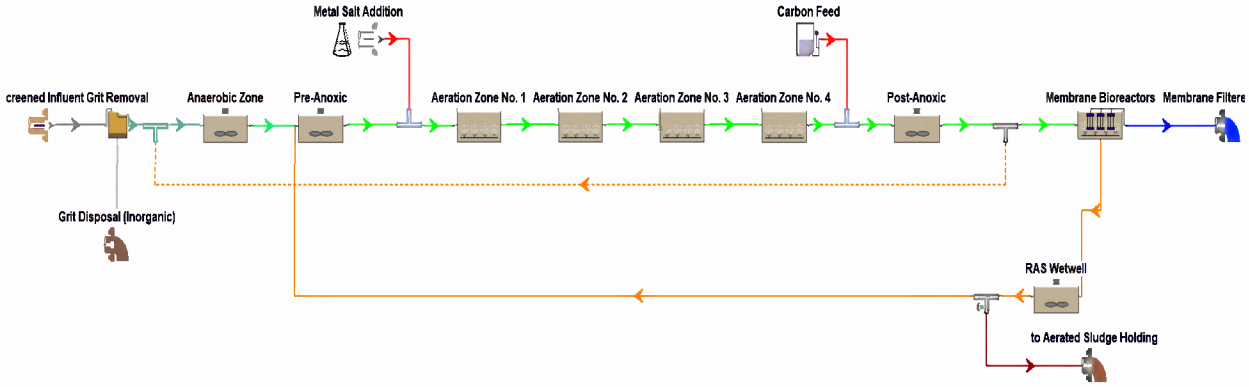
Steady state solution Yes

Site Conditions

Liquid Temperature (deg C)	24
Ambient Air Temperature (deg C)	20
Ambient Air Relative Humidity (%)	20
Global Surface Pressure (kPa)	101.325

Process Summary

SRT Calculators Summary	
Name	Value (d)
SRT Total	18.02

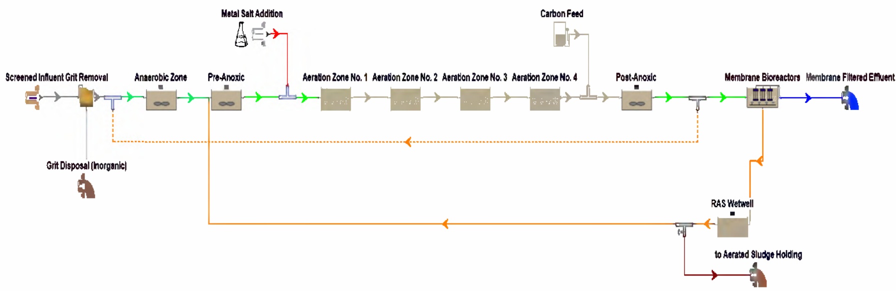


BioWin Tankage Summary
Volume Units: gallons

Reactors	Name	Volume
	Aeration Zone No. 1	74,500.0
	Aeration Zone No. 2	74,500.0
	Aeration Zone No. 3	74,500.0
	Aeration Zone No. 4	74,500.0
	Anaerobic Zone	100,000.0
	Membrane Bioreactors	120,000.0
	Post-Anoxic	72,000.0
	Pre-Anoxic	120,000.0
	RAS Wetwell	12,000.0
	Group Total	**722,000.0**

Total Volume for All Units 722,000.0

BioWin Mass Balance Summary



	Concentration and Mass Rate																				
Pipe Name	FLOW gal/d	COD mg/L	COD lb/d	cBOD mg/L	cBOD lb/d	TSS mg/L	TSS lb/d	VSS mg/L	VSS lb/d	TKN mg/L	TKN lb/d	NH_4-N mg/L	NH_4-N lb/d	NO_x-N mg/L	NO_x-N lb/d	TP mg/L	TP lb/d	PO_4-P mg/L	PO_4-P lb/d
Aeration No. 1 to Aeration No. 2	8,377,714.1	9,963	696,593	1,506	105,264	8,536	596,767	6,852	479,055	487.8	34,102	1.8	128	2.0	141	315.8	22,083	3.38	236
Aeration No. 2 to Aeration No. 3	8,377,714.1	9,958	696,185	1,502	105,022	8,535	596,707	6,849	478,838	486.5	34,014	0.5	35	3.1	215	315.8	22,083	2.65	185
Aeration No. 3 to Aeration No. 4	8,377,714.1	9,952	695,821	1,499	104,787	8,533	596,623	6,846	478,628	486.1	33,986	0.1	10	3.1	219	315.8	22,083	2.06	144
Aeration No. 4 to Post-Anoxic	8,377,714.1	9,948	695,542	1,496	104,598	8,532	596,538	6,844	478,467	486.0	33,976	0.1	10	2.6	180	315.8	22,083	1.70	119
Anaerobic to Pre-Anoxic	3,590,000.0	6,780	203,140	1,058	31,683	5,764	172,675	4,647	139,231	338.2	10,131	10.2	306	0.0	0	212.8	6,376	7.83	235
Carbon Feed	70.0	1,188,000	694	839,113	490	0	0	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.00	0
Grit Disposal	10,000.0	391	33	192	16	3,637	304	190	16	40.0	3	26.4	2	1.0	0	5.0	0	2.50	0
Headworks	1,200,000.0	391	3,920	192	1,923	230	2,303	190	1,903	40.0	401	26.4	264	1.0	10	5.0	50	2.50	25
Headworks to Anaerobic	1,190,000.0	391	3,888	192	1,907	201	2,000	190	1,887	40.0	397	26.4	262	1.0	10	5.0	50	2.50	25
Headworks to Anaerobic + IR	3,590,000.0	6,782	203,201	1,065	31,894	5,772	172,919	4,639	138,988	338.2	10,131	8.8	264	0.4	13	212.8	6,376	2.04	61
Internal Recycle	2,400,000.0	9,951	199,313	1,497	29,988	8,534	170,919	6,845	137,101	486.0	9,734	0.1	2	0.2	3	315.8	6,326	1.81	36
Membrane Filtered Effluent	1,177,784.1	24	240	1	11	0	0	0	0	1.5	15	0.0	0	0.3	3	1.0	9	0.95	9
Metal Salt Addition	0.0	0	0	0	0	0	0	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.00	0
Post-Anoxic + Chemical	8,377,784.1	9,958	696,236	1,503	105,088	8,532	596,538	6,843	478,467	486.0	33,976	0.1	10	2.6	180	315.8	22,083	1.70	119
Post-Anoxic - IR	8,377,784.1	9,951	695,750	1,497	104,680	8,534	596,636	6,845	478,586	486.0	33,979	0.1	8	0.2	11	315.8	22,083	1.81	127
Post-Anoxic to MBR	5,977,784.1	9,951	496,437	1,497	74,692	8,534	425,717	6,845	341,485	486.0	24,245	0.1	6	0.2	8	315.8	15,757	1.81	90
Pre-Anoxic to Aeration No. 1	8,377,714.1	9,971	697,113	1,509	105,494	8,537	596,836	6,855	479,290	490.0	34,255	4.2	294	0.0	2	315.8	22,083	4.16	291
Pre-Anoxic to Aeration No. 1 + Chemical	8,377,714.1	9,971	697,113	1,509	105,494	8,537	596,836	6,855	479,290	490.0	34,255	4.2	294	0.0	2	315.8	22,083	4.16	291
RAS	4,800,000.0	12,369	495,490	1,853	74,236	10,620	425,425	8,514	341,054	604.7	24,221	0.0	2	0.3	11	393.1	15,747	0.95	38
RAS	4,800,000.0	12,367	495,417	1,852	74,186	10,619	425,393	8,513	341,007	604.6	24,220	0.0	2	0.3	11	393.1	15,747	0.84	34
RAS	4,787,714.1	12,367	494,149	1,852	73,996	10,619	424,305	8,513	340,135	604.6	24,158	0.0	2	0.3	11	393.1	15,707	0.84	33
WAS	12,285.9	12,367	1,268	1,852	190	10,619	1,089	8,513	873	604.6	62	0.0	0	0.3	0	393.1	40	0.84	0

BioWin Influent Summary

Note Unless otherwise noted, mass rates use the following default for this unit system selected in BioWin: Mass Rate (lb/d)

Concentration and Mass Rate

Influent Name	FLOW		COD		COD		cBOD		cBOD		TSS		TSS		VSS		VSS		NH_4-N		NH_4-N		TKN		TKN		PO_4-P		PO_4-P		TP		TP		TS		TS		Alkalinity		Alkalinity (as $CaCO_3$)		pH
	gal/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mmol/L		mg/L	-
Screened Influent	1,200,000		391		3,920		192		1,923		230		2,303		190		1,903		26.4		264		40.0		401		2.50		25		5.0		50		0.0		0		6.0		300	7.30
Average	1,200,000		391		3,920		192		1,923		230		2,303		190		1,903		26.4		264		40.0		401		2.50		25		5.0		50		0.0		0		6.0		300	
Total	1,200,000				3,920				1,923				2,303				1,903				264				401				25				50				50				

BioWin Effluent Summary

Note Unless otherwise noted, mass rates use the following default for this unit system selected in BioWin: Mass Rate (lb/d)

Concentration and Mass Rate

Effluent Name	FLOW		COD		COD		cBOD		cBOD		TSS		TSS		VSS		VSS		NO_3-N		NO_3-N		NH_4-N		NH_4-N		TKN		TKN		NO_x-N		NO_x-N		PO_4-P		PO_4-P		TP		TP		TS		TS		Alkalinity		Alkalinity (as $CaCO_3$)		pH
	gal/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mmol/L		mg/L	-
Membrane Filtered Effluent	1,177,784.1		24		240		1		11		0		0		0		0		0.0		0		0.3		3		0.3		3		2.50		25		5.0		50		0.0		0		18		0.95		9		1.0		9		4.2		210	7.21
Total	1,177,784.1				240				11				0				0				0				3				3				0				18				9				9					

BioWin Sludge Summary

Concentration and Mass Rate

Sludge Name	FLOW		TSS		TSS		VSS		VSS		TKN		TKN		TP		TP		% VSS / TSS		% TSS TKN CONTENT		% TSS TP CONTENT		% VSS TKN CONTENT		% VSS TP CONTENT
	gal/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d		mg/L		lb/d										
to Aerated Sludge Holding	12,285.9		10,619		1,089		8,513		873		605		62		393		40		80.2%		5.7%		3.7%		7.1%		4.6%
Grit Disposal (Inorganic)	10,000.0		3,637		304		190		16		40		3		5		0		5.2%		1.1%		0.1%		21.1%		2.6%
Average			7,128		696		4,351		444		322		33		199		20		42.7%		3.4%		1.9%		14.1%		3.6%
Total	22,285.9				1,392				889				65				41										

Appendix K: Mid-County Consent Order #24-1932

FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

July 1, 2024

Sunshine Water Services
Mid- County WWTP
Sean Twomey, Permittee
2299 Spanish Vista Drive Dunedin FL, 34698
Sean.Twomey@sunshinewater.com

SUBJECT: Department of Environmental Protection v. Sunshine Water Services,
OGC File No.: 24-1932
Mid-County WWTP FL0034789

Mr. Twomey:

The State of Florida Department of Environmental Protection ("Department") finds that from December 3, 2023, to January 10, 2024, Sunshine Water Services ("Respondent") had three unauthorized discharges of raw wastewater totaling 3,200 gallons, in violation of Rules 62-604 and 62-620, Florida Administrative Code ("Fla. Admin. Code"). Before sending this letter, the Department requested that the Respondent undertake certain actions to resolve the violations. These actions have since been completed. However, due to the nature of the violations, the Respondent remains subject to civil penalties. The Respondent is also responsible for costs incurred by the Department during the investigation of this matter.

The Department's Offer

Based on the violations described above, the Department is seeking $5,000.00 in civil penalties, $1,290.36 in economic benefit, $1,250.00 for history of non-compliance and $500.00 for costs and expenses the Department has incurred in investigating this matter, which amounts to a total of $8,040.00. The civil penalties are apportioned as follows: $4,000.00 for violation of Rules 62-604 and 62-620 Fla. Admin. Code and $1,000.00 for violation of Rule 62-302 Fla. Admin Code.

In lieu of making cash payment of $7,540.00 in civil penalties, economic benefit, and history of non-compliance as set forth in the paragraph above, Respondent may elect to off-set this amount by implementing an in-kind penalty project, which must be approved by the Department. An in-kind project must be either an environmental enhancement, environmental restoration or a capital/facility improvement project and may not be a corrective action requirement of the Order or otherwise required by law. The Department may also consider the donation of environmentally sensitive land as an in-kind project. The value of the in-kind penalty project shall be one and a half times the civil penalty, economic benefit, and history of non-compliance off-set amount, which in this case is the equivalent of at least **$11,310.00**. If Respondent chooses to implement an in-kind project, Respondent shall notify the Department of its election either electronically or by certified mail within 15 days of the effective date of this Consent Order.

Notwithstanding the election to implement an in-kind project, payment of the remaining $500.00 in costs must be paid within 30 days of the effective date of the Consent Order.

If Respondent elects to implement an in-kind project as provided in the paragraph above, then Respondent shall comply with all the requirements and time frames in **Exhibit A** entitled In-Kind Projects.

Respondent's Acceptance

If you wish to accept this offer and fully resolve the enforcement matter pending against the Respondent, please sign this letter and return it to the Department at 13051 Telecom Parkway North, Suite #101, Temple Terrace, Florida 33637 by July 5, 2024. The Department will then countersign it and file it with a designated clerk of the Department. Once the document is filed with the designated clerk, **it will constitute a final order of the Department** pursuant to Section 120.52(7), F.S. and will be effective unless a request for an administrative hearing is filed by a third party in accordance with Chapter 120, F.S. and the attached Notice of Rights.

By accepting this offer you, Sean Twomey:

(1) certify that you are authorized and empowered to negotiate, enter into, and accept the terms of this offer in the name and on behalf of Respondent;

(2) acknowledge and waive Respondent's right to an administrative hearing pursuant to Sections 120.569 and 120.57, F.S., on the terms of this offer, once final;

(3) acknowledge and waive Respondent's right to an appeal pursuant to Section 120.68, F.S.

The Department acknowledges that the Respondent's acceptance of this offer does not constitute an admission of liability for the violation(s) referenced above.

Respondent's Performance

After signing and returning this document to the Department,
(1) Respondent must implement the In-Kind Project in accordance with the requirements identified in the attached Exhibit A. **Also, payment of the $500.00 for costs and expenses must be made within 30 days of the effective date of the Consent Order.**
(2) **If Respondent declines to implement an In-Kind Project, payment in full of $8,040.00 is due within 30 days of the effective date of the Consent Order.**

(3) Respondent shall make all payments required by this Order by cashier's check, money order or on-line payment. Cashier's check or money order shall be made payable to the "Department of Environmental Protection" and shall include both the OGC number assigned to this Order and the notation "Water Quality Assurance Trust Fund." Online payments by e-check can be made by going to the DEP Business Portal at: http://www.fldepportal.com/go/pay/

It will take a number of days after this order is final, effective and filed with the Clerk of the Department before ability to make online payment is available. The Department may enforce the terms of this document, once final, and seek to collect monies owed pursuant to Sections 120.69 and 403.121, F.S.

Until clerked by the Department, this letter is only a settlement offer and not a final agency action. Consequently, neither the Respondent nor any other party may request an administrative hearing to contest this letter pursuant to Chapter 120, F.S. Once this letter is clerked and becomes a final order of the Department, as explained above, the attached Notice of Rights will apply to parties, other than the Respondent, whose interests will be substantially affected.

Electronic signatures or other versions of the parties' signatures, such as .pdf or facsimile, shall be valid and have the same force and effect as originals. No modifications of the terms of this Order will be effective until reduced to writing, executed by both Respondent and the Department, and filed with the clerk of the Department.

Please be aware that if the Respondent declines to respond to the Department's offer, the Department will assume that the Respondent is not interested in resolving the matter and will proceed accordingly.

If you have any questions, please contact Lauren Ballard at (813) 470-5784 or at Lauren.Ballard@FloridaDEP.gov .
SFCO – Sunshine Water Services

Sincerely,

For Ms. Kelley M. Boatwright
Southwest District Director
Florida Department of Environmental Protection

FOR THE RESPONDENT:

I, Seán Twomey [Type or Print Name], **HEREBY ACCEPT THE TERMS OF THE SETTLEMENT OFFER IDENTIFIED ABOVE.**

By: Seán Twomey Date: 7/15/2024
[Signature]

Title: President
[Type or Print]

FOR DEPARTMENT USE ONLY

DONE AND ORDERED this ## day of Month, 2024, in Hillsborough County, Florida.

STATE OF FLORIDA DEPARTMENT
OF ENVIRONMENTAL PROTECTION

Ms. Kelley M. Boatwright
Southwest District Director
Florida Department of Environmental Protection

Filed, on this date, pursuant to section 120.52, F.S., with the designated Department Clerk, receipt of which is hereby acknowledged.

_____ _____

Clerk DATE

Attachments: Notice of Rights
Exhibit A: In-Kind Project Document

Final clerked copy furnished to:

Lea Crandall, Agency Clerk (lea.crandall@dep.state.fl.us)

NOTICE OF RIGHTS

Persons who are not parties to this Order, but whose substantial interests are affected by it, have a right to petition for an administrative hearing under Sections 120.569 and 120.57, Florida Statutes. Because the administrative hearing process is designed to formulate final agency action, the filing of a petition concerning this Order means that the Department's final action may be different from the position it has taken in the Order.

The petition for administrative hearing must contain all of the following information:

(a) The name and address of each agency affected and each agency's file or identification number, if known;

(b) The name, address, any e-mail address, any facsimile number, and telephone number of the petitioner, if the petitioner is not represented by an attorney or a qualified representative; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination;

(c) A statement of when and how the petitioner received notice of the agency decision;

(d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

(e) A concise statement of the ultimate facts alleged, including the specific facts the petitioner contends warrant reversal or modification of the agency's proposed action;

(f) A statement of the specific rules or statutes the petitioner contends require reversal or modification of the agency's proposed action, including an explanation of how the alleged facts relate to the specific rules or statutes; and

(g) A statement of the relief sought by the petitioner, stating precisely the action petitioner wishes the agency to take with respect to the agency's proposed action.

The petition must be filed (received) at the Department's Office of General Counsel, 3900 Commonwealth Boulevard, MS# 35, Tallahassee, Florida 32399-3000 or received via electronic correspondence at Agency_Clerk@floridadep.gov, within 21 days of receipt of this notice. A copy of the petition must also be mailed at the time of filing to

the District Office at the address indicated above. Failure to file a petition within the 21-day period constitutes a person's waiver of the right to request an administrative hearing and to participate as a party to this proceeding under Sections 120.569 and 120.57, Florida Statutes. Mediation under Section 120.573, Florida Statutes, is not available in this proceeding.

DEP v. Sunshine Water Services,
OGC File No.: 24-1932

Exhibit A

In-Kind Projects

I. **Introduction**

Proposal

a. Within 60 days of the effective date of this Consent Order, or, of the Department's notification that applying stipulated penalties to an in-kind project is acceptable, Respondent shall submit, either electronically or by certified mail, a detailed in-kind project proposal to the Department for evaluation. The proposal shall include a summary of benefits, proposed schedule for implementation and documentation of the estimated costs which are expected to be incurred to complete the project. These costs shall not include those incurred in developing the proposal or obtaining approval from the Department for the in-kind project.

Proposal Certification Form

b. The proposal shall also include a Certification by notarized affidavit from a senior management official for Sunshine Water Services who shall testify as follows:

My name is _____ (print or type name of senior management official) and do hereby testify under penalty of law that:

A. I am a person with management responsibilities for Sunshine Water Services budget and finances. During the eighteenth month period prior to the effective date of Consent Order OGC Case No.: 24-1932 there has not been any transfer or use of funds obtained by Sunshine Water Services from the collection of sewer rates for any purpose not related to the management, operation, or maintenance of the Sewer System or to any capital improvement needs of the Sewer System.

B. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowingly submitting false information in this certification.

Sworn to and subscribed before me, by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 20___ by

DEP v. Sunshine Water Services,
OGC File No.: 24-1932

_____

Personally, known or by Production of the following Identification _____

Notary Public, State of Florida

Printed/typed or stamped name:

My Commission Expires: _____

Commission/Serial No.: _____

Annual Certification Form

My name is _____ (print or type name of senior management official) and do

hereby testify under penalty of law that:

A. I am a person with management responsibilities for Sunshine Water Services budget and finances. During the twelve-month period immediately preceding the notary date on this Certification, there has not been any transfer or use of funds obtained by Sunshine Water Services from the collection of sewer rates for any purpose not related to the management, operation, or maintenance of the Sewer System or to any capital improvement needs of the Sewer System.

B. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowingly submitting false information in this certification.

Sworn to and subscribed before me, by means of ☐ physical presence or ☐ online notarization, this ____ day of _____, 20___ by

_____

Personally, known or by Production of the following Identification _____

Notary Public, State of Florida

Printed/typed or stamped name:

My Commission Expires: _____

DEP v. Sunshine Water Services,
OGC File No.: 24-1932

Commission/Serial No.: _____

c. If the Department requests additional information or clarification due to a partially incomplete in-kind project proposal or requests modifications due to deficiencies with Department guidelines, Respondent shall submit, either electronically or by certified mail, all requested additional information, clarification, and modifications within 15 days of receipts of written notice.

d. If upon review of the in-kind project proposal, the Department determines that the project cannot be accepted due to a substantially incomplete proposal or due to substantial deficiencies with minimum Department guidelines; Respondent shall be notified, in writing, of the reason(s) which prevent the acceptance of the proposal. Respondent shall correct and redress all the matters at issue and submit, either electronically or by certified mail, a new proposal within 30 days of receipt of written notice. In the event that the revised proposal is not approved by the Department, Respondent shall make cash payment of the civil penalties as set forth in the Consent Order, within 30 days of Department notice.

e. Within 120 days of the effective date of this Consent Order, or, of the Department's notification that applying stipulated penalties to an in-kind project is acceptable Respondent shall obtain approval for an in-kind project from the Department. If an in-kind project proposal is not approved by the Department within 120 days of the effective date of this Consent Order, or, of the Department's notification that applying stipulated penalties to an in-kind project is acceptable then Respondent shall make cash payment of the civil penalties as set forth in the Consent Order, within 30 days of Department notice.

DEP v. Sunshine Water Services,
OGC File No.: 24-1932

f. Within 180 days of obtaining Department approval for the in-kind proposal or in accordance with the approved schedule submitted pursuant to paragraph (a) above, Respondent shall complete the entire in-kind project.

g. During the implementation of the in-kind project, Respondent shall place appropriate sign(s) at the project site indicating that Respondent's involvement with the project is the result of a Department enforcement action. Respondent may remove the sign(s) after the project has been completed. However, after the project has been completed Respondent shall not post any sign(s) at the site indicating that the reason for the project was anything other than a Department enforcement action.

h. In the event, Respondent fails to timely submit any requested information to the Department, fails to complete implementation of the in-kind project or otherwise fails to comply with any provision of this paragraph, the in-kind penalty project option shall be forfeited, and the entire amount of civil penalties shall be due from the Respondent to the Department within 30 days of Department notice. If the in-kind penalty project is terminated and Respondent timely remits the civil penalty, no additional penalties shall be assessed for failure to complete the requirement of this paragraph.

i. Within 15 days of completing the in-kind project, Respondent shall notify the Department, either electronically or by certified mail, of the project completion and request a verification letter from the Department. Respondent shall submit supporting information verifying that the project was completed in accordance with the approved proposal and documentation showing the actual costs incurred to complete the project. These costs shall not include those incurred in developing the proposal or obtaining approval from the Department for the project.

DEP v. Sunshine Water Services,
OGC File No.: 24-1932

j. If upon review of the notification of completion, the Department determines that the project cannot be accepted due to a substantially incomplete notification of completion or due to substantial deviations from the approved in-kind project; Respondent shall be notified, in writing, of the reason(s) which prevent the acceptance of the project. Respondent shall correct and redress all the matters at issue and submit, either electronically or by certified mail, a new notification of completion within 15 days of receipt of the Department's notice. If upon review of the new submittal, the Department determines that the in-kind project is still incomplete or not in accordance with the approved proposal, the in-kind penalty project option shall be forfeited, and the entire amount of civil penalty shall be due from the Respondent to the Department within 30 days of Department notice. If the in-kind penalty project is terminated and Respondent timely remits the civil penalty no additional penalties shall be assessed for failure to complete the requirements of this paragraph.

Appendix L: Mid-County Closure LTR

FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Governor
Ron DeSantis

Alexis A. Lambert
Secretary

April 4, 2025

Sean Twomey, Permittee
Sunshine Water Services
2299 Spanish Vista Drive
Dunedin, Florida 34698
Sean.Twomey@sunshinewater.com

Re: In Kind Project Completion and Case Closure Letter
OGC File Number: 24-1932
FL0034789 – Mid County WWTP
Pinellas County

Dear Mr. Twomey:

Thank you for your letter dated March 18, 2025, transmitting the final status report for the In-Kind Project performed under Consent Order OGC File No. 24-1932. Please allow this letter to serve as acknowledgement that the requirements of Exhibit A of the Order have been completed. The Department received your payment of $500.00 for department costs and expenses of the referenced Consent Order on August 26, 2024. As all the conditions of the Consent Order have been met, the Department is closing this case file.

The Department appreciates your efforts to identify and participate in a facility enhancement project. If you have any questions, please contact Lauren Ballard at (813) 470-5784, or via e-mail at: Lauren.Ballard@floridadep.gov .

Sincerely,

For Ms. Kelley M. Boatwright
Southwest District Director
Florida Department of Environmental Protection

Enclosures:

ec: Emily Larson, DEP, Emily.Larson@floridadep.gov
Lauren Ballard, DEP, Lauren.Ballard@floridadep.gov
Kelley M. Boatwright, FDEP-SWD; Kelley.M.Boatwright@FloridaDEP.gov
Pamala Vazquez, FDEP-SWD; Pamala.Vazquez@floridadep.gov
Water Compliance Assurance Program, FDEP-TAL; WCAPHQ@floridadep.gov
Domenic Gentilucci, Sunshine Water Services, Domenic.Gentilucci@nexuswg.com
Katie Stroud, Sunshine Water Services, Katelyn.Stroud@nexuswg.com
Jefferey Maricle, Sunshine Water Services, Jeffrey.Maricle@nexuswg.com

Sunshine Water Services

200 Weathersfield Avenue
Altamonte Spring, Florida
United States 32714

T 866.842.8432

www.sunshinewater.com

March 18, 2025

Ms. Lauren Ballard
Florida Department of Environmental Protection

Mid County WWTP
Facility ID #FL0034789
OGC Case #24-1932
In-Kind Project Completion

Dear Ms. Ballard,

Under the terms of the above referenced Consent Order, Sunshine Water Services, would like to advise the Department that the proposed In-Kind project has been completed as of March 5, 2025. Enclosed with this notice of completion is a description of the project components, final project costs and completion date.

Please accept this report as Sunshine Water Service's request for the Consent Order Closure Letter. If the department has any questions, do not hesitate to contact me via phone (407) 450-0017, or email, Katelyn.stroud@nexuswg.com.

Sincerely,
Sunshine Water Services

Katelyn Stroud

Katelyn Stroud
Compliance and Safety Manager

EC: Sean Twomey, President
Domenic Gentilucci, VP, Operations

Mid County WWTP
Facility ID #FL0034789
OGC Case #24-1932
In-Kind Project Proposal

Project Name

Mid County WWTF RTU Installation & Scada Integration

Description

RTU panels were purchased and installed at lift stations 3, 5, and 6 to continuously monitor conditions in the Cypress Lakes service areas where previously remote monitoring was not capable. Integration of the new VT SCADA system to the corporate server located that at the Lake Groves WWTP was included in this project.

Project Cost

Equipment and installation total $20,164.56

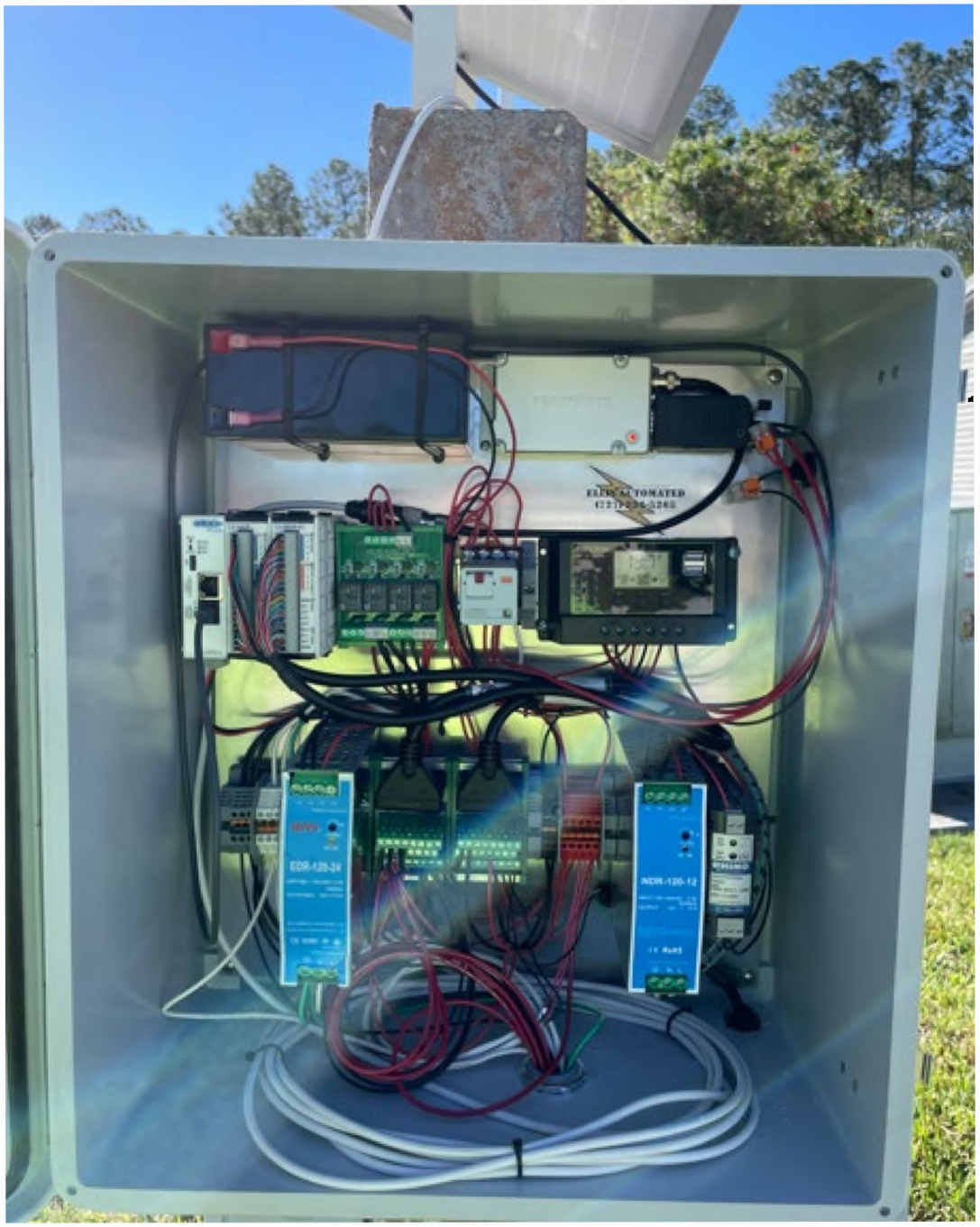
Project Completion Date

System went online on March 5, 2025.

Photos Rcvd from Sunshine Water Services Via Email 3/21/2025 (labelled as submitted)

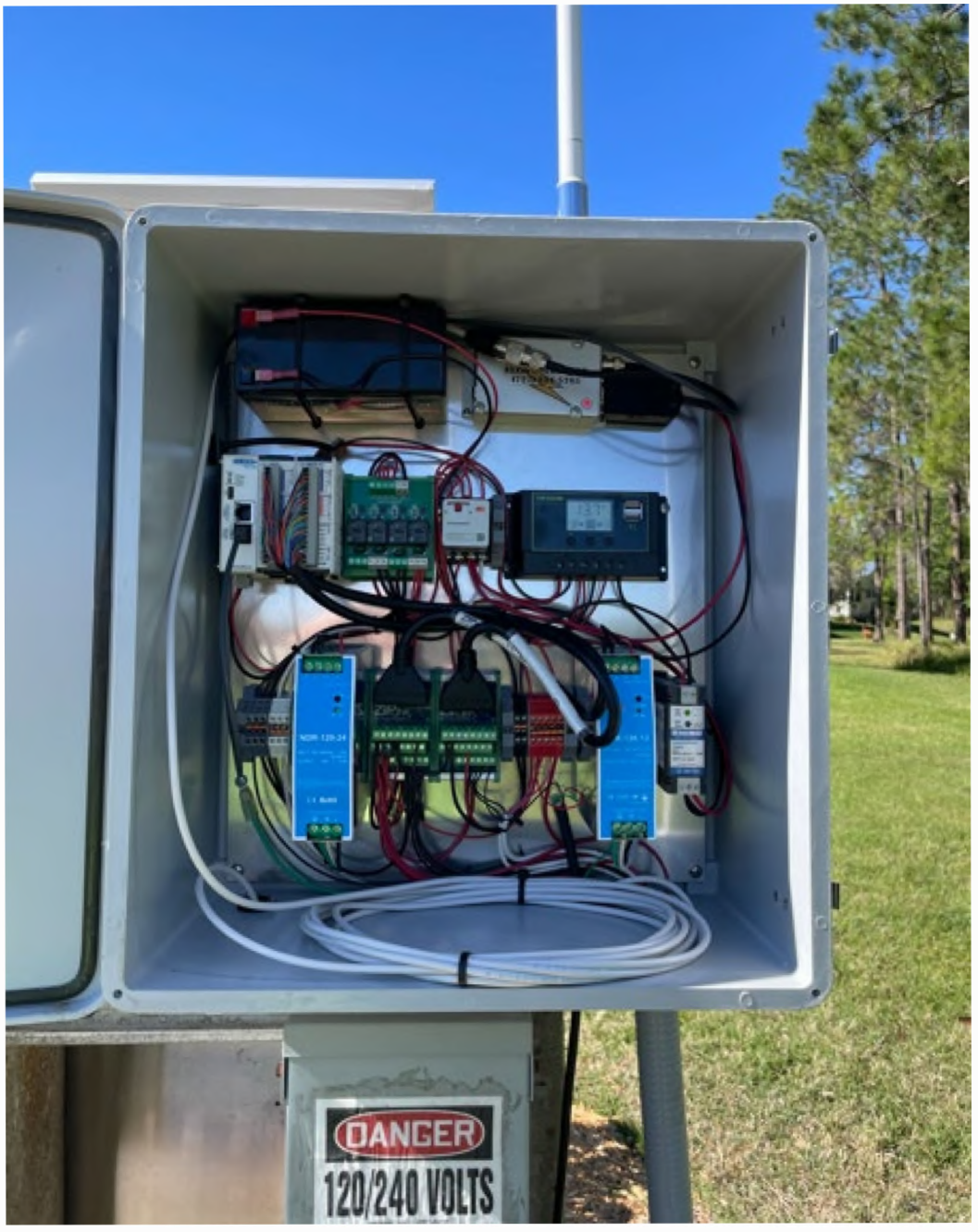
Lift Station #3

Photos Rcvd from Sunshine Water Services Via Email 3/21/2025 (labelled as submitted)



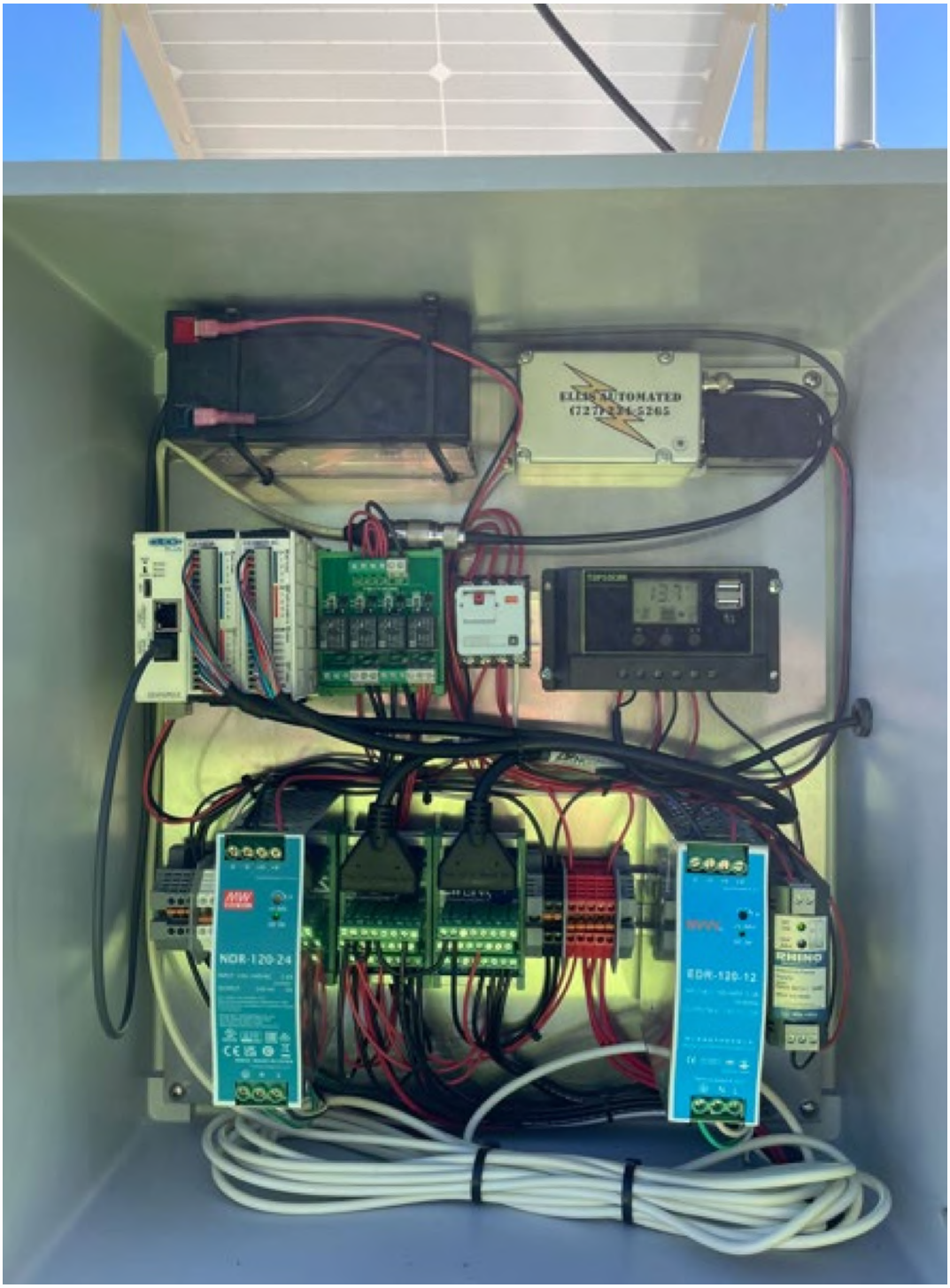
Lift Station #3B

Photos Rcvd from Sunshine Water Services Via Email 3/21/2025 (labelled as submitted)



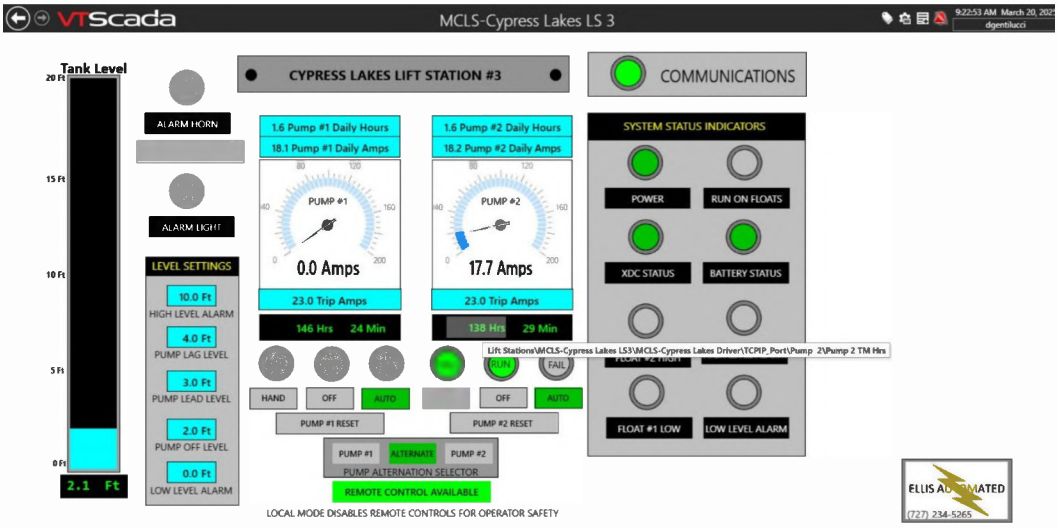
Lift Station #6B

Photos Rcvd from Sunshine Water Services Via Email 3/21/2025 (labelled as submitted)

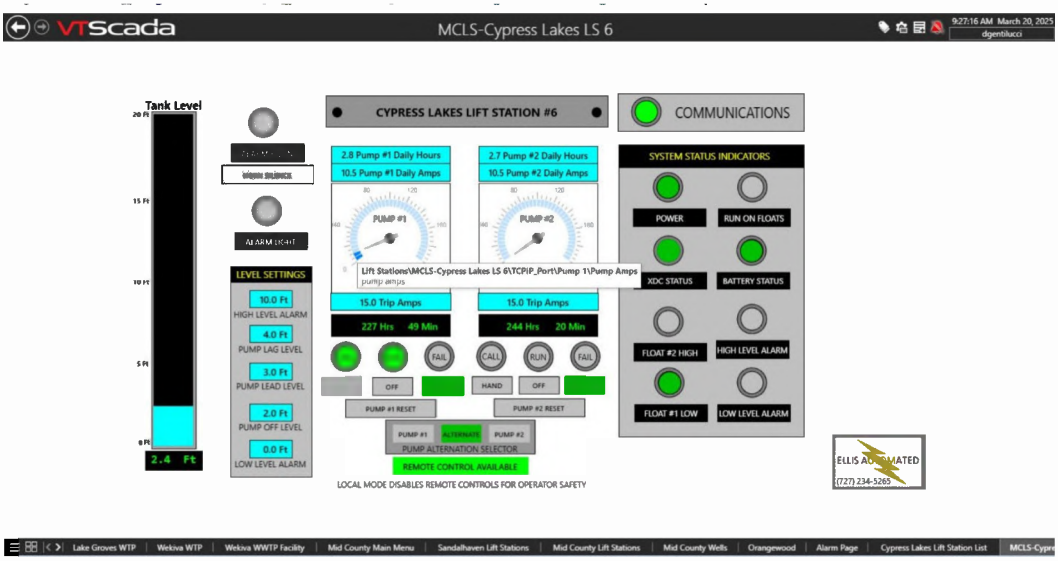


Lift Station # 5B

Photos Rcvd from Sunshine Water Services Via Email 3/21/2025 (labelled as submitted)

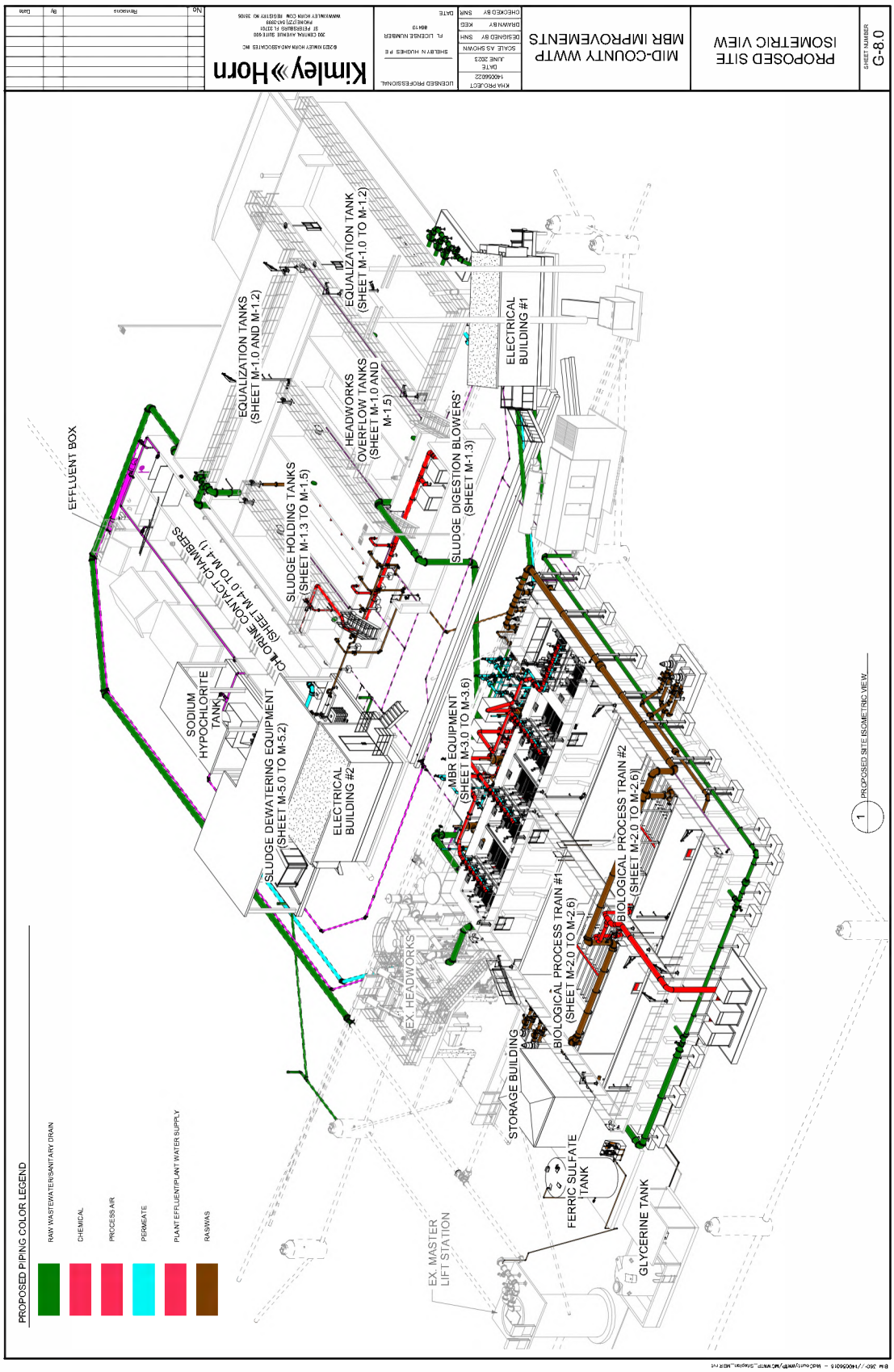


Cypress Lakes Lift Station 5 VTSCADA

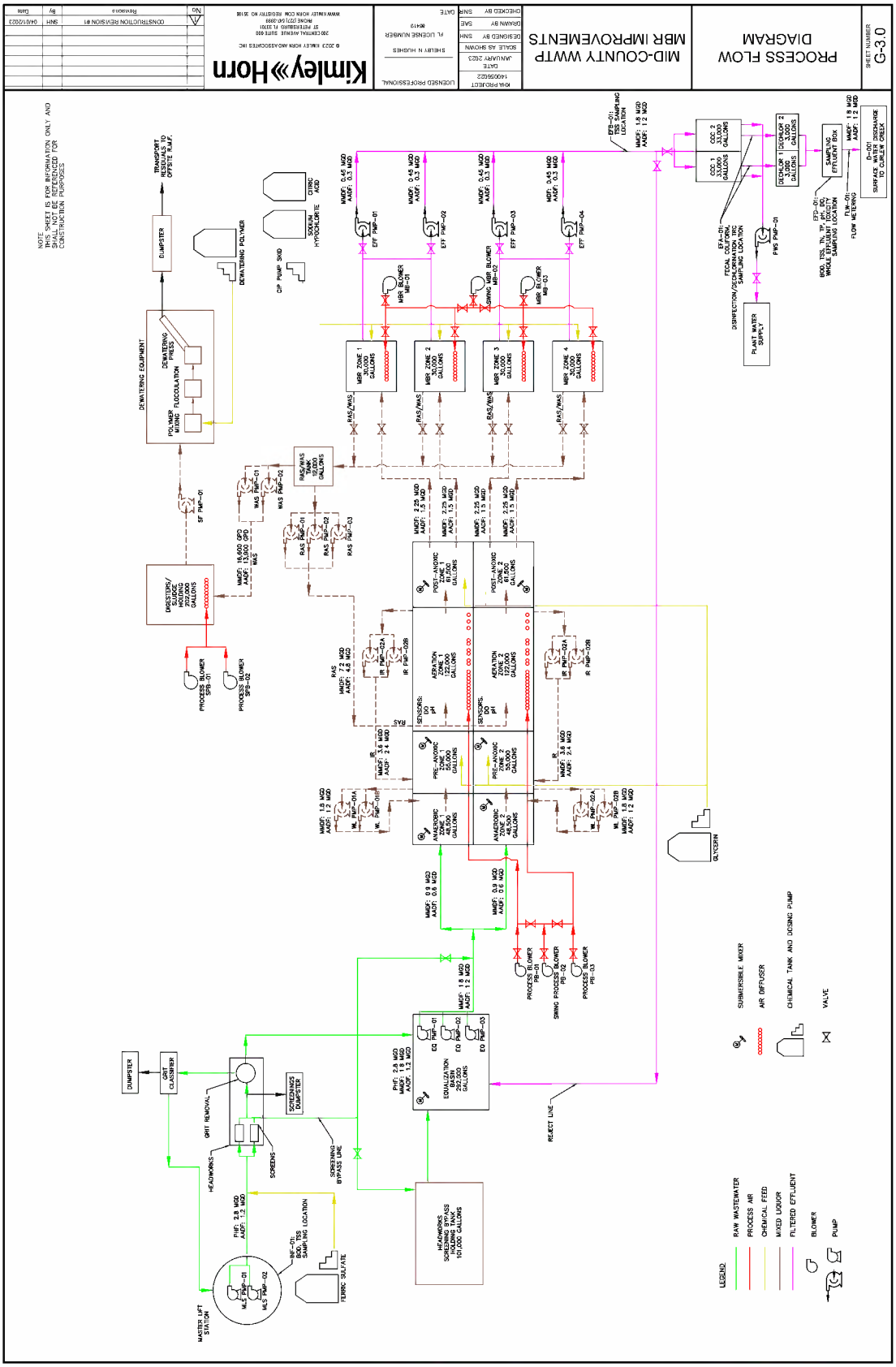


Cypress Lakes Lift Station 6 VTSCADA

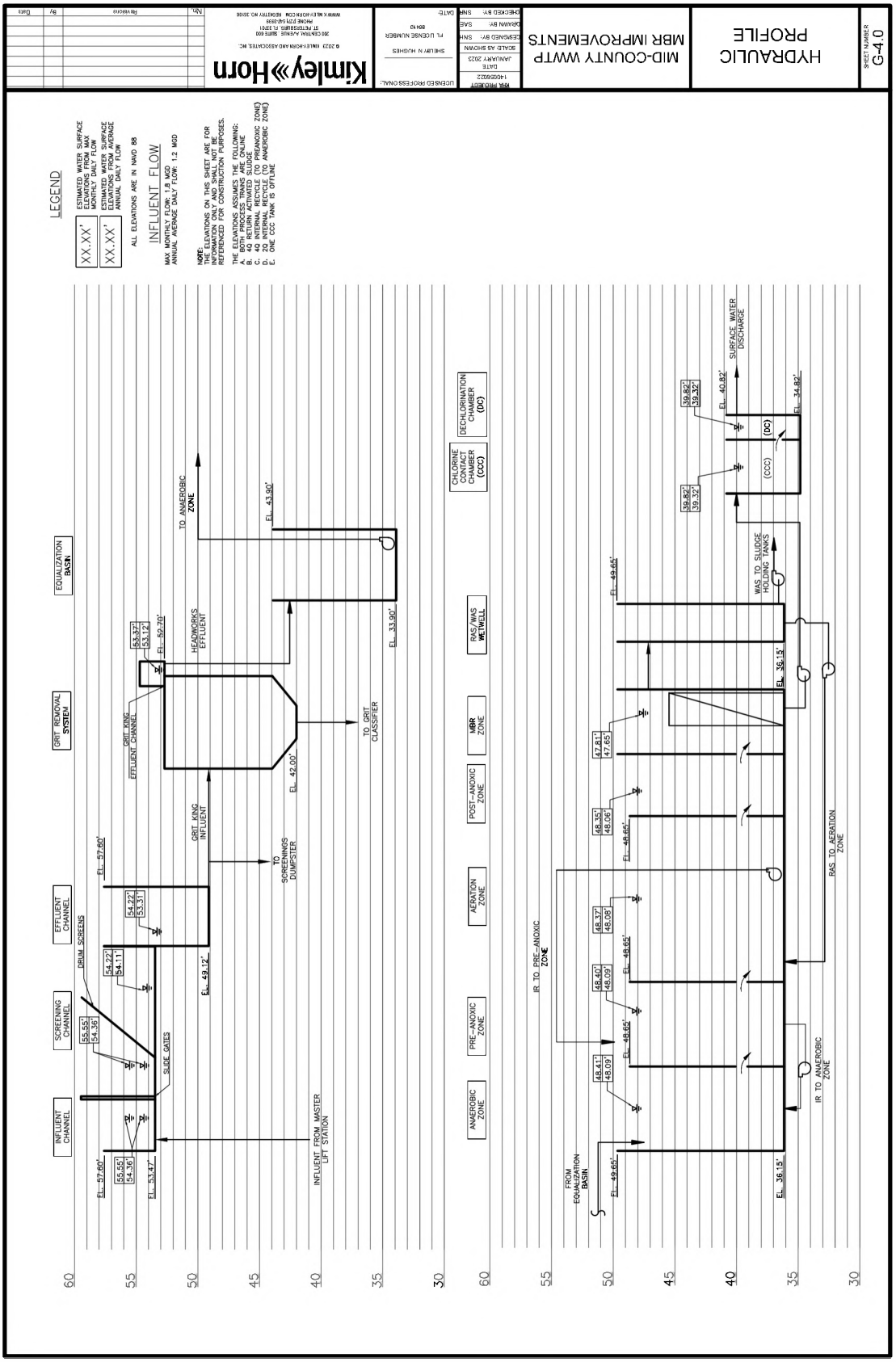
Appendix M: Site Plan Overview of the Plant Improvement


PROPOSED SITE ISOMETRIC VIEW
MID-COUNTY WWTP
MBR IMPROVEMENTS
G-8.0
Kimley»Horn
EFFLUENT BOX
EQUALIZATION TANKS (SHEET M-1.0 AND M-1.2)
EQUALIZATION TANK (SHEET M-1.0 TO M-1.2)
HEADWORKS OVERFLOW TANKS (SHEET M-1.0 AND M-1.5)
ELECTRICAL BUILDING #1
SLUDGE HOLDING TANKS (SHEET M-1.3 TO M-1.5)
SLUDGE DIGESTION BLOWERS (SHEET M-1.3)
CHLORINE CONTACT CHAMBERS (SHEET M-4.0 TO M-4.1)
SODIUM HYPOCHLORITE TANK
SLUDGE DEWATERING EQUIPMENT (SHEET M-5.0 TO M-5.2)
ELECTRICAL BUILDING #2
MBR EQUIPMENT (SHEET M-3.0 TO M-3.6)
BIOLOGICAL PROCESS TRAIN #2 (SHEET M-2.0 TO M-2.6)
BIOLOGICAL PROCESS TRAIN #1 (SHEET M-2.0 TO M-2.6)
EX. HEADWORKS
STORAGE BUILDING
FERRIC SULFATE TANK
GLYCERINE TANK
EX. MASTER LIFT STATION
PROPOSED PIPING COLOR LEGEND
RAW WASTEWATER/SANITARY DRAIN
CHEMICAL
PROCESS AIR
PERMEATE
PLANT EFFLUENT/PLANT WATER SUPPLY
RAS/WAS

Appendix N: Process Flow Diagram


PROCESS FLOW DIAGRAM
MID-COUNTY WWTP MBR IMPROVEMENTS
G-3.0
Kimley»Horn
NOTE
THIS SHEET IS FOR INFORMATION ONLY AND SHALL NOT BE REFERENCED FOR CONSTRUCTION PURPOSES
TRANSPORT RESIDUALS TO OFFSITE R.A.F.
DUMPSTER
DEWATERING POLYMER
CITRIC ACID
SODIUM HYPOCHLORITE
CIP PUMP SKID
DEWATERING EQUIPMENT
DEWATERING FEED
POLYMER MIXING
FLOCCULATION
SF PMP-01
DIGESTERS/ SLUDGE HOLDING TANK 270,000 GALLONS
PROCESS BLOWER SPB-01
PROCESS BLOWER SPB-02
WAS PMP-01
WAS PMP-02
RAS/WAS WETWELL 10,000 GALLONS
RAS PMP-01
RAS PMP-02
RAS PMP-03
MMDF: 18,600 GPD
AADF: 13,900 GPD
WAS
MBR ZONE 1 100,000 GALLONS
MBR ZONE 2 100,000 GALLONS
MBR ZONE 3 100,000 GALLONS
MBR ZONE 4 100,000 GALLONS
RAS/WAS
MBR BLOWER MB-01
SPARE MBR BLOWER MB-02
MBR BLOWER MB-03
EFF PMP-01
EFF PMP-02
EFF PMP-03
EFF PMP-04
MMDF: 0.45 MGD
AADF: 0.3 MGD
EFF-01 TO SAMPLING LOCATION
MMDF: 1.8 MGD
AADF: 1.2 MGD
CCC 1 33,000 GALLONS
CCC 2 33,000 GALLONS
DECHLOR 1 33,000 GALLONS
DECHLOR 2 33,000 GALLONS
SAMPLING EFFLUENT Box
MMDF: 1.8 MGD
AADF: 1.2 MGD
EFF-01 TO FLOW METERING
FLOW METERING
SURFACE WATER DISCHARGE TO CURLEW CREEK
EFA-01 TO FECAL COLIFORM/ DISINFECTION/DECHLORINATION TRC SAMPLING LOCATION
PWS PMP-01
PLANT WATER SUPPLY
DISINFECTION/DECHLORINATION TRC SAMPLING LOCATION
800, TSS, TN, TP, FECAL COLIFORM, FLOW WHOLE EFFLUENT TOXICITY SAMPLING LOCATION
PRE-ANOXIC ZONE 1 46,500 GALLONS
PRE-ANOXIC ZONE 2 61,500 GALLONS
MMDF: 2.25 MGD
AADF: 1.5 MGD
RAS
MMDF: 7.2 MGD
AADF: 4.8 MGD
IR PMP-02A
IR PMP-02B
AERATION ZONE 1 122,000 GALLONS
AERATION ZONE 2 184,000 GALLONS
SENSORS: pH DO
IR
MMDF: 3.6 MGD
AADF: 2.4 MGD
PRE-ANOXIC ZONE 1 46,500 GALLONS
PRE-ANOXIC ZONE 2 53,000 GALLONS
ANAEROBIC ZONE 1 46,500 GALLONS
ANAEROBIC ZONE 2 46,500 GALLONS
WL PMP-01A
WL PMP-01B
WL PMP-02A
WL PMP-02B
MMDF: 1.8 MGD
AADF: 1.2 MGD
GLYCERIN
MMDF: 0.9 MGD
AADF: 0.6 MGD
MMDF: 0.9 MGD
AADF: 0.6 MGD
PROCESS BLOWER PB-01
SPARE PROCESS BLOWER PB-02
PROCESS BLOWER PB-03
MMDF: 1.8 MGD
AADF: 1.2 MGD
REJECT LINE
PHF: 2.8 MGD
MMDF: 1.8 MGD
AADF: 1.2 MGD
EQ PMP-01
EQ PMP-02
EQ PMP-03
EQUALIZATION BASIN 330,000 GALLONS
DUMPSTER
GRIT CLASSIFIER
GRIT REMOVAL
SCREENINGS DUMPSTER
HEADWORKS
SCREENS
SCREENING BYPASS LINE
HEADWORKS SCREENING/BYPASS HOLDING TANK 101,000 GALLONS
PHF: 2.8 MGD
MMDF: 1.8 MGD
AADF: 1.2 MGD
INF-01 TO FDEP SAMPLING LOCATION
MLS PMP-01
MLS PMP-02
MASTER LIFT STATION
FERRIC SULFATE
LEGEND
RAW WASTEWATER
PROCESS AIR
CHEMICAL FEED
MIXED LIQUOR
FILTERED EFFLUENT
BLOWER
PUMP
SUBMERSIBLE MIXER
AIR DIFFUSER
CHEMICAL TANK AND DOSING PUMP
VALVE

Appendix O: Preliminary Hydraulic Profile



Kimley»Horn
© 2023 KIMLEY-HORN AND ASSOCIATES, INC.
200 CENTRAL AVENUE, SUITE 600
ST. PETERSBURG, FL 33701
PHONE: (727) 547-0999
WWW.KIMLEY-HORN.COM NEIGHTRY NO. 35106

LICENSED PROFESSIONAL
SHELBY N. HIGHSMITH
FL LICENSE NUMBER
69143
DATE

CHECKED BY:	SNH
DRAWN BY:	SAB
DESIGNED BY:	SNH
SCALE: AS SHOWN	
DATE: JANUARY 2023	
PBS PROJECT 140056022	

MID-COUNTY WWTP
MBR IMPROVEMENTS

HYDRAULIC PROFILE

SHEET NUMBER G-4.0

No.	Revisions	By	Date

Appendix P: Notification of completion of Construction

NOTIFICATION OF COMPLETION OF CONSTRUCTION FOR WASTEWATER FACILITIES OR ACTIVITIES

1. Instructions

a. In accordance with Rule 62-620.410, F.A.C., this form must be submitted to the Department's appropriate district office or approved local program prior to placing a newly constructed facility or modified portion of an existing facility into operation for any purpose other than testing for leaks and equipment operation.
b. Each applicable item must be completed in full. Where attached sheets or other technical documentation are used in lieu of the blank spaces provided, indicate appropriate cross-references in the spaces.
c. Three (3) copies of this notification with supporting documentation shall be submitted with this form.
d. All information is to be typed or printed in ink. Dates are to be entered in MM/DD/YR format.

2. Facility Information

a. Permit Number FL0034789-016-DW1/MR b. Facility Identification Number FL0034789

c. Project/Facility Name Mid-County Wastewater Treatment Plant

d. Contact Name: Sean Twomey
Number and Street 200 Weathersfield Avenue
City/State/Zip Code Altamonte Springs, Florida, 32714-4027
Telephone 407-312-1815

3. Description of Facilities to be Placed into Operation:

One (1) MBR train consisting of: one (1) 48,500-gallon anaerobic tank, one (1) 61,500-gallon pre-anoxic tank, one (1) 115,000-gallon aerobic tank, one (1) 61,500-gallon post-anoxic tank, two (2) MBR tanks with twelve (12) MBR cassettes (six (6) cassettes per tank). Auxiliary equipment being started includes: two (2) permeate pumps and one (1) internal recycle pump

4. Description of Substantial Deviations from the Permit, Approved Preliminary Design Report, and Application Materials:

NONE

5. Implementation Dates

a. Actual Date Construction Began	12/23/2022
b. Scheduled Date to Place Facilities into Operation	8/11/2025
c. Scheduled Date to Attain Operational Level	8/25/2025
d. Scheduled Date to Submit DEP Form 62-620.910(13)[1]	1/21/2026

[1]In accordance with Rule 62-620.410, F.A.C., DEP Form 62-620.910(13) Notification of Availability of Record Drawings and Final Operation and Maintenance Manuals must be submitted within six month after the facilities are placed into operation.

6. Certifications

a. Applicant or Authorized Representative

I certify that the statements made in this notification and all attachments are true, correct and complete to the best of my knowledge and belief. I agree to operate and maintain these facilities in such a manner as to comply with the provisions of Chapter 403, F.S., Chapter 62-620, F.A.C., and all other applicable rules of the Department.

Sean Twomey [redacted] — 10/9/2025
(Signature of Applicant or Authorized Representative[2]) — (Date)

Name (Please Type) Sean Twomey — Company Name Sunshine Water Services
Title President — Company Address 200 Weathersfield Avenue
Phone 407-312-1815 — City/State/Zip Code Altamonte Springs, Florida, 32714
Email (optional) sean.twomey@nexuswg.com

b. Applicant or Authorized Representative (For Domestic Wastewater Facilities Only)

I certify that an appropriate draft operation and maintenance manual for these domestic wastewater facilities, which has been examined by a professional engineer as certified below, is available and located at _____ and can be submitted upon request.

Sean Twomey [redacted] — 10/9/2025
(Signature of Applicant or Authorized Representative[2]) — (Date)

Name (Please Type) Sean Twomey — Company Name Sunshine Water Services
Title President — Company Address 200 Weathersfield Avenue
Phone 407-312-1815 — City/State/Zip Code Altamonte Springs, Florida, 32714
Email (optional) sean.twomey@nexuswg.com

c. Professional Engineer Registered in Florida

I certify that the facilities listed above have been completed to the point where the facilities are functionally complete. I further certify that construction on these facilities has proceeded substantially in accordance with the permit and the approved preliminary design report and application materials, or that deviations noted above will not prevent the system from functioning in compliance with all applicable statutes of the State of Florida and rules of the Department when properly operated and maintained. These determinations have been based upon on-site observation of construction, scheduled and conducted by me or by a project representative under my direct supervision, for the purpose of determining if the work proceeded in compliance with the permit and the approved preliminary design report and application materials.

Company Name: Kimley-Horn and Associates, Inc. — Name (please type) Shelby N. Hughes, P.E.
Company Address: 200 Central Avenue, Suite 600
City/State/Zip Code St. Petersburg, Florida, 33701
Phone Number: 727-498-2585 — Shelby N Hughes [redacted]
(Seal, Signature, Date, and Registration Number)
Email (optional): shelby.hughes@kimley-horn.com

[2]If signed by the authorized representative, attach a letter of authorization.

DEP Form 62-620.910(12)
Effective October 23, 2000

d. Professional Engineer Registered in Florida (For Domestic Wastewater Facilities Only)

I certify that the draft operation and maintenance manual for these domestic wastewater facilities has been prepared or examined by me or by individual(s) under my direct supervision and that there is reasonable assurance, in my professional judgement, that the facilities, when properly operated and maintained in accordance with this manual, will comply with all applicable statutes of the State of Florida and rules of the Department.

Company Name: Kimley-Horn and Associates, Inc. Name (please type) Shelby N. Hughes, P.E.
Company Address: 200 Central Avenue, Suite 600
City/State/Zip Code St. Petersburg, Florida, 33701
Phone Number: 727-498-2585 Shelby N Hughes
(Seal, Signature, Date, and Registration Number)
Email (optional): shelby.hughes@kimley-horn.com

NOTIFICATION OF COMPLETION OF CONSTRUCTION FOR WASTEWATER FACILITIES OR ACTIVITIES

1. Instructions

a. In accordance with Rule 62-620.410, F.A.C., this form must be submitted to the Department's appropriate district office or approved local program prior to placing a newly constructed facility or modified portion of an existing facility into operation for any purpose other than testing for leaks and equipment operation.
b. Each applicable item must be completed in full. Where attached sheets or other technical documentation are used in lieu of the blank spaces provided, indicate appropriate cross-references in the spaces.
c. Three (3) copies of this notification with supporting documentation shall be submitted with this form.
d. All information is to be typed or printed in ink. Dates are to be entered in MM/DD/YR format.

2. Facility Information

a. Permit Number FL0034789-016-DW1/MR b. Facility Identification Number FL0034789

c. Project/Facility Name Mid-County Wastewater Treatment Plant

d. Contact Name: Sean Twomey
Number and Street 200 Weathersfield Avenue
City/State/Zip Code Altamonte Springs, Florida, 32714-4027
Telephone 407-312-1815

3. Description of Facilities to be Placed into Operation:

One (1) MBR tank with six (6) MBR cassettes (integrated into MBR train that was placed into operation on 3/17/2025 and outlined in the Notification of Completion of Construction (Partial) submitted on 4/11/2025)

4. Description of Substantial Deviations from the Permit, Approved Preliminary Design Report, and Application Materials:

NONE

5. Implementation Dates

a. Actual Date Construction Began	12/23/2022
b. Scheduled Date to Place Facilities into Operation	6/25/2025
c. Scheduled Date to Attain Operational Level	7/2/2025
d. Scheduled Date to Submit DEP Form 62-620.910(13)[1]	1/21/2026

[1]In accordance with Rule 62-620.410, F.A.C., DEP Form 62-620.910(13) Notification of Availability of Record Drawings and Final Operation and Maintenance Manuals must be submitted within six month after the facilities are placed into operation.

6. Certifications

a. Applicant or Authorized Representative

I certify that the statements made in this notification and all attachments are true, correct and complete to the best of my knowledge and belief. I agree to operate and maintain these facilities in such a manner as to comply with the provisions of Chapter 403, F.S., Chapter 62-620, F.A.C., and all other applicable rules of the Department.

Séan Twomey — **08/06/2025**

(Signature of Applicant or Authorized Representative[2]) (Date)

Name (Please Type) Sean Twomey Company Name Sunshine Water Services
Title President Company Address 200 Weathersfield Avenue
Phone 407-312-1815 City/State/Zip Code Altamonte Springs, Florida, 32714
Email (optional) sean.twomey@nexuswg.com

b. Applicant or Authorized Representative (For Domestic Wastewater Facilities Only)

I certify that an appropriate draft operation and maintenance manual for these domestic wastewater facilities, which has been examined by a professional engineer as certified below, is available and located at _____ and can be submitted upon request.

Séan Twomey — **08/06/2025**

(Signature of Applicant or Authorized Representative[2]) (Date)

Name (Please Type) Sean Twomey Company Name Sunshine Water Services
Title President Company Address 200 Weathersfield Avenue
Phone 407-312-1815 City/State/Zip Code Altamonte Springs, Florida, 32714
Email (optional) sean.twomey@nexuswg.com

c. Professional Engineer Registered in Florida

I certify that the facilities listed above have been completed to the point where the facilities are functionally complete. I further certify that construction on these facilities has proceeded substantially in accordance with the permit and the approved preliminary design report and application materials, or that deviations noted above will not prevent the system from functioning in compliance with all applicable statutes of the State of Florida and rules of the Department when properly operated and maintained. These determinations have been based upon on-site observation of construction, scheduled and conducted by me or by a project representative under my direct supervision, for the purpose of determining if the work proceeded in compliance with the permit and the approved preliminary design report and application materials.

Company Name: Kimley-Horn and Associates, Inc. Name (please type) Shelby N. Hughes, P.E.
Company Address: 200 Central Avenue, Suite 600
City/State/Zip Code St. Petersburg, Florida, 33701
Phone Number: 727-498-2585

Shelby N. Hughes — Digitally signed by Shelby N Hughes, DN: cn=Shelby N Hughes, c=US, o=Florida, email=shelby.hughes@kimley-horn.com, 04'00'

(Seal, Signature, Date and Registration Number)

Email (optional): shelby.hughes@kimley-horn.com

[2]If signed by the authorized representative, attach a letter of authorization.

d. Professional Engineer Registered in Florida (For Domestic Wastewater Facilities Only)

I certify that the draft operation and maintenance manual for these domestic wastewater facilities has been prepared or examined by me or by individual(s) under my direct supervision and that there is reasonable assurance, in my professional judgement, that the facilities, when properly operated and maintained in accordance with this manual, will comply with all applicable statutes of the State of Florida and rules of the Department.

Company Name: Kimley-Horn and Associates, Inc.
Company Address: 200 Central Avenue, Suite 600
City/State/Zip Code St. Petersburg, Florida, 33701
Phone Number: 727-498-2585

Name (please type) Shelby N. Hughes, P.E.

Shelby N Hughes

Digitally signed by Shelby N Hughes
DN: cn=Shelby N Hughes, c=US, o=Florida, email=shelby.hughes@kimley-horn.com

(Seal, Signature, Date, and Registration Number)

Email (optional): shelby.hughes@kimley-horn.com

NOTIFICATION OF COMPLETION OF CONSTRUCTION FOR WASTEWATER FACILITIES OR ACTIVITIES

1. Instructions

a. In accordance with Rule 62-620.410, F.A.C., this form must be submitted to the Department's appropriate district office or approved local program prior to placing a newly constructed facility or modified portion of an existing facility into operation for any purpose other than testing for leaks and equipment operation.
b. Each applicable item must be completed in full. Where attached sheets or other technical documentation are used in lieu of the blank spaces provided, indicate appropriate cross-references in the spaces.
c. Three (3) copies of this notification with supporting documentation shall be submitted with this form.
d. All information is to be typed or printed in ink. Dates are to be entered in MM/DD/YR format.

2. Facility Information

a. Permit Number FL0034789-016-DW1/MR b. Facility Identification Number FL0034789

c. Project/Facility Name Mid-County Wastewater Treatment Plant

d. Contact Name: Sean Twomey
Number and Street 200 Weathersfield Avenue
City/State/Zip Code Altamonte Springs, Florida, 32714-4027
Telephone 407-312-1815

3. Description of Facilities to be Placed into Operation:

One (1) MBR train consisting of: one (1) 48,500-gallon anaerobic tank, one (1) 61,500-gallon pre-anoxic tank, one (1) 115,000-gallon aerobic tank, one (1) 61,500-gallon post-anoxic tank, one (1) MBR tank with six (6) MBR cassettes, and one (1) RAS wetwell. Auxiliary equipment being started includes: three (3) aeration blowers, two (2) internal recycle pumps, three (3) RAS pumps, two (2) WAS pumps, two (2) permeate pumps, and three (3) air scour blowers.

4. Description of Substantial Deviations from the Permit, Approved Preliminary Design Report, and Application Materials:

NONE

5. Implementation Dates

a. Actual Date Construction Began	12/23/2022
b. Scheduled Date to Place Facilities into Operation	3/17/2025
c. Scheduled Date to Attain Operational Level	3/31/2025
d. Scheduled Date to Submit DEP Form 62-620.910(13)[1]	9/16/2025

[1]In accordance with Rule 62-620.410, F.A.C., DEP Form 62-620.910(13) Notification of Availability of Record Drawings and Final Operation and Maintenance Manuals must be submitted within six month after the facilities are placed into operation.

6. Certifications

a. Applicant or Authorized Representative

I certify that the statements made in this notification and all attachments are true, correct and complete to the best of my knowledge and belief. I agree to operate and maintain these facilities in such a manner as to comply with the provisions of Chapter 403, F.S., Chapter 62-620, F.A.C., and all other applicable rules of the Department.

Sean Twomey
1AFC192BDD01A0C6722031C0547111C9 contractworks — 04/01/2025

(Signature of Applicant or Authorized Representative[2]) (Date)

Name (Please Type) Sean Twomey Company Name Sunshine Water Services
Title President Company Address 200 Weathersfield Avenue
Phone 407-312-1815 City/State/Zip Code Altamonte Springs, Florida, 32714
Email (optional) sean.twomey@nexuswg.com

b. Applicant or Authorized Representative (For Domestic Wastewater Facilities Only)

I certify that an appropriate draft operation and maintenance manual for these domestic wastewater facilities, which has been examined by a professional engineer as certified below, is available and located at _____ and can be submitted upon request.

Sean Twomey
1AFC192BDD01A0C6722031C0547111C9 contractworks — 04/01/2025

(Signature of Applicant or Authorized Representative[2]) (Date)

Name (Please Type) Sean Twomey Company Name Sunshine Water Services
Title President Company Address 200 Weathersfield Avenue
Phone 407-312-1815 City/State/Zip Code Altamonte Springs, Florida, 32714
Email (optional) sean.twomey@nexuswg.com

c. Professional Engineer Registered in Florida

I certify that the facilities listed above have been completed to the point where the facilities are functionally complete. I further certify that construction on these facilities has proceeded substantially in accordance with the permit and the approved preliminary design report and application materials, or that deviations noted above will not prevent the system from functioning in compliance with all applicable statutes of the State of Florida and rules of the Department when properly operated and maintained. These determinations have been based upon on-site observation of construction, scheduled and conducted by me or by a project representative under my direct supervision, for the purpose of determining if the work proceeded in compliance with the permit and the approved preliminary design report and application materials.

Company Name: Kimley-Horn and Associates Name (please type) Shelby N. Hughes
Company Address: 200 Central Avenue, Suite 600
City/State/Zip Code St. Petersburg, Florida, 33701
Phone Number: 727-498-2585
Email (optional): shelby.hughes@kimley-horn.com

Shelby N Hughes
Digitally signed by Shelby N Hughes
DN: cn=Shelby N Hughes, c=US, o=Florida, email=shelby.hughes@kimley-horn.com
Date: 2025.04.10 08:13:47 -04'00'

(Seal, Signature, Date, and Registration Number)

[2]If signed by the authorized representative, attach a letter of authorization.

d. Professional Engineer Registered in Florida (For Domestic Wastewater Facilities Only)

I certify that the draft operation and maintenance manual for these domestic wastewater facilities has been prepared or examined by me or by individual(s) under my direct supervision and that there is reasonable assurance, in my professional judgement, that the facilities, when properly operated and maintained in accordance with this manual, will comply with all applicable statutes of the State of Florida and rules of the Department.

Company Name: Kimley-Horn and Associates
Company Address: 200 Central Avenue, Suite 600
City/State/Zip Code St. Petersburg, Florida, 33701
Phone Number: 727-498-2585
Email (optional): shelby.hughes@kimley-horn.com

Name (please type) Shelby N. Hughes

Shelby N Hughes Digitally signed by Shelby N Hughes DN: cn=Shelby N Hughes, c=US, o=Florida, email=shelby.hughes@kimley-horn.com

(Seal, Signature, Date, and Registration Number)

Appendix Q: Discharge Elimination Approval Ltr

FLORIDA DEPARTMENT OF
Environmental Protection

Southwest District Office
13051 North Telecom Parkway #101
Temple Terrace, Florida 33637-0926

Ron DeSantis
Governor

Jeanette Nuñez
Lt. Governor

Shawn Hamilton
Secretary

March 8, 2022

Mr. Gary Rudkin, President
200 Weathersfield Avenue
Altamonte Springs, FL 32714
gary.rudkin@corix.com

Re: Plan for Eliminating Nonbeneficial Surface Water Discharge Approval
Pinellas County
Name: Mid-County WWTP
Facility ID: FL0034789

Dear Mr. Rudkin:

On October 27, 2021, the Department of Environmental Protection (Department) received your documentation for a plan for eliminating nonbeneficial surface water discharge in accordance with subsection 403.064(17), Florida Statutes (F.S.), for the Mid-County WWTP, Facility ID: FL0034789.

The Department acknowledges receipt of the documentation for a plan for eliminating nonbeneficial surface water discharge. The Mid-County WWTP plan will result in eliminating the surface water discharge, meeting the requirements of Senate Bill 64, per paragraph 403.064(17)(a)(1), F.S.

Based on the information submitted, your plan is approved. Approval of this plan or subsequent modification does not relieve the applicant of the responsibility of obtaining federal, state or local government permits.

If you have any questions, feel free to contact Micah Minaberry at 813-470-5861, micah.minaberry@floridadep.gov.

Sincerely,

Micah Minaberry
Engineering Specialist III

cc:
Mike Wilson, Utilities, Inc. of Florida, mike.wilson@uiwater.com
Seyd Matteson, Utilities, Inc. of Florida, sjmatteson@uiwater.com
Sarah Ecker, P.E., Kimley-Horn and Associates, Inc., sarah.ecker@kimley-horn.com
Shelby Hughes, P.E., Kimley-Horn and Associates, Inc., shelby.hughes@kimley-horn.com