From: Jeanene Woodruff on behalf of Water Permits
To: Elizabeth Rorie
Cc: Vojin Janjic; Wade Murphy
Subject: FW: Bristol NOI
Date: Friday, January 02, 2015 3:25:58 PM

-----Original Message-----
From: Dake, Matthew [mailto:Matthew.Dake@STServices.com]
Sent: Monday, December 29, 2014 3:38 PM
To: Water Permits
Cc: Robert Odette; ddodson@synagro.com
Subject: Bristol NOI

Attached is a Notice of Intent and associated land base data sheet for proposed biosolids land application sites. Please contact me if you have questions.

Matthew Dake
Project Manager - Bristol WWTP
Severn Trent Services
578 Beaver Creek Road
Bluff City, TN 37618-1220
T: 1+423 989 5570 F: 1+423 989 5573 E: Matthew.Dake@STservices.com
www.severntrentservices.com

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
(615) 532-0625

RECEIVED NOV 26 2014

NOTICE OF INTENT (NOI) for Land Application of Non-Exceptional Quality Biosolids

Generator Name:	BRISTOL STP #2	Current NPDES No:	TN0023531	Existing Tracking No:	TNB023531

Owner or Operator: (the person or legal entity which controls the site's operation)

1	Name of Official Contact Person: (individual responsible for a site) **MATTHEW DAKE**	Title or Position: **PROJECT MANAGER**		
	Mailing Address: **578 BEAVER CREEK ROAD**	City: **BLUFF CITY**	State: **TN**	Zip: **37618**
	Phone: **(423) 989-5570**	E-mail: **MATTHEW.DAKE@STSERVICES.COM**		
2	Name of Local Contact Person: (if appropriate, write "same as #1") **SAME AS #1**	Title or Position:		
	Site Address: (this may or may not be the same as street address)	Site City:	State: **TN**	Zip:
	Phone: ( )	E-mail:		

Write in the box (to the right) or circle the number (above) to indicate where to send correspondence: **1**

All non-EQ biosolids land application sites that have been approved by the division prior to the effective date of this permit will be covered under this permit upon receipt of the signed certification statement, completed NOI and a copy of site approval letter(s).

A. OPERATIONAL INFORMATION:
Estimated annual amount of biosolids generated (dry weight basis) 2,000 (tons)
Estimated annual amount of biosolids to be land applied (dry weight basis) 2,000 (tons)

B. BIOSOLIDS TREATMENT PROCESS: Please provide a description of the biosolids treatment process used prior to biosolids being land applied (use a separate sheet if necessary): **Waste activated sludge is co-settled with primary sludge in primary clarifiers. Co-settled sludge is pumped from primary clarifiers to a sludge holding tank where it is pumped to two belt filter presses for dewatering. The dewatered cake is conveyed to a pug mill where lime kiln dust is mixed with the cake. The alkaline stabilized cake is transported to a holding pad for subsequent land application.**

C. CHEMICAL ANALYSIS: Indicate which contaminant standard(s) the biosolids meet:
Table 1 Ceiling Contaminant Concentrations: X **Table 3 Contaminant Concentrations:** X

- Submit analytical results to demonstrate eligibility for and compliance with the quality criteria specified in the General Permit. **(Please see attached)**
- Submit PCB and TCLP analytical results that are less five years old. **(Please see attached)**

D. PATHOGEN REDUCTION LEVEL ACHIEVED: Indicate alternative used to achieve the pathogen reduction. For Class A, Alternatives 5 and 6; for Class B, Alternatives 2 and 3, list the specific Process to Further Reduce Pathogens (PFRP) or Process to Significantly Reduce Pathogens (PSRP).

Class A: ☐ **Alternative 1** ☐ **Alternative 2** ☐ **Alternative 3**
☐ **Alternative 4** ☐ **Alternative 5** _____ ☐ **Alternative 6** _____
(List PFRP) **(List Eq. PFRP)**

Class B: ☐ **Alternative 1** ☒ **Alternative 2** Lime Stabilization ☐ **Alternative 3** _____
(List PSRP) **(List Eq. PSRP)**

Provide a detailed description of the pathogen treatment process. Attach laboratory analytical and/or process monitoring results, as appropriate, that demonstrate pathogen reduction is being achieved: **Sufficient lime kiln dust is mixed with the dewatered cake in a pug mill to raise pH of the biosolids to 12 or higher after 2 hours of contact. Process monitoring results attached.**

E. VECTOR ATTRACTION REDUCTION LEVEL ACHIEVED: Indicate the option used to achieve the vector attraction reduction.

☐ Option 1 ☐ Option 2 ☐ Option 3 ☐ Option 4
☐ Option 5 ☒ Option 6 ☐ Option 7 ☐ Option 8

If one of the vector attraction reduction Options 1 - 5 is selected, do the biosolids meet Class A pathogen reduction requirements prior to or at the same time as meeting the vector attraction reduction requirements?

☐ Yes ☒ No

Provide a detailed description of the vector attraction reduction treatment process. Attach laboratory analytical and/or process monitoring results, as appropriate, that demonstrate vector attraction reduction is being achieved: **Sufficient lime kiln dust is mixed with the dewatered cake in a pug mill to raise the pH of the biosolids to 12 or higher for 2 hours and without adding additional lime the pH is maintained at 11.5 or higher for an additional 22 hours. Process monitoring results attached.**

F. If one of the vector attraction reduction Options 1 - 8 above was not performed, indicate how the vector attraction reduction will be performed on the field as part of the land application process:

☐ **Option 9 (Subsurface Injection)** ☐ **Option 10 (Incorporation)**

G. SAMPLING PLAN: Include a detailed copy of the biosolids sampling plan as specified in the instructions. The sampling plan must address sampling protocols for contaminants, pathogen reduction, and vector attraction reduction quality criteria. **(Please see attached)**

H. LAND APPLICATION AREA(s): Include a list of land application area(s) that will be used for disposal of biosolids. Attach a detailed map showing appropriate buffers in accordance with section 3.2.1(add additional pages if necessary) **(Please see attached spreadsheet)**

Area Number	Area (acres)	Application Rate (tons/acre) per section 3.2.2	Latitude (decimal)	Longitude (decimal)

I. CERTIFICATION: I certify, under penalty of law, that contaminant concentrations in the biosolids, pathogen reduction, vector attraction reduction, and other quality criteria of the biosolids stated in the regulations have been met or, if appropriate, will be met prior to land application of biosolids. I further certify that other information in this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my own knowledge as well as the inquiry of the person(s) who manage the system, or those directly responsible for gathering the information, the information submitted, to the best of my knowledge and belief, is true, accurate and complete. I further acknowledge that the facility or generator of biosolids described above is eligible for coverage under TDEC's General Permit for the Land Application of Biosolids. I am aware that there are significant penalties for submitting false information, including possibility of fines and imprisonment for knowing violations. As specified in Tennessee Code Annotated Section 39-16-702(a)(4), this declaration is made under penalty of perjury.

Name: Matthew Dake **Title:** Project Manager

Signature: Matthew Dake

Telephone: (423) 989-5570 **Date Signed:** 12 / 29 / 2014

NOTE: In evaluating NOI forms, TDEC may request additional information to complete its review to determine the eligibility for coverage under TDEC's General Permit.

Submit the original completed and signed form to *Water.Permits@tn.gov* or:
Biosolids NOI Processing - Division of Water Resources
William R. Snodgrass - Tennessee Tower, 312 Rosa L. Parks Avenue, 11th Floor
Nashville, TN 37243-1102

ETC ENVIRONMENTAL TESTING & CONSULTING, INC.
www.etcentpubs.com
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10/20/2014

Severn Trent Environmental Services
Mr. Bill Davidson
578 Beaver Creek Rd.
Bluff City, TN, 37618-1220

Ref: Analytical Testing
ETC Report Number: 14-283-0263
Client Project Description: Bristol WWTP - 503 Biosolids
Project #19602

Dear Mr. Bill Davidson:

Environmental Testing and Consulting, Inc. received sample(s) on 10/10/2014 for the analyses presented in the following report.

The above referenced project has been analyzed per your instructions. The analyses were performed in accordance with the applicable analytical method.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Quality Assurance, method validations, instrumentation maintenance and calibration for all parameters (NELAP and non-NELAP) were performed in accordance with guidelines established by the USEPA (including 40 CFR 136 Method Update Rule May 2012) and NELAC unless otherwise indicated. Any parameter for which the laboratory is not officially NELAP accredited is indicated by a '~' symbol. These are not included in the scope because NELAP accreditation is either not available or has not been applied for. Additional certifications may be held/are available for parameters, where NELAP accreditation is not required or applicable. A full list of certifications is available upon request.

Per EPA Methods Update Rule (May 2012), all methods from Standard Methods for the Examination of Water and Wastewater are reported to include the year of approval.

The results are shown on the attached Report of Analysis(s). Results for solid matrices are reported on an as-received basis unless otherwise indicated. This report shall not be reproduced except in full and relates only to the samples included in this report.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,

Randell H. Thomas

Randy Thomas
Project Manager

Laboratory's liability in any claim relating to analyses performed shall be limited to, at laboratory's option, repeating the analysis in question at laboratory's expense, or the refund of the charges paid for performance of said analysis.

Alabama	#40750	Louisiana	#04015	VA NELAP	#460181	Texas	#T104704180-11-6	Arkansas	#88-0650
Mississippi		California	#2904	NC	#415	Oklahoma	#9311	Virginia	#00106
Kentucky	#90047	Tennessee	#TN02027	EPA	#TN00012	Kentucky UST	#41	Kansas	#E-10396

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06374
Severn Trent Environmental Services
Mr. Bill Davidson
578 Beaver Creek Rd.
Bluff City , TN 37618-1220

Project Information : Bristol WWTP - 503 Biosolids
Project #19602

Report Date : 10/20/2014
Received : 10/10/2014

Report Number : **14-283-0263**

REPORT OF ANALYSIS

Lab No : **89164**
Sample ID : **503 Biosolids**

Matrix: **Solids**
Sampled: **10/8/2014 11:39**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
% Moisture	**70.6**	%	0.100	1	10/14/14 10:25	ACP	2540G-2011
Ammonia Nitrogen	**1560**	mg/Kg - dry	85.0	1	10/14/14 10:00	CLP	4500NH3C-2011
Nitrate (NO3-N)	**134**	mg/Kg - dry	3.40	1	10/13/14 17:33	RQE	9056
Nitrite (NO2-N)	**18.3**	mg/Kg - dry	3.40	1	10/13/14 17:33	RQE	9056
Total Solids	**29.4**	%	0.100	1	10/14/14 10:25	ACP	2540G-2011
Total Kjeldahl Nitrogen	**32300**	mg/Kg - dry	85.0	1	10/14/14 09:45	CLP	4500NH3D-2011
Total Phosphorus	**5100**	mg/Kg - dry	850	50	10/14/14 09:10	KM2	4500PE-2011
Total Arsenic	**5.41**	mg/Kg - dry	3.40	1	10/14/14 21:15	BKN	6010B
Total Cadmium	**0.544**	mg/Kg - dry	0.340	1	10/14/14 21:15	BKN	6010B
Total Chromium	**20.0**	mg/Kg - dry	0.850	1	10/14/14 21:15	BKN	6010B
Total Copper	**117**	mg/Kg - dry	0.850	1	10/14/14 21:15	BKN	6010B
Total Lead	**14.5**	mg/Kg - dry	1.02	1	10/14/14 21:15	BKN	6010B
Mercury (Total)	**0.309**	mg/Kg - dry	0.0452	1	10/13/14 11:10	JRS	7471A
Total Molybdenum	**6.16**	mg/Kg - dry	0.850	1	10/14/14 21:15	BKN	6010B
Total Nickel	**26.6**	mg/Kg - dry	0.850	1	10/14/14 21:15	BKN	6010B
Total Selenium	**3.98**	mg/Kg - dry	3.40	1	10/14/14 21:15	BKN	6010B
Total Zinc	**263**	mg/Kg - dry	1.70	1	10/14/14 21:15	BKN	6010B
Neutralizing Value (%CCE)	**45.3**	%	0.1	1	10/17/14 09:00	JH1	AOAC 1.1.04 ~

ORIGINAL: LAB MANAGER - ALKALINE STABILIZED BIOSOLIDS
XC: PROJECT MANAGER
ASSISTANT PROJECT MANAGER
40 CFR PART 503
ALPHA FILE

Qualifiers/ Definitions
* Outside QC limit
MQL Method Quantitation Limit
DF Dilution Factor

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Cooler Receipt Form

Customer Number: **06374**
Customer Name: **Severn Trent Environmental Services**
Report Number: **14-283-0263**

Shipping Method

◯ Fed Ex ◯ US Postal ◯ Lab ● Other : Greyhound
◯ UPS ◯ Client ◯ Courier Thermometer ID: #4

Shipping container/cooler uncompromised?	● Yes	◯ No	
Custody seals intact on shipping container/cooler?	◯ Yes	◯ No	● Not Required
Custody seals intact on sample bottles?	◯ Yes	◯ No	● Not Required
Chain of Custody (COC) present?	● Yes	◯ No	
COC agrees with sample label(s)?	● Yes	◯ No	
COC properly completed	● Yes	◯ No	
Samples in proper containers?	● Yes	◯ No	
Sample containers intact?	● Yes	◯ No	
Sufficient sample volume for indicated test(s)?	● Yes	◯ No	
All samples received within holding time?	● Yes	◯ No	
Cooler temperature in compliance?	● Yes	◯ No	
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	● Yes	◯ No	
Water - Sample containers properly preserved	● Yes	◯ No	◯ N/A
Water - VOA vials free of headspace	◯ Yes	◯ No	● N/A
Trip Blanks received with VOAs	◯ Yes	◯ No	● N/A
Soil VOA method 5035 -- compliance criteria met	◯ Yes	◯ No	● N/A

☐ High concentration container (48 hr) | Low concentration EnCore samplers (48 hr)
☐ High concentration pre-weighed (methanol -14 d) | Low conc pre-weighed vials (Sod Bis -14 d)

Special precautions or instructions included?	◯ Yes	● No

Comments:

Any regulatory non-compliance issues will be recorded on non-compliance report.

Signature: Cody Gardner Date & Time: 10/10/2014 13:03:50

ETC Environmental Testing & Consulting, Inc.

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Chain of Cu[stody]

14-283-0253
06374
10-10-2014
13:02:54
Severn Trent Environmental Services
Bristol WWTP - 503 Biosolids

Company Name: Severn Trent Env. Services	Account Number: 06374	Phone Number: 423-989-5570	
Project/Site: Bristol	State Project Loc.: TN	PO Number: 5358	
		FID Number:	
		Project Number: [illegible]	

Type of Event (Routine Sampling Events Only): ○ Single ○ Daily ○ Weekly ◉ Monthly ○ Quarterly ○ Semi-Annual ○ Annually

Project Manager/Contact: Bill Davidson

E-Mail Address: bill.davidson@stsservices.com

RUSH ☐ (Surcharges may apply)

Ice ☒

Matrix: 1) Wastewater 4) Sludge 2) Aqueous 5) Oil/Solvent 3) Soil/Sediment 6) Other

Analysis Request (Note special detection limits ...)

Which Regulations Apply?
☐ NPDES ☐ Risk Based Limits
☐ Wastewater ☐ TRRP 13
☐ RCRA ☐ LA RECAP
☐ UST ☐ USACE
Other ☐

# of Containers	Sample ID/Number	Depth	Sample Date & Time	Matrix	Grab/Comp	Metals (Cd,As,Ni,Cr,Cu,Mo,Zn,Pb,Se,Hg)	CCC%	Total Solids	Ammonia Nitrogen	Total Phosphorous	Nitrate	TKN	Nitrite		Comments	Lab ID Number (for internal use only)
1	503 Biosolids		10/8/2014	4	C	X	X	X	X	X	X	X	X			
			[illegible]													

Sampled By	Method of Shipment	Blank/Cooler Temp	Remarks
Joe Peters	Bus	[illegible]	Several grabs taken to make composite. Report as dry weight basis

Relinquished By (sign)	Date	Time	Received By (sign)	Date	Time
[signature]	10-9-14	13:20	[signature]	10-9-14	12:20
Relinquished By (sign)	Date	Time	Received By Lab (print/sign)	Date	Time
[signature]	[illegible]	[illegible]	[signature]	10/10/14	11:45

Please return ETC Sample Kit Request Form with Chain of Custody

Rel [signature] 101014 1215 Rec [signature] 101014 1215

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4/28/2014

Severn Trent Environmental Services
Mr. Mark Kalkwarf
578 Beaver Creek Rd.
Bluff City, TN, 37618-1220

Ref: Analytical Testing
ETC Report Number: 14-101-0254
Client Project Description: Bristol WWTP - 503 Biosolids
Project #19327
Project Number: Bristol WWTP - 503 Biosolids

Dear Mr. Mark Kalkwarf:

Environmental Testing and Consulting, Inc. received sample(s) on 4/11/2014 for the analyses presented in the following report.

The above referenced project has been analyzed per your instructions. The analyses were performed in accordance with the applicable analytical method.

The analytical data has been validated using standard quality control measures performed as required by the analytical method. Quality Assurance, method validations, instrumentation maintenance and calibration for all parameters (NELAP and non-NELAP) were performed in accordance with guidelines established by the USEPA (including 40 CFR 136 Method Update Rule May 2012) and NELAC unless otherwise indicated. Any parameter for which the laboratory is not officially NELAP accredited is indicated by a '~' symbol. These are not included in the scope because NELAP accreditation is either not available or has not been applied for. Additional certifications may be held/are available for parameters, where NELAP accreditation is not required or applicable. A full list of certifications is available upon request.

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The results are shown on the attached Report of Analysis(s). Results for solid matrices are reported on an as-received basis unless otherwise indicated. This report shall not be reproduced except in full and relates only to the samples included in this report.

Please do not hesitate to contact me or client services if you have any questions or need additional information.

Sincerely,

Randall H. Thomas

Randy Thomas
Project Manager

Laboratory's liability in any claim relating to analyses performed shall be limited to, at laboratory's option, repeating the analysis in question at laboratory's expense, or the refund of the charges paid for performance of said analysis.

Alabama	#40750	Louisiana	#04015	VA NELAP	#460181	Texas	#T104704180-11-6	Arkansas	#88-0650
Mississippi		California	#2904	NC	#415	Oklahoma	#9311	Virginia	#00106
Kentucky	#90047	Tennessee	#TN02027	EPA	#TN00012	Kentucky UST	#41	Kansas	#E-10396

Client: Severn Trent Environmental Services **CASE NARRATIVE**
Project: Bristol WWTP - 503 Biosolids
Lab Report Number: 14-101-0254
Date: 4/28/2014

Separatory Funnel Extraction 8081 Method SW-3510C (8081)
Sample 94236 (Bristol WWTP)
QC Batch No: L196394
The weight/volume extracted was reduced during the extraction procedure due to the nature of the sample. Reporting limits are factored for the sample size reduction.

Separatory Funnel Extraction Method SW-3510C (8270)
QC Batch No: L196329
The weight/volume extracted was reduced during the extraction procedure due to the nature of the sample. Reporting limits are factored for the sample size reduction.

Ultrasonic Extraction for PCB's Method SW-3546 (8082)
Sample 94237 (Bristol WWTP)
QC Batch No: L196152
The weight/volume extracted was reduced during the extraction procedure due to the nature of the sample. Reporting limits are factored for the sample size reduction.

Organochlorine Pesticides by GC (TCLP) Method SW-8081A (TCLP)
Sample 94236 (Bristol WWTP)
Analyte: Decachlorobiphenyl
QC Batch No: L196795
Surrogate(s) was flagged for recovery outside QC limits in this project sample. This sample was re-analyzed for verification, and/or dilution of target analytes. Batch QC samples (method blank and laboratory control samples) all showed surrogates within QC limits.

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06374
Severn Trent Environmental Services
Mr. Mark Kalkwarf
578 Beaver Creek Rd.
Bluff City , TN 37618-1220

Project ID :
Project Information : Bristol WWTP - 503 Biosolids
Project #19327

Report Date : 04/28/2014
Received : 4/11/2014

Report Number : **14-101-0254**

REPORT OF ANALYSIS

Lab No : **94236**
Sample ID : **Bristol WWTP**

Matrix: **Sludge**
Sampled: **4/8/2014 11:10**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
TCLP Herbicide Extraction	**Leachate**			1	04/16/14 15:50	SAJ	SW-1311
TCLP Metals Extraction	**Leachate**			1	04/16/14 15:50	SAJ	SW-1311
TCLP Pesticide Extraction	**Leachate**			1	04/16/14 15:50	SAJ	SW-1311
TCLP SVOC Extraction	**Leachate**			1	04/16/14 15:50	SAJ	SW-1311
TCLP VOC ZHE Extraction	**Leachate**			1	04/16/14 16:02	SAJ	SW-1311 (ZHE)

Analytical Method: 6010B
Prep Method: 3005A **Prep Batch(es):** L196322 **Date/Time Prepped:** 4/17/2014 10:30:00

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
TCLP Arsenic	<0.250	mg/L	0.250	1	04/18/14 01:31	BKN	L196434
TCLP Barium	**0.381**	mg/L	0.250	1	04/18/14 01:31	BKN	L196434
TCLP Cadmium	<0.050	mg/L	0.050	1	04/18/14 01:31	BKN	L196434
TCLP Chromium	<0.100	mg/L	0.100	1	04/18/14 01:31	BKN	L196434
TCLP Lead	<0.100	mg/L	0.100	1	04/18/14 13:22	JTR	L196630
TCLP Selenium	<0.500	mg/L	0.500	1	04/18/14 01:31	BKN	L196434
TCLP Silver	<0.050	mg/L	0.050	1	04/18/14 01:31	BKN	L196434

Qualifiers/ Definitions
* Outside QC limit
I Recovery out of range
DF Dilution Factor
MQL Method Quantitation Limit

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06374
Severn Trent Environmental Services
Mr. Mark Kalkwarf
578 Beaver Creek Rd.
Bluff City , TN 37618-1220

Project ID :
Project Information : Bristol WWTP - 503 Biosolids Project #19327

Report Date : 04/28/2014
Received : 4/11/2014

Report Number : **14-101-0254**

REPORT OF ANALYSIS

Lab No : **94236**
Sample ID : **Bristol WWTP**

Matrix: **Sludge**
Sampled: **4/8/2014 11:10**

Analytical Method: 7470A
Prep Method: 7470A **Prep Batch(es):** L196468 **Date/Time Prepped:** 4/18/2014 09:00:00

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
TCLP Mercury	<0.0040	mg/L	0.0040	1	04/18/14 15:10	JRS	L196527

Analytical Method: 8081A
Prep Method: 3510C **Prep Batch(es):** L196394 **Date/Time Prepped:** 4/17/2014 15:40:00

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
TCLP Endrin	<0.008000	mg/L	0.008000	10	04/19/14 03:56	VIC	L196795
TCLP gamma-BHC	<0.008000	mg/L	0.008000	10	04/19/14 03:56	VIC	L196795
TCLP Methoxychlor	<0.008000	mg/L	0.008000	10	04/19/14 03:56	VIC	L196795
TCLP Toxaphene	<0.06000	mg/L	0.06000	10	04/19/14 03:56	VIC	L196795
TCLP Chlordane	<0.04000	mg/L	0.04000	10	04/19/14 03:56	VIC	L196795
TCLP Heptachlor Epoxide	<0.008000	mg/L	0.008000	10	04/19/14 03:56	VIC	L196795
TCLP Heptachlor	<0.008000	mg/L	0.008000	10	04/19/14 03:56	VIC	L196795
Surrogate: Decachlorobiphenyl	34.08 *		Limits: 36-116%	10	04/19/14 03:56	VIC	L196795
Surrogate: Tetrachloro-m-xylene	32.50		Limits: 25-123%	10	04/19/14 03:56	VIC	L196795

Analytical Method: 8151A
Prep Method: 8151A **Prep Batch(es):** L196402 **Date/Time Prepped:** 4/17/2014 16:20:00

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
TCLP 2,4-D	<0.0020	mg/L	0.0020	1	04/22/14 20:46	VIC	L197002

Qualifiers/ Definitions
* Outside QC limit
I Recovery out of range
DF Dilution Factor
MQL Method Quantitation Limit

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06374

Severn Trent Environmental Services
Mr. Mark Kalkwarf
578 Beaver Creek Rd.
Bluff City , TN 37618-1220

Project ID :
Project Information : Bristol WWTP - 503 Biosolids
Project #19327

Report Date : 04/28/2014
Received : 4/11/2014

Report Number : **14-101-0254**

REPORT OF ANALYSIS

Lab No : **94236**
Sample ID : **Bristol WWTP**

Matrix: **Sludge**
Sampled: **4/8/2014 11:10**

Analytical Method: 8151A
Prep Method: 8151A
Prep Batch(es): L196402
Date/Time Prepped: 4/17/2014 16:20:00

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
TCLP 2,4,5-TP (Silvex)	<0.0020	mg/L	0.0020	1	04/22/14 20:46	VIC	L197002
Surrogate: DCAA	88.94		Limits: 20-120%	1	04/22/14 20:46	VIC	L197002

Analytical Method: 8260B
Prep Method: 5030B
Prep Batch(es): L196387
Date/Time Prepped: 4/17/2014 08:20:00

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
TCLP Benzene	<0.0100	mg/L	0.0100	1	04/17/14 17:29	SEB	L196389
TCLP Carbon Tetrachloride	<0.0100	mg/L	0.0100	1	04/17/14 17:29	SEB	L196389
TCLP Chlorobenzene	<0.0100	mg/L	0.0100	1	04/17/14 17:29	SEB	L196389
TCLP Chloroform	<0.0100	mg/L	0.0100	1	04/17/14 17:29	SEB	L196389
TCLP 1,4-Dichlorobenzene	<0.0100	mg/L	0.0100	1	04/17/14 17:29	SEB	L196389
TCLP 1,2-Dichloroethane	<0.0100	mg/L	0.0100	1	04/17/14 17:29	SEB	L196389
TCLP 1,1-Dichloroethene	<0.0100	mg/L	0.0100	1	04/17/14 17:29	SEB	L196389
TCLP Methyl Ethyl Ketone (MEK)	<0.200	mg/L	0.200	1	04/17/14 17:29	SEB	L196389
TCLP Tetrachloroethene	<0.0100	mg/L	0.0100	1	04/17/14 17:29	SEB	L196389
TCLP Trichloroethene	<0.0100	mg/L	0.0100	1	04/17/14 17:29	SEB	L196389
TCLP Vinyl Chloride	<0.0100	mg/L	0.0100	1	04/17/14 17:29	SEB	L196389
Surrogate: 4-Bromofluorobenzene	117		Limits: 71-137%	1	04/17/14 17:29	SEB	L196389
Surrogate: Dibromofluoromethane	86.8		Limits: 70-128%	1	04/17/14 17:29	SEB	L196389
Surrogate: 1,2-Dichloroethane - d4	126		Limits: 63-136%	1	04/17/14 17:29	SEB	L196389
Surrogate: Toluene-d8	127		Limits: 70-130%	1	04/17/14 17:29	SEB	L196389

Qualifiers/ Definitions
* Outside QC limit
I Recovery out of range
DF Dilution Factor
MQL Method Quantitation Limit

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06374
Severn Trent Environmental Services
Mr. Mark Kalkwarf
578 Beaver Creek Rd.
Bluff City , TN 37618-1220

Project ID :
Project Information : Bristol WWTP - 503 Biosolids
Project #19327

Report Date : 04/28/2014
Received : 4/11/2014

Report Number : **14-101-0254**

REPORT OF ANALYSIS

Lab No : **94236**
Sample ID : **Bristol WWTP**

Matrix: **Sludge**
Sampled: **4/8/2014 11:10**

Analytical Method: 8270C
Prep Method: 3510C
Prep Batch(es): L196329
Date/Time Prepped: 4/17/2014 12:45:00

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
TCLP 2-Methylphenol	<0.100	mg/L	0.100	1	04/17/14 20:16	NFP	L196488
TCLP 3&4 Methylphenol	**0.344**	mg/L	0.200	1	04/17/14 20:16	NFP	L196488
TCLP 2,4-Dinitrotoluene	<0.100	mg/L	0.100	1	04/17/14 20:16	NFP	L196488
TCLP Hexachlorobenzene	<0.100	mg/L	0.100	1	04/17/14 20:16	NFP	L196488
TCLP Hexachlorobutadiene	<0.100	mg/L	0.100	1	04/17/14 20:16	NFP	L196488
TCLP Hexachloroethane	<0.100	mg/L	0.100	1	04/17/14 20:16	NFP	L196488
TCLP Nitrobenzene	<0.100	mg/L	0.100	1	04/17/14 20:16	NFP	L196488
TCLP Pentachlorophenol	<0.200	mg/L	0.200	1	04/17/14 20:16	NFP	L196488
TCLP Pyridine	<0.100	mg/L	0.100	1	04/17/14 20:16	NFP	L196488
TCLP 2,4,5-Trichlorophenol	<0.100	mg/L	0.100	1	04/17/14 20:16	NFP	L196488
TCLP 2,4,6-Trichlorophenol	<0.100	mg/L	0.100	1	04/17/14 20:16	NFP	L196488
Surrogate: TCLP 2,4,6-Tribromophenol	76.0		Limits: 40-125%	1	04/17/14 20:16	NFP	L196488
Surrogate: TCLP 2-Fluorobiphenyl	52.5		Limits: 38-107%	1	04/17/14 20:16	NFP	L196488
Surrogate: TCLP 2-Fluorophenol	27.3		Limits: 20-110%	1	04/17/14 20:16	NFP	L196488
Surrogate: TCLP 4-Terphenyl-d14	75.0		Limits: 33-122%	1	04/17/14 20:16	NFP	L196488
Surrogate: TCLP Nitrobenzene-d5	53.5		Limits: 29-110%	1	04/17/14 20:16	NFP	L196488
Surrogate: TCLP Phenol-d6	20.1		Limits: 10-115%	1	04/17/14 20:16	NFP	L196488

Qualifiers/ Definitions
* Outside QC limit
I Recovery out of range
DF Dilution Factor
MQL Method Quantitation Limit

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06374
Severn Trent Environmental Services
Mr. Mark Kalkwarf
578 Beaver Creek Rd.
Bluff City , TN 37618-1220

Project ID :
Project Information : Bristol WWTP - 503 Biosolids
Project #19327

Report Date : 04/28/2014
Received : 4/11/2014

Report Number : **14-101-0254**

REPORT OF ANALYSIS

Lab No : **94237**
Sample ID : **Bristol WWTP**

Matrix: **Solids**
Sampled: **4/8/2014 11:10**

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
% Moisture	**70.8**	%	0.100	1	04/15/14 11:45	ALP	2540G-2011
Ammonia Nitrogen	**1030**	mg/Kg - dry	85.6	1	04/18/14 10:30	CLP	4500NH3C-2011
pH	**12.3**	s.u.		1	04/21/14 12:00	JH1	9045D
Total Solids	**29.2**	%	0.010	1	04/15/14 11:45	ALP	2540G-2011
Total Kjeldahl Nitrogen	**37700**	mg/Kg - dry	85.6	1	04/18/14 08:35	CLP	4500NH3D-2011
Total Phosphorus	**5210**	mg/Kg - dry	856	50	04/16/14 08:30	TKM	4500PE-2011
Total Arsenic	**5.89**	mg/Kg - dry	1.71	1	04/17/14 06:55	BKN	6010B
Total Cadmium	**1.05**	mg/Kg - dry	0.342	1	04/17/14 06:55	BKN	6010B
Total Chromium	**18.9**	mg/Kg - dry	0.856	1	04/17/14 06:55	BKN	6010B
Total Copper	**78.1**	mg/Kg - dry	0.856	1	04/17/14 06:55	BKN	6010B
Total Mercury	**0.113**	mg/Kg - dry	0.0455	1	04/17/14 15:43	JRS	7471A
Total Molybdenum	<8.56	mg/Kg - dry	8.56	10	04/18/14 12:01	JTR	6010B
Total Nickel	**13.4**	mg/Kg - dry	0.856	1	04/17/14 06:55	BKN	6010B
Total Selenium	<34.2	mg/Kg - dry	34.2	10	04/18/14 12:01	JTR	6010B
Total Zinc	**177**	mg/Kg - dry	1.71	1	04/17/14 06:55	BKN	6010B
Soluble Potassium (as K2O)	<0.719	% - dry	0.719	1	04/16/14 11:30	JH1	OAC 2.5.07(MOD
Total Nitrogen	**3.11**	% - dry	0.03	1	04/17/14 09:29	jh1	AOAC 2.4.02 ~
Phosphorus (as P2O5)	<0.3	% - dry	0.3	1	04/17/14 09:00	JH1	AOAC 2.3.02 ~
Neutralizing Value (%CCE)	**42.7**	%	0.1	1	04/18/14 12:29	JH1	AOAC 1.1.04 ~

Qualifiers/ Definitions
* Outside QC limit
MQL Method Quantitation Limit
DF Dilution Factor

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06374
Severn Trent Environmental Services
Mr. Mark Kalkwarf
578 Beaver Creek Rd.
Bluff City , TN 37618-1220

Project ID :
Project Information : Bristol WWTP - 503 Biosolids
Project #19327

Report Date : 04/28/2014
Received : 4/11/2014

Report Number : **14-101-0254**

REPORT OF ANALYSIS

Lab No : **94237**
Sample ID : **Bristol WWTP**

Matrix: **Solids**
Sampled: **4/8/2014 11:10**

Analytical Method: 8082
Prep Method: 3546
Prep Batch(es): L196152
Date/Time Prepped: 4/16/2014 09:30:00

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Batch
Aroclor 1016	<0.293	mg/Kg - dry	0.293	1	04/18/14 22:58	VIC	L196649
Aroclor 1221	<0.293	mg/Kg - dry	0.293	1	04/18/14 22:58	VIC	L196649
Aroclor 1232	<0.293	mg/Kg - dry	0.293	1	04/18/14 22:58	VIC	L196649
Aroclor 1242	<0.293	mg/Kg - dry	0.293	1	04/18/14 22:58	VIC	L196649
Aroclor 1248	<0.293	mg/Kg - dry	0.293	1	04/18/14 22:58	VIC	L196649
Aroclor 1254	<0.293	mg/Kg - dry	0.293	1	04/18/14 22:58	VIC	L196649
Aroclor 1260	<0.293	mg/Kg - dry	0.293	1	04/18/14 22:58	VIC	L196649
Surrogate: Decachlorobiphenyl	42.6		Limits: 25-125%	1	04/18/14 22:58	VIC	L196649
Surrogate: Tetrachloro-m-xylene	42.2		Limits: 25-125%	1	04/18/14 22:58	VIC	L196649

Qualifiers/ Definitions
* Outside QC limit
I Recovery out of range
DF Dilution Factor
MQL Method Quantitation Limit

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Cooler Receipt Form

Customer Number: **06374**
Customer Name: **Severn Trent Environmental Services**
Report Number: **14-101-0254**

Shipping Method

○ Fed Ex ○ UPS ○ US Postal ○ Client ● Lab ○ Courier ○ Other :

Shipping container/cooler uncompromised?	● Yes	○ No	
Custody seals intact on shipping container/cooler?	○ Yes	○ No	● Not Required
Custody seals intact on sample bottles?	○ Yes	○ No	● Not Required
Chain of Custody (COC) present?	● Yes	○ No	
COC agrees with sample label(s)?	● Yes	○ No	
COC properly completed	● Yes	○ No	
Samples in proper containers?	● Yes	○ No	
Sample containers intact?	● Yes	○ No	
Sufficient sample volume for indicated test(s)?	● Yes	○ No	
All samples received within holding time?	● Yes	○ No	
Cooler temperature in compliance?	● Yes	○ No	
Cooler/Samples arrived at the laboratory on ice. Samples were considered acceptable as cooling process had begun.	● Yes	○ No	
Water - Sample containers properly preserved	○ Yes	○ No	● N/A
Water - VOA vials free of headspace	○ Yes	○ No	● N/A
Trip Blanks received with VOAs	○ Yes	○ No	● N/A
Soil VOA method 5035 – compliance criteria met	○ Yes	○ No	● N/A

☐ High concentration container (48 hr) ☐ Low concentration EnCore samplers (48 hr)
☐ High concentration pre-weighed (methanol -14 d) ☐ Low conc pre-weighed vials (Sod Bis -14 d)

Special precautions or instructions included? ○ Yes ● No

Comments:

Any regulatory non-compliance issues will be recorded on non-compliance report.

Signature: Rebekah Ross

Date & Time: 04/11/2014 12:12:18

PO# 4107

SEVERN TRENT SERVICES

FIELD CHAIN OF CUSTODY RECORD

FIELD MONITORING PROGRAM

SAMPLERS (SIGNATURES): [signature]

19481

FACILITY	SAMPLE SOURCE	COMPOSITING PERIOD – SAMPLING BEGINS DATE	SAMPLING BEGINS TIME	SAMPLING ENDS DATE	SAMPLING ENDS TIME	SAMPLE COLLECTION DATE	SAMPLE COLLECTION TIME	G/C	FLOW MGD	CONTAINER VOLUME	G/P	Volatile Organics (TCLP Full)	Pesticides/PCB's (Phosphate)	Trace Metals	Cyanide (Potash)	Phenols (CCE%)	Oil and Grease (FCB)	Solids (Total)	BOD (Nitrate)	Ammonia Nitrogen	Phosphorous (Total)	Coliform (Nitrite)	pH	Fecal Streptococci (TKN)	Preservation	COMMENTS
Bristol WWTP	503 Biosolids	N/A	N/A	N/A	N/A	4/8/14	11:10AM	C	N/A	750 mL	G			X												Cd, As, Ni, Cr, Cu, Mo, Zn, Pb, Se, Hg
																X										
																		X								
																				X						
																					X					
																			X							
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14-101-0254
06374
04-11-2014
12:09:20
Severn Trent Environmental Services
Bristol WWTP - 503 Biosolids

Several grabs taken to make composite

RELINQUISHED BY	DATE	TIME	RECEIVED BY	RELINQUISHED BY	DATE	TIME	RECEIVED BY
[signature]	4-8-14	11:28AM	[signature]	[signature]	4-10-14	14:00	[signature] 4/11/14 1055
[signature]	4/11/14	1150					[signature] 4/11/14 1150

REMARKS: 0.4°C Report as dry weight basis

project #19327

BRSTP#2-1009

206990

TRENT SERVICES

pH

Sample Type GRAB

pH Method 4500 H+ B ; DO - 4500 - OG Electrode Procedure
Reference: *Standard Methods for the Examination of Water and Wasterwater 20th Ed.*

Sample Source	Date/Time Collected	Flow MGD	Date/Time Analyzed	Slope pH Standard	Temp. °C Room/Sample	Results (su) ACCURACY 12.4 ~~Value A~~	~~Value B~~	% Deviation	pH DO	Analyst	Validated
INIT	9/29/14		7:53		19.5 22.6				12.4	VC	KN/BD
2	9/29/14		9:47		19.5 20.5				12.5	VC	
24	9/30/14		7:25		20.0 18.7				12.6	VC	
CAL	9/30/14		7:20	102.7	20.0 VC		12.2			VC	
INIT	9/30/14		7:47		20.0 21.9				12.4	VC	
2	9/30/14		10:08		20.0 19.8				12.6	VC	
24	10/1/14		7:08		19.5 18.1				13.1	VC	
CAL	10/1/14		7:00	98.7			12.8			VC	KN/BD
INIT	10/1/14		7:05		19.5 21.1		12.9 VC		12.9	VC	
2	10/1/14		9:03		19.5 19.1				13.0	VC	
24	10/2/14		7:20		19.5 18.0				12.4	VC	
CAL	10/2/14		7:16	104.6			12.2			VC	
INIT	10/2/14		7:49		19.5 21.8				12.3	VC	
2	10/2/14		10:07		19.5 19.1				12.4	VC	
24	10/3/14		6:50		20.5 18.3				12.5	VC	
CAL	10/3/14		VC 6:45	103.2			12.2			VC	
INIT	10/3/14		6:48		20.0 22.6				12.4	VC	
2	10/3/14		8:47		20.0 19.8				12.4	VC	
24	10-4-14		8:00		20 19.1				12.2	JW	
CAL	10/6/14		6:50	101.1			12.4			VC	
INIT	10/6/14		7:37		20.5 21.2				12.7	VC	
2	10/6/14		9:45		20.5 20.6				12.8	VC	
24	10/7/14		7:16		22.0 20.4				12.7	VC	
CAL	10/7/14		7:10	101.8			12.3			VC	
INIT	10/7/14		7:50		22.0 22.6				12.5	VC	
2	10/7/14		9:50		22.0 21.9				12.6	VC	
24	10/8/14		7:28		22.0 20.6				12.4	VC	

Precision = % Deviation $\frac{(A-B) \times 100}{(A+B)/2}$

618632

Sample Type GRAB

pH Method 4500 H+ B ; DO - 4500 - OG Electrode Procedure
Reference: *Standard Methods for the Examination of Water and Wasterwater 20th Ed.*

Sample Source	Date/Time Collected	Flow MGD	Date/Time Analyzed	Slope pH Standard	Temp. °C Room/Sample	Accuracy & Results (su) ~~Value A~~	pH ~~Value B~~	% Deviation	pH ~~DO~~	Analyst	Validated
CAL	10/8/14		7:20	~~102~~ 102.7			12.3			VC	KN/BD
INIT	10/8/14		7:45		21.5 / 23.4				12.5	VC	
2	10/8/14		9:48		21.0 / 21.0				12.6	VC	
24	10/8/14		6:50		19.5 / 18.4				12.6	VC	
CAL	10/9/14		6:45	104.0			12.4			VC	
INIT	10/9/14		7:15		20.0 / 22.8				12.4	VC	
2	10/9/14		10:35		21.5 / 20.7				12.5	VC	
24	10/10/14		7:00		22.0 / 21.7				12.5	VC	
CAL	10/10/14		6:47	101.8	~~22.5~~		12.20			VC	
INIT	10/10/14		7:11		22.5 / 24.6				12.4	VC	
2	10/10/14		9:11		21.5 / 21.7				12.5	VC	
24	10-11-14		9:06		20.5 / 19.2				12.6	Kn	
CAL	10/13/14		6:55	100.0			12.6			VC	
INIT	10/13/14		7:20		22.5 / 24.4				12.5	VC	
2	10/13/14		9:40		23.0 / 23.0				12.6	VC	
24	10/14/14		6:55		23.5 / 22.4				12.5	VC	
CAL	10/14/14		6:45	102.3			12.3			VC	
INIT	10/14/14		7:17		23.0 / 25.2				12.4	VC	
2	10/14/14		9:17		22.5 / 22.5				12.5	VC	
24	10/15/14		7:00		20.5 / 19.1				12.6	VC	
CAL	10/15/14		6:55	98.7						VC	
INIT	10/15/14		7:00		21.0 / 20.7				12.5	VC	
2	10/15/14		9:10		21.0 / 20.0				12.5	VC	
24	10/16/14		6:57		19.5 / 18.2				12.7	VC	
CAL	10/16/14		6:50	102.9			12.3			VC	
INIT	10/16/14		7:25		20.0 / 21.7				12.5	VC	
2	10/16/14		9:25		21.0 / 21.3				12.5	VC	↓

$$\text{Precision} = \%\ \text{Deviation}\ \frac{(A-B)\times 100}{(A+B)/2}$$

STANDARD TRENT SERVICES

pH

Sample Type GRAB

pH Method 4500 H+ B ; DO - 4500 - OG Electrode Procedure
Reference: *Standard Methods for the Examination of Water and Wastewater 20th Ed.*

Sample Source	Date/Time Collected	Flow MGD	Date/Time Analyzed	Slope pH Standard	Temp. °C Room/Sample	Accuracy Results (su) ~~Value A~~ 12.4 ~~Value B~~	% Deviation	pH ~~DO~~	Analyst	Validated
VC 24 10/17/14	10/17/14		7:02		~~22.8~~ 21.6			12.5	VC	KN|BD
CAL	10/17/14		6:53	102.9		12.2			VC	
INIT	10/17/14		7:17		22.0 ~~22.9~~			12.5	VC	
2	10/17/14		9:20		21.0 ~~21.1~~			12.5	VC	
24HR	10/18/14		8:30		20.5 ~~21.0~~			12.6	JW	
CAL	10/20/14		7:08	100.6		12.4			VC	
INIT	10/20/14		7:10		21.0 ~~22.2~~			12.5	VC	
2	10/20/14		9:10		21.0 ~~20.9~~			12.6	VC	
24	10/21/14		6:40		21.5 ~~19.7~~			12.6	VC	
CAL	10/21/14		6:35	102.2		12.3			VC	
INIT	10/21/14		6:58		21.5 ~~22.1~~			12.5	VC	
2	10/21/14		8:58		21.5 ~~21.9~~			12.5	VC	
24	10/22/14		6:55		21.0 ~~20.0~~			12.7	VC	
CAL	10/22/14		6:50	99.0		12.5			VC	
INIT	10/22/14		7:35	~~7:35~~ VC	21.5 ~~20.9~~			12.7	VC	
2	10/22/14		9:45		21.5 ~~21.3~~			12.7	VC	
~~VC 24 CAL~~	10/23/14	~~6:53 6:50 VC~~			21.0 ~~19.8~~			13.0	VC	
CAL	10/23/14		6:50	99.2		12.8			VC	
INIT	10/23/14		7:30		21.0 ~~21.0~~			12.9	VC	
2	10/23/14		9:31		21.0 ~~21.0~~			12.9	VC	
24	10/24/14		6:55		20.5 ~~19.6~~			12.7	VC	
CAL	10/24/14		6:50	100.7		12.6			VC	
INIT	10/24/14		7:39		21.0 ~~20.7~~			12.7	VC	
2	10/24/14		9:49		21.0 ~~21.2~~			12.8	VC	
24	10-25-14		9:36		20.5 ~~19.6~~			12.8	KW	
CAL	10/27/14		6:55	100.5		12.5			VC	
INIT	10/27/14		7:17		21.0 ~~21.2~~			12.6	VC	

Precision = % Deviation $\frac{(A-B) \times 100}{(A+B)/2}$

618634

Sample Type GRAB

pH Method 4500 H+ B ; DO - 4500 - OG Electrode Procedure
Reference: *Standard Methods for the Examination of Water and Wasterwater 20th Ed.*

Accuracy

Sample Source	Date/Time Collected	Flow MGD	Date/Time Analyzed	Slope pH Standard	Temp. °C Room/Sample	Results (su) Value A	Value B	% Deviation	pH ~~DO~~	Analyst	Validated
2	10/27/14		9:20		21.0/21.2				12.7	VC	KN/BD
24	10/28/14		6:57		21.5/20.1				12.6	VC	
CAL	10/28/14		6:50	105.1			12.2		~~12.2~~ VC	VC	
INIT	10/28/14		7:37		21.5/21.8				12.5	VC	
26 hr	10/28/14		2:10		22.5/21.2	Fixing Polymer System I Forgot			12.5	VC	
24	10/29/14		9:30		22.5/21.2				12.5	VC	
CAL	10/29/14		9:25	102.9			12.2			VC	
INIT	10/29/14		10:06		22.5/22.5				12.4	VC	
2	10/29/14		12:20		22.5/22.1				12.4	VC	
24	10/30/14		8:35		21.5/20.6				12.7	VC	
CAL	10/30/14		7:00	100.1			12.5			VC	
INIT	10/30/14		8:27		21.5/21.0				12.6	VC	
2	10/30/14		11:20		21.5/21.3				12.7	VC	
24	10/31/14		7:15		20.5/19.9				12.4	VC	
CAL	10/31/14		7:10	100.5			12.2			VC	
INIT	10/31/14		7:35		20.5/20.3				12.5	VC	
2	10/31/14		9:32		20.5/20.6				12.5	VC	
24	11-1-14		7:45		20.0/18.9				12.6	MM	
CAL	11-3-14		7:30	99.5			12.6			JP	KN/BD
INT	11-3-14		8:37		20.0/20.4				12.8	JP	
2	11-3-14		10:30		20.6/21.5				12.8	JP	
24	11-4-14		8:20		19.5/20.2				12.4	JP	
CAL	11-4-14		7:10	100.7			12.6			JP	
Int	11-4-14		8:18		20.0/20.4				12.6	JP	
2	11-4-14		10:25		20.8/21.0				12.5	JP	
24	11-5-14		8:14		22.5/20.6				12.7	MM	
Cal	11-5-14		8:05	100.2	~~22.5~~ MM		12.4			MM	

Precision = % Deviation $\frac{(A-B) \times 100}{(A+B)/2}$

618635

Bristol Biosolids Sampling Plan

Storage Pad Sampling

1. Samples are collected bi-monthly (six per year), even number months, based on work orders generated by the computerized maintenance management program.

2. Several samples are collected from different locations on the storage pad in a one liter plastic container.

3. The samples are placed in a clean bucket and mixed to produce a composite sample.

4. A 750 ml wide mouth glass container is filled with the composite, labeled, and preserved by refrigeration.

5. The sample, along with a properly completed chain of custody, is transported to a NELAC certified laboratory.

6. The sample is analyzed using approved methods for total metals: arsenic, cadmium, chromium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc; ammonia nitrogen; nitrate; nitrite; total Kjeldahl nitrogen; total phosphorus; total solids; and neutralizing value (%CCE). Results are reported on a dry weight basis.

Pathogen Reduction and Vector Attraction Reduction Sampling

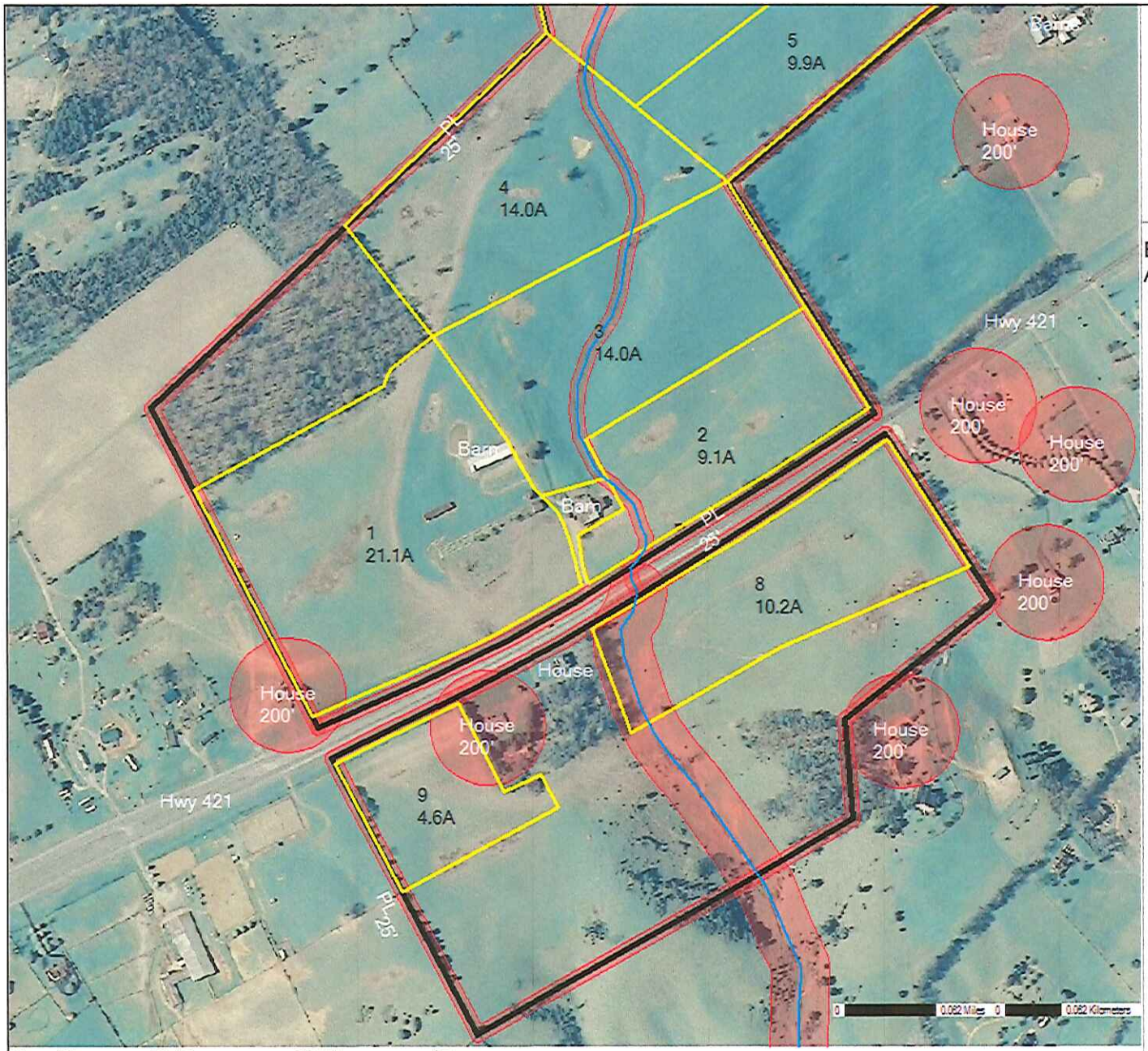
1. The belt filter press operator grabs a sample in a disposal container after lime kiln dust (LKD) addition and runs pH in the facility laboratory. The result is recorded in the appropriate laboratory bound bench book. The sample is left on the laboratory bench near the pH meter.

2. After two hours the operator runs another pH on the same sample and records the result in the bench book. The sample is left on the laboratory bench near the pH meter.

3. After an additional twenty-two hours the operator runs another pH on the same sample and records the result in the bench book.

4. The sample is then discarded by adding it to the biosolids stream prior to the pug mill.

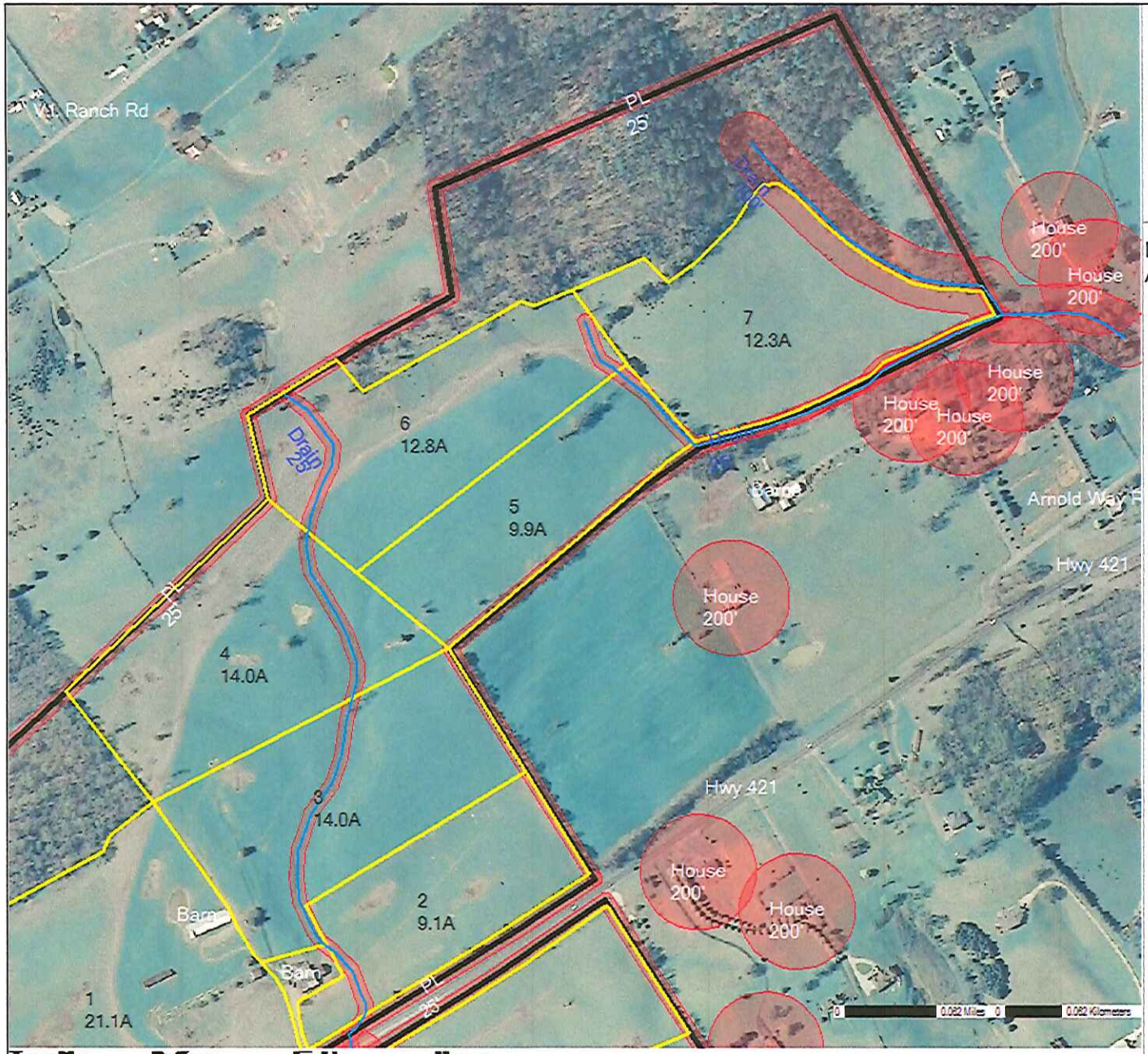
PERMIT_ NUMBER	OUTFALL_OR_IMP	OUTFALL_NUMBER	LATITUDE	LONGITUDE	APPLICATION_AREA	AGRONOMIC_LOADING_RATE
TNB023531	TN-SU-10	1	36.558341	-82.091019	21.1	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	2	36.559540	-82.086920	9.1	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	3	36.560660	-82.087896	14.0	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	4	36.561789	-82.089441	14.0	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	5	36.563228	-82.086094	9.9	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	6	36.564056	-82.087221	12.8	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	7	36.565219	-82.083144	12.3	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	8	36.558144	-82.086319	10.2	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	9	36.555851	-82.090482	4.6	Fescue 5.91 dt/ac
TNB023531	TN-SU-11	1	36.441653	-82.237204	25.0	Fescue 5.91 dt/ac
TNB023531	TN-SU-11	2	36.453079	-82.254049	35.9	Fescue 5.91 dt/ac
TNB023531	TN-SU-11	3	36.452889	-82.249993	7.1	Fescue 5.91 dt/ac
TNB023531	TN-SU-11	4	36.452510	-82.245637	34.7	Fescue 5.91 dt/ac
TNB023531	TN-SU-12	1	36.525224	-82.200426	36.6	Fescue 5.91 dt/ac
TNB023531	TN-SU-12	2	36.527017	-82.195984	11.7	Fescue 5.91 dt/ac
TNB023531	TN-SU-12	3	36.492990	-82.201440	6.8	Fescue 5.91 dt/ac
TNB023531	TN-SU-12	4	36.493758	-82.203081	8.7	Fescue 5.91 dt/ac
TNB023531	TN-SU-12	5	36.495630	-82.203264	11.0	Fescue 5.91 dt/ac
TNB023531	TN-SU-12	6	36.498260	-82.204219	13.1	Fescue 5.91 dt/ac



Topo Map
Aerial Map
Buffers
Property Line
Fields
Water Feature
House
Road

N
W
E
S

Brock Fleenor TN-SU-10
Application Map



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W E

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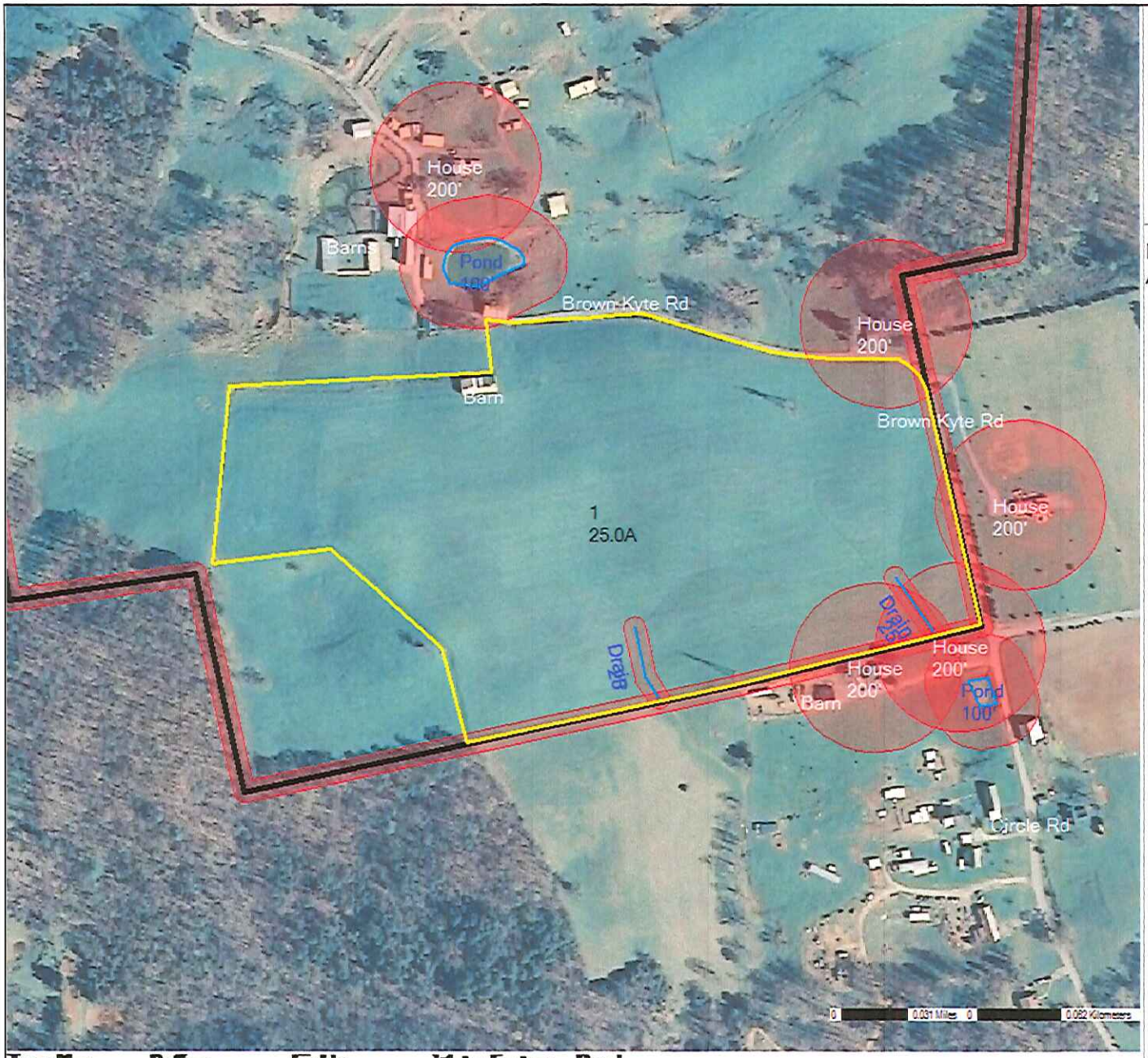
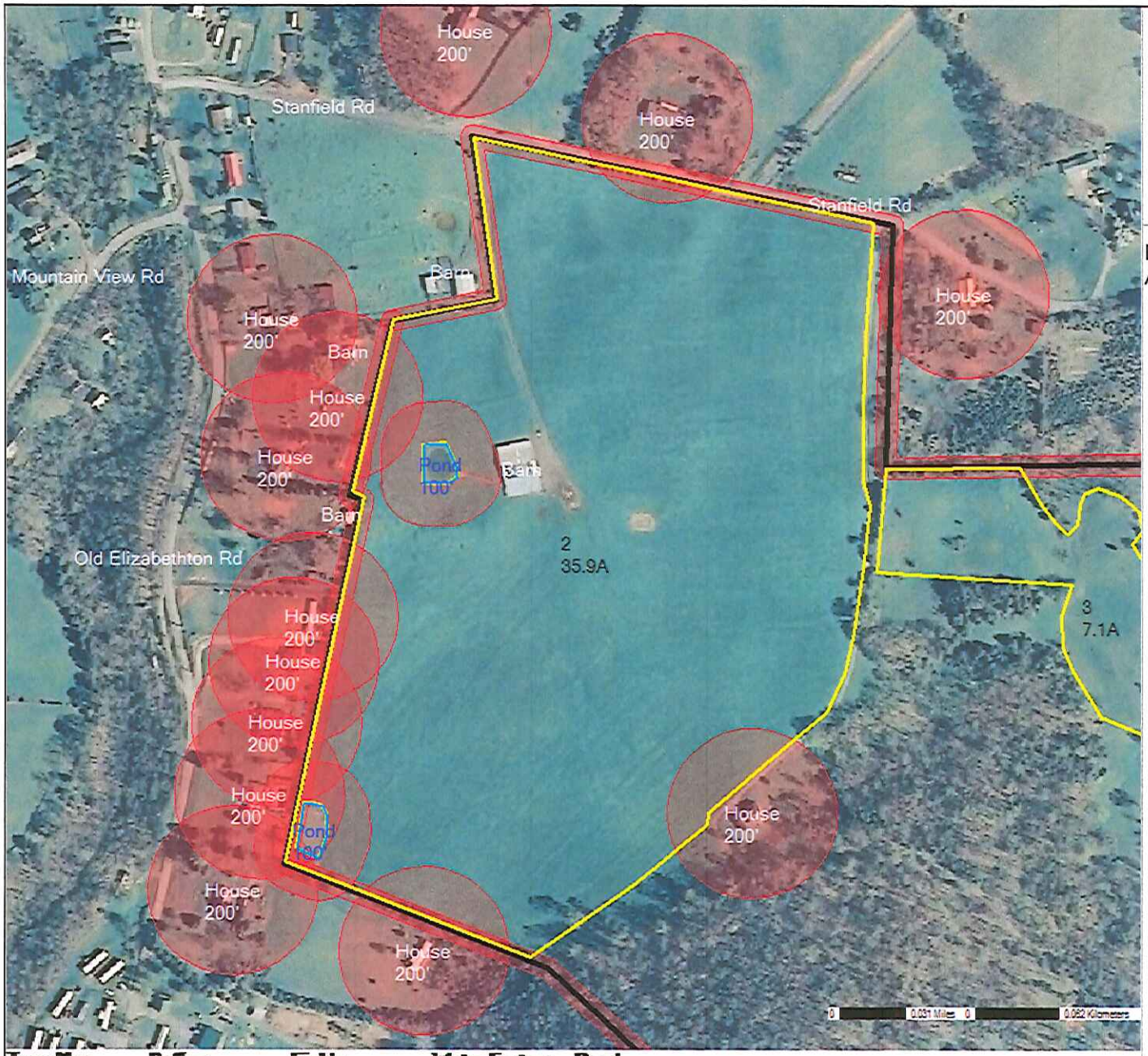
Brock Fleenor TN-SU-10
Application Map



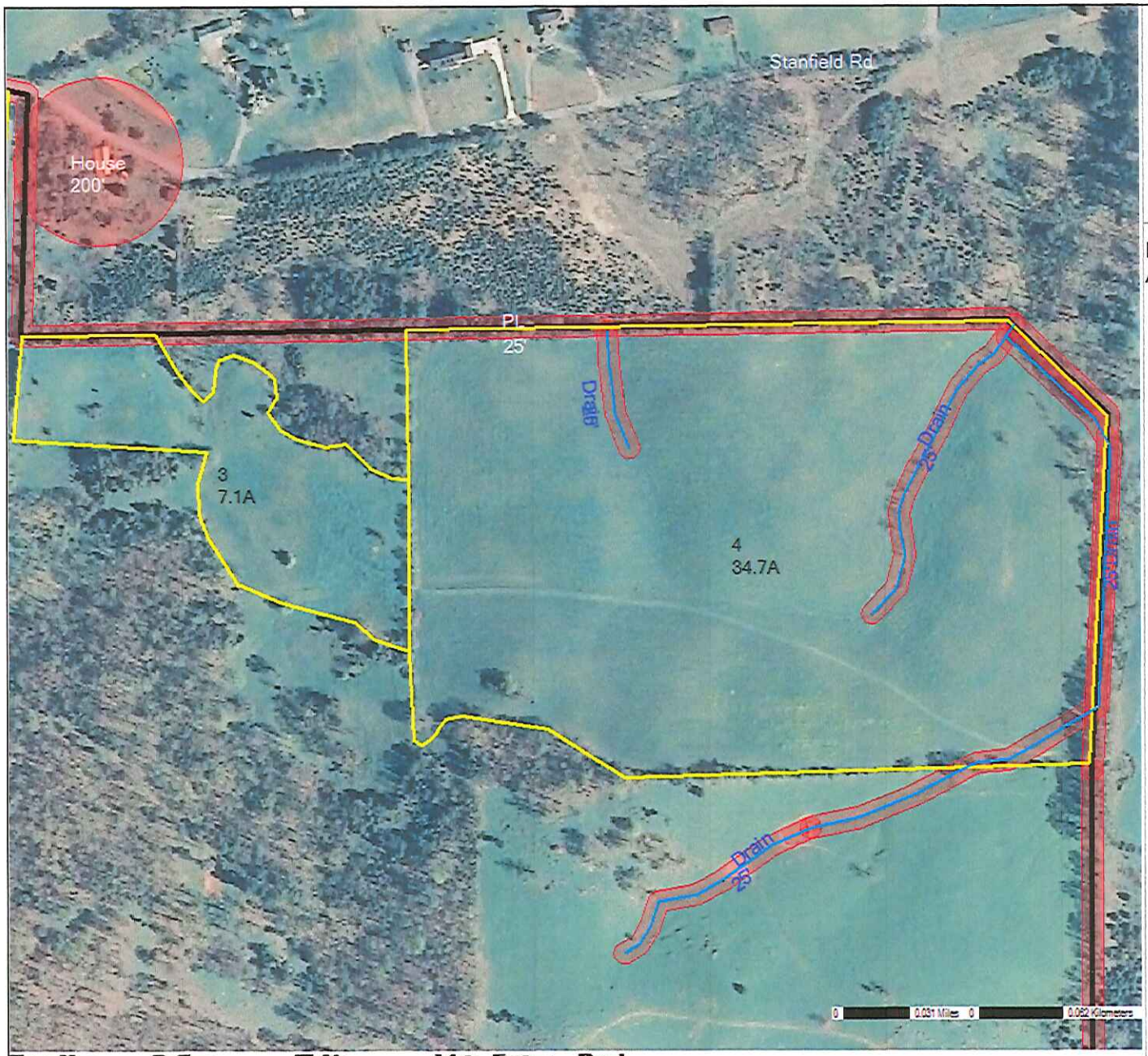
Topo Map
Aerial Map
Buffers
Property Line
Fields
Pond
Water Feature
House
Road

N
W
E
S

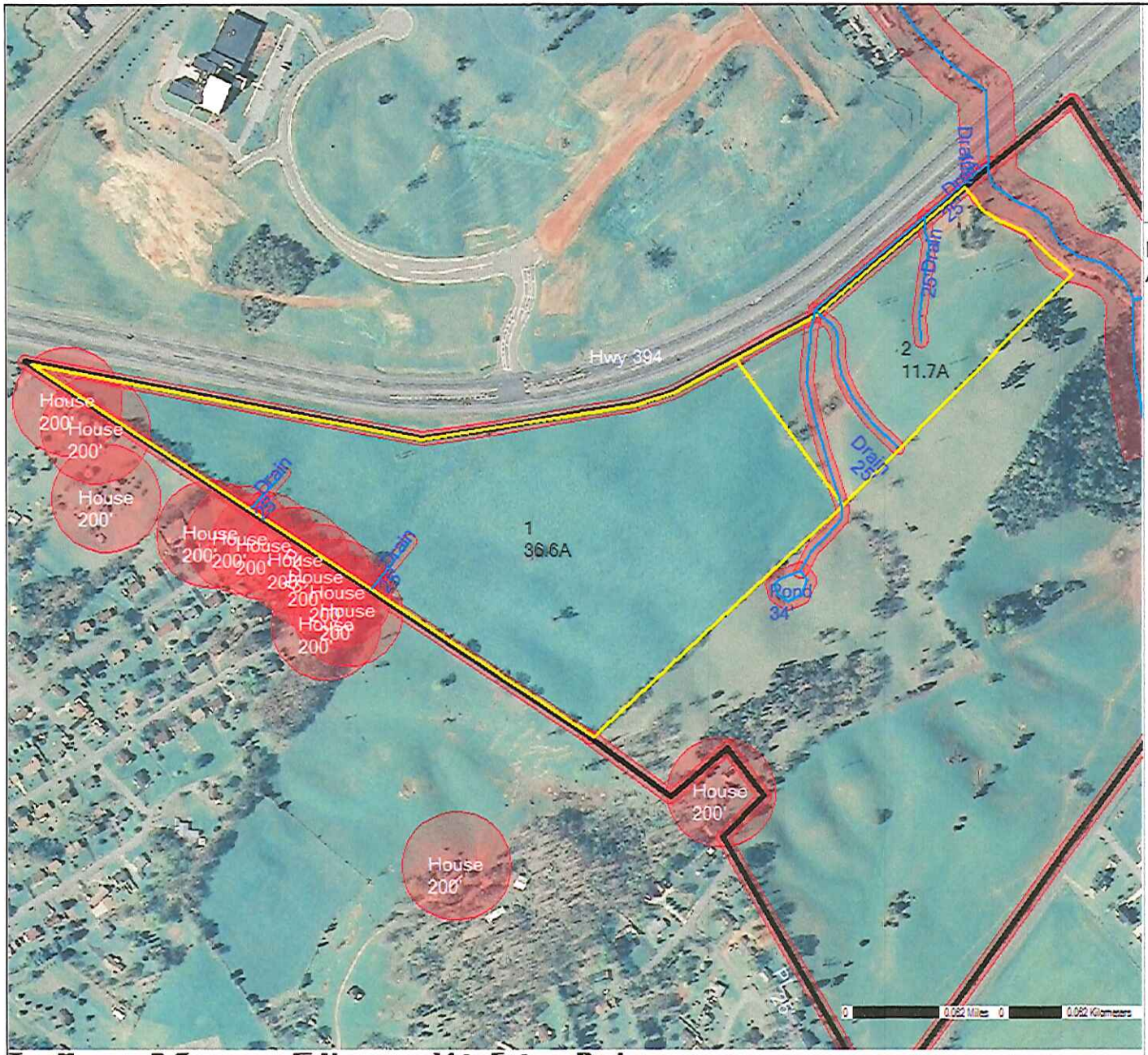
Bill Kyte TN-SU-11
Application Map



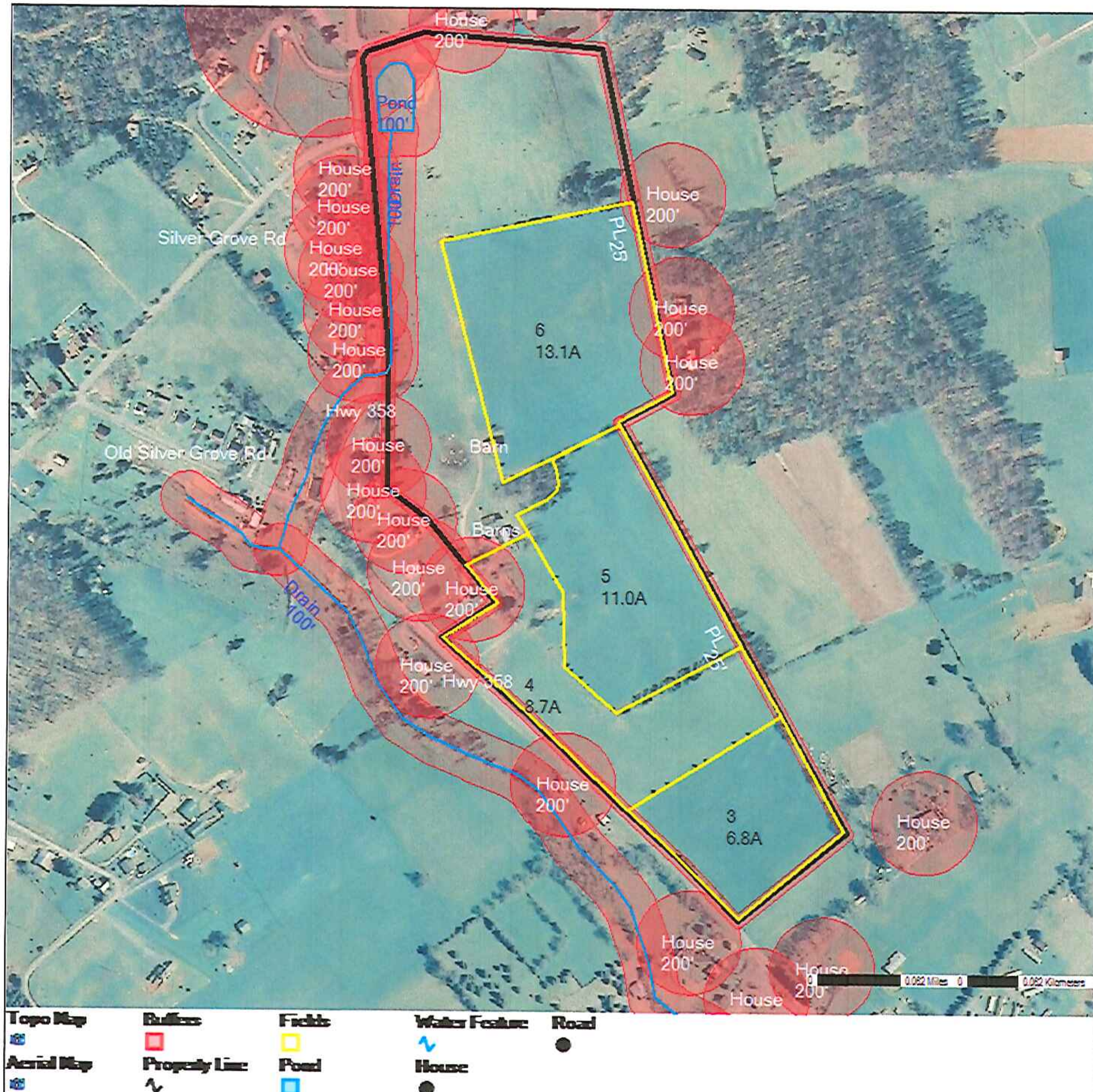
Bill Kyte TN-SU-11
Application Map

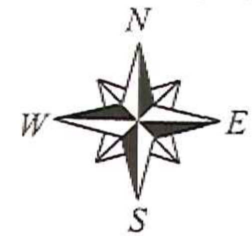


Bill Kyte TN-SU-11
Application Map



Ike Fleenor TN-SU-12
Application Map





Ike Fleenor TN-SU-12
Application Map

PERMIT_ NUMBER	OUTFALL_OR_IMP	OUTFALL_NUMBER	LATITUDE	LONGITUDE	APPLICATION_AREA	AGRONOMIC_LOADING_RATE
TNB023531	TN-SU-10	1	36.558341	-82.091019	21.1	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	2	36.559540	-82.086920	9.1	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	3	36.560660	-82.087896	14.0	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	4	36.561789	-82.089441	14.0	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	5	36.563228	-82.086094	9.9	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	6	36.564056	-82.087221	12.8	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	7	36.565219	-82.083144	12.3	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	8	36.558144	-82.086319	10.2	Fescue 5.91 dt/ac
TNB023531	TN-SU-10	9	36.555851	-82.090482	4.6	Fescue 5.91 dt/ac
TNB023531	TN-SU-11	1	36.441653	-82.237204	25.0	Fescue 5.91 dt/ac
TNB023531	TN-SU-11	2	36.453079	-82.254049	35.9	Fescue 5.91 dt/ac
TNB023531	TN-SU-11	3	36.452889	-82.249993	7.1	Fescue 5.91 dt/ac
TNB023531	TN-SU-11	4	36.452510	-82.245637	34.7	Fescue 5.91 dt/ac
TNB023531	TN-SU-12	1	36.525224	-82.200426	36.6	Fescue 5.91 dt/ac
TNB023531	TN-SU-12	2	36.527017	-82.195984	11.7	Fescue 5.91 dt/ac
TNB023531	TN-SU-12	3	36.492990	-82.201440	6.8	Fescue 5.91 dt/ac
TNB023531	TN-SU-12	4	36.493758	-82.203081	8.7	Fescue 5.91 dt/ac
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TNB023531	TN-SU-12	6	36.498260	-82.204219	13.1	Fescue 5.91 dt/ac