

**SANITARY SEWER REPORT
LOWER POST LAKE
PHASE II**

**Project #259603.SSR
June 1996**

Prepared By:

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1230 South Boulevard
Baraboo, Wisconsin 53913**

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INTRODUCTION/PURPOSE

Lower Post Lake is located in the north central part of Langlade County. The lake is an impoundment created by a dam on the Wolf River. Lower Post Lake is very highly developed along the western shoreline on Isle of Pines Drive and along the eastern shoreline on Clear Lake Road, Circle Drive and Woodland Lane. Other pockets of development occur along CTH K near the bridge that divides Upper and Lower Post Lakes. The development around the lake is predominantly residential except for two campground resorts, one tavern, and a body shop. All development around the lake is served by on-site septic systems for sewage treatment and individual wells for water supply.

The Post Lake Protection and Rehabilitation District initiated an effort in the winter of 1993/94 to obtain grants from the Department of Natural Resources to conduct a study of the existing septic systems serving the homes within the district. The study was undertaken to determine the type of systems being used and of particular concern was the siting of system in relationship to the lake and the groundwater which ultimately drains into the lake. The purpose of this report is to outline the parameters of the study and to present the results of the inspections performed during June 1996. This report presents the results of Phase II of the study.

SITE/SOILS DISCUSSION

The development around Lower Post Lake has been progressing for quite some time. While initial development began in the 1920's and 1930's, steady growth primarily along the shoreline has continued to a point where almost all buildable areas are used up. As a result the type of septic systems constructed and the siting of those systems, covers quite a wide spectrum. Initial development of most of the lots around the lake included the use of a "privy" or outhouse as the primary means of wastewater treatment. As improvements and upgrading of properties occurred septic systems were added to modernize the cabins and vacation homes. Most of the early septic systems installed were septic tank/seepage pit systems and those constructed in the last 20 to 30 years have been septic tank/drainfield systems. Most of the lots around the lake were platted using a 50' width, so except for areas where two lots were combined available area for replacement systems is limited.

The USDA Soil Survey Manual of Langlade County shows the soils in the area of Lower Post Lake area generally found to be in the Antigo-Pence Association. The soil manual describes these as "well drained, nearly level to very steep, silty and loamy soils on outwash plains, kames, and eskers." The soil conditions found during the course of this study closely followed the descriptions given for individual soil amp units shown in the soil manual. The subsoil in almost all borings consisted of a very sandy, gravelly, substratum which would be considered very rapidly permeable. Because of the rapid permeability most soils in the area are considered to be poor filters of septic tank effluent. In some areas fine textured (very fine sand or silty) bands occur at depths which affects the proper function of an on-site wastewater disposal system.

STUDY PROCEDURE

Due to the limited availability of grant monies to fund this project the Post Lake Protection District personnel selected certain areas of the district to be inspected in each Phase of the study. It was felt that the initial area to be inspected should be the lots on the western shoreline of the lake. This was the area that was suspected to have the most systems of questionable status. In order to round out the study area and complete whole sections at one time those homes located along HWY "U" and HWY "K" which fell within the boundaries of the district were also included in this phase of the study. Phase II of the study started near the intersection of Clear Lake Road and CTH "K" and west south along the eastern shoreline of the lake.

Because of the seasonal and intermittent occupancy of most of the dwellings in the study area, the district sent out questionnaire's to all land owners. The septic system questionnaire asked for information regarding the type of system on the lot, the age, usage, and location of the system in relationship to the lot lines, the lake and buildings. These surveys were returned by many of the land owners and were quite useful in identifying the location of the drainfield during the inspection. A copy of the questionnaire is included in this report (see Figure 2).

The inspection of each of the lots was conducted using the owners questionnaire as a starting point. Each lot inspected was documented on an inspection report form (see Figure 3). The actual field copies of the inspection forms and a soil boring log are in the Appendix. The inspection report form identifies the property by fire number, road name, and owner's name, if known. The report contains a sketch indicating the relative position of the septic system on the lot and it has a section which was used to indicate a reason for failure for that particular system if applicable.

The following guidelines were set up by the district and followed during the course of this study:

- septic systems were to be inspected to determine if they were sited in code compliant soils.
- systems installed after 1986 did not need to be inspected (it was felt that these systems were most likely installed according to current code).
- privy sites were to be inspected but were not to be high priority, those lots which only have a privy as the primary means of wastewater disposal are included with the inspection reports as miscellaneous reports. They are not included in the calculations for system failure rates.
- holding tank sites were not inspected.

The inspection of each property consisted of the following general items:

- identify the septic system location and type.
- attempt to measure the depth of the drainage system.
- determine the suitability of the soils to a depth of 3' below the bottom of the system by either drilling to the depth with hand auger or by use of a hand level determine the systems relative height above lake level.
- draw a sketch showing system components and dimensions to lake, well, buildings, etc.
- fill out form and boring log if soil boring was required. Indicated reason for failure of the system if applicable.

During an inspection of a lot notes were made of such things as relationships of the septic system drainage area to wells, lakeshore, buildings, etc. If these setbacks did not meet current code, the system was not necessarily checked as failed, unless it also was sited in non-code compliant soils. A failing private sewage system was one which causes or results in any of the following conditions:

1. The discharge of sewage into surface water or groundwater.
2. The introduction of sewage into zones of saturation which adversely affects the operation of a private sewage system.
3. The discharge of sewage to a drain tile or into zones of bedrock.
4. The discharge of sewage to the surface of the ground.
5. The failure to accept sewage discharges and back up of sewage into the structure served by the private sewage system.

**LOWER POST LAKE
SANITARY SURVEY RESULTS**

Total number sites inspected - 35

Number of sites with septic system determined to be too close to seasonally saturated soils as defined in ILHR 83 State Plumbing Code - 21

Failure rate for septic system sites

1 out of 35 - 3%

All septic system evaluation sheets are located in the Appendix of this report. The list following this page identifies the sites found to have a "failed" septic system as explained on page 3 of this report.

**LOWER POST LAKE
SANITARY SEWER SURVEY RESULTS***

REPORT NO.	FIRE NO.	ROAD	OWNER	REASON FOR FAILURE **
1	W8790	Channel	Hansen	2

* Only properties which were identified as having a "failed" system are listed.

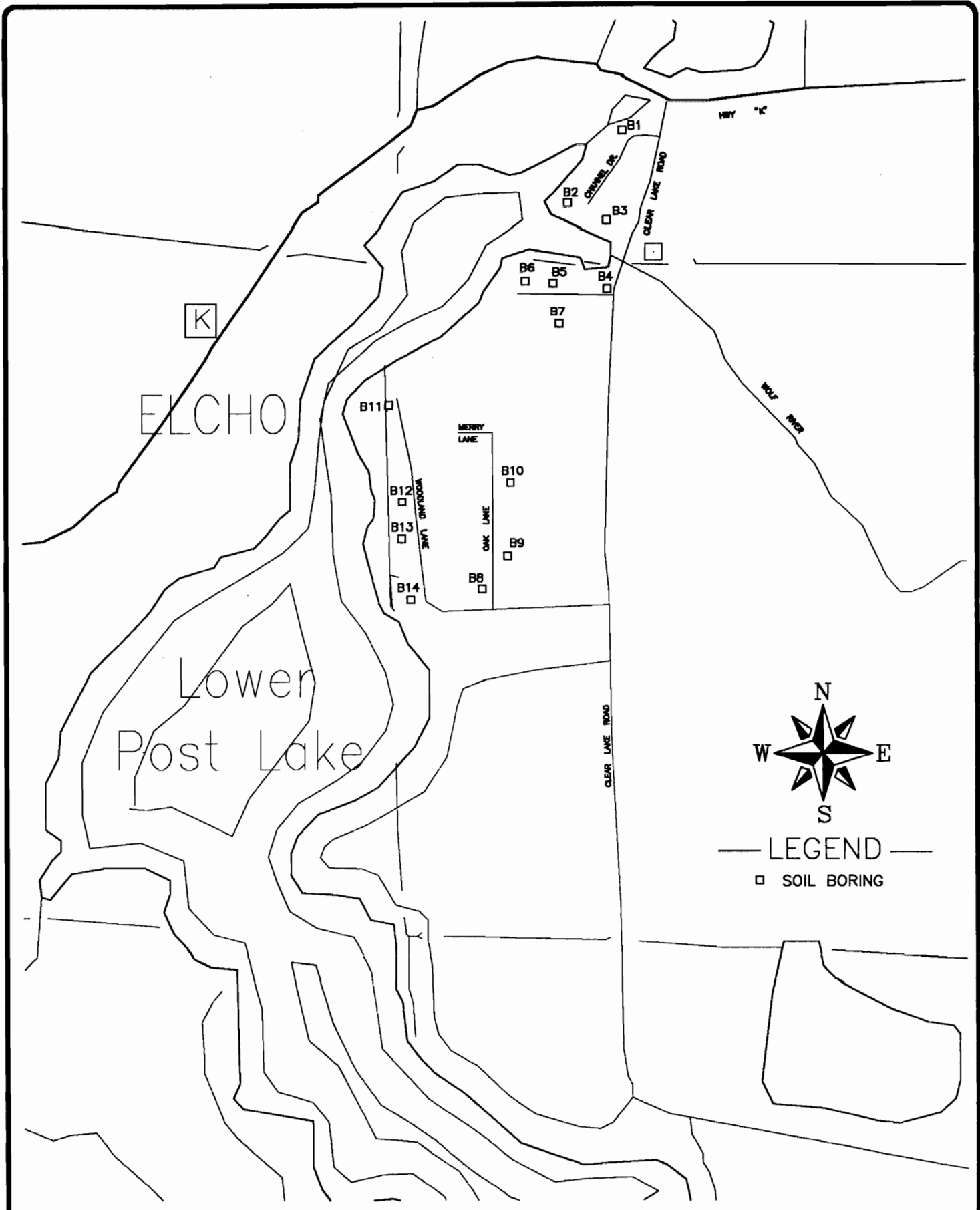
** Correspondence to the list of reason for failure on Page 3 of this report.

**LOWER POST LAKE
SANITARY SEWER SURVEY RESULTS***

REPORT NO.	FIRE NO.	ROAD	OWNER	REASON FOR FAILURE **
1	W8790	Channel	Hansen	2
10	W8712	HWY "K"	Meyer	1
12	W8788	HWY "K"	White	1 & 2
14	N11429	Maple	Cormier	1 & 4
15	N11435	Maple	Boettcher	1
16	N11437	Maple	Wellhouse	1 & 5
19	N11489	West Shore	Lanser	2
21	N11493	West Shore	Wordell	2
26	N11519	West Shore	Stryzewski	2
30	N11553	West Shore	Hamann	2
33	N11614	West Shore	Feutz	1
37	N11651	West Shore	Koenig	1
38	N11655	West Shore	Eckhardt	1
50	N11751	West Shore	Kratzke	2
51	N11755	West Shore	Kastenschmidt	2
53	N11763	West Shore	Haiduk	1
54	N11765	West Shore	Kennedy	2
56	N11775	West Shore	Bomberg	2
57	N11779	West Shore	Magedanz	2
58	N11783	West Shore	Hubatch	2
59	N11787	West Shore	Schleis	2

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** Correspondence to the list of reason for failure on Page 3 of this report.



**PHASE II
SOIL BORINGS**

SCALE: AS SHOWN	DATE: JUNE, 1996
FIELD BOOK: N/A	MSA PROJECT #: 259803
DRAWN BY: DAW	MSA FILE #: 259803B.DWG
CHECKED BY:	SHEET #: FIGURE 4

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Sanitary Sewer Report

Phase III

Lower Post Lake
MSA Project No. 259742

Prepared By:
MSA Professional Services, Inc.
Baraboo, WI 53913

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INTRODUCTION/PURPOSE

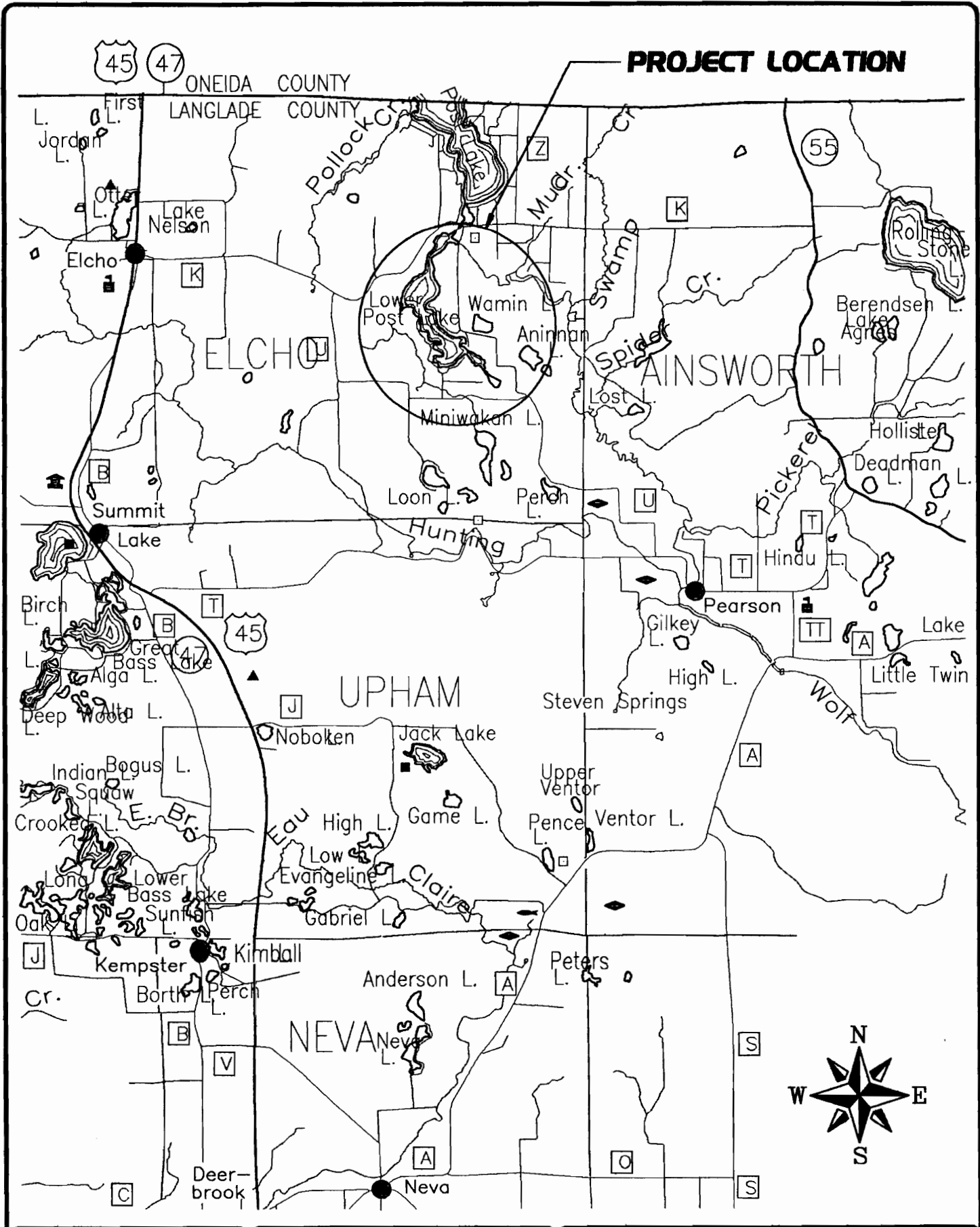
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The Post Lake Protection and Rehabilitation District initiated an effort in the winter of 1993/94 to obtain grants from the Department of Natural Resources to conduct a study of the existing septic systems serving the homes within the district. The study was under taken to determine the type of systems being used and of particular concern was the siting of systems in relationship to the lake and the groundwater which ultimately drains into the lake. Phase I of the study was completed in 1994 and Phase II of the study was completed in 1996. The purpose of this report is to outline the parameters of the study and to present the results of the inspections performed in 1997. This report presents the results of Phase III of the study.

SITE/SOILS DISCUSSION

The development around Lower Post Lake has been progressing for quite some time. Initial development began in the 1920's and 1930's, steady growth primarily along the shoreline has continued to a point where almost all buildable areas are used up. As a result the type of septic systems constructed and the siting of those systems, covers quite a wide spectrum. Initial development of most of the lots around the lake included the use of a "privy" or outhouse as the primary means of wastewater treatment. As improvements and upgrading of properties occurred septic systems were added to modernize the cabins and vacation homes. Most of the early septic systems installed were septic tank/seepage pit systems and those constructed in the last 20 to 30 years have been septic tank/drainfield systems. Most of the lots around the lake were platted using a 50' width, so except for areas where two lots were combined available area for replacement systems is limited.

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PROJECT LOCATION

LOCATION MAP

SCALE: AS SHOWN	DATE: OCT, 1997
FIELD BOOK: N/A	MSA PROJECT #: 256742
DRAWN BY: DAW	MSA FILE #: 256742LDWG
CHECKED BY:	SHEET #: FIGURE 1



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STUDY PROCEDURE

Due to the limited availability of grant monies to fund this project the Post Lake Protection District personnel selected certain areas of the district to be inspected in each Phase of the study. It was felt that the initial area to be inspected should be the lots on the western shoreline of the lake. This was the area that was suspected to have the most systems of questionable status. In order to round out the study area and complete whole sections at one time those homes located along HWY "U" and HWY "K" which fell within the boundaries of the district were also included in this phase of the study. Phase II of the study started near the intersection of Clear Lake Road and CTH "K" and proceeded south along the eastern shoreline of the lake, including the development along Channel Drive, Woodland Lane, and Oak Lane. Phase III picked up at the end of Phase II and continued along Circle Drive, Clear Lake Road, and Sunset Lane.

Because of the seasonal and intermittent occupancy of most of the dwellings in the study area, the district sent out questionnaires to all land owners effected by the current phase of the study. The septic system questionnaire asked for information regarding the type of system on the lot, the age, usage, and location of the system in relationship to the lot lines, the lake and buildings. These surveys were returned by many of the land owners and were quite useful in identifying the location of the drainfield during the inspection. A copy of the questionnaire is included in this report (see Figure 2).

The inspection of each of the lots was conducted using the owners questionnaire as a starting point. Each lot inspected was documented on an inspection report form (see Figure 3). The actual field copies of the inspection forms are in the Appendix. The inspection report form identifies the property by fire number, road name, and owner's name, if known. The report contains a sketch indicating the relative position of the septic system on the lot and it has a section which was used to indicate a reason for failure for that particular system if applicable.

The following guidelines were set up by the district and followed during the course of this study:

- septic systems were to be inspected to determine if they were located in code compliant soils/sites.
- systems installed after 1986 did not need to be inspected (it was felt that these systems were most likely installed according to current code).
- privy sites were to be inspected but were not to be high priority, those lots which only have a privy as the primary means of wastewater disposal are included with the inspection reports.
- existing holding tank sites were not inspected.

The inspection of each property consisted of the following general items:

- identify the septic system location and type.
- attempt to measure the depth of the drainage system.
- determine the suitability of the soils to a depth of 3' below the bottom of the system by either drilling to the depth with a hand auger and/or by use of a hand level determine the systems relative height above lake level.
- draw a sketch showing system components and dimensions to lake, well, buildings, etc.
- fill out form and boring log if soil boring was required. Indicate reason for failure of the system if applicable.

During an inspection of a lot notes were made of such things as relationships of the septic system drainage area to wells, lakeshore, buildings, etc. If these setbacks did not meet current code, the system was not necessarily checked as failed, unless it also was sited in non-code compliant soils. A failing private sewage system was one which causes or results in any of the following conditions:

1. The discharge of sewage into surface water or groundwater.
2. The introduction of sewage into zones of saturation which adversely affects the operation of a private sewage system.
3. The discharge of sewage to a drain tile or into zones of bedrock.
4. The discharge of sewage to the surface of the ground.
5. The failure to accept sewage discharges and back up of sewage into the structure served by the private sewage system.

The 5 reasons for failure of a system are based on criteria set forth in COMM 83. The Department of Commerce is the regulatory state agency which has authority over septic system installation in the State of Wisconsin. Septic system inspections at Post Lake were conducted with these regulatory requirements as the basis for decisions regarding the individual systems' inspected. This study attempts to identify those septic systems that have the greatest potential for causing contamination to Post Lake. Septic systems located within 3' of a seasonally saturated zone in the soil profile are the most likely to contribute a significant amount of untreated wastewater to the groundwater which ultimately ends up in the lake. Reason number 5 listed above is checked on some reports and is meant as a notification to the home owner that a potentially problem exists concerning their system. At the time of the inspection ponding of effluent in the vent of the drainfield or seepage pit was more severe than normally expected. Owners should keep a close watch on the system and carefully monitor the water usage in the structure to extend the life of the septic system. Reason number 4 is sited as a failed system when a discharge pipe is spotted exiting a structure and discharging to the surface. This condition may be associated with a clear water sump pit and may therefore be legal. Further inspection of the interior plumbing should be done by the county officials responsible for issuing enforcement orders on non-code compliant septic systems to determine if this situation is actually a cause for action by the home owner to replace the septic system.

**LOWER POST LAKE
SANITARY SURVEY RESULTS**

Total number sites inspected - 68

Number of sites with septic system determined to be located in non-code compliant soils as defined in COMM 83 State Plumbing Code - 15

Failure rate for septic system sites

15 out of 68 - 22%

All septic system evaluation sheets are located in the Appendix of this report. The list on the following pages identifies the sites inspected and indicates results, type of system, and/or comments regarding the system. In a number of cases a complete inspection was not conducted. Usually this occurred because the septic system either could not be located or if the location was identified by the owner, there was no vent pipe on the drainage portion of the system and a depth of the system could not be determined. In those cases, home owners will need to supply further information regarding the location and depth of their systems so that a complete inspection can be conducted.

**LOWER POST LAKE
SANITARY SEWER SURVEY RESULTS**

Report No.	Owner	System Type*	Results**	Comments
1	Torine	D	X	
2	Dahlen	SP	X	
3	McNutt	SP	X	
4	Durkee	SP	X	
5	Brittenham	SP	X	
6	Patterson	D	X	
7	Boelter	SP		No vent
8	McKeag	D	X	
9	Samolinski	D	X	
10	Vincent			No vent
11	Farrell			No vent
12	Paulus	D	5	
13	Swomia	SP	5	
14	Much	SP	5	
15	Witzel	D	2, 4	
16	Miller	D	2	
17	Panka	D	X	
18	Reybrock	D	X	
19	Cohn	SP	X	
20	Eberle	D	X	
21	LaPoint	D	X	
22	LaPoint	D	X	
23	LaPoint	D	X	
24	LaPoint	SP	X	

25	Hacka	SP	X	
26	Mayer	D	X	
27	Helgeson	D	5	
28	Brendenmuehl	D	X	
29	Haven	SP	X	
30	Bremer	D	X	
31	Blanchette	D	X	
32	Stratman	PP	X	
33	Peil	PP	X	
34	Collsen	D	X	
35	Robien	SP	5	
36	Rogatzki	SP	X	
37	Arndt	SP		No vent
38	Lambrecht	PP	X	
39	Kray	SP		No vent
40	Cusy	PP	X	
41	King	SP	5	
42	Lehman	D	X	
43	Rau	SP		No vent
44	Miller	D	X	
45	Swomia	SP	X	
46	Nelson	D	X	
47	Jahnke	D	X	
48	Fiorelli	SP	X	
49	Teipner			No vent
50	Ryder	SP	2, 4	
51	Rille	SP	2	

52	Brady	SP	1	
53	Borneman	SP	2	
54	Wolf			No vent
55	Nisler	SP	2	
56	Gilles	SP	X	
57	Ledvina	SP	2	
58	Krueger	SP	2	
59	Mueller	SP	X	
60	Barlow	SP	X	
61	Schick			No vent
62	Fischer	SP	X	
63	Domoracki	D	X	
64	Heider	SP	X	
65	Chatworthy	PP	X	
66	Chatworthy	D	X	
67	Van Roy	D	X	
68				No vent

*system type D - drainfield SP - seepage pit PP - pit privy

** X indicates that the system, for the purposes of this study, is not considered to be "failed" a number in this column corresponds to a reason for failure as explained on page 3 of this report
if this space is blank, further information is required before evaluation can be made