NWA Utility Services Inc
PO Box 9299
Fayetteville, AR 72703

October 13, 2021

Arkansas Department of Energy and Environment
5301 Northshore Drive
N. Little Rock, AR 72118-5317

Attn: Sarah Cousins
Engineer, Permit Branch

RE: Benton County, Arkansas Suburban Sewer District No 1
Villages of Cross Creek Apartments
Permit # 4811-WR-5

RESPONSE TO LETTER DATED AUGUST 4, 2021 PERMIT DEFICIENCIES

1. A Notice of Non Compliance was sent by the Enforcement Division of DEQ on August 3, 2021. Upon completion of the CAP requested by this notice, any details of the interceptor drain will be included if the consulting engineer decides to include it as part of the corrective measures to be taken.

2. Updated maps showing the treatment system location, primary and reserve field is included with this response. As part of the CAP, additional reserve fields on land owned or planned to be utilized by a lease or land use contract by the permitee will be identified. This is necessary because a portion of the initial land set aside as reserve is not suitable for reserve drip fields due their condition and location in the apartment complex. The original consulting engineer for the initial permit did not provide detailed drawings of the drip lines. The installer cannot provide a layout of the drip irrigation lines. We have exhausted all efforts to obtain documentation showing the location of all soil pits. The soil classifier who had the pits dug and analyzed no longer has the records and cannot provide this information to us. I was able to get a very rudimentary layout of the pit locations in the south drip fields from the ADH. These pits coincide with Appendix C Soils Investigation Report which is identified as the South portion of the drip dispersal fields. Soil Investigation Report #2 does have a map identifying the pit location numbers 18-29 in zones 1 – 6 of the active drip fields. All of this information is included with this response.

3. An updated and revised process flow diagram of the treatment train will be submitted once the CAP is finalized and submitted to the DEQ.

4. A copy of all the soils report done by Glenn Laurent, PSC is included with this response letter.

5. The drip fields will be reevaluated to determine an acceptable loading rate for each zone in the field. This will be submitted as outlined in the milestones schedule of the CAP for approval by the DEQ and Arkansas Department of Health.

6. The Geoflow sizing charts and calculations originally included with the technical specifications on the initial permit are included with this response.

7. A revised Non-municipal Domestic Sewage Treatment Works Trust Fund Requirement Form will be submitted once the CAP is completed. It will include the proposed changes and any necessary repairs planned for the system.

8. Photos of the fencing, signage and flow meter repaired are included with this response.

9. Design plans and specifications and a schedule of construction and operation in the reserve fields will be submitted as part of the CAP.

10. Proof of ownership or control of the land for the treatment plant, irrigation fields and a portion of the existing reserve fields and future reserve fields is included with this response. Upon analysis of the loading rates in the existing zones of the drip field and the zones to be added, if additional land is required a copy of the land use contract will be submitted on DEQ approved forms.

11. Arkansas Department of Health Division of Engineering will be notified of the permit modification once the CAP is completed.

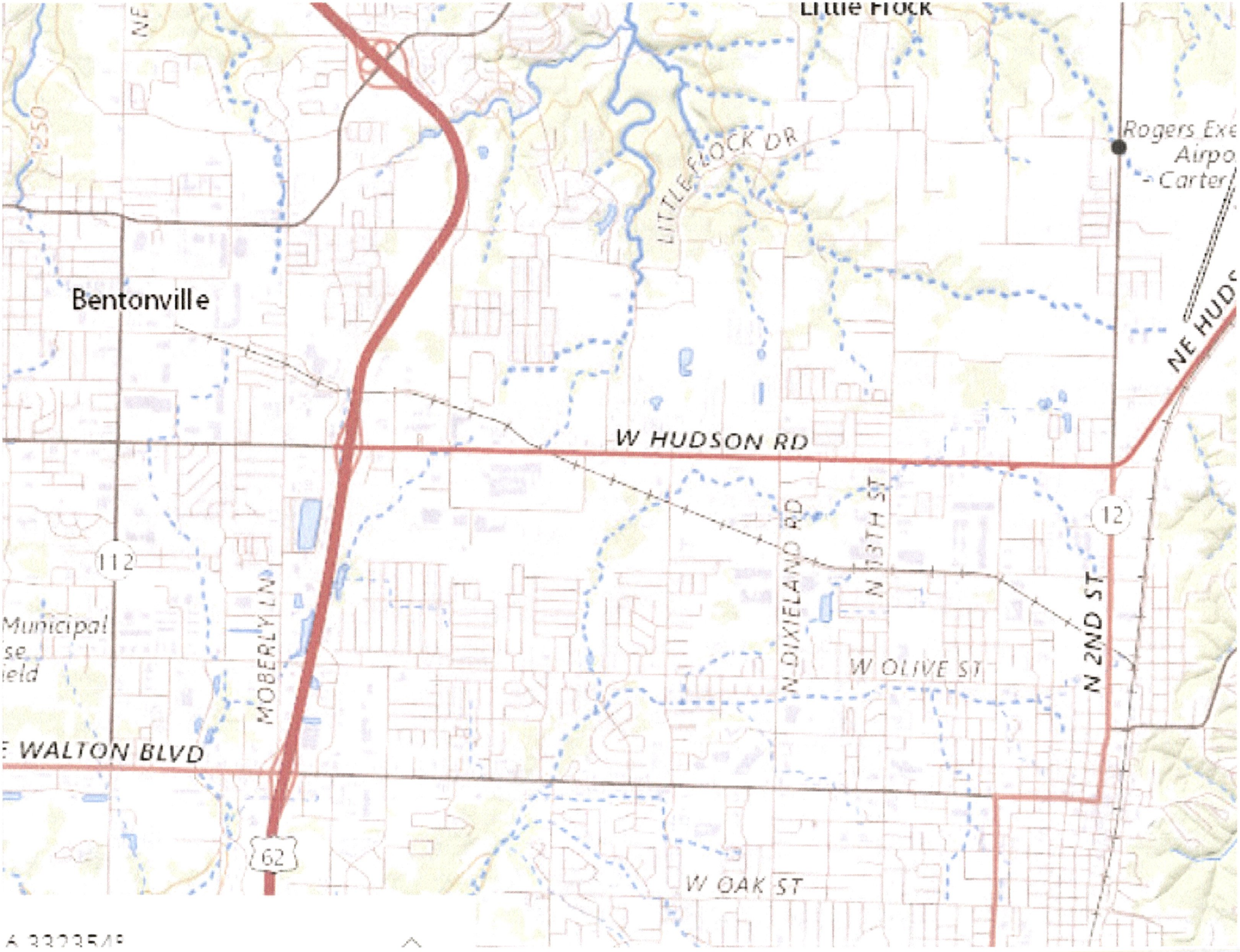
If there are any further questions concerning this submittal, please contact me at (479) 530-5926 or by email at kathy@aquatechsys.com

Regards

Kathryn Bartlett

District Commissioner

Benton County Arkansas Suburban Sewer District No. 1


Little Rock
Rogers Exe
Airpo
Carter
LITTLE ROCK DR
Bentonville
NE HUDS
W HUDSON RD
12
112
N DIXIELAND RD
N 13TH ST
N 2ND ST
W OLIVE ST
MOBERLY LN
Municipal
ield
WALTON BLVD
62
W OAK ST

VILLAGES OF CROSS CREEK ARKANSAS SUBURBAN SEWER DISTRICT NO 1

N DIXIELAND RD
LITTLE FLOCK, AR

Basic | Land | Sales | Valuation | Parcel Boundary

Basic Info

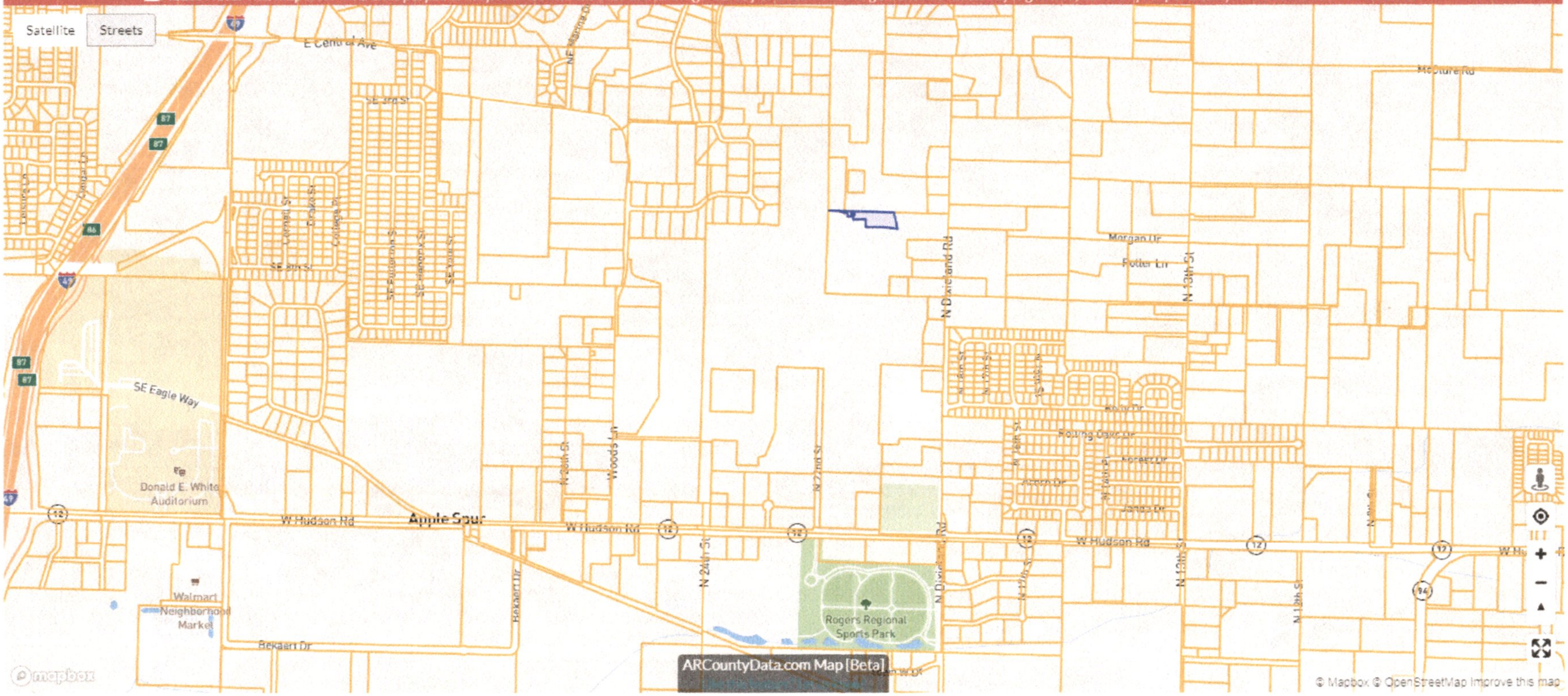
Parcel Number:	23-00306-005
County Name:	Benton County
Property Address:	VILLAGES OF CROSS CREEK ARKANSAS SUBURBAN SEWER DISTRICT NO 1 N DIXIELAND RD LITTLE FLOCK, AR
Mailing Address:	VILLAGES OF CROSS CREEK ARKANSAS SUBURBAN SEWER %DIXIELAND UTILITY LLC PO BOX 9299 FAYETTEVILLE AR 72703-0021
Collector's Mailing Address:	CORELOGIC RE TAX SERVICES PO BOX 961009 FORT WORTH, TX 76161-9982
Total Acres:	1.59
Timber Acres:	0.00
Sec-Twp-Rng:	35-20-30
Lot/Block:	/
Subdivision:	35-20-30-LITTLE FLOCK
Legal Description:	A PART OF THE SOUTHEAST QUARTER (SE 1/4) OF THE NORTHWEST QUARTER (NW 1/4) OF SECTION 35, TOWNSHIP 20 NORTH (T-20-N), RANGE 30 WEST (R-30-W) OF THE FIFTH PRINCIPAL MERIDIAN, BENTON COUNTY. ARKANSAS AND BEING DESCRIBED AS FOLLOWS: COMMENCING AT A FOUND ALUMINUM CAP SET IN CONCRETE FOR THE SOUTHWEST CORNER OF THE SE 1/4 OF THE NW 1/4 OF SECTION 35. T-20-N. R-30-W; THENCE NORTH 02 DEGREES, 35 MINUTES, 03 SECONDS EAST 906.77 FEET TO AN EXISTING FENCE CORNER POST MARKING THE SW CORNER OF THE NORTH TWELVE AND ONE-HALF ACRES OF THE SAID SE 1/4 AT THE NW 1/4; THENCE ALONG THE SOUTH BOUNDARY LINE OF THE NORTH TWELVE AND ONE-HALF ACRES, SOUTH 87 DEGREES, 14 MINUTES, 40 SECONDS EAST 140.08 FEET TO A SET IRON PIN, SAID IRON PIN ALSO BEING THE TRUE POINT OF BEGINNING; THENCE SOUTH 73 DEGREES 30 MINUTES, 57 SECONDS EAST 56.85 FEET TO A SET IRON PIN; THENCE SOUTH 79 DEGREES 18 MINUTES, 13 SECONDS EAST 30.42 FEET TO A SET IRON PIN; THENCE SOUTH 00 DGREES , 10 MINUTES, 28 SECONDS WEST 35.01 FEET TO AN EXISTING CHAIN LINK FENCE CORNER; THENCE ALONG THE CHAIN LINK FENCE LINE, THENCE SOUTH 88 DEGREES 04 MINUTES, 20 SECONDS EAST 43.67 FEETTO ON EXISTING CHAIN LINK FENCE CORNER; THENCE ALONG THE EXISTING CHAIN LINK FENCE LINE, NORTH 11 DEGREES 18 MINUTES 49 SECONDS EAST 9.47 FEET TO THE SOUTHWEST CORNER OF AN EXISTING 840 SQUARE FOOT BRICK BUILDING; THENCE ALONG THE OUTSIDE BUILDING LINE OF THE 840 SQUARE FOOT BRICK BUILDING, NORTH 00 DEGREES, 16 MINUTES 39 SECONDS EAST 26.23 FEET TO THE NORTHWEST CORNER OF SAID BRICK BUILDING; THENCE ALONG THE OUTSIDE BUILDING LINE OF THE 840 SQUARE FOOT BRICK BUILDING, NORTH 89 DEGREES 59 MINUTES 47 SECONDS EAST 32.04 FEET TO THE NORTHEAST CORNER OF THE SAID BRICK BUILDING; THENCE ALONG THE OUTSIDE BUILDING LINE OF THE 840 SQUARE FOOT BRICK BUILDING, SOUTH 00 DEGREES, 12 MINUTES 05 SECONDS WEST 26.18 FEET TO THE SOUTHEAST CORNER OF SAID BRICK BUILDING; THENCE ALONG THE OUTSIDE BUILDING LINE OF THE 840 SQUARE FOOT BRICK BUILDING, SOUTH 89 DEGREES, 16 MINUTES, 29 SECONDS WEST 14.53 FEET TO AN EXISTING CHAIN LINK FENCE CORNER; THENCE LEAVING THE BUILDING LINE OF THE 840 SQUARE FOOT BUILDING AND ALONG THE EXISTING CHAIN LINK FENCE LINE, SOUTH 00 DEGREES 05 MINUTES 23 SECONDS EAST 44.73 FEET TO AN EXISTING CHAIN LINK FENCE CORNER; THENCE ALONG THE EXISTING CHAIN LINK FENCE LINE, SOUTH 89 DEGREES, 54 MINUTES 43 SECONDS EAST 136.53 FEET TO A SET IRON PIN; THENCE SOUTH 00 DEGREES, 00 MINUTES 22 SECONDS EAST 86.63 FEET TO A SET IRON PIN; THENCE SOUTH 88 DEGREES, 58 MINUTES 32 SECONDS EAST 202.55 FEET TO A SET IRON PIN; THENCE SOUTH 82 DEGREES 40 MINUTES 36 SECONDS EAST 38.61 FEET TO A SET IRON PIN; THENCE SOUTH 81 DEGREES 02 MINUTES 42 SECONDS EAST 51.72 FEET TO A SET IRON PIN; THENCE SOUTH 78 DEGREES 26 MINUTES 00 SECONDS EAST 65.11 FEET TO A SET IRON PIN; THENCE NORTH 10 DEGREES 04 MINUTES 01 SECONDS WEST 181.38 FEET TO AN IRON PIN SET ON THE SOUTH BOUNDARY LINE OF THE NORTH 12.5 ACRES OF THE SE/4 OF THE NW/4 OF SAID SECTION 35 THENCE ALONG THE SOUTH BOUNDARY LINE OF THE NORTH 12.5 ACRES OF THE SAID SE/4 OF THE NW /4 NORTH 87 DEGREES, 14 MINUTES 40 SECONDS WEST 599.03 FEET TO THE TRUE POINT OF BEGINNING CONTAINING 1.585 ACRES AND BEING SUBJECT TO A DRAINAGE EASEMENT BEING DESCRIBED AS FOLLOWS: COMMENCING AT A FOUND ALUMINUM CAP SET IN CONCRETE FOR THE SW CORNER OF THE SE ¼ OF THE NW ¼ OF SECTION 35, T-20-N, R-30-W; THENCE NORTH 02 DEGREES, 35 MINUTES, 03 SECONDS COST 906.77 FEET END SOUTH 87 DEGREES, 14 MINUTES, 40 SECONDS EAST 604.31 FEET TO THE TRUE POINT OR BEGINNING OF THE DRAINAGE EASEMENT; THENCE SOUTH 87 DEGREES, 14 MINUTES, 40 SECONDS EAST 134.80 FEET; THENCE SOUTH 10 DEGREES, 04 MINUTES, 01 SECONDS EAST 24.01 FEET; THENCE NORTH 87 DEGREES, 14 MINUTES, 57 SECONDS WEST 106.20 FEET; THENCE SOUTH 19 DEGREES, 17 MINUTES, 21 SECONDS EAST 91.25 FEET; THENCE SOUTH 69 DEGREES, 17 MINUTES, 10 SECONDS LAST 103.51 FEET; THENCE SOUTH 10 DEGREES, 04 MINUTES; 01 SECONDS EAST 29.10 FEET; THENCE NORTH 69 DEGREES, 17 MINUTES, 10 SECONDS WEST 130.06 FEET; THENCE NORTH 19 DEGREES, 17 MINUTES, 22 SECONDS WEST 122.42 FEET; THENCE NORTH 10 DEGREES, 22 MINUTES, 21 SECONDS WEST 15.11 FEET TO THE TRUE POINT OF BEGINNING, CONTAINING 0.20 ACRES.
School District:	CLF30 Rogers (Little Flock City)
Homestead Parcel?:	No
Tax Status:	Taxable
Over 65?:	No

VILLAGES OF CROSS CREEK ARK ✕ | Mapping [Beta] - ARCountyData ✕

arcountydata.com/maps/map?county=BENTAX&item=11D4E7&ne=-94.1447688,36.3654899&sw=-94.1473408,36.3649397

ARCountyData.com | Home | What's New? | About | Contact Us | Help | Log In

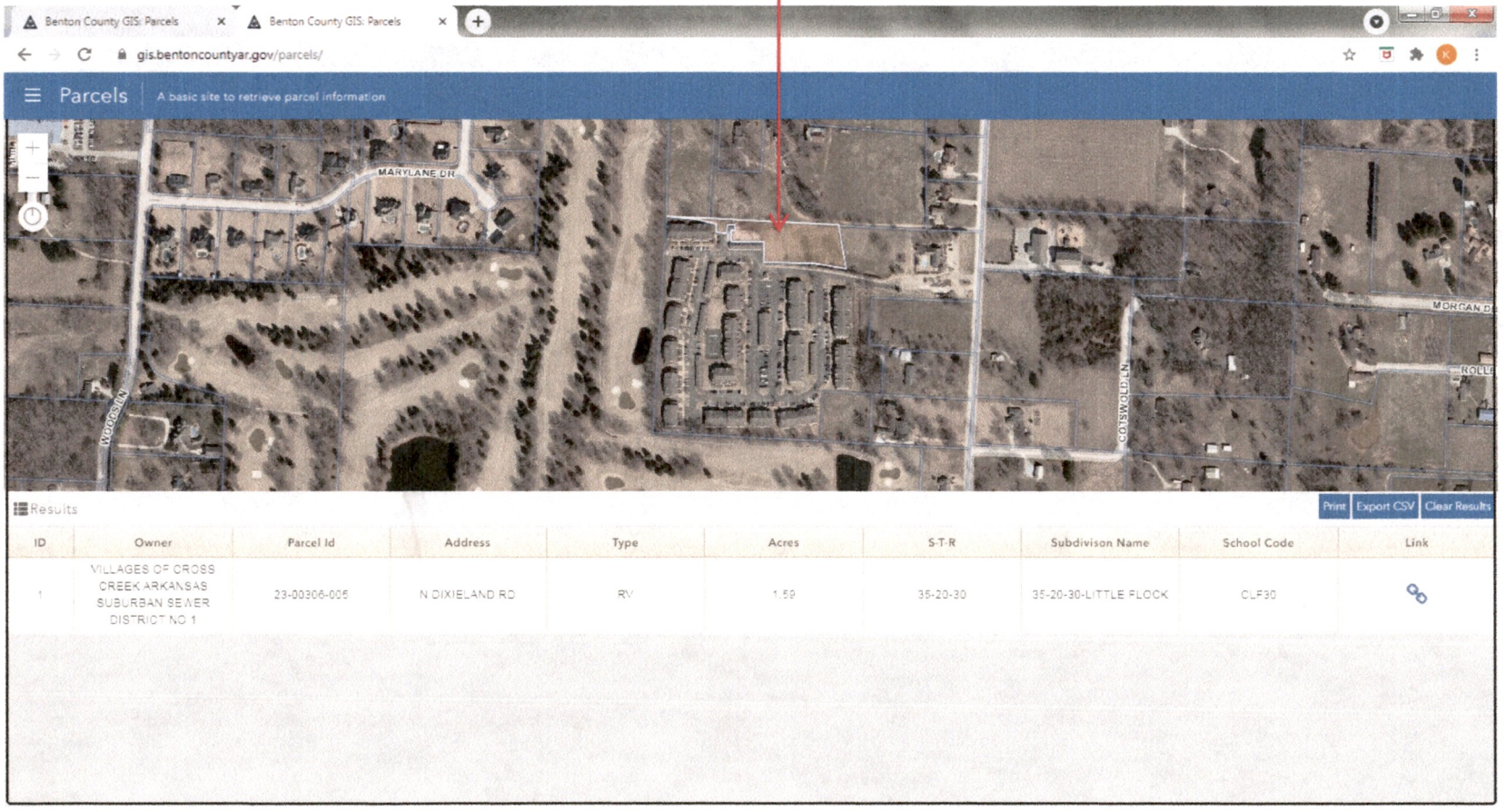
Please Note: This map is for reference purposes only. It is not intended for use as a legal survey or document. No guarantee of accuracy is granted, nor is any responsibility for reliance thereon assumed.



ARCountyData.com Map [Beta]

Location of Treatment Plant and Drip Fields

Parcel 23-00306-005



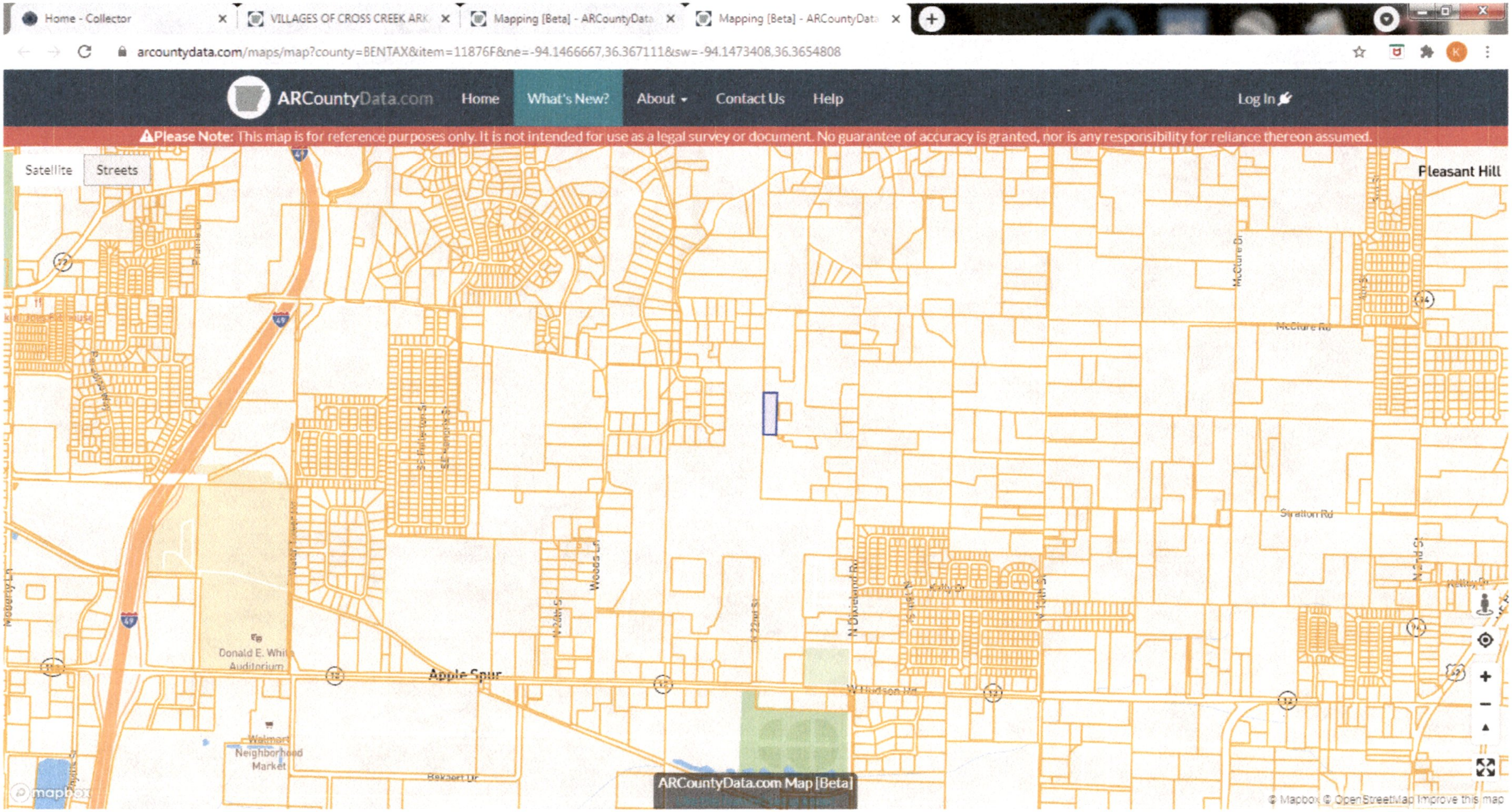
VILLAGES OF CROSS CREEK ARKANSAS SUBURBAN SEWER DISTRICT NO 1

N DIXIELAND RD
LITTLE FLOCK, AR

Basic | Land | Sales | Valuation | Parcel Boundary

Basic Info

Parcel Number:	23-00297-001
County Name:	Benton County
Property Address:	VILLAGES OF CROSS CREEK ARKANSAS SUBURBAN SEWER DISTRICT NO 1 N DIXIELAND RD LITTLE FLOCK, AR
Mailing Address:	VILLAGES OF CROSS CREEK ARKANSAS SUBURBAN SEWER %DIXIELAND UTILITY LLC PO BOX 9299 FAYETTEVILLE AR 72703-0021
Collector's Mailing Address:	VILLAGES OF CROSS CREEK ARKANSAS SUBUR %DIXIELAND UTILITY LLC P O BOX 9299 FAYETTEVILLE, AR 72703
Total Acres:	2.75
Timber Acres:	0.00
Sec-Twp-Rng:	35-20-30
Lot/Block:	/
Subdivision:	35-20-30-LITTLE FLOCK
Legal Description:	A PART OF THE NE 1/4 OF THE NW 1/4 AND A PART OF THE SE 1/4 OF THE NW 1/4 OF SECTION 35, TOWNSHIP 20 NORTH, RANGE 30 WEST OF THE FIFTH PRINCIPAL MERIDIAN, BENTON COUNTY, .ARKANSAS, AND BEING DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF THE SE 1/4 OF THE NW 1/4, SAID POINT BEING A SET IRON PIN AND ALSO BEING THE TRUE POINT OF BEGINNING; THENCE ALONG THE WEST BOUNDARY LINE OF THE NE 1/4 OF THE NW 1/4 OF SECTION 35, NORTH 02 DEGREES 35 MINUTES 03 SECONDS EAST 185.07 FEET TO A SET IRON PIN; THENCE LEAVING THE SAID WEST BOUNDARY LINE OF THE NE 1/4 OF THE NW 1/4 SOUTH 87 DEGREES, 14 MINUTES, 40 SECONDS EAST 200.00 FEET TO A SET IRON PIN; THENCE SOUTH 02 DEGREES 35 MINUTES 03 SECONDS WEST 598.95 FEET TO A SET IRON PIN ON THE SOUTH BOUNDARY LINE OF THE NORTH 12.5 ACRES OF THE SE 1/4 OF THE NW 1/4 OF SECTION 35; THENCE ALONG THE SOUTH BOUNDARY LINE OF THE SAID NORTH 12.5 ACRES, NORTH 87 DEGREES 14 MINUTES 40 SECONDS WEST 200.00 FEET TO AN EXISTING FENCE CORNER POST; THENCE ALONG THE WEST BOUNDARY LINE OF THE SE 1/4 OF THE NW 1/4 OF SECTION 35, NORTH 02 DEGREES 35 MINUTES 03 SECONDS EAST 413.88 FEET TO THE TRUE POINT OF BEGINNING.
School District:	CLF30 Rogers (Little Flock City)
Homestead Parcel?:	No
Tax Status:	Taxable
Over 65?:	No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Mapping [Beta] - ARCountyData
arcountydata.com/maps/map?county=BENTAX&item=11876F&ne=-94.1466667,36.367111&sw=-94.1473408,36.3654808
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Streets
Pleasant Hill
McClure Rd
Stratton Rd
Apple Spur
W Hudson Rd
N Dixieland Rd
Woods Ln
Donald E. White Auditorium
Walmart Neighborhood Market
ARCountyData.com Map [Beta]
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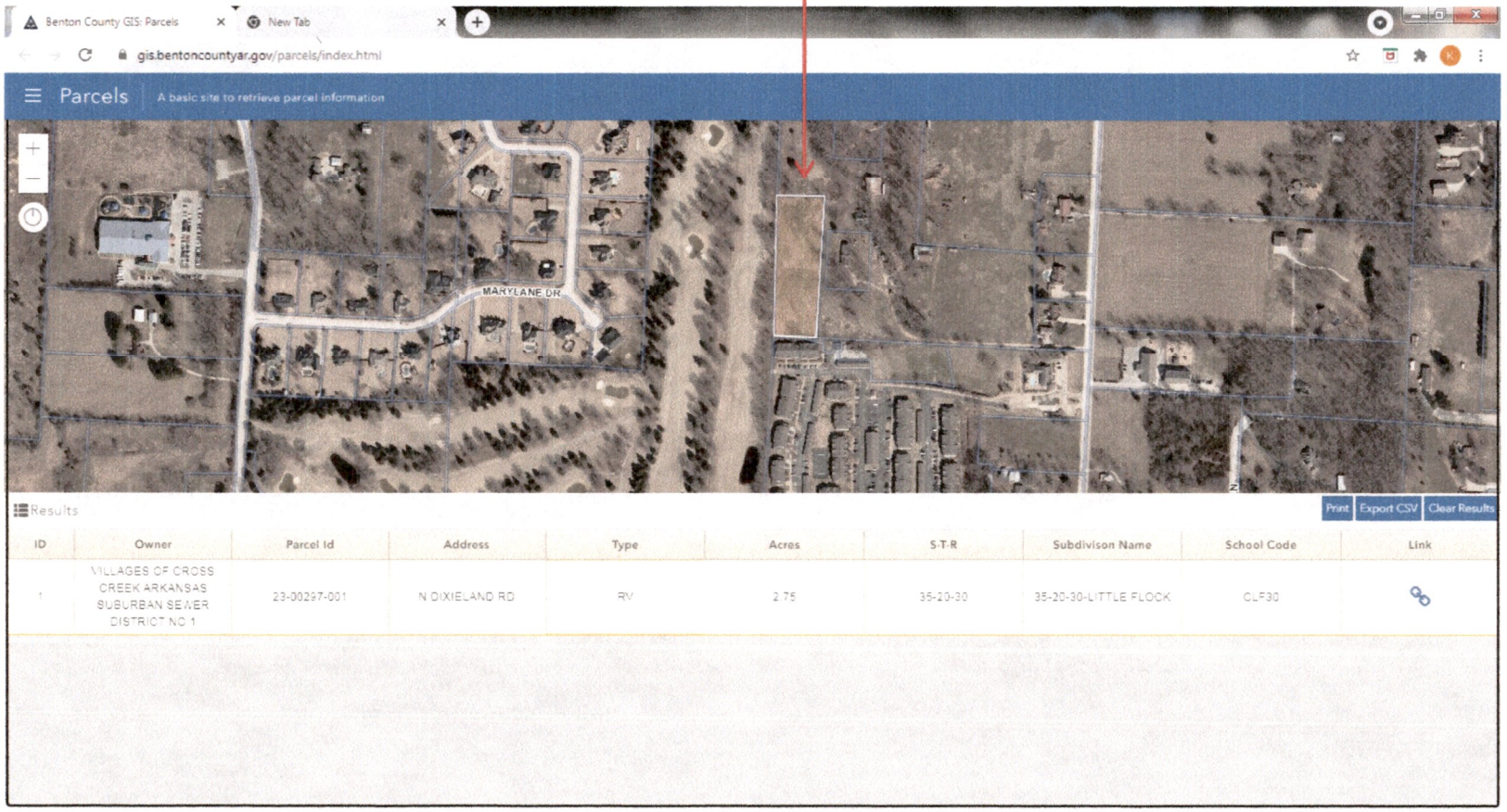
Location of Drip Field

Parcel 23-00297-001



Appendix B

Drip Field Pump Sizing

GEOFLOW Spreadsheets

highest

Geoflow Subsurface Dripline Dispersal: Field Calculation

Job Description:	
Contact:	
Prepared by:	
Date:	June 23rd, 2003

Please fill in the shaded areas and drop down menus below:

Note. This worksheet can be found in Geoflow's Design and Installation Manual

Worksheet - Field Design

		Dispersal Field as Single Zone	Dispersal Field as Multiple Zones	
Number of Zones		1	1	zone(s)
A)	Quantity of effluent to be disposed per day	3,700	3,700	gallons / day
B)	Hydraulic loading rate	0.2	0.2	gallons / sq.ft. / day
C)	Determine total area required	18,500	18,500	square ft.
D)	Choose spacing between WASTEFLOW lines	2	2	ft.
D)	Choose spacing between WASTEFLOW emitters	2 ft.	2	ft.
E)	Total linear ft.	9,250	9,250	each
F)	Total number of emitters	4,625	4,625	each
G)	Select Wasteflow dripline	Wasteflow PC - 1/2gph	Wasteflow PC 1/2 gph	dripline
H)	Pressure at the beginning of the dripfield	25 psi	25	psi
I)	Feet of Head at the beginning of the dripfield	57.75	57.75	ft.
J)	What is the flow rate per emitter in gph?	0.53	0.53	gallons per hour
K)	Total flow for the area (gph)	2,451	2,451	gallons per hour
	Total flow for the area (gpm)	40.85	40.85	gallons per minute
L)	Select pipe diameters for manifolds and submains	3	2	inch
M)	Select Vortex Filter (item no.)	AP4E-150-3 (1.5in./3hole)	AP4E-150-3 (1.5in./3hole)	
N)	Maximum length of each WASTEFLOW line. For additional technical flow, pressure and flushing data please refer to Geoflow's Design Manual and WASTEFLOW hydraulics worksheet.	478	478	ft.

Check below to choose quantity and length of daily doses

Dosing			
Number of doses per day/zone:	12	5	
Pump run time per dose/zone (minutes):	7.55	18.11	minutes
Pump run time per day/zone (hours):	1.51	1.51	hours / day
Pump run time per day/all zones (hours):	1.51	1.51	hours

Geoflow Subsurface Dispersal: Pump Size Calculation

Job Description:	0
Contact:	0
Prepared by:	0
Date:	June 23rd, 2003

Please fill in the shaded areas below:
Information automatically inserted is from the multiple zone column in 'Worksheet 1-Field Design
Note. This worksheet can be found in Geoflow's Design and Installation Manual

Worksheet - Pump Sizing

O)	Minimum pump capacity	40.85 gpm	
P)	Header pipe size	3 inch	
Q)	Pressure loss in 100 ft. of pipe	1.42 psi	
R)	Friction head in 100 ft. of pipe	3.28 ft.	
S)	Static head		
	i) Height from pump to tank outlet	6 ft.	
	ii) Elevation increase or decrease	15 ft.	
T)	Total static head	**21 *ft.***	
U)	Friction head		
	i) Equivalent length of fittings	100 ft.	
	ii) Distance from pump to field	640 ft.	
	iii) Total equivalent length of pipe	740 ft.	
	iv) Total effective feet	24.27348 ft.	
	v) Head required at dripfield	57.75 ft.	
	vi) Headloss through filter or Headwork	25.41 ft.	11 psi
	vii) Head loss through zone valves	3.927 ft.	1.7 psi
V)	Total friction Head	**111.36048**	
W)	**Total dynamic head**	**132.36 ft.**	
X)	**Minimum pump capacity**	**40.85 gpm**	
Y)	Choose the pump	***	

*** Note a few States + counties require additional flow for flushing. Please check your local regu

If you need assistance designing for this additional flow, please

a. See Geoflow flushing worksheet or

b. Contact Geoflow at 800-828-3388.

Lowest - Furthest

Geoflow Subsurface Dripline Dispersal: Field Calculation

Job Description:	
Contact:	
Prepared by:	
Date:	June 23rd, 2003

Please fill in the shaded areas and drop down menus below:

Note. This worksheet can be found in Geoflow's Design and Installation Manual

Worksheet - Field Design

		Dispersal Field as Single Zone	Dispersal Field as Multiple Zones	
Number of Zones		1	1	zone(s)
A)	Quantity of effluent to be disposed per day	3,700	3,700	gallons / day
B)	Hydraulic loading rate	0.2	0.2	gallons / sq.ft. / day
C)	Determine total area required	18,500	18,500	square ft.
D)	Choose spacing between WASTEFLOW lines	2	2	ft.
D)	Choose spacing between WASTEFLOW emitters	2 ft.	2	ft.
E)	Total linear ft.	9,250	9,250	each
F)	Total number of emitters	4,625	4,625	each
G)	Select Wasteflow dripline	Wasteflow PC - 1/2gph	Wasteflow PC 1/2 gph	dripline
H)	Pressure at the beginning of the dripfield	25 psi	25	psi
I)	Feet of Head at the beginning of the dripfield	57.75	57.75	ft.
J)	What is the flow rate per emitter in gph?	0.53	0.53	gallons per hour
K)	Total flow for the area (gph)	2,451	2,451	gallons per hour
	Total flow for the area (gpm)	40.85	40.85	gallons per minute
L)	Select pipe diameters for manifolds and submains	3	2	inch
M)	Select Vortex Filter (item no.)	AP4E-150-3 (1.5in./3hole)	AP4E-150-3 (1.5in./3hole)	
N)	Maximum length of each WASTEFLOW line. For additional technical flow, pressure and flushing data please refer to Geoflow's Design Manual and WASTEFLOW hydraulics worksheet.	478	478	ft.

Check below to choose quantity and length of daily doses

Dosing			
Number of doses per day/zone:	12	5	
Pump run time per dose/zone (minutes):	7.55	18.11	minutes
Pump run time per day/zone (hours):	1.51	1.51	hours / day
Pump run time per day/all zones (hours):	1.51	1.51	hours

Geoflow Subsurface Dispersal: Pump Size Calculation

Job Description:	0
Contact:	0
Prepared by:	0
Date:	June 23rd, 2003

Please fill in the shaded areas below:
Information automatically inserted is from the multiple zone column in 'Worksheet 1-Field Design
Note. This worksheet can be found in Geoflow's Design and Installation Manual

Worksheet - Pump Sizing

O)	Minimum pump capacity	40.85 gpm	
P)	Header pipe size	2 inch	
Q)	Pressure loss in 100 ft. of pipe	1.42 psi	
R)	Friction head in 100 ft. of pipe	3.28 ft.	
S)	Static head		
	i) Height from pump to tank outlet	6 ft.	
	ii) Elevation increase or decrease	6 ft.	
T)	Total static head	**12 *ft.***	
U)	Friction head		
	i) Equivalent length of fittings	100 ft.	
	ii) Distance from pump to field	1040 ft.	
	iii) Total equivalent length of pipe	1140 ft.	
	iv) Total effective feet	37.39428 ft.	
	v) Head required at dripfield	57.75 ft.	
	vi) Headloss through filter or Headwork	25.41 ft.	11 psi
	vii) Head loss through zone valves	3.927 ft.	1.7 psi
V)	Total friction Head	**124.48128**	
W)	**Total dynamic head**	**136.48 ft.**	
X)	**Minimum pump capacity**	**40.85 gpm**	
Y)	Choose the pump	***	

*** Note a few States + counties require additional flow for flushing. Please check your local regu

If you need assistance designing for this additional flow, please

a. See Geoflow flushing worksheet or

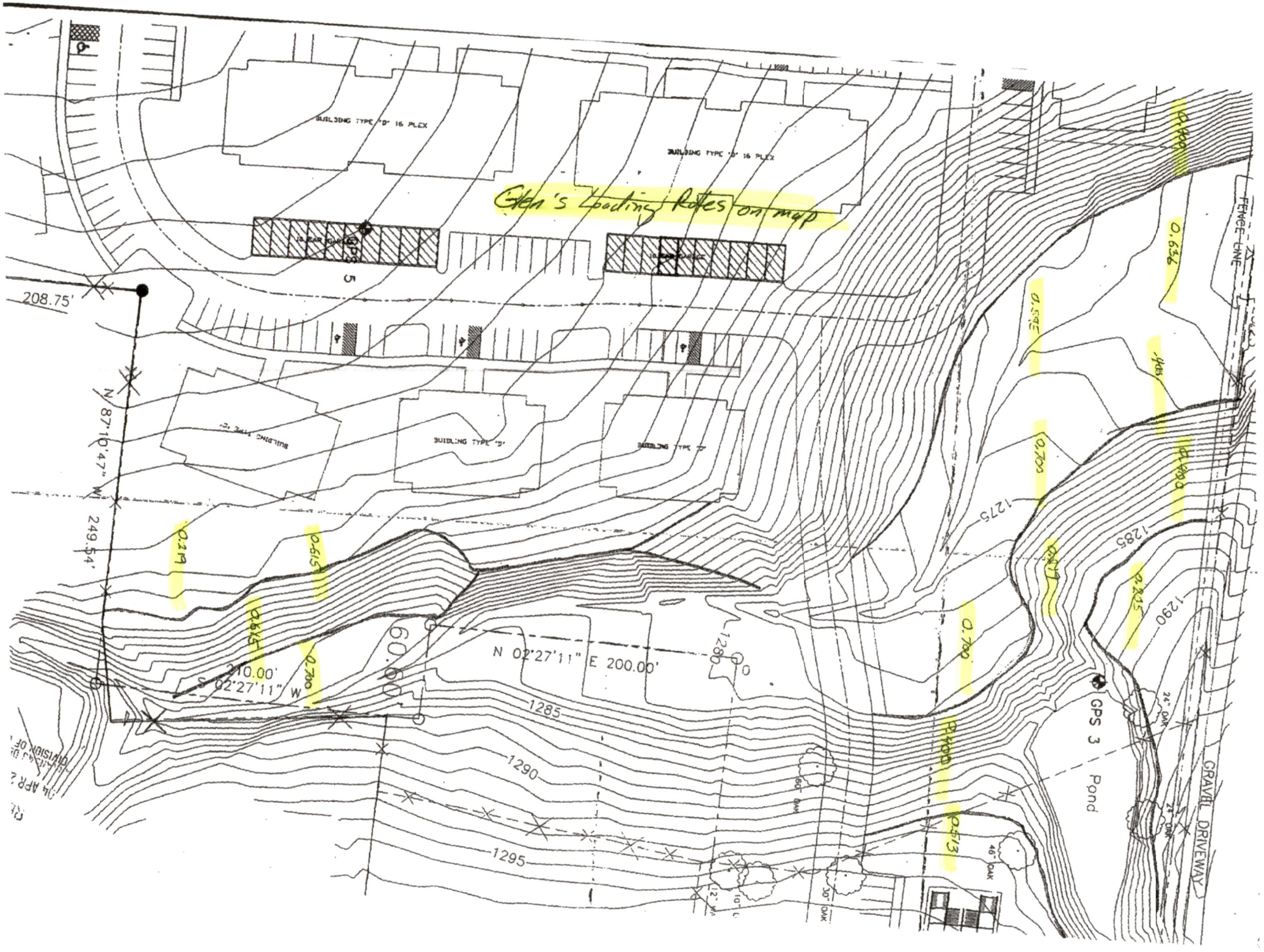
b. Contact Geoflow at 800-828-3388.

Appendix C

Soil Investigation Report

For the South Part of the Project

Original Land Purchase


Glen's Loading Rates on map
BUILDING TYPE "B" 16 PLEX
BUILDING TYPE "B" 16 PLEX
BUILDING TYPE "D"
BUILDING TYPE "D"
208.75'
N 87°10'47" W 249.54'
N 02°27'11" E 200.00'
210.00'
02°27'11" W
60.00'
1280
1285
1290
1295
1275
1285
1290
0.219
0.615
0.615
0.700
0.700
0.700
0.598
0.636
0.513
R1490
R1490
R1490
R1490
FENCE LINE
GPS 3
Pond
GRAVEL DRIVEWAY
24" OAK
24" OAK
46" OAK
30" OAK
60" OAK
12" OAK
10" OAK

DIXIELAND APARTMENTS

LITTLE FLOCK, ARKANSAS

SOIL INVESTIGATION REPORT

WITH SOIL LOADING RATES FOR DRIP DISPERSAL SYSTEMS

Glen D. Laurent P.S.C.
206 S. Melody St.
Lowell, Arkansas 72745
(479) 601-3844

Soil Investigation Report for
Dixieland Apartments, Little Flock, Arkansas

By Glen D. Laurent
Professional Soil Classifier
Designated Representative

This report was made to provide information about the soils in the Dixieland Apartments Project area. The information includes a description of the soils and their location and a summary of the soil loading rates for Drip Dispersal Systems.

The Soils were described using guidelines from the National Cooperative Soil Survey.

The Soil Loading Rates were assigned using:

1. The Arkansas Department of Health publication, "Guidelines for the Design and Construction of Drip Dispersal Systems",version 1 (10-28-03).
2. Geoflow Design and Installation Manual – 2000B

If the loading rates using the ADH guidelines exceeded the manufactures (Geoflow) loading rates for a soil type then the loading rates for the more restrictive soil type was used.

SUMMARY

DIXIELAND APARTMENTS
SOIL LOADING RATES FOR DRIP DISPERSAL

SOIL PIT NO.	GAL/FT SQ/DAY
1	0.205
2	0.400
3	0.219
4	0.400
5	0.400
6	0.700
7	0.700
8	0.636
9	0.595
10	0.400
11	0.513
12	0.253
13	0.198
14	0.219
15	0.615
16	0.615
17	0.700

NOTE: This is pliminary data that has not been reviewed or approved by the Arkansas Dept of Health

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 1

PROFILE DESCRIPTION
April 1, 2004

A 0 to 10 inches; dark brown (10YR 3/3) gravelly silt loam; weak medium subangular blocky structure; friable; 15 percent by volume chert fragments 1 to 3 inches in diameter; clear smooth boundary.

Bt1 10 to 21 inches; strong brown (7.5YR 4/6) very gravelly silt loam; weak medium subangular blocky structure; friable; patchy clay films; 40 percent by volume chert fragments 1 to 6 inches in diameter; clear wavy boundary.

Bt2 21 to 34 inches; reddish brown (2.5YR 4/4) extremely cobbly silt loam; moderate medium subangular blocky structure; friable; common clay films; common medium prominent strong brown (7.5YR 4/6) and yellowish brown (10YR 5/4) iron depletions; 75 percent by volume chert fragments 1 to 8 inches in diameter; clear wavy boundary.

Bt3 34 to 50 inches; dark red (2.5YR 3/6) extremely gravelly silty clay (<49 % clay); moderate medium subangular blocky structure; firm; common yellowish red (5YR 4/6) clay films; 60 percent by volume chert fragments 1 to 6 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 50 inches – Moderate

Seasonal Water Table
21 inches - Brief Duration
34 inches – Moderate Duration
30 inches – Adjusted Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.205 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 2

PROFILE DESCRIPTION
April 1, 2004

A 0 to 10 inches; dark brown (10YR 3/3) gravelly silt loam; weak medium subangular blocky structure; friable; 25 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt1 10 to 16 inches; yellowish red (5YR 4/6) gravelly silt loam; weak medium subangular blocky structure; friable; patchy clay films; 30 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt2 16 to 25 inches; red (2.5YR 4/6) gravelly silty clay loam; moderate medium subangular blocky structure; friable; common clay films; 30 percent by volume chert fragments 1 to 3 inches in diameter; clear smooth boundary.

Bt3 25 to 42 inches; dark red (2.5YR 3/6) very gravelly silty clay loam (<35 % clay); moderate medium subangular blocky structure; friable; common clay films; 30 percent by volume soft chert 1 to 6 inches in diameter that can be cut with a spade, 10 percent by volume hard chert fragments 1 to 4 inches in diameter; gradual smooth boundary.

Bt4 42 to 60 inches; dark red (2.5YR 3/6) very gravelly silty clay (> 35 % clay); moderate medium subangular blocky structure; firm; many shiny clay films; 55 percent by volume hard chert fragments 1 to 4 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 60 inches – Moderate

Seasonal Water Table
No seasonal water table observed

Soil Loading Rates for Drip Dispersal Systems
0.400 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 3

PROFILE DESCRIPTION
April 1, 2004

A 0 to 8 inches; very dark grayish brown (10YR 3/2) very gravelly silt loam; weak medium subangular blocky structure; friable; 40 percent by volume chert fragments 1 to 6 inches in diameter; gradual smooth boundary.

Bt1 8 to 24 inches; strong brown (7.5YR 4/6) very cobbly silt loam; weak medium subangular blocky structure; friable; patchy clay films; 55 percent by volume chert fragments 3 to 6 inches in diameter; clear smooth boundary.

2Bt2 24 to 32 inches; red (2.5YR 4/6) very cobbly silty clay loam (> 35% clay); moderate medium subangular blocky structure; firm; common clay films; 45 percent by volume chert fragments 3 to 8 inches in diameter; gradual smooth boundary.

Bt3 32 to 50 inches; red (2.5YR 4/6) very gravelly silty clay loam (>35 % clay); moderate medium subangular blocky structure; firm; common clay films; common medium distinct yellowish red (5YR 4/6) iron depletions; 40 percent by volume chert fragments 1 to 6 inches in diameter.

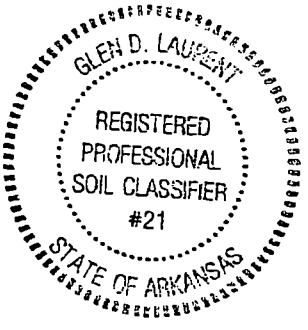
SYSTEM SIZING

Hydraulic Conductivity
0 to 50 inches – Moderate

Seasonal Water Table
32 inches – Moderate duration

Soil Loading Rates for Drip Dispersal Systems
0.219 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative



DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 4

PROFILE DESCRIPTION
April 1, 2004

A 0 to 9 inches; dark brown (10YR 3/3) gravelly silt loam; weak medium subangular blocky structure; friable; 25 percent by volume chert fragments 1 to 3 inches in diameter; clear smooth boundary.

Bt1 9 to 22 inches; dark red (2.5YR 3/6) very gravelly silty clay loam; moderate medium subangular blocky structure; friable; common clay films; 45 percent by volume chert fragments 1 to 6 inches in diameter; gradual smooth boundary.

Bt2 22 to 33 inches; red (2.5YR 4/6) gravelly silty clay loam; moderate medium subangular blocky structure; friable; common clay films; 30 percent by volume chert fragments 1 to 6 inches in diameter; gradual smooth boundary.

Bt3 33 to 60 inches; red (2.5YR 4/6) gravelly silty clay loam; moderate medium subangular blocky structure; friable; common shiny clay films; 10 % soft rock structure with some horizontal bedding; few pale brown (10YR 6/3) iron depletions around chert fragments; 30 percent by volume chert fragments 1 to 6 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 60 inches – Moderate

Seasonal Water Table
33 inches – Brief Duration

Soil Loading Rates for Drip dispersal Systems
0.400 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 5

PROFILE DESCRIPTION
April 2, 2004

A 0 to 15 inches; dark brown (10YR 3/3) silt loam; moderate medium subangular blocky structure; friable; 10 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt1 15 to 26 inches; dark yellowish brown (10YR 3/6) very gravelly silt loam; moderate medium subangular blocky structure; friable; patchy clay films; 40 percent by volume chert fragments 1 to 4 inches in diameter; gradual smooth boundary.

Bt2 26 to 48 inches; brown (7.5YR 4/4) very gravelly silty clay loam; moderate medium subangular blocky structure; friable; common clay films; 45 percent by volume chert fragments 1 to 3 inches in diameter

SYSTEM SIZING

Hydraulic Conductivity
0 to 48 inches – Moderate

Seasonal Water Table
No seasonal water observed

Soil Loading Rates for Drip Dispersal Systems
0.400 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 6

PROFILE DESCRIPTION
April 2, 2004

A 0 to 9 inches; dark yellowish brown (10YR 3/4) silt loam; weak medium subangular blocky structure; friable; 5 percent by volume rounded chert fragments 1 to 3 inches in diameter; clear smooth boundary.

A2 9 to 20 inches; dark brown (10YR 3/3) silt loam; weak medium subangular blocky structure; friable; 7 percent by volume rounded chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt1 20 to 31 inches; dark brown (7.5YR 3/3) gravelly silt loam; weak medium subangular blocky structure; friable; common clay films; 15 percent by volume rounded chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt2 31 to 48 inches; dark yellowish brown (10YR 3/6) very gravelly silt loam; weak medium subangular blocky structure; friable; patchy clay films; 45 percent by volume rounded chert fragments 1 to 3 inches in diameter

SYSTEM SIZING

Hydraulic Conductivity
0 to 48 inches – Moderate

Seasonal Water Table
No seasonal water observed

Soil Loading Rates for Drip Dispersal Systems
0..700 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 7

PROFILE DESCRIPTION
March 30, 2004

A 0 to 9 inches; dark yellowish brown (10YR 3/4) silt loam; weak medium subangular blocky structure; friable; 5 percent by volume rounded chert fragments 1 to 3 inches in diameter; clear smooth boundary.

Ab 9 to 22 inches; dark brown (10YR 3/3) very gravelly silt loam; weak medium subangular blocky structure; friable; 40 percent by volume rounded chert fragments 1 to 3 inches in diameter; clear smooth boundary.

Bt1 22 to 34 inches; dark brown (7.5YR 3/4) very gravelly silt loam; weak medium subangular blocky structure; friable; common clay films; 45 percent by volume rounded chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt2 34 to 52 inches; reddish brown (5YR 4/4) extremely gravelly silt loam; weak medium subangular blocky structure; friable; common clay films; 65 percent by volume rounded chert fragments 1 to 3 inches in diameter

SYSTEM SIZING

Hydraulic Conductivity
0 to 52inches – Moderate

Seasonal Water Table
No seasonal water observed

Soil Loading Rates for Drip dispersal Systems
0.700 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

GLEN D. LAURENT
REGISTERED
PROFESSIONAL
SOIL CLASSIFIER
#21
STATE OF ARKANSAS

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 8

PROFILE DESCRIPTION
April 2, 2004

A 0 to 9 inches; dark yellowish brown (10YR 3/4) silt loam; weak medium subangular blocky structure; friable; 1 percent by volume rounded chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

A2 9 to 18 inches; dark yellowish brown (10YR 3/4) silt loam; weak medium subangular blocky structure; friable; 10 percent by volume rounded chert fragments 1/4 to 1 inch in diameter; clear smooth boundary.

Ab 18 to 31 inches; dark brown (10YR 3/3) silt loam; weak medium subangular blocky structure; friable; 10 percent by volume rounded chert fragments 1/4 to 1 inch in diameter; gradual smooth boundary.

Bt1 31 to 48 inches; dark yellowish brown (10YR 4/4) very gravelly silt loam; weak medium subangular blocky structure; friable; common dark yellowish brown (10YR 3 /4) clay films; 35 percent by volume rounded chert fragments 1/4 to 3 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 48 inches – Moderate

Seasonal Water Table
31 inches – Brief Duration

Soil Loading Rates for Drip Dispersal Systems
0.636 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 9

PROFILE DESCRIPTION
April 2, 2004

A 0 to 12 inches; dark brown (10YR 3/3) silt loam; weak medium subangular blocky structure; friable; 5 percent by volume rounded chert fragments 1 to 3 inches in diameter; clear smooth boundary.

Ab 12 to 29 inches; very dark grayish brown (10YR 3/2) very gravelly silt loam; weak medium subangular blocky structure; friable; 45 percent by volume rounded chert fragments 1 to 3 inches in diameter; clear smooth boundary.

Bt1 29 to 36 inches; dark yellowish brown (10YR 4/4) gravelly silt loam; weak medium subangular blocky structure; friable; patchy clay films; common medium faint dark yellowish brown (10YR 3 /4) iron concentrations; 30 percent by volume rounded chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt2 36 to 48 inches; dark yellowish brown (10YR 4/6) very gravelly silt loam; weak medium subangular blocky structure; friable; common clay films; common medium distinct dark yellowish brown (10YR 3 /4) iron concentrations; 45 percent by volume rounded chert fragments 1 to 6 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 48inches – Moderate

Seasonal Water Table
29 inches – Brief Duration

Soil Loading Rates for drip Dispersal Systems
0.595 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 10

PROFILE DESCRIPTION
April 2, 2004

A 0 to 8 inches; dark brown (10YR 3/3) gravelly silt loam; weak medium subangular blocky structure; friable; 25 percent by volume chert fragments 1 to 3 inches in diameter; clear smooth boundary.

E 8 to 14 inches; brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; 10 percent by volume chert fragments 1 to 3 inches in diameter; clear smooth boundary.

Bt1 14 to 24 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; 10 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt2 24 to 41 inches; reddish brown (2.5YR 4/4) gravelly silty clay loam; moderate medium subangular blocky structure; firm; common shiny clay films; 25 percent by volume chert fragments 1 to 4 inches in diameter; gradual smooth boundary.

Bt3 41 to 48 inches; dark red (2.5YR 3/6) silty clay loam; moderate medium subangular blocky structure; firm; common shiny clay films; common black Mn stains on ped faces.

SYSTEM SIZING

Hydraulic Conductivity
0 to 48 inches – Moderate

Seasonal Water Table
41 inches – Brief Duration

Soil Loading Rates for Drip Dispersal Systems
0.400 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 11

PROFILE DESCRIPTION
April 2, 2004

A 0 to 7 inches; dark brown (10YR 3/3) gravelly silt loam; weak medium subangular blocky structure; friable; 20 percent by volume chert fragments 1 to 3 inches in diameter; clear smooth boundary.

A2 7 to 18 inches; dark yellowish brown (10YR 4/4) very gravelly silt loam; weak medium subangular blocky structure; friable; 35 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt1 18 to 25 inches; yellowish brown (10YR 5/4) very gravelly silt loam; weak medium subangular blocky structure; friable; patchy clay films; 40 percent by volume chert fragments 1 to 4 inches in diameter; gradual smooth boundary.

Bt2 25 to 35 inches; yellowish red (5YR 4/6) very gravelly silt loam; weak medium subangular blocky structure; friable; common clay films; common medium distinct red (2.5YR 4/6) iron concentrations; 45 percent by volume chert fragments 1 to 4 inches in diameter; clear wavy boundary.

2Bt3 35 to 42 inches; dark red (2.5YR 3/6) very gravelly silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium distinct yellowish red (5YR 4/6) and prominent light yellowish brown (10YR 6/4) iron depletions; 50 percent by volume chert fragments 1 to 6 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 42 inches – Moderate

Seasonal Water Table
25 inches – Brief Duration

Soil Loading Rates for Drip Dispersal Systems
0.513 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 12

PROFILE DESCRIPTION
April 2, 2004

A 0 to 7 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; 3 percent by volume chert fragments 1 to 3 inches in diameter; clear smooth boundary.

Ab 7 to 16 inches; dark yellowish brown (10YR 3/4) silt loam; weak medium subangular blocky structure; friable; 3 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt1 16 to 27 inches; dark yellowish brown (10YR 4/6) silt loam; moderate medium subangular blocky structure; friable; common clay films; 5 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt2 27 to 37 inches; yellowish brown (10YR 5/6) very gravelly silty clay loam; moderate medium subangular blocky structure; friable; common clay films; 35 percent by volume chert fragments 1 to 3 inches in diameter; gradual wavy boundary.

2Bt3 37 to 42 inches; dark red (2.5YR 3/6) very gravelly silty clay loam; moderate medium subangular blocky structure; friable; common clay films; common medium prominent yellowish brown (10YR 5/4) and light brownish gray (10YR 6/2) iron depletions; 40 percent by volume chert fragments 1 to 3 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 42 inches – Moderate

Seasonal Water Table
37 inches – Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.253 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

GLEN D. LAURENT
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PROFESSIONAL
SOIL CLASSIFIER
#21
STATE OF ARKANSAS

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 13

PROFILE DESCRIPTION
April 2, 2004

A 0 to 9 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; 10 percent by volume chert fragments 1 to 3 inches in diameter; clear smooth boundary.

E 9 to 23 inches; yellowish brown (10YR 5/4) gravelly silt loam; weak medium subangular blocky structure; friable; 30 percent by volume chert fragments 1 to 3 inches in diameter; gradual wavy boundary.

Bt1 23 to 32 inches; yellowish red (5YR 4/6) gravelly silty clay loam; weak medium subangular blocky structure; friable; common clay films; 40 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt2 32 to 44 inches; red (2.5YR 4/6) very gravelly silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium prominent pale brown (10YR 6/3) and light brownish gray (10YR 6/2) iron depletions; 40 percent by volume chert fragments 1 to 3 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 42 inches – Moderate

Seasonal Water Table
23 inches – Brief Duration
32 inches – Moderate Duration
29 inches – Adjusted Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.198 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 14

PROFILE DESCRIPTION
April 2, 2004

A 0 to 9 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; 1 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt1 9 to 18 inches; brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; patchy clay films; 1 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt2 18 to 32 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; 1 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

2Bt3 32 to 46 inches; yellowish red (5YR 4/6) very gravelly silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium prominent pale brown (10YR 6/3) and light brownish gray (10YR 6/2) iron depletions and common medium distinct reddish brown (2.5YR 4/4) iron concentrations; 55 percent by volume chert fragments 1 to 3 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 46 inches – Moderate

Seasonal Water Table

32 inches – Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.219 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 15

PROFILE DESCRIPTION
April 2, 2004

A 0 to 15 inches; dark yellowish brown (10YR 3/4) silt loam; weak medium subangular blocky structure; friable; 2 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt1 15 to 30 inches; brown (7.5YR 4/4) very gravelly silt loam; weak medium subangular blocky structure; friable; common clay films; 45 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

Bt2 30 to 34 inches; brown (7.5YR 4/4) very gravelly silt loam; moderate medium subangular blocky structure; firm; common clay films; common medium distinct light yellowish brown (10YR 6/4) 45 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

2Bt3 34 to 48 inches; red (2.5YR 4/6) very gravelly silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium prominent brown (7.5YR 5/4) iron depletions; 55 percent by volume chert fragments 1 to 3 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 48 inches – Moderate

Seasonal Water Table

30 inches – Brief Duration

Soil Loading Rates for Drip dispersal Systems
0.615 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 16

PROFILE DESCRIPTION
April 2, 2004

A 0 to 12 inches; brown (10YR 4/3) gravelly silt loam; weak medium subangular blocky structure; friable; 15 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt1 12 to 30 inches; strong brown (7.5YR 4/6) very gravelly silt loam; moderate medium subangular blocky structure; friable; common clay films; 40 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

2Bt2 30 to 48 inches; red (2.5YR 4/6) extremely gravelly silty clay loam; moderate medium subangular blocky structure; firm; common shiny dark red (2.5YR 3/6) clay films; 70 percent by volume chert fragments 1 to 8 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 48 inches – Moderate

Seasonal Water Table

30 inches – Brief Duration

Soil Loading Rates for Drip dispersal Systems
0.615 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 17

PROFILE DESCRIPTION
April 2, 2004

A 0 to 14 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

Ab 14 to 26 inches; very dark grayish brown (10YR 3/2) gravelly silt loam; weak medium subangular blocky structure; friable; 15 percent by volume rounded chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt1 26 to 36 inches; dark yellowish brown (10YR 3/4) silt loam; moderate medium subangular blocky structure; friable; common clay films; 10 percent by volume rounded chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

Bt2 36 to 45 inches; brown (7.5YR 4/4) gravelly silt loam; moderate medium subangular blocky structure; friable; common clay films; 15 percent by volume rounded chert fragments 1 to 3 inches in diameter

SYSTEM SIZING

Hydraulic Conductivity
0 to 45 inches – Moderate

Seasonal Water Table
No seasonal water observed

Soil Loading Rates for drip Dispersal Systems
0.700 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

Appendix D

Soil Investigation Report

For the North 2.75 Acres of the Project

Additional Land Purchase

DIXIELAND APARTMENTS

LITTLE FLOCK, ARKANSAS

SOIL INVESTIGATION REPORT NO. 2

WITH SOIL LOADING RATES FOR DRIP DISPERSAL SYSTEMS

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Lowell, Arkansas 72745
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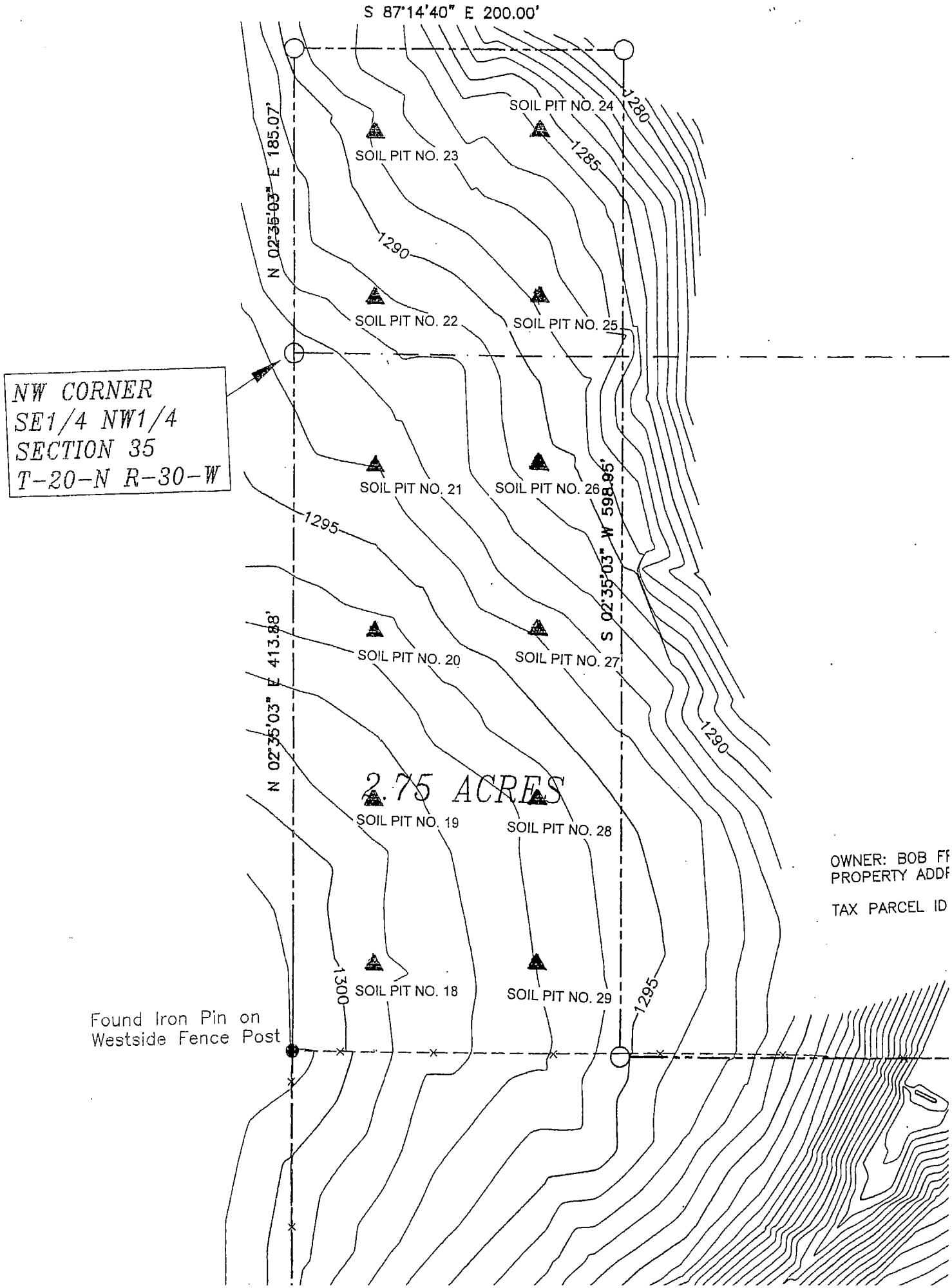
S 87°14'40" E 200.00'
N 02°35'03" E 185.07'
SOIL PIT NO. 24
SOIL PIT NO. 23
SOIL PIT NO. 22
SOIL PIT NO. 25
SOIL PIT NO. 21
SOIL PIT NO. 26
SOIL PIT NO. 20
SOIL PIT NO. 27
SOIL PIT NO. 19
SOIL PIT NO. 28
SOIL PIT NO. 18
SOIL PIT NO. 29
1280
1285
1290
1295
1300
S 02°35'03" W 598.95'
N 02°35'03" E 413.88'
2.75 ACRES
NW CORNER
SE1/4 NW1/4
SECTION 35
T-20-N R-30-W
Found Iron Pin on
Westside Fence Post
OWNER: BOB FF
PROPERTY ADDF
TAX PARCEL ID

Soil Investigation Report for
Dixieland Apartments, Little Flock, Arkansas

By Glen D. Laurent
Professional Soil Classifier
Designated Representative

This report was made to provide information about the soils in the Dixieland Apartments Project area. The information includes a description of the soils and their location and a summary of the soil loading rates for Drip Dispersal Systems.

The Soils were described using guidelines from the National Cooperative Soil Survey.

The Soil Loading Rates were assigned using:

1. The Arkansas Department of Health publication, "Guidelines for the Design and Construction of Drip Dispersal Systems",version 1 (10-28-03).
2. Geoflow Design and Installation Manual – 2000B

If the loading rates using the ADH guidelines exceeded the manufactures (Geoflow) loading rates for a soil type then the loading rates for the more restrictive soil type was used.

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 18

PROFILE DESCRIPTION
May 17, 2004

A 0 to 8 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

E 8 to 11 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

Bt1 11 to 19 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; gradual smooth boundary.

Bt2 19 to 25 inches; red (2.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; clear wavy boundary.

Bt3 25 to 50 inches; dark red (2.5YR 3/6) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; common medium distinct reddish brown (5YR 4/4) and common medium prominent pale brown (10YR 6/3) and light brownish gray (10YR 6/2) iron depletions.

SYSTEM SIZING

Hydraulic Conductivity
0 to 50 inches – Moderate

Seasonal Water Table
25 inches – Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.171 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 19

PROFILE DESCRIPTION
May 17, 2004

A 0 to 5 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

E 5 to 11 inches; yellowish brown (10YR 5/4) silt loam; weak medium subangular blocky structure; friable; gradual smooth boundary.

Bt1 11 to 20 inches; reddish brown (5YR 4/4) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; gradual smooth boundary.

Bt2 20 to 34 inches; red (2.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; clear wavy boundary.

Bt3 34 to 54 inches; dark red (10R 3/6) silty clay loam; moderate medium and coarse subangular blocky structure; firm; common clay films; common medium prominent strong brown (7.5YR 4/6) and common medium prominent grayish brown (10YR 5/2) and light brownish gray (10YR 6/2) iron depletions.

SYSTEM SIZING

Hydraulic Conductivity
0 to 54 inches – Moderate

Seasonal Water Table
34 inches – Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.232 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 20

PROFILE DESCRIPTION
May 17, 2004

A 0 to 5 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

Bt1 5 to 13 inches; strong brown (7.5YR 4/6) silt loam; moderate medium subangular blocky structure; friable; patchy clay films; gradual smooth boundary.

Bt2 13 to 22 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; gradual smooth boundary.

Bt3 22 to 30 inches; red (2.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; 1 percent by volume chert fragments 1 to 3 inches in diameter; gradual wavy boundary.

Bt4 30 to 51 inches; dark red (2.5YR 3/6) silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium distinct yellowish red (5YR 4/6) and common medium prominent strong brown (7.5YR 4/6) and light brownish gray (10YR 6/2) iron depletions.

SYSTEM SIZING

Hydraulic Conductivity
0 to 54 inches – Moderate

Seasonal Water Table
30 inches – Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.205 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 21

PROFILE DESCRIPTION
May 17, 2004

A 0 to 6 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

A2 6 to 16 inches; dark yellowish brown (10YR 4/4) silt loam; weak medium subangular blocky structure; friable; gradual smooth boundary.

Bt1 16 to 22 inches; strong brown (7.5YR 4/6) silt loam; moderate medium subangular blocky structure; friable; common clay films; gradual wavy boundary.

Bt2 22 to 37 inches; red (2.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; clear wavy boundary.

Bt3 37 to 53 inches; dark red (2.5YR 3/6) silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium distinct yellowish red (5YR 4/6) and prominent light brownish gray (10YR 6/2) iron depletions; 15 percent by volume pockets of soft chert that can be cut with a spade.

SYSTEM SIZING

Hydraulic Conductivity
0 to 53 inches – Moderate

Seasonal Water Table
37 inches – Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.253 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 22

PROFILE DESCRIPTION
May 17, 2004

A 0 to 9 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

Bt1 9 to 15 inches; strong brown (7.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; gradual smooth boundary.

Bt2 15 to 23 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; common clay films; clear wavy boundary.

Bt3 23 to 48 inches; red (2.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium distinct yellowish red (5YR 4/6) and prominent light brownish gray (10YR 6/2) iron depletions; 1 percent by volume chert fragments 1 to 3 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 48 inches – Moderate

Seasonal Water Table
23 inches – Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.157 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 23

PROFILE DESCRIPTION
May 17, 2004

A 0 to 8 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

E/A 8 to 14 inches; brown (10YR 5/3) silt loam; discrete bodies of brown (10YR 4/3) A material in pockets, root channels and on faces of peds; weak medium subangular blocky structure; friable; clear wavy boundary.

Bt1 14 to 27 inches; dark reddish brown (2.5YR 3/4) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; common black stains on faces of peds; 1 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

Bt2 27 to 48 inches; dark red (2.5YR 3/6) silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium prominent yellowish brown (10YR 5/4) and light brownish gray (10YR 6/2) iron depletions; few black stains and few brown (7.5YR 4/4)iron depletions; 1 percent by volume chert fragments 1 to 3 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 48 inches – Moderate

Seasonal Water Table
14 inches – Brief Duration
27 inches – Moderate Duration
23 inches – Adjusted Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.157 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 24

PROFILE DESCRIPTION
May 17, 2004

A 0 to 8 inches; brown (10YR 4/3) gravelly silt loam; weak medium subangular blocky structure; friable; 20 percent by volume chert fragments 1 to 3 inches in diameter; clear smooth boundary.

E 8 to 18 inches; yellowish brown (10YR 5/4) very gravelly silt loam; weak medium subangular blocky structure; friable; 40 percent by volume chert fragments 1 to 4 inches in diameter; clear wavy boundary.

Bt1 18 to 26 inches; yellowish brown (10YR 5/4) very gravelly silt loam; weak medium subangular blocky structure; friable; patchy clay films; common medium distinct pale brown (10YR 6/3) iron depletions; 40 percent by volume chert fragments 1 to 4 inches in diameter; clear wavy boundary.

Bt2 26 to 35 inches; yellowish brown (10YR 5/6) extremely cobbly silt loam; weak coarse subangular blocky structure; firm; patchy clay films; common medium distinct light brownish gray (10YR 6/2) iron depletions on rock faces; 75 percent by volume chert fragments 3 to 10 inches in diameter; clear wavy boundary.

2Bt3 35 to 40 inches; dark red (2.5YR 3/6) extremely cobbly silty clay loam (> 35% clay); moderate medium subangular blocky structure; firm; common clay films; common medium prominent light brown (7.5YR 6/3) iron depletions; 60 percent by volume chert fragments 3 to 10 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 40 inches – Moderate

Seasonal Water Table
18 inches - Brief
26 inches – Moderate Duration
23 inches – Adjusted Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.157 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 25

PROFILE DESCRIPTION
May 17, 2004

A 0 to 6 inches; dark yellowish brown (10YR 3/4) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

A2 6 to 10 inches; brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; gradual wavy boundary.

Bt1 10 to 21 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; 5 percent by volume chert fragments 1 to 3 inches in diameter; abrupt smooth boundary.

Bt2 21 to 26 inches; yellowish red (5YR 4/6) extremely cobbly silty clay loam; moderate coarse subangular blocky structure; firm; common clay films; 75 percent by volume chert fragments 3 to 10 inches in diameter; gradual smooth boundary.

Bt3 26 to 36 inches; red (2.5YR 4/6) extremely cobbly silty clay loam; moderate coarse subangular blocky structure; firm; common clay films; common medium prominent yellowish brown (10YR 5/4) iron depletions, common medium prominent light brownish gray (10YR 6/2) and grayish brown (10YR 5/2) iron depletions on faces of rocks; 80 percent by volume chert fragments 3 to 10 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 53 inches – Moderate

Seasonal Water Table
26 inches – Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.178 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 26

PROFILE DESCRIPTION
May 17, 2004

A 0 to 9 inches; dark brown (10YR 3/3) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

Bt1 9 to 17 inches; brown (7.5YR 4/4) silt loam; weak medium subangular blocky structure; friable; patchy clay films; gradual wavy boundary.

Bt2 17 to 28 inches; red (2.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; common clay films; 5 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

Bt3 28 to 45 inches; red (2.5YR 4/6) very gravelly silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium prominent light brownish gray (10YR 6/2) and brown (10YR 5/3) iron depletions; 50 percent by volume chert fragments 1 to 8 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 45 inches – Moderate

Seasonal Water Table
28 inches – Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.191 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 27

PROFILE DESCRIPTION
May 22, 2004

A 0 to 8 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

Bt/A 8 to 20 inches; brown (7.5YR 4/4) silt loam; discrete bodies of brown (10YR 4/3) A material in pockets, root channels and on faces of peds; weak medium subangular blocky structure; friable; patchy clay films; 1 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

Bt2 20 to 28 inches; yellowish red (5YR 4/6) silty clay loam; few discrete bodies of brown (10YR 4/3) A material in root channels; moderate medium subangular blocky structure; friable; common clay films; 2 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

Bt3 28 to 32 inches; strong brown (7.5YR 4/6) very gravelly silty clay loam; moderate medium subangular blocky structure; friable; common clay films; common medium distinct light brownish brown (10YR 6/4) iron depletions and few medium prominent red (2.5YR 4/6) iron concentrations; 40 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

Bt4 32 to 38 inches; red (2.5YR 4/6) extremely gravelly silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium prominent strong brown (7.5YR 4/6) and light brownish gray (10YR 6/2) iron depletions; 65 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

Bt5 38 to 48 inches; dark red (2.5YR 3/6) extremely cobbly silty clay (<49% clay); moderate medium subangular blocky structure; firm; common clay films; common medium prominent strong brown (7.5YR 4/6) and brown (7.5YR 5/3) iron depletions; 65 percent by volume chert fragments 3 to 10 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 48 inches – Moderate

Seasonal Water Table
28 inches - Brief
32 inches – Moderate Duration
31 inches – Adjusted Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.212 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 28

PROFILE DESCRIPTION
May 22, 2004

A 0 to 8 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; clear smooth boundary.

Bt1 8 to 18 inches; dark yellowish brown (10YR 4/4) silt loam; moderate medium subangular blocky structure; friable; patchy clay films; 1 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

Bt2 18 to 32 inches; strong brown (7.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; friable; common clay films; 1 percent by volume chert fragments 1 to 3 inches in diameter; gradual wavy boundary.

Bt3 32 to 40 inches; yellowish red (5YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium distinct strong brown (7.5YR 4/6) iron depletions and dark red (2.5YR 3/6) iron concentrations; 2 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

Bt4 40 to 46 inches; red (2.5YR 4/6) silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium prominent strong brown (7.5YR 4/6) and light brownish gray (10YR 6/2) iron depletions;10 percent by volume chert fragments 1 to 3 inches in diameter.

SYSTEM SIZING

Hydraulic Conductivity
0 to 46 inches – Moderate

Seasonal Water Table
32 inches - Brief
40 inches – Moderate Duration
37 inches – Adjusted Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.253 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

DIXIELAND APARTMENTS

Benton County, Arkansas

Soil Pit No. 29

PROFILE DESCRIPTION
May 22, 2004

A 0 to 9 inches; brown (10YR 4/3) silt loam; weak medium subangular blocky structure; friable; 1 percent by volume chert fragments 1 to 3 inches in diameter; gradual smooth boundary.

E 9 to 17 inches; yellowish brown (10YR 5/4) silt loam; moderate medium subangular blocky structure; friable; 2 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

Bt1 17 to 24 inches; dark yellowish brown (10YR 4/6) gravelly silty clay loam; moderate medium subangular blocky structure; friable; common clay films; 30 percent by volume chert fragments 1 to 3 inches in diameter; gradual wavy boundary.

Bt2 24 to 32 inches; brown (7.5YR 4/4) very gravelly silty clay loam; moderate medium subangular blocky structure; very firm; common clay films; common medium distinct light brownish gray (10YR 6/2) and dark yellowish brown (10YR 4/6) iron depletions; 45 percent by volume chert fragments 1 to 3 inches in diameter; clear wavy boundary.

Bt3 32 to 48 inches; dark red (2.5YR 3/6) gravelly silty clay loam; moderate medium subangular blocky structure; firm; common clay films; common medium prominent dark yellowish brown (10YR 4/6) and brown 7.5YR 4/4) iron depletions; common black stains on ped faces in upper part of horizon.

SYSTEM SIZING

Hydraulic Conductivity
0 to 48 inches – Moderate

Seasonal Water Table
24 inches – Moderate Duration

Soil Loading Rates for Drip Dispersal Systems
0.164 GPD/sq ft

Glen D. Laurent
Professional Soil Classifier
Designated Representative

Signage on North drip field gate

New Signage on post and cable on south field

New signage on fence of south drip field

Signage on south drip field

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