

**Town of Thompson's Station
Utility Board
Meeting Agenda
June 19, 2019**

1. Meeting Called To Order

2. Approval Of Minutes From The May 15, 2019 Meeting

Documents:

[UTILITY BOARD 5_15_19 MINUTES.PDF](#)

3. System Operator's Update

- a) Complete update on all efforts taken to identify sources of I/I in the system as per the requests of the board from our last two meetings.
- b) Update about the results of re-calibrating the flow meter and possible faulty readings.
- c) Nitrogen levels and how close we are to meeting our re-use limits so we can discharge to Tollgate Village.
- d) Issues we might have with our systems (Heritage and Regional).
- e) Status of the problem with pump station mentioned a few work sessions ago.
- f) Any other issues?
- g) Update on Cell 1

4. Update On Whistle Stop Pipeline, Barge

5. Waste Water Request TriStar Energy

Documents:

[ITEM 5 - MEMO FOR TRISTAR SEWER REQUEST.PDF](#)

6. Waste Water Request Holt Property

Documents:

[ITEM 6 - MEMO FOR HOLT SEWER REQUEST.PDF](#)

7. Waste Water Request Littlebury

Documents:

[ITEM 7- LITTLEBURY SEWER PRESENTATION.PDF](#)
[17224LITTLEBURY_WW EXHIBIT\(1\)_RS.PDF](#)

8. Waste Water Request Pleasant Creek

Documents:

[BIOCLERE 120K REPORT.PDF](#)

9. Discussion Related To Applications Of Interest For Position On The Board And Recommendation To BOMA.

Documents:

[ITEM 9 - APPLICATIONS FOR UTILITY BOARD POSITION.PDF](#)

10. Other Items Per BOMA/Town Staff

11. Announcements

12. Adjournment

*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
Meeting Minutes
May 15, 2019**

1. Meeting Called to Order

Chairman Jeff Riden called the meeting to order at 7:00 pm with the required quorum. Present were: Brian Stover, Jeff Riden, Brad Wilson, Joe Whitson, and John Peterson, Town Administrator Kenneth McLawhon, Assistant Town Administrator Caryn Miller, Town Clerk Regina Fowler, and Finance Director Steve Banks.

2. Approval of Minutes from the April 17, 2019 Meeting

A motion to approve the minutes was made by Mr. Peterson. The motion was seconded. Motion carried unanimously.

3. System Operator's Update

Kenny Bond updated the Board on the system flows and current conditions

4. Update on Cell 1

Cell 1 levels are still too high. Recommendation was made by Barge Design that we move forward with the Drip Line Project and wait until the levels in Cell 1 go down further to discuss next steps. Drip Field Project will be ready to advertise for bids by next week.

5. Barge/Staff information related to MBR timeline and funding

Barge Design presented a timeline and costs related to the MBR system. Staff related possible funding sources. Daniel Woods and Kris Pascarella spoke about their projects and timelines of August or September of 2020.

A motion was made by Mr. Riden that the requests for alternative systems for Daniel Woods and Kris Pascarella's developments be deferred until next meeting. The motion was seconded. Motion carried unanimously.

A motion was made by Brian Stover to have Staff look into the idea of incentivizing the Drip Field Project if the contractor comes in early. The motion was seconded. Motion passed unanimously.

6. Other Items per BOMA/Town Staff

Brian Stover made a motion to change the time of the meetings to 6 pm instead of 7 pm. The motion was seconded. Motion passed unanimously.

7. Announcements

None

8. Adjournment

A motion to adjourn was made by John Peterson. The motion was seconded. The meeting was adjourned at 8:28 pm.

Board Chairman

**Town of Thompson 's Station
Utility Board
Meeting Minutes
May 15, 2019**

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

DATE: June 6, 2019
TO: The Board of Mayor and Aldermen (BOMA)
VIA: Utility Board
FROM: Wendy Deats, Town Planner
SUBJECT: Wastewater Request – TriStar Energy

In 2018, the Town received a request for four wastewater taps for a parcel located at the northeast corner of Columbia Pike and Critz Lane. The purpose of the request is for the construction of a new Twice Daily gas station/convenience store and White Bison coffee shop.

On May 8, 2018, the Town Administrator recommended deferring the request until a wastewater study can be completed and repairs are made to Cell #1. At the BOMA meeting, the Board requested that Staff consider a wastewater allocation policy and deferred the request to the June 2018 meeting. Based upon consideration of a policy to allocate taps for commercial uses, in May 2018 the Planning Commission did approve the site plan contingent on BOMA approval of wastewater.

In June 2018, the policy was not complete, the study was not complete, and repairs were not complete. Therefore, the request was deferred to August 2018. In August 2018, the request was deferred to October 2018 and then again to January 2019. The study is complete, however the repairs to Cell #1 are not complete and in January 2019, the Board of Mayor and Aldermen deferred the request to May 2019.

At this time, the repairs to the sewer plant are not complete and a Utility Board is created. Staff recommends that the Utility Board review the request and determine if allocation of sewer should be granted to the applicant.

Recommendation:

Defer the request until the Utility Board has an opportunity to review the request and make a recommendation to BOMA.

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

DATE: June 6, 2019
TO: The Board of Mayor and Aldermen (BOMA)
VIA: Utility Board
FROM: Wendy Deats, Town Planner
SUBJECT: Wastewater Request – Holt Property

In 2018, the Town has received a request for 59 wastewater taps by Ragan Smith Partners for Holt Property. The project is located along the east side Columbia Pike north of Town Center. The purpose of the request will be for the construction of a new subdivision containing 59 residential townhome structures.

On June 12, 2018, the Town Administrator recommended deferring the request until a wastewater study can be completed and repairs are made to Cell #1. At the BOMA meeting, the Board deferred the request to the August meeting. In August 2018, the Town was still working on completing the study and the repairs were not complete. Therefore, the request was deferred to October 2018 and then again to January 2019. The study is complete, however the repairs to Cell #1 are not complete and in January 2019, the Board of Mayor and Aldermen deferred the request to May 2019.

At this time, the repairs to the sewer plant are not complete and a Utility Board is created. Staff recommends that the Utility Board review the request and determine if allocation of sewer should be granted to the applicant.

Recommendation:

Defer the request until the Utility Board has an opportunity to review the request and make a recommendation to BOMA.

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'

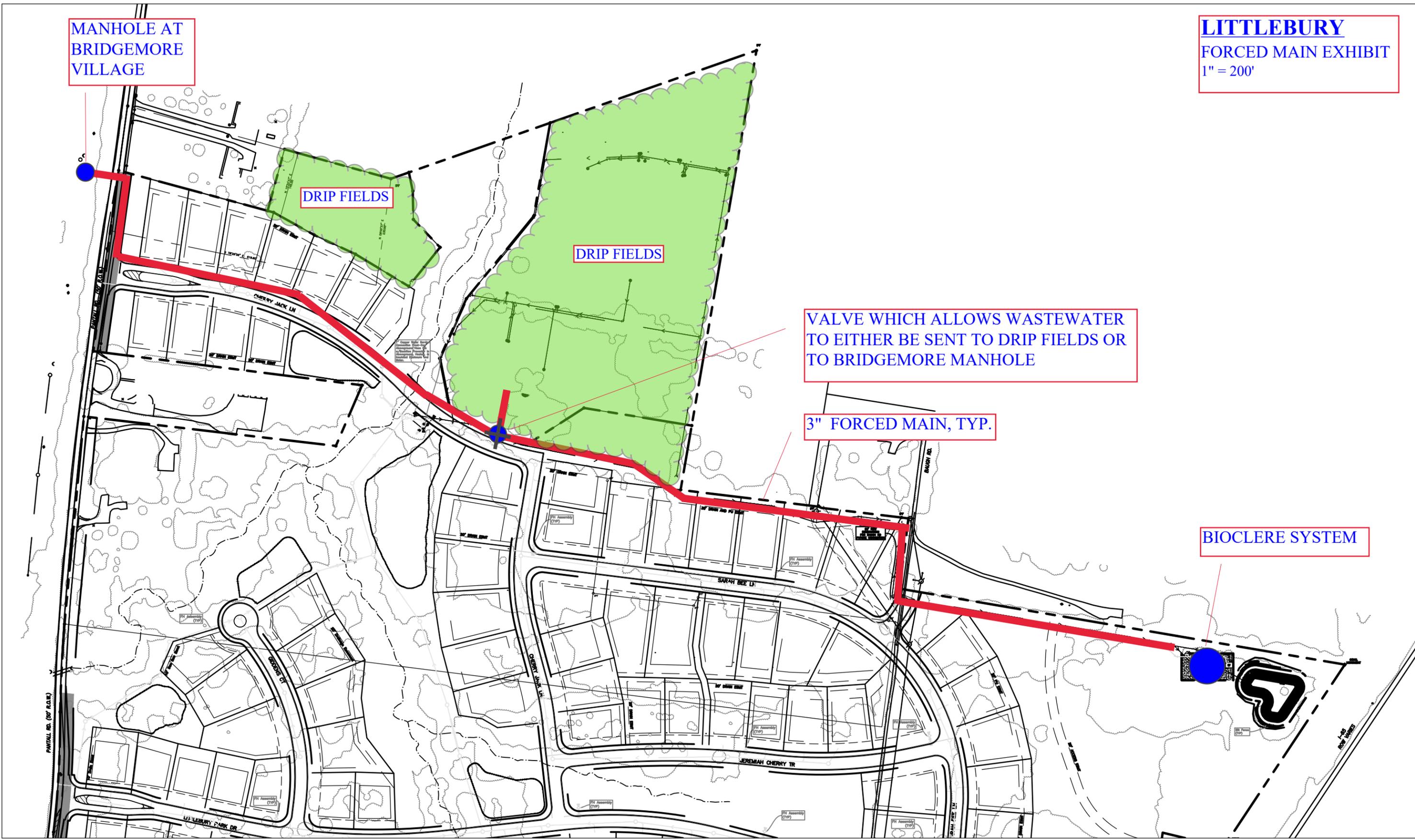
DRIP FIELDS

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.



BIOCLERE™

Wastewater Treatment Systems



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

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.

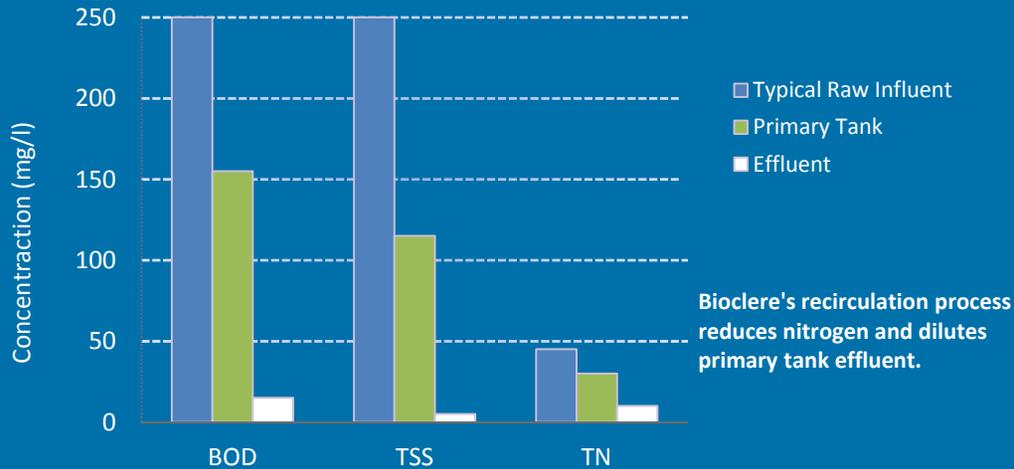
Bioclere is a modular technology. Units can be installed in parallel to accommodate large flows or in series to achieve high levels of treatment. The systems are sealed and insulated to minimize the impact of seasonal temperature variations on the treatment process.

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.

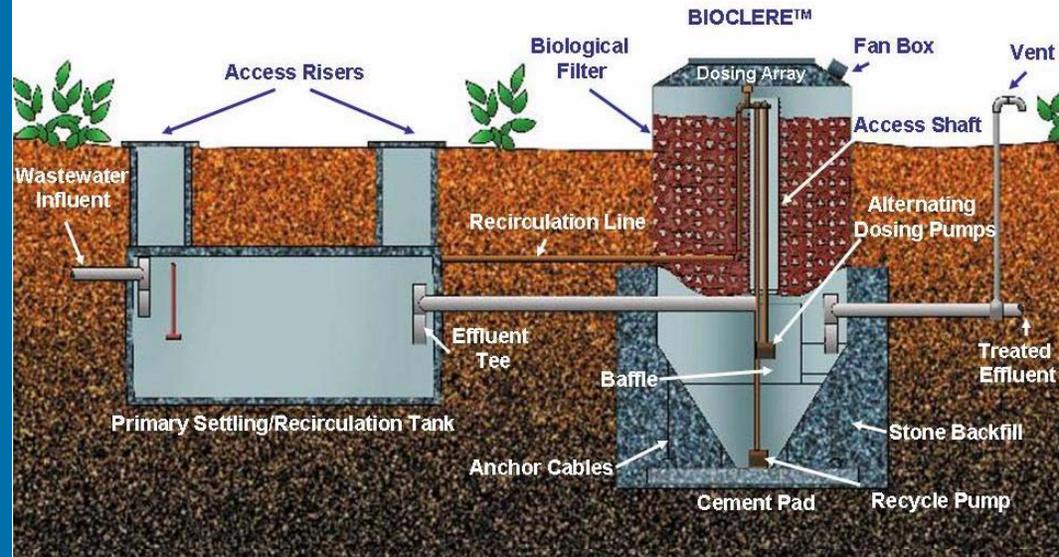


Bioclere 16/12-350 is ANSI/NSF Standard 40 certified by the National Sanitation Foundation (NSF). The above performance results (BOD & TSS) are based on a six month accumulative average from NSF's certification testing



U.S. Environmental Protection Agency's (EPA) technology verification program. Total nitrogen results can be viewed at www.EPA.GOV/ETV. 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, 11th 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.

Sincerely,

George Garden, PE, BCEE
Chief Engineer

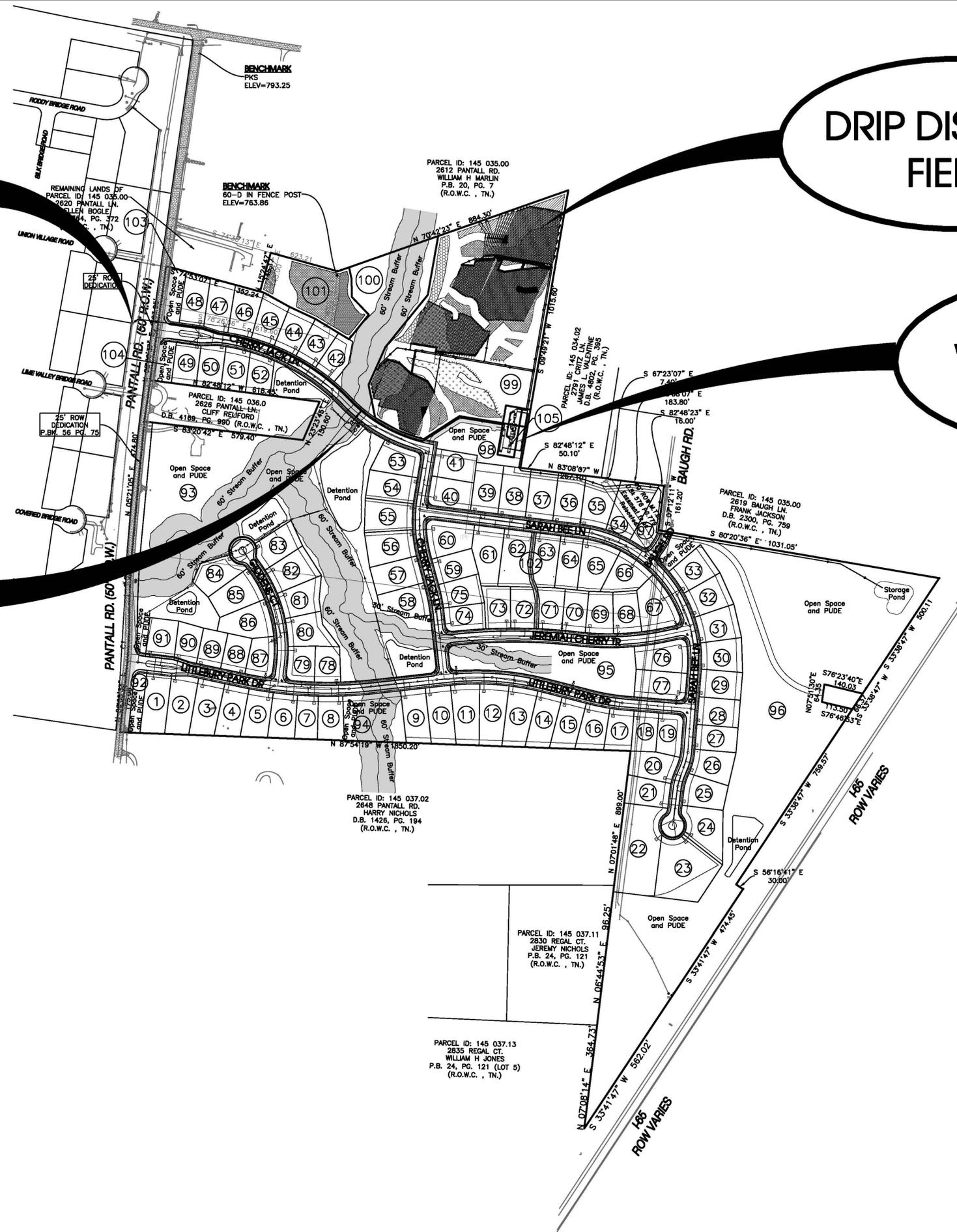
cc: Water-Based Systems File
Mayor Corey Napier, Town of Thompson's Station, cnapier@thompsons-station.com
Mr. Allen Rather, Environmental Specialist 5, TDEC Division of Water Resources, Allen.Rather@tn.gov
Ms. April Vann Grippo, Unit Manager, TDEC Division of Water Resources, April.Grippo@tn.gov
Mr.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

EXISTING MANHOLE
FORCEMAIN
CONNECTION

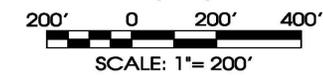
DRIP DISPERSAL
FIELDS

BIOCLERE
WASTEWATER
TREATMENT

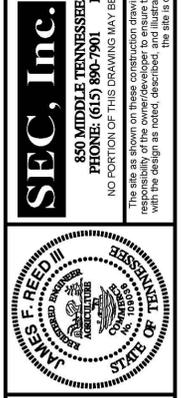
PROPOSED
PUMP STATION



Know what's below.
Call before you dig.



SITE ENGINEERING CONSULTANTS
ENGINEERING • SURVEYING • LAND PLANNING
SEC, Inc.
LANDSCAPE ARCHITECTURE
850 MIDDLE TENNESSEE BOULEVARD MURFREESBORO, TENNESSEE 37129
PHONE: (615) 890-7901 E-MAIL: JREID@SEC-CIVIL.COM FAX: (615) 895-2567



Littleberry Subdivision
Thompson Station, Tennessee

REVISED:	
DRAWN: MLG	
DATE: 6-11-18	
CHECKED: JFR	
FILE NAME: 17224LittleberryPrelim	
SCALE: 1"=200'	
JOB NO. 17224	
SHEET: C0.1	



Engineering Report

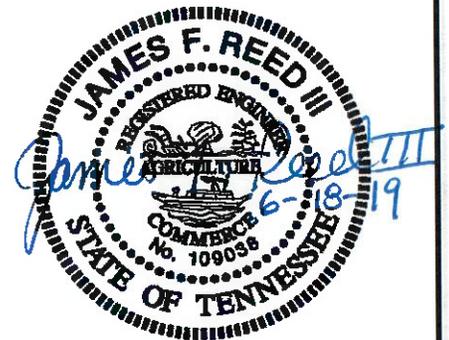
Pleasant Creek Wastewater Treatment Facility

Gravity Sanitary Sewer Collection, Bioclere Wastewater Treatment & Land Drip Dispersal System

for

**Pleasant Creek Investments LLC
Thompson Station, TN**

SEC, Inc.
SITE ENGINEERING CONSULTANTS
ENGINEERING • SURVEYING • LAND PLANNING
850 MIDDLE TENNESSEE BLVD • MURFREESBORO, TENNESSEE 37129
PHONE (615) 890-7901
WWW.SEC-CIVIL.COM

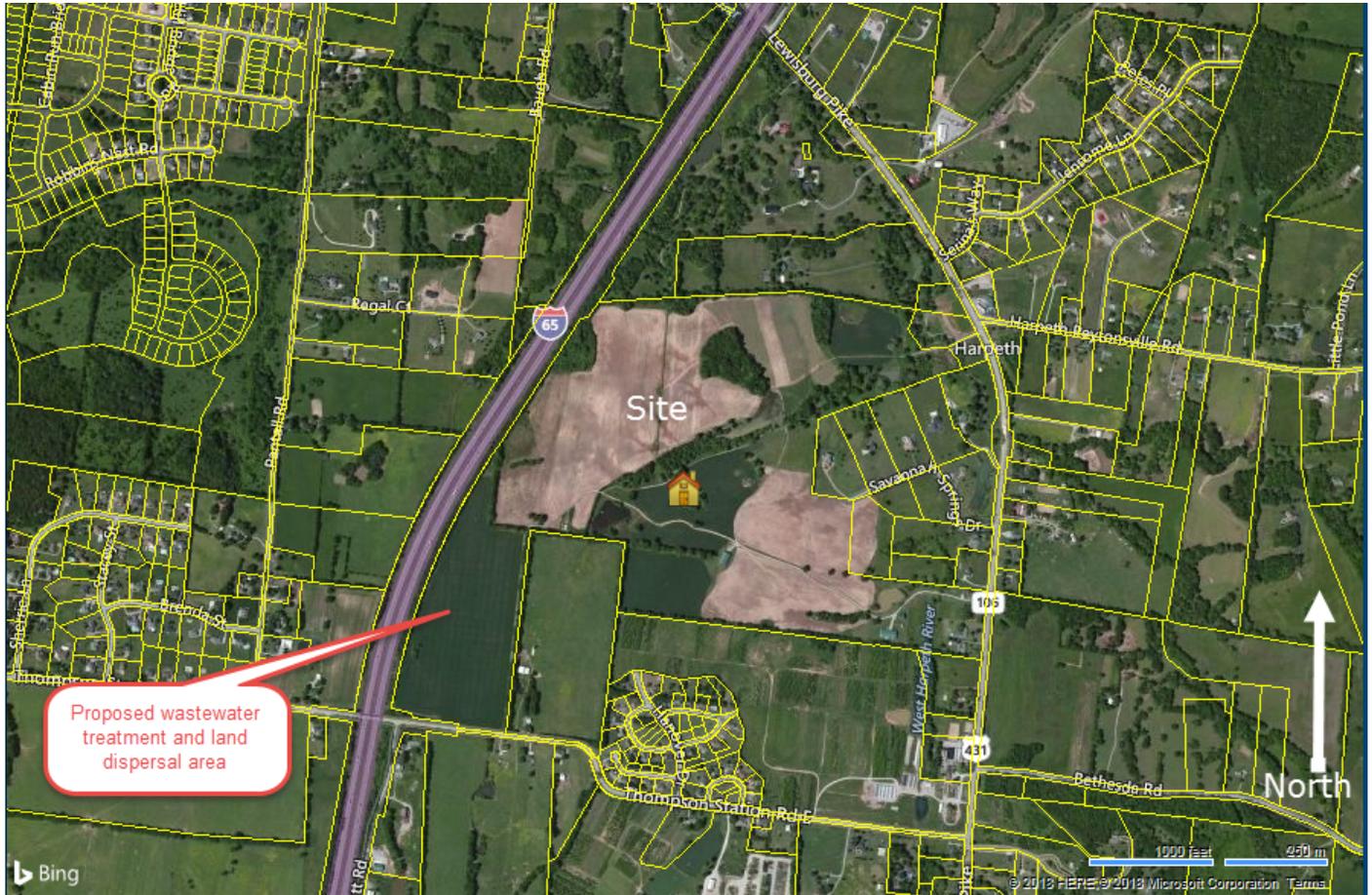


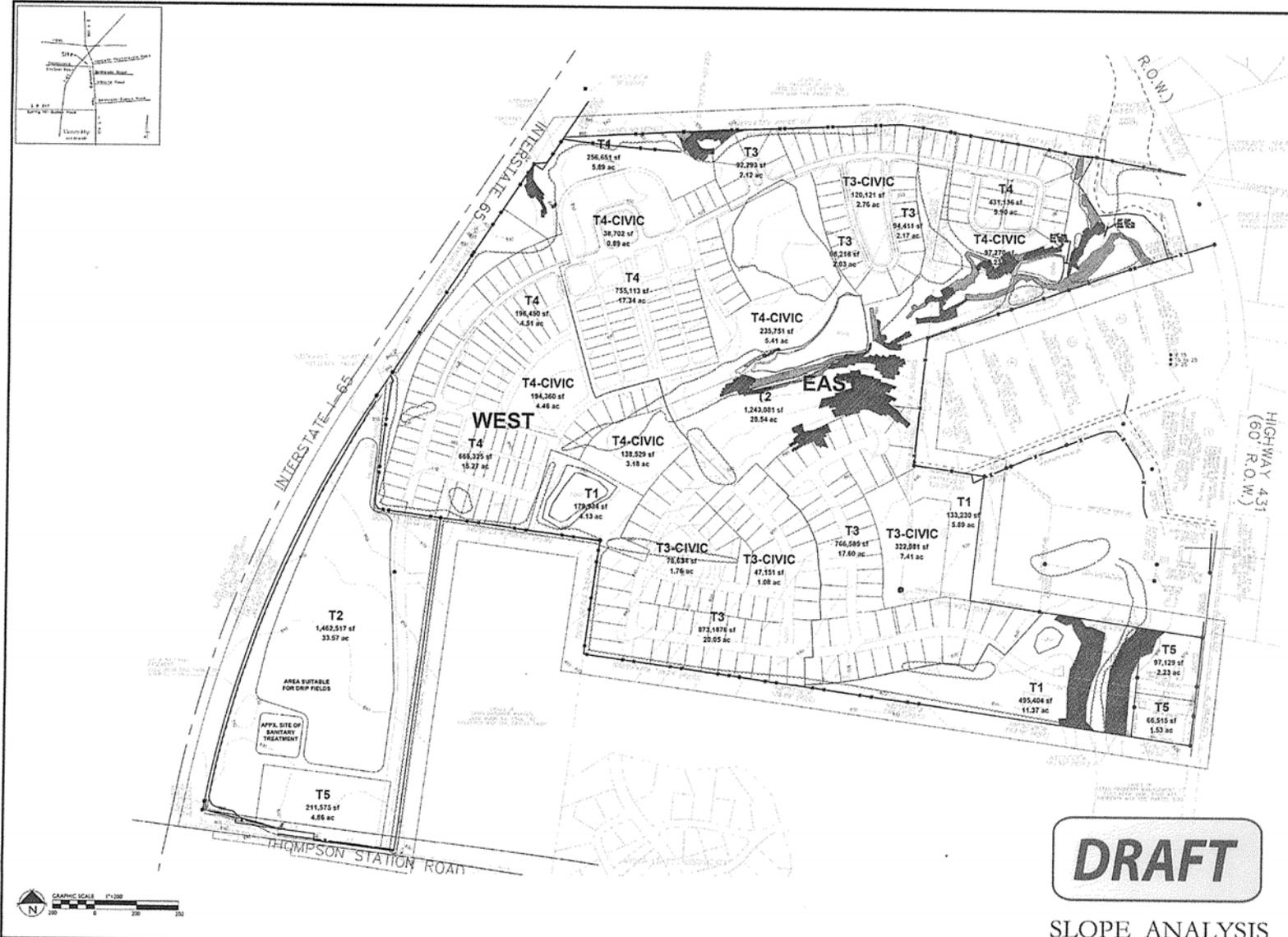
Section Index

- 1 General Information of Wastewater Treatment
- 2 Wastewater Effluent Calculations
- 3 Wastewater Treatment
- 4 Effluent Disposal
- 5 Effluent Storage
- 6 Summary of Estimated Cost

1 General Information of Wastewater Treatment

Site Location





GDC
GAMBLE
 DESIGN COLLABORATIVE
 DEVELOPMENT PLANNING AND
 LANDSCAPE ARCHITECTURE
 100 SOUTH 4TH AVENUE
 SUITE 200
 NASHVILLE, TENNESSEE 37203
 615.259.1100
 gdc@gamblegdc.com

Pleasant Creek Subdivision
 Site Concept Plan

Town of Thompson's Station, Williamson County, Tennessee

date: _____

 GDC Job No. 14000
 FEBRUARY 03, 2016

DRAFT

SLOPE ANALYSIS

SHEET

Pleasant Creek Wastewater Treatment System
TDEC SOP No
Thompson Station, Tennessee

The proposed Pleasant Creek Wastewater Treatment Facility is located at 2816 Thompson Station Road East. This report will outline wastewater treatment effluent flow of 120,000 gpd. Bioclere was selected as the wastewater treatment option for this area due to the nature of wide range of variable treatment. (IE solids handling, meeting TDEC limits, ease of operation, and minimum sludge volumes). The Bioclere system can also be installed in phases as the development is constructed. In addition, the manufacturer and equipment are local to the Tennessee service area.

Bioclere wastewater treatment: (Effluent flow 120,000gpd)

The best balance of construction cost and phasing would be to **install (3) 40,000 gpd treatment trains**. Because we have gravity collection here, each train would consist of the following...

Domestic Wastewater Flow (120,000gpd)

- (1) 40,000 gallon baffled primary tank (this could be comprised of two 20,000 gallon FRP tanks in series to make it more economical).
- (1) 15,000 gallon flow equalization tank
- (1) FRP dual weir flow splitter manhole
- (2) 36/30 Bioclere units in parallel
- (1) 5,000 gal Final Dose Pump Tank

So, in total for the 120,000 gpd build out we would have 120,000 gallons of primary settling, 45,000 gallons of EQ and (6) 36/30 Biocleres

- The baffled primary tanks will be for the solids to settle out while the grey water flows to the equalization tank
- The equalization tank is designed to reduce hydraulic surges and meter the flow at a consistent rate to the Bioclere units throughout the day. We will recycle back to the primary settling tanks.
- The biocleres will polish the effluent via discharging into the final dose tank.
- The final dose tank will pump effluent through the ultra violet disinfection building with arkal disc cleaning filters
- Once the effluent leaves the UV building it is dispersed into the drip disposal areas of good suitable soils

The wastewater (effluent) at each home will discharge to a common gravity collection line. The wastewater is then collected from Pleasant Creek Subdivision ultimately discharging into a common baffled primary tank (septic tank). At this point, the grey water will flow to equalization tank. The effluent then flows through the equalization tank to a splitter valve manhole. The effluent is then pumped through the bioclere for final polishing. Once the effluent leaves the biocleres it discharges into the final dose tank that pump effluent through ultra violet disinfection. Once disinfection has taken place, the effluent is pumped to suitable land for underground drip dispersal for land application for the final treatment of the wastewater. The land application area includes 35 drip dispersal zones @ 4,290 LF per zone. In addition, this site will contain reserve area approximately 20.66 acres. Drip dispersal is designed for 120,000 gpd.

2 Wastewater Effluent Calculations

Daily Flow

Number of 3-BR Buildable Residential Lots	400 lots
Daily Flow for 3-BR	300 gpd/lot
Daily Flow	120000 gpd

Land Application Area

Land Application Area	0.2 gal/sf/day*
Total Area Required	600000 s.f.
or	13.77 acres

* assumed soil absorption rate

Number of Required Zones

Length per zone (@ 4' o.c.)	4290 L.F.
Number of Zones	35.0 Zones

Land Reserve Area

Area per lot	50% S.F./lot
Total Area Required	300000 S.F.
or	6.89 acres

Total Soils Area Required (Land Application + Reserve)

900000 s.f.	20.66 acres
-------------	-------------

The land application area includes 35 drip dispersal zones @ 4,290 LF per zone. The site will also contain 50% reserve area approximately 6.89 acres. In addition, there will be a 10 day storage pond installed adjacent to drip dispersal fields. Drip dispersal is designed for 120,000 gpd.

3 Wastewater Treatment

Bioclere 120,000 gpd design



BIOCLERE™ Wastewater Treatment Systems

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

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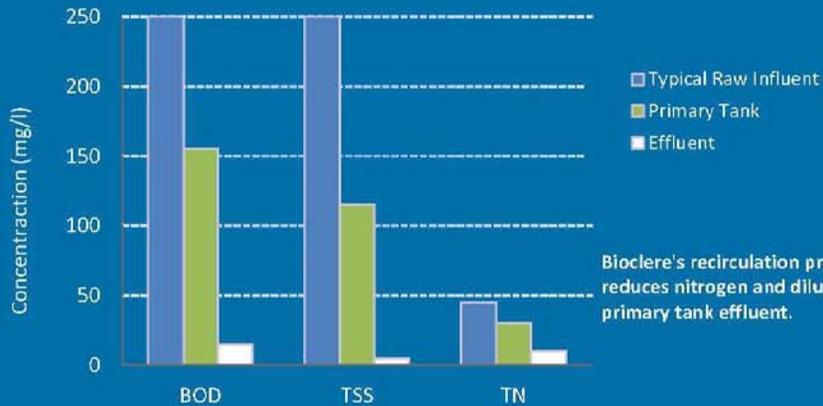
Bioclere is a modular technology. Units can be installed in parallel to accommodate large flows or in series to achieve high levels of treatment. The systems are sealed and insulated to minimize the impact of seasonal temperature variations on the treatment process.

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.

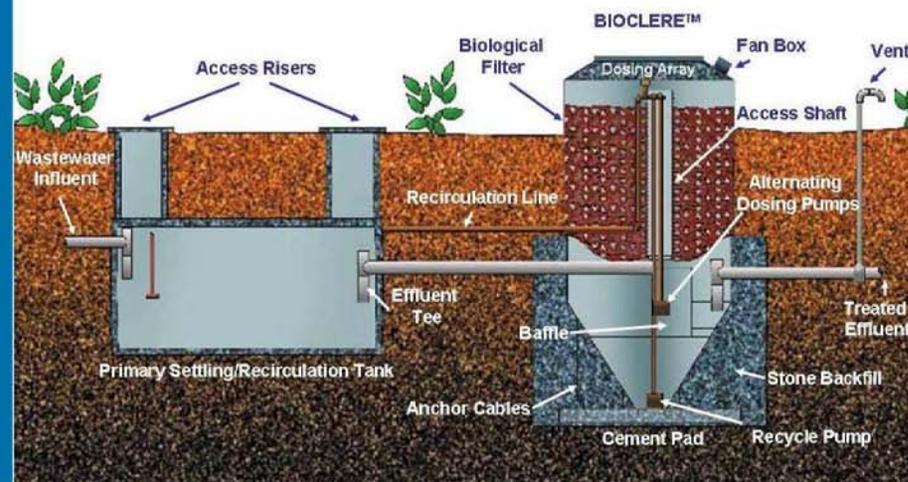


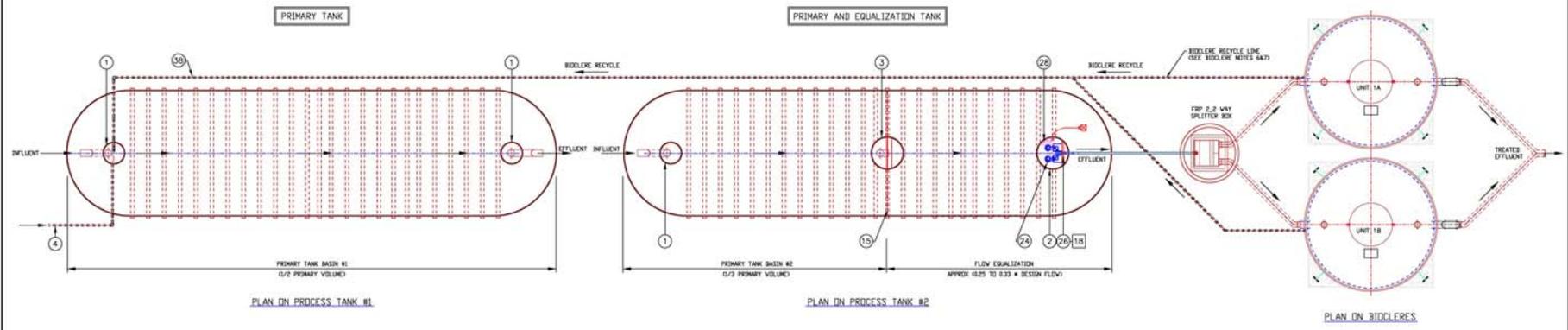
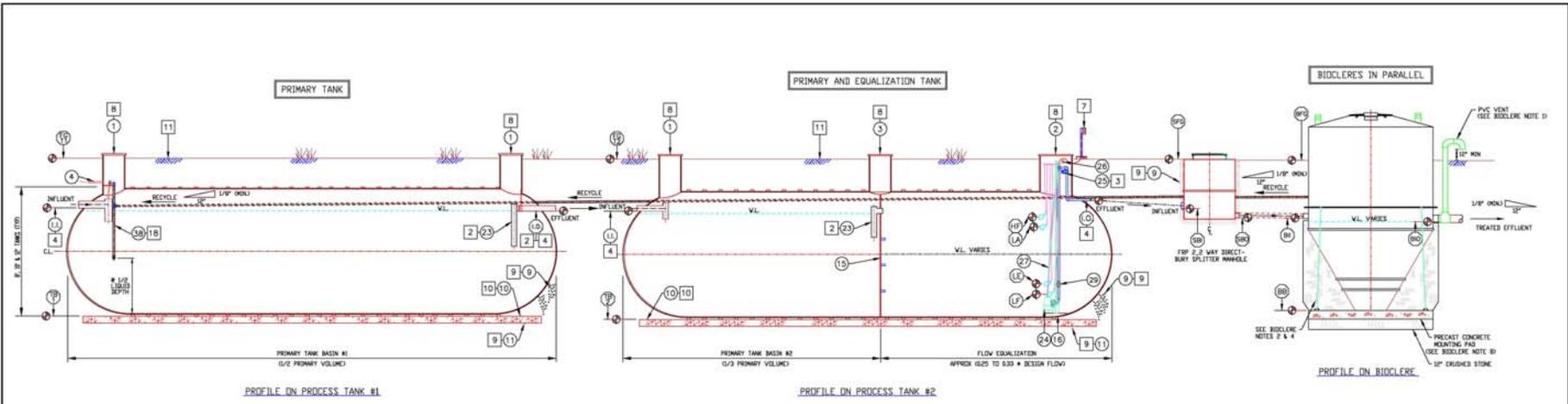
Bioclere 16/12-350 is ANSI/NSF Standard 40 certified by the National Sanitation Foundation (NSF). The above performance results (BOD & TSS) are based on a six month accumulative average from NSF's certification testing



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

Standard Single Bioclere™ Installation:



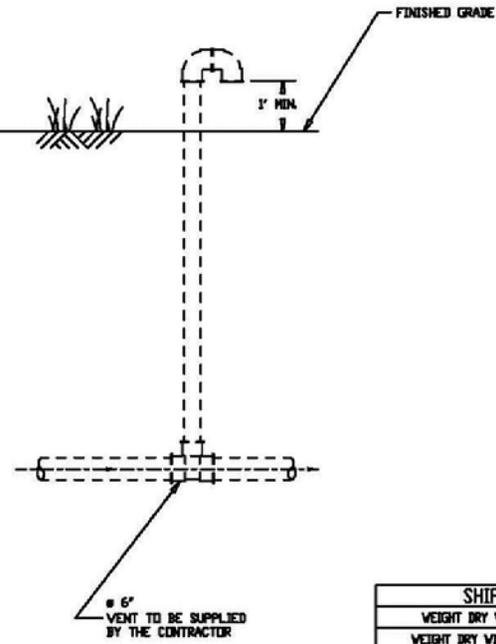
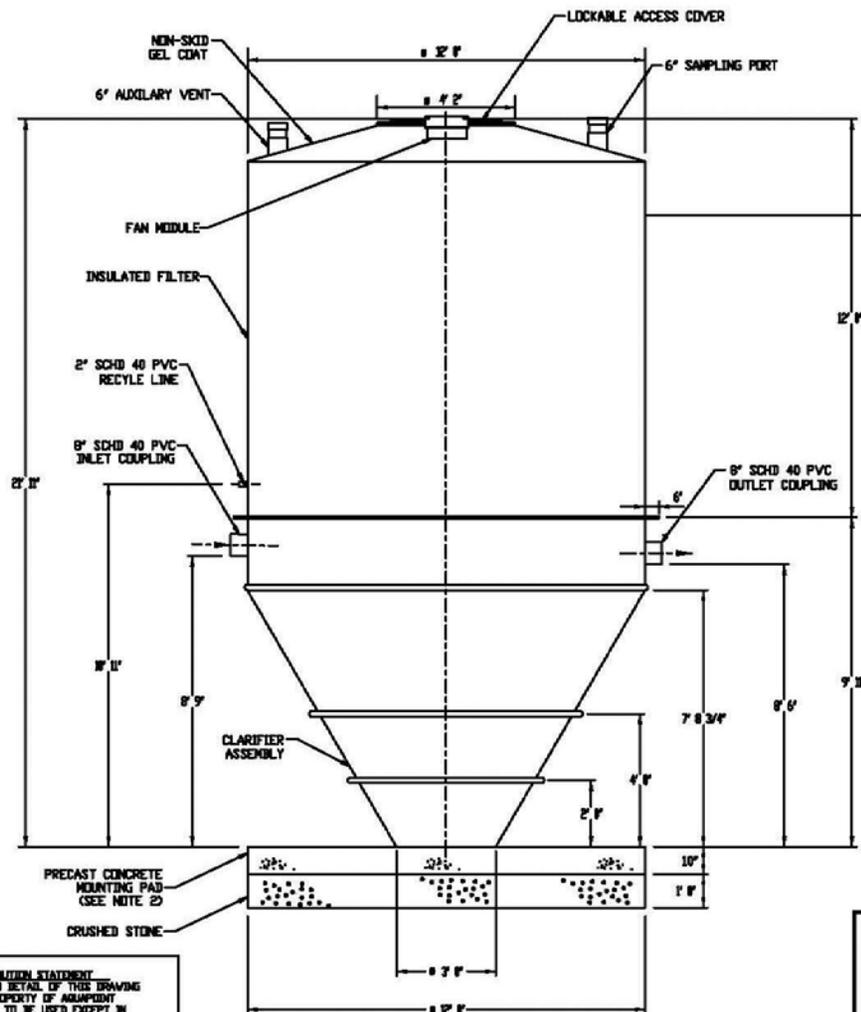


SEE SHEET 2 FOR NOTES

SYMBOL LEGEND:	
□	= NOTES
○	= COMPONENTS USED
⊖	= COMPONENTS NOT USED
⊕	= FLDAT OR INVERTS
+	= ELEVATIONS

GENERAL TWO STAGE PRIMARY BAFFLED WITH EQUALIZATION TANK,
DIRECT BURY FLOW SPLITTER AND TWO BIDCLERES IN PARALLEL

AquaPoint 24 HARBOR PLACE NEW BEDFORD, MA 02745 508-548-7000 FAX 508-548-7001 WWW.AQUAPPOINT.COM	TYPE: FIRST STAGE PRIMARY TO SECOND STAGE PRIMARY/ED FRP TANK TO DIRECT BURY FLOW SPLITTER TO TWO PARALLEL BIDCLERES
	ISSUANCE NUMBER: FRP-1136-3
	DATE: SEPT. 2009
	SCALE: NTS SHEET: 6 / 13
<small>THE DESIGN AND DETAIL OF THIS DRAWING ARE THE PROPERTY OF AQUIAPPOINT AND ARE NOT TO BE USED EXCEPT IN CONNECTION WITH THE WORK ORDER AND SPECIFICATIONS REFERRED TO HEREIN. NO REUSE OR REPRODUCTION OF THIS DRAWING IS PERMITTED WITHOUT PRIOR WRITTEN PERMISSION.</small>	



SHIPPING WEIGHTS	
WEIGHT DRY WITH MEDIA	= 7000 lbs (GFP)
WEIGHT DRY WITH NO MEDIA	= 3900 lbs (GFP)

- NOTES:
1. VENT MAY BE RUN UP THE SIDE OF BUILDING.
 2. SEE DRAWING 1244-9 FOR MOUNTING PAD CONSTRUCTION DETAILS.
 3. FINISHED GRADE MAY BE BETWEEN 18" ABOVE RECYCLE LINE AND 14" BELOW TOP OF UNIT.
- 36-30 Grading

DISCLAIMER STATEMENT
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MODEL 36/30 BIOCLERE

AQUAPOINT

39 TARKILN PLACE
 NEW BEDFORD, MA 02745
 (508) 985-9050 FAX (508) 985-9072

TITLE	BIOCLERE 36/30	
	GENERAL ARRANGEMENT	
DRAWING NO.	UK.1263-14	
REVISION	B	
DATE	May 9 2008	
DRAWN BY	P.Villey	
SCALE	1 : 40	SIZE: B
SHEET #	1 of 1	

4 Effluent Disposal

The effluent will be treated by a series of Biocleres, continuing with ultraviolet disinfection, and pumped to drip dispersal fields. In the Bioclere, the effluent receives the majority of its treatment. The effluent passes through the Bioclere before it is pumped through a disc filter and ultraviolet light / disinfection, effectively destroying bacteria and viruses before releasing it in a subsurface drip irrigation system. At this point, the soil continues to provide treatment on an already cleaned effluent.

Daily Flow

Number of 3-BR Buildable Residential Lots	400 lots
Daily Flow for 3-BR	300 gpd/lot
Daily Flow	120000 gpd

Land Application Area

Land Application Area	0.2 gal/sf/day*
Total Area Required	600000 s.f.
or	13.77 acres

* assumed soil absorption rate

Number of Required Zones

Length per zone (@ 4' o.c.)	4290 L.F.
Number of Zones	35.0 Zones

Land Reserve Area

Area per lot	50% S.F./lot
Total Area Required	300000 S.F.
or	6.89 acres

Total Soils Area Required (Land Application + Reserve)

900000 s.f.	20.66 acres
-------------	-------------

The USDA soils map on following pages references the soils area for the above 20.66 acres required for the 120,000 gpd design.

Soil Map—Williamson County, Tennessee
(Pleasant Creek Sd)



Wastewater treatment
and land dispersal area

Wastewater Treatment and Land Application Area
Land Application Area only for 120,000 gpd design

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres In AOI	Percent of AOI
ArB	Amour silt loam, 2 to 5 percent slopes	2.8	8.1%
ArB2	Amour silt loam, 2 to 5 percent slopes, eroded	2.5	7.1%
DnB2	Donerail silt loam, 2 to 5 percent slopes, eroded	2.3	6.5%
DoC2	Donerail silt loam, concretionary, 5 to 12 percent slopes, eroded	6.2	17.6%
Hu	Huntington silt loam, phosphatic	4.9	14.0%
Lp	Lindell silt loam, 0 to 2 percent slopes, occasionally flooded	1.3	3.8%
SrC3	Stiversville clay loam, 5 to 12 percent slopes, severely eroded	6.0	17.0%
SIB2	Stiversville silt loam, 2 to 5 percent slopes	6.2	17.7%
StC2	Stiversville silt loam, 5 to 12 percent slopes, eroded	2.9	8.2%
Totals for Area of Interest		35.1	100.0%

5 Effluent Storage

Tennessee Department of Environment and Conservation (TDEC) require 24 hours of storage volume for drip dispersal. With drip dispersal as the effluent disposal, the project would not be required to have additional effluent storage unlike spray irrigation.

In addition, we will provide a 10 day holding storage pond for additional wastewater capacity for emergencies.

120,000 gal Effluent Storage

Bioclere REQUIRED STORAGE		
Domestic	120000	gpd
Required Storage	120000	gal.
PROVIDED STORAGE		
10 day storage pond	1,200,000	gal.
Primary Tanks	120,000	gal.
Equalization Tanks	60,000	gal.
Final Dose Tank Size	5,000	gal.
Storage Provided	1,385,000	gal.
EXCESS STORAGE	1265000	gal.

7 Summary of Estimated Cost

Each Bioclere will use about 750 KwHrs/Mo and the EQ will use about 250 KwHrs/Mo. Therefore, each train will use about 1,750 KwHrs/Mo. Assuming \$0.1 per KwHr that's about \$175 per train per month. At full build out the system would cost approximately **\$525** in electrical per month or about **\$6,300 annually**. Typically Bioclere uses about 1/3 the energy of conventional systems that use blowers similar to activated sludge.

Once the energy used for the drip system is added the energy cost will be approximately number of **\$8,000** per year for electrical cost should be very accurate.

BIOCLERE™

SLUDGE CALCULATION -- Pleasant Creek Development - TN

BOD5 = Influent from raw waste + Recycle

$$BOD_5 = \left[\frac{(Q \times BOD_i \times c)}{1 \times 10^6} + \frac{(0.5 \times Q \times BOD_i \times c)}{1 \times 10^6} \right] \times sf$$

BOD5 = **265.212** lbs. BOD5/day

Q =	120,000 gpd
BOD _i =	250 mg/l
c =	8.34 lb/gal
BOD ₁ =	30 mg/l
TSS =	250 mg/l
sf =	1

Sludge Yield for Trickling Filters (TF's)

Y = 0.047

References:

- 1) National Sanitation Foundation (NSF) Standard 40 test results for Bioclere Trickling Filter - May 15, 2000
- 2) Environmental Technology Verification (ETV) for Bioclere - US EPA - April 2003

Design Assumptions:

- 1) 3% sludge concentration in Bioclere clarifier = **1.872** pcf, dry [**62.4** pcf = specific weight of water]
- 2) Yield = 0.047 lb VSS/lb BOD oxidized

TOTAL Sludge Production Equation:

$$Mass_{sludge} = Q [P_s (TSS) + (1 - P_b) (Y) (BOD_5) (A_b)]$$

Variables:

Q = Design daily flow, liters/day	454,200
TSS = Concentration of TSS in influent, mg/l	250
Ps = Fraction of TSS removed in primary tank	0.5
BOD5 = Concentration of BOD5 in influent, mg/l	250
Pb = Fraction of BOD removed in primary tank	0.25
Ab = Fraction of BOD removed during aerobic treatment	0.95
Y = Yield coefficient	0.047
VOLs = Volume of sludge (gallons per month)	16,197
VOLd = Volume of dry sludge (lbs per month)	4,053

VOLs = Mass/sludge concentration = 16197 gal/month

VOLd = Mass/sludge concentration = 4053 lbs/month
--

Note:

Sludge generation calculations are far from an exact science for the following reasons...

Actual sludge generation is typically far less than the calculated amount due to compaction and digestion in the primary or sludge holding tank. It is difficult to calculate actual compaction and digestion rates in a passive sludge management tank but digestion can achieve between 20% and 40% reduction in sludge volume on its own. Additionally, compaction in the sludge holding tank can result in higher % solids concentrations than the 3% used to calculate sludge generation. 3% solids is the anticipated concentration in the secondary Bioclere clarifier before evacuation.

Actual sludge generation is also usually far less than calculated because of the fact that the average daily flow and pollutant load are usually well below the design parameters. The calculations assume design flow and load 24/7/365.

The actual yield coefficient for any given site is unknown until the plant is in operation. Actual sludge yield per lb of BOD could be less than or greater than the 0.047 lbs VSS/lb BOD oxidized. Generally, higher yields exist when BOD loading is higher and lower yields under lightly loaded conditions.

Because of the above variables, it is common for Bioclere plants to consistently generate far less than the calculated sludge yield. It is most likely that after accounting for actual flow rates and digestion in the primary that the actual sludge yield will be only about 1/3 of what is calculated above. Most similar facilities receiving approximately 65% of design flow require primary tank pumping every 2 years.

Caryn Miller

From: Tyler Rainey
Sent: Friday, June 7, 2019 11:12 AM
To: Jeff Risdien
Cc: Kenneth McLawhon; Caryn Miller; Corey Napier; Regina Fowler
Subject: Fwd: Online Form Submittal: Utility Board Interest Form

----- Forwarded message -----

From: <noreply@civicplus.com>
Date: Fri, Jun 7, 2019 at 11:08 AM
Subject: Online Form Submittal: Utility Board Interest Form
To: <info@thompsons-station.com>, <trainey@thompsons-station.com>

Utility Board Interest Form

First Name	Charles
Last Name	Thompson
Address1	3217 Vinemont Dr
City	Thompsons Station
State	TN
Zip	37179
E-mail Address	cbtpharmd@gmail.com
Phone Number	865-771-4321

Introduce yourself and explain your interest in participating in the Utility Board

Hello, my name is Charles "Brent" Thompson. I was born and raised in Middle Tennessee, specifically, in Dickson County. I have lived in both Spring Hill and Thompsons Station, and my family and I currently reside in the Tollgate subdivision in Thompsons Station. I must admit I do not have previous experience on a utility board, although I am looking to be of better service to my community and town. I saw the ad for a volunteer position, and I believe that I could add value to the existing board. Regarding my educational background and/or qualifications, I attended the University of Tennessee where I was a biochemistry/cellular & molecular biology major. After college, I attended pharmacy school in Memphis, Tennessee. I have practiced as a pharmacist in various roles in both

Tennessee and North Carolina. I also have a Master of Business Administration degree and currently I am a professor at Lipscomb University. I would appreciate the opportunity to better serve Thompsons Station residents and Williamson County. Please do not hesitate to contact me if you need any further information, have any questions, or need an official resume/CV.

Resume, Statement of Interest, etc. (not required)

Field not completed.

Utility Board Members are appointed by the Board of Mayor and Aldermen.

Email not displaying correctly? [View it in your browser.](#)

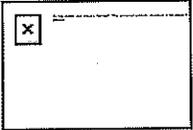
--

Tyler Rainey

IT Coordinator

Town of Thompson's Station, TN

Main Line: (615) 794-4333, Direct Line: (615) 206-4103



Caryn Miller

From: Tyler Rainey
Sent: Monday, June 10, 2019 10:36 AM
To: Jeff Ridsen; Caryn Miller; Kenneth McLawhon; Corey Napier; Regina Fowler
Subject: Fwd: Online Form Submittal: Utility Board Interest Form

----- Forwarded message -----

From: <noreply@civicplus.com>
Date: Sat, Jun 8, 2019 at 3:49 PM
Subject: Online Form Submittal: Utility Board Interest Form
To: <info@thompsons-station.com>, <trainey@thompsons-station.com>

Utility Board Interest Form

First Name	Luis
Last Name	Parra
Address1	3621 Wareham Dr
City	Thompsons Station
State	TN
Zip	37179
E-mail Address	luis.parra77@yahoo.com
Phone Number	646-942-8349

Introduce yourself and explain your interest in participating in the Utility Board

Please allow me to introduce myself, my name is Luis Parra. I am a resident of Thompsons Station within the subdivision of Tollgate Village. I would like to take this opportunity to request the possibility of being considered a candidate for the open utility board vacancy. After a couple yrs of searching, I landed a telecom engineering position with St Thomas hospitals (Nashville) which allowed our family to moved to Thompsons Station, TN roughly 3.5 years ago from Amityville, NY. It has the rural feel we were looking for but was in the middle of everything. Moving to Thompsons Station has been the best decision of our life and would like to contribute to its success moving forward. I believe what I have to offer is a fresh perspective to the growth of our town. In the short time I have been here, I have entrenched myself in the community and its

development. I have joined the Tollgate Action Committee (TAC) so I could better help the community come together with social event, neighborhood improvements and providing residents better communication. I am currently its Vice President, Treasurer and spearhead most social events. I am also on the Tollgate Village HOA as it's Treasurer. I have uprooted my family from NY and have planted my roots here in Thompsons Station and want to contribute to its future growth and success. Again, let take this opportunity to say thank you for your time. Best Regards, Luis Parra Cell - (646)942-8349

Resume, Statement of Interest, etc. (not required) *Field not completed.*

Utility Board Members are appointed by the Board of Mayor and Aldermen.

Email not displaying correctly? [View it in your browser.](#)

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Tyler Rainey

IT Coordinator

Town of Thompson's Station, TN

Main Line: (615) 794-4333, Direct Line: (615) 206-4103





Tyler Rainey <trainey@thompsons-station.com>

Online Form Submittal: Utility Board Interest Form

1 message

noreply@civicplus.com <noreply@civicplus.com>
 To: info@thompsons-station.com, trainey@thompsons-station.com

Thu, Jun 13, 2019 at 3:38 PM

Utility Board Interest Form

First Name	Everett (Skip)
Last Name	Beasley
Address1	3371 Vinemont Dr
City	Thompsons Station
State	Tennessee
Zip	37179-2925
E-mail Address	skipbeasley49@gmail.com
Phone Number	6154988491

Introduce yourself and explain your interest in participating in the Utility Board

I am a new resident in Tollgate Village, having moved from Franklin, TN in October. I am retired. I am presently serving at the Treasurer for P38 INC, a 501c3 organization supporting the 1st Brigade at Fort Campbell. I serve as the Treasurer for a homeowners association and have previously served either as President or VP for Cross Creek HOA in Franklin for 15 years. I have a Civil Engineering degree from Tulane Univ. but have not practiced engineering. I was the COO of a vegetable processing plant in Smyrna and dealt with BOD problems with the local waste water treatment plant. My other work background is 21 years as a USAF pilot and 16 years as a Commercial airline pilot. My interest in joining the board is due to the future delays in sewer taps in the Tollgate Village area and other future growth areas. I want to be able to serve my new community in some capacity and feel that this is an area were I might be able to contribute some talent and energy too.

Resume, Statement of Interest, etc. (not required)

Field not completed.

Utility Board Members are appointed by the Board of Mayor and Aldermen.