

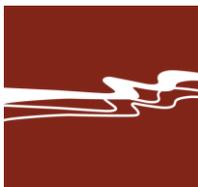
Water and Wastewater Evaluation for Proposed Improvements

for

Ragged Point Inn and Resort
Ragged Point, CA

September 2016

Prepared by:



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1.0 BACKGROUND

The Ragged Point Inn and Resort (RPI) is located off Highway 1, north of San Simeon California. The property is comprised of a 39 unit motel resort with a restaurant, gas station, mini mart, and employee housing complex. The Inn is served by a private water system and on-site domestic wastewater treatment facility.

RPI is proposing a series of renovations and upgrades, built out in five phases. The renovation project is proposed to provide additional patio dining area, new employee housing, upgraded snack bar and gas station, a day spa, and an additional 50 motel units. The following report has been prepared to evaluate the existing water and wastewater system and provide recommendations on system capacity due to the planned improvements.

2.0 PROPOSED PROJECT

Upgrades to RPI will be accomplished in five phases, shown in Figure 1 in Appendix A. A summary of the elements proposed for each phase is provided in Table 1.

Phase	PROJECT ELEMENTS
Phase 1 (Year 2017)	<ul style="list-style-type: none"> • Demo and remove existing single family residence • Demo and remove spa deck and storage shed • Construction of 10 new motel units (Cliff House South) • Construction of 6 new guest rooms (Cliff House North) • Construction of 2 new retail stores • Remodel of existing gas station and restroom facilities <p>*16 new motel units created in this phase</p>
Phase 2 (Year 2018)	<ul style="list-style-type: none"> • Demo existing employee housing and service yard • Construction of 5 employee housing rooms • Construction of maintenance and laundry facilities • Construction of 2 new guest rooms <p>*2 motel units will be created in this phase</p>
Phase 3 (Year 2019)	<ul style="list-style-type: none"> • Renovation of existing restaurant and bar • Construction of new fast food restaurant • Construction of 12 new guest rooms • Construct/re-locate new wastewater treatment facility <p>*12 motel units will be created in this phase</p>
Phase 4 (Year 2021)	<ul style="list-style-type: none"> • Remodel of existing 17 unit motel • Construction of 19 new guest rooms • Outdoor recreational area with landscaping, walkways and patios <p>*19 motel units will be created in this phase *17 existing units will be <u>demolished</u> in this phase</p>

Phase 5 (Year 2022)	<ul style="list-style-type: none"> • Construction of new exterior spas with terraces • Construction of massage center with therapy rooms • Renovation and landscaping of area previously occupied by the wastewater treatment facility <p>*No motel units demolished or created in this phase.</p>
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3.0 WASTEWATER SYSTEM

The Ragged Point Inn wastewater treatment system consists of a secondary treatment extended aeration facility with flow equalization. The wastewater facility is permitted for 15,000 gallons per day (gpd) under the Regional Water Quality Control Board NPDES Permit No. R3-2009-0020, dated June 1, 2009.

Raw wastewater from the hotel, restaurant, gas station, and employee housing complex is collected and transported to the wastewater treatment facility via a gravity collection system. The following table outlines the design parameters of the system:

Table 2. Existing Wastewater Influent Characteristics		
PARAMETER	UNITS	VALUE
Maximum Permitted Flow	gpd	15,000
Flow (Avg. Summer)	gpd	10,000
Flow (Avg. Winter)	gpd	6,000
Biochemical Oxygen Demand (BOD)	mg/l	250
Suspended Solids (TSS)	mg/l	275
Dissolved Solids (TDS)	mg/l	500

The existing wastewater facility is an extended aeration plant that discharges undisinfected secondary effluent. Disinfection facilities were incorporated in 2014, which are used only if required during ocean discharge. One of the elements of the RPI project upgrades is to re-locate the wastewater treatment facility and provide new, upgraded, treatment equipment that will be able to provide recycled water for landscape irrigation on-site.

The new wastewater facility will be a Membrane Bioreactor (MBR), which will include an extended aeration secondary treatment process with suspended-growth system that maintains a population of organisms by recycling settled biomass. The biomass converts soluble and biodegradable organic matter into cell mass and metabolic end products. The biomass is eventually separated from the wastewater through settling in a clarifier for recycling or wasting to the sludge handling process. Following the clarifier, treated effluent goes through a membrane filter to remove any remaining constituents to

produce recycle-quality water. The effluent is then disinfected with chlorine to remove any remaining pathogens, and dechlorinated for use as landscape irrigation water. The treatment process includes the following:

- Flow equalization
- Extended Aeration with subsurface diffused air
- Clarification
- Filtration
- Chlorination/Dechlorination
- Effluent disposal

Distribution of treated effluent from the existing wastewater treatment facility is accomplished via an above-ground forcemain along the outside perimeter of the Inn property. Lateral tubing with drip emitters are laid along the cliff edge to allow water to drip down the cliff side. Evapotranspiration from cliff side vegetation, and evaporation from the cliff rocks are the means of effluent disposal. The entire area, distribution piping, lateral lines, and cliff side, is fenced off from public contact via a 5 foot tall chain link fence.

Implementation of the new MBR wastewater treatment system will allow RPI to reuse the treated effluent for on-site landscape irrigation, which will be the main method of disposal. The current cliff side evapotraspiration system will be maintained as a back up disposal system in the event landscape irrigation is not needed.

3.1 Existing Wastewater Flows

A summary of the 2013 average monthly flows is provided in Table 3. Average flows are around 7,500 gpd, with peak flows around 13,000 gpd on busy weekends.

Table 3. 2013 RPI Wastewater Flows		
Month	Average Flow (gpd)	Max Flow (gpd)
January	5,484	9,366
February	5,810	11,718
March	7,288	11,966
April	6,698	8,945
May	7,708	13,022
June	7,999	11,622
July	9,416	12,219
August	9,125	11,470
September	9,050	11,742
October	7,778	11,378
November	7,287	12,808
December	7,014	12,690

3.2 Proposed Wastewater Flows

Table 4 outlines the assumptions that were made to determine how the future upgrades and renovations would affect the wastewater system.

No.	Detail	Unit/Day
39	Existing Hotel Units	175 gallons/room ¹
49	New Hotel Units	150 gallons/room ²
350	Max people per large event	5 gallons/person
5	Max employees housing units	50 gallons/person
10	Max daytime employees	10 gallons/person
500	Max customers per day (restaurant)	5 gallons/person

¹2.5 people per room @ 70 gallons per person

²2.5 people per room @ 60 gallons per person (assuming low flow fixtures for new units)

	Existing	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Year	2016	Fall 2017	Fall 2018	Fall 2019	Spring 2021	Spring 2022
No. Of Existing Rooms	39	39	39	39	22	22
No. of New Rooms	0	16	2	12	19	19
Flow for Existing Rooms ²	6,825	6,825	6,825	6,825	3,850	3,850
Cumulative Flow per New Rooms ³	0	2,400	2,700	4,500	7,350	7,350
Cumulative WW Flow¹	6,825	9,225	9,525	11,325	11,200	11,200

¹Flow in gallons per day

²2.5 people per room @ 70 gallons per person

³2.5 people per room @ 60 gallons per person (assuming low flow fixtures in new units)

As shown in Table 6, the existing wastewater treatment facility would need to be upgraded as part of the Phase 3 improvements in order to adequately serve RPI because wastewater flows exceed the 15,000 gallon per day maximum capacity of the existing system.

	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5
Cumulative Hotel Room WW Flow ¹ (gpd)	9,225	9,525	11,325	11,200	11,200
Events ² (350 ppl max)	1,750	1,750	1,750	1,750	1,750
Live-in Employees ³	980	600	600	600	600
Day Employees ⁴	100	100	100	100	100
Restaurant Customers ⁵	2,400	2,400	2,400	4,000	4,000
Total WW Flow (gpd)	14,455	14,375	16,175	17,650	17,650

¹From Table 5

²Wastewater generation calculated at 5 gallons per person.

³Existing employee units calculated as 60 gallons per person; Future employee housing units calculated at 50 gallons per person to take into consideration lower flow fixtures.

⁴Day employee wastewater generation calculated at 10 gallons per person per day.

⁵Phases 1 – 3 assumed that maximum customers per day is 300 with an average wastewater generation of 8 gallons per person. After Phase 3 is complete, maximum customers is assumed to be 500 per day.

3.3 Wastewater Recommendations

The increase in hotel units during Phase 3 results in a buildout wastewater flow that surpasses the current wastewater treatment facility design capacity of 15,000 gpd. The new wastewater treatment plant will be installed during Phase 3 of the project to meet projected wastewater demands. The capacity of the new wastewater facility should meet or exceed the maximum buildout flow of 17,650 gpd. The new wastewater treatment plant will be re-located to the southern edge of the property. By the time Phase 5 is implemented, tertiary recycling will produce approximately 19 acre feet per year of water that can be used to offset the irrigation demand.

Cut sheets of the proposed Membrane Bioreactor (MBR) treatment plant are provided in Appendix B. The MBR will be a skid-mounted piece of equipment with the following processes integral to the unit:

- Influent mechanical screen (2mm self-cleaning screen)
- Aeration basin
- Membrane chamber
- Sludge storage chamber
- UV disinfection unit
- Control panel with SCADA software

In addition to the package MBR, the wastewater facility will include an influent equalization tank, an external sludge storage tank, and a dewatering press. Chlorination and dechlorination facilities will also be necessary to meet Title 22 requirements. It is likely the equipment will be housed inside a pre-engineered building to protect equipment from the coastal environment.

4.0 WATER SYSTEM

The water supply system at RPI consists of three surface water sources and one well. The Ragged Point public water system is operated under Domestic Water Supply Permit No. 4000684 dated May 10, 2010 by County of San Luis Obispo Environmental Health Services. The permit states that the Ragged Point Inn and water system is a nontransient-noncommunity system. Water use at RPI includes domestic (indoor) use, and irrigation of lawn and ornamental landscape areas.

4.1 Water Supply

The water supply is provided by three water right diversions from surface water sources and an on-site well. A map of the surface water sources is provided in Appendix A.

License 9357

The Inn's most senior water right is an appropriative right licensed by the State Water Board under License 9357. This water right allows year-round diversion from Twin Springs Creek and Waterfalls Creek for domestic use at the Inn. License 9357 allows the diversion of up to 8,000 gallons per day (gpd) up to a maximum of five acre-feet per year.

Certificate R533

Certificate R533 is an appropriative water right issued by the State Water Board and provides for a year-round water supply of 4,500 gpd, not to exceed five acre-feet per year.

Riparian Water Right

The Ragged Point Inn also holds a riparian water right (an appropriative water right initiated before 1914) that entitles the Inn to divert a portion of the water flowing past the property within the watershed. This water right allows up to 8 gpm, year round. This corresponds to a total annual capacity of about 13 AFY.

On-Site Water Well

The Inn drilled an on-site water well in 2010 to supplement their water supply system. The well produces 11 gpm and it is assumed the safe yield of the well limits pumping to 20 hours per day. Therefore the well provides approximately 13,200 gpd, or 14.8 AFY of water for the Inn.

	Gallons Per Day	Annual Capacity (AFY)
License 9357	8,000	5
Certificate R533	4,500	5
Riparian Water Right	11,520	13
On-Site Well	13,200	14.8
Total	37,220	37.8

Table 7 outlines the maximum capacity of each of the water supply sources. The maximum annual capacity based on water rights and well pumping is 37.8 acre-feet per year (AFY), which corresponds to 13,400,000 gallons per year.

4.2 Existing Water Use

Water use at RPI consists of domestic (indoor) use, as well as irrigation of turf lawn area and ornamental landscape around the site. The Inn's current average annual water use is approximately 3.5 to 4.5 million gallons (13.8 AFY), based on water use data accumulated from 2005 to 2009.

4.3 Projected Water Use

Projected water use was calculated to determine if the current supply is sufficient to serve the proposed improvements planned for the Inn.

The new facility will have approximately 4.8 acres of ornamental landscape and grasses that will need to be irrigated. Monthly irrigation demand is estimated to be approximately 0.92 acre feet during the peak season.

$$(4.8 \text{ acres}) \times (2.3 \text{ ft/yr water/acre}) = 11.088 \text{ AFY} = 0.92 \text{ AF/month}$$

Proposed domestic water use is directly linked to the estimated wastewater flows. Using a peak build-out (Phase 5) domestic water demand of 17,650 gpd, or 531,900 gallons per month, an annual peak domestic water demand of 6,382,800 gallons per year (20 AFY) can be anticipated.

Adding the irrigation demand to the domestic water demand results in an overall water demand of 31 AFY (20 AFY domestic + 11 AFY irrigation). Because the RPI supply capacity is 37.8 AFY, the Inn has sufficient water supply to meet current and projected domestic and irrigation water demands.

The proposed membrane bioreactor tertiary filtration system will be designed to treat onsite wastewater to a quality acceptable for irrigation of onsite ornamental landscape and turf. As outlined in Table 6, the total wastewater flow at buildout (Phase 5) is expected to be 17,650 gpd, or approximately 1.6 AF per month. Therefore, the available water for irrigation should exceed the irrigation demand.

During normal operation, it is anticipated that treated effluent from the wastewater system will be the main source for irrigation water. However, if necessary, the domestic water supply has sufficient capacity to offset the entire irrigation demand.

APPENDIX A – FIGURES

1 - SITE PLAN OF PROPOSED IMPROVEMENTS

2 - MAP OF WATER SUPPLY SOURCES

PROJECT PHASES

RAGGED POINT INN & RESORT



PHASE 1 - CLIFF HOUSES

- Cliff House South
- Cliff House North
- Retail/Commercial

PHASE 2 - EMPLOYEE HOUSING

- Employee Housing
- Maintenance Facility
- Resort Laundry
- Resort Office

PHASE 3 - WATERFALL

- Waterfall House
- Restaurant and Bar

PHASE 4 - WHITE ROCK COVE

- White Cove House

PHASE 5 - SPA

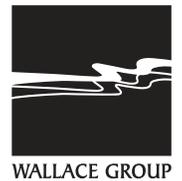
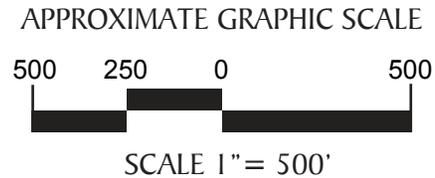
ALL PHASES

- Installation of permeable pavement parking lots.
- Walkways and Gardens
- Installation of new underground utilities



Ragged Point Inn

Proposed New Water Supply Well
January 5, 2010



APPENDIX B – MBR CUTSHEETS



MUNICIPAL MEMPAC™ MEMBRANE BIO-REACTOR



ABOUT CLOACINA

cloa-ci-na [kloh-see-na]

noun

1. Roman Goddess of the Sewers
2. Purveyor of wastewater package treatment plants, treatment solutions and equipment

Origin:
Ancient Rome; cloaca [sewer]

OVERVIEW

Cloacina, LLC is a manufacturer and purveyor of package wastewater treatment plants and equipment located on the Central Coast of California. It is owned and managed by a family of licensed operators and maintenance mechanics, now four generations deep, with over a century of combined wastewater treatment experience. Pride in craftsmanship. Unparalleled ingenuity. Environmental protection. At the heart of Cloacina, these are the values driving the design and production of each wastewater treatment plant.

HISTORY

Legend has it that soon after the completion of the Cloaca Maxima (The main sewer line constructed in the late 500's BC in Rome), a statue of a woman was found in the sewers. Promptly rescued and cleaned, she became Cloacina, the Roman Goddess of the Sewer. Romans came to believe that Cloacina ruled over and protected their sanitary workers and the extensive sewer system they serviced.

While we may never know why that statue of the woman was thrown into the cloaca, it is clear that the sewer system revolutionized cleanliness standards and daily life for the citizens of Rome, and made the once discarded statue, a revered goddess. Her importance is evidenced by the fact that a coin, still available today, was minted in her honor in 46 BC. Additionally, Titus Tatius had a Cloacina statue and shrine erected on the Roman Forum in the 8th Century BC. This shrine is believed to be located on the entrance to the sewer system — an ancient manhole. The foundations of this landmark are still evident in Rome.

CLOACINA LLC

— MISSION STATEMENT —

Nº 1

MANUFACTURE SUPERIOR, FULLY-INTEGRATED PACKAGE WASTEWATER TREATMENT PLANTS THAT ARE EASY TO INSTALL, OPERATE AND MAINTAIN

Nº 2

PROTECT THE ENVIRONMENT BY PROVIDING PACKAGE PLANTS THAT ALLOW CLIENTS TO CONSERVE AND REUSE WATER

Nº 3

BUILD PACKAGE WASTEWATER TREATMENT PLANTS THAT PROVIDE THE GREATEST VALUE

ARROYO GRANDE, CALIF. U.S.A.
Est. 2008

REASONS TO PARTNER WITH CLOACINA



Cloacina, LLC is owned by a family of wastewater operators and maintenance mechanics. All Cloacina package wastewater treatment plants are designed BY OPERATORS FOR OPERATORS and are easy to install, operate and maintain.



All wastewater plants and equipment are proudly fabricated and manufactured on the Central Coast of California.



Cloacina fabricates, manufactures and up-fits all package wastewater treatment plants in-house. This allows the design and fabrication teams to work together closely throughout the project and perform rigorous quality control checks at every phase of production.



Pride in craftsmanship is paramount. If a flaw is discovered during manufacturing, it is immediately remedied.



Cloacina wastewater treatment plants are assembled, pre-commissioned and wet tested at the factory for a minimum of 24 hours prior to shipment. This significantly decreases mechanical installation costs and on-site integration. Clients and project team members are invited to visit the factory during pre-commissioning, see their plant in full operation and receive training on their equipment before it leaves the factory.



Only high-quality raw materials and ancillary equipment with proven track records of reliability in the wastewater industry are included in Cloacina systems.



To assist with California's water crisis, Cloacina developed wastewater treatment plants that allow clients to reuse 100% of their treated effluent for irrigation and sanitation purposes.

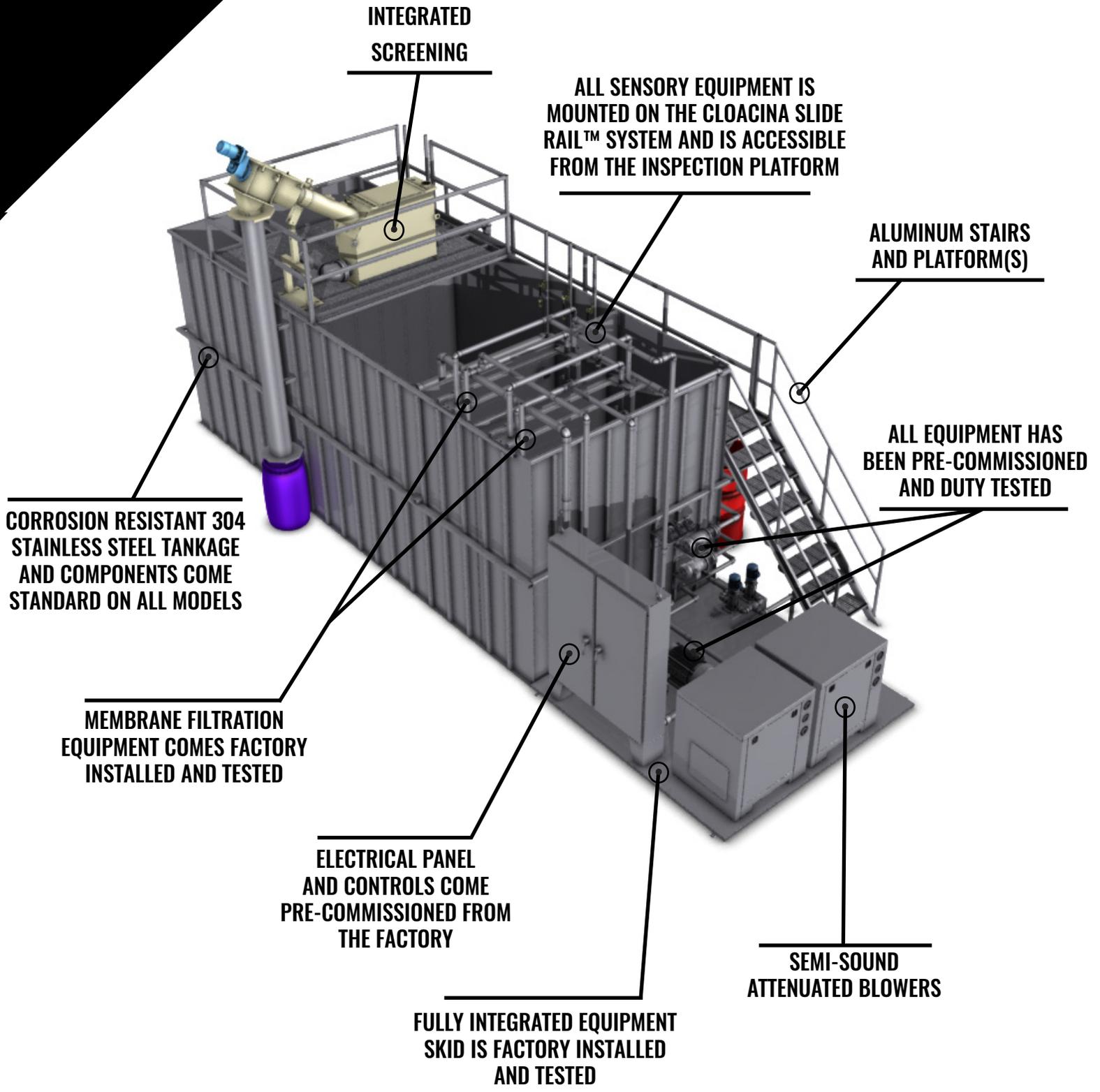


Every package wastewater treatment plant is custom designed and fabricated specific to the project needs. When a client works with Cloacina, the design team engineers a custom wastewater solution rather than forcing a cookie-cutter design to fit the project.



Each package wastewater treatment plant includes a custom, high-end SCADA/controls package standard. The SCADA/controls team can also incorporate existing facility equipment into the new SCADA/controls program.

MEET THE MEMPAC™



**INTEGRATED
SCREENING**

**ALL SENSORY EQUIPMENT IS
MOUNTED ON THE CLOACINA SLIDE
RAIL™ SYSTEM AND IS ACCESSIBLE
FROM THE INSPECTION PLATFORM**

**ALUMINUM STAIRS
AND PLATFORM(S)**

**ALL EQUIPMENT HAS
BEEN PRE-COMMISSIONED
AND DUTY TESTED**

**CORROSION RESISTANT 304
STAINLESS STEEL TANKAGE
AND COMPONENTS COME
STANDARD ON ALL MODELS**

**MEMBRANE FILTRATION
EQUIPMENT COMES FACTORY
INSTALLED AND TESTED**

**ELECTRICAL PANEL
AND CONTROLS COME
PRE-COMMISSIONED FROM
THE FACTORY**

**FULLY INTEGRATED EQUIPMENT
SKID IS FACTORY INSTALLED
AND TESTED**

**SEMI-SOUND
ATTENUATED BLOWERS**

PRODUCT DESCRIPTION

The Cloacina Municipal MEMPAC™ Membrane Bio Reactor is a package wastewater treatment system designed for clients with stringent discharge requirements or the desire to reclaim treated effluent for irrigation or land application purposes. The Municipal MEMPAC™ incorporates activated sludge and membranes for clarification as the final stage of treatment. Unlike activated sludge wastewater treatment plants that utilize a traditional clarifier, membrane treatment does not allow solids to carry over into the effluent. The Municipal MEMPAC™ is designed to treat high-strength influent to meet strict discharge requirements and the standards for reuse. All interior and exterior components of the Municipal MEMPAC™ are manufactured from high-quality, corrosion-resistant materials and all tankage and equipment skids are fabricated from 304 stainless steel. Prior to shipment, all components are factory-installed and pre-commissioned. The compact design of the Municipal MEMPAC™ makes it ideal for projects with small footprints and remote locations.

TYPICAL INFLUENT PARAMETERS

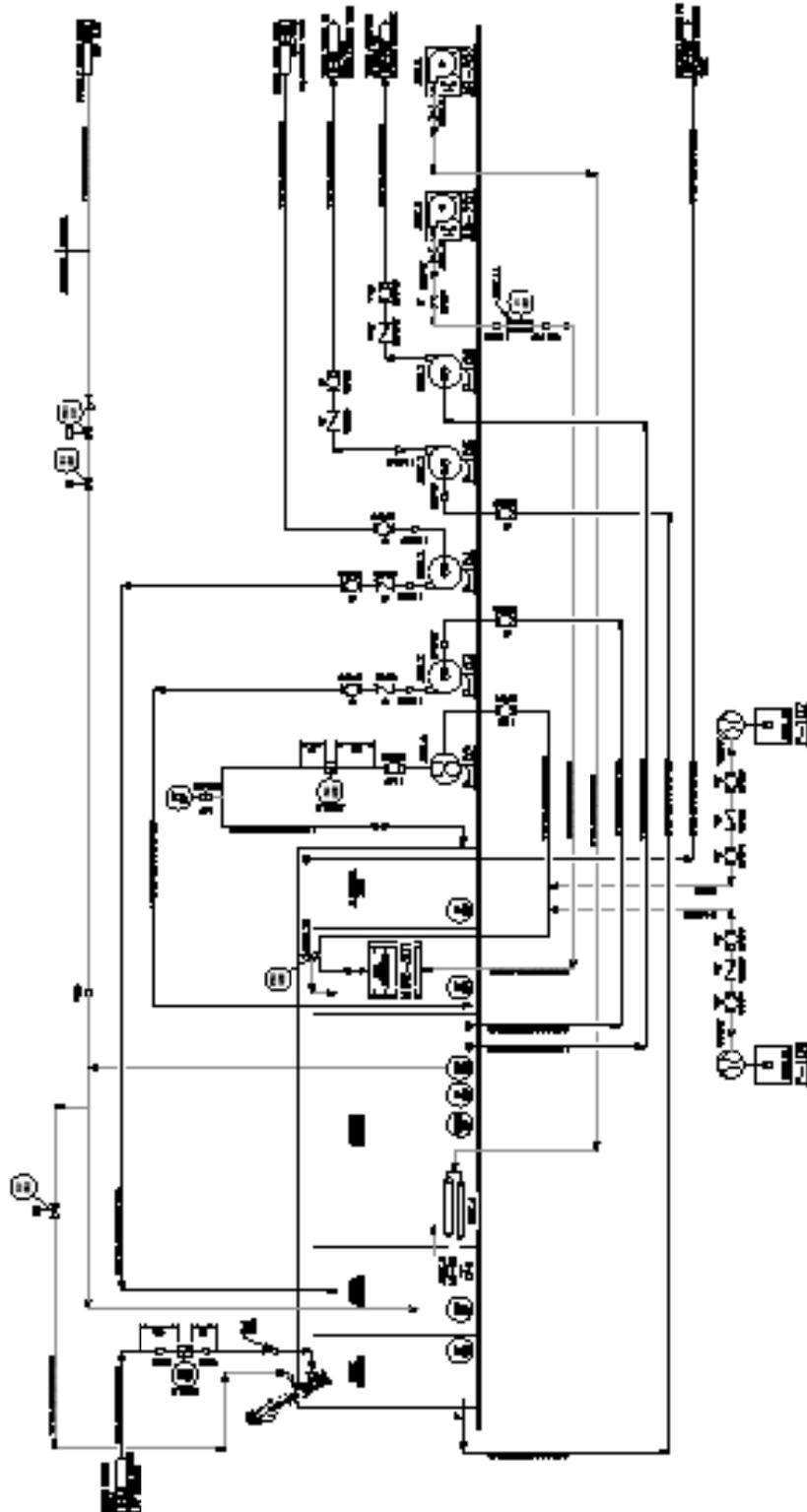
CONSTITUENT	CONCENTRATION LIMIT	UNITS	NOTES
Total Suspended Solids (TSS)	300	mg/L	
BOD5	<500	mg/L	
Temperature	55 - 75°	F°	Average
Total Nitrogen (TN)	85	mg/L	

TYPICAL EFFLUENT PARAMETERS

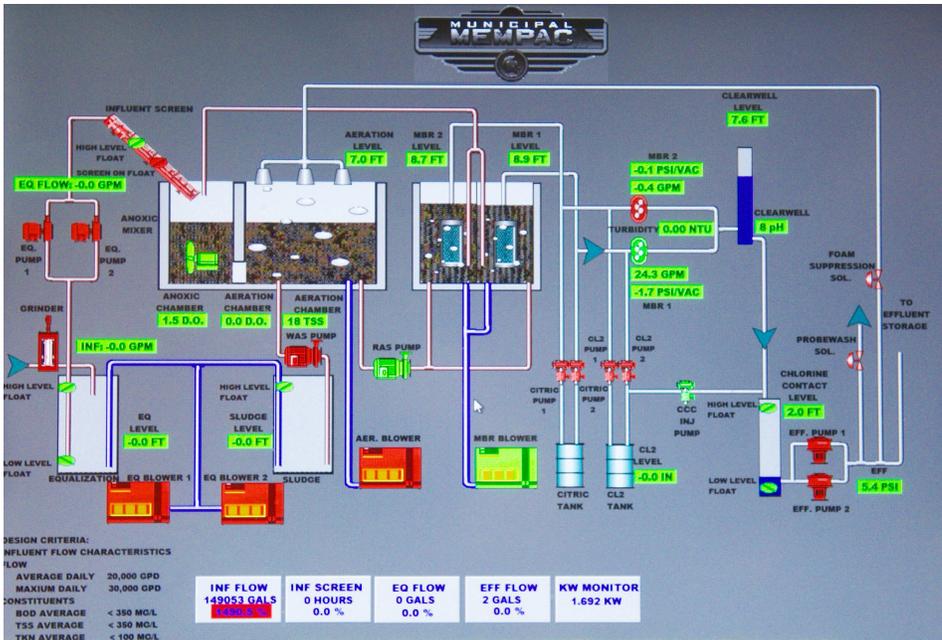
LIMITATIONS	CONCENTRATION LIMIT	UNITS
pH	6-8.5	
BOD5	<10	mg/L
TSS	<10	mg/L
Total Nitrogen (TN)	<10	mg/L

PROCESS FLOW DIAGRAMS

EXAMPLE: **MEMPAC™-M 30,000 GALLONS PER DAY (GPD)**



SCADA/ CONTROLS



The SCADA/controls enclosures are constructed of 304 stainless steel, unless otherwise specified or required. The electrical controls system consists of magnetic starters and switches necessary to control all electro-mechanical components on the wastewater plant. The blower motor(s) are controlled by HAND/OFF/AUTO (HOA) selector switches and magnetic starters in conjunction with the SCADA/controls. Circuitry is protected by properly sized circuit breakers and fuses. All equipment is designed to be operated by the controls system. The enclosure can be wired for any site voltage.

Cloacina's SCADA/controls package includes a graphical representation of the entire process, user-defined controls set points and alarm condition notifications via text or email. Additionally, the SCADA/controls program provides tabular and graphical logging of important parameters necessary for efficient operation and record keeping. Cloacina's controls system also provides maintenance tracking for all equipment notifying staff when servicing is due.

The SCADA/controls package allows facility staff to remotely monitor and make adjustments to the system, collect information for reporting and verify the completion of routine maintenance from any device with an Internet connection.

SCOPE OF SUPPLY



STANDARD FEATURES

- 304 stainless steel tankage
- Supervisory Controls and Data Acquisition (SCADA)/controls package
- Influent screening
- Membrane cassette(s)
- Semi-sound-attenuated, positive displacement blowers
- Modular medium bubble diffusers
- All sensory equipment and internal pumps are mounted on Cloacina's Slide Rail™ System
- Above-ground installation
- Human Machine Interface (HMI)
- All supplied bases, skids supports, etc. are constructed of 304 stainless steel
- All piping, valves and fittings will be a minimum of Schedule 80 PVC
- Automated Clean In Place (CIP) system

OPTIONAL FEATURES

- Buried installation with internal lift station, influent screen and flow meter
- pH adjustment system
- De-nitrification
- Disinfection
- Package lift station
- Prefabricated controls building
- Sludge disposal equipment
- Incorporation of existing controls equipment into Cloacina's SCADA package
- Energy saving SCADA package upgrades
- Effluent flow metering
- Additional equipment sound attenuation
- Thermal protection
- Mobile units
- Odor mitigation equipment
- Automated foam control
- Sediment/grit traps
- Variety of grating and covers available
- Project management and equipment installation

PRE-COMMISSIONING



ENTIRE SYSTEM IS OPERATED FOR A MINIMUM OF 24 HOURS BEFORE SHIPPING

PRIOR TO SHIPMENT, ALL PLANTS GO THROUGH THE FOLLOWING RIGOROUS FACTORY TESTS:

- ✓ All tankage is checked to ensure it is constructed to the exact specifications of the drawings
- ✓ All inside and outside welds are checked and determined to be leak free
- ✓ All interior tank compartments are determined to be leak free
- ✓ All pipe penetrations are determined to be leak free
- ✓ All tank compartments are cleaned and determined to be leak free
- ✓ All welds are cleaned and passivated (Cloacina uses a chemical and electrical passivation process)
- ✓ All exterior walls are determined to be leak free
- ✓ All exterior penetrations are determined to be leak free
- ✓ All electrical equipment is rotation tested
- ✓ All electrical equipment full load amps are verified and recorded for baseline establishment
- ✓ All tank compartments are determined to be free of slag and then passivated inside
- ✓ SCADA/controls system alarms, trending, notifications and set-points are verified and recorded
- ✓ All automated processes and sub processes are, operated for at least 24 hours, in forward flow continuous and uninterrupted
- ✓ If applicable, the hatch door is assembled. All bolts are tightened and the hatch is determined to be leak free
- ✓ All exterior welds on the tank are brushed and are free of spatter and slag
- ✓ All manual processes performed and adjusted for ease of operation
- ✓ Initial set-points for all equipment are logged

INSTALLATION



**INSTALLS UP TO 50%
FASTER THAN OTHER
TREATMENT SYSTEMS**

Cloacina designs all wastewater treatment plants and equipment to be easily installed. The major steps to install a Cloacina MEMPAC™-M wastewater treatment plant are as follows:

1. Transportation to the job-site
2. Offloading with a crane or large forklift(s)
3. Placement on the slab
4. Depending on the system size, minor components may have been removed for shipping purposes and will require re-assembly. All removed components are match marked for quick re-installation.
5. System interconnects (Inlets/outlets) are made
6. Electrical connections are made
7. Internet connection is made

START-UP AND COMMISSIONING



Cloacina wastewater treatment plants are wet tested and run for a minimum of 24 hours during pre-commissioning so start-up is expected to be a successful venture between the client, their contractor and Cloacina.

The following items are expected start-up tasks for commissioning:

- On-site electrical verification/rotation check
- Potable water filled to operating level in all chambers
- Pressure tests of all interconnects
- 24 hour forward flow test
- Introduction and stabilization of seed sludge
- Introduction of raw influent
- Stabilization and testing of effluent
- Basic/initial operations staff training

UP TO

75%

REDUCTION IN ON-SITE START-UP
COSTS OVER OTHER SYSTEMS

AFTER CARE



POST-INSTALLATION PROJECT SUPPORT

Customer service and post-installation client support are important components of a successful wastewater project. Cloacina has the ability to remotely access and monitor all installed wastewater treatment equipment allowing their staff to review on-site equipment controlled by the SCADA/controls system. Cloacina can also provide the following additional after care support*:

- Daily, weekly or monthly monitoring of system set-points, graphs, alarms and providing written reports to the client on an ongoing basis.
- Routine maintenance: Cloacina can provide monthly, quarterly and annual maintenance services.
- Compliance reports: Cloacina can review, prepare and submit all reporting documents to local, state and federal regulatory agencies.
- Plant expansions: Cloacina is available to assist in the design and construction of any plant upgrades.
- 24/7 Assistance: Cloacina can provide the client with access to their 24/7 customer service hotline.
- Remote access troubleshooting: Provided the internet connection has been maintained, Cloacina programmers and operations staff can remotely access a facility to assist with troubleshooting.

* These services can be provided for an additional fee. Please contact Cloacina for an estimate.

CONTACT US



TO RECEIVE A PROJECT-SPECIFIC PROPOSAL OR FOR MORE INFORMATION PLEASE CONTACT US. WE ARE EAGER TO ASSIST YOU!

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