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LOUISIANA PARISH ENGINEERS AND SUPERVISORS ASSOCIATION (LPESA)
Fall Conference 2019

No Discharge Sanitary Sewer Plant with Low-cost Tertiary Treatment

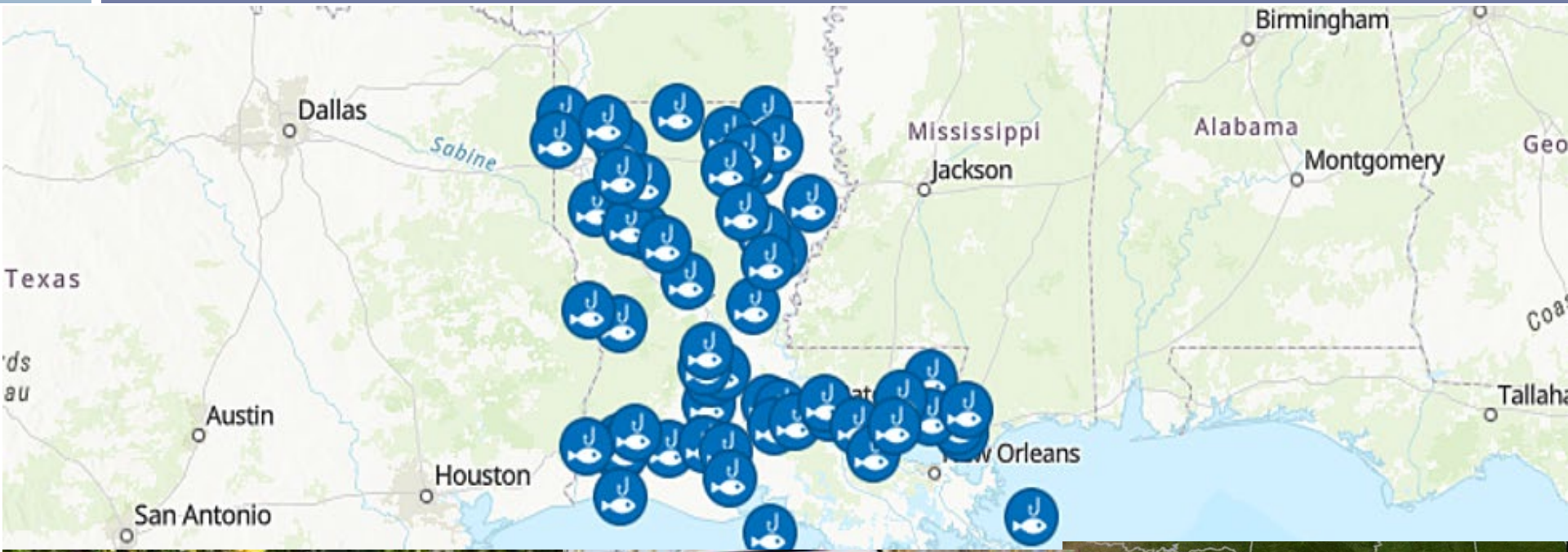
BACKGROUND

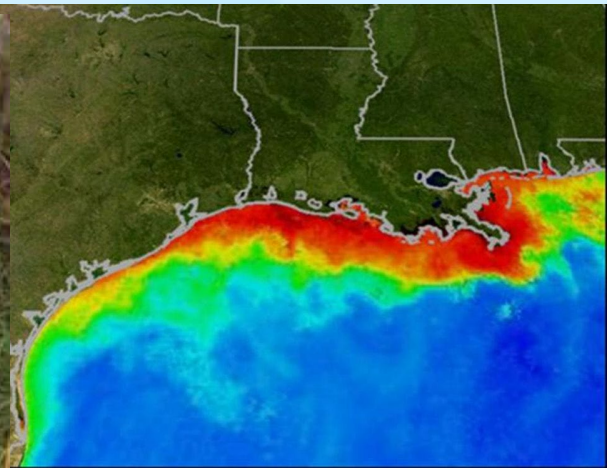
- Wastewater systems are being regulated more due to impaired water bodies. The combination of non-point sources and point sources lead to “overloading” of water bodies. Based on metrics established by DEQ on the TMDL (Total Max Daily Loading) treatment plants have been required to upgrade their systems.

- Most treatment plants for over 30 years have been at a treatment level of 30/45. This means 30 BOD and 45 TSS.

- Now new regulations require 10/15 and most stringent 5/2/5 or “No Discharge”. This includes not using a detention or retention pond as a polishing device.

Louisiana Water – Path to Impairment





Problems with sewage and growing communities……

- Municipalities grow faster than the infrastructure can keep up.
- Money is needed for infrastructure costs. Taxes and impact fees are ways to manage costs. Politically difficult.
- P3 projects on the rise.

TYPES:

- ❖ Individual package plants on residential homes
- ❖ Subdivision community systems
- ❖ Commercial small business (5,000 gpd and under - 95%)
- ❖ Industrial, Plant and large developments over 100,000 gpd
- ❖ Municipal Systems

LDH RULES

- LDH requires a review of treatment plants by a local sanitarian if its under 3,000 gpd.
- A review over 3,000 gpd is done by an LDH regional engineer.
- Methods for discharge are effluent reduction, discharge pipe and spray irrigation or drain field.

LOUISIANA DEPARTMENT OF HEALTH

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LDEQ & LDH: TWO STEPS TO COMPLIANCE

- **LDH** reviews the plans and agrees with the **mechanical integrity** and then approves a "temporary permit" This temporary permit lasts until construction is complete. The applicant then submits a "Completion Report" and after inspection or review it gets a final approval.

- THEN it is required that the applicant obtain a **DEQ** permit for **sanitary discharges**.

- NOTE: It is not required on spray irrigation. Permits now required on effluent reduction. Many effluent reduction systems not being approved due to soil conditions in the state.

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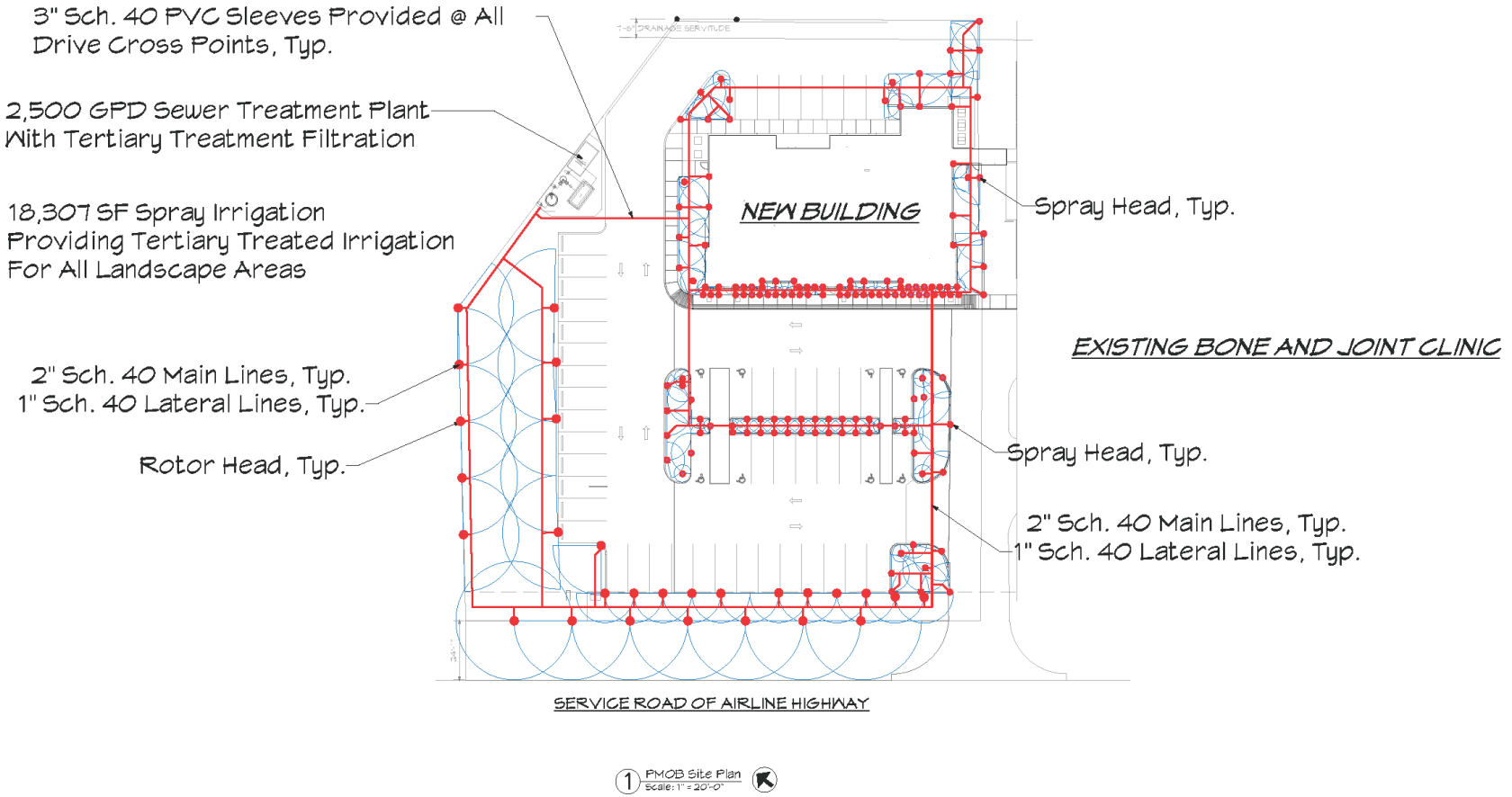
PLANS



1 PMOB Site Plan
Scale: 1" = 20'-0"

Licensed Installer: _____ Lic. # 854 Date 3/7/19
Kevin Breaux

Omega Alpha Designated Agent: _____ Date: 3/7/19
Diane Baum, Baum Environmental Group, Inc.

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Baton Rouge LA 70809
Diane Baum, PDD/BLDDE
Herb Rogers, FLA

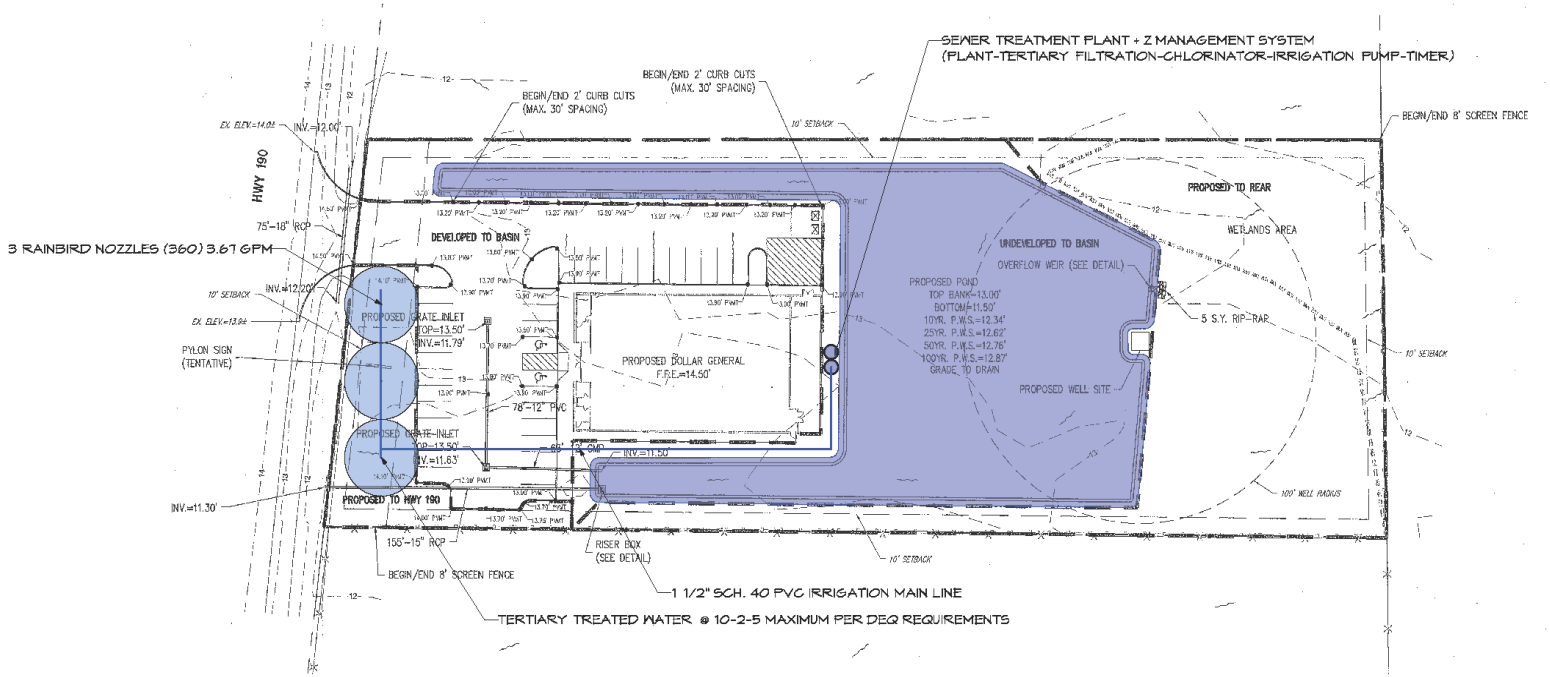
OMEGA ALPHA PROPERTIES, LLC
Prairieville Medical Office Building (PMOB)
WATER TREATMENT SYSTEM

LA One Call 811

3.7.19

WTS 2.0

Plans



Z
WATER MANAGEMENT SYSTEMS
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LA One Call 811

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DOLLAR GENERAL-LACOMBE
for
DORSEY DEVELOPMENT, LLC

REVISIONS:

SHEET TITLE: WASTE RATES RRISA CN
SHEET: WM 1

LDH Spray Irrigation

- Title 51 – Public Sanitary Code
- Addresses Secondary Treatment
- Part XIII Sewage Disposal Spray irrigation: 10 feet from property line and 40 square foot radius with a minimum of 4 sprinkler heads.
- Must be 100 ft from well and not spray into detention/ retention ponds that have an outfall.

Title 51
PUBLIC HEALTH—SANITARY CODE
Part XIII. Sewage Disposal

Chapter 1. General
[formerly Chapter 13 Subpart A]

§101. Definitions
[formerly paragraph 13:001]

A. As used in this Part, the terms defined in this Chapter supplement any definitions which may be set forth in law and shall have the following meanings and/or applications, unless the context or use thereof clearly indicates otherwise, or more explicit definitions and/or applications are referenced. Terms not defined or referenced herein shall have the meanings as defined in the other Parts of the sanitary code of the state of Louisiana. In any instance where a term defined herein is also defined in one or more other Parts of this Code, the definition contained in this Part shall be given preference as it pertains to sewage disposal.

Commercial Treatment Facility (designed in accordance with §503)—any treatment facility which is required by the state health officer whenever the use of an individual sewerage system is unfeasible or not authorized.

Community Sewerage System—any sewerage system which serves multiple connections and consists of a collection and/or pumping/transport system and treatment facility.

Conventional Septic Tank System—a septic tank system which consists of a septic tank(s) followed by a subsurface absorption field.

Facility or *Facilities*—any or all of the apparatus and appurtenances associated with a sanitary sewage treatment system, element, or process.

Gravelless Pipe—a proprietary device which may be used in lieu of conventional subsurface absorption field materials when approved by the state health officer.

Individual Mechanical Plant—a treatment facility which provides primary and secondary treatment of sanitary sewage by use of aerobic bacterial action which is sustained by mechanical means.

Individual Sewerage System—any system of piping (excluding the building drain), and/or collection and/or transport system which serves one or more connections, and/or pumping facility, and treatment facility, all located on the property where the sanitary sewage originates; and which utilizes the individual sewerage system technology which is set forth in Chapter 7 Subchapter B of this Part, or a commercial treatment facility which is specifically authorized for use by the state health officer.

Limited Use Sewerage System—a sewerage system which may be authorized by the state health officer for installation or use for a structure or dwelling which is occupied less than four days in a week, and the use of which generates less than 100 GPD of sanitary sewage.

Manufacturer—a person who engages in the business or practice of constructing individual mechanical sewerage treatment systems, and who is responsible for having the system evaluated in compliance with §725.D of this Part.

Person—any natural person, partnership, corporation, association, governmental subdivision, receiver, tutor, curator, executor, administrator, fiduciary, or representative of another person, or public or private organization of any character.

Premises—any structure or dwelling of any construction whatsoever in which a person may live, work, or congregate.

Sanitary Sewage—any and all human waste and/or domestic waste, the disposal of which requires a sewerage system approved or authorized by the state health officer. Sanitary sewage may include its conveying liquid and/or any other liquid or solid material which may be present therein.

Secondary Treatment Standard—a sewage effluent water quality standard which prescribes a maximum 30-day average concentration of biochemical oxygen demand (5-day basis) of 30 milligrams per liter (mg/l), and a maximum daily concentration of biochemical oxygen demand (5-day basis) of 45 mg/l. The 30-day average concentration is an arithmetic mean of the values for all effluent samples collected in the sampling period. The analyses to be performed for the purpose of determining compliance with these effluent

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Difference between Spray Irrigation versus Discharge

- Irrigation allows no discharge from the site. Therefore, no DEQ permit necessary.

$300

- Discharge of 5/2/5 plant requires a DEQ permit and testing

$500 x 2 = $1,000

- Smells from spray irrigation at frontage and areas unacceptable on just secondary treatment

$1,200 minimum

CONSTRUCTION

2,500 GPD PLANT – Medical Clinic in Prairieville, LA
Tertiary Treatment with landscape and grass irrigation water management

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PICTURES

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Pictures

COSTS

- *Treatment plant about the same or 10% more*
  - Start with 20/20 plant

- Tertiary Package 50% more than traditional costs

- With Spray Irrigation about 100% more

Example:

- 50,000
- 25,000
- 100,000

- Must compare to the costs of usable land versus spray.

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RESULTS

Site A – after secondary treatment into the tertiary

Ammonia <.1
BOD - 6
TSS - 6

Site B – within the tertiary

Ammonia <.1
BOD - 5
TSS - 4

Site C – effluent from tertiary

Ammonia <.1
BOD - 4
TSS - 2

*Fecal coliform and other parameters not difficult
*Need more waste in plant for better results and better reflection of percentage drop at each point

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Points to Review

- New lowered parameters will increase the costs of treatment plants across the board.
- Municipalities should prepare for the lowered limits and how it will effect development. TMDLs will provide data and municipal growth affects loading.
- Retro-fits may be enforced in the future…….
- No-discharge applications versus spray depends on the costs of land in the area.
- Innovative solutions available – private agreements with commercial sites and P3 projects for larger scale projects……

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QUESTIONS

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