Timberland Wastewater Facility Improvements - KY0083755
Design Considerations – Construction Permit Application
Date: September 28, 2020

Introduction

The purpose of this document is to specifically address the criteria used for the design of various improvements to the Timberland Wastewater Treatment Facility, and to describe pertinent information required in Section IV - "Design Considerations" of the Construction Permit Application for said improvements.

E. Design Criteria

The process flow diagram for the proposed improvements is included in Section A of the appendix to this specific document. Raw sewage will continue to enter the facility through the existing lift station and will be conveyed to a hydraulic overflow structure. Flows in excess of 50,000 gpd received in the overflow structure will be diverted to the existing lagoon for equalization. When excess flow conditions subside at the plant, wastewater can be returned to the existing lift station via a 4" PVC gravity line with a plug valve. The dry weather flow discharge from the overflow structure (up to 50,000 gpd) will be received in a three stage Moving Bed Biological Reactor, and two hopper bottomed clarifier sections for secondary treatment. Following secondary treatment if polishing is necessary, clarified effluent can be diverted to the existing lagoon. If no extra polishing is necessary, wastewater will continue to flow downstream to the new chlorine tablet feeder, and will proceed to the newly constructed contact/post-aeration tank. This will be used to elevate the dissolved oxygen levels and to meet the disinfection and DO residual limits prior to effluent discharge. A dechlorination tablet feeder will be installed downstream of the contact chamber to lower residual chlorine levels to meet the limit specified on the discharge permit. Sludge can be conveyed from the clarifiers into either the First Stage MBBR as Return Activated Sludge, or to a pair of aerobic digesters where it will be stabilized to a Class B sludge and thickened using telescoping valves. More details on the sludge management plan can be found in Section H located further within this document. The system has been designed to be operated as a pure MBBR, fixed film system, and the use of a return activated sludge is not required to meet effluent objectives. However, the system will be equipped with a return to allow the system to be operated as an integrated fixed film activated sludge system if desired by the operational team.

Based on the level of redundancy in the design, we believe the plant qualifies for classification as Grade A Reliability. A transfer switch will be installed that allows the use of a backup generator which will provide sufficient power for the entire facility including the blowers and influent pumps, allowing continuous use of all treatment processes. The use of multiple MBBR stages allows certain tanks to be bypassed while performing maintenance within the system while simultaneously treating wastewater to a level that will meet the effluent parameters required by the KDEP.

A summary of the design criteria used for unit process sizing is included in Section B of the Appendix including:

- Plant & MBBR Influent Characteristics
- Tank Sizing Summary
- BOD/Nitrification MBBR Aeration Requirement Summary
- Blower Requirement Summary
- Clarifier Summary
- Aerobic Digestion Tank No. 1 & 2 Summary
- Aerobic Digestion Mixing and Aeration
- Chlorine Contact Time
- Post Aeration

Each process was designed in accordance with the 2014 version of Ten State Standards for Wastewater Facilities and 401 KAR 5:005.

G. Site Location

A site plan can be found in the plan document which clearly shows the site boundaries and the position of the site in reference to those boundaries. The most recently available subdivision plat available is attached in the appendix, as well as an Alta Survey of the existing site. There are no dwellings within 200 feet of the treatment plant.

H. Other Information

During construction, the existing package plant will be shut down, while the existing lagoon and chlorine contact chamber will be used for treatment and disinfection.

Sludge will be generated within the MBBR Process and conveyed via air lifts from the clarifier hoppers to a series of two aerobic digesters. The aerobic process will serve as a sludge thickening vessel with the use of a telescoping valve in each tank. After sludge is sufficiently thickened in the primary tank, it will be conveyed to the second tank using a 2.5 hp single centrifugal pump. Using telescoping valves to decant/thicken the sludge in the digester, it has been estimated that the digested sludge solids concentration in the first aerobic digester may range from 10,000-15,000 ppm, which would result in a Solids Retention Time (SRT) between 70 and 105 days, and in the second digester from 20,000-25,000 ppm which would result in an SRT between 41 and 51 days. The thickened and stabilized sludge would be considered Class B and will be hauled away by contractors and may be used for land application.

A new effluent pipe will be constructed around the northern section of the existing lagoon, ending at the same location of the existing outfall. The facility discharges into West Fork Massac Creek, who's nearest downstream intake is the Ohio River about 45 miles downstream. The outfall can be seen on the ALTA Survey attached.

Appendix

Section A - Process Flow Diagram

Section B - Summary of Design Criteria

Section C - Subdivision Plat

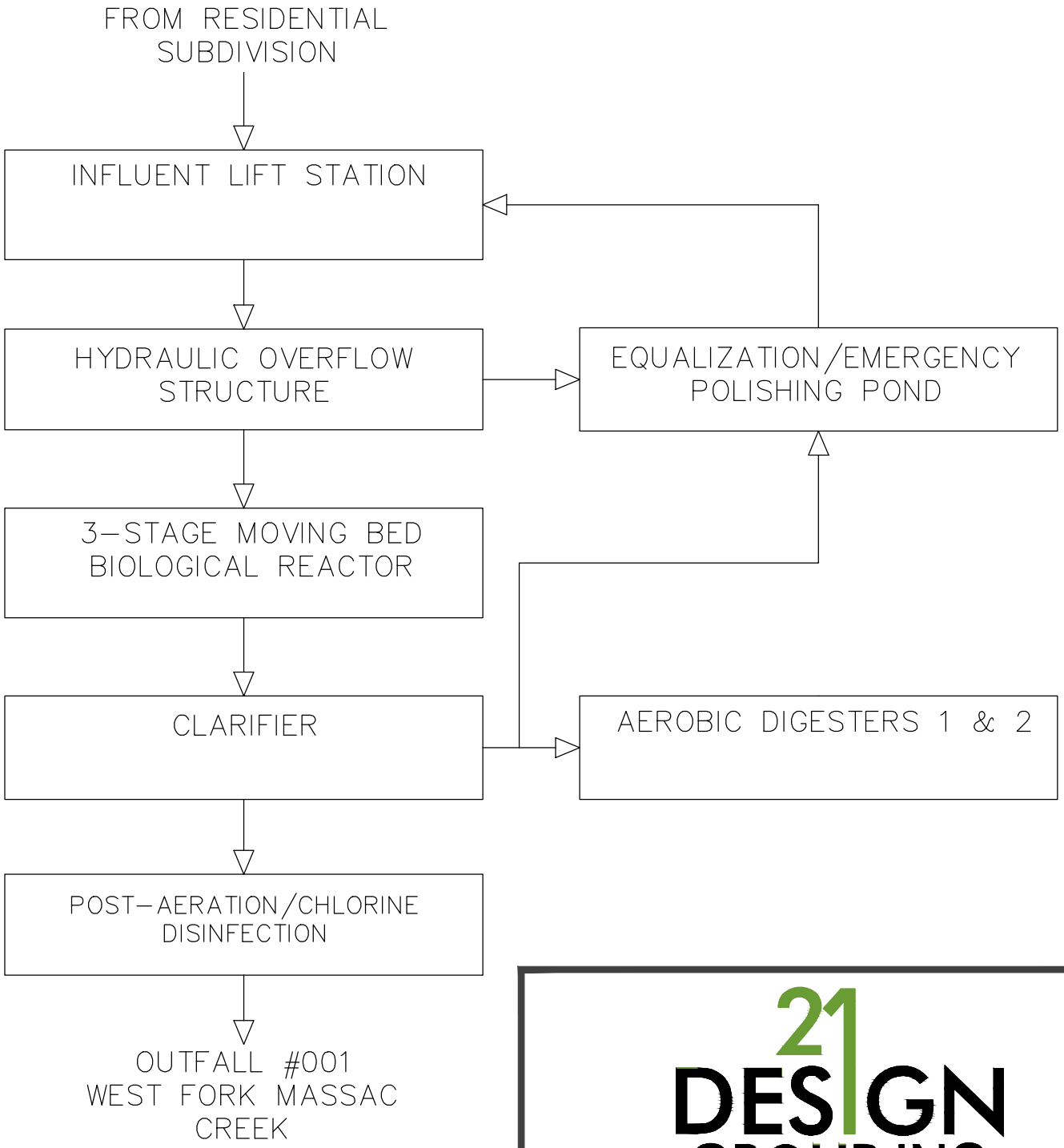
Section D - ALTA Survey

Section A – Process Flow Diagram

1351 Jefferson St., Suite 301
Washington, MO 63090

636-432-5029

WASTEWATER FACILITY PROCESS FLOW DIAGRAM FOR TIMBERLAND WWTF PADUCAH, KENTUCKY



21 DESIGN GROUP INC.

1351 Jefferson, Suite 301
Washington, MO 63090
mail@21designgroup.net
P: 636-432-5029

Section B – Summary of Design Criteria

Summary of Plant Design Criteria & Calculations
Timberland MBBR Retrofit
September 28, 2020

	Plant Influent Characteristics		
1	No. of Customers	70	
2	Population Equivalent	210	PE
3	Annual Average Daily Flow	25,000	gpd
4	Maximum Monthly Average Daily Flow	25,000	gpd
5	Peak Daily Flow	75,000	gpd
6	Peak Hourly Flow (w/out Equalization)	100,000	gpd
7	Influent BOD	225	mg/L
8	Influent BOD	46.9	lbs/day
9	Influent TSS	225	mg/L
10	Influent TSS	46.9	lbs/day
11	Influent NH3-N	35	mg/L
12	Influent NH3-N	7.3	lbs/day
13	Influent TKN	40	mg/L
14	Influent TKN	8.3	lbs/day
15	Influent pH	7	
16	Water Temperature	13	deg-C
	MBBR Influent Characteristics		
17	Annual Average Daily Flow	25,000	gpd
18	Maximum Monthly Average Daily Flow	25,000	gpd
19	Peak Daily Flow (w/Equalization)	50,000	gpd
20	Peak Hourly Flow (w/Equalization)	50,000	gpd
21	Influent BOD	225	mg/L
22	Influent TSS	225	mg/L
23	Influent NH3-N	35	mg/L
24	Influent TKN	40	mg/L
25	Design Influent TKN	40	mg/L
26	Influent pH	7	
27	MBBR Water Temperature	10	deg-C
	MBBR Tank Sizing Summary		
17	No. of Tanks Proposed	3	
18	Length of Each	6.0	ft
19	Width of Each	11.25	ft
20	Side Water Depth of Each (Average)	10.17	ft
21	Tank Height of Each	11.8	ft
22	Volume of Each	5,133	gallons
23	Volume Total	15,400	gallons
24	Hydraulic Retention Time at Average Flow	14.8	hours
25	Hydraulic Retention Time at Peak Daily Flow	7.4	hours
26	Total Media Surface Area Requirement	6,483	m^2
27	Total Media Surface Area Proposed	8,745	m^2

Summary of Plant Design Criteria & Calculations
Timberland MBBR Retrofit
September 28, 2020

	BOD/Nitrification MBBR Aeration Requirement Summary	Stage 1	Stage 2 & 3
28	AOR (lbs/day)	62	38
29	Assumed Diffuser Subm. at AWL (ft.)	9.5	9.5
30	Elevation (ft.)	358	358
31	Alpha	0.70	0.70
32	Beta	0.9	0.9
33	Target DO Residual (MBBR Process) (mg/L)	3.0	5.0
34	SOR (lbs/day)	146	132
35	Target Diffuser Efficiency/ft. Submergence	1.1	1.1
36	**Airflow (scfm)**	**56**	**50**
	Blower Requirement Summary		
37	No. of Blowers (for MBBRs, Airlifts and Post-Aeration)	2	1 Op., 1-standby
38	Airflow Required for O2 Demands in MBBR	106	
39	Airflow Requried for Airlifts	12	
40	Airflow Required for Post-Aeration	4	
41	Airflow Requirement per Blower	122	scfm
42	Airflow per 1,000 scfm in MBBRs	52	scfm/1,000 cf
43	Discharge Pressure	5.47	psig
44	Assumed Overall Efficiency	0.62	
45	Approximate BHP Requirement/Blower	4.6	bhp
46	Approximate BHP Requirement Total	4.6	bhp
47	Estimated Nameplate HP / Blower	5	hp
48	Blower Type	*Bi-Lobe PD*	
	Clarifier Summary		
49	No. of Hopper Bottom Clarifiers	2	
50	Clarifier Nos 1 and 2 - Existing		
51	Length	5.5	
52	Width	7.70	
53	Depth	10	
54	Total Surface Area	85	ft2
55	Surface Overflow Rate at Peak Flow	590	gpd/ft2
56	Allowable Surface Overflow Rate for Fixed Film	1,500	gpd/ft2

Summary of Plant Design Criteria & Calculations
Timberland MBBR Retrofit
September 28, 2020

	Aerobic Digestion Tank No. 1		
57	WAS Sludge Production Rate	0.4	lbs WAS/lb. BODr
58	WAS Sludge Production	18.8	lbs. WAS/day
59	Volatile Solids Concentration	75%	
60	% Volatile Solids Destroyed	45%	
61	Digested Sludge Production	12.4	lbs. DS/day
62	Digested Sludge Concentration	10,000	mg/L
63	Digested Sludge Production	149.0	gpd
64	No. of Sludge Holding Tanks	1	
65	Length	12	ft
66	Width	11.25	
67	Height	10.33	ft
68	Volume	10,431	gallons
69	Volume per Population Equivalent	6.6	cf/PE
70	SRT	70	days
	Aerobic Digestion Tank No. 2		
71	Digestate from Digester No. 1	12.4	lbs. DS/day
72	Volatile Solids Concentration	65%	
73	% Volatile Solids Destroyed	10%	
74	Digested Sludge Production	11.6	lbs. DS/day
75	Digested Sludge Concentration	20,000	mg/L
76	Digested Sludge Production	69.6	gpd
77	Length	3.25	ft
78	Width	11.25	
79	Height	10.33	ft
80	Volume	2,825	gallons
81	Volume per Population Equivalent	1.8	cf/PE
82	SRT	41	days
	Aerobic Digestion Mixing and Aeration		
83	SCFM / 1,000 cf	30	scfm/1,000 cf
84	Airflow Requried to Mix and Aerate Both Tanks	53	scfm
85	Airflow Requried to Mix and Aerate Aer Dig No. 1	42	scfm
86	No. of Diffuser Laterals in Aer Dig No. 1 (6' width)	1	lateral
87	No. of Diffusers Total in Aer Dig No. 1	8	diffusers
88	Airflow Requried to Mix and Aerate Aer Dig No. 2	11	scfm
89	No. of Diffuser Laterals in Aer Dig No. 2 (3.25' width)	1	lateral
90	No. of Diffusers Total in Aer Dig No. 2	4	diffusers
91	Discharge Pressure Required	5.47	psig
92	No. of Aerobic Digester Blowers	2.0	(1 op., 1 stndby)

Summary of Plant Design Criteria & Calculations
Timberland MBBR Retrofit
September 28, 2020

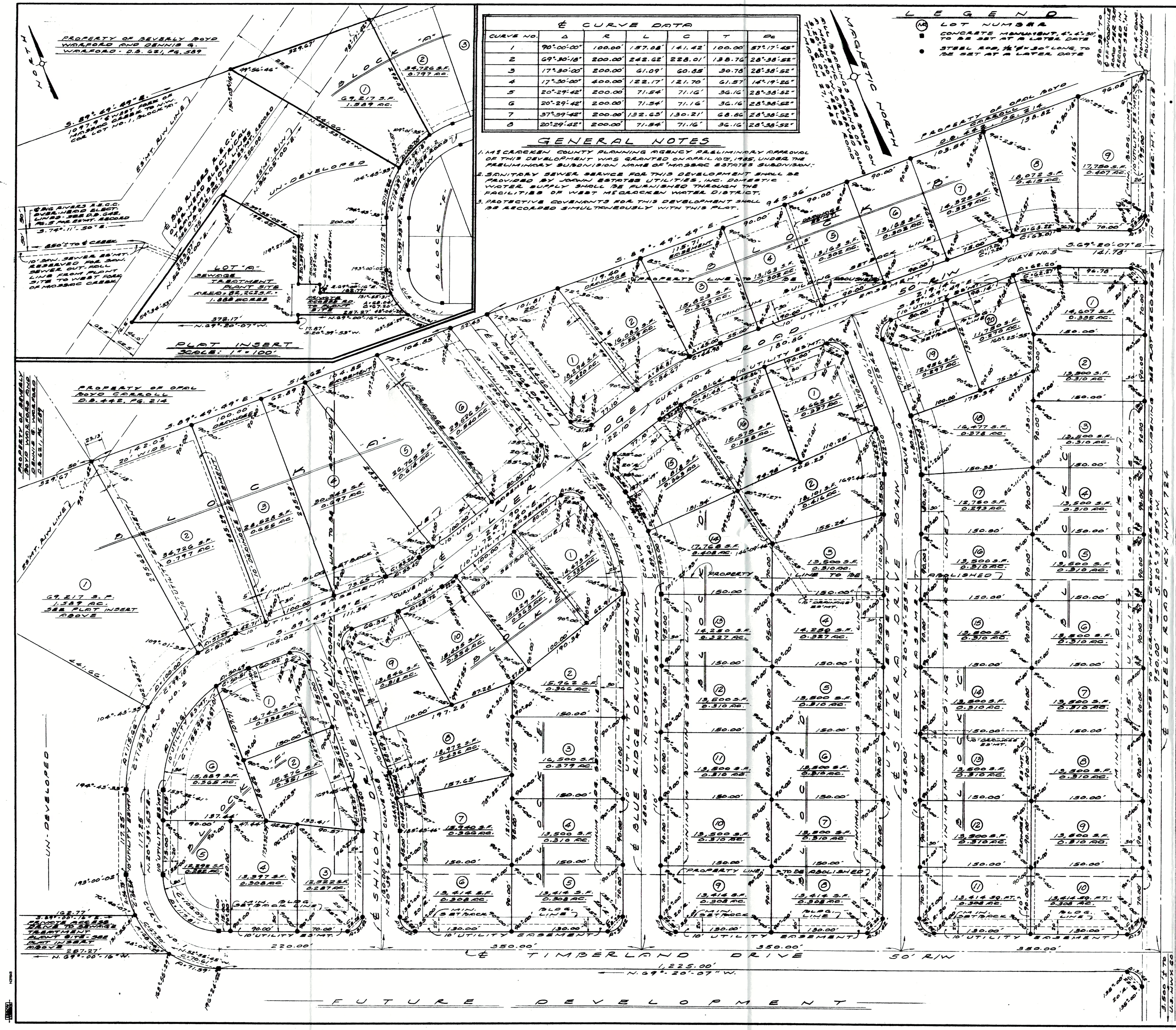
	Chlorine Contact Time		
93	No. of Contact Tanks	2	
94	Contact Tank No. 1 - Existing (Not fed with		
95	Length	11.25	ft
96	Width	3	ft
97	Depth	3.17	ft
98	Contact Tank No. 1 Volume	800	gallons
99	Contact Tank No. 1 Hydraulic Retention Time	23	minutes
100	Contact Tank No. 2 - New (Serves as Post Aeration as well)		
101	Length	6	ft
102	Width	6	ft
103	Depth	5	ft
104	Contact Tank No. 2 Volume	1,346	gallons
105	Contact Tank No. 1 Hydraulic Retention Time	38.8	minutes
106	Total Volume	2,147	gallons
107	Total Hydraulic Retention Time	62	minutes
	Post Aeration		
108	No. of Post Aeration Tanks	1	
109	Length	6	ft
110	Width	6	ft
111	Depth	5.0	ft
112	Volume	1,346	gallons
113	HRT	38.8	minutes
114	scfm/1,000 cf	20	scfm/1KCF
115	scfm Required (provided with blowers common for MBBRs, Airlifts and Post-Aeration)	3.6	scfm
116	Discharge Pressure	3.2	psig

Section C – Subdivision Plat

1351 Jefferson St., Suite 301
Washington, MO 63090

636-432-5029

272



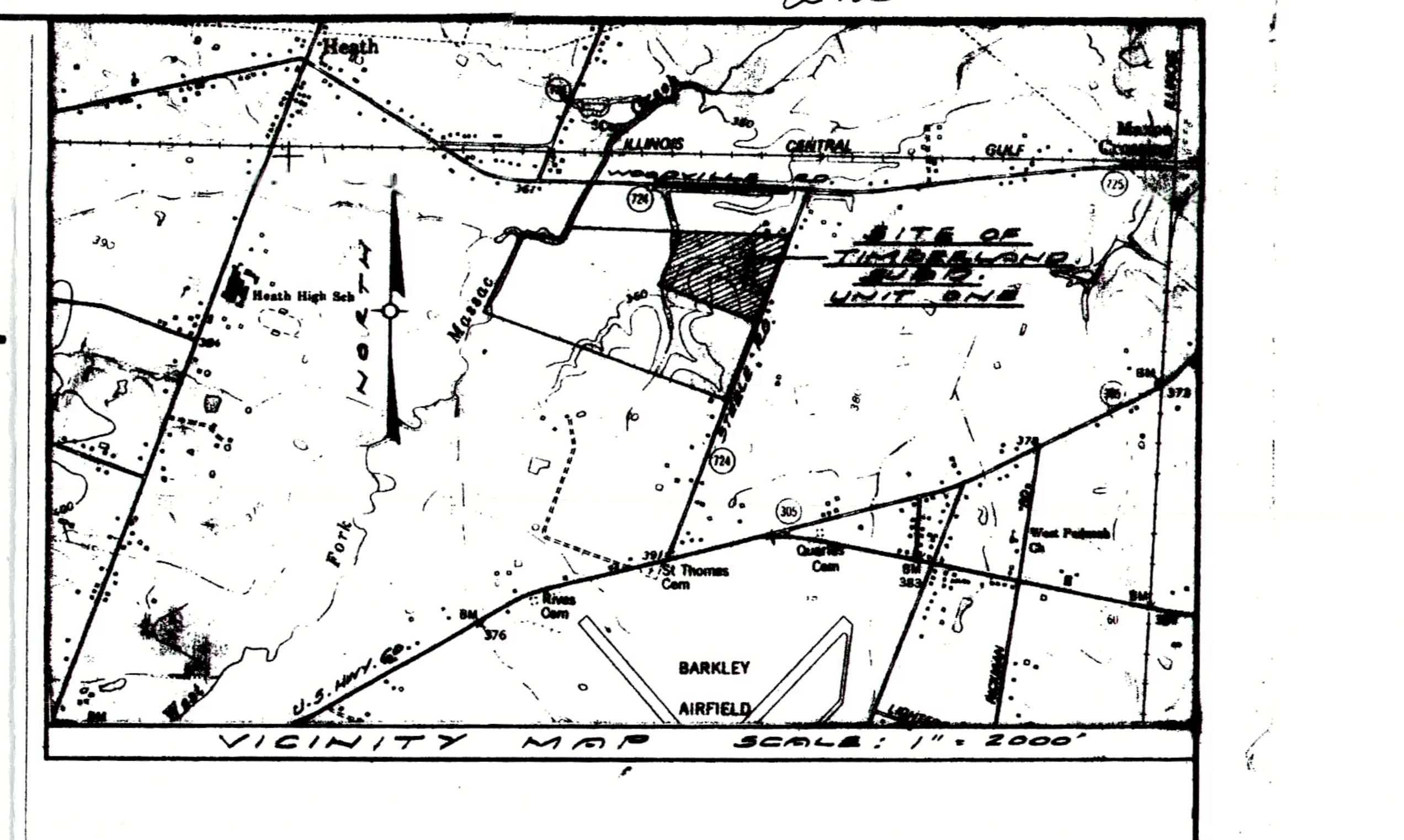
CURVE NO.	Δ	R	L	C	T	Dc
1	90°-00'-00"	100.00'	157.08'	141.42'	100.00'	57°-17'-45"
2	69°-30'-18"	200.00'	242.62'	228.01'	138.76'	28°-38'-52"
3	17°-30'-00"	200.00'	61.09'	60.85'	30.78'	28°-38'-52"
4	17°-30'-00"	400.00'	122.17'	121.70'	61.57'	14°-19'-26"
5	20°-29'-42"	200.00'	71.54'	71.16'	36.16'	28°-38'-52"
6	20°-29'-42"	200.00'	71.54'	71.16'	36.16'	28°-38'-52"
7	37°-59'-42"	200.00'	132.63'	130.21'	68.86'	28°-38'-52"
8	20°-29'-42"	200.00'	71.54'	71.16'	36.16'	28°-38'-52"

GENERAL NOTES

1. McCRACKEN COUNTY PLANNING AGENCY PRELIMINARY APPROVAL OF THIS DEVELOPMENT WAS GRANTED ON APRIL 10TH, 1985, UNDER THE PRELIMINARY SUBDIVISION NAME OF "MASSAC ESTATES SUBDIVISION."
2. SANITARY SEWER SERVICE FOR THIS DEVELOPMENT SHALL BE PROVIDED BY JOANN ESTATES UTILITIES, INC. DOMESTIC WATER SUPPLY SHALL BE FURNISHED THROUGH THE FACILITIES OF WEST McCRACKEN WATER DISTRICT.
3. PROTECTIVE COVENANTS FOR THIS DEVELOPMENT SHALL BE RECORDED SIMULTANEOUSLY WITH THIS PLAT.

LEGEND

- (NO.) LOT NUMBER
- ■ CONCRETE MONUMENT, 4"x4"x30" TO BE SET AT A LATER DATE
- ● STEEL ROD, ½"φx30" LONG, TO BE SET AT A LATER DATE



VICINITY MAP SCALE: 1" = 2000'

NOTIFICATION OF SEWAGE DISPOSAL APPROVAL

THE APPROVAL OF THIS PLAT SHALL NOT BE DEEMED TO CONSTITUTE AN ACCEPTANCE BY THE McCRACKEN FISCAL COURT THAT THE LOTS IN THIS SUBDIVISION ARE SUITABLE FOR A PRIVATE SEWAGE DISPOSAL SYSTEM (SEPTIC TANK AND LATERIAL FIELD). THE OWNER OR DEVELOPER OF ANY LOT, OR LOTS, MUST MEET THE MINIMUM REQUIREMENTS AND OBTAIN THE NECESSARY APPROVALS FOR THE USE OF A PRIVATE SEWAGE DISPOSAL SYSTEM FROM THE DEPARTMENT OF HOUSING, BUILDINGS AND CONSTRUCTION, DIVISION OF PLUMBING, COMMONWEALTH OF KENTUCKY, OR ANY SUCCESSOR GOVERNMENTAL AGENCIES.

I HEREBY CERTIFY THAT I HAVE READ AND UNDERSTAND THE FOREGOING NOTICE.

March 3, 1986
DATE

[illegible]

CERTIFICATE OF OWNERSHIP AND DEDICATION

I HEREBY CERTIFY THAT I AM THE OWNER OF RECORD OF THE PROPERTY SHOWN HEREON AND THAT I HEREBY ADOPT THIS PLAT OF SUBDIVISION WITH MY FREE CONSENT, ESTABLISH THE MINIMUM BUILDING SETBACK LINES AND PROTECTIVE COVENANTS AND DO HEREBY DEDICATE FOR PUBLIC USE AND BENEFIT THE ROADWAYS AS SHOWN AND NOTED HEREON.

B. G. Waid
B. G. WAID CONSTRUCTION COMPANY, INC.
President
TITLE

CERTIFICATE OF ACKNOWLEDGEMENT

STATE OF Kentucky) SS
COUNTY OF McCracken)

I, Richard G. Davis, A NOTARY PUBLIC IN AND FOR THE COUNTY AFORESAID, DO HEREBY CERTIFY THAT THE FOREGOING PLAT WAS THIS DAY PRESENTED TO ME, BY B. G. Waid, Pres. of B. G. Waid Const. Co. KNOWN TO ME, TOGETHER WITH THE CERTIFICATE OF OWNERSHIP SHOWN THEREON, WHICH B. G. Waid EXECUTED IN MY PRESENCE AND ACKNOWLEDGED TO BE THEIR FREE ACT AND DEED.

WITNESS MY HAND AND SEAL THIS 3rd DAY OF March, 1986. MY COMMISSION EXPIRES ON the 18th DAY OF November, 1988.

Richard G. Davis
NOTARY PUBLIC

CERTIFICATE OF RECOMMENDATION FOR FINAL PLAT APPROVAL

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE SUBDIVISION REGULATIONS FOR McCRACKEN COUNTY, KENTUCKY, WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION MEETING AND THAT, IT IS THE RECOMMENDATION OF THE COMMISSION THAT FINAL APPROVAL BE GIVEN.

PLANNING COMM. MEETING MAR. 12 1986

Howard Wettgering
CHAIRMAN OR SECRETARY
PLANNING COMMISSION

ELEVATION BOND [illegible]

CERTIFICATE OF APPROVAL OF STREETS

I HEREBY CERTIFY: (1) THAT THE STREETS OR ROADS HAVE BEEN INSTALLED IN AN ACCEPTABLE MANNER ACCORDING TO COUNTY SPECIFICATIONS OR (2) THAT A SECURITY BOND IN THE AMOUNT OF $126,400.00 HAS BEEN POSTED WITH THE COUNTY LEGISLATIVE BODY TO ASSURE COMPLETION OF THE IMPROVEMENTS.

3-12-86
DATE

Buddy L. Smith
COUNTY ENGINEER

CERTIFICATE OF FINAL PLAT APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT AS SHOWN HEREON WAS GIVEN APPROVAL BY THE McCRACKEN COUNTY FISCAL COURT FOR RECORDING IN THE OFFICE OF THE COUNTY COURT CLERK.

3-12-86
DATE

John R. Hank
JUDGE EXECUTIVE, McCRACKEN COUNTY, KENTUCKY

CERTIFICATE OF RECORDING
STATE OF KENTUCKY
COUNTY OF McCRACKEN

I, MARTHA NELL BRADFORD, CLERK OF THE COUNTY FOR THE STATE AND COUNTY AFORESAID DO HEREBY CERTIFY THAT THIS PLAT OF SURVEY WAS THIS DAY LODGED IN MY OFFICE FOR RECORD AND I HAVE RECORDED SAME WITH THIS AND FOREGOING CERTIFICATE IN MY OFFICE.

GIVEN UNDER MY HAND AND SEAL THIS 18 DAY OF March 1986 RECORDED IN PLAT SECTION J
PAGE 272.

Martha Nell Bradford
CLERK
Debbie Calhoun
DEPUTY CLERK

SURVEYOR'S CERTIFICATION

TO: B. G. WAID CONSTRUCTION COMPANY, INC.
ROUTE #2, BOX 472
PADUCAH, KENTUCKY 42001

I HEREBY CERTIFY THAT THIS PLAT AND THE SURVEY FOR SAME WAS COMPLETED UNDER MY SUPERVISION, THAT THE ERROR OF CLOSURE FOR THE BOUNDARY SURVEY OF THE OVERALL TRACT OF WHICH THIS UNIT IS A PART OF, WAS AT LEAST 1/5000 BEFORE ADJUSTMENT AND THAT ALL THE INFORMATION SHOWN HEREON IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

2/26/86
DATE

Richard G. Davis
KY. REG. LAND SURVEYOR #1842

NOTE:

INDIVIDUAL CORNERS FOR THE LOTS SHOWN HEREON SHALL BE PLACED AFTER ROADWAY AND UTILITY CONSTRUCTION HAVE BEEN ESSENTIALLY COMPLETED AND THE SUBDIVISION OWNER/DEVELOPER REQUESTS SAME.

SEE PROTECTIVE COVENANTS RECORDED IN DEED BOOK 685 AT PAGE 22.

STATE of KENTUCKY
R. G. DAVIS
1842
REGISTERED
LAND SURVEYOR

CURRENT SOURCE OF TITLE: DEED BOOK 670, PG. 474

GRAPHIC SCALE: 1" = 50'

FINAL PLAT OF TIMBERLAND SUBDIVISION UNIT NO. ONE

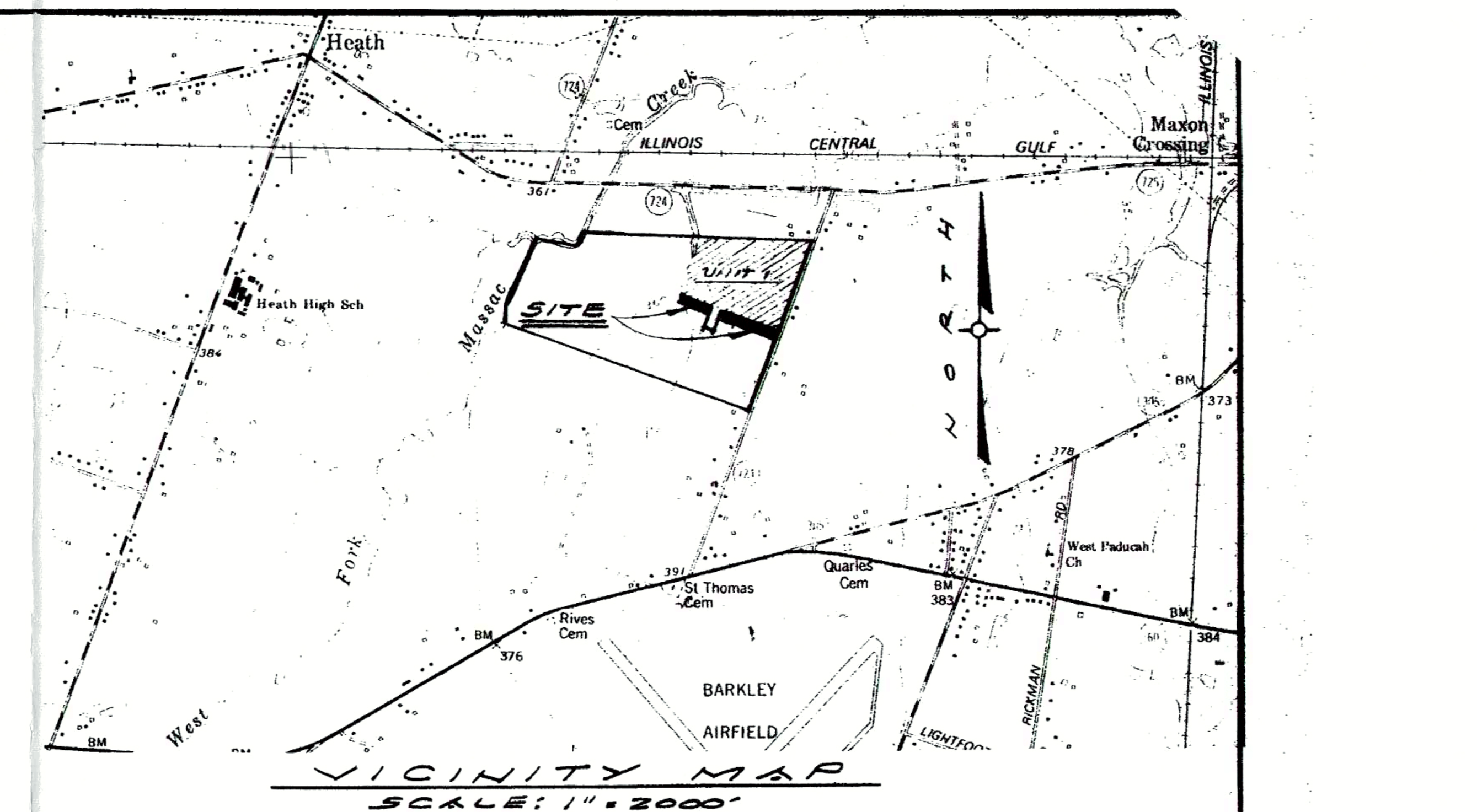
LOCATED ON THE WEST SIDE OF STEELE ROAD BETWEEN U.S. HIGHWAY 60 AND THE WOODVILLE ROAD, McCRACKEN COUNTY, KENTUCKY
DEVELOPED BY: B. G. WAID CONSTRUCTION CO., INC.

Farris, Hatcher, Tremper & Associates, Inc.
CONSULTING ENGINEERS
124 SOUTH 31ST STREET PADUCAH, KENTUCKY PHONE 502/443-8491

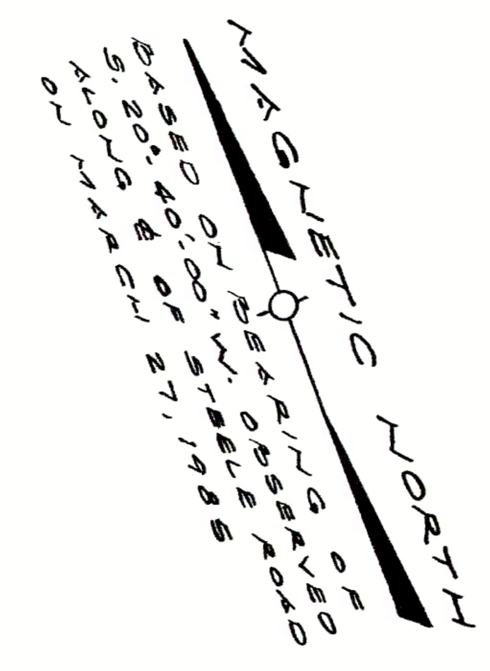
COMMISSION NO.	DRAWN BY	CHECKED BY	DATE	SHEET
C-86-720	R.G.D.	R. DAVIS	FEB., 1986	1 OF 1

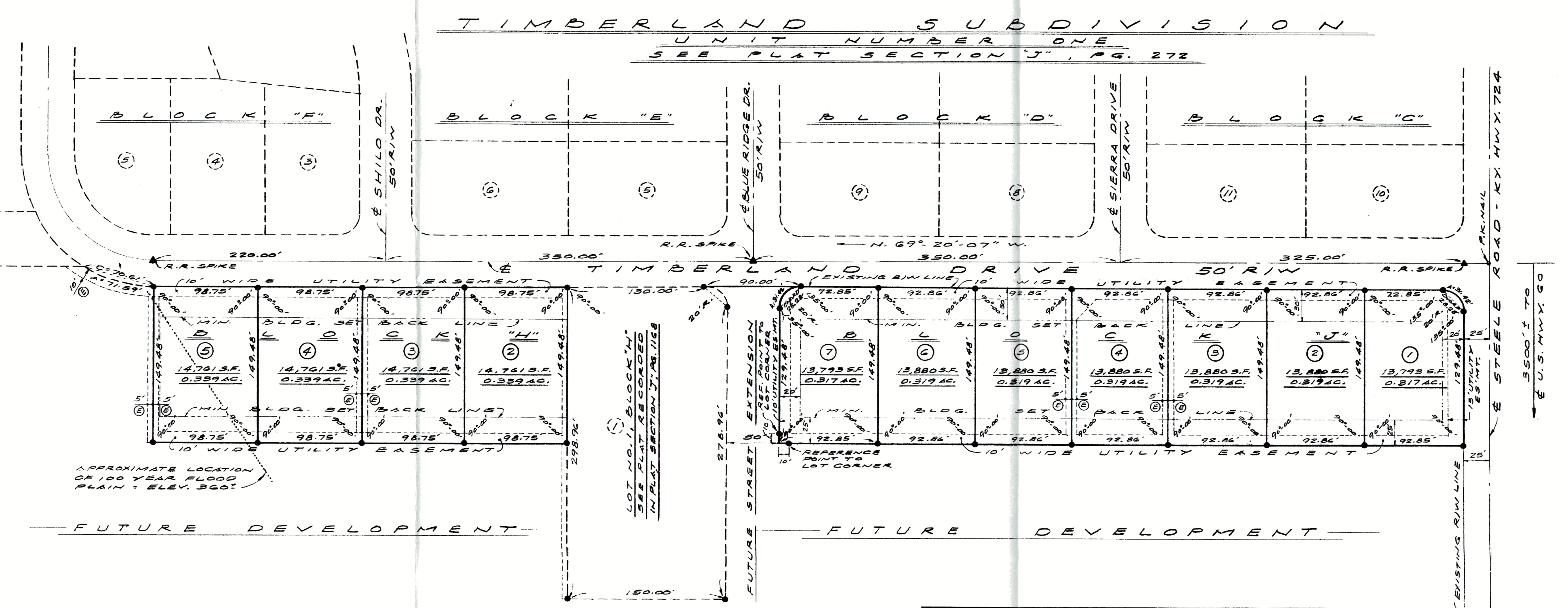
O9D1 198603

72



VICINITY MAP
SCALE: 1" = 2000'





OWNER'S CERTIFICATION AND NOTIFICATION OF SEWAGE DISPOSAL APPROVAL

THE UNDERSIGNED HEREBY ACKNOWLEDGES OWNERSHIP OF THE PROPERTY SHOWN AND DESCRIBED HEREON, THAT THIS PLAT IS ADOPTED WITH FREE CONSENT AND IF APPROPRIATE, HEREBY DEDICATES THE PROPERTY INDICATED FOR THE USE AND BENEFIT AS NOTED. FURTHER, THE UNDERSIGNED, HEREBY ACKNOWLEDGES THAT THIS PLAT SHALL NOT BE DEEMED TO CONSTITUTE ACCEPTANCE BY THE McCRACKEN COUNTY FISCAL COURT THAT THIS PROPERTY IS SUITABLE FOR A PRIVATE SEWAGE DISPOSAL SYSTEM SUCH AS A SEPTIC TANK AND LATERAL FIELD. THE OWNER OR DEVELOPER OF ANY PORTION OF THIS PROPERTY MUST MEET THE MINIMUM REQUIREMENTS AND OBTAIN THE NECESSARY APPROVALS FOR THE INSTALLATION OF SUCH SYSTEM FROM THE DEPARTMENT OF HOUSING, BUILDINGS AND CONSTRUCTION, DIVISION OF PLUMBING, COMMONWEALTH OF KENTUCKY OR ANY SUCCESSOR GOVERNMENTAL AGENCIES.

B. G. WAID CONSTRUCTION CO., INC.
[illegible], PRESIDENT

CERTIFICATE OF ACKNOWLEDGEMENT

STATE OF KENTUCKY

COUNTY OF McCRACKEN

I, RICHARD G. DAVIS, A NOTARY PUBLIC IN AND FOR THE STATE AND COUNTY AFORESAID, DO HEREBY CERTIFY THAT THIS PLAT AND THE FOREGOING CERTIFICATE WAS THIS DAY PRESENTED TO ME BY B. G. WAID, PRESIDENT OF B.G. WAID CONSTRUCTION CO., INC. WHO THEN EXECUTED SAID CERTIFICATE IN MY PRESENCE AND ACKNOWLEDGED SAME TO BE A FREE ACT AND DEED FOR THE PURPOSES STATED THEREIN.

WITNESS MY HAND AND NOTARIAL SEAL THIS 5th DAY OF APRIL, 1991.

MY COMMISSION EXPIRES ON THE 21st DAY OF NOVEMBER, 1992. Richard G. Davis
NOTARY PUBLIC

CERTIFICATE OF RECOMMENDATION FOR FINAL PLAT APPROVAL

I HEREBY CERTIFY THAT THIS PLAT HAS BEEN FOUND TO COMPLY WITH THE SUBDIVISION REGULATIONS FOR McCRACKEN COUNTY, KENTUCKY, WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS NOTED IN THE MINUTES OF THE PLANNING COMMISSION MEETING AND IT IS THE RECOMMENDATION OF THIS COMMISSION THAT FINAL APPROVAL BE GRANTED.

PLANNING COMMISSION MEETING DATE: 4/10/91 [illegible]
CHAIRMAN OR SECRETARY OF THE McCRACKEN COUNTY PLANNING COMMISSION

CERTIFICATE OF APPROVAL OF ROADWAYS AND EASEMENTS

I HEREBY CERTIFY THAT THE ROADWAYS AND UTILITY EASEMENTS AS SHOWN HEREON HAVE BEEN FOUND TO COMPLY WITH THE McCRACKEN COUNTY SUBDIVISION REGULATIONS OR AS OTHERWISE NOTED IN THE MINUTES OF THE PLANNING COMMISSION MEETING.

4/11/91 [illegible]
DATE COUNTY ENGINEER

CERTIFICATE OF FINAL PLAT APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THIS PLAT IS HEREBY APPROVED BY THE McCRACKEN COUNTY FISCAL COURT FOR RECORDING IN THE OFFICE OF THE COUNTY COURT CLERK.

4/22/91 [illegible]
DATE JUDGE EXECUTIVE, McCRACKEN COUNTY FISCAL COURT

CERTIFICATE OF RECORDING

STATE OF KENTUCKY, COUNTY OF McCRACKEN

I HEREBY CERTIFY THAT THIS PLAT WAS THIS DAY LODGED IN MY OFFICE FOR RECORD AND I HAVE RECORDED SAME WITH THIS AND THE FOREGOING CERTIFICATES IN MY OFFICE.

GIVEN UNDER MY HAND AND SEAL THIS 23 DAY OF April, 1991.
AND RECORDED IN PLAT SECTION K, PAGE 72 [illegible]
McCRACKEN COUNTY COURT CLERK
[illegible]
DEPUTY COURT CLERK

SURVEYOR'S CERTIFICATION

TO: B. G. WAID CONST. CO., INC.
U.S. HIGHWAY 60 WEST
PADUCAH, KENTUCKY

I HEREBY CERTIFY THAT THIS PLAT DEPICTS A SURVEY COMPLETED UNDER MY SUPERVISION, THAT AN UNADJUSTED MATHEMATICAL ERROR OF CLOSURE OF AT LEAST 1 PART PER 10,000 PARTS WAS OBTAINED ON THE PERIMETER TRAVERSE LINES PRIOR TO ADJUSTMENT, THAT CORNER MARKERS ACTUALLY EXIST AS INDICATED AND THAT THE SURVEY AND THIS PLAT MEETS OR EXCEEDS THE MINIMUM STANDARDS OF PRACTICE FOR SURVEYS IN KENTUCKY.

APRIL 5, 1991 Richard G. Davis
DATE KENTUCKY REGISTERED LAND SURVEYOR #1842

THESE LOTS SHALL BE SUBJECT TO THE PROTECTIVE COVENANTS IMPOSED ON THIS DEVELOPMENT AS FILED IN DEED BOOK 685 AT PAGE 22 OF THE McCRACKEN COUNTY COURT CLERK'S OFFICE

LEGEND

- LOT LINES TO BE ESTABLISHED BY THIS PLAT
- EXISTING LOT LINES
- UTILITY EASEMENT LINES
- (NO) LOT NUMBERS FOR THIS UNIT OF DEVELOPMENT
- (NO) EXISTING LOT NUMBERS PRIOR DEVELOPMENT
- • STEEL ROD, 1/2" × 30" WITH YELLOW PLASTIC CAP SET WHERE INDICATED
- (E) INDICATES UTILITY EASEMENT, WIDTH AS NOTED

GENERAL NOTES

1. McCRACKEN COUNTY PLANNING COMMISSION PRELIMINARY APPROVAL OF THIS DEVELOPMENT WAS GRANTED ON APRIL 10th, 1985, UNDER THE PRELIMINARY SUBDIVISION NAME OF "MASSAC ESTATES SUBDIVISION".
2. THESE LOTS SHALL BE SERVED BY SANITARY SEWERS PROVIDED BY JOANN ESTATES UTILITIES, INC. DOMESTIC WATER SUPPLY SHALL BE FURNISHED THROUGH THE FACILITIES OF THE WEST McCRACKEN WATER DISTRICT.
3. LOTS 2 THRU 4, BLOCK "H" AND LOTS 1 THRU 7, BLOCK "J" ARE LOCATED ABOVE THE LEVEL OF THE 100 YEAR FLOOD PLAIN AS SHOWN BY FLOOD INSURANCE RATE MAP #210151-0020B, DATED JUNE 4, 1980. LOT 5, BLOCK "H" IS PARTIALLY SITUATED BELOW THE 100 YEAR FLOOD LEVEL AS INDICATED HEREON.

INTENT OF DRAWING

THE PURPOSE OF THIS PLAT IS TO ESTABLISH THE LOT LINES FOR LOTS 2 THRU 5 OF BLOCK "H" AND LOTS 1 THRU 7 OF BLOCK "J". THE MINIMUM BUILDING SET BACK LINES AND UTILITY EASEMENTS AS INDICATED, ALL FOR COMPLIANCE WITH CHAPTER 100 OF THE KENTUCKY REVISED STATUTES.

SOURCE OF TITLE
A PORTION OF THE PROPERTY DESCRIBED IN D.B. 670, PG. 474 & D.B. 693, PG. 661

SCALE: 1" = 60'
0 50 100 200 300

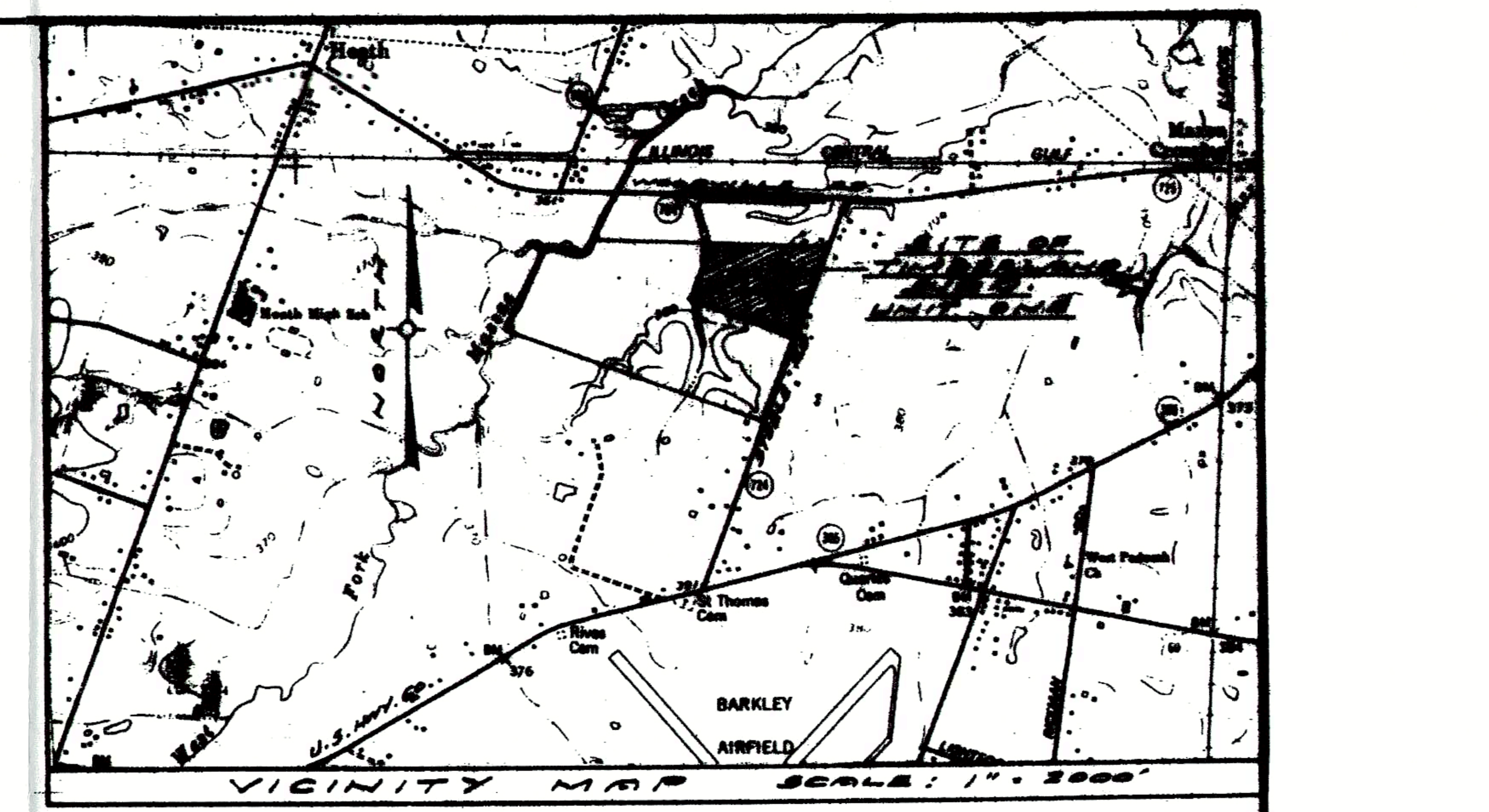
FINAL PLAT
TIMBERLAND SUBDIVISION
UNIT NO. 2

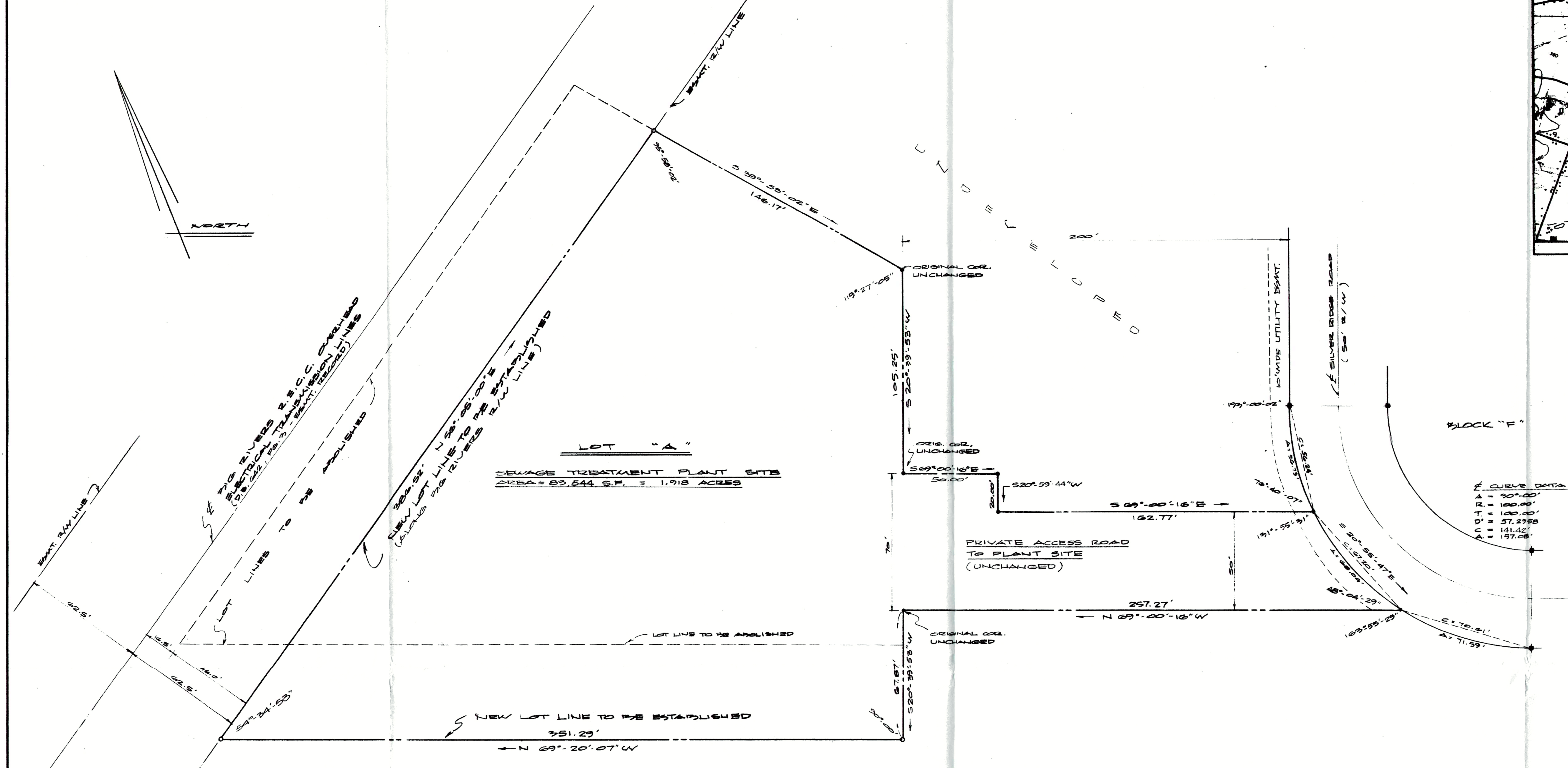
BLOCK "H", LOTS 2 THRU 5, BLOCK "J", LOTS 1 THRU 7
TIMBERLAND DRIVE AT STEELE ROAD, McCRACKEN CO., KY.
DEVELOPER: B. G. WAID CONSTRUCTION CO., INC.

Farris, Hatcher, Tremper & Associates, Inc.
CONSULTING ENGINEERS
124 SOUTH 31st STREET PADUCAH, KENTUCKY PHONE 502/443-8491

COMMISSION NO.	DRAWN BY	CHECKED BY	DATE	SHEET
C-84-720	R.G.D.	R.G.D.	APRIL, 1991	1 OF 1

O9A1 199104





NOTIFICATION OF SEWAGE DISPOSAL APPROVAL

THE APPROVAL OF THIS PLAT SHALL NOT BE DEEMED TO CONSTITUTE AN ACCEPTANCE BY THE McCRACKEN FISCAL COURT THAT THE LOTS IN THIS SUBDIVISION ARE SUITABLE FOR A PRIVATE SEWAGE DISPOSAL SYSTEM (SEPTIC TANK AND LATERIAL FIELD). THE OWNER OR DEVELOPER OF ANY LOT, OR LOTS, MUST MEET THE MINIMUM REQUIREMENTS AND OBTAIN THE NECESSARY APPROVALS FOR THE USE OF A PRIVATE SEWAGE DISPOSAL SYSTEM FROM THE DEPARTMENT OF HOUSING, BUILDINGS AND CONSTRUCTION, DIVISION OF PLUMBING, COMMONWEALTH OF KENTUCKY, OR ANY SUCCESSOR GOVERNMENTAL AGENCIES.

I HEREBY CERTIFY THAT I HAVE READ AND UNDERSTAND THE FOREGOING NOTICE.

July 11, 1986
DATE

[illegible] B.G. Waid Const. Co., Inc.
PRESIDENT

DRAWING INTENT

THE PURPOSE OF THIS PLAT IS TO ABOLISH THE SOUTHERLY AND WESTERLY LINES OF THE ORIGINAL LOT "A", SEWAGE TREATMENT PLANT SITE AS ESTABLISHED BY PLAT SECTION "J", PAGE 272 AND TO RE-ESTABLISH THOSE LINES AS SHOWN HEREON, ALL FOR COMPLIANCE WITH CHAPTER 100 OF THE KENTUCKY REVISED STATUTES.

CERTIFICATE OF RECOMMENDATION FOR FINAL PLAT APPROVAL

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT SHOWN HEREON HAS BEEN FOUND TO COMPLY WITH THE SUBDIVISION REGULATIONS FOR McCRACKEN COUNTY, KENTUCKY, WITH THE EXCEPTION OF SUCH VARIANCES, IF ANY, AS ARE NOTED IN THE MINUTES OF THE PLANNING COMMISSION MEETING AND THAT, IT IS THE RECOMMENDATION OF THE COMMISSION THAT FINAL APPROVAL BE GIVEN.

PLANNING COMM. MEETING HELD Aug. 13 1986

[illegible]
CHAIRMAN OR SECRETARY
PLANNING COMMISSION

CERTIFICATE OF OWNERSHIP

THIS IS TO CERTIFY THAT I AM THE OWNER OF THE PROPERTY AS SHOWN HEREON AND THAT I HAVE LAID OFF, PLATTED AND SUBDIVIDED SAID PROPERTY IN ACCORDANCE WITH THIS PLAT AND ACKNOWLEDGE THIS TO BE MY FREE ACT AND DEED FOR THE PURPOSE HEREIN EXPRESSED.

B.G. Waid Construction Co., Inc.

[illegible]
PRESIDENT

CERTIFICATE OF RECORDING
STATE OF KENTUCKY
COUNTY OF McCRACKEN

I, MARTHA NELL BRADFORD, CLERK OF THE COUNTY FOR THE STATE AND COUNTY AFORESAID DO HEREBY CERTIFY THAT THIS PLAT OF SURVEY WAS THIS DAY LODGED IN MY OFFICE FOR RECORD AND I HAVE RECORDED SAME WITH THIS AND FOREGOING CERTIFICATE IN MY OFFICE.

GIVEN UNDER MY HAND AND SEAL THIS 14 DAY OF August 1986 RECORDED IN PLAT SECTION J
PAGE 365.

Martha Nell Bradford
CLERK

[illegible]
DEPUTY CLERK

LEGEND

- ■ = CONCRETE MONUMENTS 4"x4"x30"
- ● = STEEL ROD, 1/2"⌀ x 30" LONG
- ○ = NEW CORNER - STEEL ROD, 1/2"⌀ x 30" LONG
- ——— = PROPERTY LINE
- – – – = LOT LINE TO BE ABOLISHED

CERTIFICATE OF APPROVAL OF ROADWAYS AND EASEMENTS

I HEREBY CERTIFY THAT THE ROADWAYS AND UTILITY EASEMENTS AS SHOWN HEREON HAVE BEEN FOUND TO COMPLY WITH THE McCRACKEN COUNTY SUBDIVISION REGULATIONS OR AS OTHERWISE NOTED IN THE MINUTES OF THE PLANNING COMMISSION MEETING.

8-19-86
DATE

[illegible]
COUNTY ENGINEER

CERTIFICATE OF ACKNOWLEDGEMENT

STATE OF KENTUCKY)
) SS
COUNTY OF McCRACKEN)

I, Richard G. Davis, A NOTARY PUBLIC IN AND FOR THE COUNTY AFORESAID, DO HEREBY CERTIFY THAT THE FOREGOING PLAT WAS THIS DAY PRESENTED TO ME, BY B.G. Waid, President of B.G. Waid Const. Co., Inc. KNOWN TO ME, TOGETHER WITH THE CERTIFICATES OF OWNERSHIP SHOWN THEREON, WHICH B.G. Waid EXECUTED IN MY PRESENCE AND ACKNOWLEDGED TO BE THEIR FREE ACT AND DEED.

WITNESS MY HAND AND SEAL THIS 11TH DAY OF July, 1986. MY COMMISSION EXPIRES ON 15TH DAY OF November, 1988.

[illegible]
NOTARY PUBLIC

NOTARY PUBLIC STATE AT LARGE

SURVEYOR'S CERTIFICATE

I, RICHARD G. DAVIS, DO HEREBY CERTIFY THAT I AM A REGISTERED LAND SURVEYOR LICENSED IN ACCORD WITH THE LAWS OF THE STATE OF KENTUCKY AND THAT THIS PLAT REPRESENTS A SURVEY COMPLETED UNDER MY SUPERVISION ON July 3rd, 1986, AND THAT THE INFORMATION AS SHOWN HEREON IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

July 10, 1986
DATE

Richard G. Davis
KY. REG. LAND SURVEYOR #1842

STATE of KENTUCKY
R. G. DAVIS
1842
REGISTERED
LAND SURVEYOR

CERTIFICATE OF FINAL PLAT APPROVAL FOR RECORDING

I HEREBY CERTIFY THAT THE SUBDIVISION PLAT AS SHOWN HEREON WAS GIVEN APPROVAL BY THE McCRACKEN COUNTY FISCAL COURT FOR RECORDING IN THE OFFICE OF THE COUNTY COURT CLERK.

8-8-86
DATE

John R. Hawks
JUDGE EXECUTIVE, McCRACKEN COUNTY, KENTUCKY

TIMBERLAND SUBD. - UNIT ONE —— P.B. J, PG. 272.
SOURCE OF TITLE: D.B. 670, PG. 474

SCALE 1" = 30'

WAIVER OF SUBDIVISION
LOT "A" - TREATMENT PLANT SITE
TIMBERLAND SUBDIVISION - UNIT NO. ONE
LOCATED ON STEELE RD., McCRACKEN CO., KENTUCKY
FOR B.G. WAID CONSTRUCTION COMPANY, INC.

Farris, Hatcher, Tremper & Associates, Inc.
CONSULTING ENGINEERS
124 SOUTH 31ST STREET PADUCAH, KENTUCKY PHONE 502/443-8491

COMMISSION NO.	DRAWN BY	CHECKED BY	DATE	SHEET
C84-720	BC	R.D.	JULY, 1986	1 OF 1

O9A4 198608

Section D – ALTA Survey

1351 Jefferson St., Suite 301
Washington, MO 63090

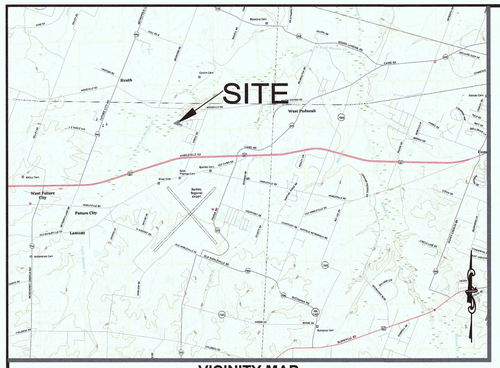
636-432-5029

ALTA/NSPS LAND TITLE SURVEY

THE PLAT OF SURVEY SHOWN HEREON REPRESENTS A
BOUNDARY SURVEY AND COMPLIES WITH 201 KAR 18:150
PROPERTY OF: TIMBERLAND DEVELOPMENT CORPORATION
(A/K/A TIMBERLAND SUBDIVISION, INC.)
LOT "A", TIMBERLAND SUBDIVISION
SILVER RIDGE ROAD, MCCRACKEN COUNTY, KENTUCKY

TIMBERLAND DEVELOPMENT CORPORATION
(A/K/A TIMBERLAND SUBDIVISION, INC.)

LOT "A"
TIMBERLAND DRIVE
WEST PADUCAH, KENTUCKY 42086



VICINITY MAP
NO SCALE

FIRST AMERICAN TITLE INSURANCE COMPANY
COMMITMENT NUMBER 22425-10

COMMITMENT DATE:
JULY 10, 2019

SCHEDULE B, PART II (EXCEPTIONS)
TERMS RELATIVE TO SURVEYING

4 ANY ENCROACHMENT, ENCUMBRANCE, VIOLATION, VARIATION, OR ADVERSE CIRCUMSTANCES AFFECTING THE TITLE THAT WOULD BE DISCLOSED BY ACCURATE AND COMPLETE LAND SURVEY OF THE LAND AND NOT SHOWN BY THE PUBLIC RECORDS. AFFECTS PROPERTY AS SHOWN.

8 THERE ARE OF RECORD TWO RIGHT OF WAY EASEMENTS FROM KATHRYN L. STEELE TO BIG RIVERS ELECTRIC CORPORATION DATED NOVEMBER 20, 1981 IN DEED BOOK 642, PAGE 3; AND DEED BOOK 642, PAGE 5. SAID RIGHT OF WAY EASEMENTS ARE 125, 200 AND 100 FEET IN WIDTH AND ARE FOR PURPOSES OF CONSTRUCTING, OPERATING, AND MAINTAINING LINES FOR THE TRANSMISSION OF ELECTRICAL ENERGY. THESE EASEMENTS AFFECT THE LARGER TRACT FROM WHICH THE ABOVE DESCRIBED PROPERTY IS A PART. HOWEVER, THE EXACT LOCATION OF SAID EASEMENTS ARE UNASCERTAINABLE.
ADJOINS BUT DOES NOT AFFECT SUBJECT PARCEL.
(SHOWN PER PLAT SECTION J, PAGE 272 AND PLAT SECTION J, PAGE 368)

9 THE ABOVE DESCRIBED PROPERTY IS SUBJECT TO COVENANTS, CONDITIONS, EASEMENTS, RESTRICTIONS AND NOTES AS SET FORTH IN: PLAT BOOK J, PAGE 272, PLAT BOOK I, PAGE 365; AND SUBJECT PARCEL IS EXEMPT PER DEED BOOK 685, PAGE 22, IN THE MCCRACKEN COUNTY CLERK'S OFFICE.
AFFECTS PROPERTY AS SHOWN AND NOTED.

10 THE LARGER TRACT OF WHICH THE ABOVE DESCRIBED PROPERTY IS A PART IS SUBJECT TO THE TERMS AND PROVISIONS OF RIGHT OF WAY PERMIT OF RECORD IN DEED BOOK 767, PAGE 649, MCCRACKEN COUNTY CLERK'S OFFICE, GRANTED TO WESTERN KENTUCKY GAS COMPANY, A DIVISION OF ATMOS ENERGY CORPORATION, A TEXAS CORPORATION, ON MARCH 6, 1992; SAID RIGHT OF EASEMENT WAS GRANTED THEREIN FOR THE PURPOSE OF LAYING, CONSTRUCTING, MAINTAINING, ETC. A NATURAL GAS PIPELINE AND APPURTENANCES ALONG A ROUTE 10' WIDE AND DESCRIBED THEREIN TO BE INSTALLED WITHIN 10' OF FRONT PROPERTY LINE. AFFECTS PROPERTY AS SHOWN

GENERAL NOTES

SOURCE OF TITLE:

DEED BOOK 801, PAGE 92. DEED OF CORRECTION –
DEED BOOK 805, PAGE 138

TIMBERLAND SUBDIVISION
PLAT SECTION J, PAGE 365 (LOT A)

OWNERS:
TIMBERLAND DEVELOPMENT CORPORATION
(A/K/A TIMBERLAND SUBDIVISION, INC.)
A KENTUCKY CORPORATION
6500 HIGHWAY 60 WEST
PADUCAH, KENTUCKY 42001

CLIENT:
21 DESIGN GROUP
1351 JEFFERSON STREET
SUITE 301
WASHINGTON, MISSOURI 63090

CEMETERY NOTE:
THERE WERE NO CEMETERIES OR GRAVE SITES FOUND DURING INSPECTION OF THIS PROPERTY DURING THIS SURVEY.

PROPERTY ZONE:
THE PROPERTY SHOWN HEREON IS ZONED "UR", URBANIZING RESIDENTIAL DISTRICT, BY THE McCRACKEN COUNTY ZONING ORDINANCE. MINIMUM YARD REQUIREMENTS ARE AS FOLLOWS:

NON–RESIDENTIAL USES:
FRONT YARD: 75 FEET
SIDE YARD: 25 FEET
REAR YARD: 25 FEET

RESIDENTIAL USES:
FRONT YARD: 30 FEET
SIDE YARD: 8 FEET
4 FEET (ACCESSORY BUILDINGS)
REAR YARD: 25 FEET
8 FEET (ACCESSORY BUILDINGS)

VERTICAL DATUM NOTE:
ELEVATIONS ARE BASED ON NAVD 88 DATUM USING GEOID 12B UTILIZING THE KENTUCKY VRS NETWORK

NO BUILDINGS OBSERVED ON SUBJECT PROPERTY.

NO EVIDENCE OF A PARKING LOT OR PARKING SPACES CONSTRUCTED AT TIME OF SURVEY.

THERE IS NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION OR BUILDING ADDITIONS OBSERVED IN THE PROCESS OF CONDUCTING THE FIELD WORK.

THE SURVEYOR HAS NOT BEEN ADVISED OF ANY DESIGNATED WETLAND AREAS ON THE SUBJECT PROPERTY.

CSWR
Central States Water Resources

LEGAL DESCRIPTION OF THE LAND:

Being Lot A, consisting of 1.918 acres, as shown on the Waiver of Subdivision Plat "Lot A Treatment Plat Site, Timberland Subdivision Unit No. One" of record in Plat Section "J", page 365, McCRACKEN County Court Clerk's Office.

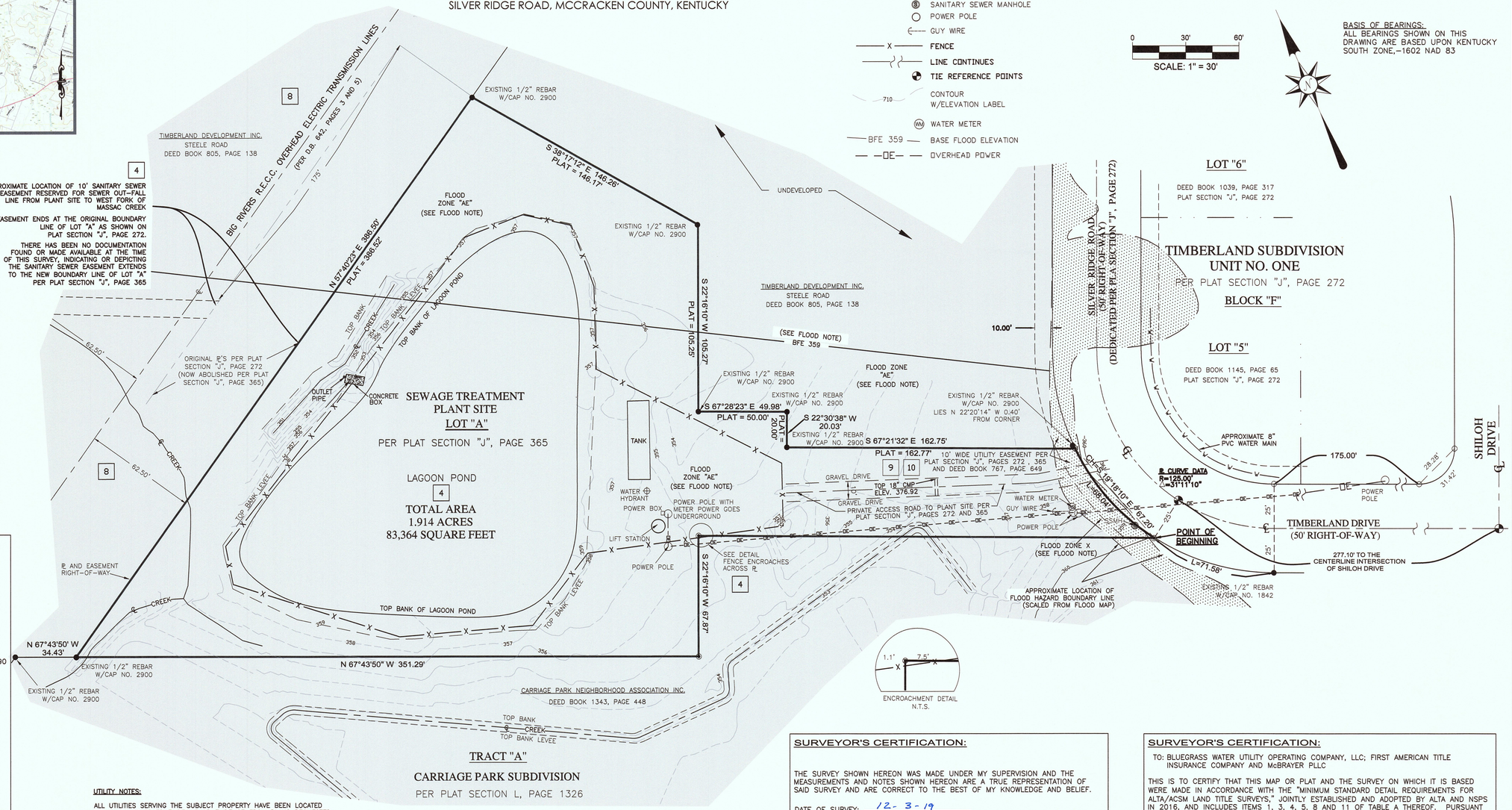
See also Deeds of Correction dated February 3, 1994, of record in Deed Book 805, Page 138; dated April 26, 1994, of record in Deed Book 810, Page 99; and dated July 2005, of record in Deed Book 1071, Page 118, all of record in the McCRACKEN County Clerk's Office.

LEGEND

- 1/2" X 24" STEEL ROD WITH PLASTIC CAP NO. 3732 SET AT TIME OF SURVEY UNLESS NOTED
- EXISTING AS SHOWN
- NO CORNER FOUND OR SET
- PROPERTY LINE
- CENTERLINE
- R.O.W RIGHT–OF–WAY
- ELECTRIC BOX
- SANITARY SEWER MANHOLE
- POWER POLE
- GUY WIRE
- X FENCE
- LINE CONTINUES
- TIE REFERENCE POINTS
- 710 CONTOUR W/ELEVATION LABEL
- WM WATER METER
- BFE 359 BASE FLOOD ELEVATION
- OE OVERHEAD POWER

0 30' 60'
SCALE: 1" = 30'

BASIS OF BEARINGS:
ALL BEARINGS SHOWN ON THIS DRAWING ARE BASED UPON KENTUCKY SOUTH ZONE,–1602 NAD 83



UTILITY NOTES:

ALL UTILITIES SERVING THE SUBJECT PROPERTY HAVE BEEN LOCATED EITHER BY OBSERVED EVIDENCE OR EVIDENCE FROM PLANS REQUESTED AND OBTAINED FROM THE UTILITY COMPANIES, AN 811 UTILITY LOCATE REQUEST WAS MADE AND MARKINGS FOUND AT THE SITE HAVE BEEN NOTED. ALL UNDERGROUND UTILITIES MAY NOT BE SHOWN AND MARKINGS FOUND AT THE SITE MAY NOT DEPICT UNDERGROUND FEATURES ACCURATELY. LACKING EXCAVATION, THE EXACT LOCATIONS OF UNDERGROUND FEATURES CANNOT BE ACCURATELY, COMPLETELY AND RELIABLY DEPICTED. IN SOME JURISDICTIONS, 811 OR OTHERWISE SIMILAR UTILITY LOCATE REQUESTS FROM SURVEYORS MAY BE IGNORED OR RESULT IN AN INCOMPLETE RESPONSE."

COMPANY	NUMBER	ADDRESS
ELECTRIC: JACKSON PURCHASE ENERGY CORPORATION	1–800–633–4044 1–270–557–4015	2900 IRVIN COBB DRIVE PADUCAH, KY 42001
TELEPHONE: AT&T	ALAN SHELBY 1–270–444–5048	810 KENTUCKY AVENUE PADUCAH, KY 42001
CABLE: COMCAST	DENNIS GRAHAM 1–270–442–6382	800 BROADWAY STREET PADUCAH, KY 42001
WATER: WEST MCCRACKEN WATER DISTRICT	1–270–442–3337	8020 OGDEN LANDING ROAD WEST PADUCAH, KY 42086
GAS: ATMOS ENERGY	EDDIE TUCKER 1–270–201–2136	3510 COLEMAN ROAD PADUCAH, KY 42001

4 **POTENTIAL ENCROACHMENTS:**
FENCE ENCROACHES ACROSS PROPERTY AS SHOWN.

9 **PROTECTIVE COVENANT NOTE:**
FOR PROTECTIVE COVENANTS TO TIMBERLAND SUBDIVISION DATED MARCH, 1986, SEE DEED BOOK 685, PAGE 22.

FLOOD NOTE:
THE PROPERTY SHOWN HEREON IS LISTED AS BEING IN THE FOLLOWING FLOOD ZONE AS SHOWN ON FLOOD INSURANCE RATE MAP FOR MCCRACKEN COUNTY, KENTUCKY, MAP NUMBER 21145C0110F, DATED NOVEMBER 02, 2011.

SHADE — ZONE X – 0.2% ANNUAL CHANCE FLOOD HAZARD, AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTH LESS THAN ONE FOOT OR WITH DRAINAGE AREAS OF LESS THAN ONE SQUARE MILE.

SHADE — ZONE AE – (SPECIAL FLOOD HAZARD AREAS) BASE FLOOD ELEVATIONS DETERMINED AND SHOWN HEREON.

SURVEYOR'S CERTIFICATION:

THE SURVEY SHOWN HEREON WAS MADE UNDER MY SUPERVISION AND THE MEASUREMENTS AND NOTES SHOWN HEREON ARE A TRUE REPRESENTATION OF SAID SURVEY AND ARE CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DATE OF SURVEY: 12-3-19

DATE: 1-3-20

SIGNED _____

BEING A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE COMMONWEALTH OF KENTUCKY LAND SURVEYOR NO. 3732

SURVEYOR'S CERTIFICATION:

TO: BLUEGRASS WATER UTILITY OPERATING COMPANY, LLC; FIRST AMERICAN TITLE INSURANCE COMPANY AND McBRAYER PLLC

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS IN 2016, AND INCLUDES ITEMS 1, 3, 4, 5, 8 AND 11 OF TABLE A THEREOF. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA AND NSPS AND IN EFFECT ON THE DATE OF THIS CERTIFICATION, THE UNDERSIGNED FURTHER CERTIFIES THAT IN MY PROFESSIONAL OPINION, AS A LAND SURVEYOR REGISTERED IN THE COMMONWEALTH OF KENTUCKY, THE RELATIVE POSITIONAL ACCURACY OF THIS SURVEY DOES NOT EXCEED 0.07 FEET / PLUS 50 PARTS PER MILLION THAT WHICH IS SPECIFIED HEREIN. BEARINGS AND DISTANCES ARE BASED ON AN ADJUSTED TRAVERSE BY METHODS OF LEAST SQUARES.

SIGNED _____ DATE 1-3-20

BEING A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE COMMONWEALTH OF KENTUCKY LAND SURVEYOR NO. 3732

Robert F Simmons
3732
LICENSED PROFESSIONAL LAND SURVEYOR
1-3-20

UTILITY CALL NOTE

TICKET NO. 1911150939
COMPANIES NOTIFIED:

BURIED UTILITIES NOTE

BURIED UTILITIES ARE SHOWN AT THEIR APPROXIMATE LOCATION BASED UPON INFORMATION OBTAINED FROM LOCAL UTILITY COMPANIES AND FIELD EVIDENCE. OTHER BURIED UTILITIES MIGHT EXIST ON THE SUBJECT SITE THAT ARE NOT SHOWN ON THIS DRAWING.

DATE:	01/03/2020
PROJECT NO:	19211
DRAWN BY:	AB/DG
SCALE:	1"=30'
SHEET NAME:	ALTA/NSPS LAND TITLE SURVEY

siteworx
SURVEY & DESIGN, LLC
124 South 31st Street - Paducah, KY 42001 - Ph: (270) 443-8491
www.siteworxdesign.com

FORM W-1

Commonwealth of Kentucky
Energy and Environment Cabinet
Division of Water

CONSTRUCTION PERMIT APPLICATION for WASTEWATER TREATMENT PLANT

See the INSTRUCTIONS for more information about selected portions of this application.
Questions on completing this application? Contact the Water Infrastructure Branch at 502/564-3410 or visit our website at http://water.ky.gov for more information.

I. CONSTRUCTION PROJECT INFORMATION

Project Name: Timberland Wastewater Facility Improvements

Project City/County: Paducah/McCracken County

Name of WWTP: Timberland Wastewater Facility

KPDES Number of WWTP, if known (for modifications to an existing plant): **KY** 0083755

Estimated cost of WWTP improvements and sewer line extension: $ 425,000

Project is: ☒ **WWTP Only** ☐ **WWTP with sewer lines**

☐ **Minor Modification to WWTP (Complete only Sections I, II, IV A, B, C, E3, H1, VII, VIII)**

II. APPLICANT INFORMATION

Applicant (Entity paying for construction): Bluegrass Water Utility Operating Company LLC E-mail: jfreeman@cswrgroup.com

Street Address: 1650 Des Peres Road, Suite 303

City, State, Zip: St. Louis, MO 63131

Will ownership be transferred? ☐ Yes. Name of new owner: _____ ☒ No

III. PRELIMINARY SUBMITTAL

Has a Preliminary Submittal been made with all the information in this section? [See 401 KAR 5:005, Section 3]

☐ Yes. Name of project: _____

County and Location of project, then skip to next section: _____

☒ No. Provide the information below that has not been previously submitted (use additional pages, as necessary). Place a **check** (✓) by the items included in the application or an **N/A** if the item is not applicable to the project.

✓ A. A copy of a 7½ minute USGS topographic map, with the WWTP, any proposed sewer lines, service area, and discharge location identified.

N/A B. For a WWTP located within a planning area, a letter from the regional or facility planning agency stating the proposed WWTP is compatible with the regional facility plan or the water quality management plan.

N/A C. For a WWTP located within a planning area, a demonstration that a connection to the regional facility is not available.

N/A D. For a regional WWTP, a water quality management plan that is in compliance with **401 KAR 5:006**.

IV. DESIGN CONSIDERATIONS

A. PLANS AND SPECIFICATIONS.

Design plans and specifications shall comply with 401 KAR 5:005 and "Recommended Standards for Wastewater Facilities" ("Ten States' Standards") 2014 edition. If engineering practices, other than those contained in "Ten States' Standards", were used in the design, indicate the source and the corresponding portion of the design. **[See 401 KAR 5:005, Section 7]**

Plans and specifications submittals shall meet on of the following options:

☐ Submit at least one paper printed set of detailed plans (no larger than 24" x 36") and a PDF copy of the plans and specifications on a data storage device such as a USB flash drive. Both copies shall be dated with a stamp, signature of a licensed professional engineer in Kentucky which complies with the requirements of 201 KAR 18:104. The digital plans shall consist of a single pdf file and be in a folder called "Engineering Plans" and the specifications manual shall be in a folder called "Specifications".

4 Submit a PDF copy of the plans and specifications digitally via the electronic form on the KY One Stop Business Portal website. The PDF copy shall be dated with stamp and signature of a licensed engineer in Kentucky which complies with the requirements of 201 KAR 18:104 Section 3. The plans shall be submitted as a single pdf file.

B. DESIGN ENGINEER, if the WWTP design capacity is greater than 10,000 gpd or if the sewer lines associated with the WWTP will become part of a sewer system served by a regional facility. **[Section 6]**

P.E.'s Name: Benjamin Kuenzel Firm: 21 Design Group

Street Address: 1351 Jefferson St. Suite 301

City, State, Zip: Washington, MO 63090

Phone: 636-432-5029 Fax: N/A E-mail: ben@21designgroup.net

C. CONFORMITY TO PLANS AND SPECIFICATIONS. Provide name of person who will inspect and certify that the constructed facility conforms to the approved plans and specifications. If the WWTP's design capacity is greater than 10,000 gpd, or if the sewer lines will become part of a sewer system served by a regional facility, this person must be a professional engineer (P.E.). **[Section 3]**

Name: Benjamin Kuenzel Firm: 21 Design Group

Street Address: 1351 Jefferson St. Suite 301

City, State, Zip: Washington, MO 63090

Phone: 636-432-5029 Fax: N/A E-mail: ben@21designgroup.net

D. DESIGN CAPACITIES. Provide the following design capacities, in million gallons per day or pounds per day. **[Section 3]**

Average Daily Flow: .025 MGD Influent BOD: 46.94 lb/day

Peak Daily Flow: .1 MGD Influent SS: 46.94 lb/day

Peak Hourly Flow: .12 MGD Influent NH_3-N: 7.3 lb/day

E. Design Criteria. Provide the following information (use additional pages, as necessary). Place a **check (✓)** by the items included in the application or an **N/A** if the item is not applicable to the project.

✓ 1. A schematic drawing of the facility layout and explanation of the proposed facility and method of operation. **[Section 3]**

✓ 2. WWTP's Reliability Category, Grade A, B, or C: _____. Include a detailed description of the reliability measures that will be used for the WWTP. **[Sections 3 and 13]**

✓ 3. A discussion of the design criteria used to size the unit processes. **[Section 3]**

F. LABORATORY SERVICES. Give name of laboratory that will provide services for self-monitoring and process control. **[Section 3]**

Firm Name: Microbac Laboratories, Inc.

Street Address: 3323 Gilmore Industrial Road

City, State, Zip: Louisville, KY 40213

G. SITE LOCATION. Place a **check (✓)** by the items that are included in this application or an **N/A** if the item is not applicable to the project.

✓ 1. Include a plat or survey clearly indicating the site's boundaries, position of proposed facility in reference to the boundaries, and position of dwellings within 200 feet of the WWTP. **[Section 3]**

N/A 2. If an open-top WWTP is closer than 200 feet to the closest dwelling, include what structure or other measures will be used for noise and odor control. **[Section 4]**

N/A 3. For a WWTP with a spray irrigation system, if the distance from the spray field to the property boundary is less than 20 feet, include what protective measures will be used to inhibit spray from crossing property boundary. **[Section 21]**

H. OTHER INFORMATION TO BE SUBMITTED WITH APPLICATION. Place a **check (✓)** by the items that are included in this application or an **N/A** if the item is not applicable to the project.

✓ 1. If modifying or replacing an existing WWTP or sewer line, a closure plan indicating how the new facility will be constructed without a by-pass to a stream and the procedures that will be used for abandoning the existing facility. **[Section 3]**

✓ 2. A Sludge Management Plan for WWTPs, including the sludge processing method and how sludge will be ultimately disposed. **[Section 3]**

✓ 3. If the discharge point does not coincide with a blue line on a USGS map, a copy of a recorded deed, recorded other right of ownership, or recorded right of easement for a corridor to the nearest blue line stream. **[Section 3]**

N/A 4. A description of and detailed specifications for the flow measuring device. **[Section 7]**

N/A 5. If the WWTP discharges to a sinkhole or sinking stream, a plan for a groundwater tracer study (or a previously conducted groundwater tracer study). **[Section 4]**

V. SEWER LINES

Include the following items for projects that include sewer lines. If project is for only a WWTP, skip to next section. Place a **check (✓)** by the items that are included in this application or **N/A** if the item is not applicable to the project.

N/A A. If the project includes a pump station, the pump performance curve. **[Section 8]**

N/A B. If the project includes gravity sewer lines or force mains, a plan view and profile view for each. **[Section 6]**

N/A C. A demonstration that the sewer system has adequate capacity to treat the current and the anticipated flow to the WWTP and that the sewer system is not subject to excessive infiltration or excessive inflow. **[Section 8]**

N/A D. A demonstration that the WWTP has adequate capacity to transport the anticipated flow to the WWTP and the WWTP is not subject to excessive infiltration or excessive inflow. **[Section 8]**

VI. OTHER REQUIRED APPLICATIONS

✓ A. If the WWTP has a discharge, complete and file with this application: KPDES Application (KPDES Form 1); and Form A, B, C, or Short Form C, as applicable.

___ B. If the WWTP does not have a discharge, complete and file with this application the "No Discharge Operating Permit Application, Form ND."

VII. FEES

Fees. Check or money order must be made payable to "**Kentucky State Treasurer**" for the total amount. **Fees do not apply** for a municipality, sanitation district, or other publicly owned facility. **[Section 5]**

WWTP Category: _____ Amount: $ _____

Sewer Line Category: _____ Amount: $ _____

Total Amount: $ _____

VIII. CERTIFICATION

I, the applicant, certify under penalty of law that this document and all attachments were prepared under my direction or supervision. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment or both for known violations. **[Section 2]**

Applicant's Name and Official Title (Type or Print)	**Phone Number (Include area code)**
Jacob Freeman	(314)-550-1167
Signature 	**Date** 1/27/2021

FORM W-1

Commonwealth of Kentucky
Energy and Environment Cabinet
Division of Water

CONSTRUCTION PERMIT APPLICATION for WASTEWATER TREATMENT PLANT

See the INSTRUCTIONS for more information about selected portions of this application.
Questions on completing this application? Contact the Water Infrastructure Branch at 502/564-3410 or visit our website at http://water.ky.gov for more information.

I. CONSTRUCTION PROJECT INFORMATION

Project Name: Timberland Wastewater Facility Improvements

Project City/County: Paducah/McCracken County

Name of WWTP: Timberland Wastewater Facility

KPDES Number of WWTP, if known (for modifications to an existing plant): **KY** 0083755

Estimated cost of WWTP improvements and sewer line extension: $ 400,000.00

Project is: ☒ **WWTP Only** ☐ **WWTP with sewer lines**

☐ **Minor Modification to WWTP (Complete only Sections I, II, IV A, B, C, E3, H1, VII, VIII)**

II. APPLICANT INFORMATION

Applicant (Entity paying for construction): Bluegrass Water Utility Operating Company LLC E-mail: jfreeman@cswrgroup.com

Street Address: 1650 Des Peres Road, Suite 303

City, State, Zip: St. Louis, MO 63131

Will ownership be transferred? ☐ Yes. Name of new owner: _____ ☒ No

III. PRELIMINARY SUBMITTAL

Has a Preliminary Submittal been made with all the information in this section? [See 401 KAR 5:005, Section 3]

☐ Yes. Name of project: _____

County and Location of project, then skip to next section: _____

☒ No. Provide the information below that has not been previously submitted (use additional pages, as necessary). Place a **check** (✓) by the items included in the application or an **N/A** if the item is not applicable to the project.

✓ A. A copy of a 7½ minute USGS topographic map, with the WWTP, any proposed sewer lines, service area, and discharge location identified.

N/A B. For a WWTP located within a planning area, a letter from the regional or facility planning agency stating the proposed WWTP is compatible with the regional facility plan or the water quality management plan.

N/A C. For a WWTP located within a planning area, a demonstration that a connection to the regional facility is not available.

N/A D. For a regional WWTP, a water quality management plan that is in compliance with **401 KAR 5:006**.

IV. DESIGN CONSIDERATIONS

A. PLANS AND SPECIFICATIONS.

Design plans and specifications shall comply with 401 KAR 5:005 and "Recommended Standards for Wastewater Facilities" ("Ten States' Standards") 2014 edition. If engineering practices, other than those contained in "Ten States' Standards", were used in the design, indicate the source and the corresponding portion of the design. **[See 401 KAR 5:005, Section 7]**

Plans and specifications submittals shall meet on of the following options:

☐ Submit at least one paper printed set of detailed plans (no larger than 24" x 36") and a PDF copy of the plans and specifications on a data storage device such as a USB flash drive. Both copies shall be dated with a stamp, signature of a licensed professional engineer in Kentucky which complies with the requirements of 201 KAR 18:104. The digital plans shall consist of a single pdf file and be in a folder called "Engineering Plans" and the specifications manual shall be in a folder called "Specifications".

4 Submit a PDF copy of the plans and specifications digitally via the electronic form on the KY One Stop Business Portal website. The PDF copy shall be dated with stamp and signature of a licensed engineer in Kentucky which complies with the requirements of 201 KAR 18:104 Section 3. The plans shall be submitted as a single pdf file.

B. DESIGN ENGINEER, if the WWTP design capacity is greater than 10,000 gpd or if the sewer lines associated with the WWTP will become part of a sewer system served by a regional facility. **[Section 6]**

P.E.'s Name: Benjamin Kuenzel Firm: 21 Design Group

Street Address: 1351 Jefferson St. Suite 301

City, State, Zip: Washington, MO 63090

Phone: 636-432-5029 Fax: N/A E-mail: ben@21designgroup.net

C. CONFORMITY TO PLANS AND SPECIFICATIONS. Provide name of person who will inspect and certify that the constructed facility conforms to the approved plans and specifications. If the WWTP's design capacity is greater than 10,000 gpd, or if the sewer lines will become part of a sewer system served by a regional facility, this person must be a professional engineer (P.E.). **[Section 3]**

Name: Benjamin Kuenzel Firm: 21 Design Group

Street Address: 1351 Jefferson St. Suite 301

City, State, Zip: Washington, MO 63090

Phone: 636-432-5029 Fax: N/A E-mail: ben@21designgroup.net

D. DESIGN CAPACITIES. Provide the following design capacities, in million gallons per day or pounds per day. **[Section 3]**

Average Daily Flow: .025 MGD Influent BOD: 46.94 lb/day

Peak Daily Flow: .1 MGD Influent SS: 46.94 lb/day

Peak Hourly Flow: .12 MGD Influent NH_3-N: 7.3 lb/day

E. Design Criteria. Provide the following information (use additional pages, as necessary). Place a **check (✓)** by the items included in the application or an **N/A** if the item is not applicable to the project.

✓ 1. A schematic drawing of the facility layout and explanation of the proposed facility and method of operation. **[Section 3]**

✓ 2. WWTP's Reliability Category, Grade A, B, or C: _____. Include a detailed description of the reliability measures that will be used for the WWTP. **[Sections 3 and 13]**

✓ 3. A discussion of the design criteria used to size the unit processes. **[Section 3]**

F. LABORATORY SERVICES. Give name of laboratory that will provide services for self-monitoring and process control. **[Section 3]**

Firm Name: Microbac Laboratories, Inc.

Street Address: 3323 Gilmore Industrial Road

City, State, Zip: Louisville, KY 40213

G. SITE LOCATION. Place a **check (✓)** by the items that are included in this application or an **N/A** if the item is not applicable to the project.

✓ 1. Include a plat or survey clearly indicating the site's boundaries, position of proposed facility in reference to the boundaries, and position of dwellings within 200 feet of the WWTP. **[Section 3]**

N/A 2. If an open-top WWTP is closer than 200 feet to the closest dwelling, include what structure or other measures will be used for noise and odor control. **[Section 4]**

N/A 3. For a WWTP with a spray irrigation system, if the distance from the spray field to the property boundary is less than 20 feet, include what protective measures will be used to inhibit spray from crossing property boundary. **[Section 21]**

H. OTHER INFORMATION TO BE SUBMITTED WITH APPLICATION. Place a **check (✓)** by the items that are included in this application or an **N/A** if the item is not applicable to the project.

✓ 1. If modifying or replacing an existing WWTP or sewer line, a closure plan indicating how the new facility will be constructed without a by-pass to a stream and the procedures that will be used for abandoning the existing facility. **[Section 3]**

✓ 2. A Sludge Management Plan for WWTPs, including the sludge processing method and how sludge will be ultimately disposed. **[Section 3]**

✓ 3. If the discharge point does not coincide with a blue line on a USGS map, a copy of a recorded deed, recorded other right of ownership, or recorded right of easement for a corridor to the nearest blue line stream. **[Section 3]**

N/A 4. A description of and detailed specifications for the flow measuring device. **[Section 7]**

N/A 5. If the WWTP discharges to a sinkhole or sinking stream, a plan for a groundwater tracer study (or a previously conducted groundwater tracer study). **[Section 4]**

V. SEWER LINES

Include the following items for projects that include sewer lines. If project is for only a WWTP, skip to next section. Place a **check (✓)** by the items that are included in this application or **N/A** if the item is not applicable to the project.

N/A A. If the project includes a pump station, the pump performance curve. **[Section 8]**

N/A B. If the project includes gravity sewer lines or force mains, a plan view and profile view for each. **[Section 6]**

N/A C. A demonstration that the sewer system has adequate capacity to treat the current and the anticipated flow to the WWTP and that the sewer system is not subject to excessive infiltration or excessive inflow. **[Section 8]**

N/A D. A demonstration that the WWTP has adequate capacity to transport the anticipated flow to the WWTP and the WWTP is not subject to excessive infiltration or excessive inflow. **[Section 8]**

VI. OTHER REQUIRED APPLICATIONS

✓ A. If the WWTP has a discharge, complete and file with this application: KPDES Application (KPDES Form 1); and Form A, B, C, or Short Form C, as applicable.

___ B. If the WWTP does not have a discharge, complete and file with this application the "No Discharge Operating Permit Application, Form ND."

VII. FEES

Fees. Check or money order must be made payable to "**Kentucky State Treasurer**" for the total amount. **Fees do not apply** for a municipality, sanitation district, or other publicly owned facility. **[Section 5]**

WWTP Category: Intermediate Amount: $ 900.00

Sewer Line Category: _____ Amount: $ _____

Total Amount: $ 900.00

VIII. CERTIFICATION

I, the applicant, certify under penalty of law that this document and all attachments were prepared under my direction or supervision. The information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment or both for known violations. **[Section 2]**

Applicant's Name and Official Title (Type or Print)	**Phone Number (Include area code)**
Jacob Freeman	(314)-550-1167
Signature 	**Date** 09/28/2020

Form 1	KENTUCKY POLLUTION DISCHARGE ELIMINATION SYSTEM Permit Application	Division of Water

NAME OF FACILITY: Timberland Wastewater Facility	AGENCY USE ONLY
PERMIT NO.: KY0083755	COUNTY: McCracken

This is an application to: (check one)

☐ Apply for a new permit.

☐ Apply for reissuance of expiring permit.

☑ Modify an existing permit.* (Give reason for modification under Section III)

A complete application consists of this form (Form 1), and one or more of the following: Form A, Form B, Form C, Form F, or Form SC.

I. FACILITY AND CONTACT INFORMATION

Name of business, municipality, company, etc. requesting permit: Bluegrass Water Utility Operating Company

Owner Name (and Title if applicable): Josiah Cox - President

Owner Mailing Address (Street, etc.): 1650 Des Peres Road, Suite 303

Owner City, State, Zip: St. Louis, MO 63131

Owner Telephone Number: (314) 736-4672

Owner Email Address: jcox@cswrgroup.com

Type of Ownership:	☐ Publicly Owned	☑ Privately Owned	☐ State Owned	☐ Both Publicly and Privately Owned	☐ Federally Owned

Contact Name and Title (if different):

Contact Mailing Address (if different):

Contact City, State, Zip (if different):

Contact Telephone Number (if different):

Contact Email Address (if different):

NetDMR Official Contact for Facility: Kaleb Stephens

NetDMR Official Contact Telephone Number: (715) 790-2559

NetDMR Official Contact Email Address: kstephens@cswrgroup.com

II. FACILITY LOCATION

Facility Location (street, road, highway, etc.): Timberland Drive

Facility City, State, Zip: Paducah, KY 42086

Facility Latitude (Decimal Degrees): 27.07938

Facility Longitude (Decimal Degrees): -88.77579

☑ Attach a site location map with the facility and outfalls clearly marked. Provide either an aerial map, topographic map, or other map that identifies the site location and significant features.

III. FACILITY DESCRIPTION	
Provide a brief description of activities, products, etc.: Sanitary waste treatment facility for Timberland Subdivision	
* Reason for modifying existing permit, if applicable: We are currently in the process of upgrading the plant.	
Principal SIC Code and description: 4952 - Sewerage Systems	
Other SIC Codes: N/A	
IV. OPERATOR INFORMATION	
Treatment Plant Operator Name: Stephen Roach	
Operator Mailing Address (Street, etc.): 5625 Warrendale Drive	
Operator City, State, Zip: Paducah, KY 42003	
Operator Telephone Number: 502-744-1856	
Operator Email Address: sroach@midwestwaterop.com	
Operator Certification Class: IV	Operator Certification Number: 63051
V. ENVIRONMENTAL PERMITS/REGISTRATIONS FOR THIS FACILITY	
KPDES Permit Number: KY0083755	Issue Date of Current Permit: February 1, 2020
Expiration Date of Current Permit: January 31, 2025	Date of Original Permit Issuance: Unknown
☐ Other DOW Permits (list):	
☐ Sludge Disposal Permit Number:	
☐ Air Emission Source Control Permit Number:	
☐ Solid Waste or Special Waste Permit Number:	
☐ Hazardous Waste Registration or Permit Number:	
☐ Surface Mine or Underground Mine Permit Number:	
☐ Other (specify):	
VI. PERMIT FEE (See instructions)	
Select the type of permit being requested. See instructions for applicable fees and methods of payment. Additional information can be found in "General Instructions" at Water.Ky.Gov/Permitting/WastewaterDischarge	
☐ Major Industry	☐ Large Non-POTW
☐ Minor Industry	☐ Intermediate Non-POTW
☐ Non-Process Industry	☐ Small Non-POTW
☐ Surface Mining Operation	☐ 501(c)(3)

☐ Total Amount Enclosed $	

IX. CERTIFICATION	
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
PRINTED NAME AND TITLE: Josiah Cox - President	
SIGNATURE:	DATE: 09/28/2020
TELEPHONE NO. (314) 736-4672	EMAIL: jcox@cswrgroup.com

Return completed application form and attachments to:
Division of Water
Surface Water Permits Branch
300 Sower Boulevard, 3rd Floor
Frankfort, KY 40601

Direct questions to: Surface Water Permits Branch at (502) 564-3410.

Form SC	KENTUCKY POLLUTION DISCHARGE ELIMINATION SYSTEM Permit Application	Division of Water

NAME OF FACILITY: Timberland Wastewater Facility	AGENCY USE ONLY
PERMIT NO.: KY0083755	COUNTY: McCracken

I. OUTFALL LOCATION

☐ For each outfall, list the latitude and longitude of its location to five decimal points.

OUTFALL NUMBER	LATITUDE In Decimal Degrees	LONGITUDE In Decimal Degrees	RECEIVING WATER (name)
001	37.07917	-88.78111	West Fork Massac Creek

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B.

B. For each outfall, provide a description of:
(1) operations contributing wastewater to the effluent;
(2) the average and/or design flow contributed by each operation; and
(3) the treatment received by the wastewater.

OUTFALL NUMBER	SOURCES OF WASTEWATER		TREATMENT DESCRIPTION (refer to Table SC-1 for description)
	Operations Contributing to Flow	Average / Design Flow (include units)	
001	100%	.0071/.0025 MGD	1-Y, 3-I (MBBR), 1-U, 2-F, 2-E, 3-L, 5-A, 4-A, 3-P

III. FACILITY DISCHARGE

A. Check the appropriate boxes indicating the types of wastewater discharged.

☑ Domestic wastewater (60% or more sanitary sewage)

☐ Non-contact cooling water

☐ Filter backwash

☐ Other non-process wastewaters. Provide description:

B. Does discharge occur all year?

☑ Yes.

How many days per week does discharge occur? 7

What is the average duration of discharge? Specify hours or days. 24

☐ No.

C. Except for stormwater runoff, leaks, or spills, are any of the discharges intermittent or seasonal?

☐ Yes. If yes, provide description of approximate number, duration, and volume of seasonal or intermittent flows.

☑ No.

D. Provide the basis for design and sizing of the wastewater facility.
The documents attached to the construction permit application address this question in detail.

E. If the facility is a new discharger, what is the anticipated discharge date?

Treatment Plants Only to complete Section F & G.

F. Does all water used at facility (except for human consumption) flow to a treatment plant?

☑ Yes.

☐ No. If no, please describe.

G. What is the design capacity of the treatment system .025 MGD

IV. AREA SERVED BY WASTEWATER TREATMENT PLANT

NAME OF AREA OR COMMUNITY	ACTUAL POPULATION SERVED
Timberland Subdivision	210
Total Population Served	210

V. COOLING WATER ADDITIVES

Are cooling water additives used?

☐ Yes. In the table below, list each additive, its composition, concentration, and feed rate. Attach Safety Data Sheets for each.

☑ No

NAME OF ADDITIVE	COMPOSITION	CONCENTRATION	FEED RATE

VI. EFFLUENT CHARACTERISTICS	OUTFALL NO: 001
Complete Sections A, B, and C for each outfall.	
A. What is the frequency and duration of flow? Continuous	
B. In the first part of the table below, provide results of effluent analysis for each pollutant / parameter listed.	
C. Samples below are from the Summer of 2020	

POLLUTANT/PARAMETER	UNITS	MAX DAILY VALUE	AVG DAILY VALUE	NUMBER OF SAMPLES
☐BOD_5 or ☑$CBOD_5$	mg/l	11	8.33	4
Total Suspended Solids	mg/l	29	20.2	5
E.Coli	colonies/ 100 ml	2419.6 with outliers 7.5 without	969.94 with outliers 3.5 without	5 with outliers 3 without
Total Residual Chlorine	mg/l	2.2	.91	5
Oil and Grease	mg/l	N/A	N/A	N/A
Chemical Oxygen Demand	mg/l	N/A	N/A	N/A
Total Organic Carbon	mg/l	N/A	N/A	N/A
Ammonia	mg/l	18	16.5	4
Discharge of Flow	MGD	N/A	N/A	N/A
pH	s.u.	7.79	7.44	5
Temperature (winter)	°C	N/A	N/A	N/A
Temperature (summer)	°C	28.6	26.44	5

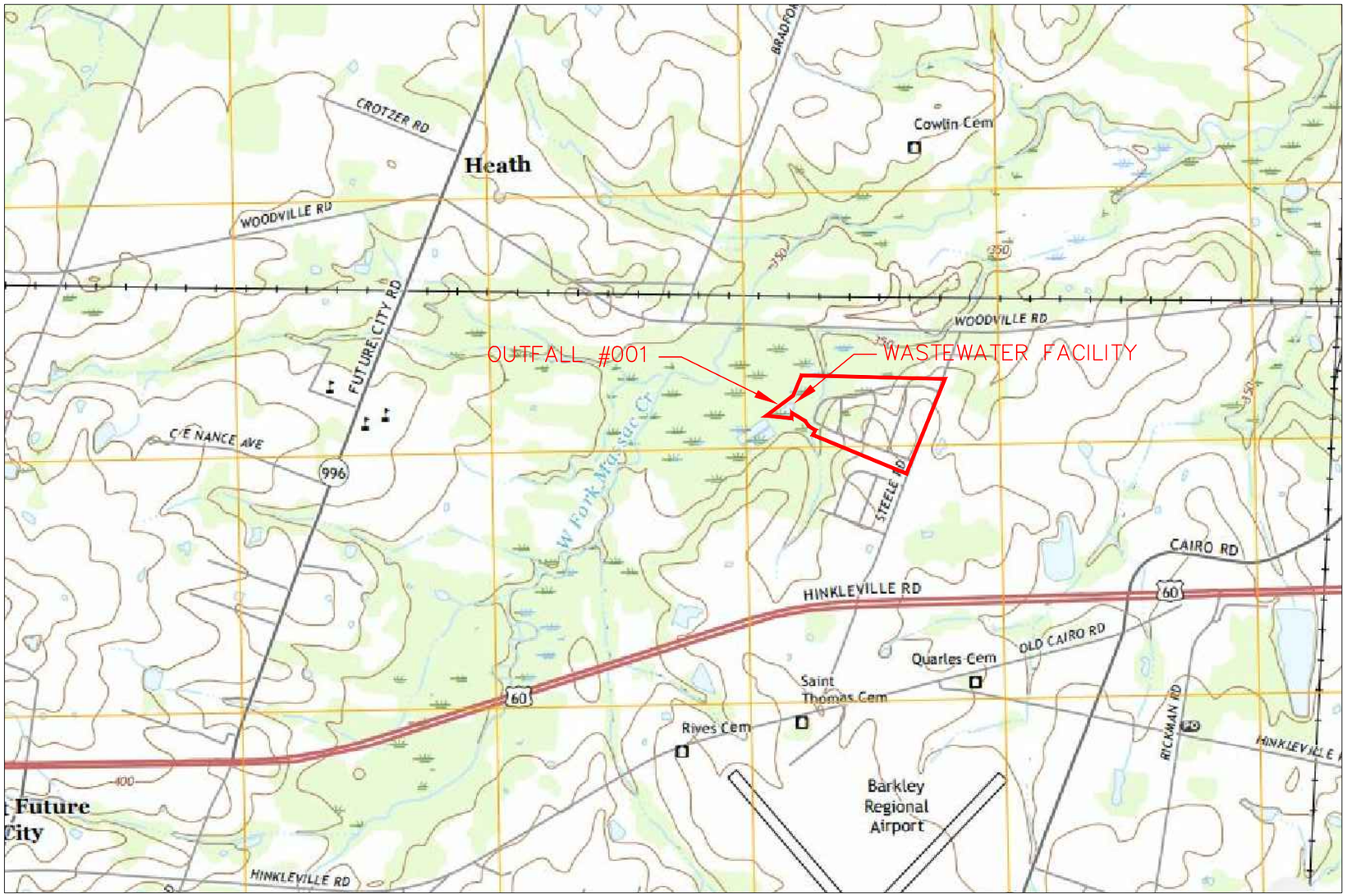
METALS	UNITS	AVG CONCENTRATION
☐ Antimony	µg/l	
☐ Arsenic	µg/l	
☐ Beryllium	µg/l	
☐ Cadmium	µg/l	
☐ Chromium	µg/l	
☐ Copper	µg/l	
☐ Lead	µg/l	
☐ Mercury	µg/l	
☐ Nickel	µg/l	
☐ Selenium	µg/l	
☐ Silver	µg/l	
☐ Thallium	µg/l	
☐ Zinc	µg/l	

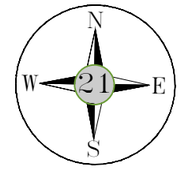
VII. CERTIFICATION	
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
PRINTED NAME AND TITLE: Josiah Cox - President	
SIGNATURE: 	DATE: 09/28/2020
TELEPHONE NO. (314) 736-4672	EMAIL: jcox@cswrgroup.com

Return completed application form and attachments to:
Division of Water
Surface Water Permits Branch
300 Sower Boulevard, 3rd Floor
Frankfort, KY 40601

Direct questions to: Surface Water Permits Branch at (502) 564-3410.

USGS QUAD MAP
FOR TIMBERLAND SUBDIVISION WWTF
PADUCAH, KY
(HEATH QUAD MAP)





0 1000' 2000'

SCALE: 1" = 1000'

PRELIMINARY

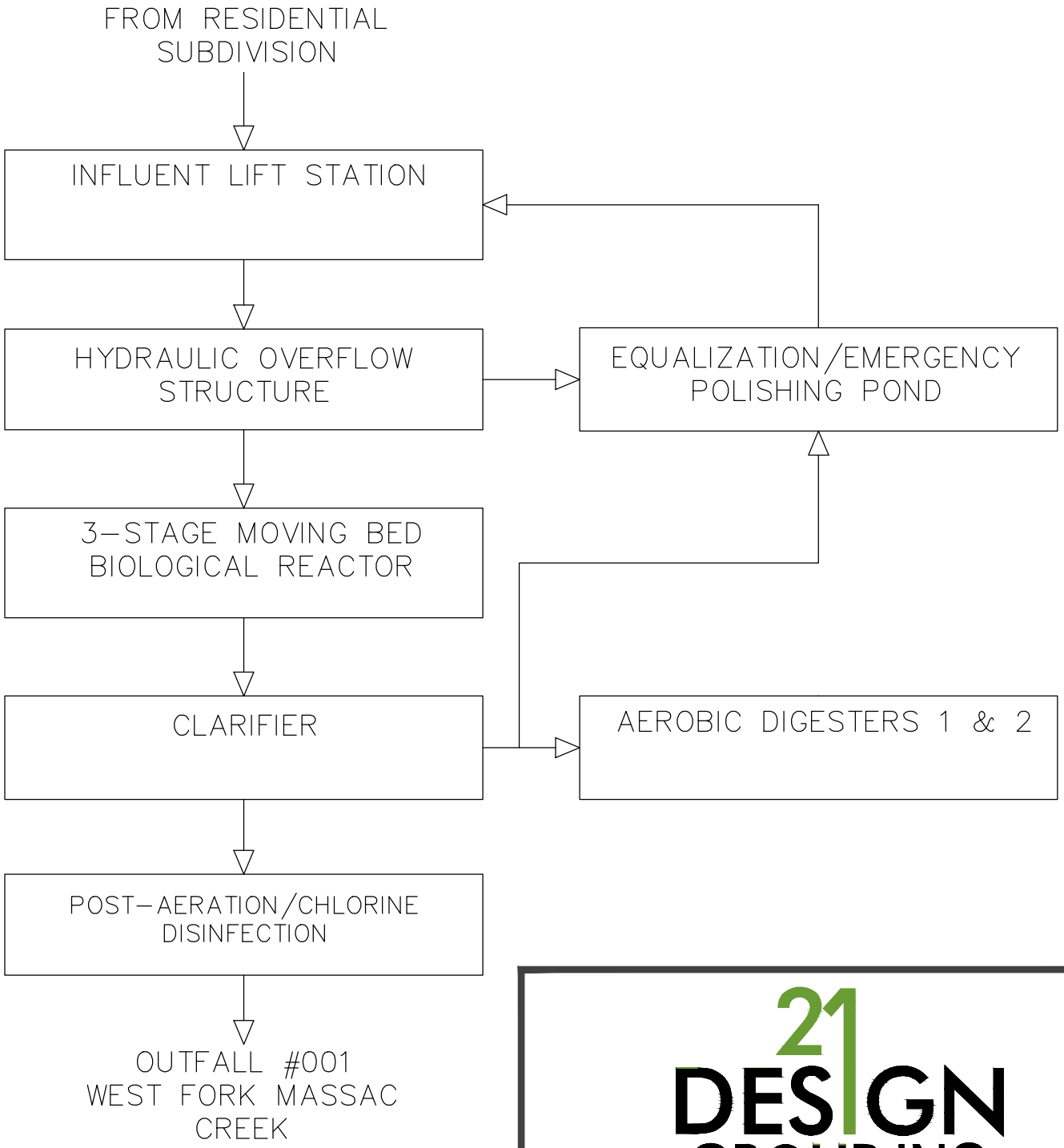
THIS DRAWING IS FOR REVIEW ONLY AND SHALL NOT BE USED FOR CONSTRUCTION

21 DESIGN GROUP INC.

1351 Jefferson, Suite 301
Washington, MO 63090

mail@21designgroup.net
P: 636-432-5029

WASTEWATER FACILITY PROCESS FLOW DIAGRAM FOR TIMBERLAND WWTF PADUCAH, KENTUCKY



21 DESIGN GROUP INC.

1351 Jefferson, Suite 301
Washington, MO 63090
mail@21designgroup.net
P: 636-432-5029

Form 1	KENTUCKY POLLUTION DISCHARGE ELIMINATION SYSTEM Permit Application	Division of Water

NAME OF FACILITY: Timberland Wastewater Facility	AGENCY USE ONLY
PERMIT NO.: KY0083755	COUNTY: McCracken

This is an application to: (check one)

☐ Apply for a new permit.

☐ Apply for reissuance of expiring permit.

☑ Modify an existing permit.* (Give reason for modification under Section III)

A complete application consists of this form (Form 1), and one or more of the following: Form A, Form B, Form C, Form F, or Form SC.

I. FACILITY AND CONTACT INFORMATION

Name of business, municipality, company, etc. requesting permit: Bluegrass Water Utility Operating Company

Owner Name (and Title if applicable): Josiah Cox - President

Owner Mailing Address (Street, etc.): 1650 Des Peres Road, Suite 303

Owner City, State, Zip: St. Louis, MO 63131

Owner Telephone Number: (314) 736-4672

Owner Email Address: jcox@cswrgroup.com

Type of Ownership:	☐ Publicly Owned	☑ Privately Owned	☐ State Owned	☐ Both Publicly and Privately Owned	☐ Federally Owned

Contact Name and Title (if different):

Contact Mailing Address (if different):

Contact City, State, Zip (if different):

Contact Telephone Number (if different):

Contact Email Address (if different):

NetDMR Official Contact for Facility: Kaleb Stephens

NetDMR Official Contact Telephone Number: (715) 790-2559

NetDMR Official Contact Email Address: kstephens@cswrgroup.com

II. FACILITY LOCATION

Facility Location (street, road, highway, etc.): Timberland Drive

Facility City, State, Zip: Paducah, KY 42086

Facility Latitude (Decimal Degrees): 27.07938

Facility Longitude (Decimal Degrees): -88.77579

☑ Attach a site location map with the facility and outfalls clearly marked. Provide either an aerial map, topographic map, or other map that identifies the site location and significant features.

III. FACILITY DESCRIPTION	
Provide a brief description of activities, products, etc.: Sanitary waste treatment facility for Timberland Subdivision	
* Reason for modifying existing permit, if applicable: We are currently in the process of upgrading the plant.	
Principal SIC Code and description: 4952 - Sewerage Systems	
Other SIC Codes: N/A	
IV. OPERATOR INFORMATION	
Treatment Plant Operator Name: Stephen Roach	
Operator Mailing Address (Street, etc.): 5625 Warrendale Drive	
Operator City, State, Zip: Paducah, KY 42003	
Operator Telephone Number: 502-744-1856	
Operator Email Address: sroach@midwestwaterop.com	
Operator Certification Class: IV	Operator Certification Number: 63051
V. ENVIRONMENTAL PERMITS/REGISTRATIONS FOR THIS FACILITY	
KPDES Permit Number: KY0083755	Issue Date of Current Permit: February 1, 2020
Expiration Date of Current Permit: January 31, 2025	Date of Original Permit Issuance: Unknown
☐ Other DOW Permits (list):	
☐ Sludge Disposal Permit Number:	
☐ Air Emission Source Control Permit Number:	
☐ Solid Waste or Special Waste Permit Number:	
☐ Hazardous Waste Registration or Permit Number:	
☐ Surface Mine or Underground Mine Permit Number:	
☐ Other (specify):	
VI. PERMIT FEE (See instructions)	
Select the type of permit being requested. See instructions for applicable fees and methods of payment. Additional information can be found in "General Instructions" at Water.Ky.Gov/Permitting/WastewaterDischarge	
☐ Major Industry	☐ Large Non-POTW
☐ Minor Industry	☐ Intermediate Non-POTW
☐ Non-Process Industry	☐ Small Non-POTW
☐ Surface Mining Operation	☐ 501(c)(3)

☐ Total Amount Enclosed $	

IX. CERTIFICATION	
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
PRINTED NAME AND TITLE: Josiah Cox - President	
SIGNATURE:	DATE: 1/27/2021
TELEPHONE NO. (314) 736-4672	EMAIL: jcox@cswrgroup.com

Return completed application form and attachments to:
Division of Water
Surface Water Permits Branch
300 Sower Boulevard, 3rd Floor
Frankfort, KY 40601

Direct questions to: Surface Water Permits Branch at (502) 564-3410.

Form SC

KENTUCKY POLLUTION DISCHARGE ELIMINATION SYSTEM

Permit Application

Division of Water

NAME OF FACILITY: Timberland Wastewater Facility	AGENCY USE ONLY
PERMIT NO.: KY0083755	COUNTY: McCracken

I. OUTFALL LOCATION

☐ For each outfall, list the latitude and longitude of its location to five decimal points.

OUTFALL NUMBER	LATITUDE In Decimal Degrees	LONGITUDE In Decimal Degrees	RECEIVING WATER (name)
001	37.07917	-88.78111	West Fork Massac Creek

II. FLOWS, SOURCES OF POLLUTION, AND TREATMENT TECHNOLOGIES

A. Attach a line drawing showing the water flow through the facility. Indicate sources of intake water, operations contributing wastewater to the effluent, and treatment units labeled to correspond to the more detailed descriptions in Item B.

B. For each outfall, provide a description of:
(1) operations contributing wastewater to the effluent;
(2) the average and/or design flow contributed by each operation; and
(3) the treatment received by the wastewater.

OUTFALL NUMBER	SOURCES OF WASTEWATER		TREATMENT DESCRIPTION (refer to Table SC-1 for description)
	Operations Contributing to Flow	Average / Design Flow (include units)	
001	100%	.0071/.0025 MGD	1-Y, 3-I (MBBR), 1-U, 2-F, 2-E, 3-L, 5-A, 4-A, 3-P
			2-H (PAA)

III. FACILITY DISCHARGE

A. Check the appropriate boxes indicating the types of wastewater discharged.

☑ Domestic wastewater (60% or more sanitary sewage)

☐ Non-contact cooling water

☐ Filter backwash

☐ Other non-process wastewaters. Provide description:

B. Does discharge occur all year?

☑ Yes.

How many days per week does discharge occur? 7

What is the average duration of discharge? Specify hours or days. 24

☐ No.

C. Except for stormwater runoff, leaks, or spills, are any of the discharges intermittent or seasonal?

☐ Yes. If yes, provide description of approximate number, duration, and volume of seasonal or intermittent flows.

☑ No.

D. Provide the basis for design and sizing of the wastewater facility.
The documents attached to the construction permit application address this question in detail.

E. If the facility is a new discharger, what is the anticipated discharge date?

Treatment Plants Only to complete Section F & G.

F. Does all water used at facility (except for human consumption) flow to a treatment plant?

☑ Yes.

☐ No. If no, please describe.

G. What is the design capacity of the treatment system .025 MGD

IV. AREA SERVED BY WASTEWATER TREATMENT PLANT

NAME OF AREA OR COMMUNITY	ACTUAL POPULATION SERVED
Timberland Subdivision	210
Total Population Served	210

V. COOLING WATER ADDITIVES

Are cooling water additives used?

☐ Yes. In the table below, list each additive, its composition, concentration, and feed rate. Attach Safety Data Sheets for each.

☑ No

NAME OF ADDITIVE	COMPOSITION	CONCENTRATION	FEED RATE

VI. EFFLUENT CHARACTERISTICS	OUTFALL NO: 001
Complete Sections A, B, and C for each outfall.	
A. What is the frequency and duration of flow? Continuous	
B. In the first part of the table below, provide results of effluent analysis for each pollutant / parameter listed.	
C. Samples below are from the Summer of 2020	

POLLUTANT/PARAMETER	UNITS	MAX DAILY VALUE	AVG DAILY VALUE	NUMBER OF SAMPLES
☐BOD_5 or ☑$CBOD_5$	mg/l	11	8.33	4
Total Suspended Solids	mg/l	29	20.2	5
E.Coli	colonies/ 100 ml	2419.6 with outliers 7.5 without	969.94 with outliers 3.5 without	5 with outliers 3 without
Total Residual Chlorine	mg/l	2.2	.91	5
Oil and Grease	mg/l	N/A	N/A	N/A
Chemical Oxygen Demand	mg/l	N/A	N/A	N/A
Total Organic Carbon	mg/l	N/A	N/A	N/A
Ammonia	mg/l	18	16.5	4
Discharge of Flow	MGD	N/A	N/A	N/A
pH	s.u.	7.79	7.44	5
Temperature (winter)	°C	N/A	N/A	N/A
Temperature (summer)	°C	28.6	26.44	5

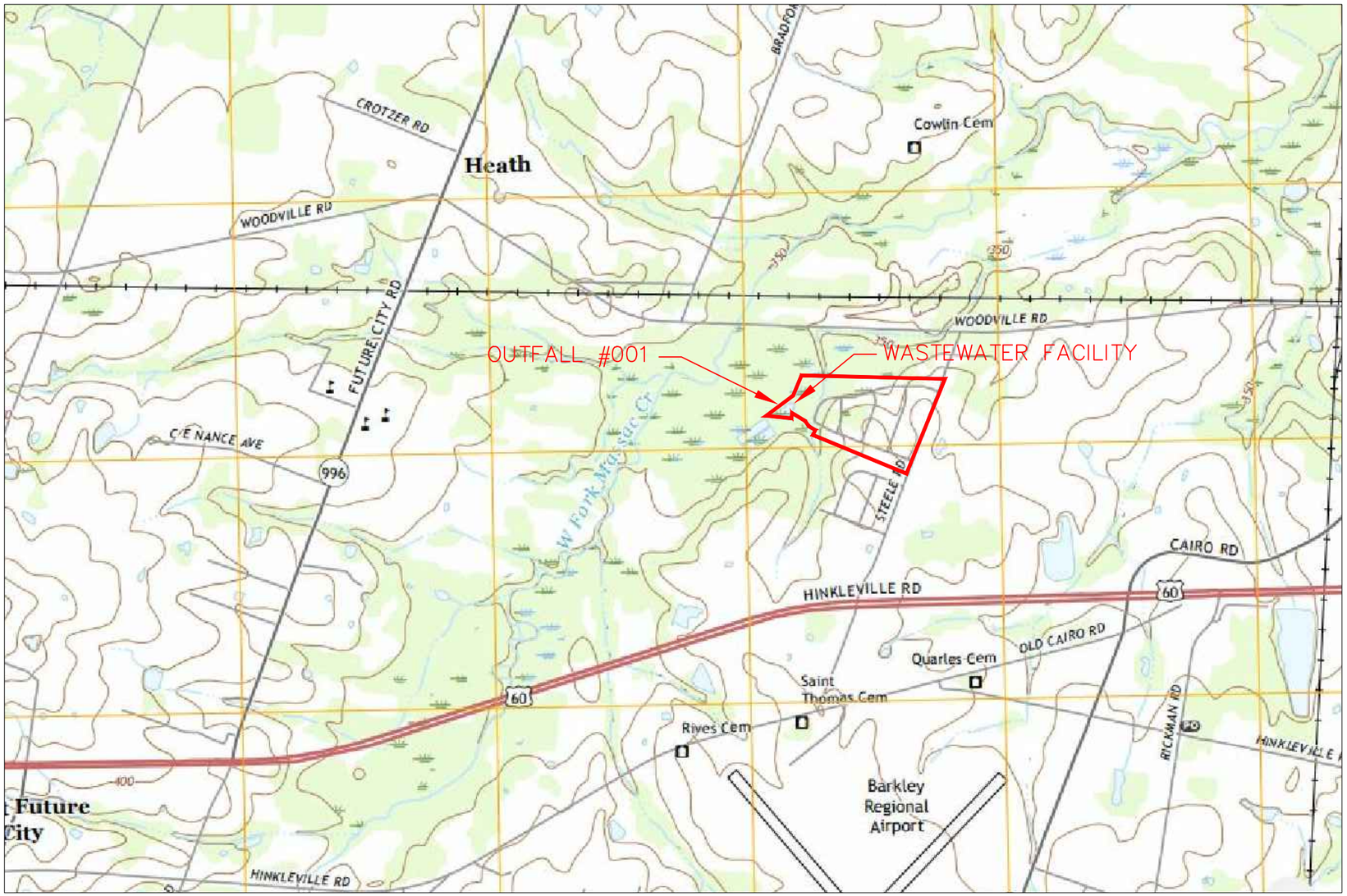
METALS	UNITS	AVG CONCENTRATION
☐ Antimony	µg/l	
☐ Arsenic	µg/l	
☐ Beryllium	µg/l	
☐ Cadmium	µg/l	
☐ Chromium	µg/l	
☐ Copper	µg/l	
☐ Lead	µg/l	
☐ Mercury	µg/l	
☐ Nickel	µg/l	
☐ Selenium	µg/l	
☐ Silver	µg/l	
☐ Thallium	µg/l	
☐ Zinc	µg/l	

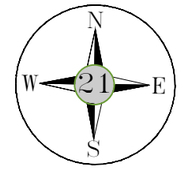
VII. CERTIFICATION	
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	
PRINTED NAME AND TITLE: Josiah Cox - President	
SIGNATURE: 	DATE: 1/27/2021
TELEPHONE NO. (314) 736-4672	EMAIL: jcox@cswrgroup.com

Return completed application form and attachments to:
Division of Water
Surface Water Permits Branch
300 Sower Boulevard, 3rd Floor
Frankfort, KY 40601

Direct questions to: Surface Water Permits Branch at (502) 564-3410.

USGS QUAD MAP
FOR TIMBERLAND SUBDIVISION WWTF
PADUCAH, KY
(HEATH QUAD MAP)





0 1000' 2000'

SCALE: 1" = 1000'

PRELIMINARY

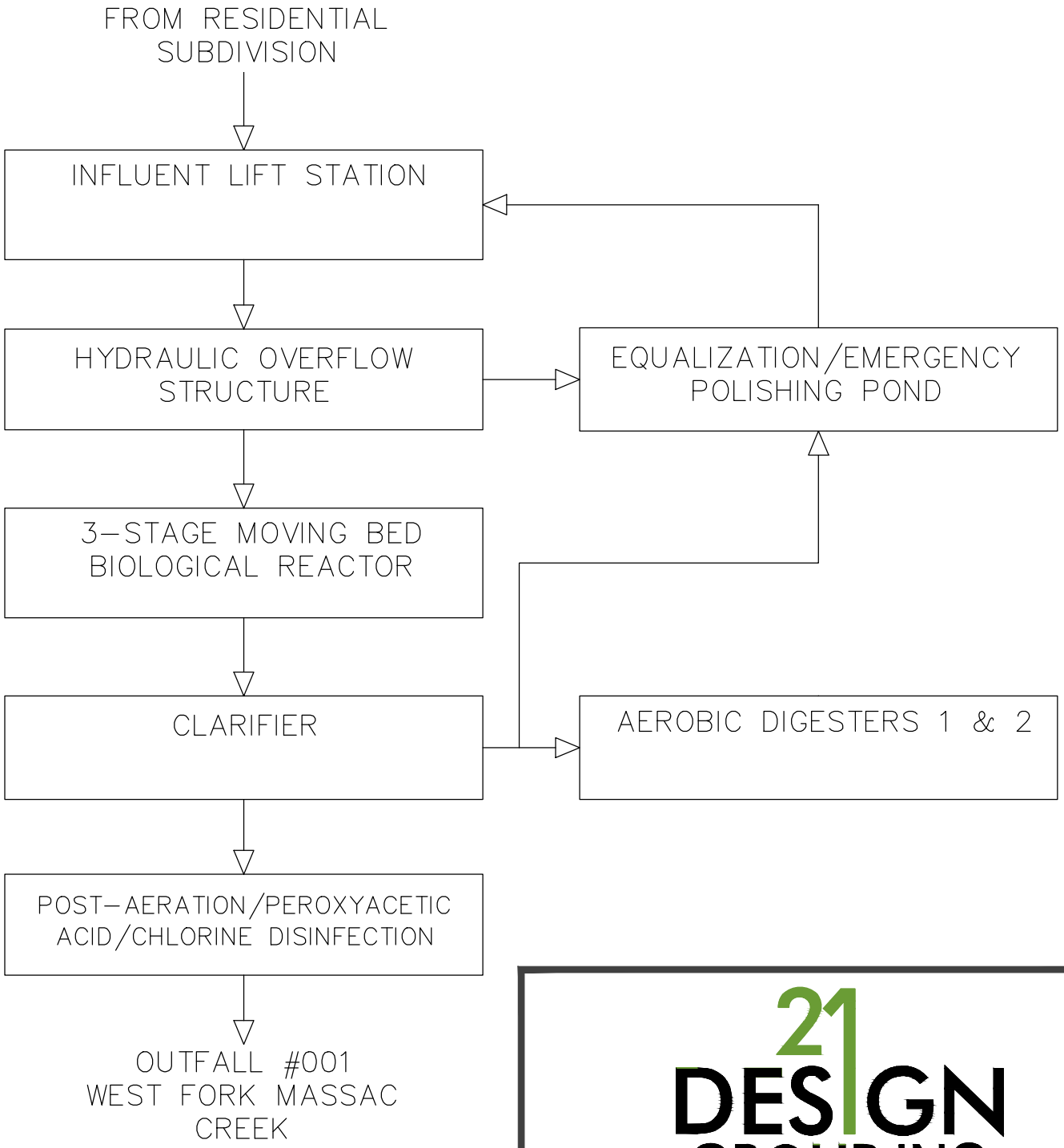
THIS DRAWING IS FOR REVIEW ONLY AND SHALL NOT BE USED FOR CONSTRUCTION

21 DESIGN GROUP INC.

1351 Jefferson, Suite 301
Washington, MO 63090

mail@21designgroup.net
P: 636-432-5029

WASTEWATER FACILITY PROCESS FLOW DIAGRAM FOR TIMBERLAND WWTF PADUCAH, KENTUCKY



21 DESIGN GROUP INC.

1351 Jefferson, Suite 301
Washington, MO 63090
mail@21designgroup.net
P: 636-432-5029