

**Town of Magnolia Springs Comprehensive Drainage Masterplan**



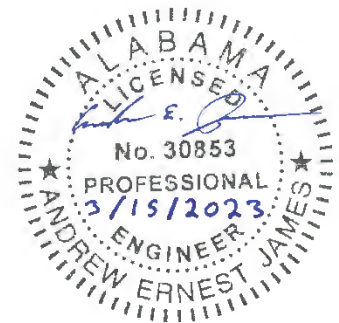
**Prepared For:**

Town of Magnolia Springs  
Magnolia Springs, Baldwin County, Alabama

**Prepared By:**

**VOLKERT**

**March 2023**



**TABLE OF CONTENTS**

**1.0 EXECUTIVE SUMMARY ..... 3**

**2.0 INTRODUCTION ..... 4**

**3.0 SCOPE OF WORK ..... 4**

**4.0 HYDROLOGIC ANALYSES..... 5**

    4.1 DRAINAGE AREAS.....5

    4.2 PEAK FLOW RATES ..... 10

**5.0 HYDRAULIC ANALYSES ..... 10**

**6.0 RECOMMENDATIONS..... 11**

    6.1 PROPOSED IMPROVEMENTS..... 11

    6.2 PROPOSED PROJECTS..... 14

**7.0 PRELIMINARY COST ESTIMATE ..... 19**

**8.0 BUDGET ..... 20**

**9.0 SUMMARY AND CONCLUSION..... 20**

**List of Figures**

Figure 1. General view of a damaged culvert. .... 11  
Figure 2. General view of sediment accumulation blocking pipe. .... 12  
Figure 3. General view of asphalt edge raveling. .... 13  
Figure 4. General view of eroding ditch. .... 13  
Figure 5. General view of standing water..... 14

**List of Tables**

Table 1. Summary of Estimated Costs for Proposed Projects..... 19

**APPENDICES**

- Appendix A – Site Maps
- Appendix B – Magnolia Springs Zoning Map
- Appendix C – Photo Pages
- Appendix D – Web Soil Survey Data
- Appendix E – NOAA Atlas 14 Precipitation Frequency Data
- Appendix F – StormCAD Output Tables
- Appendix G –StormCAD Hydraulic Profiles
- Appendix H – Summary of Proposed Improvements Table
- Appendix I – Preliminary Cost Estimates
- Appendix J – 5-Year Budget for Stormwater Improvements Table
- Appendix K – Plans for the Magnolia Springs Drainage Masterplan
- Appendix L – Topographic Survey

## 1.0 EXECUTIVE SUMMARY

The Town of Magnolia Springs retained Volkert, Inc. to update their 2009 Comprehensive Drainage Masterplan. The purpose of this study is to analyze the town's existing drainage network, identify potential problem areas, and recommend cost effective solutions. This report provides an overall summary of the existing and proposed conditions within the Magnolia Springs City Limits.

The Town of Magnolia Springs drains primarily through surface water runoff and channelized flow and outfalls into the Magnolia River. The town is located partially within the floodplain of Magnolia River and is shown on the FEMA FIRM Map 01003C0795M. Land use is predominantly residential development, with some commercial development and undeveloped, forested areas. The town consists primarily of loamy sand soils that are generally well-drained soils with a high infiltration rate.

Volkert, Inc. performed field reviews in June 2022 to evaluate the existing drainage areas and identify drainage structures. LIDAR, topographic maps, and field observations were used to delineate the town into 15 major drainage basins and subbasins, with approximately 1.6 square miles of total drainage area. The rational method was used to determine peak flow rates for each subbasin. StormCAD was used to analyze the town's existing drainage system and identify infrastructure with inadequate capacity for the 25-year storm event.

Recommendations for proposed drainage improvements were categorized based on the type of improvement: category 1 (immediate improvements), category 2 (short term improvements), and category 3 (long term improvements). The proposed drainage improvements were consolidated into 16 projects, which were then ranked based on priority using a MCDA Matrix.

Preliminary cost estimates were developed for all 16 proposed projects. A five-year plan was developed for the Town to begin completing the proposed projects based on feasibility, cost, and priority ranking. The budget assumes an initial and annual investment of \$75,000. The recommended projects should be reevaluated as the Town's priorities and available funding changes.

The proposed improvements recommended within this study address existing infrastructure that is inadequate to convey the 25-year storm event. Areas within the Magnolia River floodplain, as shown on the FEMA FIRM map, are still at risk of flooding due to backwater effects from the river.

## **2.0 INTRODUCTION**

The Town of Magnolia Springs retained Volkert, Inc. to update their 2009 Comprehensive Drainage Masterplan. The Town is located within the southern portion of Baldwin County, Alabama. The town limits include approximately 578 acres within the Magnolia River watershed and includes mostly residential land uses with some commercial development and forested areas. The town was incorporated in 2006 and currently has a population of approximately 1,129. Magnolia Springs has declared itself a bird sanctuary and the Magnolia River is listed as an “Outstanding Alabama Water.”

The purpose of this Comprehensive Drainage Masterplan is to provide a study of the town’s existing drainage network, identify potential problem areas, and recommend cost effective solutions. This study will analyze the flows from existing drainage courses while including proposed drainage courses for areas in need of improvements.

## **3.0 SCOPE OF WORK**

The scope of work for this project includes updating the 2009 Comprehensive Drainage Masterplan and includes limited field survey, engineering, and field reviews of the drainage basins within the corporate limits of the Town of Magnolia Springs. Specific tasks associated with this scope of work include the following:

- Existing survey information will be utilized where available. Additional topographic surveys of ditches and other drainage structures will be performed as necessary for study purposes.
- Review previous studies provided by the Town or currently available mapping related to drainage characteristics including: quad maps, aerial maps, historical maps, soils maps, and FEMA flood maps for the purposes of understanding the overall drainage patterns.
- Meet with the City to discuss any known future developments, historic flooding location, and maintenance programs. Review existing stormwater design criteria and establish the design storm event
- Obtain from the City current zoning and City Limit maps as GIS shapefiles.
- Delineate drainage basins from available LiDAR mapping and develop an overall drainage map of the Town detailing primary and subbasins to each drainage structure.
- Develop stormwater network models for both the existing stormwater network and a proposed stormwater network (StormCad or similar)
- Develop preliminary drainage masterplan which documents the operational status of the current drainage system, drainage components which are beyond capacity, and recommended improvements.

- Develop preliminary construction cost estimates for recommendations.
- Present to the Town for comments.
- Address Town comments and finalize the drainage masterplan.

#### **4.0 HYDROLOGIC ANALYSES**

The Town of Magnolia Springs drains primarily through surface water runoff and channelized flow and outfalls into the Magnolia River. The town is located partially within the floodplain of Magnolia River and is shown on the FEMA FIRM Map 01003C0795M. Land use is predominantly residential development, with some commercial development and undeveloped, forested areas. The town consists primarily of loamy sand soils that are within the hydrologic soil group A, which are generally well-drained soils with a high infiltration rate. All soil types within the town limits are shown in Appendix D.

##### **4.1 DRAINAGE AREAS**

Drainage areas were delineated based on LIDAR, topographic maps, and field observations. The town was divided into 15 major drainage basins, which were then divided into subbasins based on land use and the existing drainage network. Subbasins were delineated for each identified drainage structure. The total drainage area for the town is approximately 1.6 square miles. The major drainage areas are shown in the plans provided in Appendix K and are described in more detail below:

##### **1) North 98 Basin**

This basin is approximately 192.3 acres of mostly undeveloped, forested areas and agricultural areas. Stormwater within this basin drains primarily through surface water runoff and stormwater conveyances. This basin is located mostly outside of the municipal limits, however, it outfalls into the town limits through a culvert crossing Hwy 98.

This basin includes roadway drainage and stormwater infrastructure along the following streets:

- Hwy 98

##### **2) Co. Rd. 49 Basin**

This basin is approximately 63 acres of mostly undeveloped, forested areas with some commercial and residential development. Stormwater within this basin drains primarily through surface water runoff and stormwater conveyances and outfalls into an unnamed tributary through a culvert crossing CR 49.

This basin includes roadway drainage and stormwater infrastructure along the following streets:

- Hwy 98
- C.R. 49

### **3) Oak Basin**

This basin is approximately 150.7 acres of mostly undeveloped, forested areas and residential areas. Stormwater within this basin drains primarily through surface water runoff into an unnamed tributary which crosses Oak Street and outfalls into the Magnolia River.

This basin includes roadway drainage and stormwater infrastructure along the following streets:

- Hwy 98
- Pecan Grove Street
- Live Oak Avenue
- McCoy Lane
- Jessamine Street
- Camelia Avenue
- Cedar Street
- School Street
- Rose Street
- Holly Street
- Rock Street
- Oak Street
- Magnolia Springs Hwy

### **4) Woodland Basin**

This basin is approximately 25.4 acres of mostly undeveloped and residential areas. Stormwater within this basin drains primarily through surface water runoff. This basin outfalls into the Magnolia River at the western side of the municipal limits.

This basin includes roadway drainage and stormwater infrastructure along the following streets:

- Woodland Drive
- Oak Street

**5) Pecan Basin**

This basin is approximately 58.86 acres of mostly residential areas. Stormwater within this basin drains primarily through surface water runoff and channelized flow into a channel south of Oak Street, which outfalls into the Magnolia River.

This basin includes roadway drainage and stormwater infrastructure along the following streets:

- Pecan Grove Street
- Cougill Avenue
- Twin Oaks Drive
- Short Avenue
- Gates Avenue
- Bay Street
- Woodland Drive
- Oak Street

**6) Bay Basin**

This basin is approximately 26.8 acres of mostly residential areas. Stormwater within this basin drains primarily through surface water runoff and stormwater conveyances and outfalls into the Magnolia River.

This basin includes roadway drainage and stormwater infrastructure along the following streets:

- Bay Street
- Gates Avenue
- Oak Street
- Island Avenue
- Magnolia Street



- Cedar Street

**7) Jessamine Basin**

This basin is approximately 14.7 acres of mostly residential areas. Stormwater within this basin drains primarily through surface water runoff and channelized flow into a concrete flume along Jessamine Street, which outfalls into the Magnolia River.

This basin includes roadway drainage and stormwater infrastructure along the following streets:

- Jessamine Street
- Oak Street

**8) North River Frontage Basin**

This basin includes approximately 58.5 acres of mostly residential areas located south of Oak Street and north of the Magnolia River. Stormwater within this basin primarily sheet flows south into the Magnolia River and does not include a defined outfall point.

**9) Magnolia North Basin**

This basin is approximately 41.08 acres of mostly residential areas. Stormwater within this basin drains primarily through surface water runoff and channelized flow then outfalls into the Magnolia River just northeast of the Magnolia Springs Hwy Bridge.

This basin includes roadway drainage and stormwater infrastructure along the following streets:

- Magnolia Springs Hwy
- Magnolia Avenue
- Camelia Avenue
- Cedar Street
- School Street
- Gates Avenue
- Spring Street
- Van Wezel Lane

**10) Gates Basin**

This basin includes approximately 46 acres of mostly forested, undeveloped areas with some residential areas. Stormwater within this basin primarily sheet flows into a tributary that outfalls into the Magnolia River.

**11) Village Green Drive Basin**

This basin is approximately 28.28 acres of mostly residential areas with some undeveloped, forested areas. Stormwater within this basin drains primarily through surface water runoff and channelized flow into a ditch west of Village Green Drive, crosses Cotton Stocking Lane, and outfalls into the Magnolia River.

This basin includes roadway drainage and stormwater infrastructure along the following streets:

- Magnolia Springs Hwy
- Village Green Drive
- Cotton Stocking Lane

**12) Magnolia South Basin**

This basin includes approximately 9.5 acres of residential and undeveloped, forested areas to the east of Magnolia Springs Hwy and south of the Magnolia River. Stormwater within this basin drains primarily through sheet flow and stormwater conveyances north and outfalls into the Magnolia River.

This basin includes roadway drainage and stormwater infrastructure along the following streets:

- Magnolia Springs Hwy
- Richards Lane
- Pride Lane

**13) South River Frontage Basin**

This basin includes approximately 82 acres of mostly forested, undeveloped areas located south of the Magnolia River. Stormwater within this basin primarily sheet flows north into the Magnolia River and does not include a defined outfall point.

#### **14) South Tributary Basin**

This basin is approximately 185.12 acres of mostly undeveloped, forested and agricultural areas with some residential areas. Stormwater within this basin drains primarily through surface water runoff into an unnamed tributary which crosses Magnolia Springs Hwy and outfalls into the Magnolia River.

This basin includes roadway drainage and stormwater infrastructure along the following streets:

- Magnolia Springs Hwy
- County Road 26
- Laurendine Lane
- College Lane
- Highland Court

#### **4.2 PEAK FLOW RATES**

The Rational method in StormCAD was used to determine peak flow rates for each subbasin. Runoff coefficients were assigned to each subbasin based on land cover using updated aerial imagery and field observations. Runoff coefficients included impervious areas (0.90), grassed areas (0.35), and forested areas (0.25). Time of concentration (Tc) was estimated using the TR-55 method in StormCAD and included travel times for sheet flow, shallow concentrated flow, and channel flow. Rainfall depths were obtained from the NOAA Atlas 14 Precipitation Frequency Data Server for Magnolia Springs and are included in Appendix E. Peak flow rates were estimated for the 2-year, 10-year, 25-year, 50-year, and 100-year storm events.

#### **5.0 HYDRAULIC ANALYSES**

StormCAD was used to analyze the town's existing drainage system based on the estimated peak flow rates. Existing stormwater infrastructure, including culverts and ditches, were identified during a field review and are shown on the plans provided in Appendix K. Photo documentation is provided in Appendix C. Pipe sizes, inverts, and ditch cross sections were estimated using LIDAR, field observations, and supplemental survey. The supplemental survey was performed by Smith Clark & Associates and is provided in Appendix L.

The existing pipes and ditches were evaluated for a 25-year design storm event to determine existing capacities and identify areas prone to flooding. Any drainage structures that exceeded their 25-year design capacity were analyzed for proposed improvements. Areas were also evaluated based on estimated velocities; areas with velocities exceeding six (6) feet per second

(fps) are highly susceptible to erosion and scour, while velocities below two (2) fps have the potential to cause sediment accumulation and siltation.

## 6.0 RECOMMENDATIONS

### 6.1 PROPOSED IMPROVEMENTS

Recommendations for proposed drainage improvements are provided in Appendix H and were categorized based on the type of improvement using the following categories:

#### **Category 1: Immediate Improvements**

Category 1 improvements include immediate action items such as areas that have visible flooding issues and/or are a threat to public safety. These improvements also include structures that require routine maintenance such as replacing damaged pipes, sediment/debris removal and erosion control. Figures 1-2 below show examples of areas where category 1 improvements are recommended.



Figure 1. General view of a damaged culvert.



Figure 2. General view of sediment accumulation blocking pipe.

### **Category 2: Short Term Improvements**

Category 2 improvements are items that should be completed in the near future but are not an immediate concern. These improvements include pipe replacements, pipe end treatments and ditch regrading to provide adequate flow capacity and minimize erosion and siltation. Figures 3-5 below show examples of areas where category 2 improvements are recommended.



Figure 3. General view of asphalt edge raveling.



Figure 4. General view of eroding ditch.



Figure 5. General view of standing water.

### **Category 3: Long Term Improvements**

Category 3 improvements include items that would provide long-term benefits to the town’s drainage system and accommodate future development. These improvements also include future maintenance of drainage structures.

## **6.2 PROPOSED PROJECTS**

It is recommended to provide maintenance of silted in pipes and ditches, as noted in the photo pages provided in Appendix C. In addition to general maintenance of existing infrastructure, the proposed drainage improvements were consolidated into projects based on category and location. The projects were then ranked based on priority using a MCDA Matrix. All proposed improvements and correlating projects are provided in detail in Appendix H and the proposed projects are summarized below.

### **1) Oak Street West Culvert Replacement**

This project includes replacing the existing 44”x27” Arch CMP under Oak Street, west of the intersection with Pecan Grove Drive, with a double 42” RCP to provide adequate capacity to convey the 25-year storm event. See P-CO-28 in the table for details.

## **2) Oak Street West Side Drain and Ditch Improvements**

This project includes replacing the existing driveway side drains located along Oak Street to provide adequate capacity to convey the 25-year storm event. This project also includes regrading the ditches along Oak Street to accommodate the pipe replacements and provide adequate capacity. See the following items in the table for details:

- P-CO-19
- P-CH-21
- P-CO-20
- P-CO-22
- P-CO-23
- P-CO-24
- P-CH-26
- P-CO-26
- P-CO-27

An alternative option for this project could include adding piping with inlets, instead of replacing existing culverts and regrading ditches, to maintain integrity of the street.

## **3) Pecan Grove Street South Culvert Replacement**

This project includes replacing the existing 18" RCP that crosses Pecan Grove Street, at the intersection with Oak Street, with a double 36" RCP to provide adequate capacity to convey the 25-year storm event. See P-CO-21 in the table for details.

## **4) Pecan Grove Street South Drainage Improvements**

This project includes replacing two existing driveway side drains located along Pecan Grove Street to provide adequate capacity to convey the 25-year storm event. This project also includes replacing the existing 24" RCP that crosses Woodland Drive, at the intersection with Pecan Grove Street, with a 36" RCP. See the following items in the table for details:

- P-CO-15
- P-CO-16
- P-CO-18



**5) Oak Street East**

- OAK-CH-37
- OAK-CH-36
- OAK-CO-23

**6) Bay Street South Drainage Improvements**

This project includes replacing the existing 36"x24" Arch CMP that crosses Bay Street and outfalls into the Magnolia River. This project also includes replacing the existing 15" RCP that crosses Island Avenue, at the intersection of Bay Street, and regrading approximately 303 linear feet of ditch located between the two proposed culvert replacements.

- BB-CO-18
- BB-CH-12
- BB-CO-12

**7) Island Avenue Drainage Improvements**

This project includes replacing the existing 18"x11" RCAP that crosses Island Avenue and outfalls into an existing wetland area, with a double 22"x14" RCAP to provide adequate capacity to convey the 25-year storm event. See BB-CO-15 in the table for details.

**8) Bay Street Side Drain and Ditch Improvements**

This project includes replacing three existing driveway culverts located along Bay Street and regrading approximately 667 linear feet of ditch to provide adequate capacity to convey the 25-year storm event. See the following items in the table for details:

- BB-CH-10
- BB-CO-10
- BB-CH-8
- BB-CO-8
- BB-CH-7
- BB-CH-6
- BB-CH-5
- BB-CO-5

**9) Magnolia Springs Hwy South Drainage Improvements**

This project includes replacing three existing driveway culverts located along Magnolia Springs Hwy, south of the Magnolia River bridge, and regrading approximately 216 linear feet of ditch to provide adequate capacity to convey the 25-year storm event. See the following items in the table for details:

- MS-CO-8
- MS-CH-9
- MS-CO-7
- MS-CO-6
- MS-CH-7

**10) Richards Lane Culvert Replacement**

This project includes replacing the existing culvert that crosses Richards Lane, at the intersection with Magnolia Springs Hwy, with a double 24" RCP to provide adequate capacity to convey the 25-year storm event. See MS-CO-1 in the table for details.

**11) Gates Avenue Drainage Improvements**

This project includes replacing four existing driveway culverts located along Gates Avenue, regrading approximately 365 linear feet of ditch, and replacing the existing 24" RCP that crosses Gates Avenue to provide adequate capacity to convey the 25-year storm event. See the following items in the table for details:

- MN-CH-19
- MN-CO-16
- MN-CH-18
- MN-CO-15
- MN-CO-14
- MN-CO-13
- MN-CO-12

**12) School Street Drainage Improvements**

This project includes replacing the existing DBLE 22"x11" Arch CMP that crosses School Street and replacing two side drains near the Fire Station and School Street. This project also includes a proposed grassed swale to convey stormwater from the culvert outfall at School Street, through the park, and into the pipe crossing Gates Avenue. See the following items in the table for details:

- MN-CH-ROUTING3
- MN-CO-22
- MN-CO-21
- MN-CO-20

**13) Magnolia Springs Hwy North 2 Drainage Improvements**

This project includes replacing three existing culverts along Magnolia Springs Hwy, located north of the Magnolia River bridge. See the following items in the table for details:

- MN-CO-19
- MN-CO-18
- MN-CO-17

**14) Magnolia Springs Hwy North 1 Drainage Improvements**

This project includes replacing three existing driveway culverts along Magnolia Springs Hwy and the existing 18" RCP crossing Rose Street. See the following items in the table for details:

- MN-CO-6
- MN-CO-5
- OAK-CO-33
- OAK-CO-32

**15) Camelia Avenue Drainage Improvements**

This project includes replacing two existing driveway culverts along Camelia Avenue and regrading approximately 55 linear feet of ditch. See the following items in the table for details:

- OAK-CO-28
- OAK-CH-7
- OAK-CO-29

**16) Jessamine Street North Drainage Improvements**

This project includes replacing one driveway culverts and regrading approximately 79 linear feet of ditch along Jessamine Street.

- OAK-CH-16
- OAK-CO-10

- OAK-CH-15

**7.0 PRELIMINARY COST ESTIMATE**

Preliminary cost estimates were developed for the proposed projects described above. Detailed estimates are provided in Appendix I and are summarized below in Table 1.

Table 1. Summary of Estimated Costs for Proposed Projects

<b>Project ID</b>	<b>Project Name</b>	<b>Estimated Cost</b>	<b>Priority Ranking</b>
1	Oak Street West Culvert Replacement	\$127,954.06	6
2	Oak Street West Side Drain and Ditch Improvements	\$377,840.30	4
3	Pecan Grove Street South Culvert Replacement	\$54,390.65	3
4	Pecan Grove Street South Drainage Improvements	\$126,586.39	5
5	Oak Street East	\$34,351.07	2
6	Bay Street South Drainage Improvements	\$78,222.43	1
7	Island Avenue Drainage Improvements	\$27,025.02	7
8	Bay Street Side Drain and Ditch Improvements	\$87,763.21	10
9	Magnolia Springs Hwy South Drainage Improvements	\$80,754.58	11
10	Richards Lane Culvert Replacement	\$32,079.57	12
11	Gates Avenue Drainage Improvements	\$172,467.34	9
12	School Street Drainage Improvements	\$93,259.18	8
13	Magnolia Springs Hwy North 2 Drainage Improvements	\$146,000.38	15
14	Magnolia Springs Hwy North 1 Drainage Improvements	\$104,636.89	13
15	Camelia Avenue Drainage Improvements	\$54,009.87	16
16	Jessamine Street North Drainage Improvements	\$72,104.57	14
<b>TOTAL</b>		<b>\$1,541,491.44</b>	

## **8.0 BUDGET**

A five-year plan was developed to assist the Town in completing the proposed projects. Due to budget constraints, it is not feasible for all projects to be completed within the next five years; therefore, projects were selected based on feasibility, cost, and priority ranking. The recommended projects should be reevaluated based on change in the Town's priorities and available budget. The 5-year plan is provided in Appendix J.

## **9.0 SUMMARY AND CONCLUSION**

Volkert, Inc. evaluated the Town of Magnolia Springs existing drainage areas and stormwater infrastructure. StormCAD was utilized to model the existing stormwater infrastructure and identify areas that did not meet capacity requirements for the 25-year storm event.

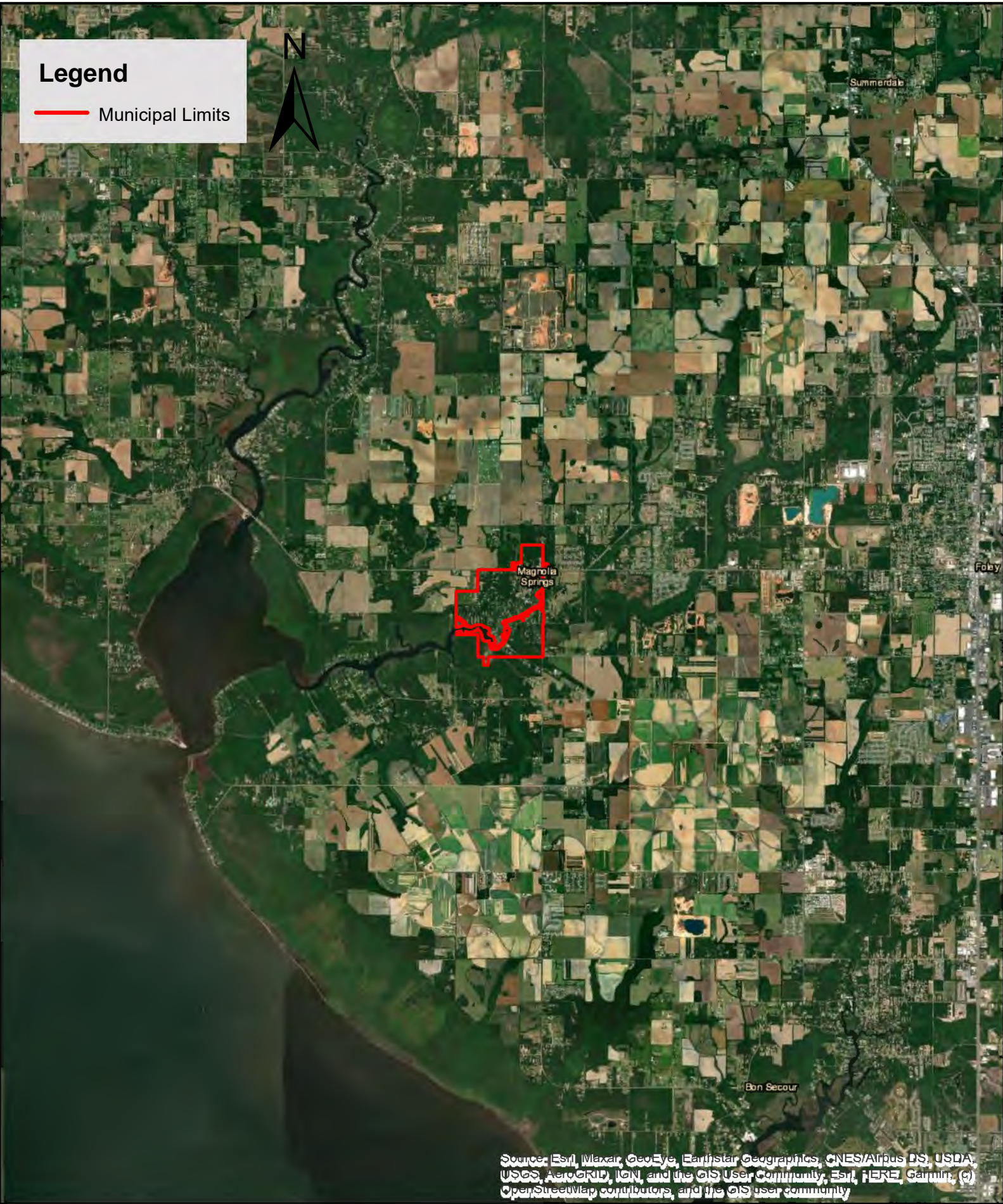
The proposed drainage improvements were consolidated into 16 projects, which were then ranked based on priority using a MCDA Matrix. Preliminary cost estimates were developed for all 16 proposed projects. A five-year plan was developed for the Town to begin completing the proposed projects based on feasibility, cost, and priority ranking. The budget assumes an initial investment of \$75,000 and an annual investment of \$75,000. The recommended projects should be reevaluated as the Town's priorities and available budget changes.

The proposed improvements recommended within this study address existing infrastructure that is inadequate to convey the 25-year storm event. Areas within the Magnolia River floodplain, as shown on the FEMA FIRM map, are still at risk of flooding due to backwater effects from the river.

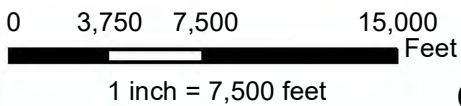
**APPENDIX A**  
**SITE MAPS**

**Legend**

— Municipal Limits





Source: Esri, Maxar, GeoEye, Earthstar, Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community

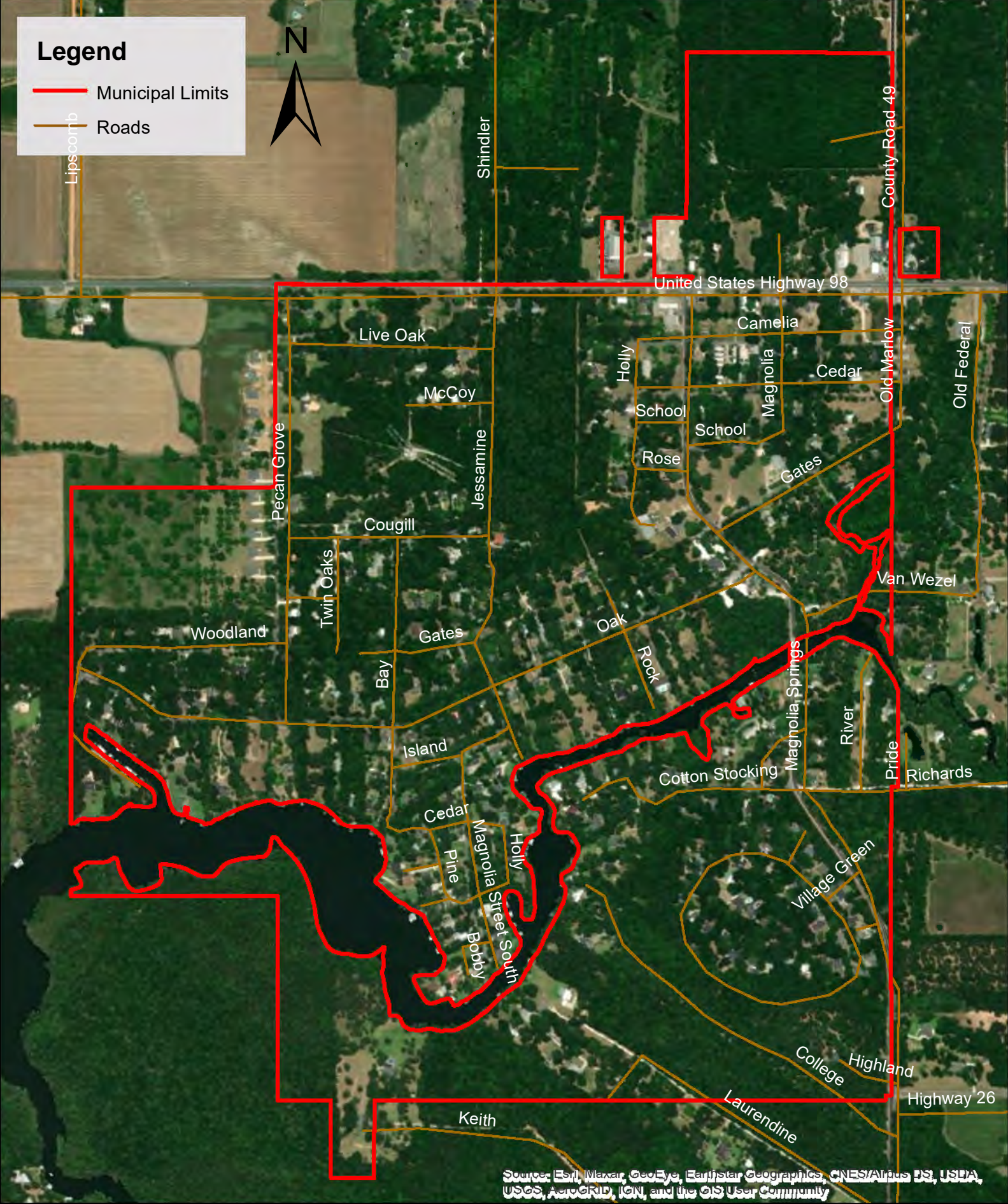


**Vicinity Map**  
**Town of Magnolia Springs**  
**Comprehensive Master Drainage Plan**

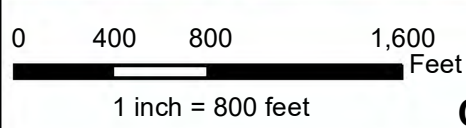


# Legend

-  Municipal Limits
-  Roads



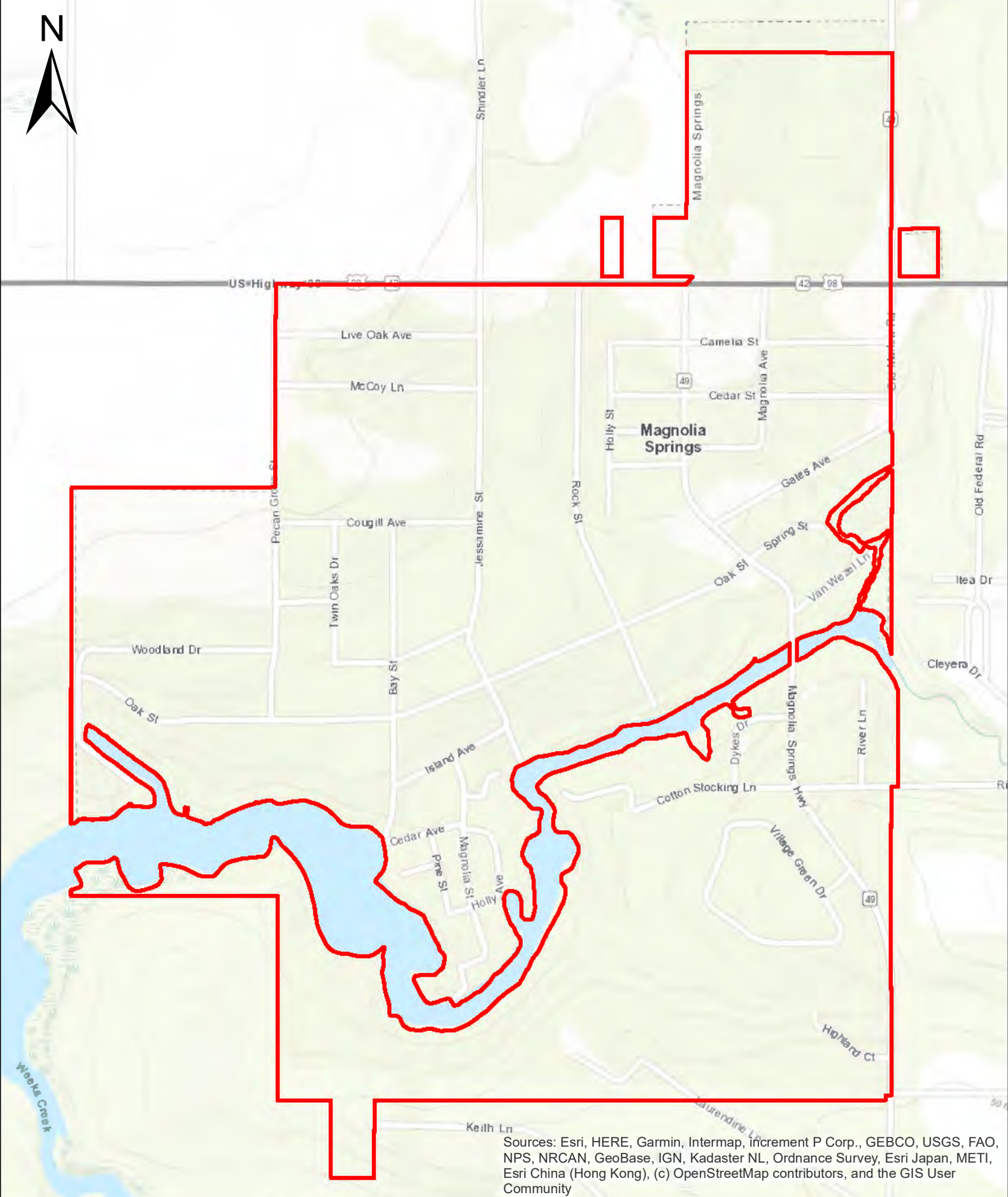
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



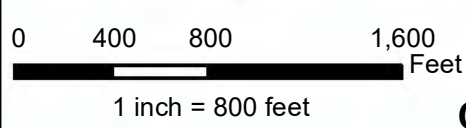
## Street Map Town of Magnolia Springs Comprehensive Master Drainage Plan







Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community



**Topographic Map**  
**Town of Magnolia Springs**  
**Comprehensive Master Drainage Plan**



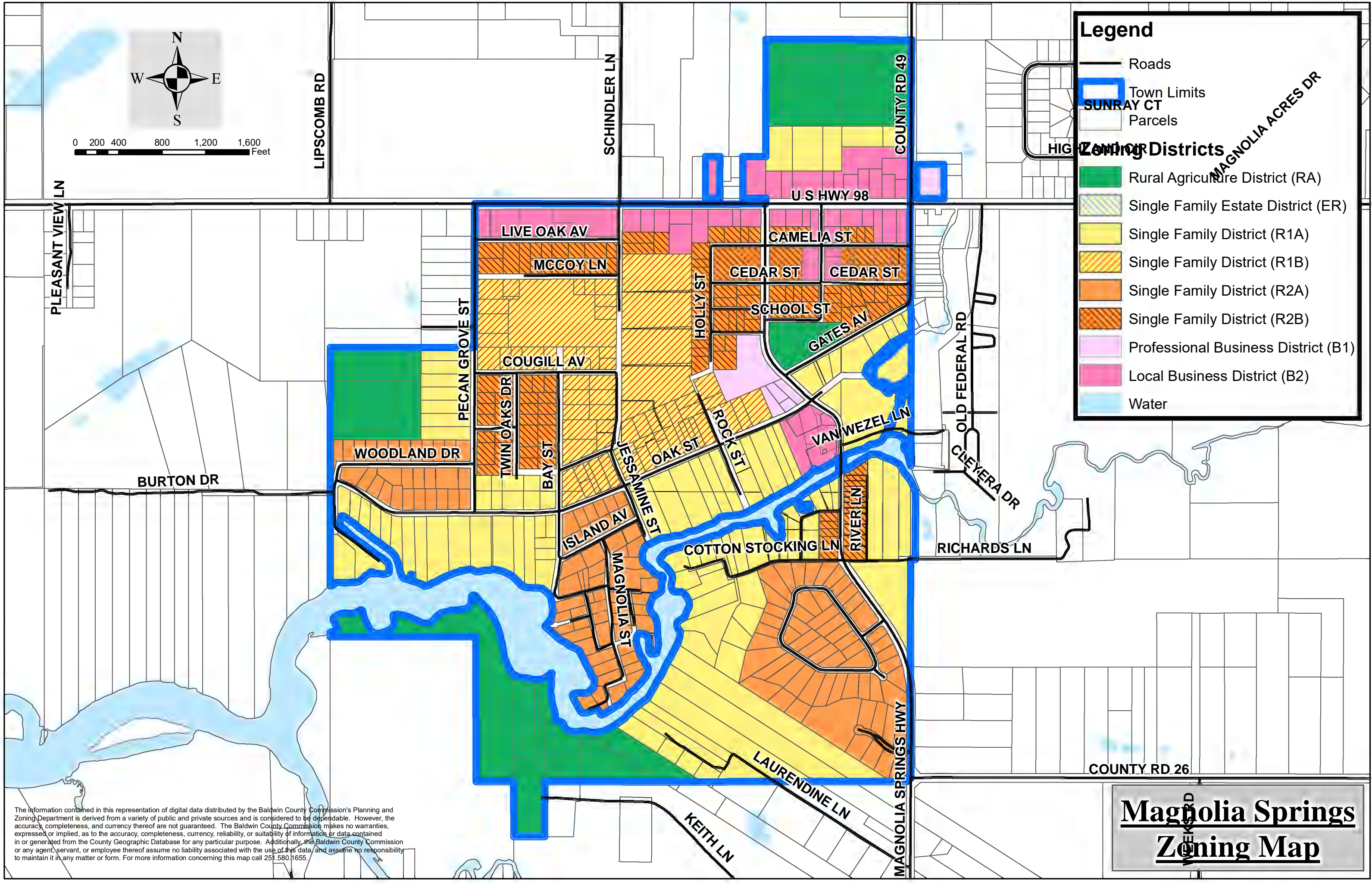
**APPENDIX B**  
**MAGNOLIA SPRINGS ZONING MAP**



0 200 400 800 1,200 1,600 Feet

### Legend

- Roads
- Town Limits
- Parcels
- Zoning Districts**
- Rural Agriculture District (RA)
- Single Family Estate District (ER)
- Single Family District (R1A)
- Single Family District (R1B)
- Single Family District (R2A)
- Single Family District (R2B)
- Professional Business District (B1)
- Local Business District (B2)
- Water



The information contained in this representation of digital data distributed by the Baldwin County Commission's Planning and Zoning Department is derived from a variety of public and private sources and is considered to be dependable. However, the accuracy, completeness, and currency thereof are not guaranteed. The Baldwin County Commission makes no warranties, expressed or implied, as to the accuracy, completeness, currency, reliability, or suitability of information or data contained in or generated from the County Geographic Database for any particular purpose. Additionally, the Baldwin County Commission or any agent, servant, or employee thereof assume no liability associated with the use of this data and assume no responsibility to maintain it in any matter or form. For more information concerning this map call 251.580.1655.

# Magnolia Springs Zoning Map

**APPENDIX C**  
**PHOTO PAGES**



Figure 9034:  
Photo taken facing NW toward W-CH-2 along Woodland Ave.



Figure 9035:  
Photo taken of a roadside ditch along woodland Ave.



Figure 9036:  
Photo taken of a roadside pipe that crosses woodland Ave.



Figure 9038:  
Photo taken facing North toward a silted W-CO-2 at the intersection of Woodland Ave and a driveway.



Figure 9039:

Photo taken facing South toward a silted W-CO-2 at the intersection of Woodland Ave and a driveway.



Figure 9040:

Photo taken facing North toward W-CO-2 along Woodland Ave.



Figure 9042:  
Photo taken facing South toward W-CO-2 at the intersection of Woodland Ave and a driveway.



Figure 9043:



Photo taken facing South toward W-CH-2 along Woodland Ave.



Figure 9044:  
Photo taken facing North toward W-CH-2 along Woodland Ave.



Figure 9045:  
Photo taken facing North toward a ditch along Woodland Ave.



Figure 9046:  
Photo taken facing South toward a silted W-CO-1 at the intersection of Woodland Ave and Oak St.



Figure 9047:  
Photo taken facing North toward a grassed W-CH-1 at the intersection of Woodland Ave and Oak St.



Figure 9048:  
Photo taken facing South toward W-CH-2 at the intersection of Woodland Ave and Oak St.



Figure 9049:

Photo taken facing North toward a silted W-CO-1 at the intersection of Woodland Ave and Oak St.



Figure 9050:

Photo taken facing East toward P-CH-30 at the intersection of Woodland Ave and Oak St.



Figure 9051:  
Photo taken facing East toward a ditch along the northern side of Oak St.



Figure 9052:  
Photo taken facing North toward W-CH-1 along Woodland Ave.



Figure 9053:  
Photo taken facing South toward a ditch along the western side of Woodland Ave.



Figure 9054:  
Photo taken facing North toward a ditch along the western side of Woodland Ave.



Figure 9055:  
Photo taken facing North toward a ditch along the western side of Woodland Ave.



Figure 9056:  
Photo taken facing North toward a field on the western side of Woodland Ave.



Figure 9057:  
Photo taken facing South toward a ditch along the western side of Woodland Ave.



Figure 9058:  
Photo taken facing West toward P-CH-30 along Oak St.





Figure 9059:  
Photo taken facing East toward P-CH-31 along Oak St.



Figure 9060:  
Photo taken facing West toward a damaged P-CO-29 along Oak St.



Figure 9061:  
Photo taken facing West toward P-CO-29 along Oak St.



Figure 9062:  
Photo taken facing East toward P-CH-31 along Oak St.



Figure 9063:  
Photo taken facing East toward P-CO-30 along Oak St.



Figure 9064:  
Photo taken facing East toward P-CO-31 along Oak St.



Figure 9066:  
Photo taken facing East toward P-CO-32 along Oak St.



Figure 9067:

Photo taken facing East toward P-CO-32 along Oak St.



Figure 9068:  
Photo taken facing West toward P-CO-31 along Oak St.



Figure 9069:  
Photo taken facing East toward a silted P-CO-32 along Oak St.



Figure 9071:  
Photo taken facing West toward a silted P-CO-32 along Oak St.



Figure 9072:  
Photo taken facing East toward P-CO-33 along Oak St.



Figure 9073:  
Photo taken facing East toward P-CH-36 along Oak St.



Figure 9074:  
Photo taken of a small, silted pipe along Oak St.



Figure 9075:  
Photo taken of a small, silted pipe along Oak St.





Figure 9076:  
Photo taken facing East toward P-CH-36 along Oak St.



Figure 9077:  
Photo taken facing West toward a small, silted P-CO-25 along Oak St.



Figure 9078:  
Photo taken facing East toward a silted P-CO-25 along Oak St.



Figure 9079:  
Photo taken facing West toward a ditch along the northern side of Oak St.



Figure 9080:



Figure 9083:  
Photo taken facing East toward P-CH-Routing-2 along Oak St.



Figure 9084:  
Photo taken facing West toward P-CH-36 along Oak St.



Figure 9085:  
Photo taken facing East toward a grassed P-CH-28 along Oak St.



Figure 9086:  
Photo taken facing West toward a grassed P-CH-Routing-2 along Oak St.



Figure 9087:  
Photo taken facing East toward an overgrown P-CO-26 along Oak St.



Figure 9088:  
Photo taken facing East toward an overgrown P-CO-26 along Oak St.



Figure 9089:  
Photo taken facing West toward a silted P-CO-26 along Oak St.



Figure 9090:  
Photo taken facing East toward a grassed P-CH-28 along Oak St.



Figure 9091:  
Photo taken facing West toward a grassed P-CH-Routing-2 along Oak St.



Figure 9092:  
Photo taken facing East toward a ditch along the southern side of Oak St.



Figure 9093:  
Photo taken of a yard along Oak St.





Figure 9094:  
Photo taken facing West toward a grassed P-CH-Routing-2 along Oak St.



Figure 9095:  
Photo taken facing West toward a grassed P-CH-36 along Oak St.



Figure 9096:  
Photo taken of a very silted P-CO-26 along Oak St.



Figure 9097:



Figure 9098:  
Photo taken facing South toward a gravel-filled P-CH-29 along Oak St.



Figure 9099:  
Photo taken facing East toward P-CO-28 along Oak St.



Figure 9100:  
Photo taken facing South toward a wooded P-CH-29 along Oak St.



Figure 9102:

Photo taken facing west toward the brick headwall with two culverts (P-CO-28 and P-CO-27) along Oak St.



Figure 9103:

Photo taken facing west toward the brick headwall with two culverts (P-CO-28 and P-CO-27) along Oak St.



Figure 9104:  
Photo taken facing East toward the grassed P-CH-26 along Oak St.



Figure 9105:

Photo taken facing west toward the brick headwall with two culverts (P-CO-28 and P-CO-27) along Oak St.



Figure 9106:  
Photo taken facing East toward P-CH-28 along Oak St.



Figure 9107:  
Photo taken facing West toward the brick headwall with two culverts (P-CO-28 and P-CO-27) along Oak St.



Figure 9108:



Photo taken facing East toward P-CH-26 along Oak St.



Figure 9109:  
Photo taken facing West toward a crushed corrugated metal P-CH-28 along Oak St.





Figure 9110:  
Photo taken facing West toward a crushed corrugated metal P-CH-28 along Oak St.



Figure 9111:  
Photo taken facing West toward a crushed corrugated metal P-CH-28 along Oak St.



Figure 9112:  
Photo taken facing West toward a crushed corrugated metal P-CH-28 along Oak St.



Figure 9113:  
Photo taken facing West toward a concrete P-CH-27 along Oak St.



Figure 9116:



Figure 9117:

Photo taken facing North toward an overgrown P-CO-28 along Oak St.



Figure 9118:  
Photo taken facing East toward P-CO-24 along Oak St.



Figure 9119:  
Photo taken facing West toward a grassed P-CH-26 along Oak St.



Figure 9120:  
Photo taken facing West toward an overgrown P-CO-24 along Oak St.



Figure 9125:  
Photo taken facing East toward a slightly silted P-CO-23 along Oak St.



Figure 9126:  
Photo taken facing West toward a silted P-CO-23 along Oak St.



Figure 9127:  
Photo taken facing East toward P-CH-24 along Oak St.



Figure 9129:  
Photo taken facing East toward P-CO-22 along Oak St.



Figure 9130:  
Photo taken facing East toward P-CO-22 along Oak St.





Figure 9132:  
Photo taken facing North toward P-CH-20 along Oak St.



Figure 9133:  
Photo taken facing West toward P-CO-21 along Oak St.



Figure 9134:  
Photo taken facing North toward P-CH-20 along Oak St.



Figure 9135:  
Photo taken facing West toward P-CO-22 along Oak St.



Figure 9136:  
Photo taken facing West toward P-CO-22 along Oak St.



Figure 9138:  
Photo taken facing South toward the intersection of Pine Grove St and Oak St.



Figure 9143:  
Photo taken facing West toward P-CH-22 along Oak St.



Figure 9144:  
Photo taken facing East toward a silted P-CO-20 along Oak St.



Figure 9145:  
Photo taken facing West toward a silted P-CO-20 along Oak St.



Figure 9146:



Figure 9147:  
Photo taken facing West toward P-CH-21 along Oak St.



Figure 9148:  
Photo taken facing East toward an overgrown P-CO-19 along Oak St.



Figure 9149:  
Photo taken facing East toward an overgrown P-CO-20 along Oak St.



Figure 9150:  
Photo taken facing West toward an overgrown P-CO-21 along Oak St.



Figure 9154:  
Photo taken facing NE toward a silted BB-CO-14 along Island Ave.





Figure 9155:  
Photo taken facing SW toward a silted BB-CO-14 along Island Ave.



Figure 9156:  
Photo taken facing South of a field along Island Ave.



Figure 9157:  
Photo taken facing North toward an overgrown BB-CO-15 along Island Ave.



Figure 9158:  
Photo taken facing North toward an overgrown BB-CO-15 along Island Ave.



Figure 9159:  
Photo taken facing NE toward a grassed BB-CH-14 along Island Ave.



Figure 9160:  
Photo taken facing NE toward a grassed BB-CH-14 along Island Ave.



Figure 9161:  
Photo taken facing NE toward an overgrown BB-CO-16 along Island Ave.



Figure 9162:  
Photo taken facing SW toward BB-CO-17 along Island Ave.



Figure 9163:  
Photo taken facing SW toward BB-CO-17 along Island Ave.



Figure 9164:  
Photo taken facing NE toward BB-CO-17 along Island Ave.



Figure 9165:  
Wetland



Figure 9174:  
Photo taken facing North toward BB-CH-12 along Bay St.



Figure 9175:  
Photo taken facing South toward BB-CH-13 along Bay St.



Figure 9176:



Figure 9177:  
Photo taken facing North toward BB-CH-12 along Bay St.



Figure 9179:  
Photo taken facing North toward BB-CO-12 at the intersection of Island Ave and Bay St.





Figure 9180:  
Photo taken facing South toward BB-CH-12 along Bay St.



Figure 9181:  
Photo taken facing South toward BB-CH-13 along Bay St.



Figure 9183:  
Photo taken facing North toward BB-CH-8 along Bay St.



Figure 9184:  
Photo taken facing North toward BB-CO-9 along Bay St.



Figure 9185:  
Photo taken facing South toward BB-CO-9 along Bay St.



Figure 9187:  
Photo taken facing North toward BB-CO-9 along Bay St.



Figure 9189:  
Photo taken facing South toward Bay St.



Figure 9190:  
Photo taken facing South toward BB-CH-10 along Bay St.



Figure 9191:  
Photo taken facing North toward BB-CO-7 at the intersection of Oak St. and Bay St.



Figure 9194:  
Photo taken facing South toward BB-CO-7 at the intersection of Oak St. and Bay St.

Figures 195- 224 could not be accessed on Google Earth.



Figure 9225:  
Photo taken of the intersection of Oak St and Jessamine St.



Figure 9226:  
Photo taken facing South toward J-CO-2 at the intersection of Oak St and Jessamine St.



Figure 9227:  
Photo taken facing South toward the intersection of Oak St and Jessamine St.



Figure 9228:  
Photo taken facing South toward J-CO-3 at the intersection of Oak St and Jessamine St.



Figure 9229:





Figure 9230:  
Photo taken facing South toward CH-200 along Jessamine St.



Figure 9231:  
Photo taken facing South toward CH-200 along Jessamine St.



Figure 9232:  
Photo taken facing South toward P-CH-20 at the intersection of Oak St and Pecan Grove St.



Figure 9233:

Photo taken facing North toward P-CO-18 at the intersection of Pecan Grove St and a residential driveway.



Figure 9234:

Photo taken facing North toward P-CO-19 at the intersection of Pecan Grove St and a residential driveway.



Figure 9236:  
Photo taken facing North toward P-CH-19 along Pecan Grove St.



Figure 9239:  
Photo taken facing North toward a silted P-CH-17 along Pecan Grove St.



Figure 9240:  
Photo taken facing SW toward a silted P-CO-17 along Pecan Grove St.



Figure 9242:  
Photo taken facing SW toward a silted P-CO-17 along Pecan Grove St.



Figure 9243:  
Photo taken facing SW toward a silted P-CO-17 along Pecan Grove St.



Figure 9244:  
Photo taken facing South toward P-CH-19 along Pecan Grove St.



Figure 9245:  
Photo taken facing North toward P-CH-18 at the intersection of Pecan Grove St and Woodland Ave.



Figure 9247:  
Photo taken facing South toward P-CH-18 at the intersection of Pecan Grove St and Woodland Ave.



Figure 9248:  
Photo taken facing South toward P-CH-18 at the intersection of Pecan Grove St and Woodland Ave.



Figure 9252:  
Photo taken facing North toward P-CO-15 along Pecan Grove St.





Figure 9253:  
Photo taken facing North toward P-CO-15 along Pecan Grove St.



Figure 9254:  
Photo taken facing South toward P-CO-15 along Pecan Grove St.



Figure 9255:  
Photo taken facing South toward P-CH-17 along Pecan Grove St.



Figure 9256:  
Photo taken facing North toward P-CO-14 at the intersection of Pecan Grove St and Short Ave.



Figure 9257:  
Photo taken facing North toward P-CH-14 along Pecan Grove St.



Figure 9258:  
Photo taken facing North toward P-CH-14 along Pecan Grove St.



Figure 9259:  
Photo taken facing North toward P-CH-16 along Pecan Grove St.



Figure 9260:

Photo taken facing North toward P-CO-13 at the intersection of Pecan Grove St and a residential driveway.



Figure 9261:

Photo taken facing South toward P-CO-16 at the intersection of Pecan Grove St and Woodland Ave.



Figure 9262:  
Photo taken facing South toward P-CO-13 at the intersection of Pecan Grove St and a residential driveway.



Figure 9263:

Photo taken facing North toward P-CH-13 along Pecan Grove St.



Figure 9267:  
Photo taken facing South toward P-CO-11 at the intersection of Pecan Grove St and a residential driveway.



Figure 9268:  
Photo taken facing North toward P-CH-11 along Pecan Grove St.



Figure 9269:



Photo taken facing North toward P-CO-10 at the intersection of Pecan Grove St and a residential driveway.



Figure 9270:

Photo taken facing South toward P-CO-10 at the intersection of Pecan Grove St and a residential driveway.



Figure 9271:  
Photo taken facing North toward P-CO-13 at the intersection of Pecan Grove St and a residential driveway.



Figure 9272:

Photo taken facing South toward P-CO-9 at the intersection of Pecan Grove St and a residential driveway.



Figure 9273:

Photo taken facing North toward P-CO-8 at the intersection of Pecan Grove St and a residential driveway.



Figure 9275:  
Photo taken facing East toward P-CO-7 at the intersection of Pecan Grove St and Coughl Ave.



Figure 9276:  
Photo taken facing South toward P-CH-9 along Pecan Grove St.



Figure 9277:  
Photo taken facing North toward P-CO-5 at the intersection of Pecan Grove St and a residential driveway.



Figure 9278:

Photo taken facing South toward P-CO-5 at the intersection of Pecan Grove St and a residential driveway.



Figure 9279:  
Photo taken facing North toward P-CH-6 along Pecan Grove St.



Figure 9280:  
Photo taken facing South toward P-CO-7 at the intersection of Pecan Grove St and Coughil Ave.



Figure 9281:  
Photo taken facing South toward P-CH-5 along Pecan Grove St.



Figure 9282:  
Photo taken facing North toward P-CH-5 along Pecan Grove St.



Figure 9284:



Photo taken facing North toward P-CO-5 at the intersection of Pecan Grove St and a residential driveway.



Figure 9287:

Photo taken facing North toward P-CO-4 at the intersection of Pecan Grove St and a residential driveway.



Figure 9288:  
Photo taken facing North toward P-CO-3 at the intersection of Pecan Grove St and a residential driveway.



Figure 9289:

Photo taken facing South toward a crushed P-CO-3 at the intersection of Pecan Grove St and a residential driveway.



Figure 9290:  
Photo taken facing South toward P-CH-4 along Pecan Grove St.



Figure 9291:  
Photo taken facing North toward P-CH-4 along Pecan Grove St.



Figure 9292:

Photo taken facing South toward a crushed P-CO-4 at the intersection of Pecan Grove St and a residential driveway.



Figure 9293:  
Photo taken facing North toward P-CH-3 along Pecan Grove St.



Figure 9294:  
Photo taken facing North toward P-CO-2 at the intersection of Pecan Grove St and a residential driveway.



Figure 9296:

Photo taken facing South toward P-CO-2 at the intersection of Pecan Grove St and a residential driveway.



Figure 9297:

Photo taken facing South toward OAK-CH-17 along Pecan Grove St.



Figure 9298:  
Photo taken facing North toward OAK-CO-15 at the intersection of Pecan Grove St and a residential driveway.



Figure 9299:



Photo taken facing South toward OAK-CO-14 at the intersection of Pecan Grove St and a residential driveway.



Figure 9300:  
Photo taken facing North toward OAK-CH-19 along Pecan Grove St.



Figure 9302:  
Photo taken facing South toward OAK-CH-22 along Pecan Grove St.



Figure 9303:  
Photo taken facing North toward OAK-CH-22 along Pecan Grove St.



Figure 9304:  
Photo taken facing South toward OAK-CO-14 along Pecan Grove St.



Figure 9305:

Photo taken facing North toward OAK-CO-16 at the intersection of Pecan Grove St and a residential driveway.



Figure 9306:

Photo taken facing South toward OAK-CO-18 at the intersection of Pecan Grove St and a residential driveway.



Figure 9307:  
Photo taken facing North toward OAK-CH-22 along Pecan Grove St.



Figure 9308:  
Photo taken facing North toward OAK-CH-22 along Pecan Grove St.



Figure 9309:  
Photo taken facing North toward OAK-CO-17 at the intersection of Pecan Grove St and a residential driveway.



Figure 9310:

Photo taken facing South toward OAK-CO-17 at the intersection of Pecan Grove St and a residential driveway.



Figure 9311:  
Photo taken facing North toward OAK-CH-21 along Pecan Grove St.



Figure 9312:  
Photo taken facing South toward OAK-CH-22 along Pecan Grove St.



Figure 9313:  
Photo taken facing North toward OAK-CH-26 along Pecan Grove St.





Figure 9314:  
Photo taken facing East toward OAK-CH-27a along Pecan Grove St.



Figure 9315:  
Photo taken facing West toward OAK-CO-19 along Pecan Grove St.



Figure 9316:  
Photo taken facing East toward OAK-CO-19 along Pecan Grove St.



Figure 9317:  
Photo taken facing North toward OAK-CO-21 along Pecan Grove St.



Figure 9318:  
Photo taken facing North toward OAK-CO-21 along Pecan Grove St.



Figure 9319:  
Photo taken facing South toward OAK-CO-21 along Pecan Grove St.



Figure 9321:  
Photo taken facing North toward OAK-CO-20 along Pecan Grove St.



Figure 9322:  
Photo taken facing North toward OAK-CH-24 along Pecan Grove St.



Figure 9486:  
Photo taken facing South toward VG-CO-2 at the intersection of Village Green Drive and a residential driveway.



Figure 9487:

Photo taken facing South toward VG-CO-2 at the intersection of Village Green Drive and a residential driveway.



Figure 9488:

Photo taken facing North toward VG-CO-2 at the intersection of Village Green Drive and a residential driveway.



Figure 9489:  
Photo taken facing North toward VG-CO-2 at the intersection of Village Green Drive and a residential driveway.



Figure 9490:

Photo taken facing SE toward VG-CH-2 at the intersection of Village Green Drive and a residential cul-de-sac.



Figure 9491:

Photo taken facing North toward VG-CH-1 at the intersection of Village Green Drive and a residential driveway.





Figure 9492:  
Photo taken facing SE toward VG-CO-3 at the intersection of Village Green Drive and a residential driveway.



Figure 9493:

Photo taken facing NE toward VG-CH-2 at the intersection of Village Green Drive and a residential driveway.



Figure 9494:

Photo taken facing NE toward VG-CO-3 at the intersection of Village Green Drive and a residential driveway.



Figure 9495:  
Photo taken facing West toward VG-CO-3 at the intersection of Village Green Drive and a residential driveway.



Figure 9496:

Photo taken facing East toward VG-CH-3 at the intersection of Village Green Drive and a residential driveway.



Figure 9497:



Figure 9499:

Photo taken facing West toward VG-CH-11 at the intersection of Village Green Drive and a residential driveway.



Figure 9500:

Photo taken facing West toward VG-CO-1 at the intersection of Village Green Drive and a residential driveway.



Figure 9501:  
Photo taken facing East along Village Green Drive.



Figure 9502:

Photo taken facing East toward VG-CO-1 at the intersection of Village Green Drive and a residential driveway.



Figure 9505:

Photo taken facing South toward the intersection of Village Green Drive and a residential driveway.



Figure 9506:  
Photo taken facing West toward VG-CO-7 that crosses Village Green Drive.



Figure 9507:  
Photo taken facing West toward VG-CH-6 along Village Green Drive.





Figure 9508:  
Photo taken facing East toward VG-CO-7 that crosses Village Green Drive.



Figure 9509:  
Photo taken facing West toward VG-CH-7 along Village Green Drive.



Figure 9510:  
Photo taken facing North of Village Green Drive.



Figure 9511:

Photo taken facing SE toward a pipe at the intersection of Village Green Drive and a residential driveway.



Figure 9512:

Photo taken facing NW toward a pipe at the intersection of Village Green Drive and a residential driveway.



Figure 9513:



Figure 9514:  
Photo taken facing SE of a ditch along Village Green Drive.



Figure 9515:  
Photo taken facing NW of a ditch along Village Green Drive.



Figure 9516:  
Photo taken along Cotton Stocking Lane.



Figure 9517:  
Photo taken of VG-CO-5 across Cotton Stocking Lane.



Figure 9518:  
Photo taken of VG-CO-5 across Cotton Stocking Lane.



Figure 9519:  
Photo taken facing East toward a ditch at the intersection of HWY 49 and Cotton Stocking Lane.



Figure 9520:  
Photo taken facing West toward a ditch along Cotton Stocking Lane.



Figure 9521:  
Photo taken of a pipe across Cotton Stocking Lane.



Figure 9522:





Figure 9523:  
Photo taken of a pipe across a residential driveway along Cotton Stocking Lane.



Figure 9524:



Figure 9526:



Figure 9527:

Photo taken facing North toward MN-CO-1 at the intersection of Magnolia Springs HWY and driveway.



Figure 9528:

Photo taken facing South toward MN-CO-1 at the intersection of Magnolia Springs HWY and driveway.



Figure 9529:

Photo taken facing North toward MN-CH-1 at the intersection of Magnolia Springs HWY and driveway.



Figure 9530:  
Photo taken facing NW toward the gas station entrance on Magnolia Springs HWY.



Figure 9531:  
Photo taken facing South toward MN-CH-2 along Magnolia Springs HWY.



Figure 9532:  
Photo taken facing West toward a ditch along Magnolia Springs HWY.



Figure 9533:  
Photo taken facing West toward a ditch along Magnolia Springs HWY.



Figure 9534:  
Photo taken facing East toward OAK-CO-29 at the intersection of Camelia Ave and a driveway.



Figure 9535:  
Photo taken facing West toward OAK-CO-29 at the intersection of Camelia Ave and a driveway.



Figure 9536:  
Photo taken facing East toward OAK-CH-6 along Camelia Ave.



Figure 9537:  
Photo taken facing West toward the ditch along the southern side of Camelia Ave.



Figure 9538:  
Photo taken facing South toward the ditch along the southern side of Camelia Ave.



Figure 9539:  
Photo taken facing West toward the open field along the northern side of Camelia Ave.





Figure 9540:  
Photo taken facing SE toward the open field along Camelia Ave.



Figure 9541:  
Photo taken facing West toward OAK-CH-7 at the intersection of Camelia Ave and a driveway.



Figure 9542:  
Photo of a pipe at the intersection of Cedar Street and a driveway.



Figure 9543:  
Photo taken facing West toward a ditch at the intersection of Camelia Ave and a driveway.



Figure 9544:  
Photo taken facing East toward a ditch at the intersection of Camelia Ave and a driveway.



Figure 9545:



Figure 9546:  
Photo taken facing SE toward OAK-CO-31 at the intersection of HWY 49 and School Street.



Figure 9547:  
Photo taken of OAK-CO-31 at the intersection of HWY 49 and School Street.



Figure 9548:  
Photo taken facing South toward OAK-CH-30 at the intersection of HWY 49 and School Street.



Figure 9549:  
Photo taken facing South toward OAK-CO-32 at the intersection of HWY 49 and Rose Street.



Figure 9550:  
Photo taken facing North toward OAK-CO-32 at the intersection of HWY 49 and Rose Street.



Figure 9551:  
Photo taken facing North toward MN-CH-2 at the intersection of HWY 49 and Camelia Ave.



Figure 9552:  
Photo taken facing South toward MN-CO-2 at the intersection of HWY 49 and Camelia Ave.



Figure 9553:  
Photo taken facing North toward MN-CO-2 at the intersection of HWY 49 and Camelia Ave.

Figure 9555:

Photo taken facing East toward MN-CH-3 at the intersection of HWY 49 and Camelia Ave.



Figure 9556:

Photo taken of G-CO-1 at the intersection of Old Marlow Road and Gates Ave.





Figure 9557:  
Photo taken facing SW of MN-CH-12 at the intersection of Old Marlow Road and Gates Ave.



Figure 9558:  
Photo taken facing North of G-CH-2 at the intersection of Old Marlow Road and Gates Ave.



Figure 9559:  
Photo taken of a ditch along Old Marlow Road.



Figure 9560:  
Photo taken facing SW of MN-CH-12 at the intersection of Old Marlow Road and Gates Ave.



Figure 9561:  
Photo taken facing NE of a ditch along Old Marlow Road.



Figure 9562:  
Photo taken facing West of MN-CO-10 at the intersection of Gates Ave and a driveway.



Figure 9563:



Figure 9564:

Photo taken facing East of MN-CO-10 at the intersection of Gates Ave and a driveway.



Figure 9565:  
Photo taken facing West of MN-CO-11 at the intersection of Gates Ave and a driveway.



Figure 9566:  
Photo taken facing West of MN-CH-14 along Gates Ave.



Figure 9567:  
Photo taken facing West of MN-CH-12 along Gates Ave.



Figure 9568:  
Photo taken facing East of MN-CO-12 at the intersection of Gates Ave and a driveway.



Figure 9569:  
Photo taken facing West of MN-CO-12 at the intersection of Gates Ave and a driveway.



Figure 9571:  
Photo taken facing West of MN-CH-16 along Gates Ave.



Figure 9572:  
Photo taken facing East of MN-CO-14 at the intersection of Gates Ave and a driveway.



Figure 9573:  
Photo taken facing West of MN-CO-14 at the intersection of Gates Ave and a driveway.





Figure 9574:



Figure 9575:



Figure 9576:  
Photo taken facing East of MN-CO-15 at the intersection of Gates Ave and a driveway.



Figure 9577:  
Photo taken facing West of MN-CO-15 at the intersection of Gates Ave and a driveway.



Figure 9578:  
Photo taken facing West of MN-CH-18 along Gates Ave.



Figure 9579:  
Photo taken facing NW of a field along Gates Ave.



Figure 9580:  
Photo taken facing South of MN-CO-16 across Gates Ave.



Figure 9581:



Figure 9583:  
Photo taken facing North of MN-CO-16 across Gates Ave.



Figure 9584:  
Photo taken facing West of MN-CH-19 along Gates Ave.



Figure 9585:  
Photo taken facing East of MN-CH-18 along Gates Ave.



Figure 9586:  
Photo taken of MN-CO-8 across HWY 49.



Figure 9587:  
Photo taken facing South toward MN-CO-8 across HWY 49.



Figure 9588:  
Photo taken facing North toward MN-CH-10 along HWY 49.



Figure 9589:  
Photo taken facing South toward MN-CO-8 across HWY 49.



Figure 9590:  
Photo taken facing South toward MN-CO-9 at the intersection of HWY 49 and Gates Ave.





Figure 9591:  
Photo taken facing East toward MN-CH-19 at the intersection of HWY 49 and Gates Ave.



Figure 9592:  
Photo taken facing North toward MN-CO-9 at the intersection of HWY 49 and Gates Ave.



Figure 9593:  
Photo taken facing South toward MN-CH-20 along HWY 49.



Figure 9594:  
Photo taken facing North toward MN-CO-7 at the intersection of HWY 49 and School St.



Figure 9595:  
Photo taken facing South toward MN-CO-7 at the intersection of HWY 49 and School St.



Figure 9596:  
Photo taken facing North toward MN-CH-8 along HWY 49.



Figure 9597:  
Photo taken facing North toward MN-CH-8 along HWY 49.



Figure 9598:  
Photo taken of a silted pipe at the intersection of School Street and Magnolia Ave.



Figure 9599:  
Photo taken of a silted pipe at the intersection of School Street and Magnolia Ave.



Figure 9600:  
Photo taken facing East toward a ditch at the intersection of School Street and Magnolia Ave.



Figure 9601:  
Photo taken facing West toward a ditch at the intersection of School Street and Magnolia Ave.



Figure 9602:  
Photo taken facing South toward a field at the intersection of School Street and Magnolia Ave.



Figure 9603:  
Photo taken of a pipe at the intersection of School Street and a driveway.



Figure 9604:  
Photo taken of a silted pipe at the intersection of School Street and a driveway.



Figure 9605:  
Photo taken facing South toward MN-CO-20 across Magnolia Ave.



Figure 9606:  
Photo taken facing West toward a silted MN-CO-21 across a driveway.





Figure 9607:  
Photo taken facing East toward a silted MN-CO-21 across a driveway.



Figure 9608:  
Photo taken facing East toward a silted MN-CO-21 across a driveway.



Figure 9609:  
Photo taken facing North toward MN-CO-4 at the intersection of Cedar St and HWY 49.



Figure 9610:  
Photo taken facing South toward MN-CO-5 at the intersection of HWY 49 and a driveway.



Figure 9611:  
Photo taken facing South toward MN-CH-7 at the intersection HWY 49 and a driveway.



Figure 9612:  
Photo taken facing South toward MN-CO-4 at the intersection HWY 49 and Cedar St.



Figure 9613:  
Photo taken facing North toward MN-CH-5 along HWY 49.



Figure 9614:  
Photo taken facing North toward a silted MN-CO-3 at the intersection HWY 49 and a driveway.



Figure 9615:  
Photo taken facing South toward a silted MN-C0-3 at the intersection HWY 49 and a driveway.



Figure 9616:  
Photo taken facing North toward a very silted pipe at the intersection HWY 98 and Schindler Ln.



Figure 9617:  
Photo taken facing West toward a very silted pipe at the intersection HWY 98 and a driveway.



Figure 9618:  
Photo taken facing East toward a very silted pipe at the intersection HWY 98 and a driveway.



Figure 9619:  
Photo taken facing South toward OAK-CH-8 at the intersection HWY 98 and Jessamine St.



Figure 9620:  
Photo taken facing East toward the southern ditch along HWY 98.



Figure 9621:  
Photo taken facing South toward a very silted OAK-CO-5 across Jessamine St.



Figure 9622:  
Photo taken facing North toward a very silted OAK-CO-5 across Jessamine St.





Figure 9623:  
Photo taken facing South toward a very silted OAK-CO-7 across Jessamine St.



Figure 9624:  
Photo taken facing North toward a very silted OAK-CO-7 across Jessamine St.



Figure 9625:  
Photo taken facing West toward a crushed and very silted OAK-CO-6 across Jessamine St.



Figure 9626:  
Photo taken facing East toward a crushed and very silted OAK-CO-6 across Jessamine St.

Figure 9627:  
Photo taken of ditch with silt fence along Jessamine St.



Figure 9629:  
Photo taken facing North toward the ditch on the eastern side of Jessamine St.



Figure 9631:



Figure 9632:

Photo taken facing West toward a very silted OAK-CO-8 that crosses Jessamine St.



Figure 9633:  
Photo taken facing North toward OAK-CH-10 that along Jessamine St.



Figure 9634:  
Photo taken facing West toward OAK-CH-13 along Jessamine St.



Figure 9635:  
Photo taken facing East toward an overgrown OAK-CO-8 that crosses Jessamine St.



Figure 9636:  
Photo taken facing South toward OAK-CH-11 along Jessamine St.



Figure 9637:  
Photo taken facing South toward a silted OAK-CO-9 that crosses Jessamine St.



Figure 9638:  
Photo taken facing North toward a silted OAK-CO-9 at the intersection of Jessamine St and a driveway.



Figure 9639:

Photo taken facing South toward a silted OAK-CO-10 at the intersection of Jessamine St and a driveway.



Figure 9640:

Photo taken facing North toward a silted OAK-CO-10 that crosses Jessamine St.





Figure 9641:  
Photo taken facing South toward the roadway at the intersection of Jessamine St and McCoy Ln.



Figure 9642:  
Photo taken facing North toward a concrete CH-200 with moderate debris along Jessamine St.



Figure 9643:  
Photo taken facing SE toward CH-200 along Jessamine St.



Figure 9644:  
Photo taken facing East toward CH-200 along Jessamine St.



Figure 9645:  
Photo of an overgrown OAK-CO-18 that crosses McCoy Ln.



Figure 9646:  
Photo of a silted OAK-CO-18 that crosses McCoy Ln.



Figure 9647:  
Photo taken facing East toward a ditch along McCoy Ln.



Figure 9648:  
Photo of an overgrown OAK-CO-18 that crosses McCoy Ln.



Figure 9656:

Photo taken facing NE toward a very silted OAK-CO-22 at the intersection of Oak St and a driveway.



Figure 9657:

Photo taken facing SW toward a silted OAK-CO-22 at the intersection of Oak St and a driveway.



Figure 9658:  
Photo taken facing NE toward OAK-CH-34 at the intersection of Oak St and a driveway.



Figure 9660:  
Photo taken facing SW toward a concrete ditch that is full of dirt along Oak St.



Figure 9661:  
Photo taken facing SW toward a concrete ditch that is full of dirt along Oak St.



Figure 9662:  
Photo taken facing NE toward a silted OAK-CO-25 with erosion around the driveway along Oak St.



Figure 9664:

Photo taken facing NE toward a crumbling concrete OAK-CH-36 with moderate debris along Oak St.



Figure 9665:

Photo taken facing NE toward OAK-CO-25 at the intersection of Oak St and a residential driveway.





Figure 9666:  
Photo taken of a concrete ditch with moderate debris along Oak St.



Figure 9667:  
Photo taken facing SW toward OAK-CO-25 at the intersection of Oak St and a residential driveway.



Figure 9669:  
Photo taken facing East toward OAK-CH-37 along Oak St.



Figure 9670:  
Photo taken facing West toward Oak St.



Figure 9671:  
Photo taken facing South toward a very silted OAK-CO-26 at the intersection of Oak St and a residential driveway.



Figure 9672:

Photo taken facing West toward OAK-CH-37 along Oak St.



Figure 9673:  
Photo taken of a silted OAK-CO-26 at the intersection of Oak St and a residential driveway.



Figure 9674:  
Photo taken of small pipe running north-south at the intersection of Oak St and a church path.



Figure 9675:  
Photo taken facing North toward a very silted OAK-CO-27 along Oak St.



Figure 9676:  
Photo taken facing South toward OAK-CH-39 along Oak St.



Figure 9677:  
Photo taken facing South toward a very silted OAK-CH-39 along Oak St.



Figure 9678:  
Photo taken facing NW toward OAK-CH-33.



Figure 9679:  
Photo taken facing NW toward OAK-CO-24.



Figure 9680:  
Photo taken facing South toward MN-CO-17 at the intersection of HWY 49 and a residential driveway.



Figure 9682:  
Photo taken facing West toward HWY 49.





Figure 9683:  
Photo taken facing SW toward HWY 49 near Jesse's Restaurant.



Figure 9684:  
Photo taken facing West toward HWY 49.



Figure 9685:  
Photo taken facing North toward MN-CO-17 at the intersection of HWY 49 and a driveway.



Figure 9686:  
Photo taken facing South toward MN-CH-21 along HWY 49.



Figure 9687:  
Photo taken of MN-CO-18 at the intersection of HWY 49 and a driveway.



Figure 9688:  
Photo taken facing North toward MN-CH-21 along HWY 49.



Figure 9689:  
Photo taken facing North toward MN-CO-18 across HWY 49.



Figure 9690:  
Photo taken facing South toward MN-CH-22 along HWY 49.



Figure 9691:  
Photo taken facing South toward MN-CO-19 across HWY 49.



Figure 9693:  
Photo taken facing South toward MN-CH-23 along HWY 49.



Figure 9694:  
Photo taken facing North toward MN-CH-23 along HWY 49.



Figure 9697:  
Photo taken facing South toward MS-CO-2 along HWY 49.



Figure 9698:  
Photo taken facing North toward MS-CO-2 along HWY 49.



Figure 9699:  
Photo taken facing South toward MS-CO-3 along HWY 49.



Figure 9700:  
Photo taken facing North toward MS-CO-1 at the intersection of HWY 49 and Richards Ln.





Figure 9701:  
Photo taken facing South toward a silted MS-CO-1 at the intersection of HWY 49 and Richards Ln.



Figure 9703:  
Photo taken facing North toward MS-CO-5 across HWY 49.