

**Town of Thompson's Station  
Utility Board  
Meeting Agenda  
April 17, 2019**

**1. Call Meeting To Order**

**2. Approval Of The March 27, 2017 Meeting Minutes.**

Documents:

[3\\_27\\_2019 MEETING MINUTES.PDF](#)

**3. System Operator's Update**

**4. Ordinance 2019-006 Amending Title 18 Chapter 2**

Documents:

[ITEM 4 - BOMA MEMO FOR ORD 2019-006 TITLE 18.PDF](#)  
[ITEM 4 - EXHIBIT A AMENDING CHAPTER 18.PDF](#)  
[ITEM 4 - ORDINANCE 2019-006.PDF](#)

**5. Discussion Related To Daniel Wood And Khris Pascarella Proposals For Alternate Systems**

Documents:

[ITEM 5- LITTLEBURY SEWER PRESENTATION.PDF](#)  
[ITEM 5- SAMPLE AGREEMENT.PDF](#)

**6. Barge Designs Presentation**

Documents:

[REVISED\\_T\\_STATION\\_WW\\_ALTERNATIVES\\_04162019\\_FOR\\_DISTRIBUTION.PDF](#)

**7. Other Items Per BOMA/Town Staff**

**8. Announcements**

**9. Adjourn**

*This meeting will be held at 6:00 p.m. at the Thompson's Station Community Center  
1555 Thompson's Station Rd West*

Town of Thompson's Station  
Utility Board  
Minutes of the Meeting  
March 27, 2019

**1. Call Meeting to Order**

Jeff Riden Called the meeting to Order. Present were: Brian Stover, Jeff Riden, Charles Stark, Brad Wilson, Joe Whitson, Bruce DiFrancisco and John Peterson, Assistant Town Administrator Caryn Miller, Town Attorney Todd Moore, and Finance Director Steve Banks.

**2. Elect Chair and Secretary**

A motion to elect Jeff Riden as Board Chair was made by John Peterson and seconded by Charles Stark. The motion carried unanimously

A motion was made by Brian Stover to elect John Peterson as Secretary and seconded by Bruce DiFrancisco. The motion carried unanimously.

**3. Adopt Rules for the Board**

Jeff Riden presented proposed a bylaws draft. After discussion John Peterson made a motion to adopt the bylaws as presented with the addition of meetings to be held on the Third Wednesday of each month at 7 pm and was seconded by Brian Stover. The motion carried unanimously.

**4. System Update**

Matthew Johnson from Barge Designs presented an update.

**a. Cell #1 Repair (water level, bidding, schedule)** Out to bid April 16, 2019 at 10 am bid opening.

**b. Hill Property Drip Fields (design, soils analysis, easements)** At 30% design, received approval from CSX and contract went to BOMA and has been approved. Need to get easements completed. Target is May1, 2019 for design completion.

**c. Whistle Stop Collection System Improvements (scope and development - easements)** Confirmed 40 homes would go to Heritage Commons. The Trunk Line Project is waiting for the Courts to finalize all the papers according to the Town Attorney. Construction is projected to be complete by the end of 2020

**d. Alexander Property (soils analysis)** Suggested that we contract with Mr. Gibby directly as he is almost finished with the Hill property.

**e. Master Plan Progress (treatment type, financing, financing models/options, etc...)** Suggested that a work session be held to discuss further options for new systems as well as costs and possible financing of those systems.

## **5. System Capacity and Taps**

**a. Current Flows** Discussion and update was provided by Staff

**b. Tap Allocation (current, committed, future, and timing of additional taps coming online)** Tap allocation summary was provided by Staff

**6. Other Items per BOMA/Town Staff.** Assistant Town Administrator Caryn Miller brought forth a request from Mr. Daniel Wood and Mr. Khris Pascarella related to possible pump and haul for their developments. Mr. Wood indicated that it would be at his expense. Mr. Pascarella indicated it would be at the Town's expense and proposed an agreement where he would pre-pay for the taps and Impact fees in order to help with the sewer improvements that would need to be made in order for his development to hook up to the system at a later date.

Board members wanted more time to look at the information presented and requested it be placed on the agenda for the next meeting in April.

**7. Announcements:** None

**8. Adjournment:** Motion to adjourn made by Brian Stover and seconded by Bruce DiFrancisco. Meeting was adjourned at 8:30 p.m.

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Utility Board Chairman Jeff Riden

# MEMORANDUM

**TO:** Board of Mayor and Alderman  
**FROM:** Caryn Miller, Assistant Town Administrator  
**DATE:** 4/2/2019  
**RE:** Ordinance Amending Title 18 of the Code of Ordinances

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The Ordinance amends Title 18, chapter 2 as related to sewer charges and responsibilities. It adds the following:

- Proof needed for adjustment of sewer charges
- Provision to shut water service off if sewer bill not paid for
- Establishes deposits and reconnection fees
- Process for changes of use in buildings
- Makes property owner (landlord) responsible for unpaid tenant bills

Aside from the Code amendment, administratively we have done the following:

Created an application for service

- Bills will now include language related to non payment of bill penalties
- Letter to customers indicating the changes to the Code if passed that will be inserted in their billing envelope
- Letter to customers warning of water shut off and giving them 10 additional days to pay their bill
- Contracted Fox Collections to perform collections on past due balances in an effort to recover those delinquencies. Contract is on a % of collected amounts. No payments made to company for the services.

## EXHIBIT "A"

(The amendment language is italicized)

**18-204. Adjustment of bills.** The town administrator shall have the authority to make adjustments to sewer bills upon application of a customer and upon a showing that the calculation based upon water use is inaccurate for that billing period. *The customer must provide evidence from the water utility that their water bill was adjusted prior to the town administrator approving any adjustment to the sewer bill. A sewer adjustment will be granted only in cases in which the additional water use did not drain into the Town's wastewater system. The customer must also provide proof that any water leaks have been fixed (such as invoices and receipts or cancelled checks for payment) prior to receiving a wastewater adjustment.* Such adjustments shall be limited to one time per twelve (12) month period per customer.

**18-205. Failure to pay bill when due.** Any payment not received by the due date shall be assessed a ten percent (10%) penalty on all unpaid fees. *A notice of cut-off will be sent to a customer if the account is not paid in full by the cut-off date in the notice. If the account, including penalties, is not paid to the town by the cut-off notice date, the customer's water service may be discontinued for nonpayment, as per customer's agreement with water utility provider. Water system may be restored by payment in full of the past due sewer bill plus penalties and any additional fees as described in Section 18-206(a).*

**18-206. Deposit and other related fees.**

- a) *Each customer, upon providing evidence that water service has been established, will fill out an application for wastewater services. If the customer is not the property owner, the property owner shall also sign the application. A non-refundable deposit of seventy-five dollars (\$75.00) for single family residential and one hundred and fifty dollars (\$150.00) for commercial and multi-family will be charged at the time of application for wastewater service. If a single-family residential account becomes past due and water service is disconnected, an additional seventy-five (\$75.00) dollar non-refundable deposit shall be required before service is restored. Commercial customers that are disconnected are subject to higher deposits based on their average monthly billing. Deposits will be applied to the customer's final billing. Once final billing is satisfied, amounts left over from deposit, if any, will be refunded to the customer at that time. In addition, a reconnection fee of twenty-five dollars (\$25.00) will be assessed to all accounts prior to reconnection of services. Changes in deposit fees and reconnection fees may be established by resolution by the Board of Mayor and Aldermen of the Town from time to time.*
- b) *Any change in the occupancy of any building or residence connected to the Town's wastewater system shall require the completion of a new application for wastewater service by the new occupant. The original or prior occupant shall remain jointly and severally liable along with the new occupant and no deposits shall be released until a new application and deposit are received and approved by the Town.*

**18-207. Responsibility for payment of fees.**

- a) *The owner of a building or other premises, or the owner of land leased or rented by the owner of a building or other premises placed on said land, shall be responsible for*

## EXHIBIT "A"

*payment of all fees incurred in servicing that property. If the owner authorizes or directs a tenant, occupant or other responsible person to open an account and make payment of the fees to the Town, such agreement is exclusive of the Town and the owner shall remain responsible for all incurred fees.*

- b) The Town may refuse to provide services to any property having past due fees that are unpaid. Refusal of service may also result in a denial of water service to the property by the water utility. The Town shall make reconnection of service upon payment of all fees, late charges, legal and collection expenses, reconnection fees and all other fees due on the account, subject to the reconnection policies and procedures as set out herein.*
- c) Nothing herein shall prohibit or limit the Town from taking any other legal or injunctive relief, including the right to place a lien on the property, necessary to recover any fees, expenses, court costs, attorneys' fees, penalties and interest from a customer, occupant or property owner as authorized by law.*

**006ORDINANCE NO. 2019-006**

**AN ORDINANCE OF THE TOWN OF THOMPSON'S STATION,  
TENNESSEE, TO AMEND TITLE 18, CHAPTER 2 OF THE MUNICIPAL  
CODE REGARDING WASTEWATER SYSTEM USER RATES**

WHEREAS, the Board of Mayor and Aldermen has determined that it is in the best interest of the Town to adopt amendments to the wastewater system user rates ordinance as set out herein.

NOW, THEREFORE, BE IT ORDAINED by the Town of Thompson's Station as follows:

**Section 1.** That Title 18, Chapter 2 of the Municipal Code, *Wastewater System User Rates*, is hereby amended by deleting the Sections 18-204 and 18-205 and replacing them with the language set forth in Exhibit A attached hereto and incorporated herein by reference. Title 18, Chapter 2 shall also be amended by adding new Sections 18-206 and 18-207, also as set forth in Exhibit A.

**Section 2. All Prior Conflicting Ordinances Repealed; Interpretation.** That upon the effective date of this ordinance, all prior ordinances and resolutions in conflict herewith be repealed. In case of conflict between this ordinance or any part hereof, and the whole or part of any existing ordinance of the Town, the provision that establishes the higher standard shall be controlling.

**Section 3. Severability.** If any section, sentence, clause or phrase of this ordinance should be held to be invalid or unconstitutional by a court of competent jurisdiction, such invalidity or unconstitutionality shall not affect the validity or constitutionality of any other section, sentence, clause, or phrase of this ordinance.

**Section 4. Effective date; applicability.** This ordinance shall take effect upon publication in a newspaper of general circulation within the Town after final reading, the public welfare requiring.

Duly approved and adopted by the Board of Mayor and Aldermen of the Town of Thompson's Station, Tennessee.

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Corey Napier, Mayor

ATTEST:

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Passed First Reading: \_\_\_\_\_

Passed Second Reading: \_\_\_\_\_

Submitted to Public Hearing on the \_\_\_\_ day of \_\_\_\_\_ 2019, at 7:00 p.m., after being advertised in the *Williamson AM* Newspaper on the \_\_\_\_ day of \_\_\_\_\_, 2019.

APPROVED AS TO FORM AND LEGALITY:

\_\_\_\_\_  
Todd Moore, Town Attorney



# LITTLEBURY

## PRESENTATION TO TOWN OF THOMPSON'S STATION WASTEWATER COMMITTEE

Project Engineer

**SEC, Inc.**

Project Developer



**GREAT TENNESSEE**  
L A N D C O M P A N Y

## LITTLEBURY

### PROJECT INFO SHEET

- LITTLEBURY IS A **91 LOT SUBDIVISION ON 91.17 ACRES** ON PANTALL ROAD.
- IN **SEPTEMBER OF 2017**, GREAT TN LAND COMPANY MET **WITH JOE COSENTINI TO DISCUSS AN ON-SITE SEWER SYSTEM FOR LITTLEBURY**. OUR ORIGINAL SUGGESTION WAS A SAND-FILTER TYPE SYSTEM. JOE FELT THAT THIS TECHNOLOGY WOULD NOT BE WELL RECEIVED BY THE BOARD, SO HE SUGGESTED AN SBR TYPE SYSTEM.
- IN **FEBRUARY OF 2018**, THE **BOARD OF MAYOR AND ALDERMAN** GRANTED LITTLEBURY THE AUTHORITY TO **MOVE FORWARD WITH DESIGN OF AN ON-SITE SEWER SYSTEM**, SPECIFICALLY AN “SBR SYSTEM” (I.E. SEQUENCING BATCH REACTOR).
- FOR THE **NEXT EIGHT MONTHS**, GREAT TENNESSEE LAND COMPANY WORKED ON DESIGN OF THE SBR SYSTEM, AND WITH THE **REVIEW AND ADVISORY OF JOE COSENTINI AND BRUCE MEYER** (ALTHOUGH **JOE RESIGNED IN JUNE OF 2018**).
- IN **JULY AND AUGUST OF 2018**, TDEC EXPRESSED THEIR CONCERNS TO ALLOW AN **SBR SYSTEM** FOR ONLY 91 LOTS, SINCE IT IS TYPICALLY USED FOR LARGER REGIONAL SYSTEMS. **TDEC REQUESTED THE TOWN WRITE A LETTER ENDORSING THE SYSTEM**, WHICH WAS OBLIGED. **TDEC APPROVED THE SYSTEM IN AUGUST OF 2018**.
- IN **OCTOBER OF 2018**, **BOARD OF MAYOR AND ALDERMAN APPROVED THE ON-SITE SEWER PLANS (SBR) FOR LITTLEBURY**. AS A MATTER OF COINCIDENCE, THAT SAME BOARD MEETING, **BARGE MADE ITS INITIAL PRESENTATION TO THE BOARD** FOR TOWN WASTEWATER RECOMMENDATIONS.
- IN **OCTOBER OF 2018**, THE **PRELIMINARY PLAT FOR LITTLEBURY WAS APPROVED BY PLANNING COMMISSION**. LITTLEBURY WAS DESIGNED TO THE STANDARDS OF ITS ZONING DISTRICT, D-1, WITH NO REQUESTS FOR VARIANCES OR MODIFICATIONS OF STANDARDS.

## LITTLEBURY

### SEWER OPTIONS

#### **OPTION A – TIE TO REGIONAL SYSTEM**

- **GREAT TENNESSEE LAND COMPANY (GTLC) WILL PAY THE FULL “SYSTEM SEWER DEVELOPMENT FEES” FOR ALL 91 LOTS AT THE TIME OF PRELIMINARY PLAT APPROVAL. AT \$2500 PER LOT, THE TOTAL OWED TO THE TOWN SHALL BE \$227,500.**
- **GTLC SHALL PAY ALL OTHER SEWER FEES AS DESCRIBED IN ORDINANCE 14-001.**
- **GTLC SHALL DONATE THE 9.84 ACRES OF DRIP FIELDS PREVIOUSLY INTENDED FOR USE WITH AN ON-SITE SYSTEM TO THE TOWN FOR USE AS REGIONAL SYSTEM DRIP FIELDS AND A PUBLIC PARK.**
- **GTLC WILL EXTEND A FORCE MAIN ACROSS PANTALL ROAD AND TIE TO THE EXISTING MANHOLE AT THE END OF UNION VILLAGE ROAD, WHICH IS IN A BRIDGEMORE VILLAGE PUBLIC OPEN SPACE, A PUBLIC UTILITY AND DRAINAGE EASEMENT. ALL ON-SITE AND OFF-SITE COSTS FOR THE FORCE MAIN EXTENSION ARE THE RESPONSIBILITY OF THE DEVELOPER.**
- **GTLC INTENDS TO BEGIN SITE CONSTRUCTION IN THE NEXT 30-45 DAYS, PENDING FINAL APPROVAL AND PERMITS. THE DEVELOPER INTENDS TO HAVE INFRASTRUCTURE COMPLETED BY EARLY 2020, AND THE FIRST BLOCK OF HOMES (4 TO 6 HOMES) TO BE FINALIZED AND READY FOR SEWER CONNECTION BY AUGUST OF 2020.**

## **OPTION B – BIOCLERE SYSTEM**

- **GREAT TENNESSEE LAND COMPANY WILL PAY THE FULL “SYSTEM SEWER DEVELOPMENT FEES” FOR ALL 91 LOTS** AT THE TIME SEWER AVAILABILITY IS GRANTED. AT \$2500 PER LOT, THE TOTAL OWED TO THE TOWN SHALL BE **\$227,500**.
- THE DEVELOPER SHALL PAY ALL OTHER SEWER FEES AS DESCRIBED IN ORDINANCE 14-001.
- GTLC WILL **EXTEND A FORCE MAIN TO THE COMMUNITY DRIP FIELDS ALONG CHERRY JACK LANE**. DURING CONSTRUCTION, GTLC WILL ALSO **INSTALL A VALVE AND EXTEND ADDITIONAL FORCE MAIN FROM THE DRIP FIELDS ACROSS PANTALL ROAD TO THE MANHOLE AT THE END OF UNION VILLAGE ROAD (SEE ATTACHED FORCED MAIN EXHIBIT)**. ONCE THE TOWN NOTIFIES GTLC THAT THE REGIONAL SYSTEM IS READY TO RECEIVE LITTLEBURY’S WASTE WATER, THE VALVE WILL BE TURNED, DIVERTING GRAY WATER AWAY FROM THE DRIP FIELDS AND **DIRECT WASTE WATER TO THE REGIONAL SYSTEM TO AN EXISTING MANHOLE IN BRIDGEMORE VILLAGE**.
- **ALL ON-SITE AND OFF-SITE COSTS** FOR THE FORCED MAIN, DRIP FIELDS, ETC ARE THE **RESPONSIBILITY OF THE DEVELOPER**.
- **BIOCLERE SYSTEM IS A “PHASEABLE” MODULAR SYSTEM** (UNLIKE AN SBR SYSTEM) THAT ALLOWS LITTLEBURY THE ABILITY TO EASILY TRANSITION TO THE REGIONAL SYSTEM.
- **A BIOCLERE SYSTEM TECHNOLOGY WAS RECENTLY APPROVED** BY THE TOWN FOR THE **GRAYSTONE QUARRY PROJECT**.
- THE **BIOCLERE SYSTEM IS AN ACCEPTED AND FAVORED TECHNOLOGY BY TDEC**.
- **REVISED CONSTRUCTION DOCUMENTS REFLECTING THE BIOCLERE SYSTEM WERE DELIVERED TO TOWN STAFF IN JANUARY OF 2019** AND ARE CURRENTLY UNDER REVIEW.

MANHOLE AT BRIDGEMORE VILLAGE

**LITTLEBURY**  
FORCED MAIN EXHIBIT  
1" = 200'

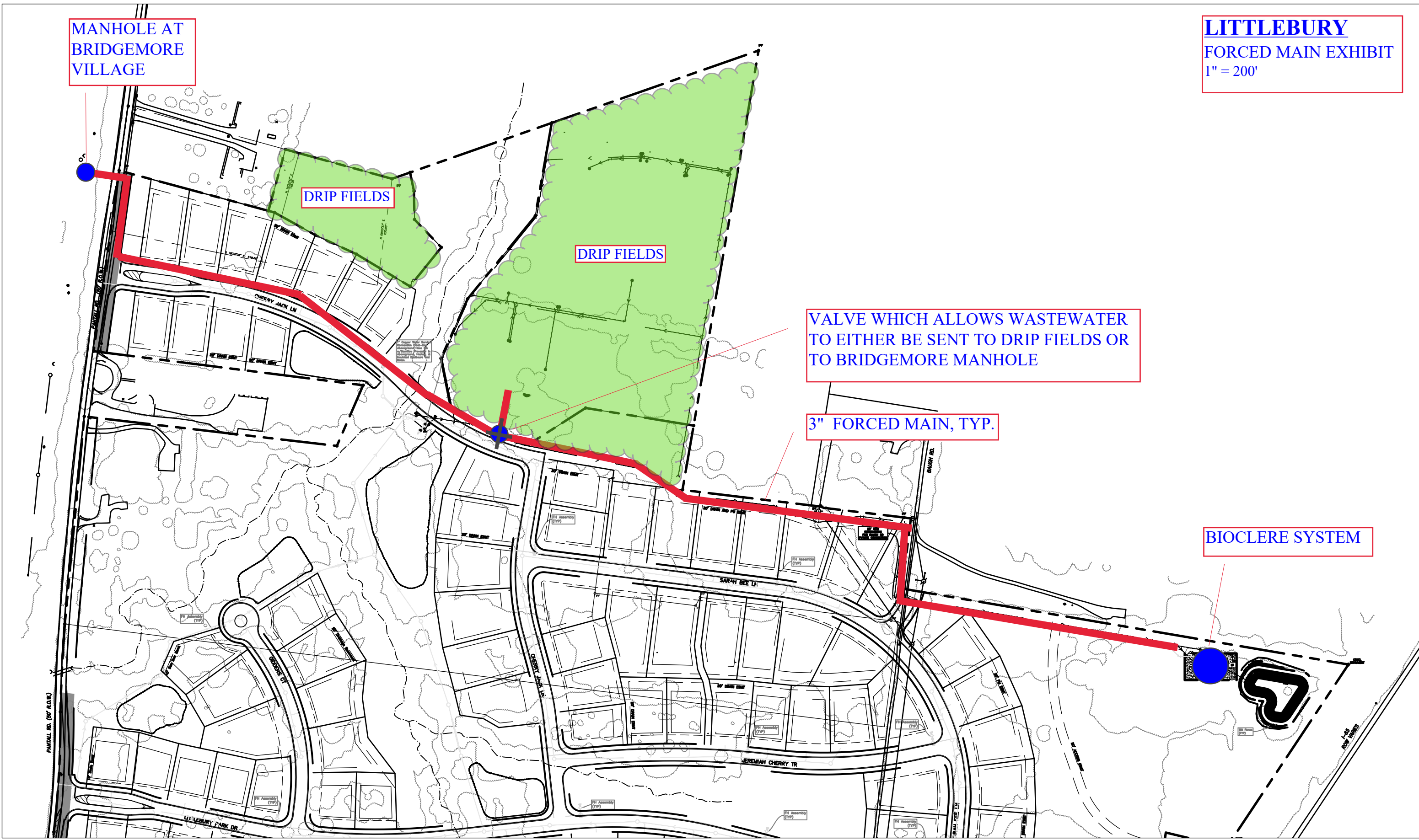
DRIP FIELDS

DRIP FIELDS

VALVE WHICH ALLOWS WASTEWATER TO EITHER BE SENT TO DRIP FIELDS OR TO BRIDGEMORE MANHOLE

3" FORCED MAIN, TYP.

BIOCLERE SYSTEM



## **ADVANTAGES FOR BIOCLERE AND FORCEMAIN SYSTEM**

1. The Bioclere system allows the wastewater system to be installed in phases as needed. In addition, it has a smaller treatment footprint.
2. The Bioclere system meets our current Town of Thompson Station utility contractors licensing.
3. The Bioclere system will not require any sludge haul off.
4. Bioclere systems are very effective and energy efficient treatment systems.
5. The Bioclere system is easily maintained and has less monitoring requirements to meet Tennessee Department of Environment and Conservation (TDEC) quarterly standards.
6. The Bioclere system is a proven, environmentally friendly technology that TDEC is familiar and comfortable with.
7. The PVC forcemains will be 30" deep, inside the ROW between sidewalk and back of curb, and easily maintained instead of 25 ft deep gravity sewers with infiltration and maintenance issues.
8. Long term cost for PVC forcemain collection lines are significantly lower than gravity sewers.
9. The cost to run and maintain a Bioclere system is significantly lower than the SBR system.
10. Monthly sewer fees will be lower for the Bioclere than the SBR due to lower energy cost and no pump and haul of sludge waste to landfill.
11. Since the ultimate goal is to have Littlebury tie on to the Town's regional system, we can easily change this system over. We would install the necessary infrastructure on the front (which is just valves and a force main) to send our waste water back to the nearest manhole along Pantall Road at Bridgemore Village Subdivision when the Town's system is ready to accept our waste.



## Features & Benefits

- Treats flows from 200 to 100,000 gpd
- Cost effective treatment with efficient installation and operation
- Treats high strength wastewater
- Internal flow stabilization treats intermittent flows
- Fully automated pump system
- Self adjusting process control
- Small footprint / Compact design
- Gravity flow system
- Quiet operation
- Sealed and insulated for seasonal conditions
- Durable UV resistant fiberglass construction
- Minimal energy usage
- Remote monitoring control options

# BIOCLERE™

## Wastewater Treatment Systems

### The Bioclere Advantage

Bioclere is a modified trickling filter over a clarifier. It is designed to treat wastewater with varying organic and nutrient concentrations as well as intermittent flows. Bioclere's natural fixed film treatment process is stable, simple to maintain and inexpensive to operate.

Bioclere reduces biochemical oxygen demand (BOD5) and total suspended solids (TSS) to levels that meet or exceed NSF and EPA standards. As water trickles through the biofilter, organic material is consumed by a

population of microorganisms that form on the surface of the media. Sloughed solids from the biofilter filter are returned to the primary tank as secondary sludge and treated water is displaced to the next treatment component or the disposal area.

Bioclere is a modular technology. Units can be installed in parallel to accommodate large flows or in series to achieve high levels of treatment. The systems are sealed and insulated to minimize the impact of seasonal temperature variations on the treatment process.

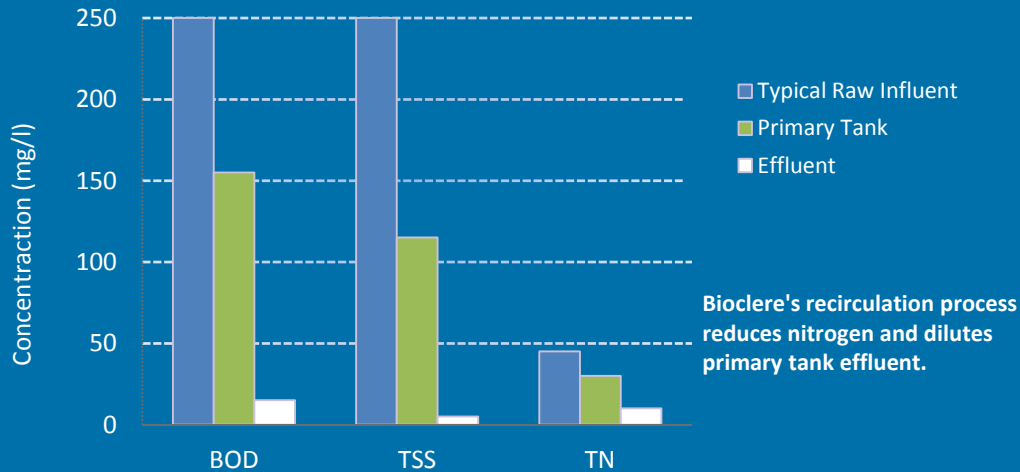
### Nitrogen Reduction

Bioclere systems can be designed to consistently convert and reduce nitrogen. Total nitrogen is reduced substantially and cost effectively by recirculating nitrified water from the Bioclere back to the primary settling tank. Large Bioclere systems may incorporate a second stage nitrifying Bioclere and a tertiary anoxic reactor to achieve < 10 mg/l total nitrogen.

### Applications include

Residential, commercial, institutional, light industrial and municipal wastewater treatment.





Bioclere's recirculation process reduces nitrogen and dilutes primary tank effluent.

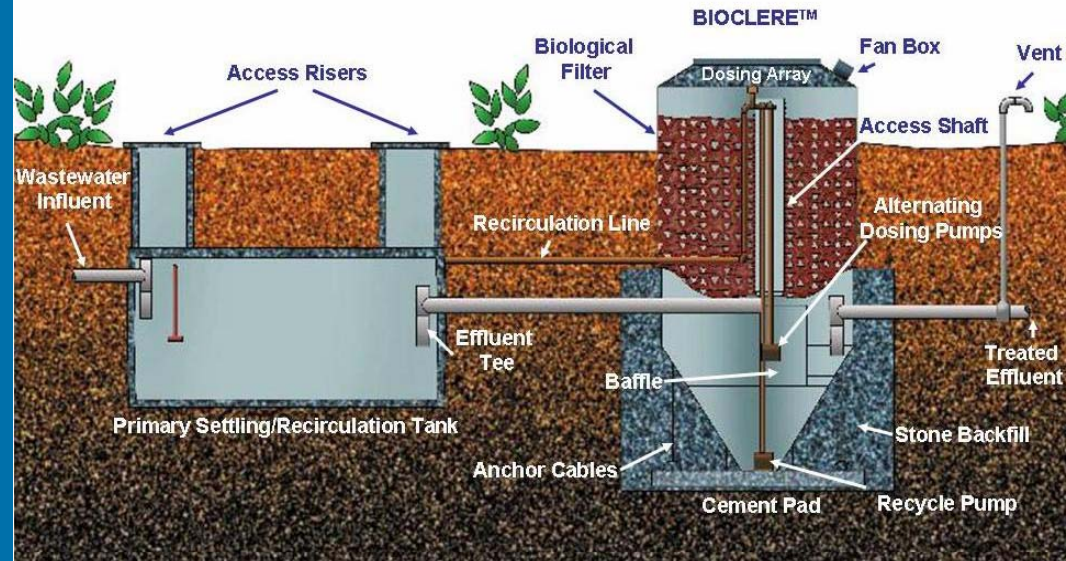


Bioclere 16/12-350 is ANSI/NSF Standard 40 certified by the National Sanitation Foundation (NSF). The above performance results (BOD & TSS) are based on a six month accumulative average from NSF's certification testing



U.S. Environmental Protection Agency's (EPA) technology verification program. Total nitrogen results can be viewed at [www.EPA.GOV/ETV](http://www.EPA.GOV/ETV). Above TN results are based on achievable standards.

## Standard Single Bioclere™ Installation:





Phone: (615) 794-4333  
Fax: (615) 794-3313  
www.thompsons-station.com



1550 Thompson's Station Road W.  
P.O. Box 100  
Thompson's Station, TN 37179

August 13, 2018

Great TN Land Company  
Attn: Mr. Daniel Woods  
7123 Crossroads Blvd., Ste. E  
Brentwood, TN 37027

RE: Sewer for Littlebury

The Town of Thompson's Station will accept the Aqua Aerobics Sequencing Batch Reactor system proposed for the Littlebury development. Acceptance is contingent on full TDEC approval of Construction Drawings and Issuance of a State Operating Permit and the Town's review and acceptance of Construction drawings.

The Littlebury site is a potential location for an expanded wastewater treatment system that could treat the wastewater from multiple developments.

Please do not hesitate to contact us with any additional questions or concerns.

Sincerely,

A handwritten signature in black ink, appearing to read "Corey Napier", written over a horizontal line.

Corey Napier  
Mayor

/jj



STATE OF TENNESSEE  
DEPARTMENT OF ENVIRONMENT AND CONSERVATION  
DIVISION OF WATER RESOURCES

William R. Snodgrass - Tennessee Tower  
312 Rosa L. Parks Avenue, 11<sup>th</sup> Floor  
Nashville, Tennessee 37243-1102

September 6, 2018

Mr. Jamie F. Reed, P.E., R.L.S.,  
President  
S.E.C., Inc.  
e-copy: jreed@sec-civil.com  
850 Middle Tennessee Blvd.  
Murfreesboro, TN 37129

Subject: **Engineering Report and Preliminary Plans for Littlebury Wastewater TF  
City of Thompson's Station; Wastewater Project Number: 18.0582; SOP 18015  
County: Williamson  
Approval of SBR Process**

Dear Mr. Reed:

The SBR process was approved for the subject 0.03 MGD treatment system in correspondence dated July 27, 2018. Items to be addressed with the final construction document submission were outlined.

Public notice for the SOP permit has been completed and the final permit can be anticipated upon approval of the final construction documents. It is preferred that they also be submitted in similar digital format. Specifications should be in "searchable" text format. The collection system may be included and reviewed with the treatment plant in the final construction documents if calculations for the collection system are included. The division's most recent TDEC Technical/Engineering Documents, including "*Design Criteria for Review of Sewage Works Construction Plans and Documents*", Chapters 1-17, of November 1, 2017, is available on our website: <https://www.tn.gov/environment/program-areas/wr-water-resources/water-quality/water-quality-reports---publications.html>.

To expedite matters, please reference the assigned wastewater project number 18.0582 and SOP number 18015 on any future correspondence. If we may be of any assistance, please feel free to contact Angela Jones, P.E. at (615) 762-7388 or me by E-mail at [George.Garden@tn.gov](mailto:George.Garden@tn.gov).

Sincerely,

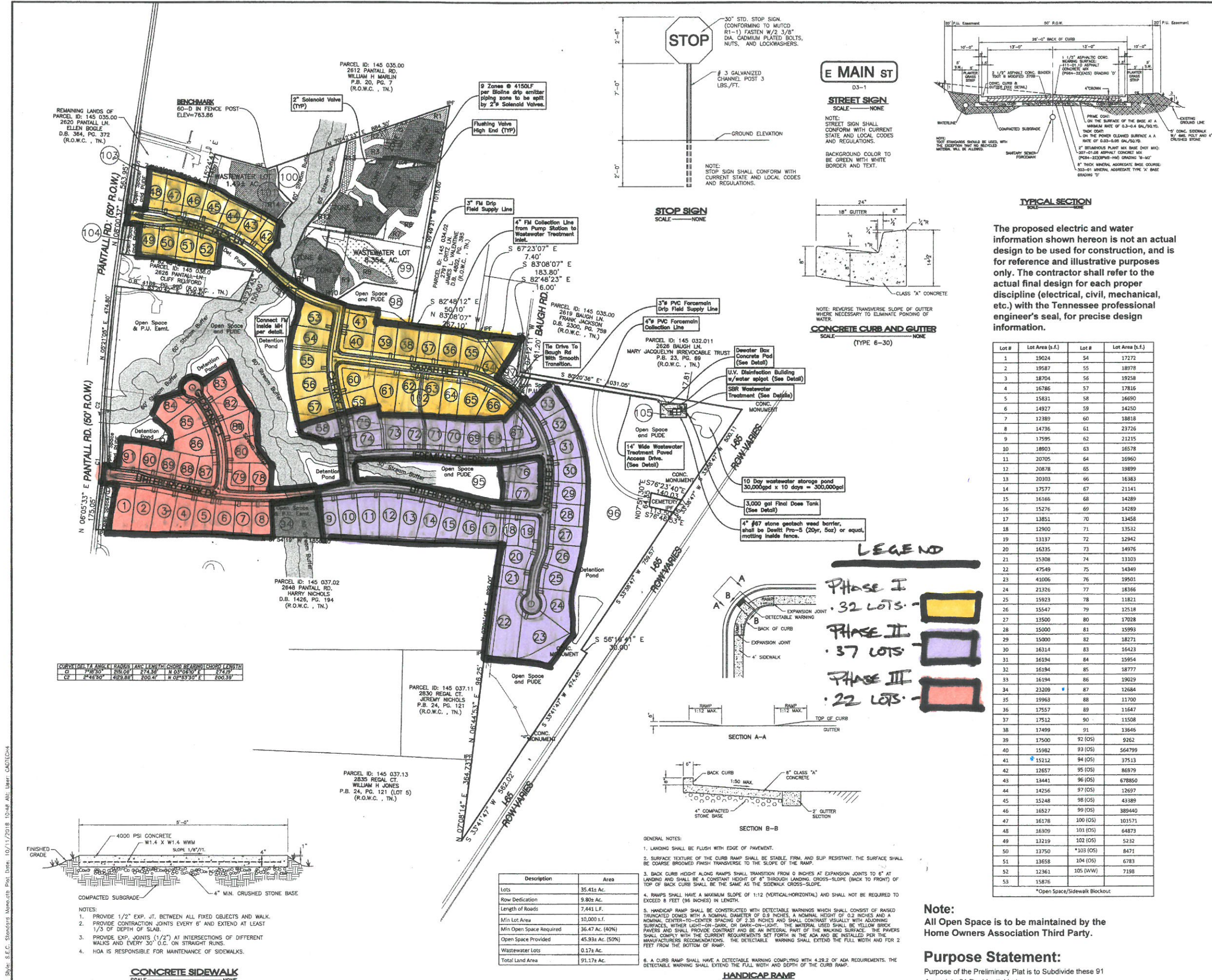
George Garden, PE, BCEE  
Chief Engineer

cc: Water-Based Systems File  
Mayor Corey Napier, Town of Thompson's Station, [cnapier@thompsons-station.com](mailto:cnapier@thompsons-station.com)  
Mr. Allen Rather, Environmental Specialist 5, TDEC Division of Water Resources, [Allen.Rather@tn.gov](mailto:Allen.Rather@tn.gov)  
Ms. April Vann Grippo, Unit Manager, TDEC Division of Water Resources, [April.Grippo@tn.gov](mailto:April.Grippo@tn.gov)  
Mr. Brad C Harris, P.E., Unit Manager, TDEC Division of Water Resources, [Brad.Harris@tn.gov](mailto:Brad.Harris@tn.gov)  
Ms. Angela Jones, P.E., TDEC Division of Water Resources, [Angela.Jones@tn.gov](mailto:Angela.Jones@tn.gov)



# REVISED PHASING PLAN

12.12.18



**Legend:**

EXIST. CONCRETE MONUMENT	BENCHMARK
IRON PIN SET (I.P.S.)	HANDICAP RAMP SYMBOL
IRON PIN FOUND (I.P.F.)	WAN ACCESSIBLE HANDICAP DESIGNATION
EXIST. SIGN POST	HC SIGN
EXIST. SEWER CLEANOUT	PROPOSED SIGN POST
EXIST. MANHOLE (SEWER & PHONE)	CONCRETE BOLLARD
EXIST. CATCH BASIN (STORM SEWER)	WHEEL STOP
EXIST. WATER/GAS VALVE	CONCRETE SIDEWALK
EXIST. TELEPHONE RISER	EXTRUDED CURB
EXIST. GAS RISER	CURB & GUTTER
ELECTRICAL ENCLOSURE	TRAFFIC ARROW
EXIST. WATER METER	TURN LANE ARROWS
EXIST. UTILITY POLE	REVISION NUMBER
EXIST. FIRE HYDRANT	DRAINAGE STRUCTURE DESIGNATION
POST INDICATOR VALVE	DRAINAGE PIPE DESIGNATION
BLOW OFF VALVE	RIP RAP
REDUCER	RUNOFF FLOW ARROW
REMOTE FIRE DEPT. CONNECTION	INLET FILTER PROTECTION
CONCRETE THRUST BLOCK	PROPOSED SPOT ELEVATION
DOUBLE DETECTOR CHECK VALVE	EXIST. SPOT ELEVATION
FIRE DEPT. CONNECTION	SEWER/STORM FLOW DIRECTION
FIRE HYDRANT	CATCH BASIN
GATE VALVE & BOX	CURB INLET
WATER METER	AREA DRAIN
GAS METER	HEADWALL
GREASE TRAP	WINGED HEADWALL
EXTERIOR CLEANOUT EDD	CONCRETE SWALE
MANHOLE	TYPE - X - HEADWALL

The proposed electric and water information shown hereon is not an actual design to be used for construction, and is for reference and illustrative purposes only. The contractor shall refer to the actual final design for each proper discipline (electrical, civil, mechanical, etc.) with the Tennessee professional engineer's seal, for precise design information.

Lot #	Lot Area (s.f.)	Lot #	Lot Area (s.f.)
1	19024	54	17272
2	19587	55	18978
3	18704	56	19258
4	16786	57	17816
5	15831	58	16690
6	14927	59	14250
7	12389	60	18818
8	14736	61	23726
9	17595	62	21215
10	18903	63	16578
11	20705	64	16960
12	20878	65	19899
13	20303	66	16383
14	17577	67	21141
15	16166	68	14289
16	15276	69	14289
17	13851	70	13458
18	12900	71	13532
19	13137	72	12942
20	16335	73	14976
21	15308	74	13103
22	47549	75	14349
23	41006	76	19501
24	23276	77	18366
25	15923	78	11821
26	15547	79	12518
27	13500	80	17028
28	15000	81	15993
29	15000	82	18271
30	16314	83	16423
31	16194	84	15954
32	16194	85	18777
33	16194	86	19029
34	23209	87	12684
35	19968	88	11700
36	17557	89	11647
37	17512	90	11508
38	17499	91	13646
39	17500	92 (OS)	9262
40	15982	93 (OS)	564799
41	15212	94 (OS)	37513
42	12657	95 (OS)	86979
43	13441	96 (OS)	678850
44	14256	97 (OS)	12697
45	15248	98 (OS)	43389
46	16527	99 (OS)	389440
47	16178	100 (OS)	101571
48	16309	101 (OS)	64873
49	13219	102 (OS)	5232
50	13750	*103 (OS)	8471
51	13658	104 (OS)	6783
52	12361	105 (WW)	7198
53	15876		

\*Open Space/Sidewalk/Blockout

Description	Area
Lots	35.411 Ac.
Row Dedication	9.80z Ac.
Length of Roads	7,441 L.F.
Min Lot Area	10,000 s.f.
Min Open Space Required	36.47 Ac. (40%)
Open Space Provided	45.93z Ac. (50%)
Wastewater Lots	0.17z Ac.
Total Land Area	91.17z Ac.

**Legend:**

EXISTING PHONE	PH
EXISTING ELECTRIC	OH
PROPERTY LINE	---
EASEMENTS	---
RIGHT OF WAY	50' ROW
EROSION CONTROL SILT FENCE	SF SF
EROSION EEL	E E E
EXISTING TREELINE	~ ~ ~
EXISTING FENCELINE	-X-X-
MINIMUM BUILDING SETBACK LINE	MBSL
PHASE BOUNDARY	-----
EXISTING GAS LINE	---
PROPOSED GAS LINE	---
EXISTING STORM	STM
PROPOSED STORM	STM
EXISTING CONTOUR LINES	---601---
PROPOSED CONTOUR LINES	---601---
EXISTING SANITARY SEWER	SS SS
PROPOSED SANITARY SEWER	SS SS
EXISTING WATER	W W
PROPOSED WATER	W W

**Littleberry Subdivision**  
Thompson Station, Tennessee

**811**  
Know what's below.  
Call before you dig.

**Master Plan**

REVISION: 8-30-18 Comments  
9-28-18 Update Lot Layout  
DRAWN: MLG  
DATE: 6-11-18  
CHECKED: JFR  
FILE NAME: 17224LittleberryPrelim  
SCALE: 1"=200'  
JOB NO: 17224  
SHEET: C0.1



Caryn Miller

**From:** Todd Moore  
**Sent:** Wednesday, March 27, 2019 9:28 AM  
**To:** Thomas V. White  
**Cc:** Caryn Miller; Corey Napier  
**Subject:** Littlebury sewer request

Good morning, Tom,

I wanted to connect you with Caryn Miller and Mayor Napier regarding the above. I don't know what the prior conversations have been between your client and Town officials but Mayor Napier is the acting Town Administrator and Ms. Miller is acting as his assistant TA until a new administrator comes on board (which should be on or before May 1st). The Town has also created a new Utility Board which may be involved in your client's request, but I wanted to make sure that you were connected with Town officials that could help.

I know you mentioned that time was important to your client on this matter but I also wanted to make sure you were aware that what Littlebury is requesting has not ever been done in the past - especially with respect to allowing pumping and hauling of wastewater for a residential development. This is not to say that the Town will not allow it, but it will at a minimum require BOMA approval.

Sincerely,

Todd Moore

*Place on Agenda for next meeting.*

**Please note new address:**

5115 Maryland Way  
Suite 100  
Brentwood, TN 37027  
T: (615) 290-5355  
F: (866) 800-0980



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## Caryn Miller

---

**From:** Corey Napier  
**Sent:** Wednesday, March 27, 2019 9:54 AM  
**To:** Todd Moore; Caryn Miller  
**Subject:** FW: Sewer Agreement  
**Attachments:** Khris Pascarella.vcf; Sewer Fee Contribution Reimbursement Agreement v5.docx

**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Both Khris and Daniel are lobbying for us to consider pump and haul as an interim option to avoid having to build one site systems. They both have expressed that they would rather help with connectivity to the main plant vs. on sites but believe they need assurances from the town for a backup approach if the connectivity lags once their respective projects come on line. This of course assumes we have the capacity to grant at the main plant depending upon our strategic direction for improvements.

I asked Khris to send me a form of an agreement he has used with Franklin. See attached. I would like the WW group to have discussion around this option.

Corey Napier  
Mayor & Town Administrator  
Town of Thompson's Station, TN  
615.794.4333 Office

---

**From:** Khris Pascarella <kpascarella@pearlstreetpartners.com>  
**Date:** Tuesday, March 19, 2019 at 12:42 PM  
**To:** Corey Napier <cnapier@thompsons-station.com>  
**Subject:** Sewer Agreement

Corey,  
Good afternoon. My apologies again for sending the sewer agreement to an old email address initially. I know it's only been a few days since I successfully got it into your hands, but wondered if you'd had a chance to look it over. It would be really terrific if we could bring it before your Board in April. I'm available for a conversation at your convenience.

Thanks!  
Khris

Khris Pascarella  
Principal  
Pearl Street Partners, LLC  
205 Powell Place  
Brentwood, Tennessee 37027-7525  
615.312.8242 - office  
615.312.8243 - fax  
615.604.3714 - mobile  
[kpascarella@pearlstreetpartners.com](mailto:kpascarella@pearlstreetpartners.com)  
[www.pearlstreetpartners.com](http://www.pearlstreetpartners.com)

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**Khris Pascarella**

Pearl Street Partners

Principal

(615) 312-8242 Work

(615) 604-3714 Mobile

(615) 312-8243 Fax

[kpascarella@pearlstreetpartners.com](mailto:kpascarella@pearlstreetpartners.com)

205 Powell Place

Brentwood, TN 37027-7525

<http://www.pearlstreetpartners.com>

sample only

**AGREEMENT FOR REIMBURSEMENT OF PREPAID FEES FOR  
WASTEWATER TREATMENT**

THIS AGREEMENT is entered into by and between the Town of Thompson's Station, Tennessee (the "Town") and Pearl Street Partners, LLC, a Tennessee limited liability company, its successors and assigns ("Developer"), subject to the following premises, terms and conditions:

WHEREAS, Developer desires to undertake a residential development in the Town to be known as Parsons Valley on property located at 4738 Columbia Pike, Thompson's Station, Tennessee, consisting of approximately 118.83 acres, and being Tax Map 153, Parcel 023.00, Williamson County, Tennessee, as more particularly described on Exhibit A attached hereto and incorporated herein by this reference (the "Development"); and

WHEREAS, the Town intends to design and construct certain sewer improvements and to acquire certain easements that will extend the Town's sewer to the Development (the "Sewer Improvements"); and

WHEREAS, the Town has requested that Developer prepay certain fees required to be paid by new residential developments based on an Equivalent Dwelling Unit basis ("EDU") related to the Town's wastewater treatment facilities, however such fees may now or hereafter be denominated, including without limitation the System Development Fee and Access and Tap Fee (collectively, "Wastewater Fees") and the Town intends to use such prepaid Wastewater Fees in part payment for costs associated with the Sewer Improvements; and

WHEREAS, the Town and Developer desires to provide a credit to Developer that may be used for Wastewater Fees that would otherwise be payable to the Town and to authorize appropriate disbursements as set forth herein.

NOW THEREFORE, WITNESSETH:

1. The foregoing recitals are incorporated herein by reference.
2. Developer shall contribute to the Town the sum of \$990,000 as prepaid Wastewater Fees on the later of (a) award by the Town of the bid for construction of the Sewer Improvements and (b) the date that is thirty (30) days after closing of Developer's development loan for the Development. Such amount represents Wastewater Fees for 275 EDU's. Such contribution will be placed in an interest-bearing escrow account upon award by the Town of the bid for construction of the Sewer Improvements and will be used by the Town on construction of the Sewer Improvements. At Developer's election, Developer may provide a letter of credit in favor of the Town, in form and substance satisfactory to the Town, in such amount instead of providing a cash deposit.
3. The Developer and the Town agree that as reimbursement for the contributions described herein, and in recognition of the advanced contribution of Developer, the Developer is hereby granted capacity entitlements for Town wastewater services equal to 353 EDU equivalents and shall be granted credit for future Wastewater Fees equal to 275 EDU equivalents, subject to the provisions of Section 8 of this Agreement. The number of EDU equivalents for which

Developer shall receive credit shall not be affected by future increases in the Wastewater Fees for EDU equivalents.

4. The Town agrees that, upon execution of this Agreement and until such time as all EDU's to be credited hereunder have been credited, it will set up an accounting system to keep a separate record of all Wastewater Fee credits used by Developer or its assignees. These records shall be kept in the office of the Town Administrator/Recorder, or such other place as may be designated by the Town Board and shall be open to the public and Developer for inspection during business hours and with reasonable prior notice. Upon the concurrence of the Town and Developer that the credits granted hereunder have been fully used by Developer, the Town shall be relieved of the obligations provided in this Section 4.

5. The Town agrees that the EDU credits provided to Developer hereunder shall be assignable, in whole or in part, by Developer to any assignee of Developer but only to the extent that the credits shall be applied against Wastewater Fees for improvements served by the Sewer Improvements. Developer agrees to provide the Town with written notice of any such assignment.

6. Notwithstanding the foregoing, in the event construction of the Sewer Improvements has not begun within six (6) months from the date of this Agreement, the Town shall return all amounts paid hereunder to Developer (or release any letter of credit) and this Agreement shall be null and void. Further, in the event that the Sewer Improvements (or so much of the Sewer Improvements as is necessary to provide sewer service to the Development) are not constructed and operational by the later of (a) December 1, 2020, or (b) the date that improvements within the Development are constructed and ready for sewer service, the Town will provide sewer service to such facilities within the Development by "pump and haul" or other alternative means. Fees for such alternative services shall be paid according to the Town's schedule of fees for normal sewer service. The Town agrees that the provision of sewer service by such alternative means shall not be a bar to the approval of a preliminary plat, final plat or site plan by the Town's Planning Commission or the issuance of grading permits, construction permits, building permits and certificates of occupancy for improvements served thereby. The Town acknowledges and agrees that Developer may start construction of its improvements on the Development prior to the completion of the Sewer Improvements in reliance upon the provisions of this Agreement, subject to normal plat approval requirements of the Town's Planning Commission unrelated to wastewater service.

7. The parties agree that the terms and conditions contained herein shall be binding on and shall accrue to their respective successors and assigns and that there are no understandings or agreements between them except as contained in this Agreement.

8. The parties agree that, except as set forth in this Agreement, Developer has no further right of reimbursement and expressly releases the Town from any further claim therefor.

**DEVELOPER:**

PEARL STREET PARTNERS, LLC, a  
Tennessee limited liability company



By: \_\_\_\_\_  
KHRIS D. PASCARELLA, Chief  
Manager

**TOWN:**

*Town to provide signature block as needed*

## EXHIBIT A

### DESCRIPTION OF DEVELOPMENT PROPERTY

#### TRACT ONE:

LAND in the Eleventh Civil District of Williamson County, Tennessee, being more particularly described as follows:

**BEGINNING** at a point in the center of Thompson Station Road at the Northeast corner of lands owned by Middle Tennessee Electric Membership Corporation, of record in Deed Book 1254, Page 662, ROWCT;

Thence, along the centerline of said Thompson Station Road, S 81 deg. 30 min. 25 sec. E, a distance of 346.00 feet to a point at the Northwest corner of lands owned by Jenalce Jordan Ramsey, of record in Deed Book 719, Page 74, ROWCT;

Thence, leaving the centerline of Thompson Station Road, and along the West line of said lands of Jenalce Jordan Ramsey, S 05 deg. 38 min. 47 sec. W, a distance of 3186.27 feet to an existing metal fence post in the North line of lands owned by Centex Homes of record in Deed Book 1794, Page 558, ROWCT;

Thence, along the North line of said lands of Centex Homes the following three (3) courses:

N 82 deg. 46 min. 44 sec. W, a distance of 217.16 feet to a set iron pin and cap (Ragan-Smith Asso.);

Thence, N 84 deg. 28 min. 35 sec. W, a distance of 188.96 feet to a found iron pin and cap (Ragan-Smith Asso.) at the Northeast corner of lands owned by John Maher Builders, Inc. of record in Deed Book 2957, Page 489, ROWCT;

Thence, along the North line of said lands of John Maher Builders, Inc. N 83 deg. 02 min. 13 sec. W, a distance of 745.88 feet to a found iron pin at the Southeast corner of lands owned by Jill S. Miller of record in Deed Book 1804, Page 430, and Plat Book 27, Page 20, ROWCT;

Thence, along the East line of said lands of Jill S. Miller, N 11 deg. 56 min. 09 sec. E, a distance of 1084.66 feet to a found iron pin on the south line of lands owned by Tina C. Hill, of record in Deed Book 2868, Page 252, and Plat Book 35, Page 33, ROWCT;

Thence, along the South line of said lands of Tina C. Hill, S 78 deg. 54 min. 10 sec. E, a distance of 217.23 feet to a found iron pin and cap (RLS 2039) at the Southwest corner of The Village of Thompson Station, Section Four (4), of record in Plat Book 18, Page 78, ROWCT;

Thence, along the East line of said The Village of Thompson Station, Section 4, S 81 deg. 58 min. 51 sec. E, a distance of 417.08 feet to a set iron pin and cap (RLS 2039) at the Southeast corner of said The Village At Thompson Station, Section 4;

Thence, along the east line of said The Village At Thompson Station, Section 4, N 05 deg. 35 min. 31 sec. E, a distance of 233.04 feet to a found iron pin at the Southern most point of The Village At Thompson Station, Section Five (5), of record in Plat Book 18, Page 78, ROWCT;

Thence, along the southeasterly and easterly lines of said The Village At Thompson Station, Section 5, the following four (4) courses:

N 05 deg. 22 min. 10 sec. E, a distance of 56.93 feet to a set iron pin and cap (RLS 2039);

Thence, N 42 deg. 37 min. 40 sec. E, a distance of 582.46 feet to a set iron pin and cap (RLS 2039);

Thence, N 02 deg. 11 min. 40 sec. E, a distance of 4.83 feet to a set iron pin and cap (RLS 2039);

Thence, N 81 deg. 38 min. 51 sec. W, a distance of 51.35 feet to a found iron pin at the Southeast corner of the above mentioned lands of Middle Tennessee Electric Membership Corporation;

Thence, along the East line of said lands of Middle Tennessee Electric Membership Corporation, N 05 deg. 38 min. 37 sec. E, a distance of 1451.18 feet to the point of **BEGINNING**, containing 50.455 acres of land, more or less, according to survey prepared by Leading Edge Land Services, date February 9, 2006.

By way of recital, Tract One bears the street address of 2645 Thompson Station Road East, Thompson Station, TN 37179, and is further identified as being Parcel 24 on Tax Map 153 per the Assessor's Office for Williamson County, Tennessee.

**TRACT TWO:**

LAND in the Eleventh Civil District of Williamson County, Tennessee, bound in general on the North by McLemore-Tomlin, on the East by Cope, on the South by Billy Carl Tomlin and on the West by US Highway 31 (Columbia Pike), and being more particularly described as follows:

BEGINNING at an iron post in the East margin of US Highway 31 at the Northwest corner of Billy Carl Tomlin, thence with his North staked line S 89 deg. E 792 feet to a corner post and S 36 deg. 30 min. E 883.6 feet to an iron post in Cope's West line; thence with his West line N 60 deg. 45 min. W 238.0 feet to an iron post; thence a new staked line N 87 deg. 50 min. W 1546.2 feet to an iron post in the East margin of Columbia Pike (US Highway 31); thence with said East margin S 10 deg. W 232.0 feet to the point of BEGINNING.

Tract Two bearing the street address of 4736 Columbia Pike, Thompson Station, TN 37179, and further identified as being Parcel 27 on Tax Map 153 per the Assessor's Office for Williamson County, Tennessee.

**TRACT THREE:**

PROPERTY situated in the Eleventh Civil District of Williamson County, Tennessee, bound in general on the North by Campbell, on the East, West and South by Breiling, and being more particularly described as follows:

BEGINNING at an iron pin located in the easterly right of way line of U.S. Route 31 and the South West corner of Campbell Family Limited Partnership, 1. Said point being the North margin of a 25' ingress and egress easement; thence South 37 deg. 00 min. 00 sec. West 30.10 feet with the West margin of said Ingress and Egress Easement to a point in the Easterly Right of Way of U.S. Route 31; thence leaving said Highway with the Southern margin of said Ingress and Egress Easement, South 86 deg. 50 min. 22 sec. East 971.71 feet to an iron pin; thence South 03 deg. 33 min. 12 sec. East, 32.49 feet, being the North West corner of this tract (Tract #4) the True Point of BEGINNING;

(1) Thence South 84 deg. 35 min. 24 sec. East 570.97 feet to an iron pin, said iron pin being the North East corner of this tract, also in the South of said Campbell's South line and being the North West corner of James Lee Tomlin and Billy Carl Tomlin;

(2) Thence along the East line of said Tomlin, South 04 deg. 57 min. 20 sec. West 1004.60 feet to an iron pin in the South East corner of this Tract, the South West corner of said Tomlin and in the North line of William T. DePriest and Paul Figg;

(3) Thence along said line, North 89 deg. 54 min. 26 sec. West 624.07 feet to an iron pin in the South line of this Tract, the North West corner of said DePriest and the North East corner of Angela Cheryl Sherling Magh and Randolph R. Sherling;

(4) Thence North 86 deg. 25 min. 08 sec. West 80.00 feet to an iron pin, the South West corner of this Tract, and in the North line of said Sherling;

(5) Thence North 11 deg. 51 min. 36 sec. East 1081.55 feet to the True Point of Beginning for this Tract.

CONVEYED HEREWITH is an easement 50' wide for ingress and egress as shown on Plat Book 27, Page 29, Register's Office for Williamson County, Tennessee.

ALSO CONVEYED HEREWITH is a 1999 Southern Energy Homes manufactured home, Model #NTA-997052, NTA-887053, VIN# DSEAL 13404AB, D1540.

Tract Three bearing the street address of 4740 Columbia Pike, Thompson Station, TN 37179, and is further identified as being Parcel 25.04 on Tax Map 153 per the Assessor's Office for Williamson County, Tennessee.

**TRACT FOUR:**

LAND in Williamson County, Tennessee, being Tract No. 1 and 3 on the Survey of Taylor R. Golden of record in Plat Book P35, Page 33, Register's Office for said County, to which reference is hereby made for a more particular description.

Tract Four being further identified as being Parcel 62.02 on Tax Map 146 (Tract No. 1 on the Survey of Taylor R. Golden bearing the street address of 2629 Thompson Station Road East, Thompson Station, TN 37179) and Parcel 23.02 on Tax Map 153 (Tract No. 3 on the Survey of Taylor R. Golden bearing the street address of 2855 Station South Drive, Thompson Station, TN 37179) per the Assessor's Office for Williamson County, Tennessee.

**TRACT FIVE:**

LAND in the Eleventh Civil District of Williamson County, Tennessee, bound in general on the North by Bagsby, on the South by Sherling and Deprist, on the East by Tomlin and Copes, and on the West by U.S. Hwy 31, Columbia Pike and Sherling, being more particularly described as follows:

**BEGINNING** at a stake in the East margin of U.S. Hwy. 31, Columbia Pike, said stake being Bagsby's Southwest corner, thence South 09 deg. 45 min. West 40 feet, thence with a curve to the right of radius 1465.5 feet for a length of 674 feet to a stake; thence with Sherling's North line South 85 deg. 15 min. East 967.7 feet; thence South 87 deg. 45 min. East 410 feet to a stake; thence with his East fence line South 07 deg. 55 min. West 1095.2 feet to a stake; thence with Deprist's North fence line South 89 deg. 30 min. East 637.8 feet to a stake; thence with a new staked line North 05 deg. 20 min. East 1009 feet to a stake; thence with Cope's South line North 83 deg. 46 min. West 117 feet to a stake; thence with his West line North 01 deg. 30 min. West 761 feet to a stake; thence with Bagsby's South fence line N 85 deg. 30 min. West 883 feet; thence South 89 deg. West 792 feet to the point of **BEGINNING**.

**INCLUDED IN THE ABOVE-DESCRIBED PROPERTY BUT SPECIFICALLY EXCLUDED FROM THIS CONVEYANCE** is that 14.5 acre tract conveyed by deed from Irene B. Campbell, widow, to Randolph B. Sherling, Sr. and wife, Virginia B. Sherling, filed 8/21/81, of record in Book 395, Page 672, Register's Office for Williamson County, Tennessee, described as follows:

**BEGINNING** at the Northeast corner of said tract in York's South fence line, said point being Tomlin's Northwest corner; thence with Tomlin's West fence line South 03 deg. 20 min. West 1009 feet to a post; thence with Deprist's North fence line North 89 deg. 30 min. West 637 feet to a point; thence with Sherling's East line N 07 deg. 55 min. East 1095.2 feet to an iron post; thence with Campbell South 87 deg. 45 min. East 10.5 feet to a post; thence South 32.5 feet to a post; thence South 84 deg. 30 min. East 570.8 feet to the point of **BEGINNING**.

Tract Five bearing the street address of 6738 Columbia Highway, Thompson Station, TN 37179, and being further identified as Parcel 23 on Tax Map 153 per the Assessor's Office for Williamson County, Tennessee.

**TRACT SIX:**

LAND in Williamson County, Tennessee, being Tract No. 2 on The Survey of Taylor R. Golden of record in Plat Book P35, Page 33, Register's Office for said County, to which reference is hereby made for a more particular description.

**TRACT SIX** bearing the street address of 2859 Station South Road, Thompson Station, Tennessee 37179, and being further identified as being Parcel 23.01 on Tax Map 153 per the Assessor's Office for Williamson County, Tennessee.

Thompson's Station, Tennessee

# Wastewater Treatment Plant Alternatives Evaluation

April 17, 2019

---

Paul Bizier, P.E.  
Matthew Johnson, P.E.



# Regional WWTP Technology Alternatives

- Introduction
- Key Factors
- Alternatives Overview
- Recommendations



# Introduction



From 2018 Master Plan:

Population projected to reach 20,000 by 2048

Regional WWTP:

- Current treatment capacity: 0.5 MGD
- Current Commitments: 0.85 MGD
- Initial Expansion: 1.0 MGD
- Ultimate Capacity Required: 1.4 MGD

# 2018 Master Plan

---

- Reviewed Both WWTP's and Collection System
- Considered Alternatives for Regional WWTP
  - Expand Lagoon System (3rd Lagoon)
  - Construct New Eastern WWTP
  - Mechanical Treatment on Existing Site (MBR)
- Recommended MBR on Existing Site
- Further Evaluation – Interim Facilities
- Submitted Master Plan



# Key Factors

---

- Cost
  - Construction
  - O&M
- Land Requirements
- Flexibility
- Operational Reliability/Simplicity

# Cost Basis

---

- Preliminary Capital/Life-Cycle Costs Based on 1.5 MGD Facility
- Costs Include:
  - Land Acquisition (if required) at \$30K/acre
  - Influent PS Improvements
  - Influent Headworks
  - 1.5 MGD WWTP
  - Filters (if not MBR)
  - UV Disinfection
  - Sitework
  - Contingencies

# Rating Scale

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Each Factor Ranked on 3-Point Scale

Highest Rating (“best”) = 3

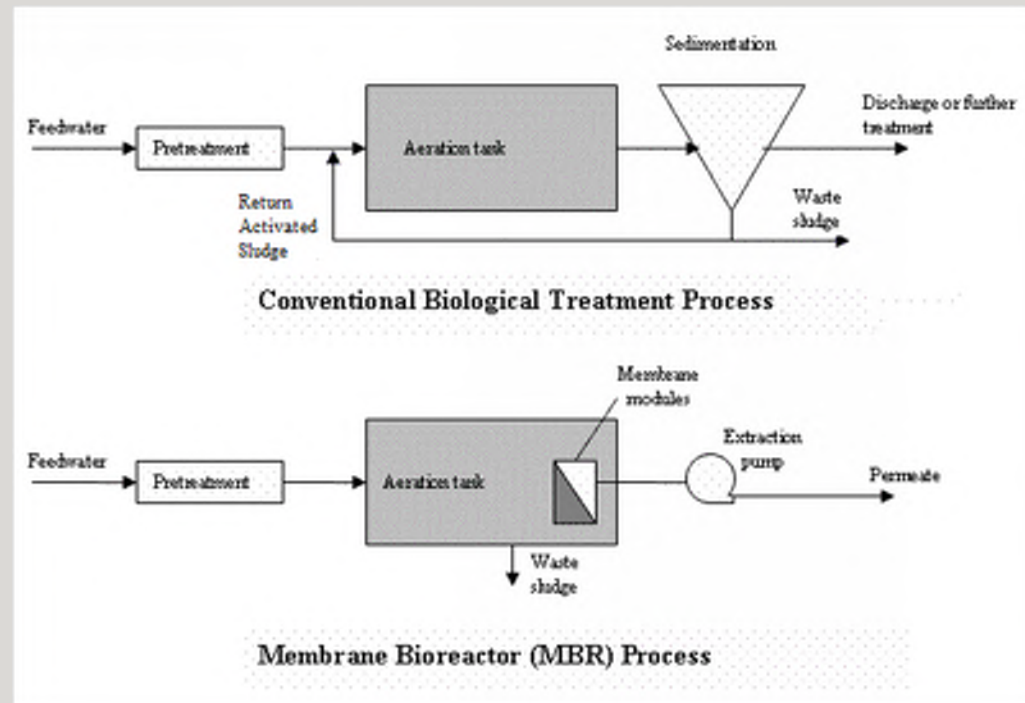
Lowest Rating = 1

# Technologies Evaluated

---

- Membrane Bioreactors
- Sequencing Batch Reactors
- Oxidation Ditch
- Conventional Activated Sludge

# Membrane Bioreactors





# Membrane Bioreactor

- Highest Level of Treatment – Adequate for Reuse
- Compact
- Physical Separation of Solids – Less Subject to Upset
- Cost Competitive

*1.0 MGD MBR Trains (2)  
Marco Island, FL*



# Membrane Bioreactor Layout



# Membrane Bioreactor Preliminary Costs

<b>Cost</b>	<b>Total Cost</b>
<b>Capital Cost</b>	\$13.5 M
<b>Yearly Operation and Maintenance Cost</b>	\$500,000
<b>Life Cycle Cost</b>	\$18.9 M



# Membrane Bioreactor Evaluation

Criteria	Comment	Rating
<b>Footprint/Land Requirements</b>	Will fit on existing WWTP site	3
<b>Suitability for Reuse</b>	Meets reuse requirements without filtration	3
<b>Suitability for Surface Water Discharge</b>	Can achieve high levels of nutrient removal	3
<b>Operational Complexity</b>	Membrane system requires additional valves/operational complexity	1
<b>Odor</b>	Minimal. Potential for odors from influent equalization.	2
<b>Expandability</b>	Readily expandable – additional modules	2
<b>Construction Timeframe</b>	“Package” system – minimal construction timeframe	3
<b>Cost (Capital/O&amp;M)</b>		3/1

1=Lowest Rating, 3=Highest Rating

# Sequencing Batch Reactor

---

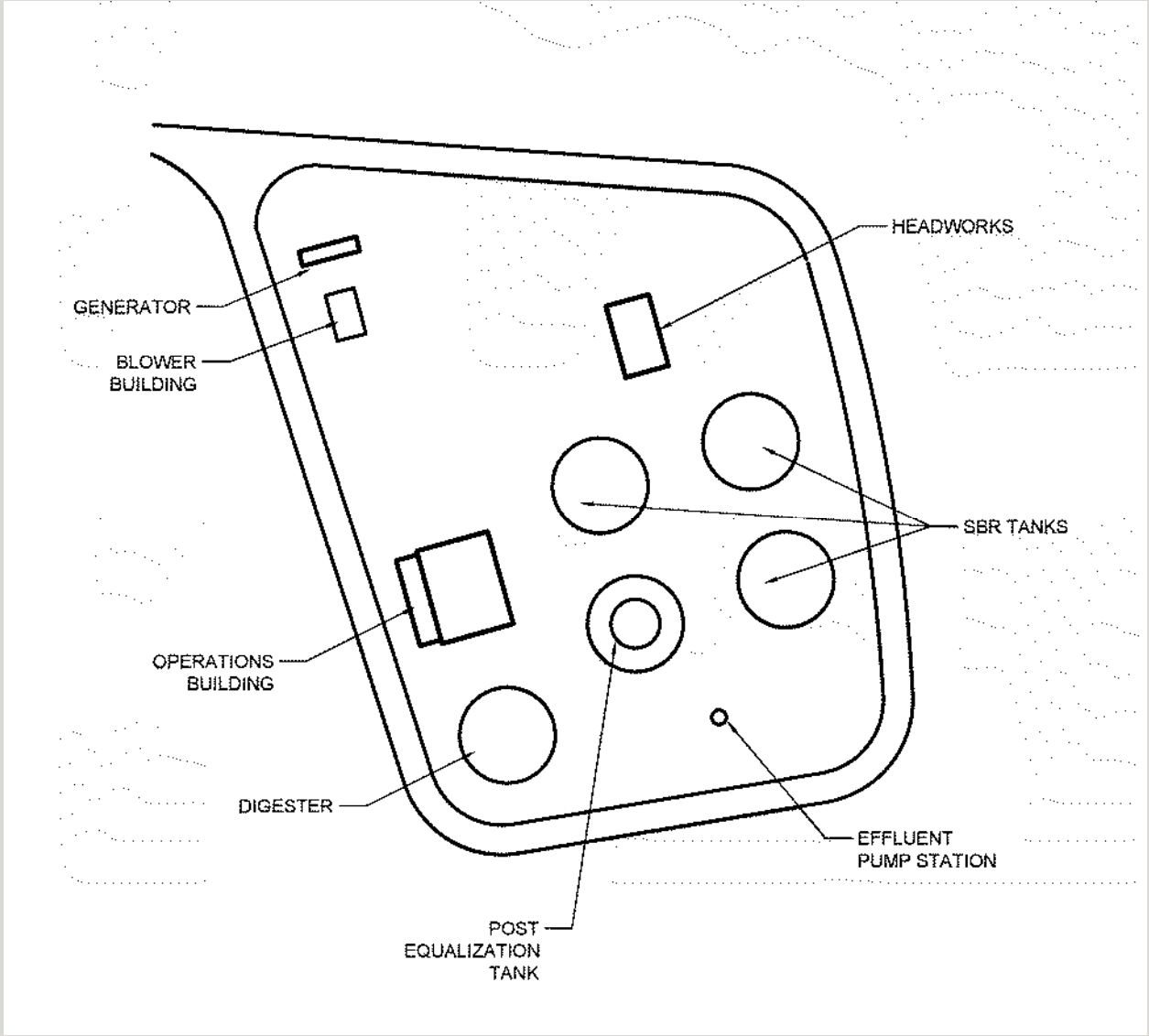
- Treatment occurs in one tank
  - Occurs over time (sequencing)
  - One tank (batch)

# Sequencing Batch Reactor



- *High Level of Treatment:*
  - Suitable for nutrient removal
  - Reuse requires filtration
- *Flexible Process*
- *Less Complex*
  - No clarifiers or RAS pump station
- *Cost Competitive*

# Sequencing Batch Reactor



# Sequencing Batch Reactor Preliminary Costs

Scope	Total Cost
<b>Capital Cost</b>	\$22.8 M
<b>Yearly Operation and Maintenance Cost</b>	\$310,000
<b>Life Cycle Cost</b>	\$24.0 M

# Sequencing Batch Reactor Evaluation

Criteria	Comments	Rating
<b>Footprint/Land Requirements</b>	Will not fit on existing WWTP site, requires less land than Carrousel	2
<b>Suitability for Reuse</b>	Requires filtration to meet reuse requirements	2
<b>Suitability for Surface Water Discharge</b>	Can achieve high levels of nutrient removal	3
<b>Operational Complexity</b>	Requires PLC for operational control	2
<b>Odor</b>	Minimal	3
<b>Expandability</b>	Readily expandable – additional modules	2
<b>Construction Timeframe</b>	Requires site development/construction, less construction than Carrousel	2
<b>Cost (Capital/O&amp;M)</b>		2/3

1=Lowest Rating, 3=Highest Rating

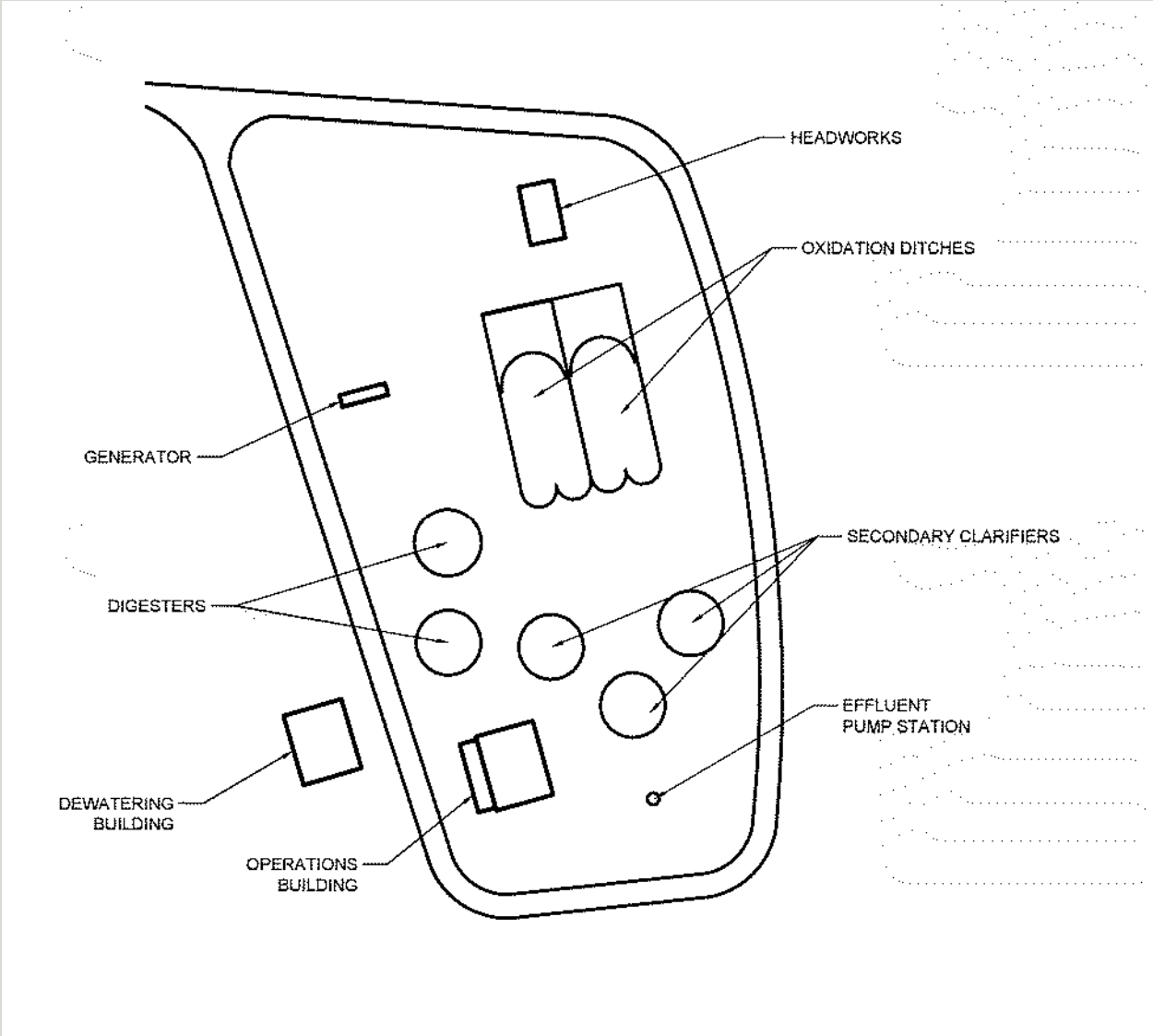




# Oxidation Ditch

- *Extended Aeration Process*
  - Stable
  - Simple to Operate
- *Established Process*
- *Requires Additional Steps for BNR and/or Reuse*

# Oxidation Ditch





# Oxidation Ditch Preliminary Costs

Scope	Total Cost
<b>Capital Cost</b>	\$21.5 M
<b>Yearly Operation and Maintenance Cost</b>	\$360,000
<b>Life Cycle Cost</b>	\$23.6 M

# Oxidation Ditch Evaluation

Criteria	Comment	Rating
<b>Footprint/Land Requirements</b>	Will not fit on existing WWTP site, requires more space	1
<b>Suitability for Reuse</b>	Requires filtration to meet reuse requirements	2
<b>Suitability for Surface Water Discharge</b>	Can achieve high levels of nutrient removal, but additional treatment steps required	2
<b>Operational Complexity</b>	Simple operation, especially without nutrient removal	3
<b>Odor</b>	Potential for aerosol drift	2
<b>Expandability</b>	Readily expandable – additional modules	2
<b>Construction Timeframe</b>	Requires site development/construction, structures constructed in place	1
<b>Cost (Capital/O&amp;M)</b>		2/3

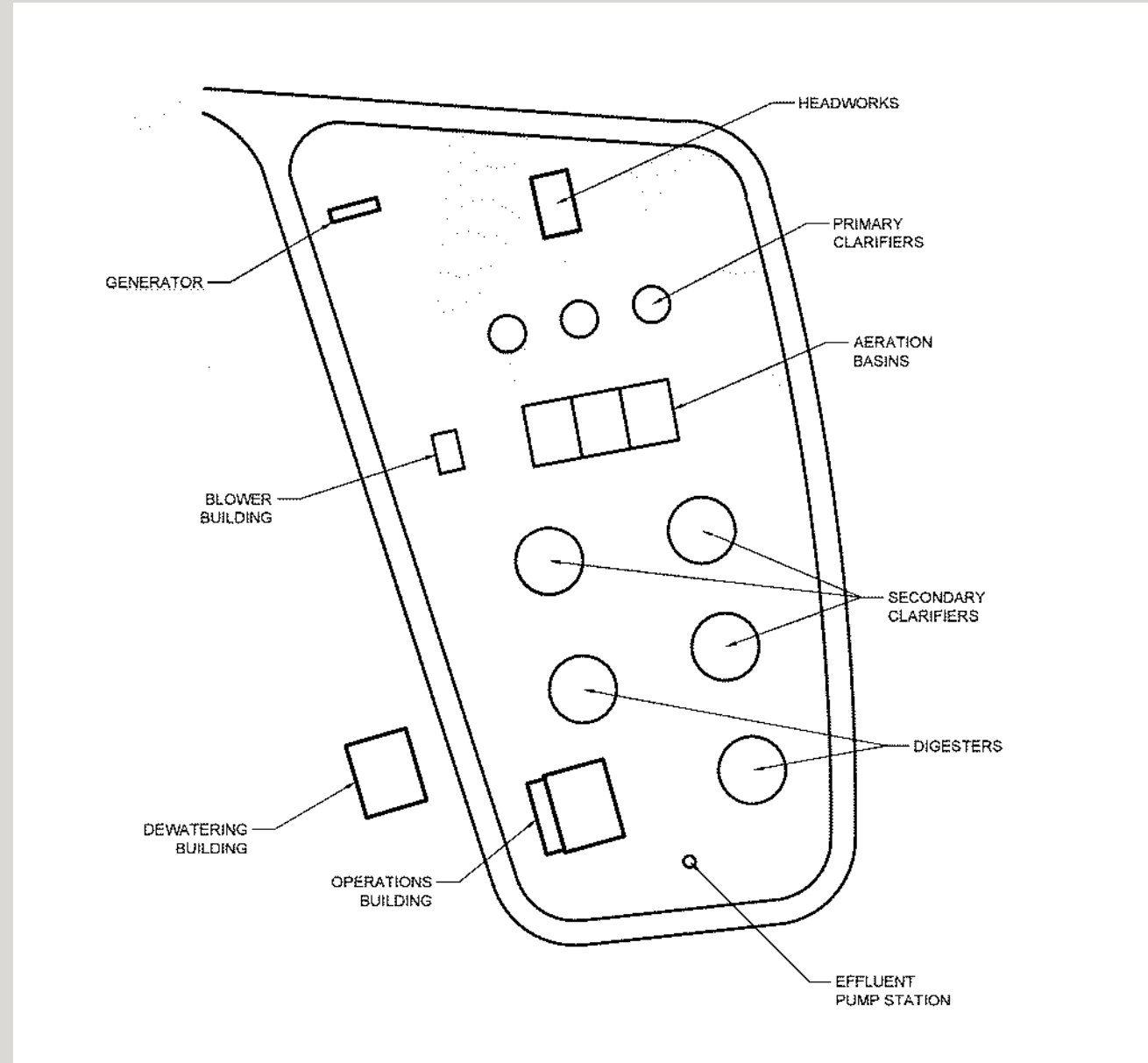
1=Lowest Rating, 3=Highest Rating

# Conventional Activated Sludge



- *Many Potential Processes*
- *Per Request, Included Anaerobic Digestion*
  - Will require primary clarifiers
- *Established Process*
- *Requires Additional Steps for BNR and/or Reuse*

# Conventional Activated Sludge Layout



# Conventional Activated Sludge Preliminary Costs

Scope	Total Cost
<b>Capital Cost</b>	\$29.6 M
<b>Yearly Operation and Maintenance Cost</b>	\$410,000
<b>Life Cycle Cost</b>	\$31.2 M

# Conventional Activated Sludge Evaluation

Criteria	Comment	Rating
<b>Footprint/Land Requirements</b>	Will not fit on existing WWTP site, requires more space	1
<b>Suitability for Reuse</b>	Requires filtration to meet reuse requirements	2
<b>Suitability for Surface Water Discharge</b>	Can achieve high levels of nutrient removal, but additional treatment steps required	2
<b>Operational Complexity</b>	Anaerobic Digesters and primary clarifiers will add operational complexity.	1
<b>Odor</b>	Anaerobic Digesters and Primary Clarifiers are potential odor generators	1
<b>Expandability</b>	Readily expandable – additional modules	2
<b>Construction Timeframe</b>	Requires site development/construction, structures constructed in place	1
<b>Cost (Capital/O&amp;M)</b>		1/2

1=Lowest Rating, 3=Highest Rating

# Evaluation Summary

Criteria	MBR	SBR	Oxidation Ditch	Conv. Act. Sludge
<b>Footprint/Land Requirements</b>	3	2	1	1
<b>Suitability for Reuse</b>	3	2	2	2
<b>Suitability for Surface Water Discharge</b>	3	3	2	2
<b>Operational Complexity</b>	1	2	3	1
<b>Odor</b>	2	3	2	1
<b>Expandability</b>	2	2	2	2
<b>Construction Timeframe</b>	3	2	1	1
<b>Cost (Capital/O&amp;M)</b>	3/1	2/3	2/3	1/2
<b>Total</b>	21	21	18	13

1=Lowest Rating, 3=Highest Rating

# Summary

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- Highest rated (tie) alternative: MBR
  - Only alternative that can fit within existing site
  - Allows reuse without additional treatment steps
  - Shortest implementation period





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*Thank You!*

