



# Jefferson German Septic Inventory Project Final Report

Prepared for:  
**Le Sueur County, Minnesota**



Prepared by:

## **WENCK ASSOCIATES, INC.**

1800 Pioneer Creek Center  
P.O. Box 249  
Maple Plain, Minnesota 55359-0249  
(763) 479-4200

*I hereby certify that this report was prepared by me or under my direct supervision and that I am a duly Registered Professional Soil Scientist and MPCA Advanced Designer/Inspector under the laws of the State of Minnesota.*

**Peter G. Miller, P.S.S.**

**Registration No. 42636**

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# 1.0 Introduction

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## 1.1 BACKGROUND

The Jefferson German Lakes Septic Inventory Project (JGSIP) was initiated in 2011 by Le Sueur County within the boundaries of the German-Jefferson Subordinate Service District (Figure 1). The residents of the District currently use individual and community water supply wells and subsurface sewage treatment systems (SSTS). The SSTS (a.k.a. septic systems) in the District include both individual and community “cluster” systems. Wenck Associates, Inc. (Wenck) was retained to assess the compliance status of any existing SSTS in the project area with respect to Minnesota Rules Chapters 7080-7081, the Le Sueur County Zoning Ordinance: Section 17 Subsurface Sewage Treatment Systems, and the Interim SSTS Standards for the German-Jefferson Subordinate Service District.

The goal of the JGSIP was to complete as many SSTS compliance inspections within the District as possible. The JGSIP was funded through a Clean Water Legacy Grant from the Minnesota Board of Water and Soil Resources and was open and available to all property owners who have an SSTS in the District. The Le Sueur County Board decided to make participation in the JGSIP voluntary with the following incentives for participation.

- Grant funded septic system compliance inspection valid for three years that could be used for obtaining a zoning permit or selling a property.
- Grant funded septic tank pumping.
- Grant funded minor repairs of unsafe tank lids, inspection pipe caps, connections, etc.
- Non-compliant septic systems given up to five years from the end of project until (December 2017) to reach compliance.

In order to be included in the JGSIP the homeowner was required to fill out a survey form and return it to Wenck with a signature affirming their participation in the program. Once the homeowner survey with permission signature was received, the property was placed within the active properties and the SSTS compliance inspection process began. All properties that did not choose to participate in the JGSIP were evaluated for likely septic system compliance via an Unsewered Area Needs Documentation<sup>1</sup> (UAND).

The purpose of this Findings Report is to provide the District residents, Le Sueur County Board, and Le Sueur County staff a summary of results of the inspections for participating properties and a summary of UAND results. Property owners had the opportunity to sign up for participation in the program from July 2011 through the end of September 2012. Three mailings were sent to the property owners giving them the opportunity to sign up for an inspection.

## **1.2 PROJECT PURPOSE AND NEED**

The purpose of the JGSIP is to determine to what extent a septic system compliance problem exists within the District. Much discussion has occurred in the past about a solution for the District without accurately identifying the problem. The septic system compliance status data is needed to assist in future decision making about possible long term infrastructure options.

## **1.3 PREVIOUS INVESTIGATIONS**

Le Sueur County issues SSTS permits for the properties in the District when individual homeowners and groups of homeowners construct new systems. In addition, Le Sueur County requires compliance inspections during property transfers and as a precondition for obtaining zoning permits. Past permit information available at Le Sueur County for individual properties

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<sup>1</sup>Unsewered Area Needs Documentation (UAND) is an assessment procedure created by the MN Pollution Control Agency used to identify the condition of existing septic systems using methods other than an onsite compliance inspection

was reviewed and incorporated into the findings of individual compliance inspections and this report.

#### **1.4 WORK PERFORMED**

A brief timeline of events completed to date as part of the JGSIP is as follows

- June 7, 2011-Wenck Associates, Inc. retained by Le Sueur County to complete work as part of JGSIP.
- July 13, 2011-Cover letter inviting participation, homeowner survey, and Kick-off Meeting announcement sent to all District residents.
- July 23, 2011-JGSIP Kick-off Meeting cohosted by Wenck and Le Sueur County.
- August 3, 2011-Field work begins, first round of site visits completed in JGSIP area.
- December 6, 2011-Final field inspection of 2011 completed, field work suspended for winter.
- April 2012-Field inspection commences for the 2012 round of inspections.
- September 31, 2012-Wenck accepts final request for inspection.
- October 2012-Wenck begins UAND for non-participating properties.
- November 2012-Wenck completes final tank inspection and UAND activities.

Field investigation and county file review has been completed simultaneously since field work began in August 2011 to assess the compliance of SSTS for participating properties. Data collected as part of the JGSIP inspections included:

- Type of residence (seasonal residential, permanent residential, business, vacant, community building, etc.)
- Source of drinking water
- Number of bedrooms served by SSTS at residential properties
- Type of SSTS serving property
- Compliance status of existing SSTS components (tanks and treatment/dispersal areas)

- Location of SSTS components
- Status of SSTS components when compared with required setbacks
- Depth to seasonally saturated soil conditions (i.e. redoximorphic features) as observed via soil borings relative to each SSTS
- Likely future SSTS to serve each property

Data collected as part of the UAND included:

- Permit information on file with Le Sueur County, including:
  - Year of system installation
  - Type of system
  - Soil verification information, if applicable
  - Parcel size and configuration as shown in Le Sueur County GIS database
  - If system meets required setbacks
- Visual observations of the system from the nearest public right-of-way, including:
  - Noted imminent health threats
  - Confirmation or refutation of system type for systems with permits on file
  - Estimate of system type for properties with no septic permit on file
- Available soil data for each SSTS, including:
  - Publically-available soil maps
  - Soil borings conducted on adjacent participating properties
  - Soil information from the SSTS permit, if available
- Estimate of compliance status using combination of county records, visual observations, available soil information, and results from inspections of neighbors

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## **2.0 Compliance Inspection Results**

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### **2.1 INTRODUCTION**

This section summarizes the methods and findings of the compliance inspections and UAND. All the properties evaluated were served by an SSTS, some of which are holding tank systems. A determination of SSTS compliance status was made at each property.

### **2.2 COMPLIANCE INSPECTION METHODS**

Prior to commencement of field work, Le Sueur County provided property information for the District, including available past permitting/design/inspection records for individual parcels as well as the GIS shape file of the parcels. From the GIS shape file, a spreadsheet of property addresses was created. Homeowner survey forms were created to send to each occupied parcel with a mailing address in the District. These forms were intended for use as a means of documenting agreement to participate in the study and to gain further knowledge of the parcel occupancy status, water supply, and wastewater treatment infrastructure. The surveys were also used to evaluate seasonal and parcel specific water usage and wastewater generation and to provide a baseline for parcel investigation and evaluation.

In order to inform residents of the District about the JGSIP and invite participation, cover letters were sent with homeowner survey forms and invitations to attend an informational kick-off meeting. Completed homeowner survey forms were collected at the end of the kick-off meeting. Interested residents who were not present at the meeting or who did not sign up at the time were able to submit completed homeowner surveys via mail, fax, and electronic submission (i.e. scan and email). A website was developed to keep residents current on the

status of the project and for posting of important forms, such as blank homeowner surveys (<http://www.wenck.com/septic-inventory-project/>).

Wenck created maps and forms for use when doing compliance inspections. A parcel data spreadsheet was also created for storing data and tracking participation and project progress. Regional soil and geological history were reviewed prior to commencement of field work to gain a better understanding of expected soil and groundwater properties. Wenck also relied upon the Le Sueur County staff to answer certain parcel specific questions related to past permitting efforts and the history of local SSTS policy and installation.

Upon completion of background work, Wenck began the field work phase of the JGSIP. Site visits were completed to participating properties. The purpose of the site visits was to obtain:

- type of SSTS (if any) currently serving the residence,
- the compliance status of the SSTS,
- information on source of drinking water,
- the type of dwelling or wastewater generator contained within the parcel, and
- the most likely next ISTS to serve the dwelling.

To make the best use of resources and for the convenience of septic pumpers and utility locators, it was decided that Wenck would make an initial data-gathering and compliance visit to the participating properties. Operations generally performed as part of the first visit included:

- locating wells and wastewater treatment system components,
- storing component locations via GPS,
- probing tanks,

- evaluating the system with regards to Imminent Threats to Public Health or Safety (ITPHS)<sup>2</sup> status,
- evaluating the system setback from wells, buildings, surface water, and property lines,
- evaluating the system for need of minor repairs (such as pipe covers),
- evaluating the need for tank pumping,
- evaluating the need for a soil boring and
- flagging a potential soil boring location for utility locators (if necessary)

The initial site visit was followed by tank pumping (if necessary) and a utility locate to clear soil borings (if necessary). Tank pumping was completed by an MPCA-licensed Maintainer. Upon completion of utility locates and notification from the maintainer that tanks had been pumped, a second inspection was completed by Wenck. Not all properties required a second visit, as a compliance determination could be made at some properties without tank pumping or soil borings (e.g., cesspools, empty holding tanks at first visit, etc.). Tasks commonly completed during the second visit included:

- completion of minor repairs (where applicable)
- inspection of the empty tanks
- soil borings to evaluate depth to redoximorphic features
- probing of soil dispersal area to determine depth to bottom of dispersal area
- evaluation of tank compliance status
- evaluation of soil treatment area compliance status

The site visits included a compliance assessment to obtain the information found in Section 2.3. At properties where an SSTS soil treatment area existed, the vertical separation between the seasonally high groundwater (as determined using soil borings) and the bottom of the effluent

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<sup>2</sup> ITPHS is defined in 2011 MN Rules Chapter 7080.1500 Subp. 4A. "...a system that is an imminent threat to public health or safety is a system with a discharge of sewage or sewage effluent to the ground surface, drainage systems, ditches, or storm water drains or directly to surface water; systems that cause a reoccurring sewage backup into a dwelling or other establishment; systems with electrical hazards; or sewage tanks with unsecured, damaged, or weak maintenance hole covers."

dispersal area was determined. Properties with less than 31 inches of vertical separation were determined to be likely non-compliant failure to protect groundwater<sup>3</sup> (FTPG) systems. Additionally, an evaluation was made to determine if a suitable area exists onsite for a future individual subsurface treatment system (ISTS) and what type of system would most likely be installed.

Upon completion of the compliance evaluation at each property, Compliance Inspection Forms were filled out and mailed to the system owners. Copies of the Compliance Inspection Forms were also provided electronically to Le Sueur County.

### 2.3 COMPLIANCE INSPECTION FINDINGS

The number of inspections completed during the JGSIP was 344. This accounts for a participation rate of 51% of the District residents (total number of parcels in JGSIP area was 1,239; however, the number of properties with a structure generating wastewater was first estimated at 691 in 2011, and then later refined to 675 in 2012). Fourteen property owners sent in surveys indicating a willingness to participate but later changed their minds and cancelled or refused inspections. Table 1 illustrates the participation numbers.

**Table 1: Participation in JGSIP**

<b>Property Status</b>	<b>Number</b>	<b>Percentage of Total</b>
Letter Sent to Address Inviting Participation in JGSIP	675	100%
Number Participating in JGSIP	344	51%
Cancelled/Refused Inspection	14	2.1%

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<sup>3</sup> Failure to protect groundwater is defined in 2011 MN Rules Chapter 7080.1500 Subp. 4B. "...a system that is failing to protect groundwater is a system that is a seepage pit, cesspool, drywell, leaching pit, or other pit; a system with less than the required vertical separation distance described in items D and E; and a system not abandoned in accordance with part 7080.2500." 2011 MN Rules Chapter 7080.1500 Subp. 4D allows the County, for Compliance Inspection purposes, to apply a 15% reduction from the vertical separation distance of 36 inches required at installation. This 15% reduction renders 31 inches the vertical separation distance needed to be deemed compliant.

### 2.3.1 SSTS Types

Table 2 provides a breakdown of the SSTS types in the District identified at participating properties where an inspection was performed. The descriptions listed in this table are common names.

**Table 2: Existing SSTS Types**

SSTS Type	Number	Percentage of Completed Inspections
Holding Tanks	59	17%
Mounds	65	19%
At-grades	9	3%
Drainfields	129	37%
Tanks with connection to cluster mound	41	12%
Advanced Treatment Systems (Type IV)	14	4%
Cesspools	24	7%
Rented portable toilets only	2	1%
Unknown	1	<1%
Total	344	100%

### 2.3.2 SSTS Compliance Status

Upon visiting each individual parcel a determination was made regarding if the SSTS for the dwelling(s) was compliant or non-compliant with Minnesota Rules Chapter 7080 and Le Sueur County ordinance.

The SSTS that are non-compliant were identified as such for one of two reasons; 1) ITPHS as identified from site reconnaissance, or 2) failure to protect groundwater (FTPG). During the course of completing inspections, one property was identified as ITPHS with a discharge of raw sewage to the ground surface during the first visit; however, the homeowner was notified (a pump was not functioning) and the problem was corrected within the day. Five properties were identified with an ITPHS during the second visit. Two properties shared a tank that was

structurally unsound. Three other properties had an imminent or actual discharge of raw or partially treated sewage to the ground surface at the soil treatment area.

Table 3 summarizes the SSTS compliance status data for the properties. Compliance status is based on county permit information, soils data, information provided by county staff and property owners, and our site visits.

**Table 3: SSTS Compliance Status**

<b>Status</b>	<b>Number</b>	<b>Percentage of Completed Inspections</b>
Compliant on Cluster	42	12%
Compliant Holding Tank	57	17%
Compliant Individual Soil Treatment	100	29%
Non-Compliant Failure to Protect Groundwater	140	41%
Non-Compliant Imminent Threat to Public Health and Safety	5	1%
Total	344	100%

### **2.3.3 Existing Septic Tank Compliance**

Even though a property’s SSTS soil treatment area may be non-compliant, a septic tank may exist at a property that meets current compliance requirements and could be used in a future SSTS or community cluster system. During field reconnaissance, tanks were evaluated (probed, pumped and inspected via camera, permit records reviewed, and evaluated based on information provided by residents) for water tightness below the outlet of the tank. For properties where there was more than one tank, all tanks were evaluated for compliance. Table 4 summarizes the tank compliance status.

**Table 4: Tank Compliance Status**

<b>Property Status</b>	<b>Number</b>	<b>Percentage of Completed Inspections</b>
All Tanks Compliant	307	89%
One or More Tanks Non-Compliant	35	10%
No Tanks On Property	2	1%

#### **2.3.4 Compliance Inspection Results Summary**

Of the 344 SSTS that participated in the JGSIP and had Compliance Inspections completed, 42% (145 systems) are non-compliant. The SSTS are considered non-compliant due to a failure to protect groundwater (140 systems) or an imminent threat to public health and safety (5 systems). Removing the properties that currently can only be served by a holding tank because of small lot size, the non-compliant rate would rise to 51%

Although the overall rate of SSTS non-compliance is in excess of 40%, only 10% of the properties inspected had a septic tank that is non-compliant.

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## 3.0 Unsewered Area Needs Documentation

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### 3.1 INTRODUCTION

Using the guidance of the MPCA Clean Water Revolving Fund Unsewered Area Needs Documentation (UAND) this section summarizes the findings regarding the existing condition of all known SSTS within the District. The UAND was applied to the properties that did not volunteer for a compliance inspection. The County requested Wenck to complete the UAND to have a comprehensive assessment of the entire district.

### 3.2 METHODS

The UAND is intended to document the wastewater needs of an unsewered area. A tabular assessment is required to identify the existing SSTS condition of all wastewater generating dwellings. Four categories (shown below from MPCA form wq-wwtp2-10) of existing system condition need to be identified with more than one condition possible for an individual SSTS.

#### **A. System condition per Minn. R. chs. 7080 and 7082:**

1. Imminent threat to public health or safety (Minn. R. 7080.1500, subp. 4A).
2. Failure to protect groundwater — Cesspools, seepage pits and/or systems lacking three (3) feet of vertical separation from seasonal high groundwater or bedrock (Minn. R. 7080.1500, subp. 4B). Type V systems defined in Minn. R. 7080.2400 that fail consistently.
3. Setback issues --- Properties that cannot conform to setback requirements from water supply wells or piping, buildings, property lines, or high water level of public waters (Minn. R. 7080.2150, subp. 2F).
4. Conforming system --- SSTS system is in conformance.

Privies/outhouses are a special class of SSTs that have their own set of regulations. The regulations governing privies from *Minnesota Rules Chapter 7080.2280 Privies* can generally be summarized as follows:

1. If unsealed, the privy shall have three feet of vertical separation to seasonally high groundwater or bedrock.
2. If sealed, the privy shall employ a water-tight tank.
3. The pit or vault must have sufficient capacity for the dwelling it serves, but must have at least 25 cubic feet of capacity.
4. The sides of the pit shall be curved to prevent cave-in.
5. The privy must be easily maintained and insect proof. The door and seat must be self-closing. All exterior openings, including vent openings, shall be screened.
6. Privies must be adequately vented.

Privies that do not meet these requirements are generally considered as failures to protect groundwater, although vectors such as insects and rodents having access to privy contents can pose a public health threat as well. In general, based on Wenck's experience inspecting privies across the state, most public privies (such as privies at Minnesota State Parks) meet privy compliance requirements and pose minimal threat of impact to water quality. Based on Wenck's experience inspecting private privies across the state, most private privies do not meet privy compliance requirements and pose a threat to groundwater.

Another concern associated with privies is the disposal of graywater generated in the house or cabin. Graywater means sewage that does not contain toilet wastes (bathing, laundry, culinary operations, etc.). Often, although not always, graywater at sites containing only privies is disposed of by discharging directly onto the soil surface or nearby body of water. *Minnesota Rules Chapter 7080.1500 subp. 4* states that discharge to the ground surface of any sewage, including graywater, is an imminent threat to public health and safety.

Several methods to determine the existing SSTS condition are identified by the MPCA UAND guidance. One method includes completing a Compliance Inspection; however a Compliance Inspection is not required to determine existing SSTS condition. The six methods to determine existing SSTS condition identified by the MPCA are shown below:

**B. Methods of determining project need include:**

1. Visual site inspection --- A visual site inspection to document obvious threats to public health and safety, such as residential connections to a drain tile, overflow pipes, cesspools, or other unacceptable discharge locations.
2. Soil survey data review --- A review of existing soil survey data to reasonably conclude if appropriate wastewater treatment technologies are being used on site. For example, seasonal high ground-water conditions may dictate the need for a mound system. If there are no mounds, the systems are considered failing.
3. Site investigation with soil borings --- A site investigation including enough soil borings to create a soils map of the area. Complete an evaluation of the soil conditions to determine compatibility with existing wastewater treatment systems. For example, the soils map may dictate the need for a mound system. If mounds currently do not exist, treatment systems are considered failing.
4. Review of government records --- A review of local government records of the systems. If none exist, the system is unlikely to be in compliance. Existing records should be verified for accuracy.
5. Review of plat maps --- A review of plat maps and other records to determine if any code setbacks, such as distance between SSTS and potable water wells or surface water, cannot be met based on lot size. Systems on lots with inadequate size for setbacks should be considered noncompliant.
6. Compliance inspection per Minn. R. 7082.0700, subp. 2 --- A compliance inspection per Minn. R. 7082.0700, subp. 2 is completed.

For this investigation, Wenck was not given permission to complete a Compliance Inspection on the existing SSTS at non-participating properties; furthermore we did not have access to individual properties to extensively identify the location of imminent threats to public health, straight pipe discharges, pit privies, and other conditions that may pose potential public health threats.

Our investigation did include using a combination of approved methods given the time and site access constraints. Wenck started by obtaining from the County the available historic permitting information. The data included the year of SSTS installation, type of SSTS installed, parcel size and geometry, and known compliance information and notes since installation. The data was collected, compiled, and entered into a master spreadsheet and maps to use during field visits. Field visits were limited to right of way access and did not include extensive property investigation. Even with limited access this type of investigation is practical due to the fact that most properties can be easily viewed from the right of way. Soils data was compiled and reviewed for visited properties based on permit records, published resources, and Wenck's knowledge of local soils gained through soil borings at neighboring and adjacent properties. These data sources were used in concert to determine a likely system condition for non-participating properties with septic systems in the District. For properties participating in the JGSIP, the Compliance Inspection was used to determine the system condition.

### **3.3 UNSEWERED AREA NEEDS DOCUMENTATION FINDINGS**

Table 5 shows the results of the UAND, which estimates approximately 45% of the total SSTS in the District are non-compliant. Figure 2 depicts the cumulative results of the compliance inspections and the UAND in a visual and spatial format. It is important to note that the final total in Table 5 differs from the final total in Table 1 because it counts SSTS, not properties. A number of properties exist where more than one SSTS is present on the same property (resorts, properties with separate systems for home and garage, etc.) or where there is one owner of

multiple properties who received one invite to participate in the JGSIP (rather than a separate invite for each property or SSTS).

**Table 5: UAND Results**

Status	Number	Percentage of SSTS
Compliant Connected to Cluster Soil Treatment Area	92	12%
Compliant Holding Tank Only	97	13%
Compliant Individual Soil Treatment with No Variance for Setbacks	189	25%
Compliant Individual Soil Treatment with Variance to Meet Setbacks	31	4%
Non-Compliant Failure to Protect Groundwater	340	45%
Non-Compliant Imminent Threat to Public Health and Safety	5	1%
Total	754	100%

When cluster systems and holding tanks are removed from the equation, it is estimated that only 25% of individual soil treatment areas (i.e. “standard” septic systems) in the District meet required setbacks and are compliant. An additional 5% of the remaining individual soil treatment areas are compliant but do not meet required setbacks and had a variance issued at the time of system construction. This data indicates that if a property is not connected to a cluster system or on a holding tank, there is approximately a 30% probability of the septic system being compliant.

A breakdown of system types installed in the District and compliance status by system type is presented in Table 6. The system type and compliance percentage ranges are based on results from Compliance Inspections and the UAND.

**Table 6: Percent of Total Installed and Likely Compliance Status by System Type**

<b>SSTS Type</b>	<b>Estimated Percent of Total SSTS in District</b>	<b>Estimated Percent Non-compliant</b>
Cluster Treatment Area	12%	0%
Holding Tanks	14%	0-5%
Advanced Treatment Systems (Type IV)	4%	5-10%*
Mounds	19%	10-15%
At-grades	3%	30-35%
Drainfields	31%	75-80%
Cesspools, drywells, privies	5%	100%
Unknown System Type/No Permit on Record	12%	100%

\*5-10% of Type IV systems are estimate to be in non-compliance and failing to protect resources; however, 55-60% of Type IV systems are not in compliance with operating permit requirements.

Systems that employ a type of advanced treatment (aerobic tank, recirculating media filter, peat pods, etc., known as Type IV systems) have an additional compliance measure beyond protecting environmental resources in that system owners are required by operating permit to submit annual monitoring records to the County. In the case of Type IV system owners who participated in the JGSIP, 57% of Type IV systems were considered non-compliant for a failure to keep up with operating permit requirements. If all Type IV system owners participating in the JGSIP submit the required annual monitoring records to the County, only 7% of Type IV systems would remain non-compliant for a failure to protect groundwater or an imminent health threat.

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## 4.0 Summary and Next Steps

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### 4.1 SUMMARY

A summary of the findings of the Compliance Inspections completed during the JGSIP is as follows:

- 344 SSTS had a compliance inspection completed during the JGSIP
- 58% (199) of the inspected SSTS are compliant
  - Properties with a tank connected to a cluster treatment area comprise 21% (42) of the compliant SSTS
  - Holding tanks comprise 29% (57) of the compliant SSTS
  - The remaining 50% (100) of the compliant SSTS have an individual sewage treatment area (mound or subsurface drain field)
- 41% (140) of the inspected SSTS are non-compliant and fail to protect groundwater
- 1% (5) of the inspected SSTS were imminent health threats
- 17% (59) of the inspected SSTS are holding tanks
- 59% (145) of the inspected SSTS that are not holding tanks or connected to a cluster system (245 total) are non-compliant and fail to protect groundwater or pose an imminent threat to public health

A summary of the findings of the UAND completed during the JGSIP is as follows:

- 754 SSTS are known to exist in the District
- 54% (409) of the known SSTS are estimated or known to be compliant
  - Properties with a tank connected to a cluster treatment area comprise 22% (92) of the compliant SSTS
  - Holding tanks comprise 24% (97) of the compliant SSTS

- The remaining 54% (220) of the compliant SSTS have an individual sewage treatment area (mound or subsurface drain field)
  - Of the compliant individual sewage treatment areas onsite, 14% (31) do not meet one or more required setbacks and required variances for installation
  - 86% (189) are compliant onsite individual sewage treatment systems and meet required setbacks to wells, property lines, buildings, and surface water features
- 45% (340) of the known SSTS are estimated or known to be non-compliant and fail to protect groundwater
- 1% (5) of the known SSTS are known to be non-compliant and imminent health threats
- Compliance status can be estimated from system type, as follows:
  - Cluster treatment area: 0% non-compliant
  - Holding tanks: 0-5% non-compliant
  - Advanced treatment systems (Type IV systems): 5-10% non-compliant
  - Mounds: 10-15% non-compliant
  - At-grades: 30-35% non-compliant
  - Drainfields: 75-80% non-compliant
  - Cesspools, drywells, privies: 100% non-compliant
  - Unknown system/no permit from Le Sueur County: 100% non-compliant

## **4.2 NEXT STEPS**

The following describes a future action that could be completed within the District if the District desires to have a Compliance Inspection completed on every SSTS in the District.

- The Sewer District may require everyone that did not participate in the JGSIP and who does not have a current certificate of compliance on file with Le Sueur County to submit a completed compliance inspection (paid for by the system owner) within 1 year after the end of the study (December 31, 2013).

Based on the results of this study, Wenck recommends the following steps.

- Complete wastewater feasibility assessments for the eleven areas identified on Figure 3.
  - The eleven areas identified on Figure 3 are considered as areas that have a high non-compliance rate, high density, and generally small lots. A feasibility assessment will evaluate the feasibility and costs of various wastewater infrastructure solutions for properties with non-compliant SSTS. The eleven areas are:
    - Blue Marina: 22 SSTS, 9% compliant with soil treatment area
    - Maple: 21 SSTS, 14% compliant with soil treatment area
    - Jefferson Lake Drive: 24 SSTS, 17% compliant with soil treatment area
    - East Cape Horn: 29 SSTS, 17% compliant with soil treatment area
    - Tomahawk Point: 36 SSTS, 19% compliant with soil treatment area
    - Evergreen Lane: 46 SSTS, 22% compliant with soil treatment area
    - West Lake Drive: 21 SSTS, 33% compliant with soil treatment area
    - Stavenau-Holiday Park: 33 SSTS, 42% compliant with soil treatment area
    - Beaver Dam: 38 SSTS, 50% compliant with soil treatment area
    - Swedes Bay: 30 SSTS, 53% compliant with soil treatment area
    - Hardeggers: 36 SSTS, 67% compliant with soil treatment area
  - The reports feasibility assessments evaluate the feasibility and costs of various wastewater infrastructure solutions (e.g. cluster systems).
  - Complete upgrades to wastewater treatment infrastructure in each of the eleven areas based on feasibility assessment findings to protect water quality. Apply for grant funding to help reduce/eliminate costs to residents for wastewater treatment upgrades based on eligibility of each area for available grants.
- Educate homeowners within the District on septic systems.
  - Educate on what qualifies as a compliant septic system.
  - Educate on what makes a septic system non-compliant and the effects of such a system to public health and the environment.

- Educate on operation and maintenance of septic systems to prevent system failure and to prolong the life of existing compliant septic systems.
- Encourage upgrades to non-compliant septic systems.
  - Continue requiring point of sale septic inspections, preferably by an inspector who did not complete the design or installation of the system to avoid conflicts of interest.
  - Continue requiring septic inspections at time of zoning permit issue, again preferably by an inspector who did not complete the design or installation of the system to avoid conflicts of interest.
  - Provide recognition from the lake association giving recognition to those who either currently have compliant septic systems.
    - Yard signs
    - Recognition on the website
    - Plaques, magnets, other for home/business
  - Encourage inspection of system at time of system maintenance
    - Example: car maintenance
      - Oil change = tank pumping.
      - Inspection of tires, shocks, engine, etc. = system inspection.
    - Encourage local system maintainers to offer inspection package with tank pumping.

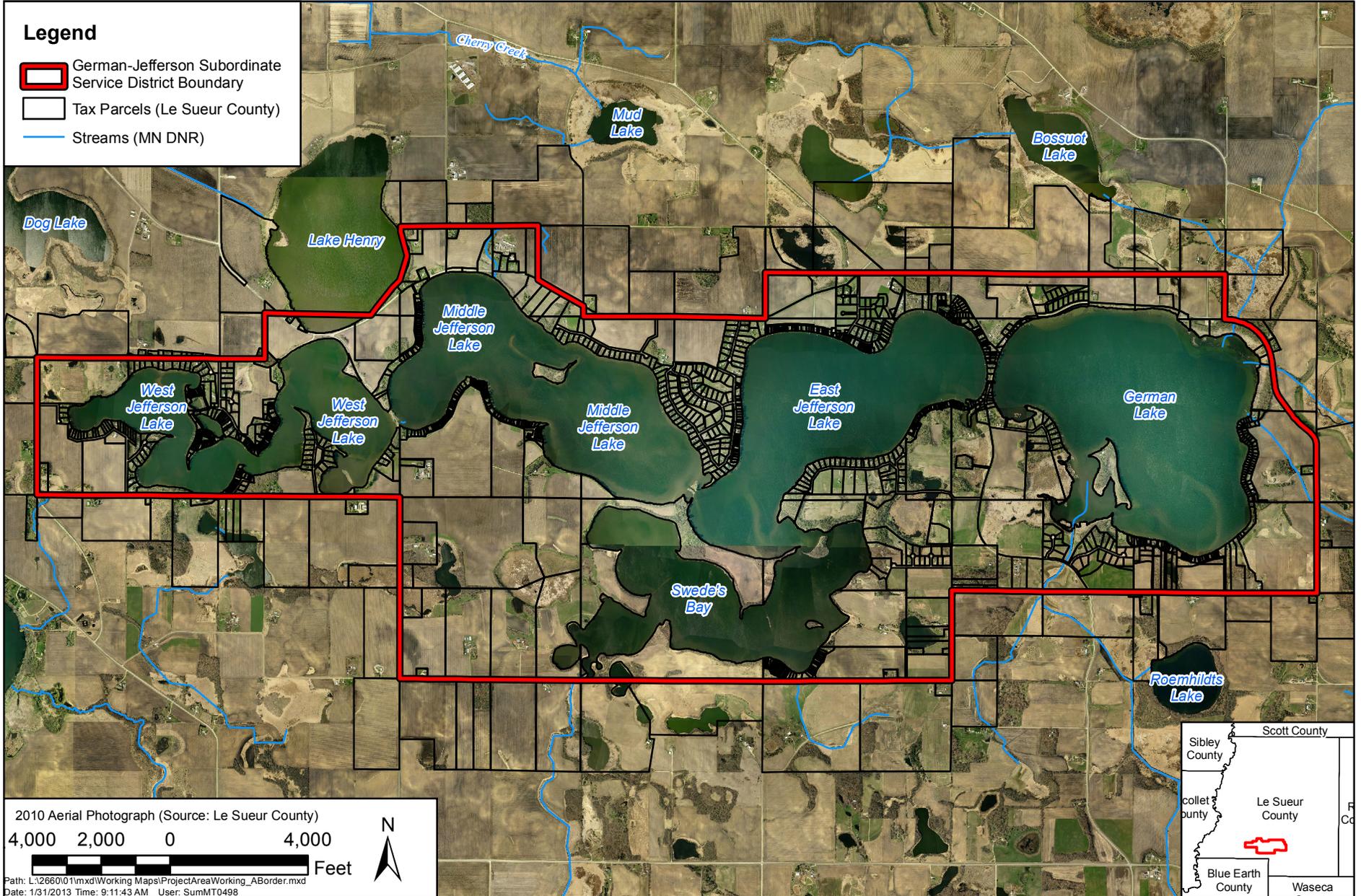
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## Figures

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### Legend

-  German-Jefferson Subordinate Service District Boundary
-  Tax Parcels (Le Sueur County)
-  Streams (MN DNR)



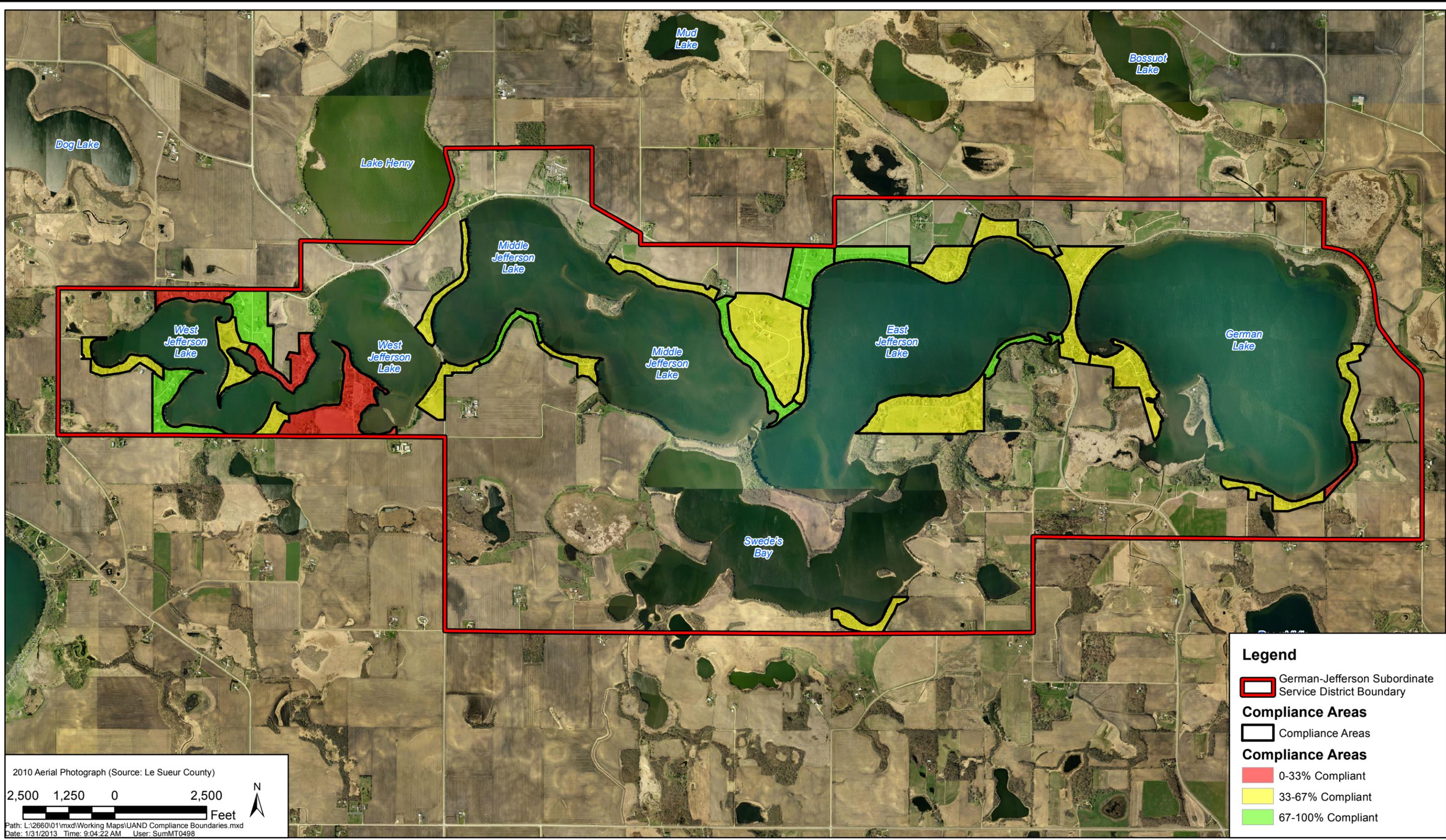
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## LE SUEUR COUNTY Site Location Map



**Wenck**  
Engineers - Scientists  
Business Professionals  
www.wenck.com  
1800 Pioneer Creek Center  
Maple Plain, MN 55359-0429  
1-800-472-2232

DEC 2012  
Figure 1



2010 Aerial Photograph (Source: Le Sueur County)

2,500 1,250 0 2,500

Feet



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**Legend**

German-Jefferson Subordinate Service District Boundary

**Compliance Areas**

Compliance Areas

**Compliance Areas**

0-33% Compliant

33-67% Compliant

67-100% Compliant

LE SUEUR COUNTY

Summary of Results

Engineers - Scientists  
Business Professionals  
www.wenck.com

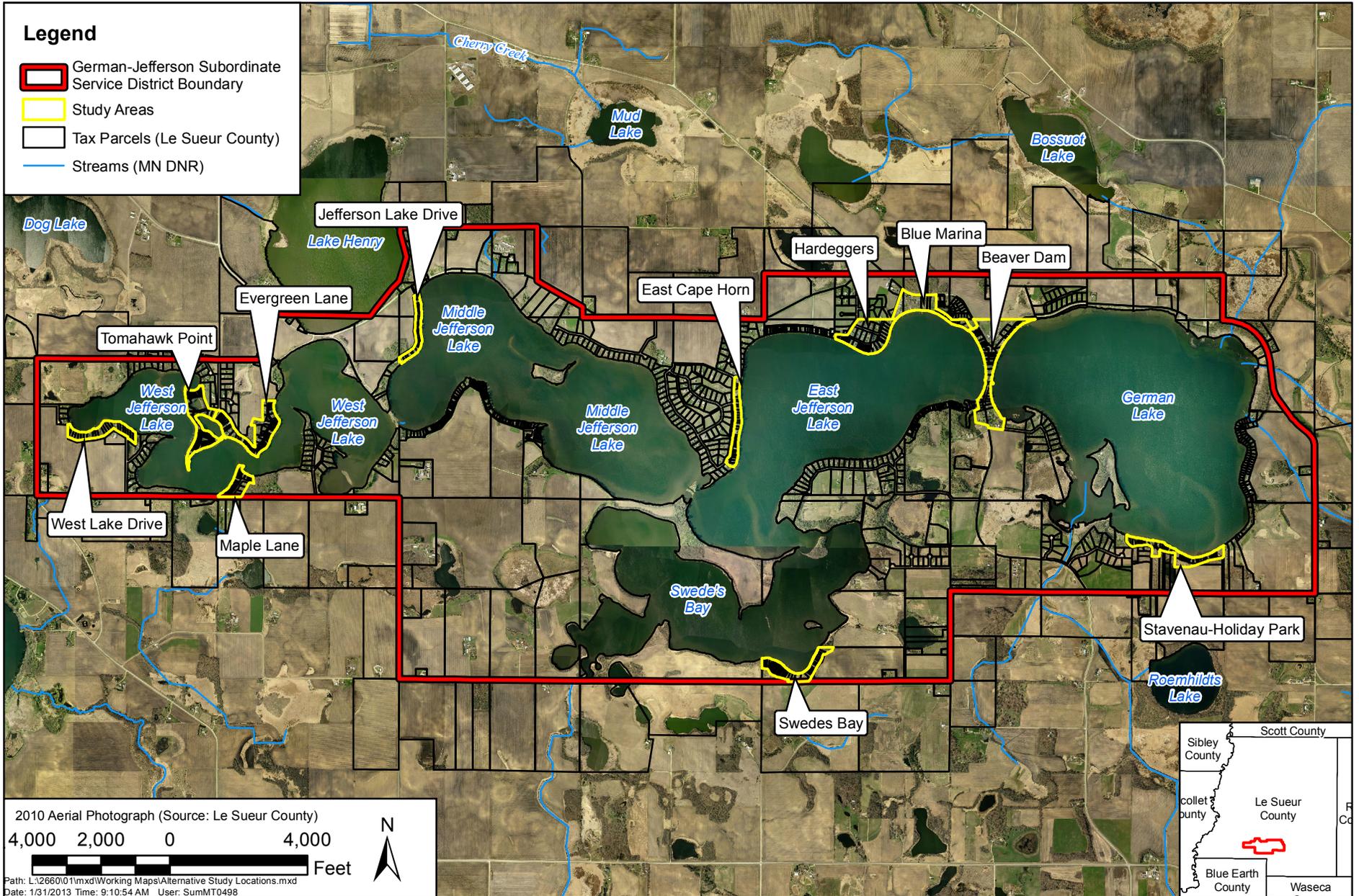
**Wenck**  
1800 Pioneer Creek Center  
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JAN 2013

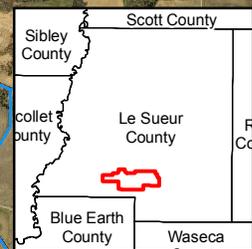
Figure 2

**Legend**

-  German-Jefferson Subordinate Service District Boundary
-  Study Areas
-  Tax Parcels (Le Sueur County)
-  Streams (MN DNR)



2010 Aerial Photograph (Source: Le Sueur County)  
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 Date: 1/31/2013 Time: 9:10:54 AM User: SumMT0498



**LE SUEUR COUNTY**  
**Potential Feasibility Assessment Map**

  
**Wenck**  
 Engineers - Scientists  
 Business Professionals  
[www.wenck.com](http://www.wenck.com)  
 1800 Pioneer Creek Center  
 Maple Plain, MN 55359-0429  
 1-800-472-2232

DEC 2012  
**Figure 3**