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Town of Vina
And
Proposed Industrial Park

WASTEWATER FACILITIES PLAN

August 2004

Prepared By:
Northwest Alabama
Council of Local Governments
and
Hankins and Reed Engineering

TOWN OF VINA, ALABAMA

PROPOSED INDUSTRIAL PARK

WASTEWATER FACILITIES PLAN

The Town of Vina, Alabama
Mayor, D. W. Franklin
Council Chairman,
Marshal Rogers

Council Members
Bob Knight
Mary Hammock
Lula Abston
Robert Moomaw

Franklin County Commission
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August, 2004

This Wastewater Facility Plan was funded by the Alabama Department Of Environmental Management through the Clean Water Act Sections (j) (1) and 604 Provisions

EXECUTIVE SUMMARY

The purpose of the Wastewater Facilities Plan was to analyze the existing characteristics of the Town of Vina and the proposed Vina Industrial Park and present alternatives for the present and future sanitary sewer wastes. Characteristics including population trends, economy, housing and land use were evaluated to determine alternatives that would fit the town. A proposed wastewater system including collection and treatment alternatives was studied and alternatives were evaluated. In addition, a Phase I environmental assessment was completed on the proposed 400 +/- acre industrial park to locate any environmentally sensitive issues that must be addressed.

The first step was to establish wastewater flow rates that the town and industrial park could potentially produce. Using the town's current water usage, as well as projections of populations and employment growth, a flow rate of 135,000 gallons per day was derived. Estimates were also compiled to construct a collection system for the town and industrial park. The town's system was estimated at $2,350,000.00 and the industrial park at $804,000.00.

Next, characteristics of the study area were evaluated to establish criteria for the sewer system. Data that is unique to the Town of Vina including natural resources and infrastructure were compiled and analyzed. The local population, economy, and housing were researched and future projections were made as to how the town could expect to change in these areas. The existing land use of the area was studied and plans for future developments were shown.

Next, various treatment alternatives for wastewater were looked at to determine possible solutions for the town to use. Alternates including on-site disposal, lagoon treatment, mechanical treatment, and spray irrigation were discussed and cost estimates for each was compiled. Preliminary cost estimates ranging from $500,000 to $700,000 were presented for treating wastewater from the town and future industries. Potential funding sources were listed through which the town could finance the activities described.

Finally, a Phase I Environmental Assessment was performed on the proposed industrial park property. Environmentally sensitive issues were analyzed to determine to effects that large development of the property would have. The land uses of the site and adjoining properties were evaluated and historical data about the area was obtained. No significant environmental issues were found to exist at the site.

Based on the findings of the wastewater facilities plan, recommendations can be made to the town as to steps that should be taken. In the initial development of the industrial park, on-site sewage treatment and disposal will be the most economical alternative. This can be accomplished by installing

individual treatment systems on each site or through a combined system inside the industrial park property. At a point when multiple industries have located in the park, producing combined flows exceeding 10,000 to 15,000 gallons per day, the town will need to consider the construction of a treatment facility. A collection and treatment system could be constructed in phases to accommodate growth as users increase. Once the system is in place, the town could begin construction of a collection system for residences and the remainder of the town. Due to the projected low sewage volumes, the recommended treatment alternative would include primary treatment such as a lagoon. Discharge or spray irrigation would be decided based on the available land and receiving stream conditions.

Table of Contents

1.0 GENERAL SCOPE OF THE WORK

This study analyzes land use, economic, and growth patterns of the Vina City and surrounding community areas of west Franklin County. These analyses were completed to assist in developing a long-range sewer facilities plan for the city of Vina. This study is a joint venture of the Northwest Alabama Council of Local Governments (NACOLG) and Hankins And Reed Civil Engineers & Land Surveyors pursuant to the agreement made and entered March 8th, 2004.

NACOLG prepared the physical analysis, demographic evaluations, economic data, housing assessment and land use abstract sections of the document (sections 3.0, 4.0, 5.0, 6.0, 7.0) Hankins And Reed Civil Engineers & Land Surveyors compiled the sections describing estimates for wastewater flow rates, alternative evaluations, recommendations, discussions of potential funding sources, scope and summary (sections 1.0, 2.0, 8.0, 9.0, 10.0, and 11.0)

The study area is located in the lower western portion of Franklin County Alabama and is delineated by a circumference of 2 miles from the city center. The city center is demarcated by the City Hall of Vina and is defined by the coordinates 34°22'36. 160" North, 88°03'37. 236" West. The projection period for the study is twenty years. The population and flow rate projections were extended to 40 years. The objectives of the sewer facilities study were as follows:

- Provide preliminary estimates for potential sewage flow rates from the study area.
- Provide preliminary sizes and locations for potential collection and treatment facilities.
- Evaluate alternative collection, treatment and disposal options.
- Provide preliminary recommendations and cost estimates for the most feasible alternatives.

Vina

Wastewater Facility Study
Location Map

Northwest Alabama Council
of Local Governments
June, 2004

2.0 WASTEWATER FLOW RATES

The Town of Vina does not currently operate a sanitary sewer collection or treatment system. All sanitary sewer waste is treated through on-site disposal systems, which are regulated by the Alabama Department of Public Health. The lack of an adequate sanitary sewer system limits a community's ability to grow and recruit new industries. On-site systems also present potential health hazards through the contamination of drinking water and failing systems.

In order to determine the required collection and treatment capacities for a new system, the amount, timing and characteristics of the waste generated must be established. Flows must be considered from residential, commercial and industrial establishments in the town. The time variation of flows is also important in determining the expected minimum and peak flows for designing a system. Since most collection systems are gravity-flow, they must be able to sustain minimum volumes for self-cleansing as well as peak flows. In addition, consideration must be given to potential inflow and infiltration of groundwater into the system, which will affect treatment processes.

The amount of sewage flows from a community depends greatly on the area's population. Domestic wastewater flows vary greatly throughout the day, and usually include peaks in the morning and evening. A hydrograph **(Figure 2.1)** shows an example of water use versus wastewater flow from a subdivision in Baltimore County Maryland. Two distinctive peaks can be seen on the hydrograph. J.J. Lentz of John Hopkins University performed a study in 1963 in which wastewater flows from communities in California, Florida, Missouri, and Maryland were observed. The study found that, without the influence of lawn sprinkling and inflow/infiltration, wastewater flow rates are basically equal to water use. As a general rule, water usage for residential customers is approximately 150 to 200 gallons per day.

Figure 2.1

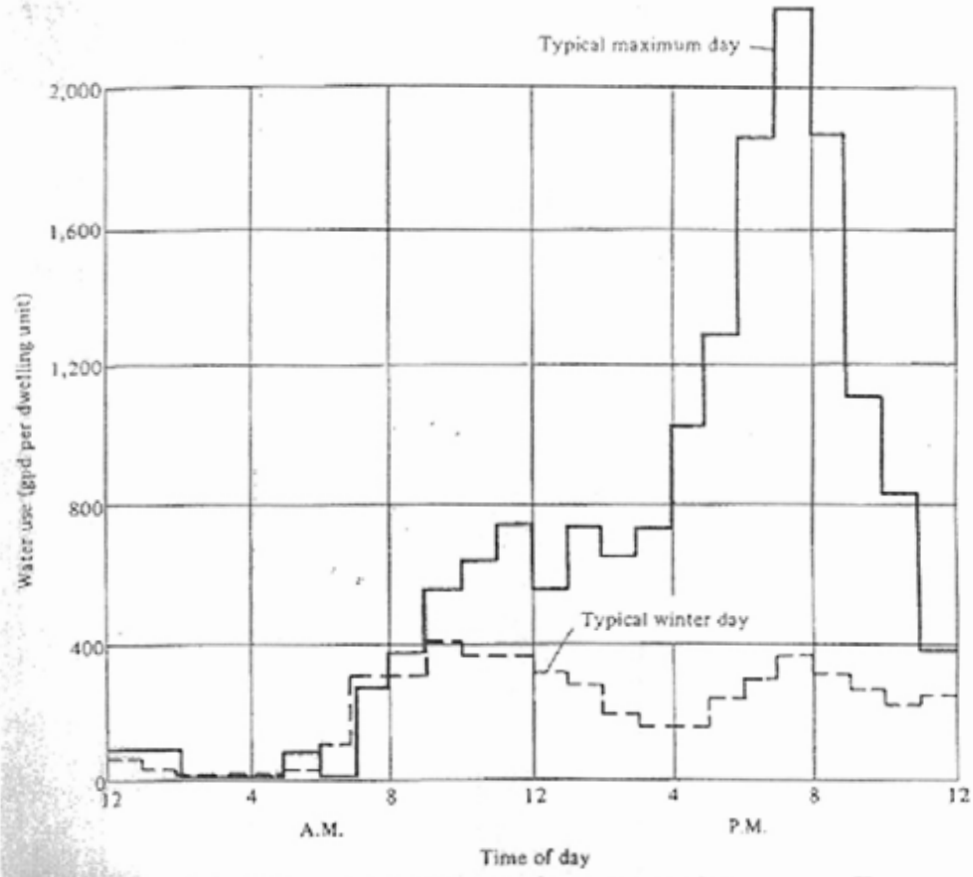


Figure 4.2 Daily water use patterns, maximum day and winter day. (From Residential Water-Use Research Project, Johns Hopkins University and Federal Housing Administration, 1963.)

Flows from the proposed industrial park must be estimated and consideration given to the continued development of the park. Water usage from an industry will vary greatly, depending on the type of operation, number of employees and number of shifts. Consideration must be given to the waste generated by employees as well as that generated as a part of the manufacturing process. Industries will generate approximately 20 gallons per day per employee as a general rule. For initial calculation purposes, an employment of 1,000 people will be considered, with a total water usage of 20,000 gallons per day.

Inflow and infiltration are two factors that must also be considered in the design of a sewer collection system. Inflow is the flow of storm water runoff into the collection system, usually through a manhole, pump station opening, or through the connection of illicit roof drains connected to the sewer system. Storm water flows of 20-70-gpm can enter through a leaking manhole cover under only 1" of water. Roof drainage from a typical 1,000 ft^2 house tied to a system can add flows in excess of 10-gpm. Infiltration is the flow of groundwater into the system through the pipe joints or manhole wall. Depending on the location of the sewer, type and tightness of the joint, and soil characteristics, infiltration will typically range from 3,500-5,000 gpd/mi/24 hr for an 8 in. pipe and could reach flows as high as 60,000 gpd/mi in extreme cases.

In planning for a new sanitary sewer treatment facility, expected growth factors must be included. Using the existing water usage for the town of approximately 50,000 gallons per day and a growth factor of 3%–4% over the next 20 years, the resulting flow would be approximately 100,000 gallons per day. Combining the anticipated flows from the industrial park, the total flow into the new system would be approximately 120,000 gallons per day. Including estimates for inflow and infiltration of 15,000 gallons/day, the total initial flow for the new treatment facility would be 135,000 gallons per day.

An ideal sanitary sewer collection system consists of all gravity flow sewers with no pump stations. Pump stations create an added maintenance issue and added operating costs to the system. Due to elevation changes, it is not always possible to install such a system. Care should be taken to locate gravity sewers in the low areas and along creeks to maximize the number of service connections that can be made. The depth of gravity flow sewers also plays an important role in the overall cost of a new system. Gravity flow lines must be installed deep enough to allow the majority of the houses to connect, without having an extreme effect on the cost.

Cost estimates were compiled for a sanitary sewer collection system for the Town of Vina as well as the proposed industrial park **(Figures 2.4 and 2.5)**. 8" main gravity lines were used, which will adequately handle the expected flows from the area. Due to the topography, pump stations and force mains were included for transporting the sewage to the treatment facility. Other items included in the estimates are service connections to existing houses and for future industries, and manholes for access and maintenance of the collection system.

Figure 2.4
Town of Vina
Sanitary Sewer Collection System
Preliminary Cost Estimate

ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	QTY	TOTAL PRICE
1	8" PVC Gravity-Flow Sanitary Sewer	LF	$35.00	35,000	$1,225,000.00
2	Pre-Cast Concrete Manholes	EA	$2,500.00	120	$300,000.00
3	Service Connections	EA	$500.00	150	$75,000.00
4	4" PVC Service Line	LF	$10.00	20,000	$200,000.00
5	Pump Station Complete	EA	$30,000.00	2	$60,000.00
6	Force Main	LF	$10.00	5,000	$50,000.00
7	Asphalt Repair	TONS	$60.00	4,000	$240,000.00

Total Estimate	$2,150,000.00
Engineering / Inspection	$200,000.00
Total Project Cost	**$2,350,000.00**

Figure 2.5
Proposed Vina Industrial Park
Sanitary Sewer Collection System
Preliminary Cost Estimate

ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	QTY	TOTAL PRICE
1	8" PVC Gravity-Flow Sanitary Sewer	LF	$35.00	12,000	$420,000.00
2	Pre-Cast Concrete Manholes	EA	$2,500.00	40	$100,000.00
3	Service Connections	EA	$300.00	30	$9,000.00
4	Pump Station Complete	EA	$30,000.00	3	$90,000.00
5	Force Main	LF	$10.00	10,000	$100,000.00
				Total Estimate	$719,000.00
				Engineering / Inspection	$85,000.00
				Total Project Cost	**$804,000.00**

3.0 CHARACTERISTICS OF STUDY AREA

3.1 General

The city of Vina Planning Study Area is located within a 2-mile radius of the city hall, which is understood in this study as the heart of the Vina community. The study area encompasses the Vina incorporated boundary as declared on the 5th of May 2003 **(Figure 3.1)**.

The Planning Study Area (PSA) is rural with traditional characteristics of agricultural communities. The Vina City Hall combined with a cluster of residential and commercial structures compose the core of the Vina community **(Figure 3.2)**. Vina City Hall sets on Main Street between Blue Creek Road and Look Out Tower Road along State Route 19 (Main Street). The regional terrain is flat to slopping with the lowest elevation at 606 feet and the highest elevation being 847 feet within the study area **(Figure 3.3)**. The Vina Municipal Water System serves the city of Vina proper. No municipal or private wastewater system exists within the city proper or the PSA. Residential and commercial wastewater disposal is via septic systems with conventional absorption fields.

3.2 Climate

The Planning Study Area has a moderate climate. The climate on an annual basis varies from hot summers of long duration with sporadic precipitation to mild winters with abrupt periods of extreme cold. Consistent and sufficient precipitation is prevalent throughout the region.

The average summer temperature is 79 degrees Fahrenheit (F°) and average daily maximum is 89 F°. In the winter the average temperature is 42 F°. Typically, initial freezing temperatures are encountered each year during the latter part of October and continue on a sporadic basis until mid-April. Average annual rainfall is approximately 52 inches per year with 45 percent typically falling between April through September. The average number of frost-free days exceeds 200 days annually. Snowfall is typically 3 to 4 inches annually.

On average, the sun shines 65 percent of the time during the summer months, but only 35 percent in the winter. The prevailing winds are from the south and average wind speed is highest in the spring at 8 miles per hour.

3.3 Topography

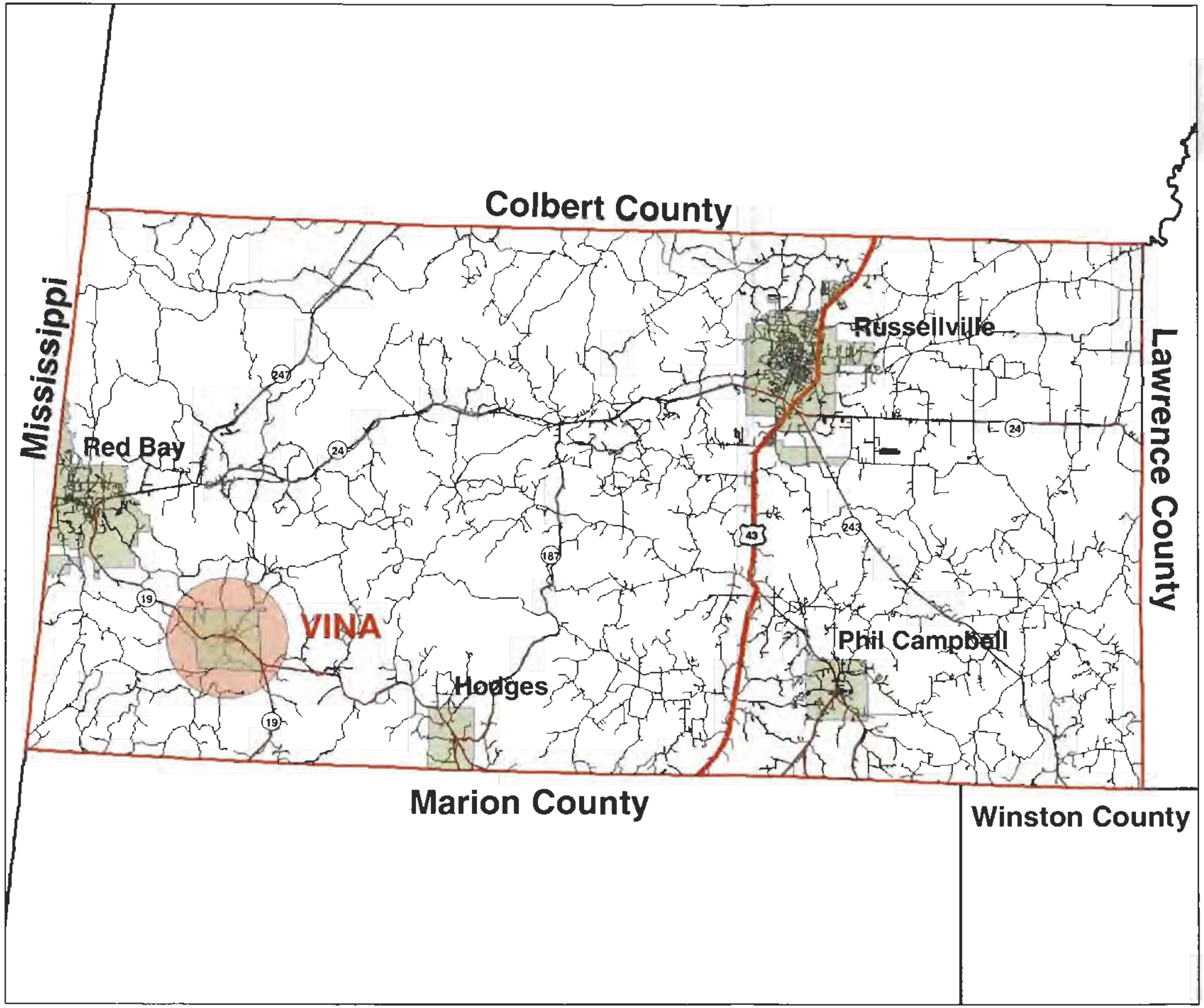
The topography in the planning study area is flat to moderately sloping. Elevations within the incorporated boundary are from 606 feet to 847 feet above mean sea level with the collection of urban structures resting in a mild depression at 675 feet above sea level.

Figure 3.1

FRANKLIN COUNTY

Waste Water Facilities Study

Location Map



- State Highway
- City Limits
- 2 Mile Study Area
- US Highway
- Roads
- Franklin County

N
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E
S

0 1 2 4 6 8 Miles

Northwest Alabama Council
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July 2004

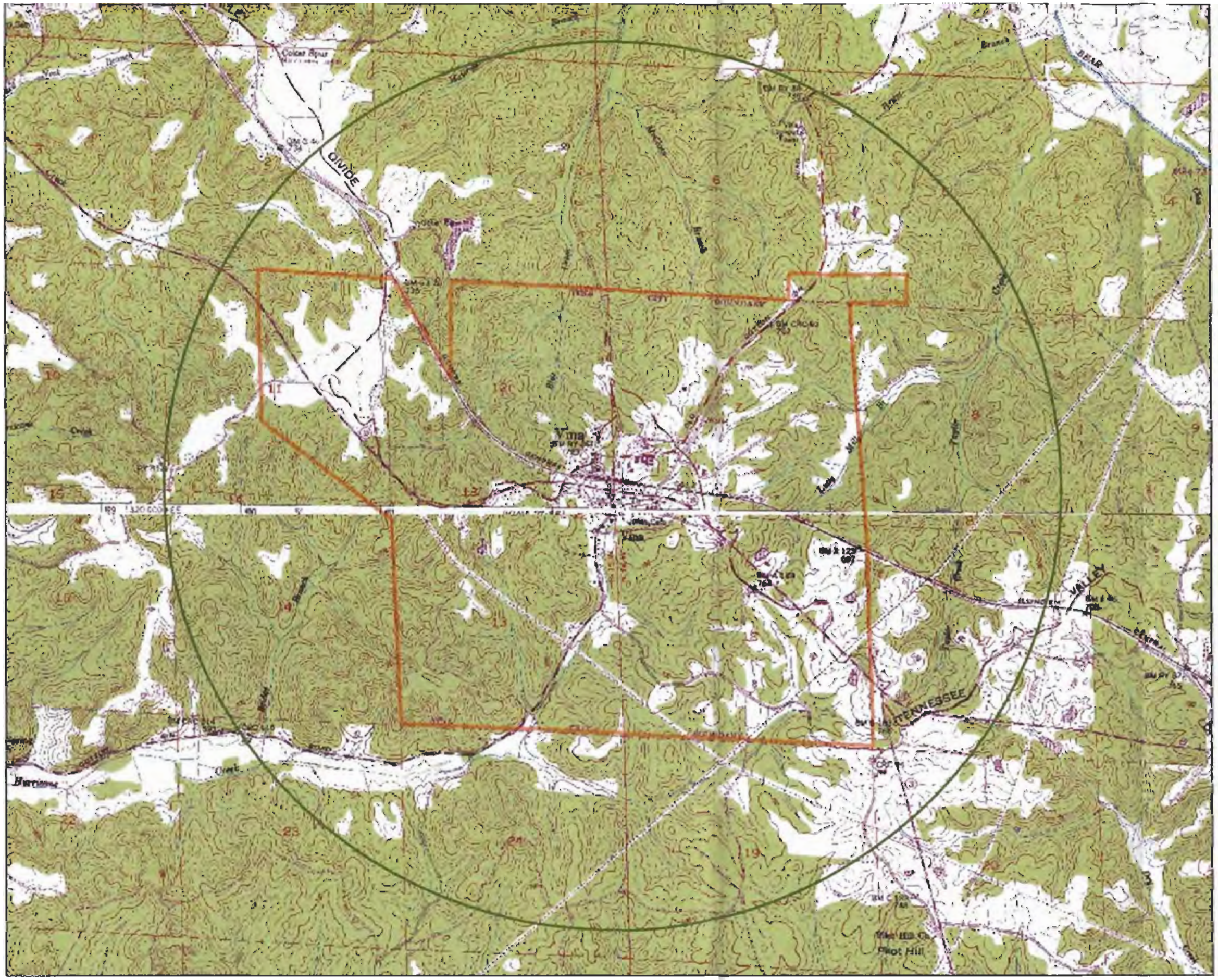

Figure 3.2
VINA AREA
Waste Water Facilities Study

TOPOGRAPHY

2 Mile Study Area

City Limits

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0.2 0.1 0 0.2 0.4 0.6 Miles

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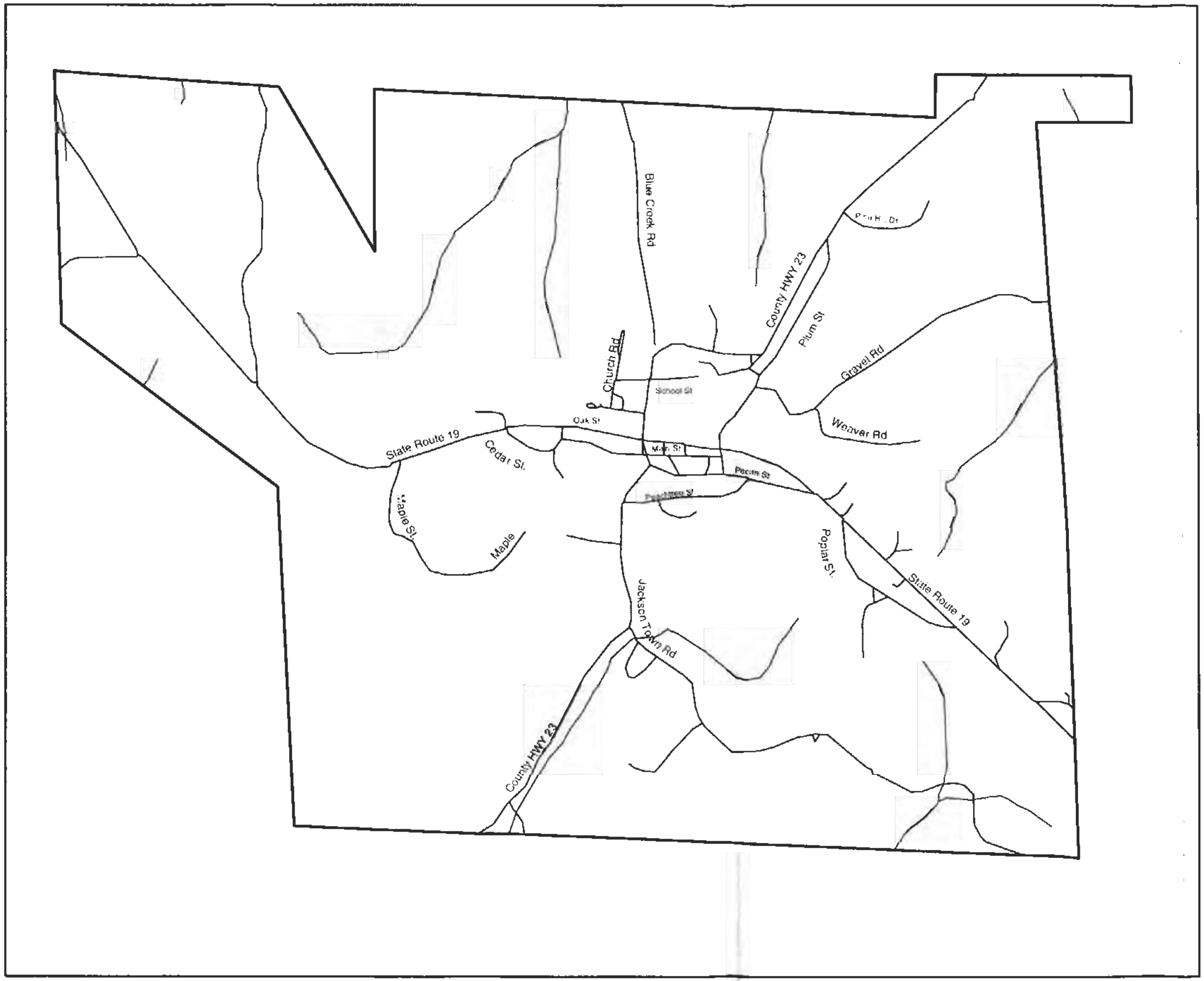

Figure 3.3

VINA AREA

Waste Water Facilities Study

Location Map

Roads

Streams

Vina City Limits

0 0.2 0.4 0.8 1.2 1.6 2 Miles

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July 2004

3.4 Soils

The 1965 Soil Survey of Franklin County, published by the Soil Conservation Service, provides a detailed assessment of the soils, their properties, and how those properties may potentially affect development, and therefore the need for sanitary sewer services. For the purpose of this study, the impact of soil properties on the use of on-site septic tank fields is the most important issue. Unsatisfactory performance of septic absorption fields, including excessively slow absorption of effluent, surfacing or effluent, and hillside seepage, can affect public health. Sufficient unsaturated soil material must be found beneath the absorption field to filter the effluent effectively.

The soils in the PSA are most commonly composed of the Guin-Cuthbert-Ruston association with excessively drained to moderately well drained, deep and moderately deep, gravely and sandy soils on slopes of 10 to 40 percent. Within the urban developed area immediately encompassing the Vina City Hall are soils composed by the majority of the Cuthbert sandy clay loam (CtE3 10 to 25 % slopes), Cuthbert and Ruston Soils (CuD 10 to 15 % slopes), Cuthbert and Ruston Soils, (CuE 15 to 25 % slopes). Most of the area has sandy soil having abundant chert gravel on high terrain. Hillsides have fair to good infiltration depending on soil thickness and generally permit good percolation. Some localized areas may have poor infiltration because of excessive clay in the soil. The Franklin County Healthy Department (FCHD) states that the Vina area septic tank percolation tests generally reveal slow perking at around a forty minute perk. The soils in and around Vina are considered to be moderately severe by the FCHD. **See Appendix A Table 1.**

(Figure 3.4) displays the permeability levels of the soils within the Planning Study Area. The three levels where derived by analyzing the dispersion and shrink-swell potential of the soil survey series identified within the PSA by the 1965 Soil Survey of Franklin County Alabama. The levels are identified as low permeability, medium permeability, and high permeability. For a more detailed assessment of the effect of soils properties on other uses, e.g. roads, commercial buildings, dwellings, academic institutions, refer to the series of tables in the Soil Survey of Franklin County 1965.

3.5 Geologic Characteristics

The geologic formations in the planning study area are of sedimentary origin and range in age from Cretaceous to Mississippian. The parent material consists of limestone, sandstone and shale. Geologic units include the Tuscaloosa formation with undifferentiated gravel, sand and clay within the study area. The physiography of the Planning Study Area is within the Gulf Coastal Plain and is uncharacteristically found to be hilly with percent slopes between 10 to 40 percent.

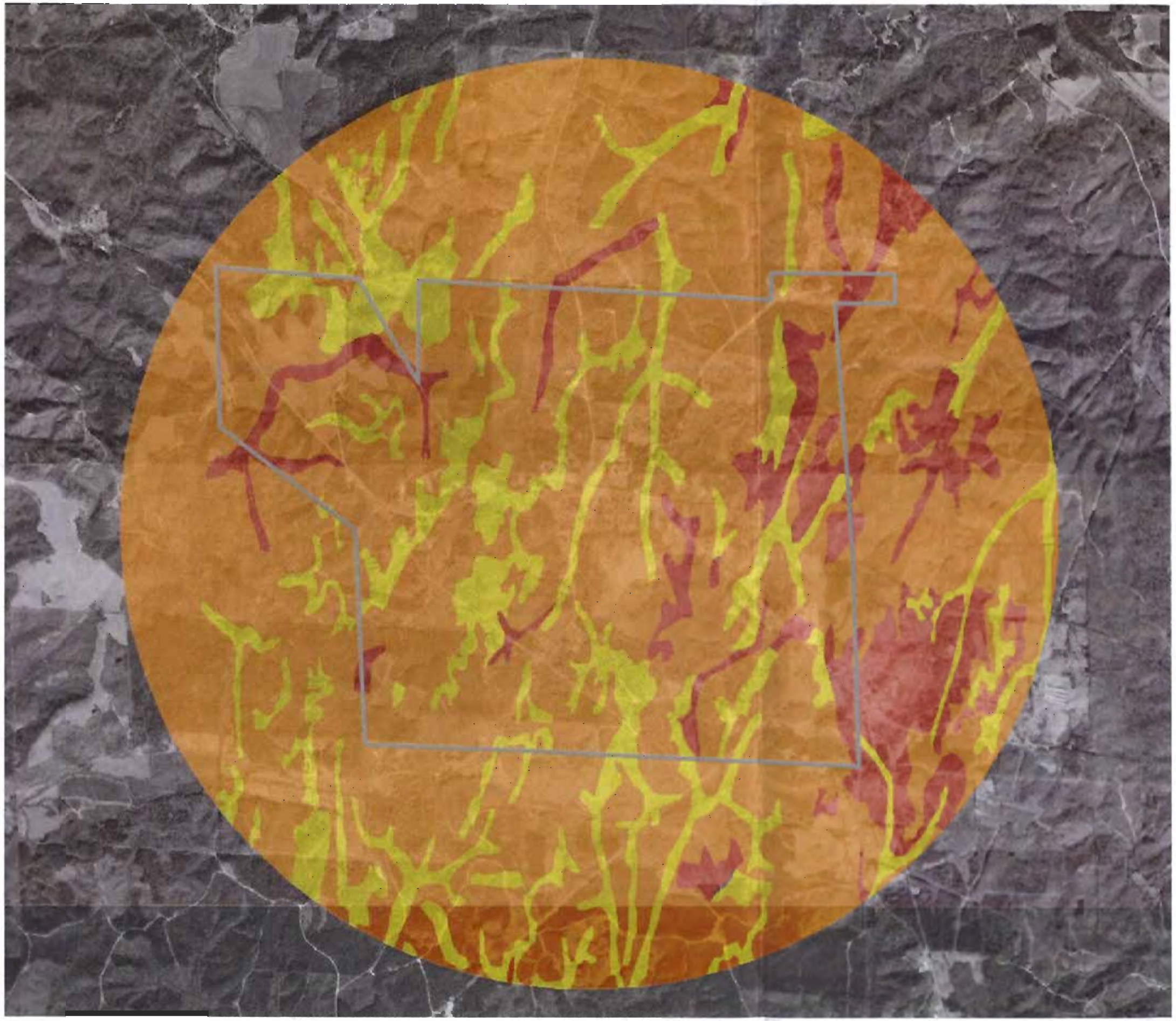

Figure 3.4

VINA AREA

Waste Water Facilities Study

Soil Limitations for Septic Tank Absorption Fields

City Limits

Severe Limitation

Moderate Limitation

Slight Limitation

0 0.1 0.2 0.4 0.6 0.8 1 Miles

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July 2004

3.6 Groundwater Availability

Precipitation is the source of ground water in the area. Part of the precipitation seeps into the zone of saturation to become ground water. The difficulty for water availability occurs in and around the limestone valleys where a readily available supply can be difficult to locate.

The physical characteristics of geological formations largely determine the occurrence of ground water. Permeable rocks called 'aquifers' are reservoirs for ground water, which provide the main source for the planning study area water resources. These aquifers are supported by a rapid recharge ability enabled by the carbonate geology creating several caves in the region as well as the chance for surface contamination from point and non-point sources.

The study area is underlain with the Tuscaloosa Group from the Cretaceous period creating the Tuscaloosa and Bangor Limestone aquifer. The projected yields from wells placed within the planned study area in a limestone aquifer are around 100 to 500 gallons per minute at a depth of less than 300 feet. The sands and gravels of the Tuscaloosa Group supply adequate amounts of water for domestic and agricultural use if the sediments are of sufficient thickness.

3.7 Natural Resources

The primary natural resources are created by the underlying geologic formations. The PSA contains large amounts of forested land with quality timber resources. In addition are mineral resources just north of the PSA with a reduced amount of overburden for greater economic efficiency in harvesting. Sand and gravel resources are predominate within the Planning Study Area and the surrounding region.

3.8 Critical Sites Within Planning Study Area

3.8.1 Historical Sites:

The Alabama Historical Commission, State Historic Preservation Officer (SHPO), was contacted by letter and a request was submitted for a routine document search for the planning study area. A copy of the letter of request and the SHPO response is available in Appendix B. Typically, the SHPO indicates that prior to the development of detailed plans a submittal should be forwarded for the specific site to be utilized and a resource assessment to be conducted by a professional archeologist. Prior to the commencement of any wastewater collection and/or treatment system a more specific site evaluation should be submitted to the SHPO and clearance received for the specific site and project.

3.8.2 Landfill Site(s):

The City of Vina is serviced by the Franklin County Landfill in Belgreen, Alabama. There are additional landfills in Franklin County operated by the following municipalities Red Bay, Phil Campbell and Russellville.

3.9 Planning Study Area Hydrological Cycle

Basic atmospheric processes account for the hydrologic cycles of the planning area. The basic cycles consist of the evaporation of water from the Gulf of Mexico and lesser bodies of surface water in the region. This vapor moisture is then transported by regional air currents and eventually deposited as precipitation primarily as rainfall and the uncommon accumulation of snow. This precipitation then either collects as surface drainage in one of the numerous watercourses or bodies of water, or infiltrates into the groundwater system. Small quantities of rainfall are directly intercepted by vegetation. Surface waters either impound and evaporate to return as precipitation or traverse via discrete channels to the Gulf of Mexico where the evaporation process reoccurs thereby completing the hydrologic cycle.

3.10 Flood Prone Areas Within Planning Study Area

The City of Vina Planning Study Area has isolated areas of localized flooding due to local drainage patterns. The major areas subject to a one hundred year flood are along Blue Creek and its tributaries Northwest of Vina City Hall and Bridge Branch and its tributaries running south to Southwest of Vina City Hall. A copy of the flood hazard map as developed by FEMA accompanies this report. **(Figure 3.5)** derived from Flood Insurance Rate Map shows the flood hazard area around the Vina PSA.

3.11 Prime Farmland

The Vina Planning Study Area contains a significant number of small farms, broken up by scattered residential and commercial development. This area has historically been a marginal producer of common agricultural products due to limitations of slope. Cotton, soybeans, poultry and cattle are the major agricultural income producers to the local economy of Vina.

3.12 Planning Study Area Air Quality

The Tennessee Valley Authority (TVA) has performed air quality studies on several counties within their service area. An air quality assessment was performed for Franklin County. Air quality monitoring showed good air quality.

Figure 3.5

VINA AREA

Waste Water Facilities Study

Flood Zone Areas

- 100 Year Flood Plain
- 500 Year Flood Plain (None Showing)
- Streams
- Roads
- 2 Mile Study Area
- City Limits

0 0.125 0.25 0.5 0.75 1 Miles

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July 2004

3.13 Water Systems Analysis

3.13.1 Existing System

Public water in the planning study area is provided by the City of Vina, which operates the distribution center for this part of the county **(Figure 3.6)**. A series of water lines ranging from one inch to eight inch lines are supplied by two water storage facilities located Northeast of Vina City Hall (34°22'33.512" North, 88°03'19.56" West at 75,000 gallon capacity) as well as Northwest of Vina City Hall (34°22'32.948" North, 88°04'21.156" West at 250,000 gallon capacity). **(See Figure 3.7)**

Water pressure is generally adequate for the current customer load, but the expected increase of industrial and residential use due to Appalachian Regional Commission's Appalachian Development Highway System (ADHS) is seeing development changes. The ADHS route Corridor V that follows State Highway 24 just North of the planning study area will affect consumption rates as economic development opportunities arise.

3.14 Transportation System

Surface transportation in the planning study area is good. The community is served by a series of roads and streets generally following the topographic relief of the rolling terrain. Major access to the region is by way of State Route 172/State Route 19 and the system of Franklin County Highways, County Highway 97 as well as County Highway 23.

3.15 Drainage

The area has relatively good drainage characteristics due to the sloping topography and system of ditches and small streams. Runoff for the Northwest Alabama Region is generally to the north and northwest, flowing into the Tennessee River immediately to the north. Runoff for the planning study area is predominately southwestern to the Tombigbee River in Mississippi.

3.16 Recreation:

Recreational programs for the incorporated area are associated with the local school system as well as the most recent addition of a recreational park adjacent to the school grounds. Community Development Block Grant funding has enabled the city to install a lighted

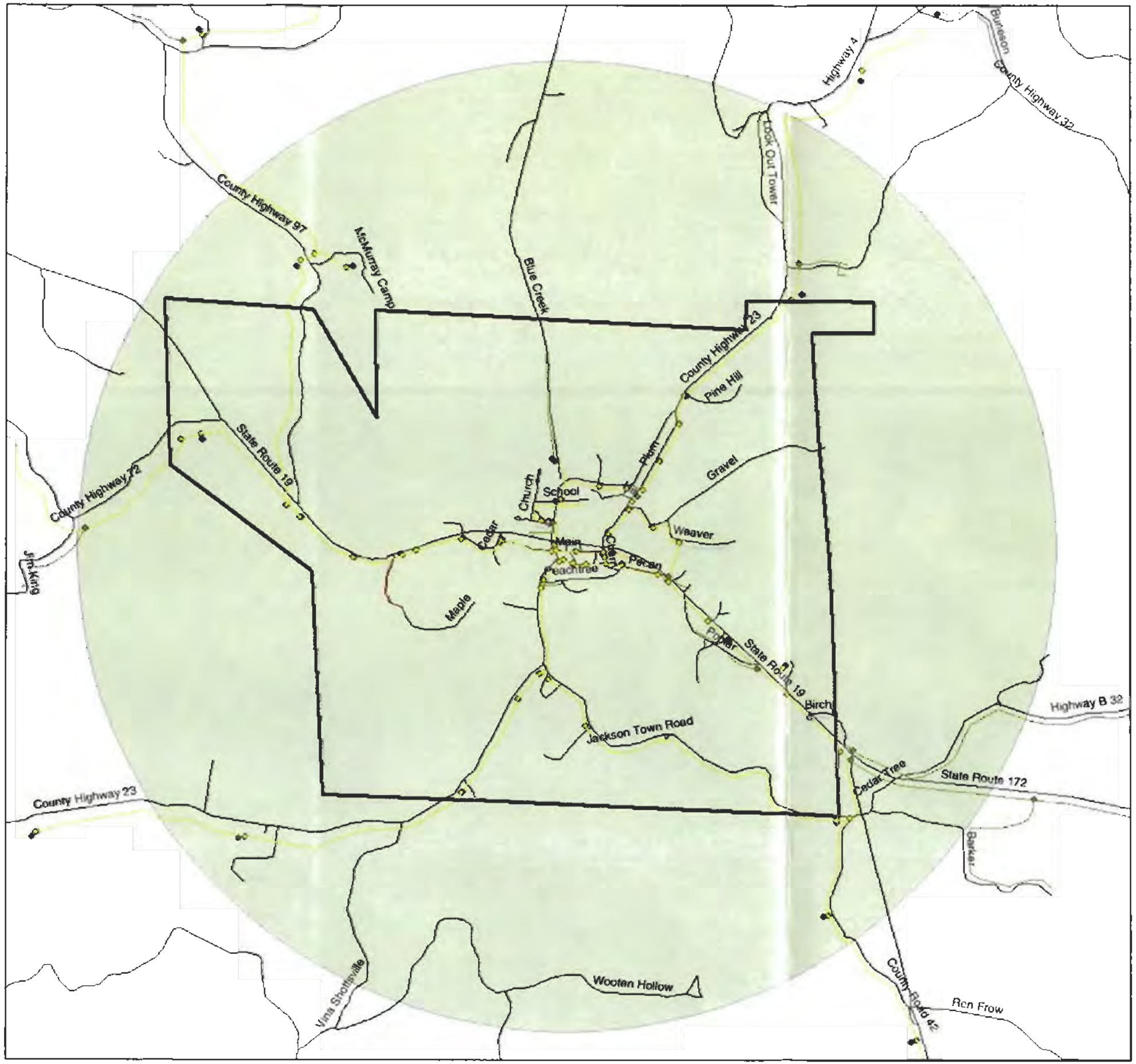

Figure 3.6

VINA AREA

Waste Water Facilities Study

Water Distribution System

- 1 Inch Water Line
- 2 Inch Water Line
- 2 Inch Gate Valve
- 3 Inch Water Line
- 3 Inch Gate Valve
- 4 Inch Water Line
- 4 Inch Gate Valve
- 6 Inch Water Line
- 6 Inch Gate Valve
- 8 Inch Water Line
- 8 Inch Gate Valve
- Flush Valve
- Hydrants
- Roads
- 2 Mile Study Area
- Vina City Limits

N
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0 0.15 0.3 0.6 0.9 1.2 1.5 Miles

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July 2004

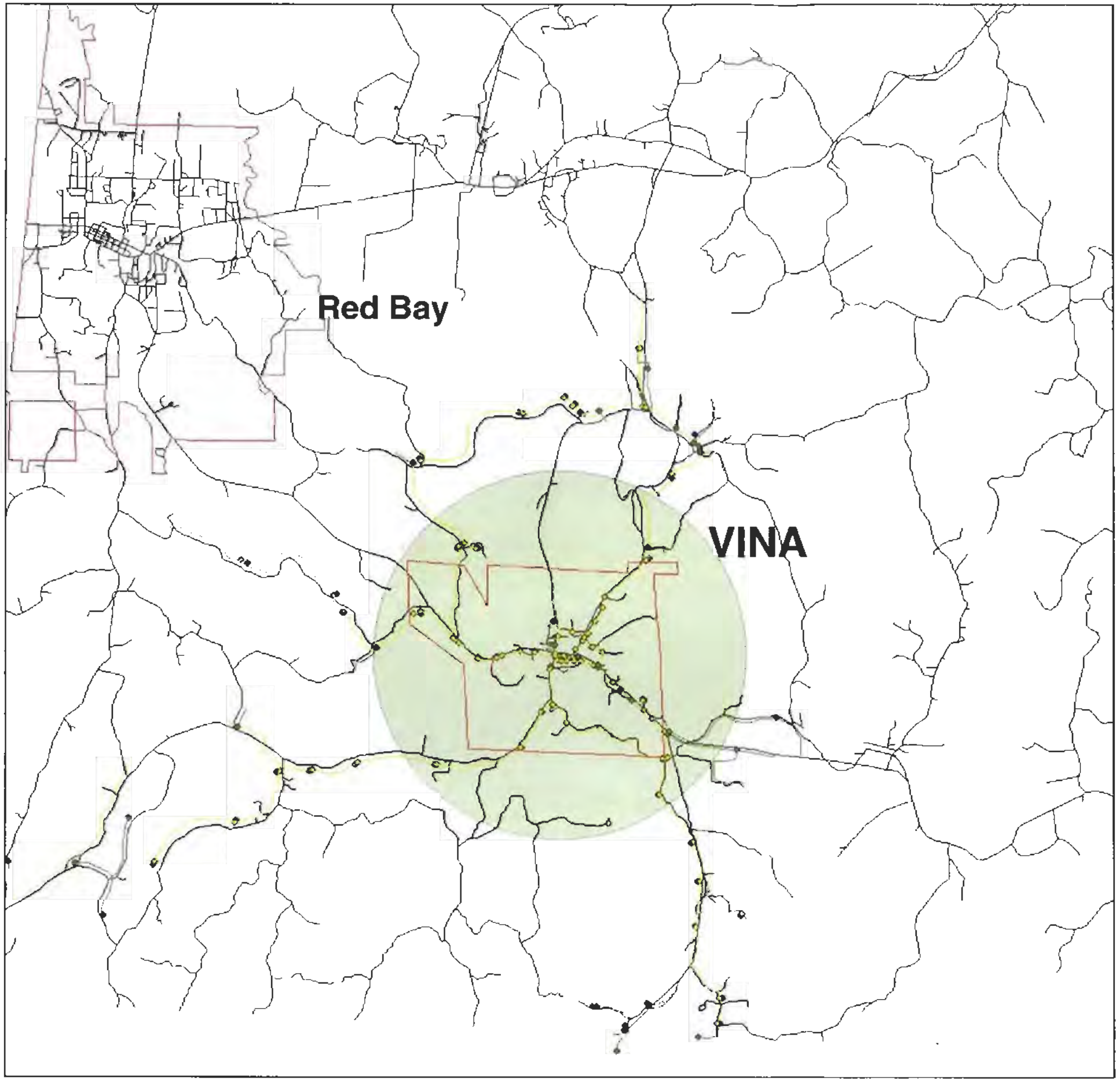


Figure 3.7

VINA AREA

Waste Water Facilities Study

Regional Context and Water Distribution System

- 2 Mile Study Area
- City Limits
- 1 Inch Water Line
- 2 Inch Water Line
- 2 Inch Gate Valve
- 3 Inch Water Line
- 3 Inch Gate Valve
- 4 Inch Water Line
- 4 Inch Gate Valve
- 6 Inch Water Line
- 6 Inch Gate Valve
- 8 Inch Water Line
- 8 Inch Gate Valve
- Flush Valve
- Hydrants
- Roads

Northwest Alabama Council of Local Governments
July 2004

baseball field, walking track, playground, basketball court, tennis court, community pavilion as well as parking facilities for the park.

Privately held tracts of forested and agricultural land have offered recreational activities to outdoors enthusiast for present and future generations. The northwest side of the state is considered an outdoor tourist's paradise with rural and urban communities forming partnerships to achieve regional goals in tourism and recreation.

4.0 INCORPORATED BOUNDARY POPULATION TRENDS

4.1 Population Trends:

The City of Vina has experienced marginal growth over the past decade with a population estimate of 346 in the United States Census Bureau Report of 1980. The 1990 census saw an influx of 10 persons for a total of 356 people within the city boundary. The census data for the year 2000 reported and increase of 44 persons to a total of 400 residents. Comparatively Franklin County's population in the 1990 census accounted for 27,814 persons with the 2000 census estimates of 31,223. Franklin County has seen an estimated decline of 372 people with 2002 population evaluations registering 30,851 residents.

4.2 Population Projections:

Traditional population projection methodology will result in acceptable projections for the fifty-year estimate. However the accuracy of population projections is directly proportional to the size of the existing population and the historical rate of growth, and inversely proportional to the length of the time projected. Meaning a small population with little growth can be difficult to accurately predict in long range projecting. The following projections are based on the previous two decades of census data. Using the 1980, 1990 and 2000 census the rate of change is 2.7. The linear growth projection methodology was applied and the projected populations are as follows:

Table 4.1
City of Vina Incorporated Area
Population Projections

Year	Base Population/Projected
2000	400
2025	467
2050	535

Source: NACOLG Linear Projections

4.3 Population Profile 2000 Census:

Females compose 50.3 percent of the Vina population while males makeup 49.8 percent of the population in 2000. The largest age group in the 2000 census is the 25 to 34 year olds. The working population 16 years and over make up 259 of the of the 400 persons in the census data at 67.5% while 65 years and over is 54 persons at 13.5%. School age children represent 31.5 % of the population. **Table 4.2** shows the population by sexes and age.

Table 4.2 Sexes and Age Population Profile 2000 Census

Subject	Number	Percent
Male	199	49.8%
Female	201	50.3%
Under 5 Years	38	9.5%
10 to 14 Years	34	8.5%
15 to 19 Years	21	5.3%
20 to 24 Years	16	4.0%
25 to 34 Years	59	14.8%
35 to 44 Years	50	12.55%
45 to 54 Years	51	12.8%
55 to 59 Years	14	13.5%
60 to 64 Years	24	6.0%
65 to 74 Years	25	6.3%
75 to 84 Years	22	5.5%
85 Years And Over	7	1.8%
Median Age (Years)	34.1	NA
18 Years And Over	273	68.3%
Male	130	32.5%
Female	143	35.85
21 Years And Over	266	66.5%
62 Years And Over	68	17.0%
65 Years And Over	54	13.55%
Male	19	4.8%
Female	35	8.8%

4.4 Academic Institutions and Educational Attainment:

Youth in and around the City of Vina attend Franklin County Public Schools. The Vina High school serves students through the grades K-12 and is located at 8250 County Road 23 Vina, Alabama 35593. Enrollment is 299 students with a student to teacher ratio of 14.3.

Educational statistics based on the 2000 census for the city of Vina are derived from the population 25 and over (222 persons), which show 27.5% completing educational classes less than 9th grade. The high school graduation rate for 25 years of age and over is 20.7%. The percentage of residents completing a bachelor's degree is 4.1 percent with 2.3 percent completing a graduate or professional degree.

5.0 ECONOMY

5.1 Major Employers of Vina:

Industry	Product	Number of Employees
Childers Truck and Equip.	Retail Sales and Supplies	
Community Spirit Bank	Retail Service	2
Emerson Garage Doors	Garage Doors/Service	3
HW Watson Lodging	Lodging and Motel	8
James Masonry Inc.	Masonry Services	2
Randy Hester Logging	Forestry Harvesting	15
Thorn & Thorn Sawmill	Forest Products/Raw Mater.	12
Tiffin Door Co.	Door Production and Maint.	4
Wade Childers Trucking	Trans. Freight and Shipping	8
Billy Ray Childers Logging	Forestry Product Harvesting	12
Turby Truck and Trailer	Trailer Manufacturing	5
New Way Carpet Cleaner	Retail Service Cleaning	2
K+R Oil	Retail Delivery Service	6
Hester Auto Cleaning	Retail Service Cleaning	2

5.2 Labor Force:

The City of Vina has a labor force of 259 individuals. Labor force is here defined as persons 16 years of age and older residing within the incorporated limits of the City of Vina. There are no major employers within the planning study area. Businesses with a small number of employees are scattered throughout the community with an active retail service center needing economic and urban revitalization. Small businesses employing fewer than five people each are scattered throughout the area along the county and state highways.

5.3 Income:

Median Family Income Franklin County

Year	Income
1970	$19,037
1980	$24,679
1990	$22,755
2000	$27,177

Median Family Income Vina, Alabama

Year	Income
1970	NA
1980	$7,569
1990	$15,083
2000	$18,594

6.0 HOUSING

6.1 General:

From 1990 to 2000, the total number of housing units cannot be calculated due to the lack of data availability for the population demographic based on total populations less than 5,000 persons. For the 2000 census there were 179 housing units **(Figure 6.1)**.

Table 6.1
Structural Characteristics of Housing Units In Incorporated Area

Units In Structure	1990	2000	Percent Of Total
1 Unit Detached	NA	98	54.7%
1 Unit Attached	NA	NA	NA
2 Units	NA	15	8.4%
3 or 4 Units	NA	2	1.1%
5 to 9 Units	NA	6	3.4%
10 to 19 Units	NA	NA	NA
20 or more Units	NA	NA	NA
Mobile Home	NA	58	32.4%

6.2 Age of Structures:

Table 6.2
Year-Round Housing Units By Year of Construction

Age of Structure	Number of Units	% Of Total
1999 to March 2000	2	1.1
1995 to 1998	9	5.0
1990 to 1994	9	5.0
1980 to 1989	34	13.4
1970 to 1979	61	34.1
1960 to 1969	45	25.1
1940 to 1959	14	7.8
1939 or earlier	15	8.4

The largest percentage of current housing stock was built between 1970 and 1979.

6.3 Condition of Housing Stock:

A total of thirteen occupied housing units in the City of Vina are determined to be overcrowded. Units with 1.01 persons or more per room represent 8.84 percent of the total occupied units. This compares to the state average in 2000 of 2.94 percent.

One of the most widely recognized methods for determining substandard housing conditions involves classifying those housing units as substandard which lack complete plumbing facilities. When employing this method in the City of Vina there were only 2 units in the town that did not have complete plumbing facilities in 2000. This accounts for only 1.11 percent of the total housing units. This figure is slightly above the statewide average of .56 percent.

In 2000, the median value of an owner-occupied housing unit was $39,800.00. In comparison, the average value of an owner-occupied unit statewide was $85,100. The median contract rent in Vina was $188.00 per month as compared to the state average of 447.00 per month.

6.4 Subsidized Housing:

The Hamilton, Alabama Housing Authority provides 22 units of subsidized housing to the low and moderate-income residents of Vina.

Table 6.4
Number of Subsidized Housing Units
By Number of Bedrooms

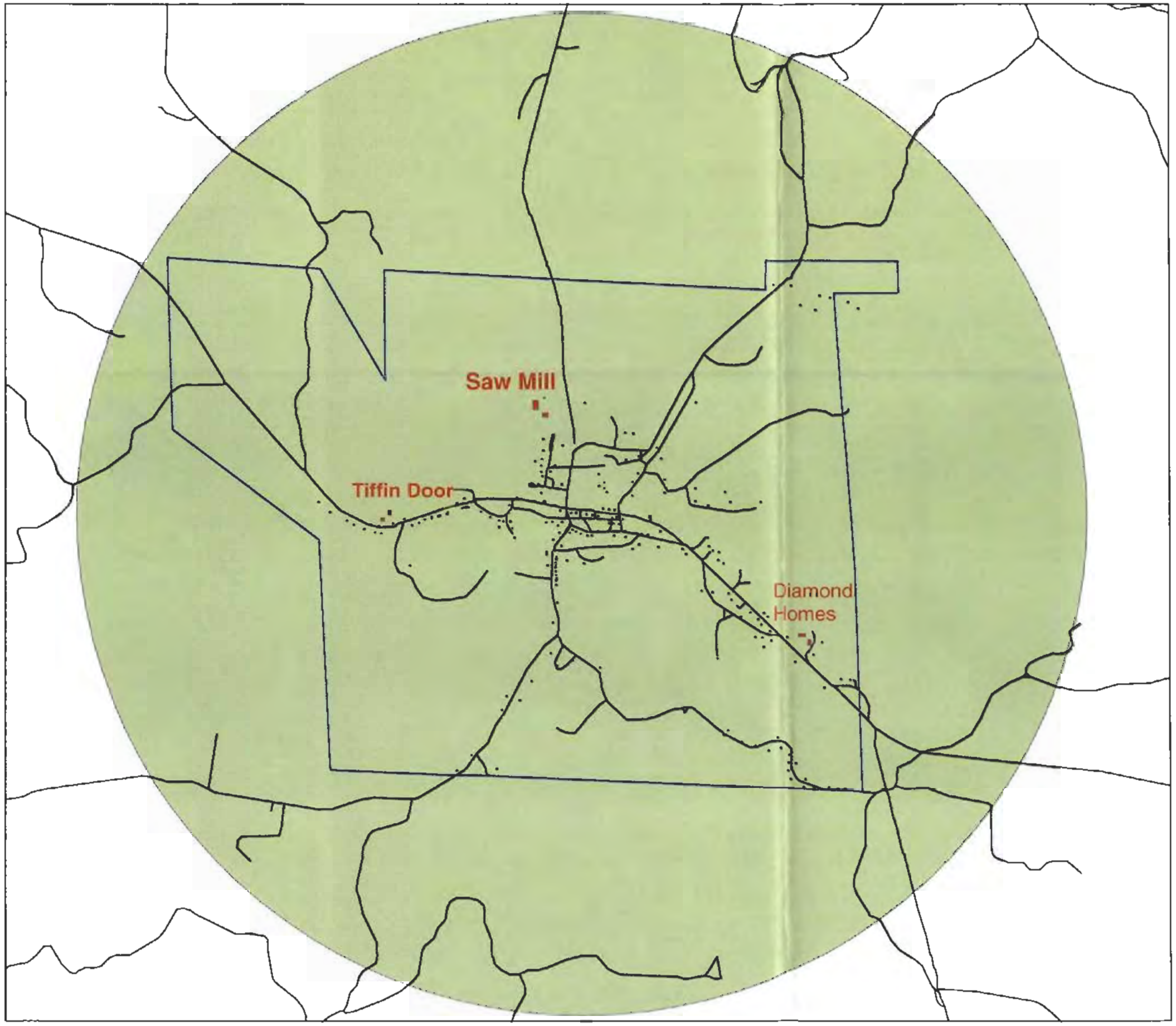
Housing Type	Number of Units
One Bedroom	8
Two Bedroom	8
Three Bedroom	6
Total Number of Units	22

Figure 6.1

VINA AREA

Waste Water Facilities Study

Housing and Commercial Structures



- Residence
- Business
- Roads
- City Limits
- 2 Mile Study Area

N
W
E
S

0 0.125 0.25 0.5 0.75 1 Miles

Northwest Alabama Council of Local Governments
July 2004

6.5 Housing Trends:

Table 6.5 illustrates the housing trend in the Vina area.

Table 6.5
Housing Trends

Year	Housing Units Per Year
Prior Years	74
Year 1970-1979	61
Year 1980-1989	24
Year 1990-2000	20
Totals	179

7.0 LAND USE

7.1 Existing Land Use(s):

The predominant land use in the Planning Study Area is forested/agricultural, being primarily pastured and timberlands. Scattered patches of woodlands and several streams bounded by county roads break up this pattern. The City of Vina is a historic settlement serving the surrounding agricultural areas.

Throughout the planning study area, roads and highways tend to have single-family residences spread along them, many on large lots. Virtually all of the residential development is on single lots rather than the subdivision development found in traditional suburban areas. The resulting overall pattern is one not quite urban yet no longer rural **(figure 7.1)**. Several older neighborhoods within the central area of Vina appear to have been planned and initially developed as a residential subdivision. Due in part to the lack of economic growth, Vina housing development has remained for the most part unchanged.

7.2 Future Land Use:

In the study area, as in the remainder of Franklin County, there is no formal land use or planning process that enacts or guides land use regulations. Development of any type and intensity may occur virtually anywhere. As long as the development (residential, commercial, and industrial) can safely use septic tanks, and the site is not in a FEMA identified flood zone the development has no land use restrictions.

The land use pattern that is expected to develop during the planning period is driven essentially by the construction and development of Appalachian Regional Commission's Corridor V or State Highway 24. Planning for future economic development opportunities, the citizens of Vina have allotted and set aside acreage northwest of the city hall to be the new Vina Industrial Park. The creation of this park is dependent on the City of Vina being able to provide services that would make the town more attractive to new businesses, which would include a sanitary sewer collection and treatment system. A discouraging effect on future growth and development will result from the lack of centralized wastewater collection and treatment system.

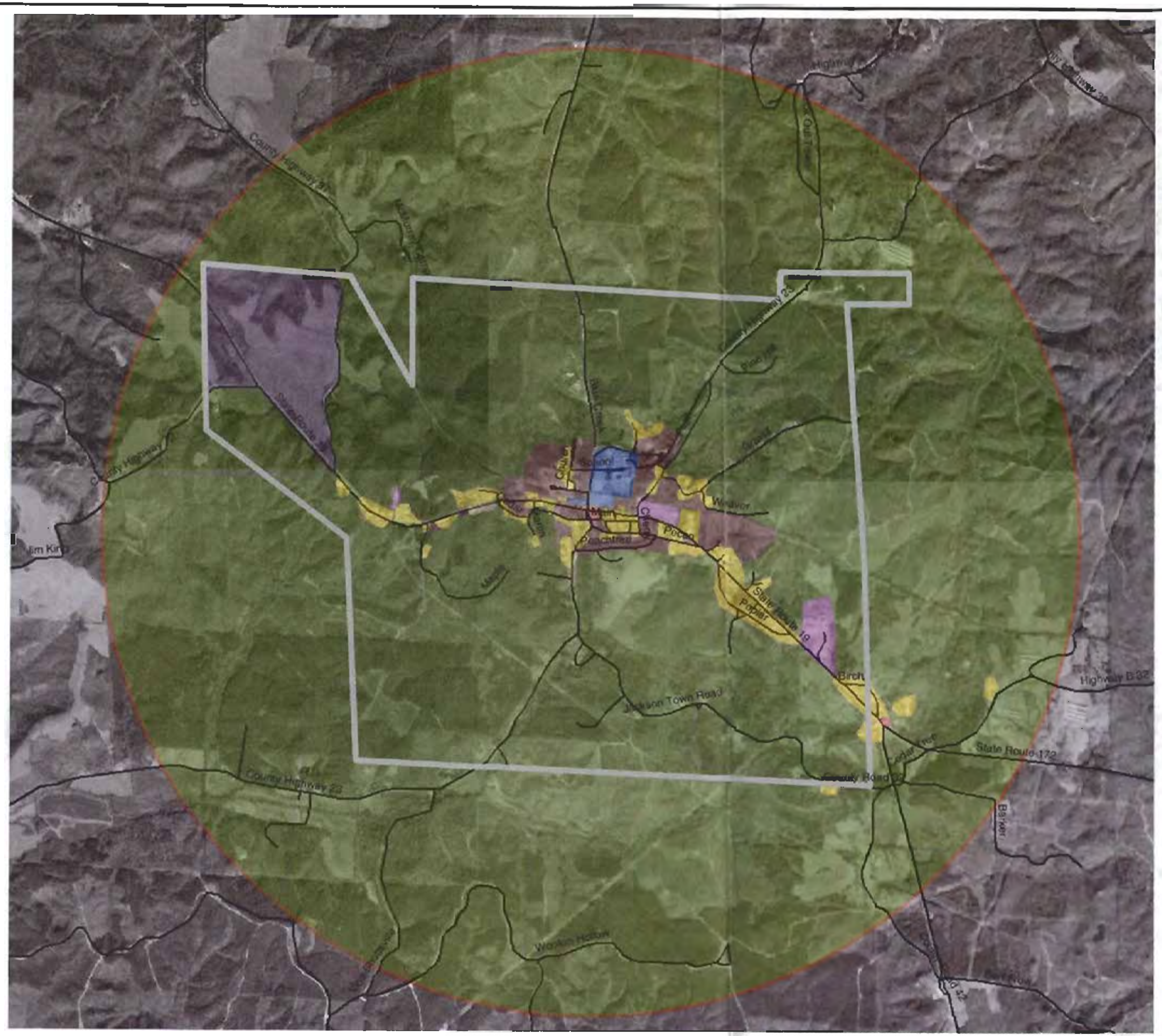


Figure 7.1

VINA AREA

Waste Water Facilities Study

Generalized Land Use

- City Limits
- 2 Mile Study Area
- Agricultural
- Commercial
- Industrial Park
- Institutional
- Light Industrial
- Public Housing
- Residential
- Urban Vacant
- Utility

0 0.1 0.2 0.4 0.6 0.8 1 Miles

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July 2004

8.0 WASTEWATER TREATMENT ALTERNATIVES

Wastewater systems typically have one or more discharge points, which ultimately flow to a public watercourse. The purpose of treating the wastewater is to prevent the pollution of the receiving stream. Treatment alternatives involve various physical, chemical, biological, and sludge treatment methods. The degree of treatment required is based on the characteristics of the receiving stream including flow rates and use, such as recreation, fish and wildlife, drinking water, etc. Other factors in determining the required treatment for wastewater involve the type of waste including municipal and industrial and the expected quantity to be received.

The expected quantity of wastewater to be treated must be carefully considered in planning for a new treatment facility. The facility must be designed to handle the present residential volumes as well as projected growth for an established period of time. In addition, the facility must be capable of treating waste from existing and future industries. Inflow and infiltration into the system must also be factored in to prevent overflows from the facility into the receiving water. Due to certain treatment processes, the facility must not be oversized, which could cause detention times greater than the design criteria.

Wastes generated from an industrial facility can be treated by one of three methods. The waste may be treated in a separate industrial treatment plant, discharged to the municipal treatment facility for complete treatment, or pre-treated at the facility site prior to discharge into the municipal system. Municipal wastes must be closely monitored due to the effect certain materials could have on the municipal treatment processes. Certain wastes should not be included in the municipal system, including materials that could create a fire or explosion hazard, materials that could interrupt the hydraulic flow, and hazardous materials that could cause harm to people or the treatment process.

Treatment of wastewater typically consists of a combination of preliminary treatment, primary settling, biological treatment, secondary settling and disinfection. All processes are not required for all wastewater flows. In certain circumstances with minimal flows and large receiving waters, primary treatment may achieve the desired results. In environmentally sensitive areas, addition secondary treatment as well as disinfection may be needed to reach the same results. The required parameters for the effluent flow are normally established by the governing agency based on the characteristics of the receiving water.

Preliminary process can include pumping, screening, shredding of solids, flow measuring and preaeration. Most wastewater treatment facilities are gravity flow systems and often require pump or lift stations at the beginning. Screening of the wastewater is primarily used for the protection of the mechanical components of the plant from sand and other debris. Flow measuring is generally required by discharge permits as a tool to

compute percentage of removal. Preaeration can be used in preliminary treatment to add oxygen to the wastewater and to aid in later treatment processes.

Primary treatment, the most commonly used form of wastewater treatment, involves sedimentation. Sedimentation, also called clarification, is the removal of solid particles from suspension by gravity. A large percentage of pollutants in the influent can be settled out by using a sedimentation basin or lagoon. Primary sedimentation usually removes 30%-50% of the suspended solids in typical municipal wastewater. This process usually involves minimal maintenance due to the lack of mechanical components. This process of removing solids may be accelerated by the addition of a flocculent, which causes the particles to bond together and settle from the water at a faster rate.

Secondary or advance treatment is a biological process to remove additional organics from the wastewater. Secondary treatment alternatives include activated sludge processes, trickling filters, or rotating biological contactors. All process use microorganisms to synthesize the organics. The resultant from this type of treatment is a sludge that must be periodically removed and disposed of. The advantages to secondary treatment include a high percentage of suspended solid and BOD removal. On the other hand, these processes often require a high degree of operation and maintenance to ensure proper working conditions.

Both primary and secondary treatment process produce a concentrated sludge, which, over a period of time must be disposed of. Disposal of this accumulated waste sludge can be a major economic factor in wastewater treatment. The sludge is often returned to the influent of the treatment plant for continued processing and solid removal. The sludge must be dewatered by thickening in a holding tank, belt filter pressing or by centrifugation. The resulting sludge material can then be disposed of by a number of methods including application as a fertilizer/soil conditioner for agricultural use or in a landfill along with municipal solid waste. In both cases, the sludge must be covered with soil the same day it is applied to the land. The dewatered sludge may also be disposed of by incineration, although costs prohibit this in most cases.

Other forms of advanced treatment may also be required, depending on the characteristics of the influent and receiving stream and the limits of the discharge permit. Filtration is used to separate solids from wastewater that were not removed in previous processes by passing through a porous medium. Filter media usually includes granular material such as sand, and anthracite coal. Disinfection of wastewater prior to discharge is used in certain circumstances where the receiving stream has a critical use or in the direct reuse of the effluent. Methods for disinfection include chlorination and the use of ultraviolet rays. Other forms of advanced treatment used on a limited basis include taste and odor control, fluoridation, corrosion control, and removal of chemicals.

9.0 SELECTED ALTERNATIVES

In selecting a preferred method of wastewater treatment for the Town of Vina, consideration must be given to the existing conditions as well as conditions associated with future growth. Presently, the town consists mainly of residential and commercial establishments. The existing industries do not produce wastes that require different treatment methods than those for residential waste. The system must be designed to be economically feasible to construct and operate, and also have the potential to be enlarged to accommodate growth and new industrial users.

It would be impossible to design and construct a wastewater treatment facility to treat any produced industrial waste. The system must be capable of handling the most common wastes, and have the ability to be upgraded or modified should the need arise. The flow rate established for the proposed plant is 135,000 gallons per day (see section 2 of this report). Four treatment alternatives are considered as a part of this report. Below is a brief description of each alternate with preliminary cost estimates.

The first alternate for sanitary sewer treatment is on-site treatment and disposal. This is the method currently used by all residences, industries and commercial establishments in the Town of Vina. On-site treatment consists of a holding or septic tank for biological treatment and a disposal field for advanced treatment and disposal. The waste is usually gravity fed into the tank, which has a required two-day detention time for settling out the solids. The solids remain in the tank and are broken down through a biological process. The effluent from the tank is then fed by gravity or mechanical pump into an underground pipe network. The liquid is then filtered out of the pipe, through the surrounding soil and into the groundwater system. On-site disposal systems can be inexpensive to install and maintain, depending on the existing soil conditions. Systems for a normal residence can be very simple with one 1,000-gallon concrete or plastic septic tank and 200-400 feet of buried pipe. Areas with poor soil conditions, however, require more elaborate designs including above ground mounds, dosing pumps, and filtration.

Although on-site systems can be used for a wide range of flow and waste characteristics, they are not typically used in larger applications due to the required land area. A normal industry or commercial establishment with flows of exceeding 1,000 gallons per day would require multiple septic tanks and disposal fields covering several acres. On-site systems can be considered an alternative for the first few industries in an area until the flows generated warrant installing a collection and municipal treatment system. Typical installation costs for an on-site system can range from $2,500 for a residence to $10,000 -$15,000 per 1,000-gallons of flow for an industrial site.

A second alternative for sewer treatment is a lagoon system. Lagoons are large sedimentation basins in which the raw sewage is detained for a period of time to remove suspended solids. Lagoons usually consist of an inflow screen, lift station, aerators, and discharge structure. Lagoon sizes can vary from 1 acre to several hundred acres

depending on the amount and characteristics of the inflow. Typical lagoons require a 10 to 30 day detention time to remove the solids from the water. The treated water is then discharged from the lagoon into a watercourse. Lagoons are usually low maintenance and can produce effluent that is safe for receiving streams if operated properly. The discharge from the lagoon requires a National Pollutant Discharge Elimination System (NPDES) permit from ADEM, as well as routine testing and monitoring. The lagoon must meet permit requirements for removal of suspended solids, biochemical oxygen demand, and pH. A preliminary cost estimate is shown **(Figure 9.1)** for the Town of Vina based on the flows established in section 2.0.

Figure 9.1
Sanitary Sewer Treatment Lagoon
Preliminary Cost Estimate

Based on Flow of 135,000 Gallons/Day

ITEM

NO.	DESCRIPTION	UNIT	UNIT PRICE	QTY	TOTAL PRICE
1	Lift Station	LS	$50,000.00	1	$50,000.00
2	Excavation - Lagoon Construction	CY	$15.00	10,000	$150,000.00
3	Clay Liner (1' thick)	CY	$15.00	2,000	$30,000.00
4	4	EA	$25,000.00	2	$50,000.00
5	Discharge Structure	LS	$10,000.00	1	$10,000.00
6	6" Rip Rap	SY	$30.00	2,000	$60,000.00
7	Fencing	LF	$20.00	2,000	$40,000.00
8	Land Acquisition	LS	$25,000.00	1	$25,000.00
9	ADEM Discharge Permit	LS	$10,000.00	1	$10,000.00

Total Estimate	$425,000.00
Engineering / Inspection	$58,000.00
Total Project Cost	**$483,000.00**

A third alternative for sewer treatment is a mechanical treatment plant. A typical mechanical plant can include primary sedimentation, advanced treatment, and disinfection. Mechanical plants can be built or modified to treat large flow volumes and to handle various industrial wastes. Mechanical plants can be purchased and installed as a package plant or site built with the individual components. Components of the plant include sedimentation basins, aerators, and disinfection by chlorine, ultraviolet or other methods.

The plant would need to be located at a point near the town that has a low enough elevation to accommodate all areas including the proposed industrial park. Most plants would require a lift station near the beginning of the process, with the remainder of the plant operating under gravity flow. In comparison to alternates 1 and 2, the mechanical plant would require far less land area to construct and would not be as prohibitive in the characteristics of the raw sewage. The discharge would require a NPDES permit from ADEM. A preliminary cost estimate is shown below **(Figure 9.2)** for a package mechanical treatment plant.

Figure 9.2
Sanitary Sewer Mechanical Treatment Plant
Preliminary Cost Estimate

Based on Flow of 135,000 Gallons/Day

ITEM

NO.	DESCRIPTION	UNIT	UNIT PRICE	QTY	TOTAL PRICE
1	Lift Station	LS	$50,000.00	1	$50,000.00
2	Package Plant	LS	$400,000.00	1	$400,000.00
3	Site Work	LS	$50,000.00	1	$50,000.00
4	Discharge Structure	LS	$10,000.00	1	$10,000.00
5	Fencing	LF	$20.00	2,000	$40,000.00
6	Land Acquisition	LS	$25,000.00	1	$25,000.00
7	ADEM Discharge Permit	LS	$10,000.00	1	$10,000.00
				Total Estimate	$585,000.00
				Engineering / Inspection	$76,000.00
				Total Project Cost	**$661,000.00**

A forth alternative for sanitary sewer treatment is spray irrigation. This treatment alternative would require preliminary treatment through either a lagoon or mechanical treatment plant. The advantage to spray irrigation would be the elimination of a discharge permit and monitoring. The effluent from the primary treatment facility would be discharged using a series of pumps and a pipe network to an undeveloped area. Spray irrigation can be used in wooded areas, for row crops, or in areas not suitable for future development. Spray irrigation is especially appealing when the raw sewage must be transported a long distance through pumping to a treatment facility and discharge point. A preliminary cost estimate is shown below **(Figure 9.3)** for a spray irrigation system with a lagoon for primary treatment.

Figure 9.3
Sanitary Sewer Spray Irrigation
Preliminary Cost Estimate

Based on Flow of 135,000 Gallons/Day

ITEM NO.	DESCRIPTION	UNIT	UNIT PRICE	QTY	TOTAL PRICE
1	Lift Station	LS	$50,000.00	1	$50,000.00
2	Excavation - Lagoon Construction	CY	$15.00	10,000	$150,000.00
3	Clay Liner (1' thick)	CY	$15.00	2,000	$30,000.00
4	Aerators	EA	$25,000.00	2	$50,000.00
5	6" Rip Rap	SY	$30.00	2,000	$60,000.00
6	Fencing	LF	$20.00	2,000	$40,000.00
7	Land Acquisition	LS	$25,000.00	1	$25,000.00
8	Irrigation Pumps	EA	$20,000.00	2	$40,000.00
9	Irrigation Piping and Spray Equipment	LS	$25,000.00	1	$25,000.00
				Total Estimate	$470,000.00
				Engineering / Inspection	$64,000.00
				Total Project Cost	**$534,000.00**

10.0 POTENTIAL FUNDING SOURCES

Construction of a sanitary sewer collection and treatment system based on expected revenues from the system would be cost prohibitive. The Town of Vina must seek sources of funding to finance the construction of the system. In addition, the system will most likely need to be constructed in several different phases including the treatment plant and various portions of the collection system.

Funding for construction of sanitary sewer facilities is available from a number of government agencies. The Alabama Department of Environmental Management offers a revolving loan program in which municipalities can borrow funds at a reduced interest rate. The Alabama Department of Community Affairs offers grant programs such as the Community Development Block Grant, which grant municipalities a certain percentage of funding for a project. These grants are awarded based on a number of factors including median household income and on the project's ability to influence the economy through the creation of new jobs. . The federal government also offers grant and loan programs through the United States Department of Agriculture and the United States Environmental Protection Agency. The Town of Vina could also secure private funding through loans and bond issues. The repayment of this money would be secured by future revenues from the system as well as anticipated growth to the economy by the creation of jobs.

11.0 PHASE I ENVIRONMENTAL SITE ASSESSMENT

11.1 Executive Summary

* The purpose of this Phase I Environmental Site Assessment is to identify recognized environmental conditions in connection with the subject 400-acre tract proposed for development located west of the Town of Vina along Alabama Hwy 19.

* The majority of the subject tract is and has been a combination of undeveloped row crop farmland and forest for at least 50 years. Approximately 5% of the tract is developed with rural residential and roadways.

* No significant environmental problems were found to exist at the site.

* There are no known or suspect environmental conditions, identified by this study that will have an impact on the proposed development of this property.

11.2 Introduction

11.2.1 Purpose

The purpose of this Phase I Environmental Site Assessment is to identify, to the extent feasible pursuant to the processes prescribed in ASTM E 1527-00 Standard Practice for Environmental Site Assessments, recognized environmental conditions in connection with the subject property.

11.2.2 Scope-of-Services

The scope-of-services consist of four components that include a Records Review, Site Reconnaissance, Interviews and Report.

11.2.3 Significant Assumptions

Only information that is publicly available and yields information relevant to the subject property without the need for extraordinary analysis of irrelevant data will be reviewed. No effort will be made to identify, obtain or review every possible record that might exist with respect to the property, rather only standard source information will be reviewed.

11.2.4 Limitations and Exceptions

This assessment does not include any testing or sampling of materials (for example, soil, water, air, building materials, etc.). No subsurface investigations of any kind are to be performed. This report will be based upon readily observable features on the surface of the property only.

11.2.5 Special Terms and Conditions

This assessment is being prepared on a preliminary basis for the Town of Vina on property presently owned by the Town. Any additional use of this report requires the written permission of the Engineer.

11.2.6 Reliance

The Engineer will not verify independently the information provided by records reviewed or interviews conducted during this assessment, but will rely on information provided unless he has actual knowledge that certain information is incorrect or unless it is obvious that certain information is incorrect based on other information obtained.

11.3 Site Description

11.3.1 Location and Legal Description

The site is a 401 acre ± tract located in the East 1/2 of Section 11 and the West 1/2 of Section 12 all in Township 8 South, Range 15 West, Franklin County, Alabama. The tract is situated on the north and south sides of Alabama Hwy 19, west of the Town of Vina corporate limits. A more detailed legal description can be found in the Appendix.

11.3.2 Site and Vicinity General Characteristics

The site is bisected east and west by Alabama Hwy 19 and north and south by Old Vina Road in a relatively undeveloped rural part of the County. There are approximately 10 residences and a church camp located within ½ mile of the property. The property is approximately 1 mile west of downtown Vina. The area is partially forested with mainly open fields and a generally rolling terrain. The ground elevations vary from about 680 feet to 780 feet above sea level. The soils in the area are generally sandy clay and clay gravel with no evidences of rock near the surface.

11.3.3 Current Use of the Property

The 400-acre site is currently in use as row crop farmland with some forested areas around the perimeter. Areas to the immediate north and west are used for the same purposes while the area to the south is mainly wooded, and the area to the east is more densely populated with residences.

11.3.4 Description of Improvements

Improvements located on the site are limited to field and gravel roads. Alabama Hwy 19 runs through the site from east to west and Old Vina Road runs through the site from north to south. The Site will be accessed by a proposed new industrial access roadway from Old Vina Road in the initial phase and by an additional access road from Alabama Hwy 19 in later phases. Commercial water and natural gas are owned by the Town of Vina and are available along several

boundaries of the property. No sanitary sewer collection or treatment systems are available at this time in or around the site.

11.3.5 Current Uses of the Adjoining Properties

The areas immediately surrounding the site are primarily forested areas with some scattered residential and row crop areas. The area approximately 1 mile southwest of the site is more densely populated with residences and commercial use.

Attached is a list of all adjoining property owners with the deed book and page of the deed as located in the office of the Judge of Probate of Franklin County, Alabama.

Name	Deed Book	Page
Thomas and Shelia Miller	258	530
Wesley Miller	258	530
Sustainable Forests, LLC	293	144
Marcia Ledbetter	Per Will	
Franklin County Baptist Association	242	1016
Patricia Ann Nelson	215	902
Patricia Ann Nelson	288	222
Tiffen Door Company	265	112
Bryce and Geralding Feltman	192	796
Bessie and Johnny Loyd Bell	262	510
Glen L. and Shelia K. Lawson	032	672
Roger Brown	181	446
D.W. and Kathy Franklin	284	172

11.4 User Provided Information

11.4.1 Title Records

The 401-acre +/- parcel is owned entirely by the Town of Vina according to deed as recorded in the Franklin County Courthouse. The property was purchased by the Town from Larry Erwin and wife, Nancy Sue Long Erwin on April 1, 2003.

11.4.2 Environmental Liens or Activity and Use Limitations

No Environmental Liens were discovered during research of the site and none would be suspected to be found. There are no activity or use limitations for the site. No zoning exists in the area to limit use.

11.4.3 Specialized Knowledge

None

11.4.4 Valuation Reduction for Environmental Issues

No environmental issues requiring remediation were discovered during this review. No valuation reduction is proposed based on information gathered to date.

11.4.5 Owner, Property Manager and Occupant Information

These issues have been discussed in earlier report section. No further information is available here.

11.4.6 Reason for Performing Phase I

This Phase I study was authorized by the Town of Vina in conjunction with a wastewater facility plan that is being developed by the Northwest Alabama Council of Local Governments. The Phase I study will provide environmental information for that plan.

11.4.7 Other

No comments.

11.5 Site Reconnaissance

11.5.1 Methodology and Limiting Conditions

The site was first viewed from the surrounding area roadways. Observations were made from the Alabama Hwy 19 roadway on the southerly side of the site and from Old Vina Road on the easterly side of the site on July 1, 2004. A through walk around of the general area of the site was done on July 30, 2004.

11.5.2 General Site Setting

As has been previously discussed, the site is located in a generally rural area just west of Vina, Alabama. The site is bisected by Alabama Hwy 19 and Old Vina Road and will be bisected by two industrial access roads. The majority of the surrounding areas are undeveloped wooded areas.

11.5.3 Exterior Observations

No unusual items or circumstances were observed during the site visit. The area has been partially planted in row crops with some forested areas around the perimeters. No structures or other improvements are located on the property.

11.5.4 Interior Observations

None

11.6 Interviews

11.6.1 Interviews with Owners

An on-site interview was conducted with Mayor D.W. Franklin, a long-time resident of the area. Mayor Franklin stated that the area has been farmland and wooded for as long as he knew. Mayor Franklin stated that he knew of no other uses or developments on the property over the past 50 years.

11.6.2 Interview with Site Manager

N/A

11.6.3 Interviews with Occupants

N/A

11.6.4 Interviews with Local Government Officials

Same as owner listed above.

11.6.5 Interviews with Others

N/A

11.7 Findings

No significant environmental problems were found to exist at the site. The site is a rural piece of generally farmland undeveloped as far as any structures or other improvements are concerned. The site has been farmland for as long as anyone can remember. Storm water runoff and general site drainage are good with no large erosion area evident.

11.8 Opinion and Conclusions

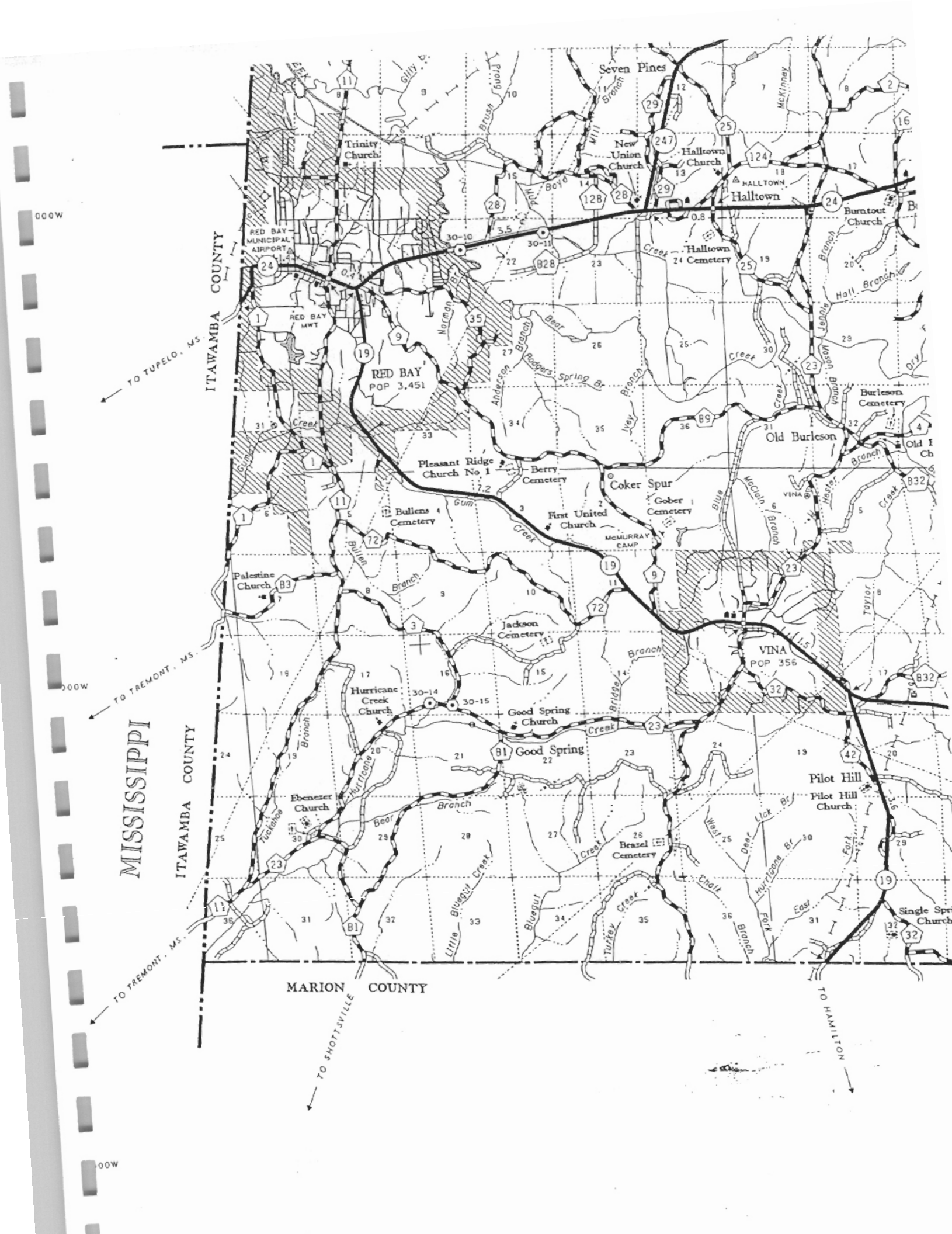
In our opinion, there are no known or suspect environmental conditions, identified by this study that will have an impact on the development of this property. We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527 of the proposed 400-acre industrial site as described in the attached legal description. This assessment has revealed no evidence of recognized environmental conditions in connection with this property.

This report has been prepared by Heath Reed, PE, with experience in Civil Engineering and related environmental work.

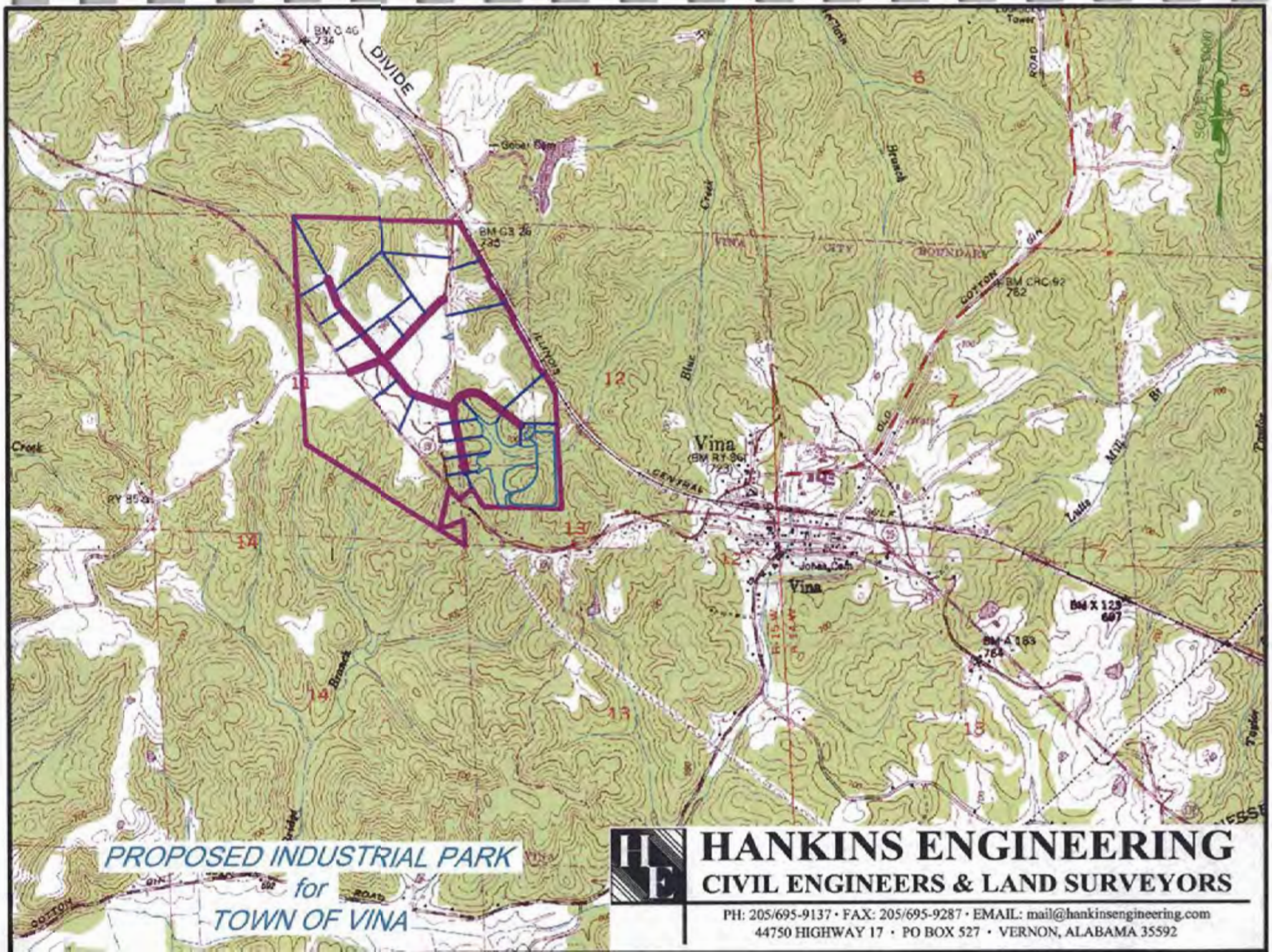
Heath Reed, PE
Ala. Reg. No. 26076

Appendices

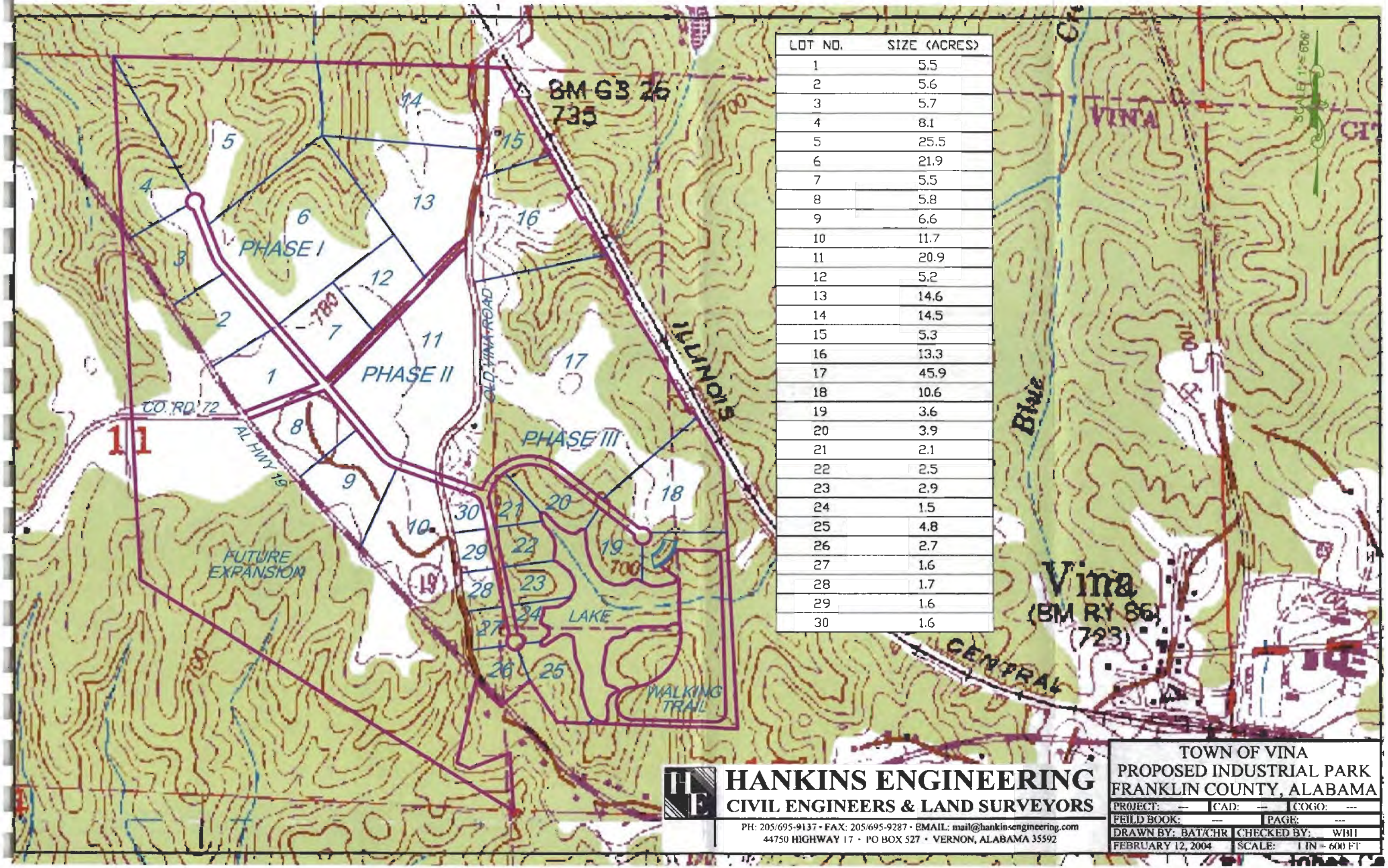
Site Map


RED BAY
POP 3,451
VINA
POP 356
Seven Pines
Trinity Church
New Union Church
Halltown Church
Halltown
Halltown Cemetery
Burntout Church
RED BAY MUNICIPAL AIRPORT
RED BAY MWT
Pleasant Ridge Church No 1
Berry Cemetery
Coker Spur
Gober Cemetery
Bullens Cemetery
First United Church
McMURRAY CAMP
Old Burleson
Burleson Cemetery
Palestine Church
Jackson Cemetery
Hurricane Creek Church
Good Spring Church
Good Spring
Ebenezer Church
Pilot Hill
Pilot Hill Church
Brazel Cemetery
Single Spr Church
ITAWAMBA COUNTY
MISSISSIPPI
MARION COUNTY
TO TUPELO, MS
TO TREMONT, MS
TO TREMONT, MS
TO SHOTTSVILLE
TO HAMILTON

Site Plan



HANKINS ENGINEERING
CIVIL ENGINEERS & LAND SURVEYORS
PH: 205/695-9137 · FAX: 205/695-9287 · EMAIL: mail@hankinsengineering.com
44750 HIGHWAY 17 · PO BOX 527 · VERNON, ALABAMA 35592



LOT NO.	SIZE (ACRES)
1	5.5
2	5.6
3	5.7
4	8.1
5	25.5
6	21.9
7	5.5
8	5.8
9	6.6
10	11.7
11	20.9
12	5.2
13	14.6
14	14.5
15	5.3
16	13.3
17	45.9
18	10.6
19	3.6
20	3.9
21	2.1
22	2.5
23	2.9
24	1.5
25	4.8
26	2.7
27	1.6
28	1.7
29	1.6
30	1.6

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44750 HIGHWAY 17 • PO BOX 527 • VERNON, ALABAMA 35592

TOWN OF VINA
PROPOSED INDUSTRIAL PARK
FRANKLIN COUNTY, ALABAMA

PROJECT: ---	CAD: ---	COGO: ---	
FEILD BOOK: ---		PAGE: ---	
DRAWN BY: BAT/CHR	CHECKED BY: WBH		
FEBRUARY 12, 2004	SCALE: 1 IN = 600 FT		

Site Photographs


AL HWY 19
Baptist
Camp


STOP

Research Documentation
&
Checklists

ATTACHMENT 1
PRELIMINARY ENVIRONMENTAL ASSESSMENT SUMMARY

FACILITY NAME: Vina Industrial Park
FACILITY ADDRESS: Alabama Hwy 19 Vina, Alabama

DESCRIPTION:

I. ON-SITE

A.	Asbestos	None
B.	Outdoor power transformers/capacitors	No
	Ownership?	N/A
C.	Indoor power transformers/capacitors?	None
	Ownership?	N/A
D.	PCB or PCB-Contaminated transformers/ capacitors (Outdoor or Indoor)	None
E.	Radon occurrence potential?	Low
F.	Other Conditions	
1.	Water Supply Source?	
	Ground Water	Town of Vina
2.	Underground Storage Tanks Possible	No
	Status?	N/A
3.	Above Ground Tanks?	No
4.	Groundwater Wells (other than water supply)	No

5.	Chemicals stored or used on site?	Yes-Agricultural
6.	Industrial or waste discharge?	No
7.	Waste tanks?	No
8.	Contained wastes (Drums, Cans, etc.)	No
9.	Potential for soil and/or groundwater contamination from on-site sources?	Low
10.	Odors	None
11.	Pools of Liquids	None

G. Comments:

1. Solid waste - service by Franklin County.
2. Water to be provided by Town of Vina.
3. Power supplied by Tombigbee Electric.
4. Sanitary sewer wastes to be disposed of through approved on-site systems until a collection and treatment system is constructed.

ATTACHMENT 1
PRELIMINARY ENVIRONMENTAL
ASSESSMENT SUMMARY

FACILITY NAME: Vina Industrial Park
FACILITY ADDRESS: Alabama Hwy 19 Vina, Alabama

II. OFF-SITE

A.		National Priorities List site within one (1) mile radius?	No
	B.	CERCLIS site within one (1) mile radius?	No
	C.	Major industry within one-half (1/2) mile radius?	No
	D.	Landfill within one-half (1/2) mile radius?	No
	E.	Adjacent property with known or suspected underground storage tanks?	No
	F.	Adjacent property with light industry?	No
	G.	Potential for soil and/or groundwater contamination at study site from off-site sources?	Low

H. Comments: Any obvious off-site problems with contiguous properties noted during interviews. NONE

ATTACHMENT 2
OWNER INFORMATION NEEDED

1. Site Plan - Attached
2. Geotechnical Report - None Available
3. A List of Previous Ownership - Attached
4. Reports of Previous Environmental or Related Studies - None Available
5. Record Drawings of Site and Building - None Available
6. Access to Environmental Permits, Permits Applications, and/or Notices of Violations - None Known

U.S. Environmental Protection Agency

National Priorities List

National Priorities List Sites in Alabama

Site-specific resources available from this page include fact sheets, site narratives, and Federal Register notices.

Access these resources ...
- by map, click on the site of interest.
- by list, of all NPL sites in Alabama by county

Map Key: Proposed: 2 Final: 13 Deleted: 1

NPL Sites in Alabama by County
To access the fact sheet for each site, select the site name.
For the NPL Site Narrative, select the CERCLIS ID.
Federal Register notices can be accessed by selecting the date of each action listed.

BALDWIN COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion
Perdido Ground Water Contamination					
ALD980728703	12/30/82	9/08/83	7/30/93	N/A	N/A

BUTLER COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion
Mowbray Engineering Co.					
ALD031618069	12/30/82	9/08/83	9/16/91	N/A	12/30/93

CALHOUN COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion
Anniston Army Depot (SE Industrial Area)					
AL3210020027	7/22/87	3/13/89	N/A	N/A	N/A

HENRY COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion
American Brass Inc.					
ALD981868466	1/19/99	5/10/99	N/A	N/A	N/A

JEFFERSON COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion
Interstate Lead Co. (ILCO)					
ALD041906173	9/18/85	6/10/86	N/A	N/A	N/A

MADISON COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion
Redstone Arsenal (USARMY/NASA)					
AL7210020742	6/23/93	5/31/94	N/A	N/A	N/A

MOBILE COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion

Redwing Carriers, Inc. (Saraland)					
ALD980844385	6/24/88	2/21/90	N/A	N/A	N/A
Stauffer Chemical Co. (Cold Creek Plant)					
ALD095688875	9/08/83	9/21/84	N/A	N/A	N/A
Stauffer Chemical Co. (LeMoyne Plant)					
ALD008161176	9/08/83	9/21/84	N/A	N/A	N/A

MONTGOMERY COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion
Capitol City Plume					
AL0001058056	5/11/00	N/A	N/A	N/A	N/A
T.H. Agriculture & Nutrition (Montgomery					
ALD007454085	6/24/88	8/30/90	9/27/02	N/A	N/A

MORGAN, LIMESTONE, MADISON COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion
Triana/Tennessee River					
ALD983166299	12/30/82	9/08/83	12/18/91	N/A	N/A

SHELBY COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion
Alabama Plating Company, Inc.					
ALD004022448	8/24/00	N/A	N/A	N/A	N/A

TALLADEGA COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion
Alabama Army Ammunition Plant					

AL6210020008	10/15/84	7/22/87	N/A	N/A	N/A

WASHINGTON COUNTY

Site Name CERCLIS ID	Proposed Listing	Final Listing	Construction Completion	Partial Deletion	Deletion
Ciba-Geigy Corp. (McIntosh Plant)					
ALD001221902	9/08/83	9/21/84	7/19/00	N/A	N/A
Olin Corp. (McIntosh Plant)					
ALD008188708	9/08/83	9/21/84	N/A	N/A	N/A

NPL Site Listing Process | Locate NPL Sites | NPL Site Status Information | Current NPL Updates | NPL Resources
Basic Query | Advanced Query | NPL Sites in the US | HRS Toolbox | FR Notices for NPL Updates
Construction Completions in Alabama | Partially Deleted NPL Sites in Alabama
OSWER Home | Superfund Home | Innovative Technologies Home

EPA Home | Privacy and Security Notice | Contact Us

Last updated on Thursday, March 4th, 2004
URL: http://www.epa.gov/superfund/sites/npl/al.htm

U.S. Environmental Protection Agency

Superfund Information Systems

CERCLIS Database
Archived Sites
Record of Decision System (RODS)
Five-Year Reviews Online
Site Assessment Documentation Pilot
Site Spill Identifier List (SPIL)
Data Element Dictionary (DED)
Order Superfund Products
Customer Satisfaction Survey

CERCLIS Database

Search Results

Search Criteria:

City: *VINA*
State: *AL*

Found 0 site(s) that match your search criteria listed above.
To conduct another search, return to the **Search CERCLIS** page or request a **Customized SIS Report**.

URL: http://cfpub.epa.gov/supercpad/cursites/srchrslt.cfm
This page design was last updated on Thursday, March 18, 2004
Content is dynamically generated by ColdFusion

Northwest Alabama Council of Local Governments

P.O. Box 2603, Muscle Shoals, Alabama 35662

Keith Jones
Executive Director

(256) 389-0500
(256) 389-0599 - Fax

Phil Segraves
Chairman

Ian Sanford
Vice Chairman

July 27, 2004

Chief, Enforcement Section,
Regulatory Branch
U.S. Army Corps of Engineers
Nashville District Office
P.O. Box 1070
Nashville, TN 37202-1070

Dear Sir/Madam:

The NACOLG Community Planning Department is in the process of preparing a wastewater facilities feasibility study as well as a storm water management feasibility study for the city of Vina, Alabama. Our office would like your evaluation of the planning study area for possible construction of a wastewater treatment facility within the defined study area.

We are interested in your evaluation of known jurisdictional streams and jurisdictional wetlands or other significant features that should be recognized pursuant to Section 404 of the Clean Water Act requiring a DA permit. I recognize that no specific site or sites have been identified for the construction of the project and this may impede a finalized answer from your office. However, your evaluation of the planned study area will be extremely important in providing initial information for pursing the overall feasibility of the projects.

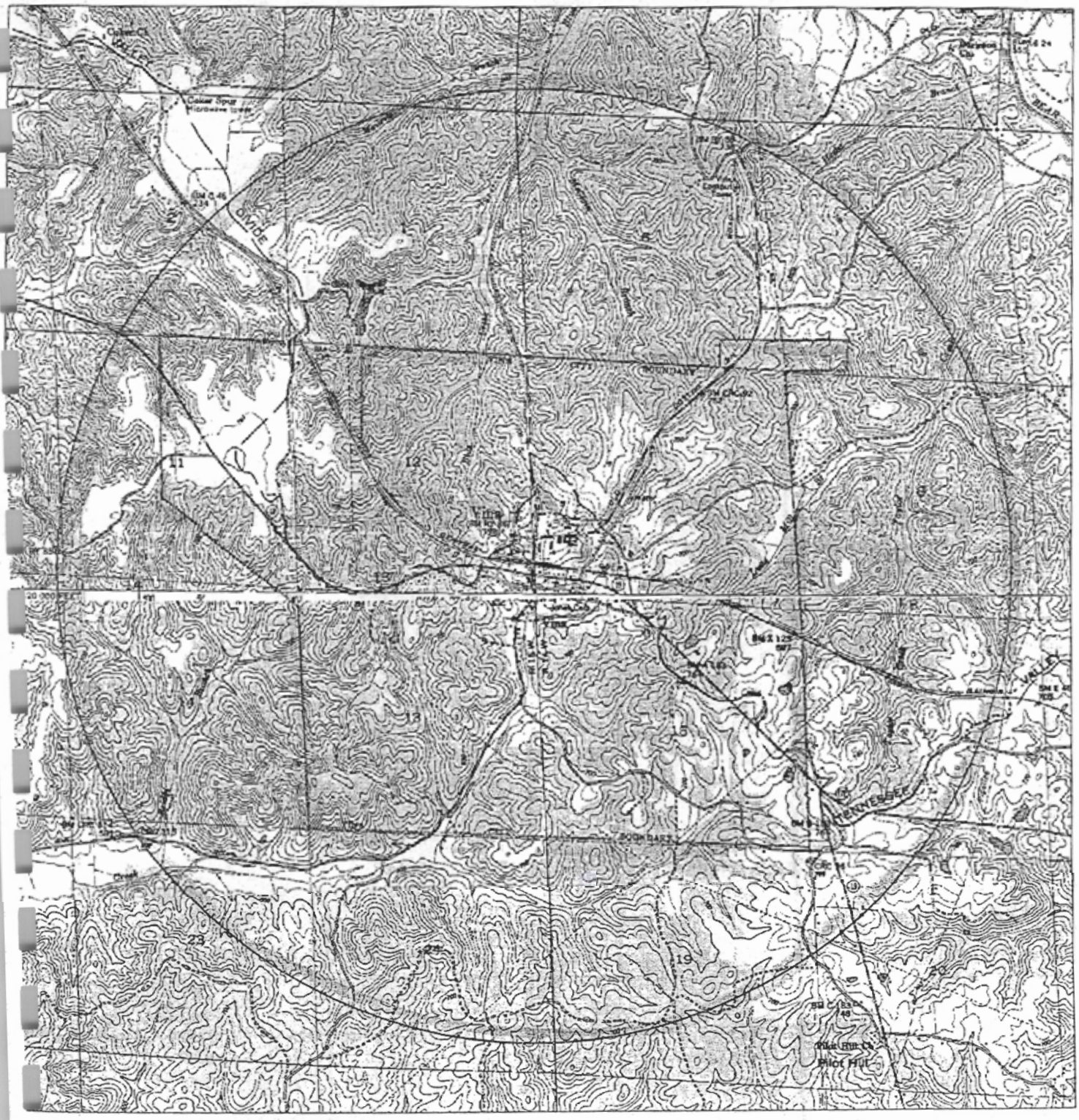
A USGS topographic map is enclosed. The planning study area is bounded in green and the current Vina city limits are outlined in red.

If you have any questions, please do not hesitate to contact our department.

Sincerely,

Benjamin Farmer
Director of Community Planning

VINA TOPOGRAPHY



2 Mile Study Area

City Limits

0.25 0.125 0 0.25 0.5 0.75 1 Miles

Northwest Alabama Council
of Local Governments
July 2004

August 9, 2004

Regulatory Branch (1145b1) Graham/7507

SUBJECT: File No. 200401490; Request for Comments on the Proposed City of Vina Wastewater Facilities Feasibility Study, Franklin County, Alabama

Honorable D.W. Franklin, Mayor
City of Vina
P.O. Box 6
Vina, Alabama 35593

Dear Mayor:

This is in response to a letter sent on the city's behalf requesting comments on the subject project. Please refer to File No. 200401490 in future correspondence with us related to this project.

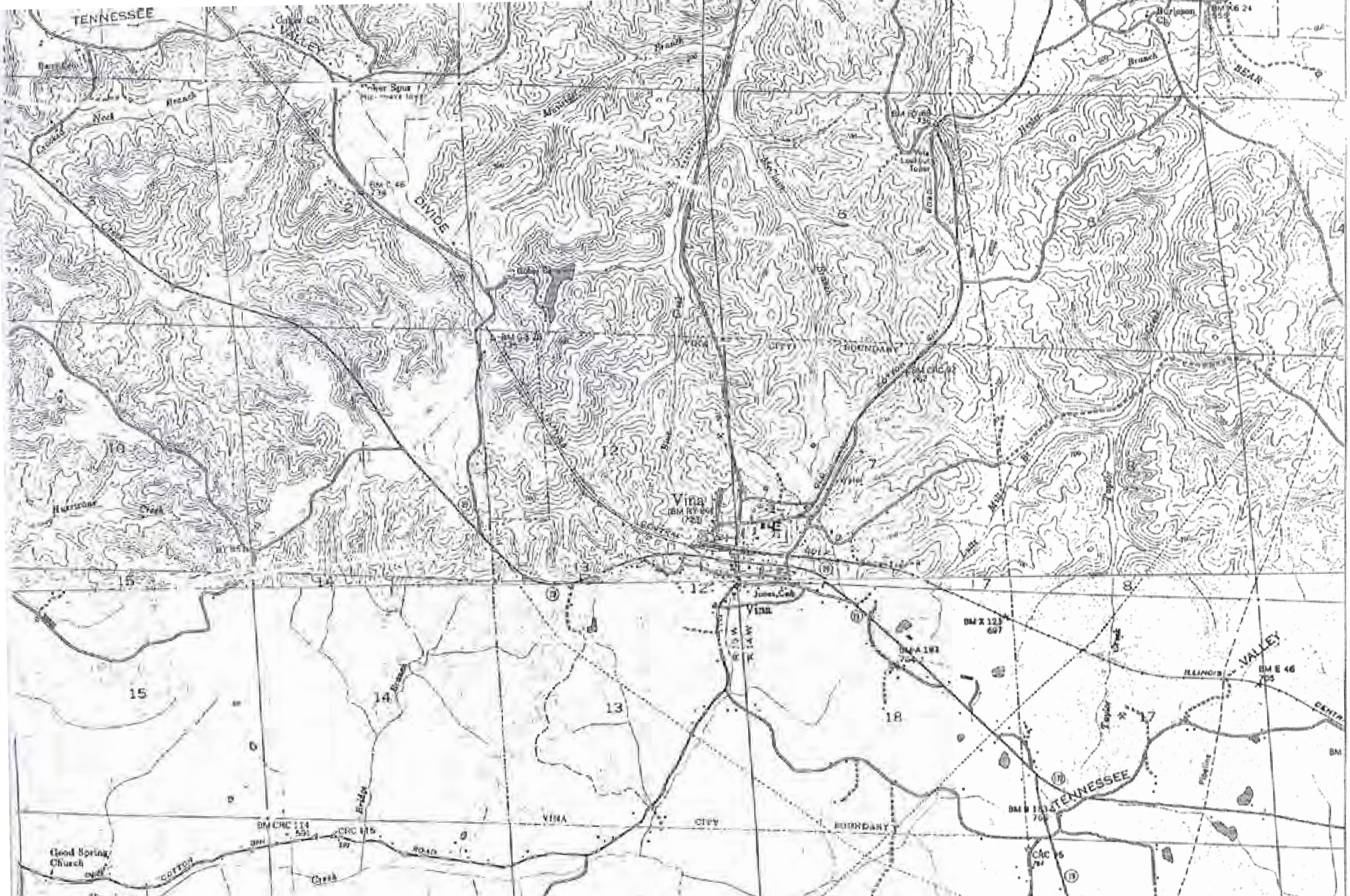
After reviewing the information provided, I have determined that Department of the Army (DA) permits may be required for this project. Any activities involving the discharge of dredged and/or fill material into waters of the United States, including wetlands, will require a DA permit pursuant to Section 404 of the Clean Water Act. Temporary fills in streams or wetlands, bedding and backfill for utility lines constructed across wetlands or streams, etc., are examples of activities that will require approval. Work within the floodplain does not necessarily require DA authorization unless the work impacts a stream or wetland.

As noted on the attached map, the planning study area is within both the Corps of Engineers Nashville and Mobile Districts' regulatory jurisdiction. When the final design is chosen, please contact the respective regulatory district for more specific authorizations regarding work proposed in that area.

Thank you for the opportunity to comment on this proposal. If you have any questions, you can contact me at the above address or telephone (615) 369-7507. For Mobile, please call (251) 690-3188.

Sincerely,

Richard D. Graham
Regulatory Specialist
Operations Division


TENNESSEE
VALLEY
DIVIDE
Vina
Hurricane
Creek
Neck
Branch
VINA
CITY
BOUNDARY
Good Spring
Church
COTTON
ROAD
Bridge
Creek
Taylor
Creek
TENNESSEE
ILLINOIS
VALLEY
Pipeline
BEAR
Branch
15
14
13
12
18
17
8
7
10
BM E 46
705
BM X 123
697

Northwest Alabama Council of Local Governments

P.O. Box 2603, Muscle Shoals, Alabama 35662

Keith Jones
Executive Director

(256) 389-0500
(256) 389-0599 - Fax

Phil Segraves
Chairman

Ian Sanford
Vice Chairman

July 27, 2004

Mr. Lawrence Oaks
State Historic Preservation Officer
Alabama Historical Commission
468 South Perry Street
Montgomery, Alabama 36130-0900

Dear Mr. Oaks:

The NACOLG Community Planning Department is in the process of preparing a wastewater facilities feasibility study as well as a storm water management feasibility study for the city of Vina, Alabama. Our office would like your evaluation of the study area for historical and archeological significant sites.

We are interested in your evaluation of known archaeological sites, significant architectural resources or other cultural features that should be recognized during the feasibility study. I understand that no specific site or sites have been identified for the construction of the project and this may impede a finalized answer from your office. However, your evaluation of the planned study area will be extremely important in providing initial information for pursing the overall feasibility of the two projects.

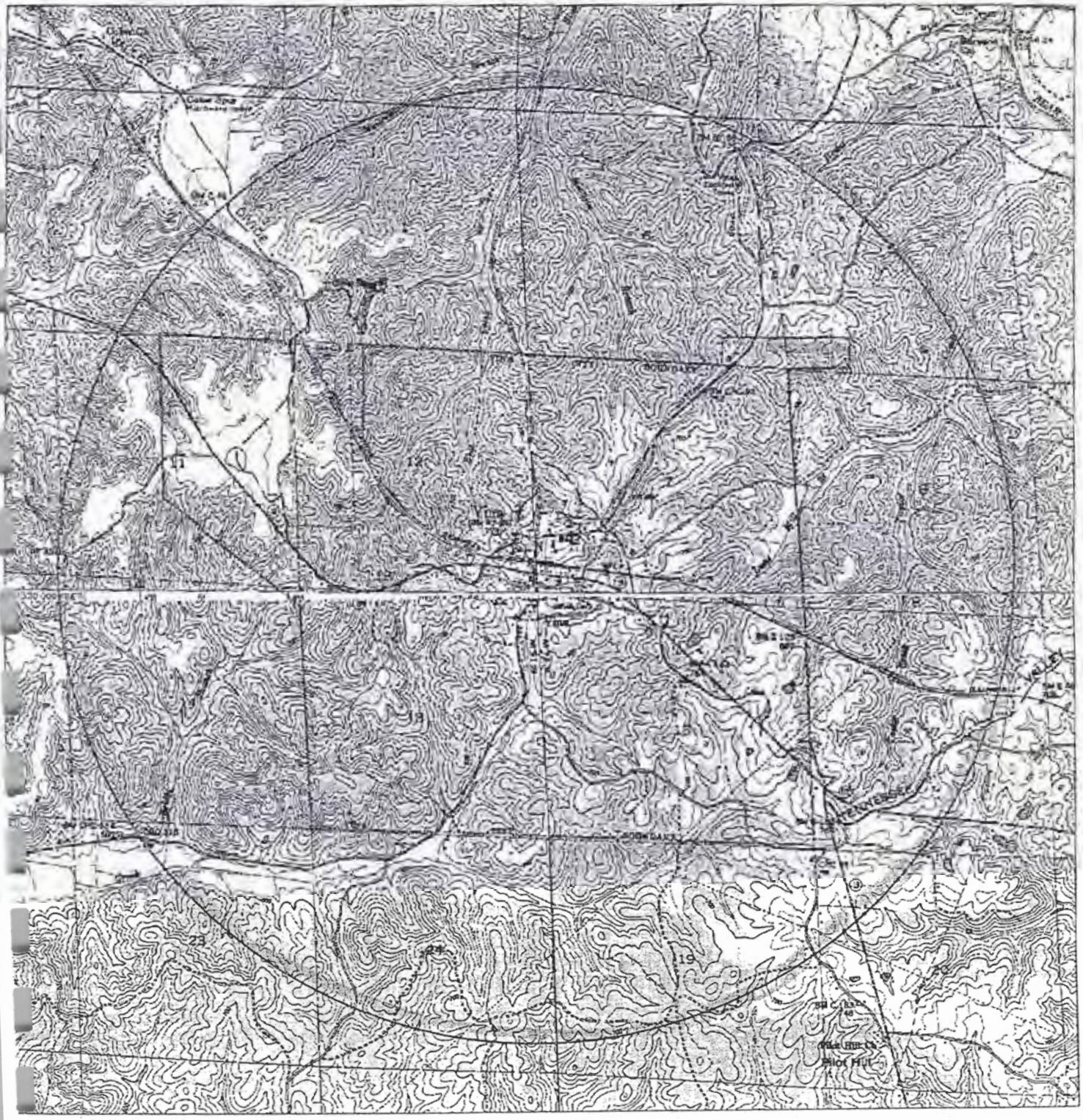
A USGS topographic map is enclosed. The planning study area is bounded in green and the current Vina city limits are outlined in red.

If you have any questions, please do not hesitate to contact our department.

Sincerely,

Benjamin Farmer
Director of Community Planning
Northwest Alabama Council of Local Governments

VINA TOPOGRAPHY



2 Mile Study Area

City Limits

0.25 0.125 0 0.25 0.5 0.75 Miles

Northwest Alabama Council
of Local Governments
July 2004

preserveALA
ALABAMA HISTORICAL COMMISSION

EE H. WARNER
xecutive Director

36 South Perry Street
Iontgomery, Alabama
30-0900

334 242•3184
334 240•3477

September 3, 2004

Benjamin Farmer
Director of Community Planning
Northwest Alabama Council of Local Governments
P.O. Box 2603
Muscle Shoals, Alabama 35662

Re: AHC 2004-1234; Wastewater Facilities and Storm Water Management Feasibility Studies, Vina, Franklin County

Dear Mr. Farmer:

Upon review of the above referenced project, the Alabama Historical Commission has determined that we will need additional information in order to make a determination on your project. Please forward the following information to our office at your earliest convenience.

1. Photographs and construction dates of all existing structures over 50 years old located within or adjacent to the proposed project site

2. Photographs keyed to a good quality, readable USGS topographic map

We understand that no specific project areas have been selected at this time. However, based on the information you provided for the general area, it is likely that we will request a cultural resource survey for all areas **not** in right-of-way or otherwise disturbed areas. Please complete the enclosed project review consultation for each project area as they are determined.

We appreciate your efforts on this issue. Should you have any questions regarding archaeology, please contact Amanda McBride of our office. Questions regarding historic structures may be directed to Lindsey Breithaupt. Please reference the AHC tracking number above in all correspondence.

Very truly yours,

Elizabeth Ann Brown

Elizabeth Ann Brown
Deputy State Historic Preservation Officer

EAB/ALM/LDB/alm

Enclosure: PRC form

Northwest Alabama Council of Local Governments

P.O. Box 2603, Muscle Shoals, Alabama 35662

Keith Jones
Executive Director

(256) 389-0500
(256) 389-0599 - Fax

Phil Segraves
Chairman

Ian Sanford
Vice Chairman

July 27, 2004

Mr. Larry E. Goldman,
Field Supervisor
U.S. Department of the Interior
Fish and Wildlife Service
P.O. Drawer 1190
Daphne, AL 36526

Dear Mr. Goldman:

The NACOLG Community Planning Department is in the process of preparing a wastewater facilities feasibility study as well as a storm water management feasibility study for the city of Vina, Alabama. Our office would like your evaluation of the planning study area for possible construction of a wastewater treatment facility within the defined study area.

We are interested in your evaluation of possible affected species or other significant features that should be recognized pursuant to current governmental regulation. I recognize that no specific site or sites have been identified for the construction of the project and this may impede a finalized answer from your office. However, your evaluation of the planned study area will be extremely important in providing initial information for pursing the overall feasibility of the projects.

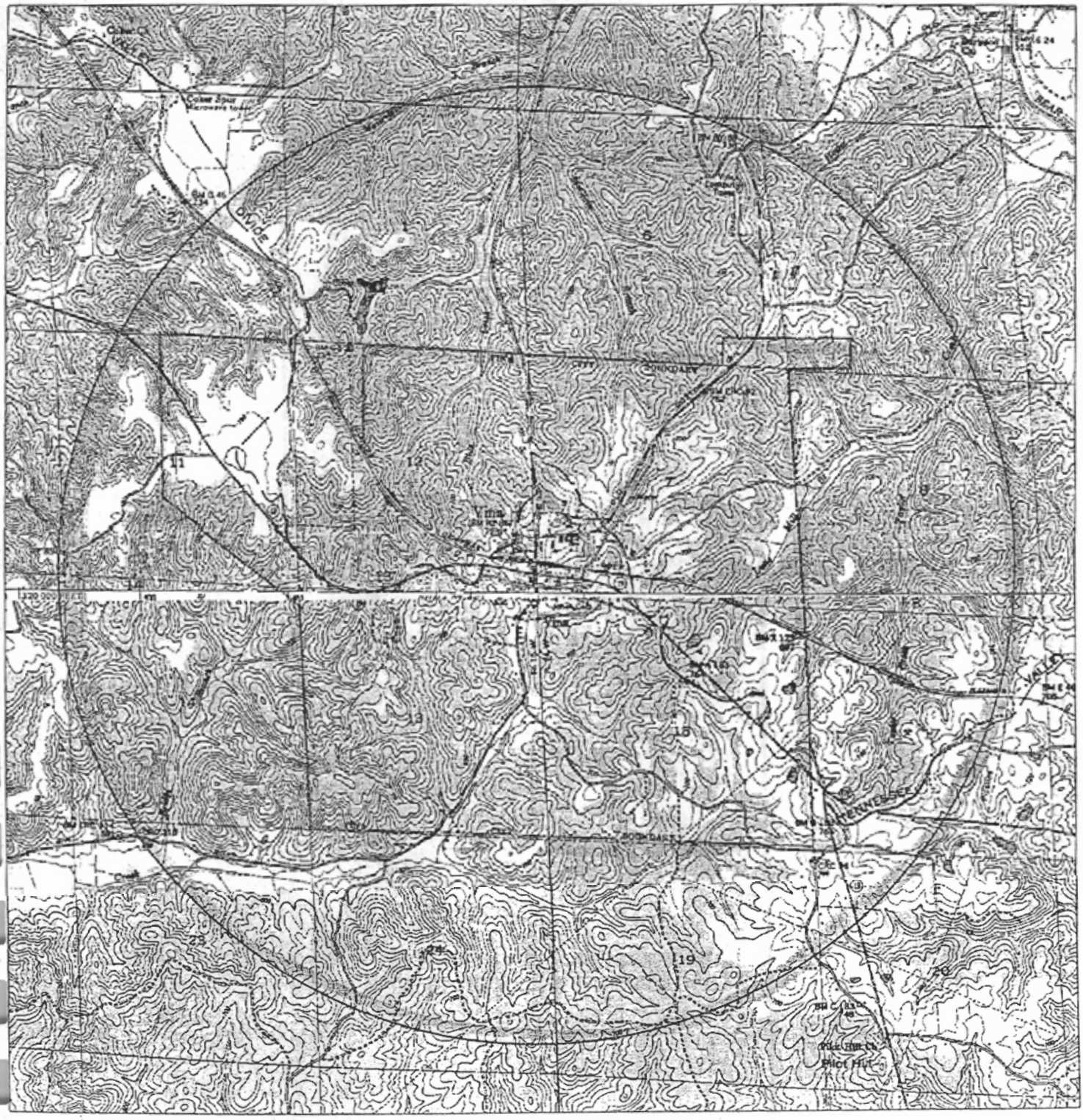
A USGS topographic map is enclosed. The planning study area is bounded in green and the current Vina city limits are outlined in red.

If you have any questions, please do not hesitate to contact our department.

Sincerely,

Benjamin Farmer
Director of Community Planning

VINA TOPOGRAPHY



2 Mile Study Area

City Limits

0.25 0.125 0 0.25 0.5 0.75 1 Miles

Northwest Alabama Council of Local Governments
July 2004

United States Department of the Interior

FISH AND WILDLIFE SERVICE
P.O. Drawer 1190
1208-B Main Street
Daphne, Alabama 36526

IN REPLY REFER TO:

04-1453

September 7, 2004

Mr. Benjamin Farmer, Director of Community Planning
Northwest Alabama Council of Local Governments
P.O. Box 2603
Muscle Shoals, Alabama 35662

Dear Mr. Farmer:

Thank you for your letter of August 2, 2004, requesting comments on the proposed location of a wastewater treatment facility in Vina, Tennessee River Basin, Franklin County, Alabama. We have reviewed the information and are providing the following comments in accordance with the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.).

We have determined that the following Federally listed species may occur in the project area:

gray bat (*Myotis grisescens*) - Endangered

Indiana bat (*Myotis sodalis*) - Endangered

green pitcher plant (*Sarracenia oreophila*) - Endangered

harperella (*Ptilimnium nodosum*) - Endangered

Kral's water-plantain (*Sagittaria secundifolia*) - Threatened

Eggert's sunflower (*Helianthus eggertii*) - Threatened

Please see the enclosed Fact Sheet for brief descriptions of these species and their habitats.

We request that surveys for these Federally protected species be conducted if appropriate habitats exist in the project zone. Prior experience with each of these particular species is strongly recommended for the consultant(s) undertaking the survey(s).

The two bat species are known to occur in the vicinity the proposed project. We recommend that the proposed project site be surveyed for the presence of caves and sinkholes. If the proposed

work will affect any cave or large sinkhole, even temporarily, or if the project entails blasting, bat surveys should follow. If no caves or sinkholes are present, further consultation is unnecessary for these two species.

Visits to known populations of green pitcher plant, harperella, Kral's water-plantain and Eggert's sunflower immediately prior to the survey are also recommended to become familiar with these species, their habitats and conditions of the plants at the time of year of the surveys. Surveys cannot be accepted if the plants have no above-ground vegetation at the time of the survey. Green pitcher plant can be seen from April to September. Harperella is visible from June to September. Eggert's sunflower can be seen from August to September. Kral's water-plantain can be seen year round. Please provide the names of surveyors, their credentials, and a thorough description of survey methods, as well as shrub and forb species observed. If no suitable habitat exists within the project zone, a survey for the plants is unnecessary.

If you have any questions or need additional information, please contact Mr. Scott Floyd at (251) 441-5836. Please refer to the reference number located at the top of this letter.

Sincerely,

Larry E. Goldman
Field Supervisor

Enclosure

Fact Sheet

Gray Bat and Indiana Bat

Listed in 1967 and 1976, these species are strongly loyal to their summer and winter caves. Thus, they are the most restricted to cave habitats of any U.S. mammal. As a consequence of their combined thermoregulatory and other habitat requirements, bats congregate in large numbers in only a few caves, making them highly susceptible to disturbances and declines in population. Declines in population have been attributed to pesticide use; siltation on aquatic environments resulting in the loss of prey; deforestation; caves being flooded from water impoundment; cave entrance closure; and human disturbances. Pictures of the gray bat and Indiana bat can be seen at:

http://media.duc.auburn.edu/media/908934762281.jpg
http://www.auburn.edu/~moosmpr/sodalis.jpg

Green Pitcher-Plant

The green pitcher plant is a perennial herb which predominantly lives on decaying insects that have fallen into the pitcher-like leaves. Its rhizomes are 1 to 1.5 cm thick. The leaves are 20 to 75 cm long, and 6 to 10 cm in circumference at the orifice. These leaves, which are rarely conspicuously winged, usually appear with green to yellow flowers. The leaves gradually narrow from the orifice to the base, and are externally smooth. Flowering reaches its peak from Mid-April to early June. The habitat of the green pitcher plant varies from moist upland areas to boggy, sandy stream edges. Soils are generally acidic, highly saturated and derived from sandstone or shale. Populations have been lost and others have suffered declines in association with agricultural conversion, increases in rural residential development, woody plant encroachment due to fire suppression, changes in drainage patterns and commercial and amateur collecting. A picture of the green pitcher plant can be seen at:

www.pfmt.org/wildlife/endangered/ images/green_pitcher.jpg.

Harperella

This annual herb grows to a height of 0.15 to 1.0 m. The leaves are reduced to hollow, quill-like structures. The small, white flowers occur in heads, or umbels, not unlike those of Queen Anne's lace (*Daucus carota*). Harperella has been described as occurring on rocky or gravel shoals, on margins of clear, swift-flowing stream sections, at the edges of intermittent pineland ponds, or in low, wet savannah meadows. Flowering begins in May in pond habitats, and in late June or July at riverine sites, continuing until frost. Harperella is always found on saturated substrates and readily tolerates periodic, moderate flooding. The major threats are hydraulic alteration, water withdrawal, pond drainage, or water quality degradation. A picture of

Harperella can be seen at:

www.watershedradio.org/may2001/ 051601sidel.htm.

Kral's Water-Plantain

An aquatic perennial herb, Kral's water-plantain arises from a stiff, elongated rhizome up to 10 cm in length. This plant can float above or below the water's surface. The shape of its leaves depends upon the velocity and depth of its habitat. In swift shallows, the leaves are linear, rigid, and sickle-shaped, 5 to 8 cm long and 2 to 5 cm wide. In quiet deep waters, the leaves are more quill-like, being longer (10 to 30 cm), linear in shape, and tapering. The petals are inconspicuous in the female flowers; however, in the male flowers, they are white and 1 to 1.5 cm long. The fruit consists of a cluster of achenes approximately 2 mm in length. Although infrequent, flowering occurs from May into July, and intermittently into the fall. Kral's water-plantain typically occurs on frequently exposed shoals or rooted among loose boulders in quiet pools up to one meter in depth. The immediate banks are often dominated by shrubs. The stream bottoms are typically narrow and bounded by sandstone. Substrates in the area are unconsolidated. A picture of Kral's water plantain can be seen at:

www.pfmt.org/wildlife/endangered/ images/krals_water.jpg.

Eggert's Sunflower

This plant is a perennial member of the aster family known only from Kentucky, Tennessee and Alabama. It is a tall (to 2.5 m) plant arising from fleshy rhizomes that can form an extensive network. The leaves are opposite, mostly lanceolate, 20 to 30 cm long, and with smooth to minutely toothed edges. Beginning in early August and continuing through mid-September, the flowers are large (7.5 cm), yellow and are borne on the upper third of the stem. This plant is threatened throughout its range by habitat alteration; residential, commercial or industrial development; habitat succession; herbicide use along ROW's; and conversion of its limited habitat to pasture or cropland. It occurs on rolling to flat uplands in full sun or partial shade. It is often found in open fields or thickets along woodland borders with other tall herbs and small trees. A picture of Eggert's sunflower can be seen at:

http://www.pfmt.org/wildlife/endangered/images/eggerts_sun.jpg