SUPPLEMENTARY HYDROGEOLOGIC REPORT
ILLINOIS ROUTE 137 POTENTIAL WETLAND COMPENSATION SITE

(Federal Aid Project 120, North Chicago, Lake County, Illinois)

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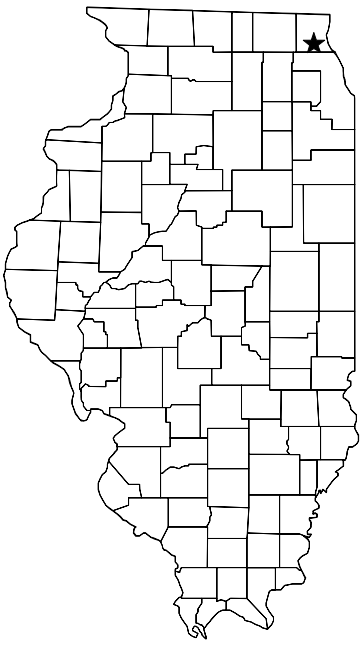
Submitted Under Contract IDOT SW PESA WIP B FY06 to:
Illinois Department of Transportation
Bureau of Design and Environment, Wetlands Unit
2300 South Dirksen Parkway
Springfield, IL 62764

May 26, 2006



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Supplementary Hydrogeologic Report - Illinois Route 137 Site

INTRODUCTION

On May 2, 2006, the Illinois State Geological Survey (ISGS) was tasked by the Illinois Department of Transportation (IDOT) to update hydrogeologic information from the North Chicago (Illinois Route 137) potential wetland mitigation site due to the possibility of transfer of the parcel for development. While no additional hydrogeologic data collection or analysis has been performed since last reported to IDOT in 2002, it was determined that ISGS would provide data collected to date and a summary of conclusions regarding the hydrogeology of the site, as well as potential impacts to wetland resources on site given likely development strategies. This supplementary hydrogeologic report was prepared to transmit the data and conclusions to IDOT, although it should not be considered a substitute for detailed analysis of hydrogeologic conditions as would be presented in a Level 2 hydrogeologic characterization report.

The site (figure 1) is located in North Chicago in Lake County, Illinois near the intersection of Illinois Route 137 (locally known as Buckley Road) and US Route 41 (locally known as Skokie Highway). Illinois Route 137 forms the site's northern boundary, and the east boundary of the parcel is approximately 366 m (1200 ft) west of US Route 41. The site is approximately 1631 m (5350 ft) long and about 411 m (1350 ft) wide, with an area of approximately 67.2 hectares (166 acres).

An initial site evaluation was performed at the site in 1995 (Fucciolo and Miller 1995). Subsequently, ISGS was tasked to perform a detailed (Level 2) hydrogeologic study, which began with installation of monitoring wells and surface-water gauges and dataloggers in 1998, and continued in 2001 when additional monitoring was tasked by IDOT. A summary of site conditions was transmitted via letter report to IDOT in 2000. The site was fully instrumented and monitored from Spring 2001 through Spring 2002, when ISGS was tasked to cease monitoring. Data contained herein were transmitted to IDOT in previous ISGS annual reports.

SUMMARY

1. The site contains significant wetland resources that are scattered throughout the site (figure 2), although the northern quarter of the site that abuts Illinois Route 137 contains fewer wetlands. Estimates of wetlands on the approximately 65 ha (160 ac.) site range from 14.5 ha (35.9 ac.) (Burke 2000) to approximately 11` ha (28 ac.) in a 2006 delineation (for specific conclusions please refer to the INHS report [in preparation]). Previous studies have rated certain wetlands on site as being of moderate to high quality, with some having a floristic quality index of greater than 20 (Burke 2000).

2. ISGS monitoring wells exhibit wetland hydrology in all areas mapped by INHS as wetland (figure 2). Only a few monitoring wells exhibit wetland hydrology in areas outside the wetland polygons mapped by INHS, and those are mostly located directly adjacent to the wetland boundary. Only one well showed wetland hydrology regularly in an upland area, and it is considered spurious (well 40S). Sufficient wells were present only in 2001 and 2002 for site-wide coverage, so data prior to 2001 are not utilized for this analysis. No monitoring data have been collected after Spring 2002.

3. Wetlands on site are primarily supported by surface-water inputs and precipitation, which are perched effectively on the clay-rich glacial till that underlies the majority of the site. Topographic depressions on site store significant amounts of runoff and precipitation, allowing wetlands to form.

North Chicago Potential Wetland Banking Site
(FAP 120)
General Study Area and Vicinity
from the USGS Topographic Series, Libertyville, IL (W) (USGS 1993) and Waukegan, IL (E) (USGS 1993)
7.5-minute Quadrangles
contour interval is 10 ft

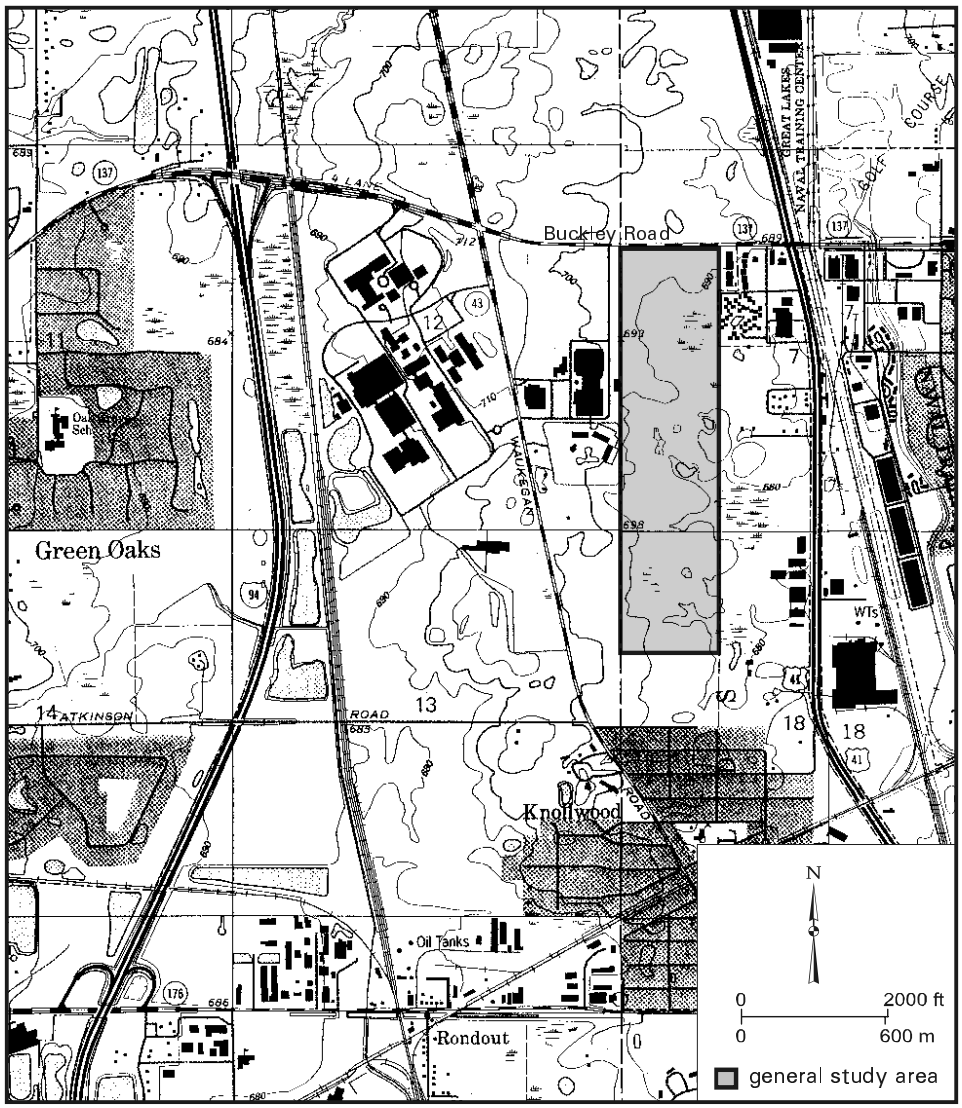

Figure 1. Study area (outlined) and vicinity as shown on the United States Geological Survey (USGS) 7.5-minute topographic quadrangle map of the area (USGS 1993). Contour interval is 10 ft (3.04 m).

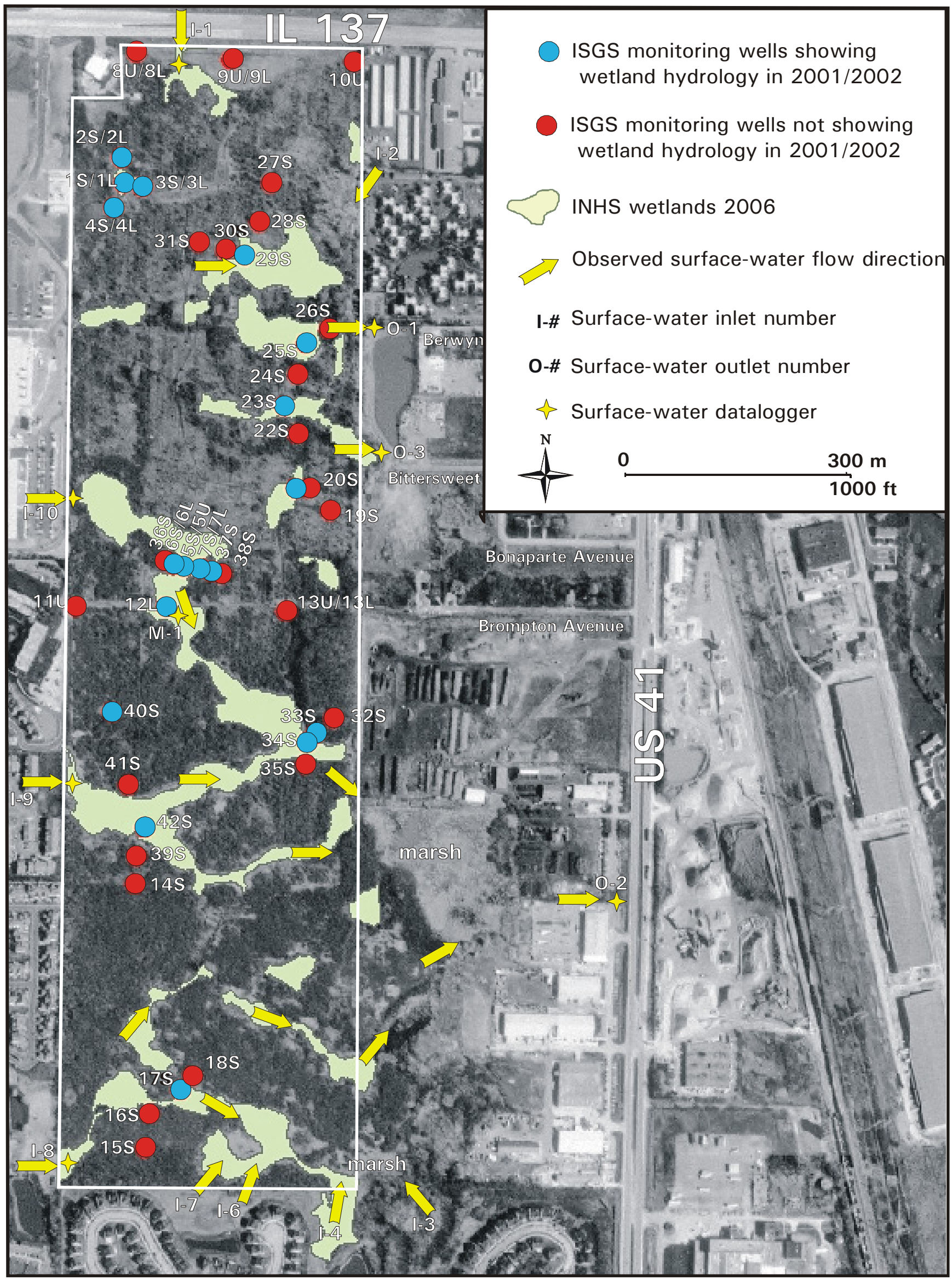

Figure 2. ISGS monitoring wells that satisfied wetland hydrology criteria in 2001 or 2002 at the North Chicago potential wetland mitigation site in relation to wetlands delineated by INHS in 2006. Also shown are surface-water flow directions, inlets and outlets to the site, and surface-water dataloggers installed by ISGS. Site features superimposed on a 1998 digital orthophotograph (Waukegan NW 1/4 quadrangle, available on-line at the ISGS Geospatial Clearinghouse, www.isgs.uiuc.edu).

4. The wetlands on site are generally flooded for brief to long periods in the winter and spring, and generally dry up in the summer except for flow in some near-perennial channels across the site. Although inputs and outputs in the southern 2/3 of the site flow throughout the year, inputs and outputs in the northern 1/3 of the site generally dry up for a period in the summer.

5. Ground-water levels measured in the wells do not suggest that regular, long-term ground-water discharge occurs. Some seasonal or localized discharge may occur, helping support wetlands in places, but this is limited to areas where coarse-grained deposits occur within the clay-rich surficial glacial till.

6. Surface water contains significant levels of chloride in the inputs on the north side (IL 137) and along the west side from various parking lots and developments. The quality of water from these inputs is likely affecting the quality of the vegetation in the wetland complexes that are connected to these inputs, as shown by invasions of *Typha* sp. and other plant species. High silt loads have also been noted at certain inlets, including from IL 137.

7. The southern 2/3 of the site drains to the southeast through a connected system of wetlands to outlet O-2, including inputs from I-10 southward. This connected surface-water system contains some of the higher quality wetlands on site, and is hydrologically separate from the northern third of the site. If development is limited to the northern 1/3 of the site, then this system may be preserved intact if drainage from the development is not routed through the southern part of the site. Deicers, greases and oils, nutrients, silt, and other surface-water contaminants would likely degrade the quality of remaining wetlands if surface drainage is allowed to flow to the southeast through outlet O-2.

8. Additional preservation of wetlands and their supporting hydrology can be made in the northern part of the site if development is limited to areas fronting IL 137, especially if surface drainage from that development can be directed to the northeast without flowing through outlets O-1 or O-2.

ACKNOWLEDGMENTS

This report was supported by the Illinois Department of Transportation under contract number IDOT SW PESA WIP B FY07. Additional support was provided by the Illinois State Geological Survey.

REFERENCES

Burke, Christopher B. Engineering, LTD., 2000, Illinois Department of Transportation Wetland Assessment Report, North Chicago Wetland Mitigation Bank Site: unpublished report to the Illinois Department of Transportation, February 9, 2000, Rosemont, Illinois, 16 p.

Fucciolo, C.S. and M.V. Miller, 1995, Initial Site Evaluation, Illinois Route 137 Potential Wetland Compensation Site (FAP 120, North Chicago, Lake County, Illinois): Illinois State Geological Survey unpublished contract report to the Illinois Department of Transportation, Champaign, Illinois, 20 p.

Illinois State Geological Survey, 1998, Waukegan NW 1/4 digital orthophotograph quadrangle (DOQ) , National Aerial Photography Program (NAPP), available on line at www.isgs.uiuc.edu, 1 sheet.

U.S. Geological Survey, 1993, Libertyville Quadrangle, Illinois, 7.5-Minute Series (Topographic): U.S. Department of the Interior, Geological Survey, Reston, Virginia, map scale 1:24,000, 1 sheet.

ANNUAL WATER-LEVEL REPORT FOR 1998
NORTH CHICAGO POTENTIAL WETLAND COMPENSATION SITE

U.S. Route 41 and Illinois Route 137, near North Chicago
Lake County, Illinois
FAP 120
ISGS Project-Code No. 31

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Submitted Under Contract No. AE89005 to
Illinois Department of Transportation
Bureau of Design and Environment, Wetlands Unit
2300 South Dirksen Parkway
Springfield, IL 62764

October 1, 1998

NORTH CHICAGO POTENTIAL WETLAND COMPENSATION SITE
FAP 120, Lake County
U.S. Route 41 and Illinois Route 137
North Chicago, Illinois

SIGNIFICANT EVENTS PRIOR TO 1998

- Spring 1995: ISGS performs an Initial Site Evaluation and sends it to IDOT

SUMMARY OF 1998 EVENTS

- Summer 1998: ISGS installs monitoring wells and surface-water measuring sites, and begins geochemical characterization; additional monitoring well installation planned

- No discussion of water flow directions or wetland hydrology can be made because surveying has not yet been performed

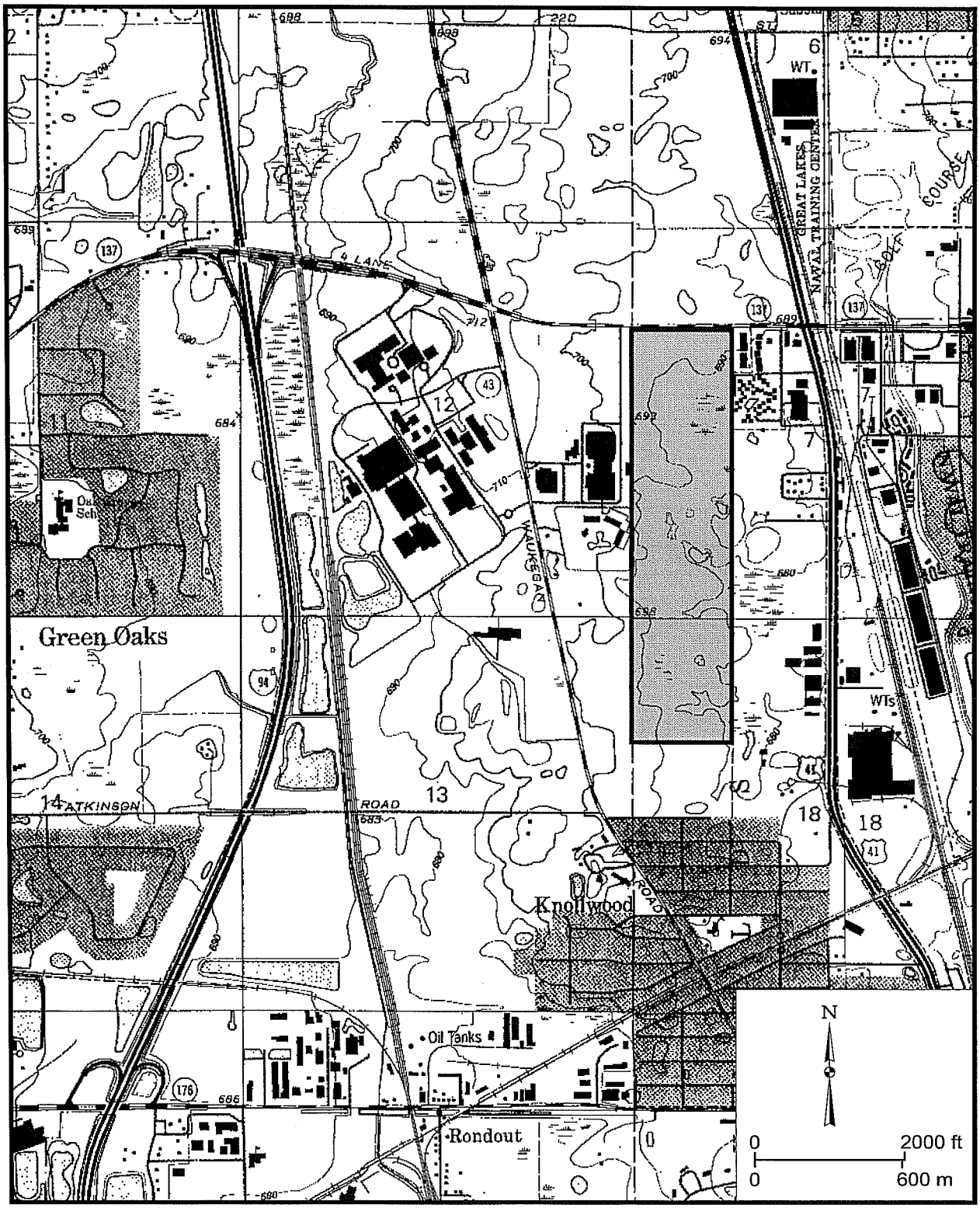
- No determination of wetland hydrology was made because surveying is not yet complete

North Chicago Potential Wetland Compensation Site

(FAP 120)

General Study Area and Vicinity

from the USGS Topographic Series, Libertyville, IL (W) (USGS 1993) and Waukegan, IL (E) (USGS 1993) 7.5-minute Quadrangles
contour interval is 10 ft



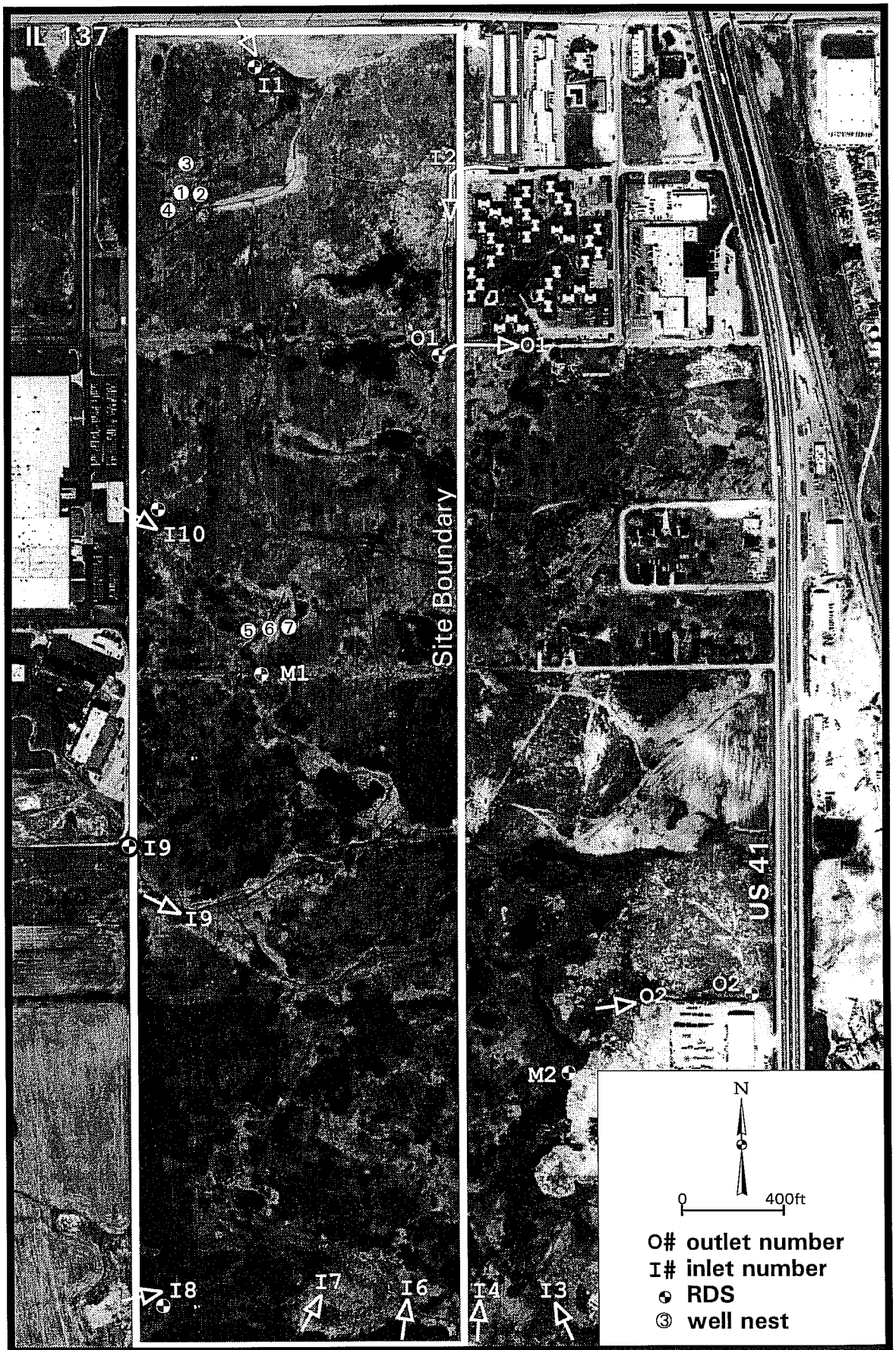
general study area

North Chicago Potential Wetland Compensation Site

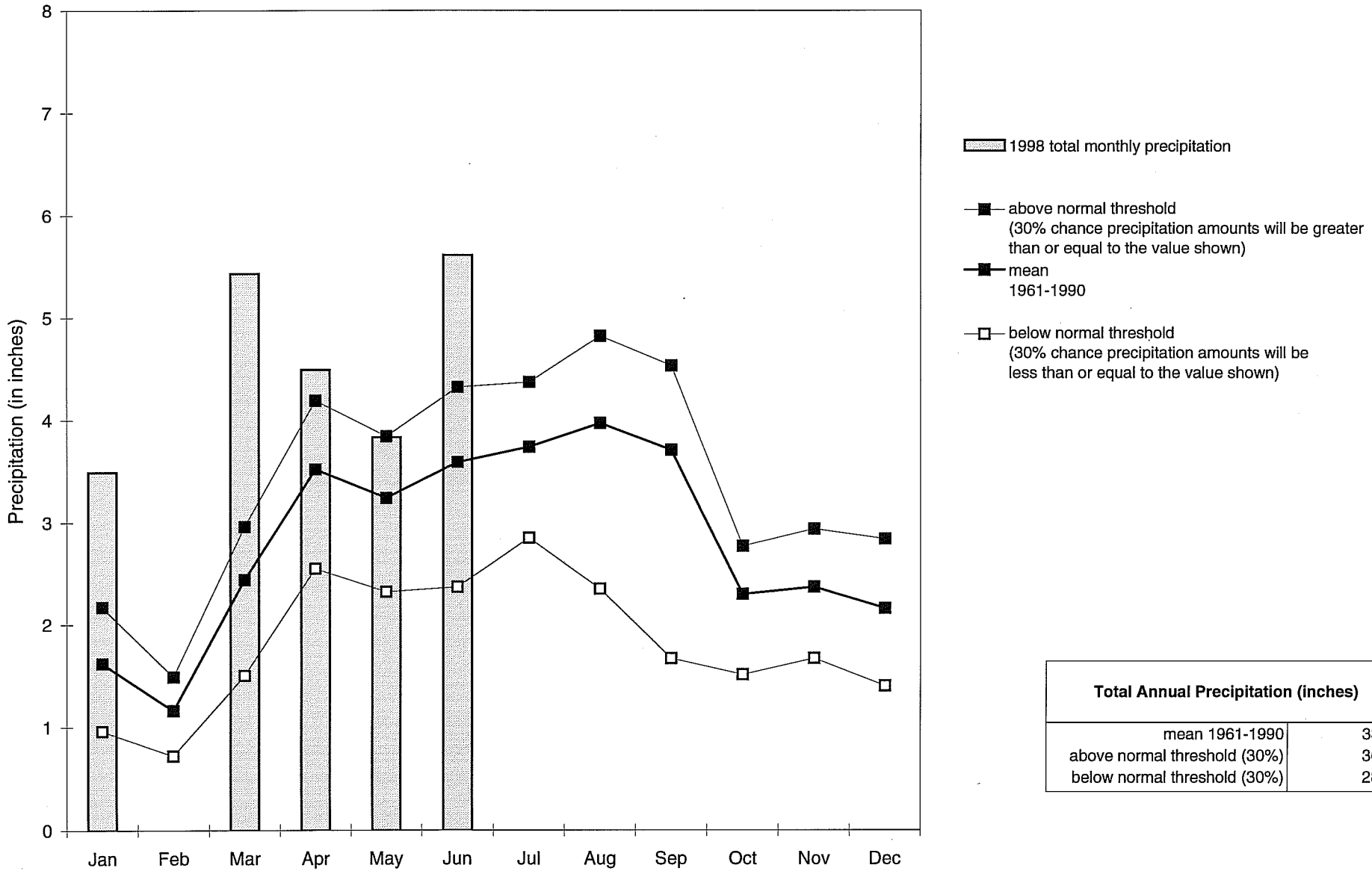
(FAP 120)

Approximate Locations of ISGS Monitoring Wells

map based on aerial photography from IDOT (April 17, 1993, ST 9 587)



Total Monthly Precipitation recorded at Waukegan



Total Annual Precipitation (inches)	
mean 1961-1990	33.82
above normal threshold (30%)	36.22
below normal threshold (30%)	28.83

as of 09/01/98

NORTH CHICAGO **ISGS #31**
POTENTIAL WETLAND COMPENSATION SITE
FAP 120
Lake County, near North Chicago, Illinois
Project Manager: James J. Miner

SITE HISTORY

- Spring 1995: ISGS submitted an Initial Site Evaluation Report to IDOT.
- Summer and Fall 1998: ISGS installed monitoring wells and surface-water measuring sites, and began a geochemical characterization.

WETLAND HYDROLOGY CALCULATION FOR 1999/SUMMARY OF 1999 EVENTS

Because this site is a potential compensation site, an estimate of areas of wetland hydrology is not needed. Graphs showing water levels for the entire period of record are included because no water- level data have been supplied to IDOT prior to this report.

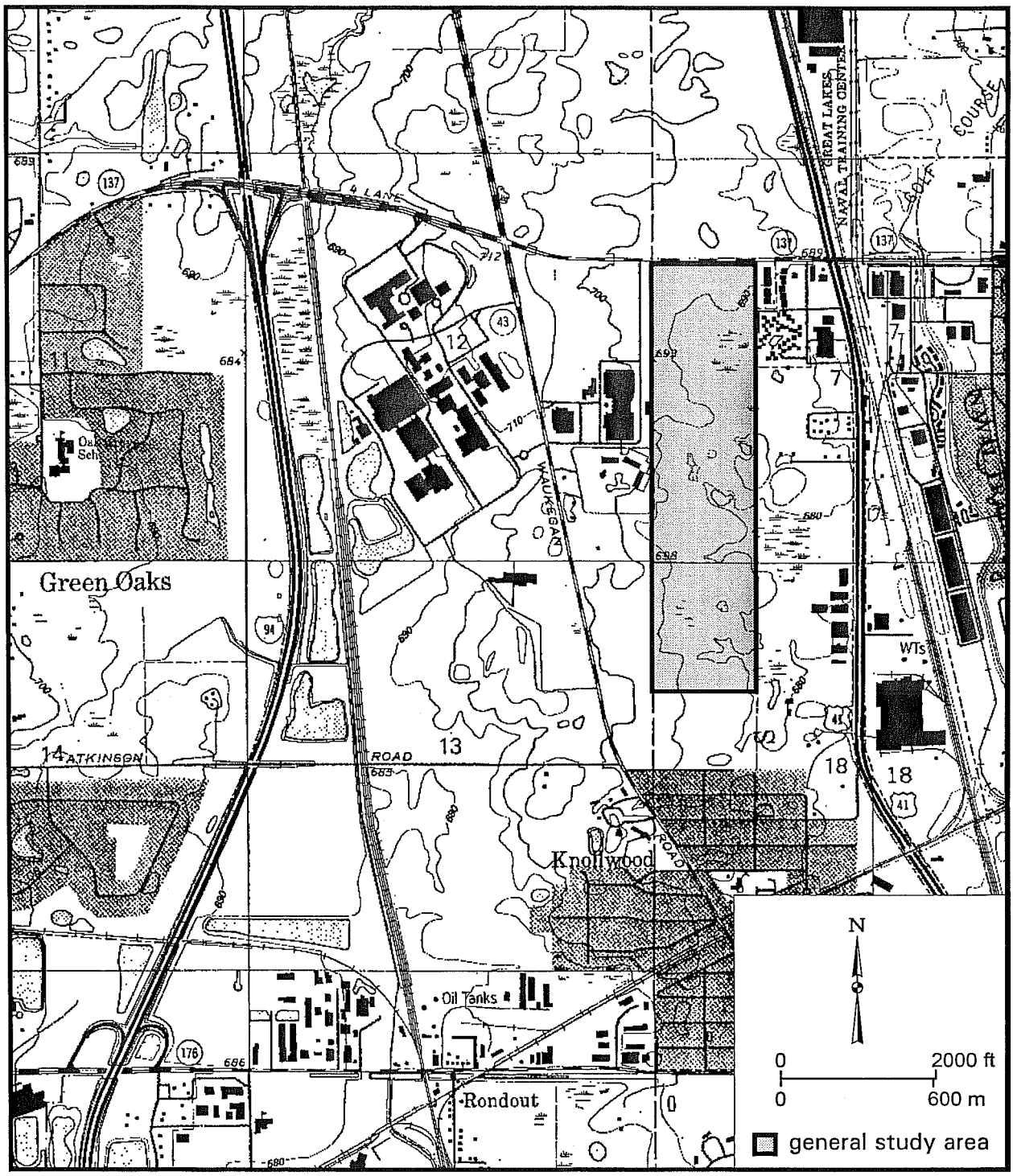
- In 1999, surface-water levels were measured at 8 locations within the site.
- Ground water elevations were measured at two different wetlands within the site and in two transects across the site.
- No aquifers have been identified that may supply sufficient ground water to any potential wetland compensation area. Surface water is likely the primary source for any wetland compensation activities.
- According to the Midwestern Climate Center, the median date that the growing season begins in Waukegan is April 14 and lasts 195 days; 12.5% of the growing season is 24 days.
- In the first half of 1999, precipitation was greater than 30% above normal in April and June. Precipitation was greater than 30% below normal in March.

PLANNED FUTURE ACTIVITIES

- An analysis of surface-water elevations expected to provide locations of potential compensation activities.
- Installation of additional monitoring wells is expected in potential wetland compensation areas identified by the surface-water analysis.
- Geochemical characterization will end after the November 1999 sampling.
- Water-level monitoring will continue until no longer required by IDOT.

North Chicago Potential Wetland Compensation Site
(FAP 120)
General Study Area and Vicinity

from the USGS Topographic Series, Libertyville, IL (W) (USGS 1993) and Waukegan, IL (E) (USGS 1993)
7.5-minute Quadrangles
contour interval is 10 ft

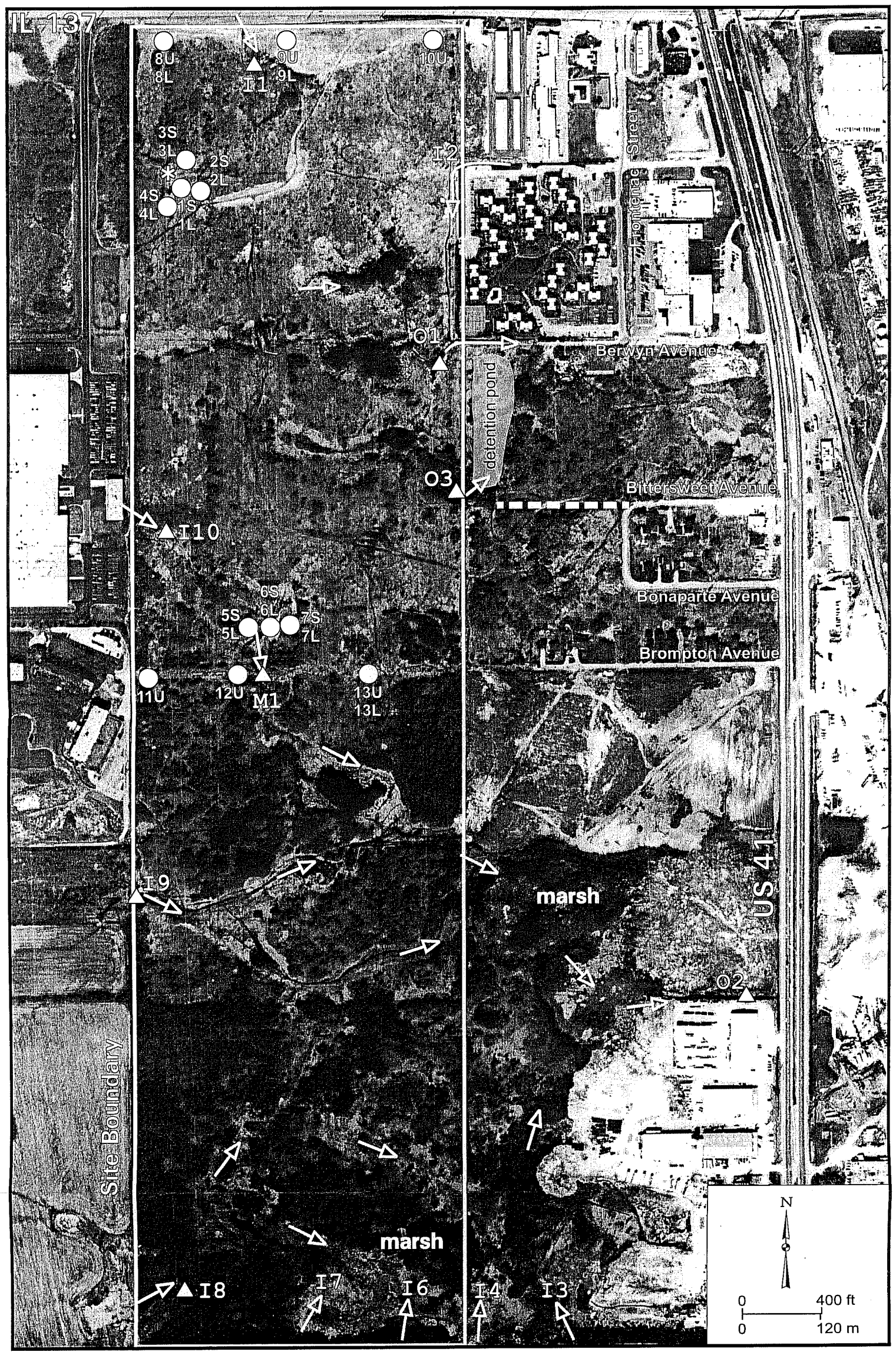


North Chicago Potential Wetland Compensation Site

(FAP 120)

Approximate Locations of ISGS Monitoring Wells

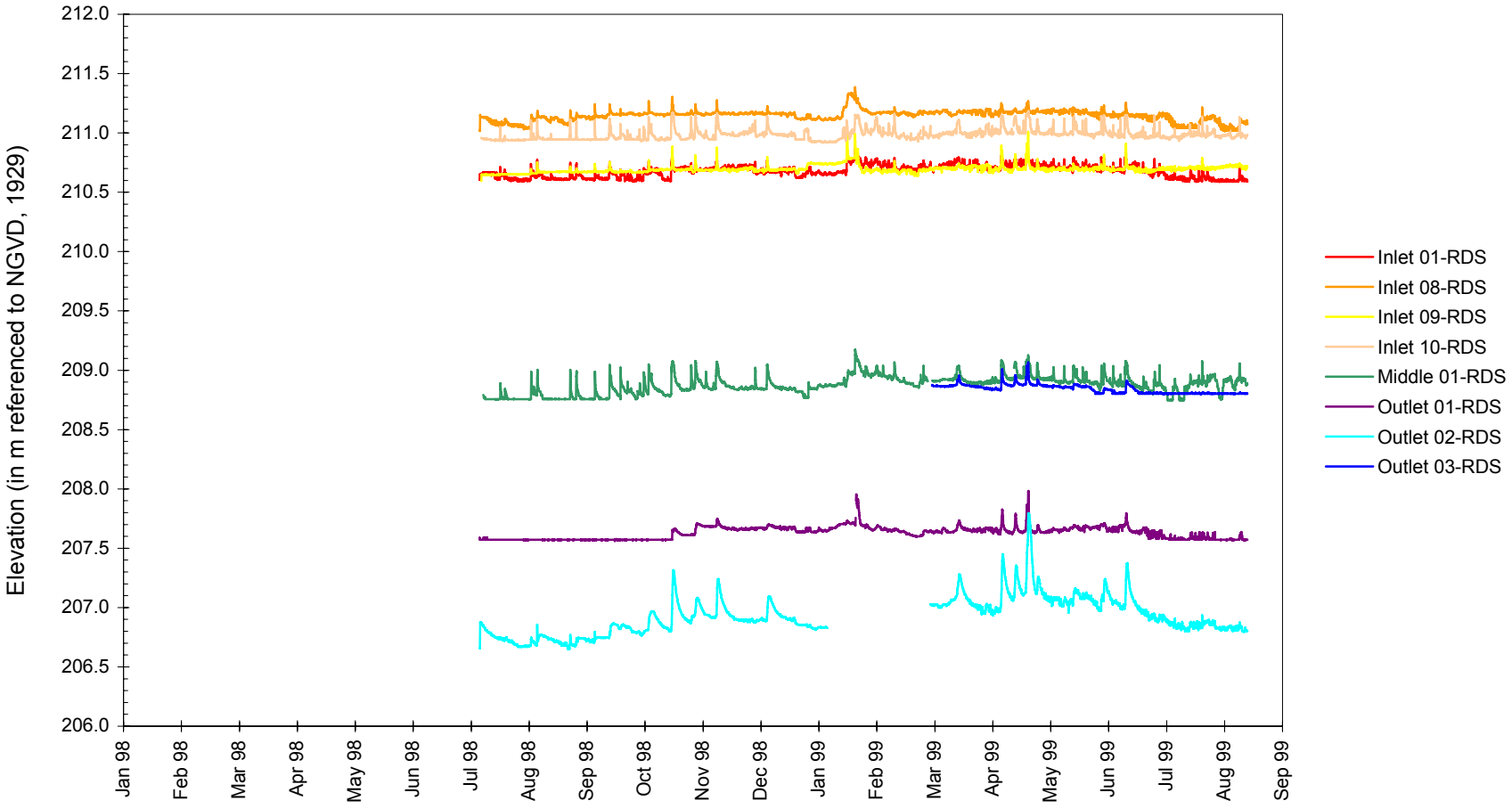
map based on aerial photography from IDOT (April 17, 1993, ST 9 587)



- ○ monitoring well(s)
- O# outlet number
- I# inlet number
- △ RDS data logger
- ✻ rain gauge
- → surface-water flow direction

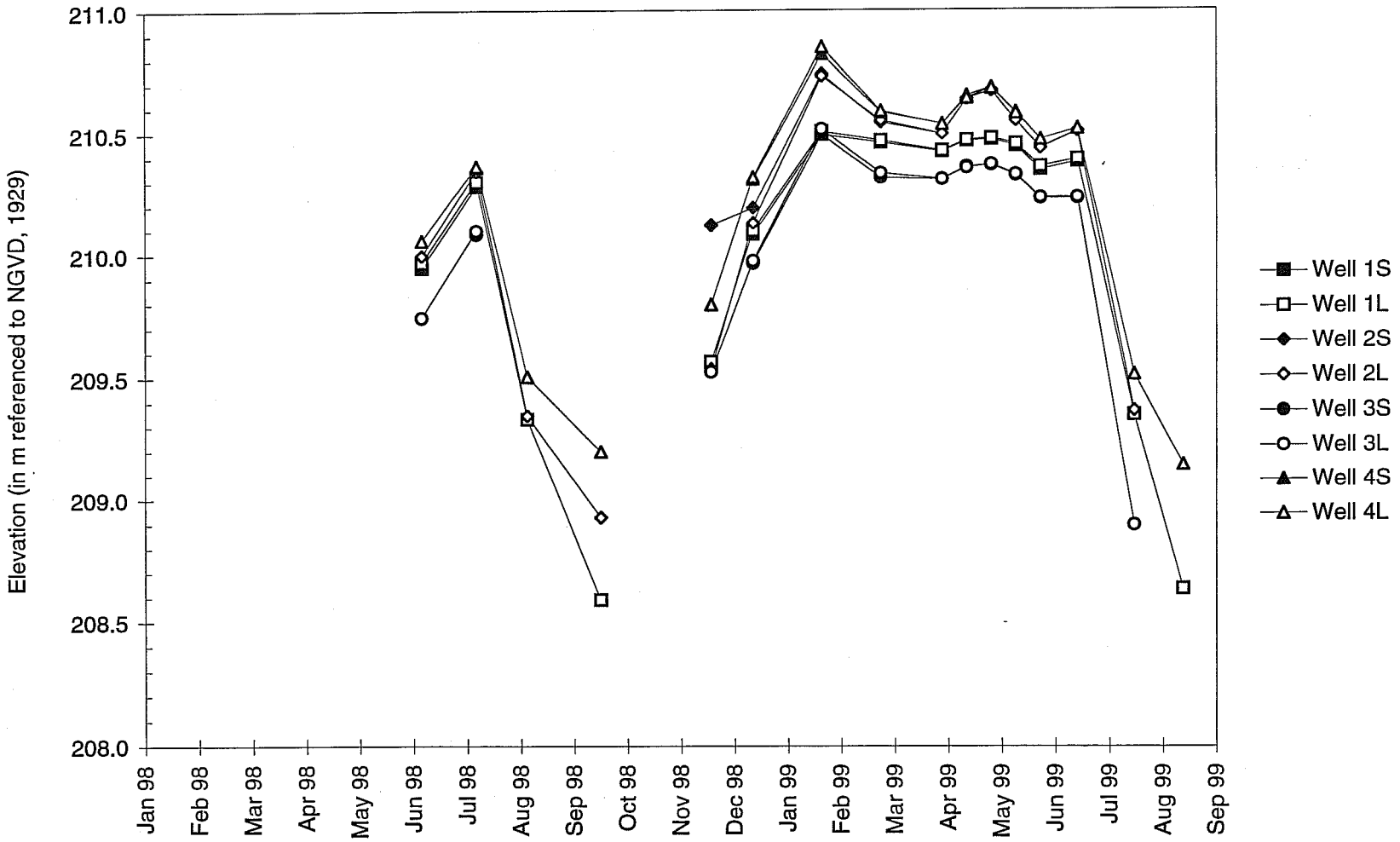
North Chicago
June 1998 to September 1999

Water-Level Elevations in RDS Data Loggers



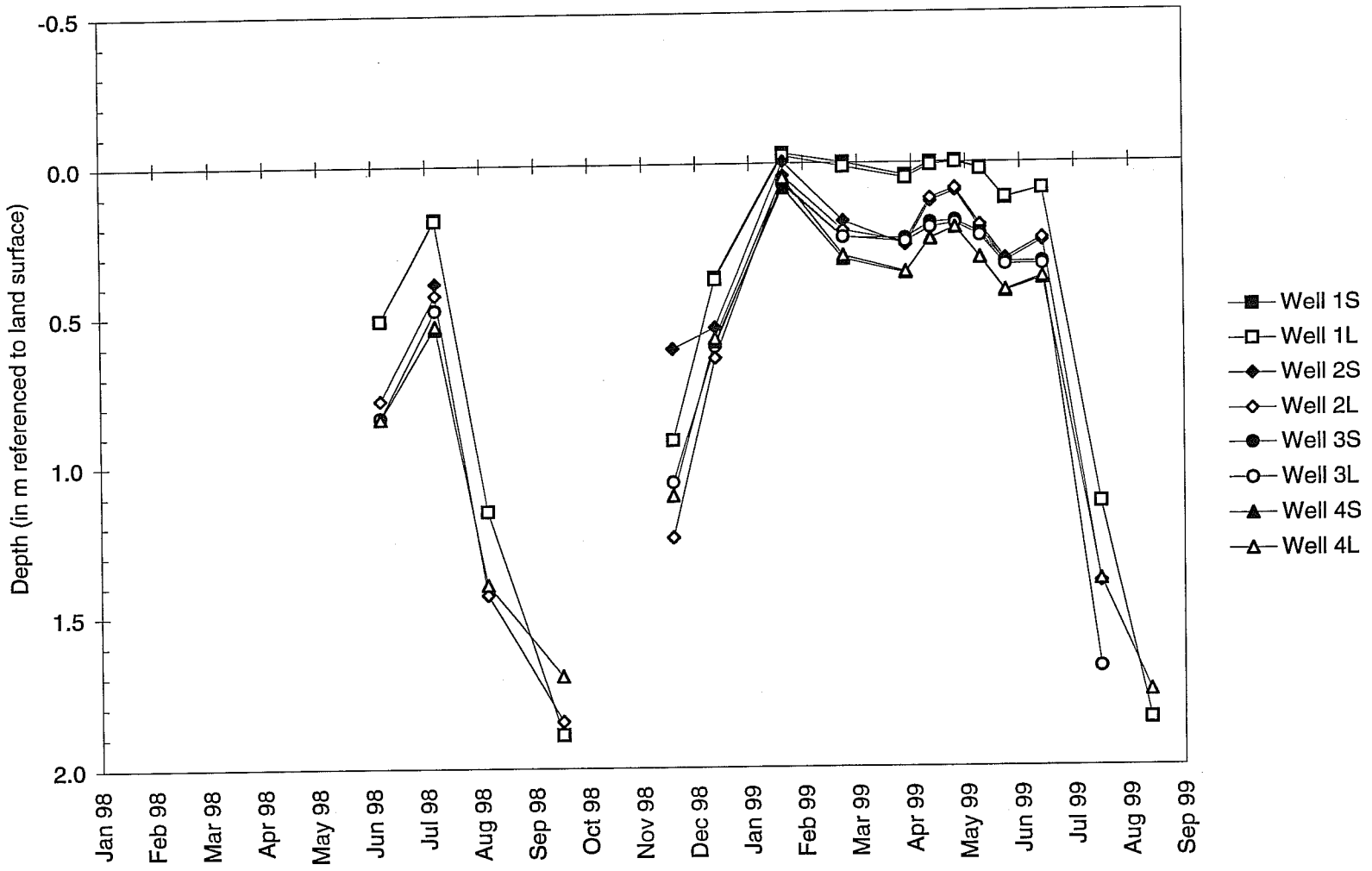
North Chicago
June 1998 to September 1999

Water-Level Elevations



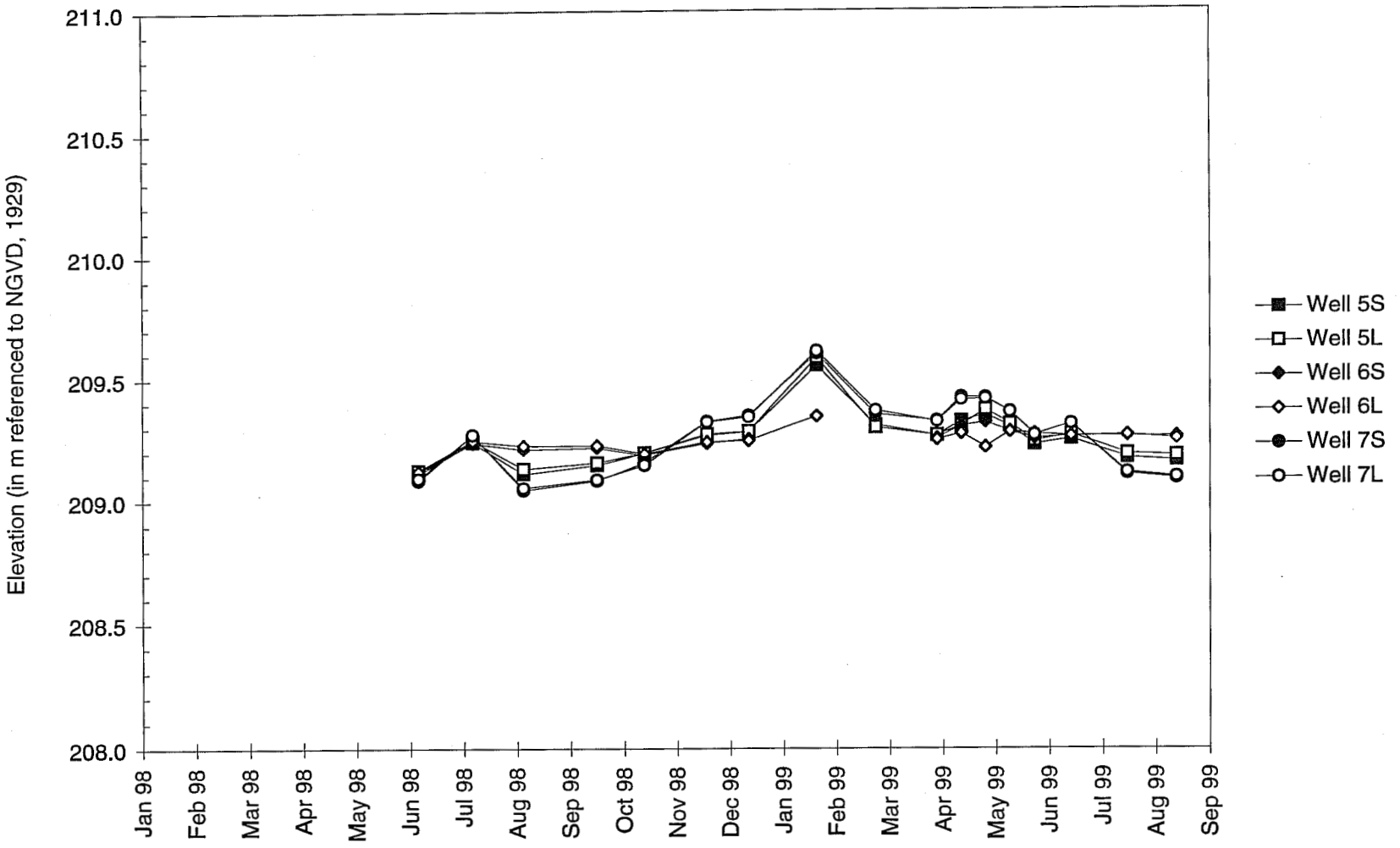
North Chicago
June 1998 to September 1999

Depth to Water



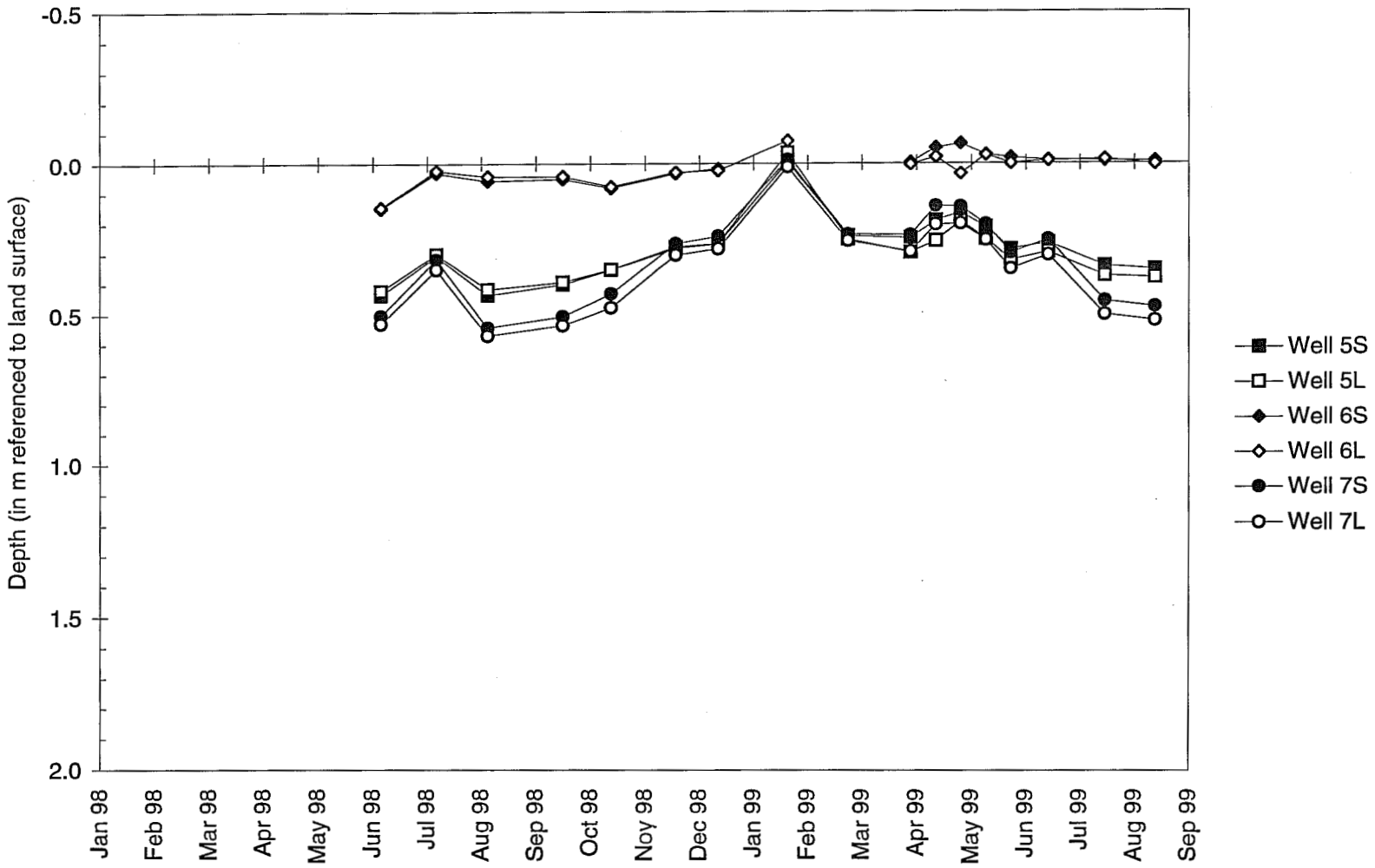
North Chicago
June 1998 to September 1999

Water-Level Elevations



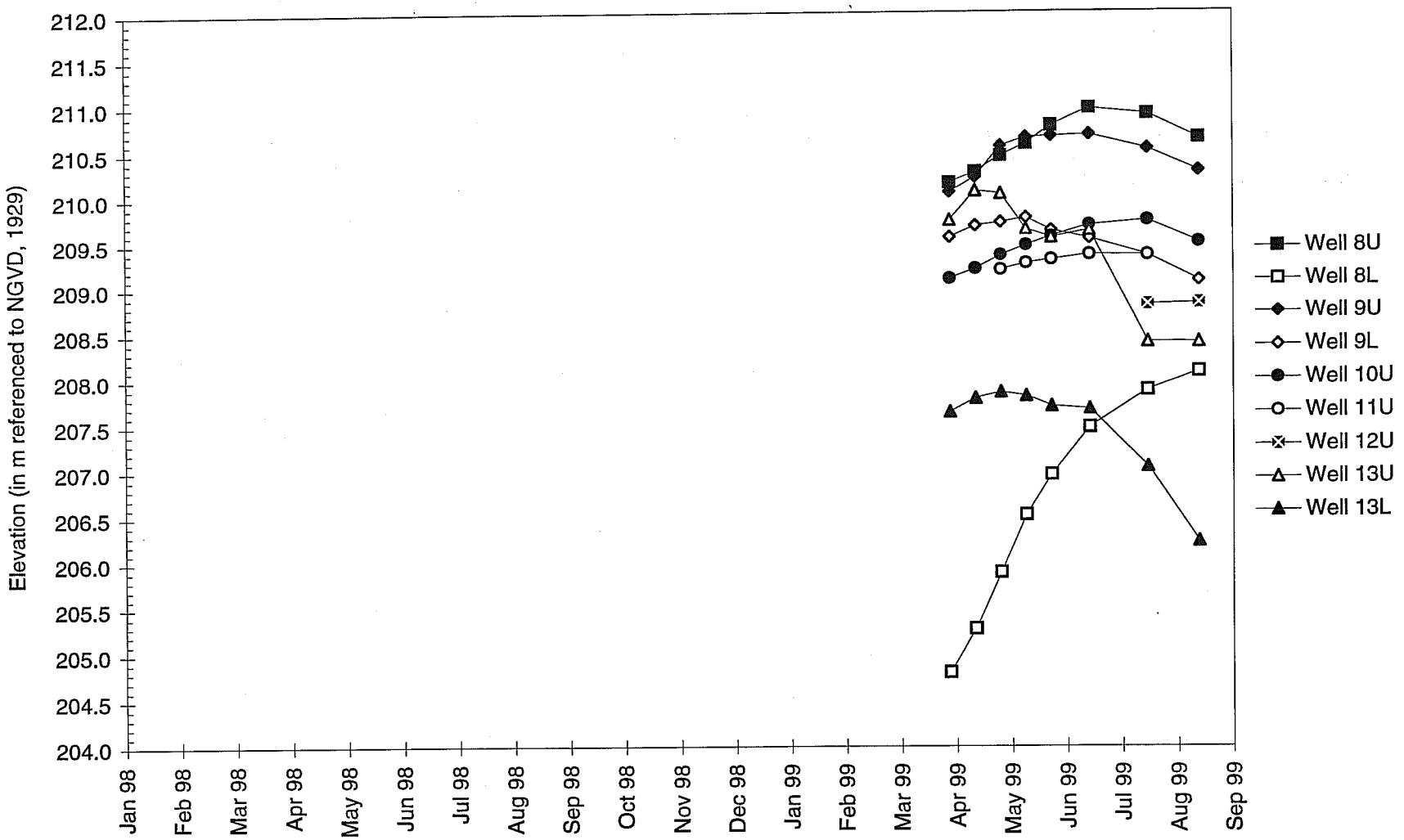
North Chicago
June 1998 to September 1999

Depth to Water



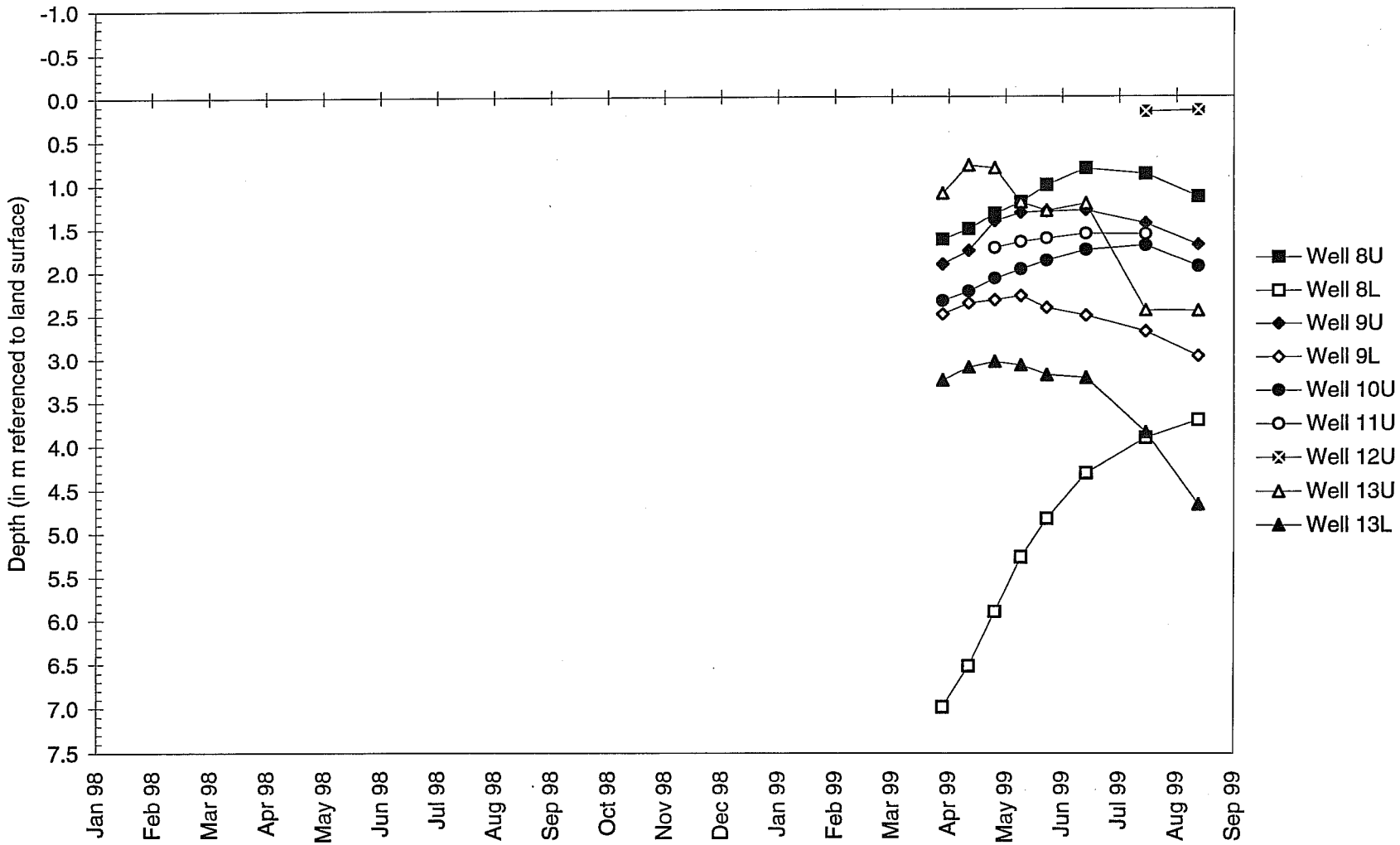
North Chicago
June 1998 to September 1999

Water-Level Elevations



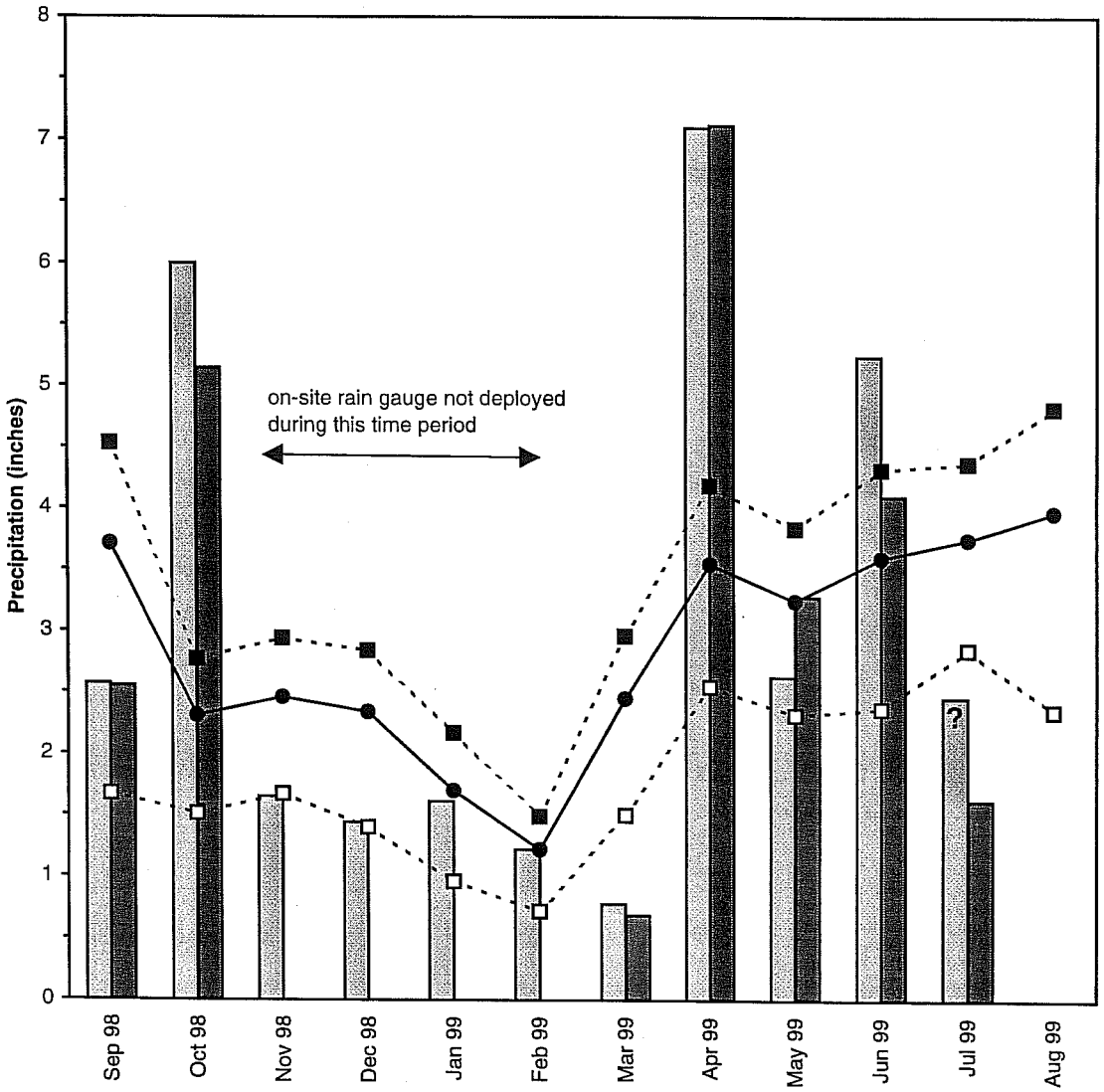
North Chicago
June 1998 to September 1999

Depth to Water



North Chicago
September 1998 through August 1999

Total Monthly Precipitation Recorded On Site and at the Waukegan, IL Weather Station



total monthly precipitation at weather station (? indicates questionable data)
total monthly precipitation on site
average monthly precipitation at weather station*
above 30% threshold*
below 30% threshold*

*Monthly precipitation averages are calculated from data for the period 1961 through 1990. "Above 30% threshold" refers to the threshold at which there is a 30% chance precipitation will be greater than or equal to the value shown. "Below 30% threshold" refers to the threshold at which there is a 30% chance precipitation will be less than or equal to the value shown. Weather station data obtained from the National Water and Climate Center. On-site data collected by ISGS.

Graph updated August 10th, 1999

NORTH CHICAGO **ISGS #31**
POTENTIAL WETLAND BANKING SITE
FAP 120
Lake County, near North Chicago, Illinois
Primary Project Manager: James J. Miner
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- Spring 1995: ISGS submitted an Initial Site Evaluation Report to IDOT.

- Summer and Fall 1998: ISGS installed monitoring wells and surface-water data loggers, and began a geochemical characterization.

- January 2000: A letter report containing initial observations and recommendations was transmitted to IDOT.

WETLAND HYDROLOGY CALCULATION FOR 2000 AND SUMMARY OF 2000 EVENTS

Because this site is a potential compensation site, an estimate of areas of wetland hydrology is not required. Wetlands on site have been mapped by INHS and Christopher B. Burke Engineering, Ltd., and ISGS activities have been concentrated on an examination of hydrogeology and geochemistry of the site.

- According to the Midwestern Climate Center, the median date that the growing season begins in Waukegan is April 14 and the season lasts 195 days; 12.5% of the growing season is 24 days.

- In 2000, precipitation was below the normal range in October and November 1999 and March 2000 as part of a generally dry trend that began in Summer 1999. Precipitation was above the normal range in April through July 2000, leading to wet conditions later than usual.

- In 2000, surface-water levels were measured at 8 locations within the site.

- Ground-water elevations were measured in two different wetlands within the site and in two transects across the site.

ADDITIONAL INFORMATION

- No aquifers have been identified that may supply sufficient ground water to any potential wetland compensation area. Surface water is likely the primary source for any wetland compensation activities. Clay-rich sediments will likely perch surface water in an efficient manner.

- The berm located on the east side of the site is being breached at outlet O-3 by surface water during spring, and erosion may cut completely through the berm and dewater wetlands that rely on the berm to produce flooding.

- High levels of chloride, silt, and other anthropogenic additions are noted in inputs on the north and west sides of the site. Therefore, it may be useful to create settling ponds and/or treatment wetlands adjacent to each inlet where impacts were found.

PLANNED FUTURE ACTIVITIES

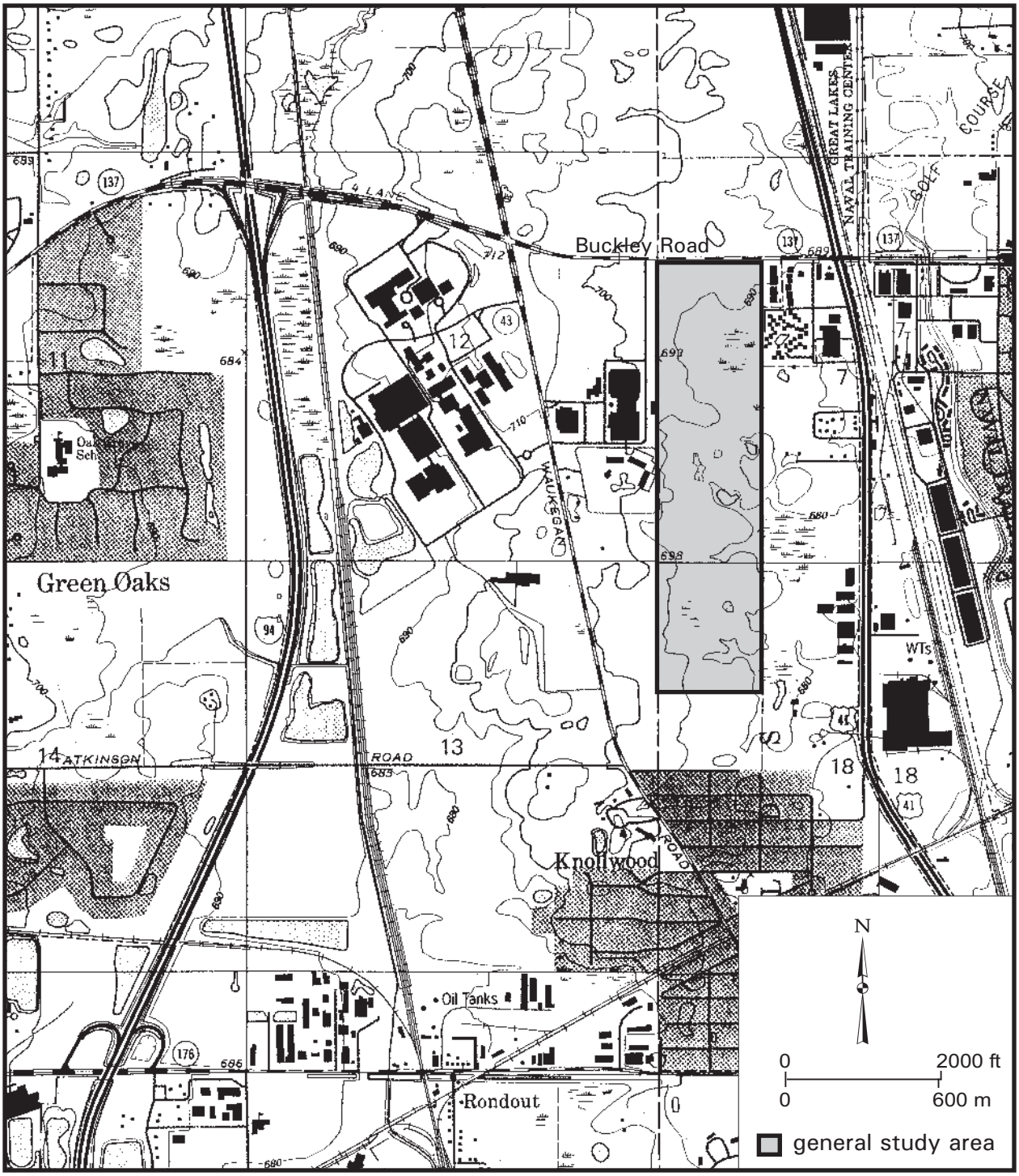
- Shallow wells are to be installed in areas of hydric soils when soil mapping becomes available from Christopher B. Burke Engineering, Ltd.

- Water-level monitoring will continue until no longer required by IDOT.

North Chicago Potential Wetland Banking Site
(FAP 120)

General Study Area and Vicinity

from the USGS Topographic Series, Libertyville, IL (W) (USGS 1993) and Waukegan, IL (E) (USGS 1993)
7.5-minute Quadrangles

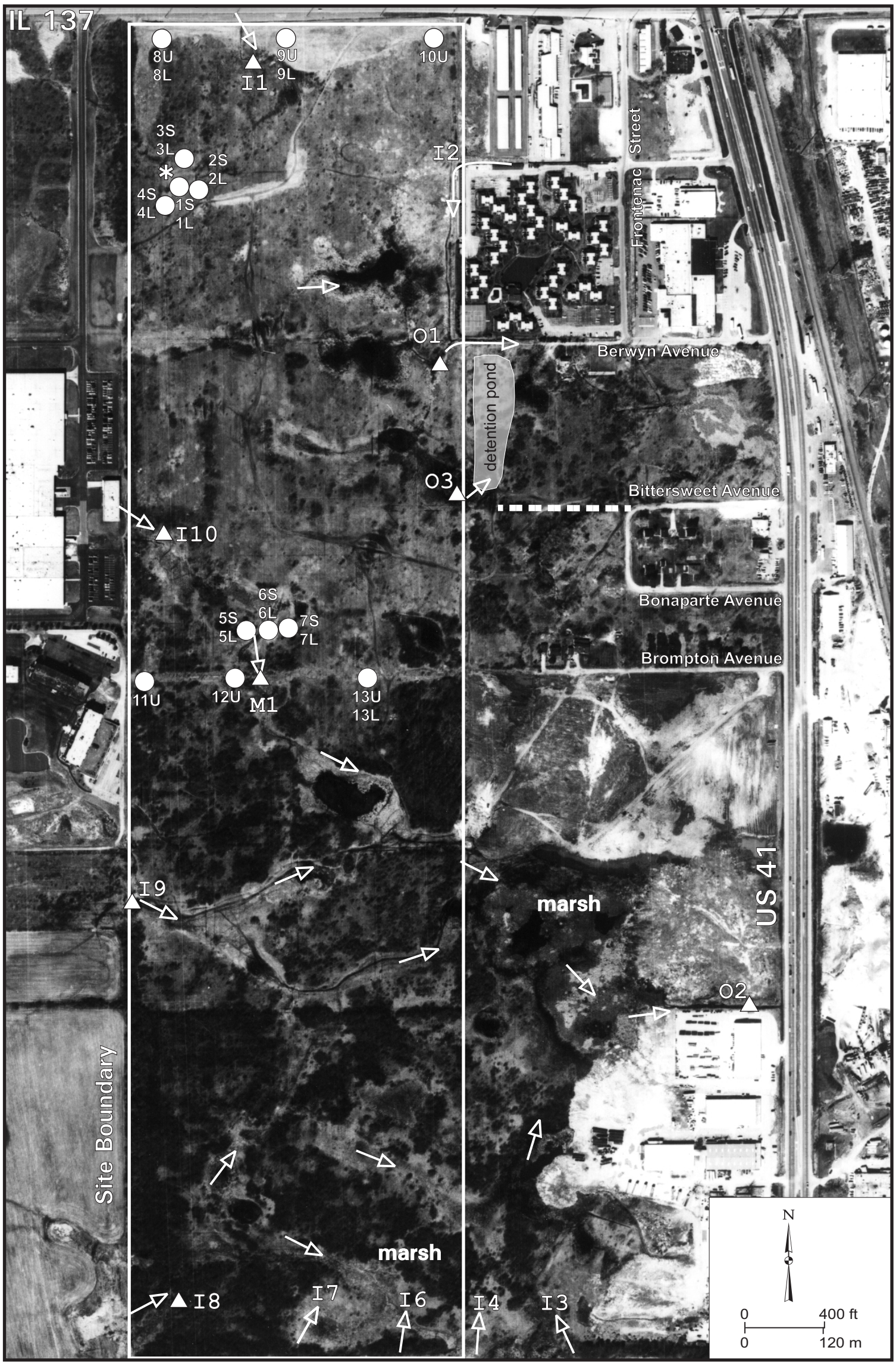


North Chicago Potential Wetland Banking Site

(FAP 120)

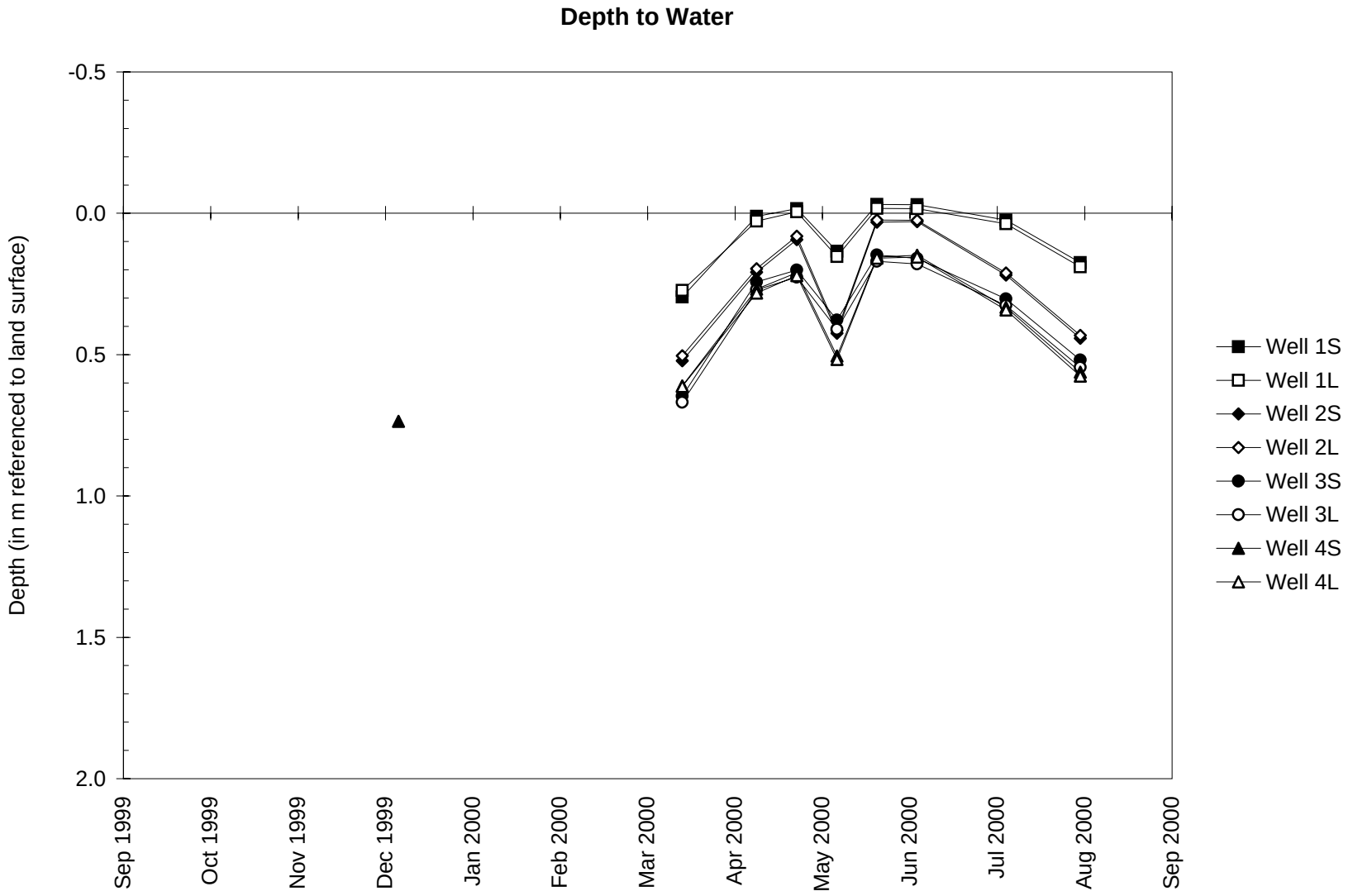
Approximate Locations of ISGS Monitoring Instruments

map based on aerial photography from IDOT (April 17, 1993, ST 9 587)



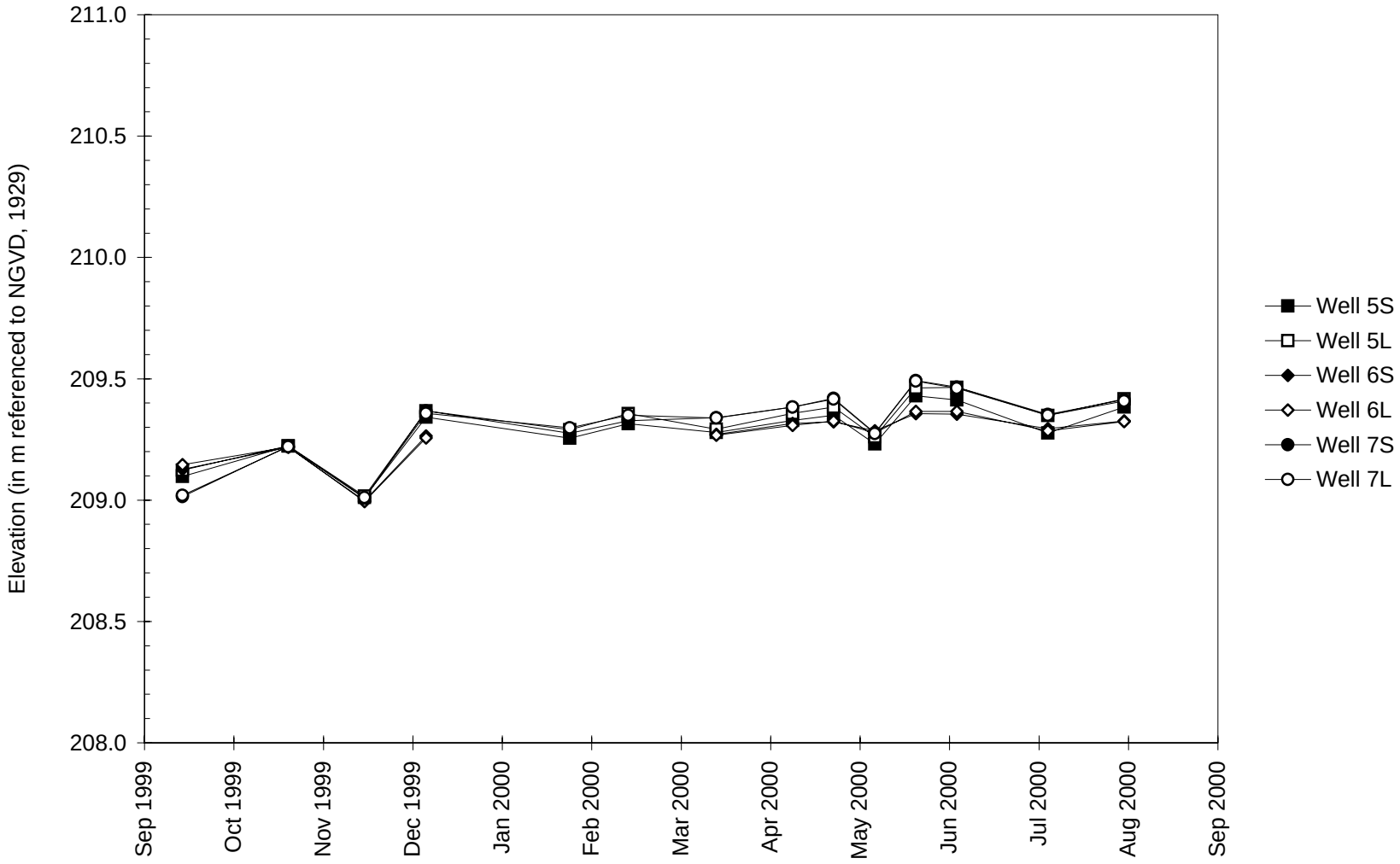
- ○ monitoring well(s)
- O# outlet number
- I# inlet number
- △ RDS data logger
- ✲ rain gauge
- → surface-water flow direction

North Chicago Potential Wetland Banking Site
September 1, 1999 to September 1, 2000

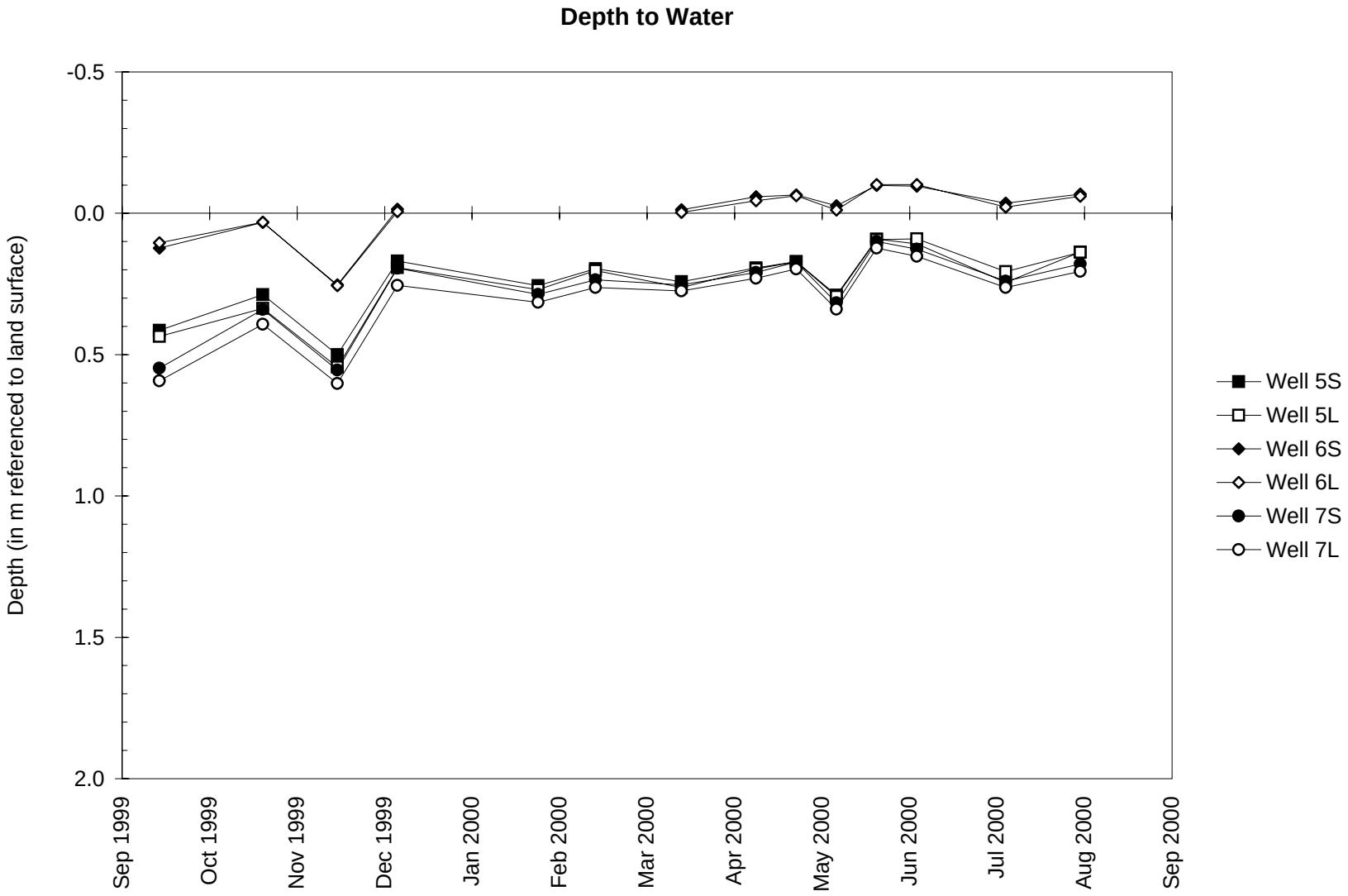


North Chicago Potential Wetland Banking Site
September 1, 1999 to September 1, 2000

Water-Level Elevations

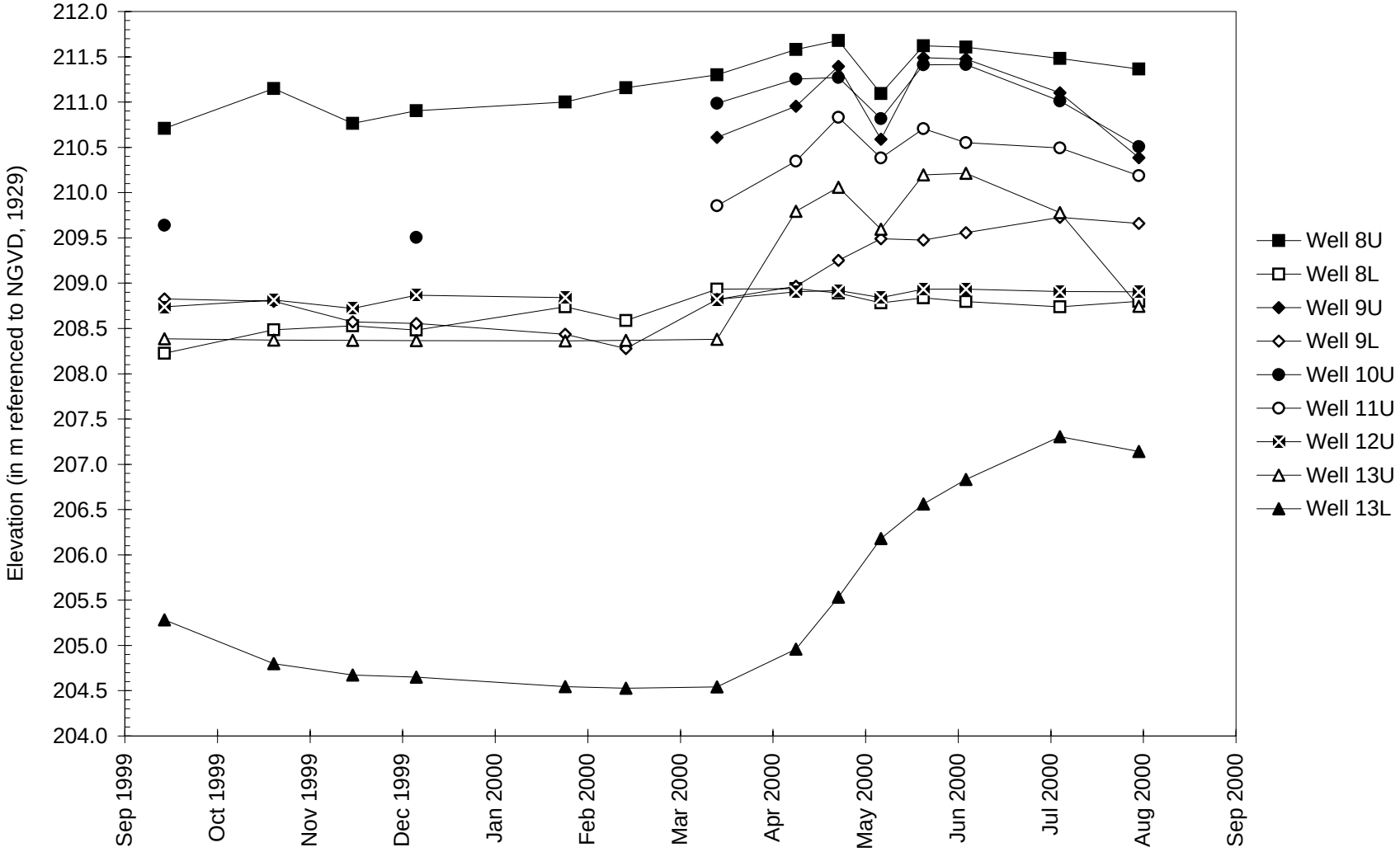


North Chicago Potential Wetland Banking Site
September 1, 1999 to September 1, 2000



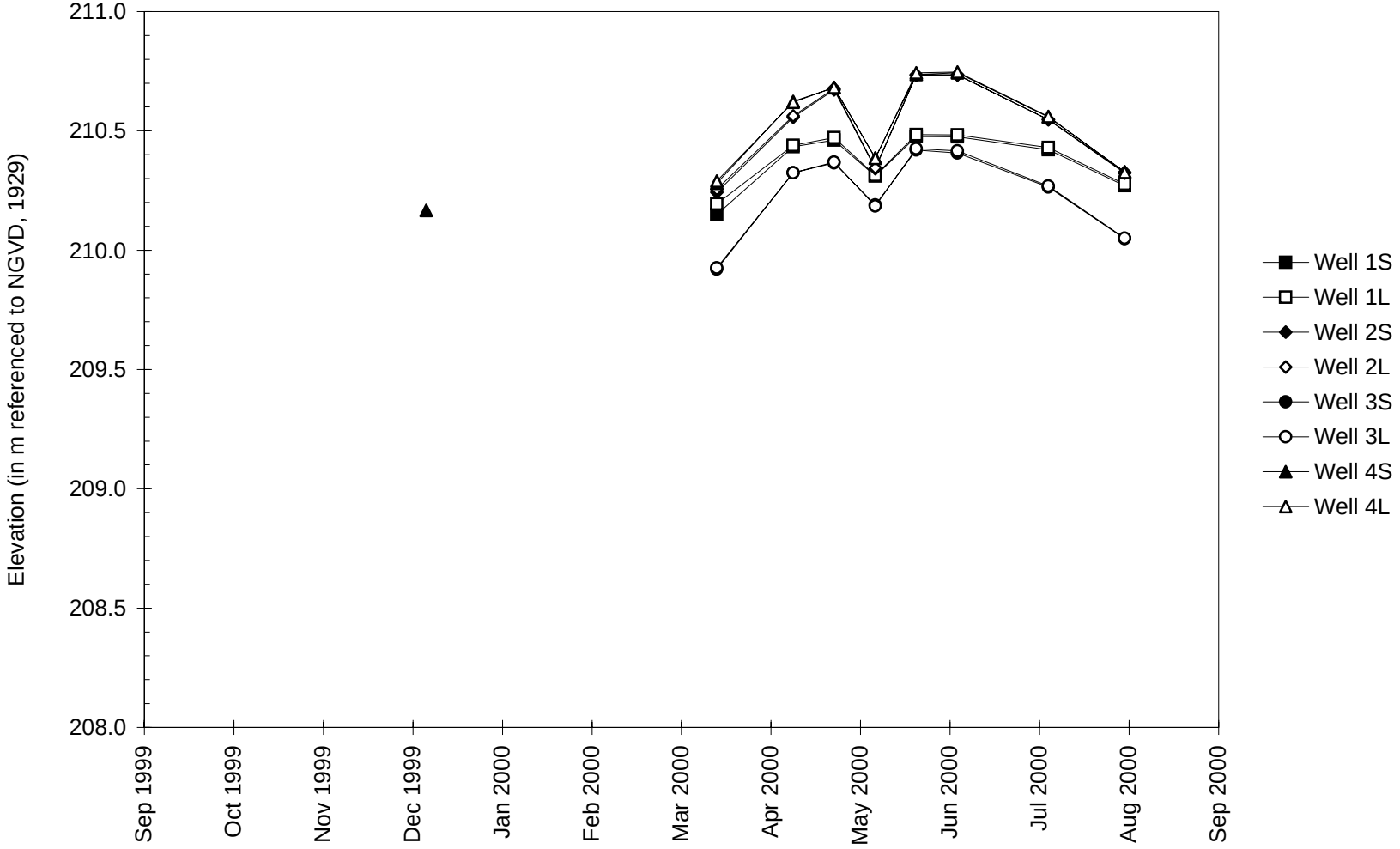
North Chicago Potential Wetland Banking Site
September 1, 1999 to September 1, 2000

Water-Level Elevations

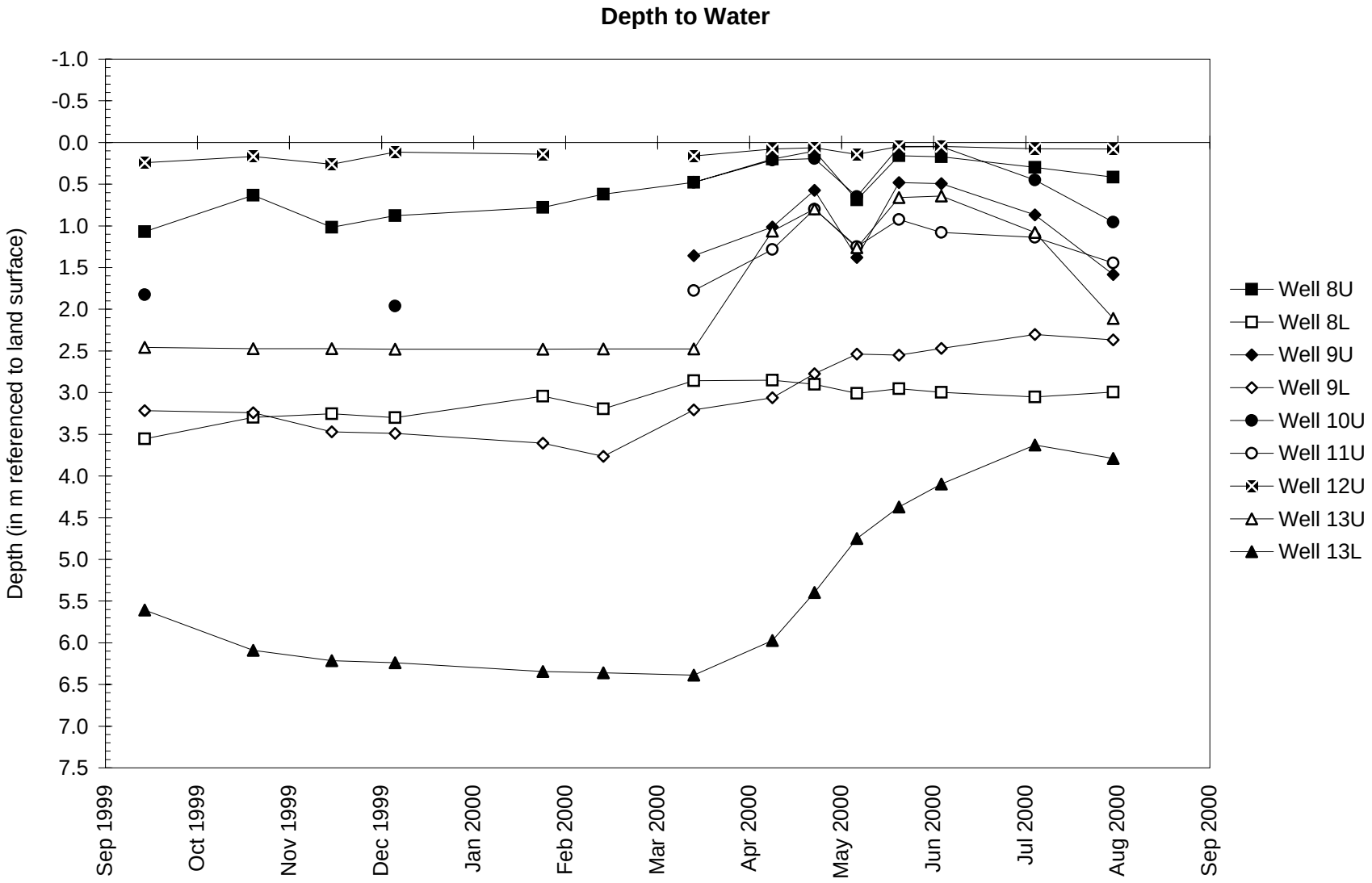


North Chicago Potential Wetland Banking Site
September 1, 1999 to September 1, 2000

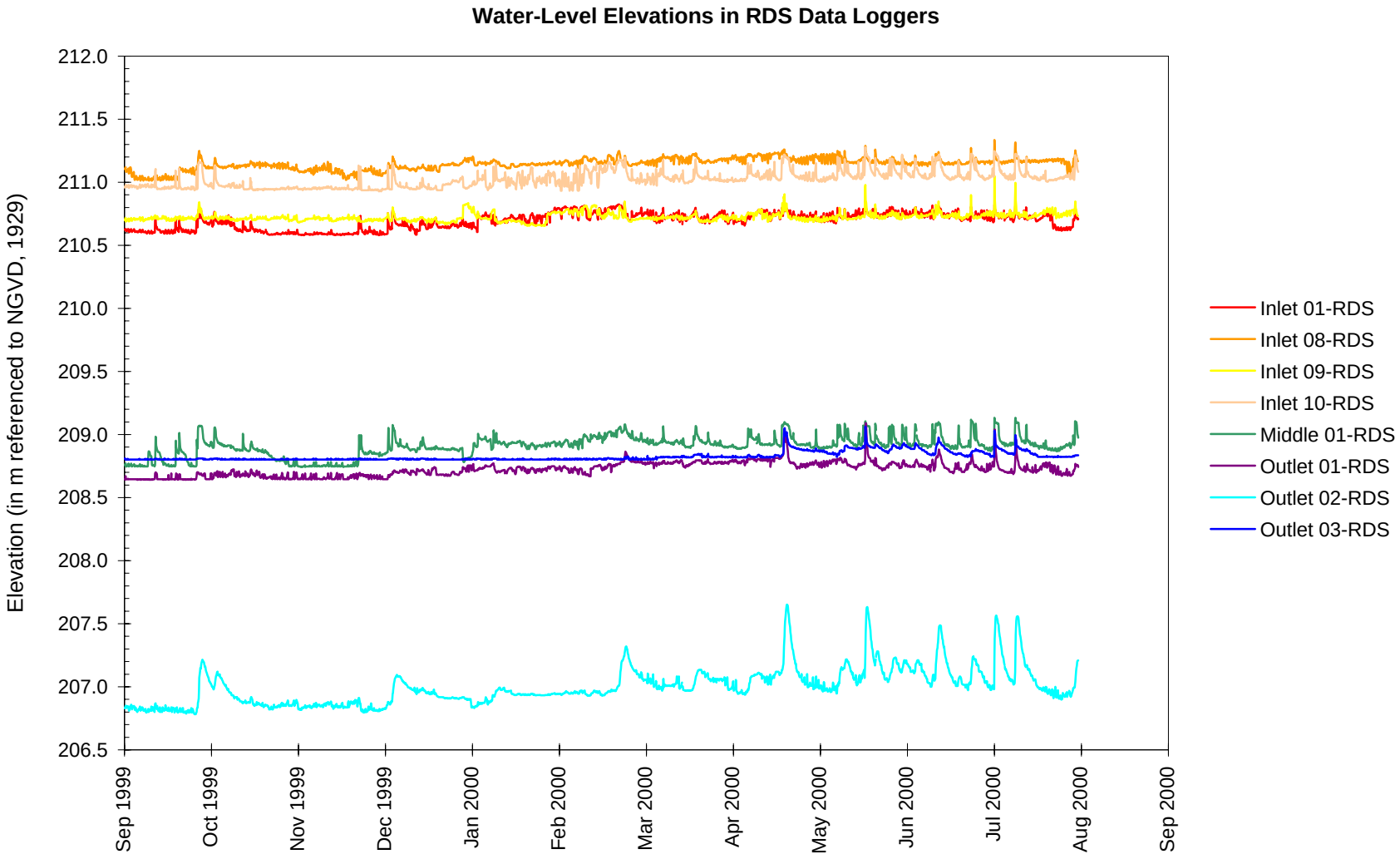
Water-Level Elevations



North Chicago Potential Wetland Banking Site
September 1, 1999 to September 1, 2000

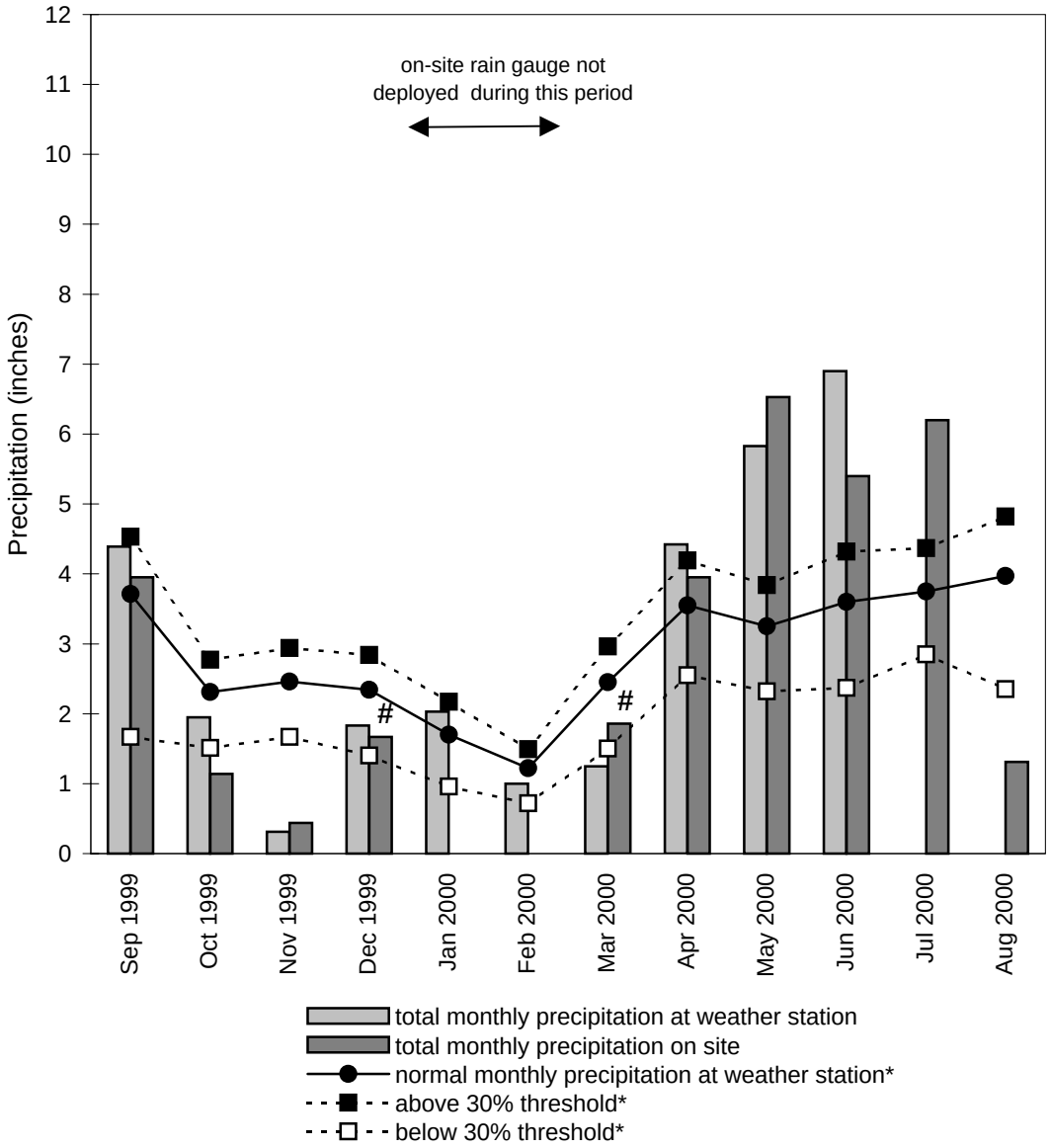


North Chicago Potential Wetland Banking Site
September 1, 1999 to September 1, 2000



North Chicago Potential Wetland Banking Site
September 1999 through August 2000

Total Monthly Precipitation Recorded On Site and at the Waukegan, IL Weather Station



on-site rain gauge not deployed for the entire month
* see text for explanation

Graph last updated September 15, 2000

NORTH CHICAGO **ISGS #31**
POTENTIAL WETLAND BANKING SITE
FAP 120
Lake County, near North Chicago, Illinois
Primary Project Manager: James J. Miner
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- Spring 1995: ISGS submitted an Initial Site Evaluation Report to IDOT.

- Summer and Fall 1998: ISGS installed monitoring wells and surface-water data loggers, and began a geochemical characterization.

- January 2000: A letter report containing initial observations and recommendations was transmitted to IDOT.

- Spring 2001: Twenty-nine additional soil-zone wells were installed throughout the site to monitor the hydrogeologic conditions in areas that were identified by Christopher B. Burke Engineering, LTD., as containing drained hydric soils. These wells will help evaluate the impacts of proposed restoration of the site by buckthorn removal.

WETLAND HYDROLOGY CALCULATION FOR 2001 AND SUMMARY OF 2001 EVENTS

Wetland and drained wetland areas at this site have been mapped by Christopher B. Burke Engineering, LTD. However, an electronic copy of this map has not yet been received by ISGS. When it is received, hydrologic data collected by ISGS can be superimposed on the map polygons and a comparison can be made between the mapped wetland status and the hydrologic conditions measured in each mapped area, thus allowing for review of the restoration plans for the site. Until that time, it is not possible to delineate the area of the site that satisfies wetland hydrology criteria using monitoring wells alone due to the complex intermingling of wetland and nonwetland areas.

- According to the Midwestern Climate Center, the median date that the growing season begins in Waukegan is April 14 and the season lasts 195 days; 12.5% of the growing season is 24 days.

- During the monitoring year, precipitation was 97% of normal. Most months were below or nearly below normal, with the exception of September and November 2000, and February and May 2001, which had precipitation above or nearly above the normal range.

- In 2001, water levels measured in the following wells conclusively satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual: wells 1S, 2S, 3S, 4S, 5S, 6S, 7S, 14S, 16S, 17S, 21S, 23S, 25S, 29S, 32S, 33S, 34S, 37S, 39S, 40S, 41S, and 42S.

- In 2001, surface-water levels were measured at 8 locations within the site.

ADDITIONAL INFORMATION

- No aquifers have been identified that may supply sufficient ground water to any potential wetland compensation area. Surface water and precipitation are likely the primary water sources for any wetland compensation activities. Clay-rich sediments will likely perch surface water in an efficient manner.

- The berm located on the east side of the site is being breached at outlet O-3 by surface water during spring, and erosion may eventually cut completely through the berm and drain several acres of wetlands that rely on the berm to produce flooding.

- High levels of chloride, silt, and other anthropogenic additions are noted in inputs on the north and west sides of the site. Therefore, it may be useful to create settling ponds and/or treatment wetlands adjacent to each inlet where impacts were found.

- Well data show that some of the areas proposed for wetland restoration by cutting woody vegetation met wetland hydrology criteria in 2001. The location of some of the wells that did not meet wetland hydrology criteria suggest that drainage tile may be present in parts of the site, especially in the south part. A search for tile by a professional may be advisable.

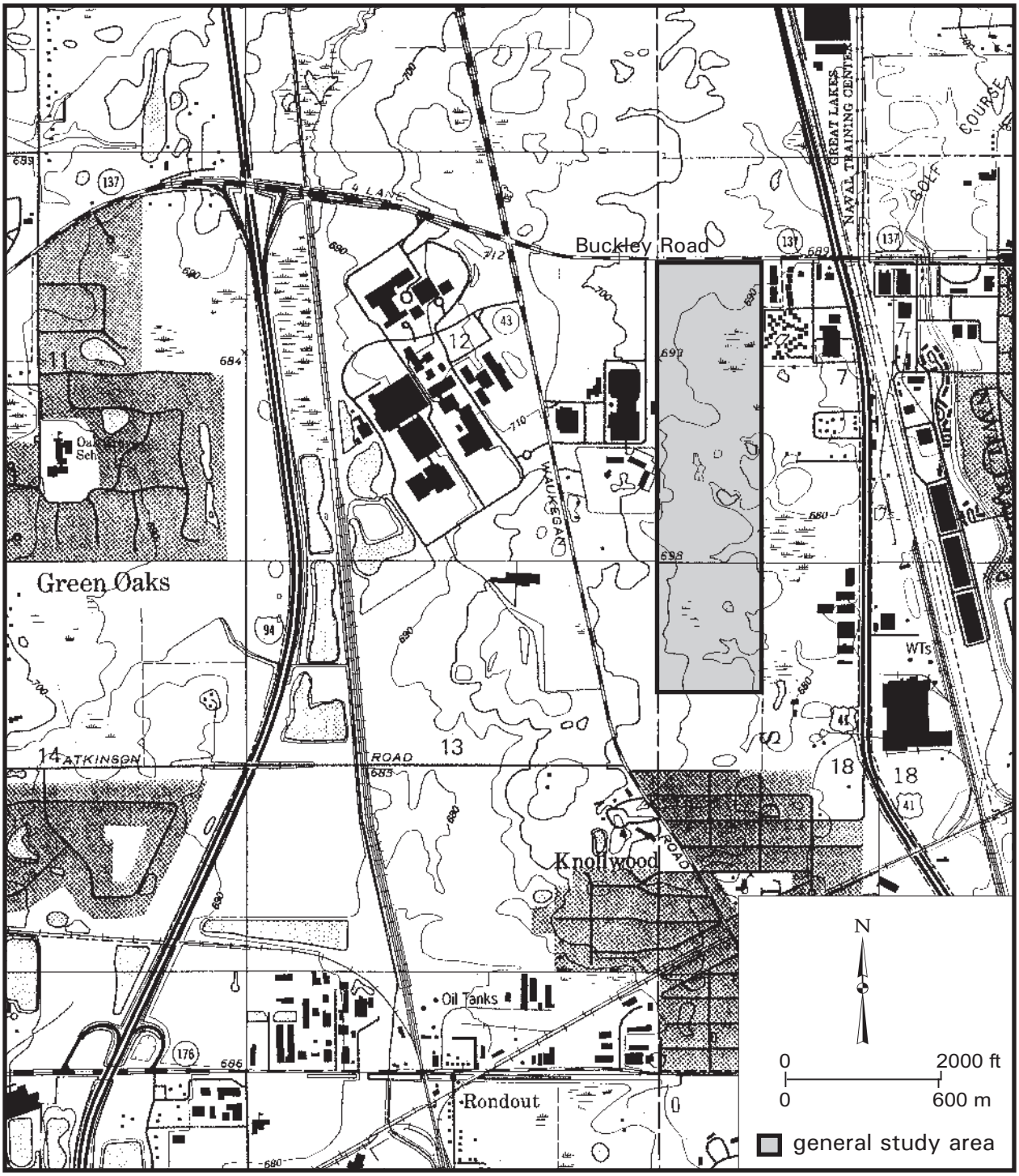
PLANNED FUTURE ACTIVITIES

- Water-level monitoring will continue until no longer required by IDOT.

North Chicago Potential Wetland Banking Site
(FAP 120)

General Study Area and Vicinity

from the USGS Topographic Series, Libertyville, IL (W) (USGS 1993) and Waukegan, IL (E) (USGS 1993)
7.5-minute Quadrangles
contour interval is 10 ft

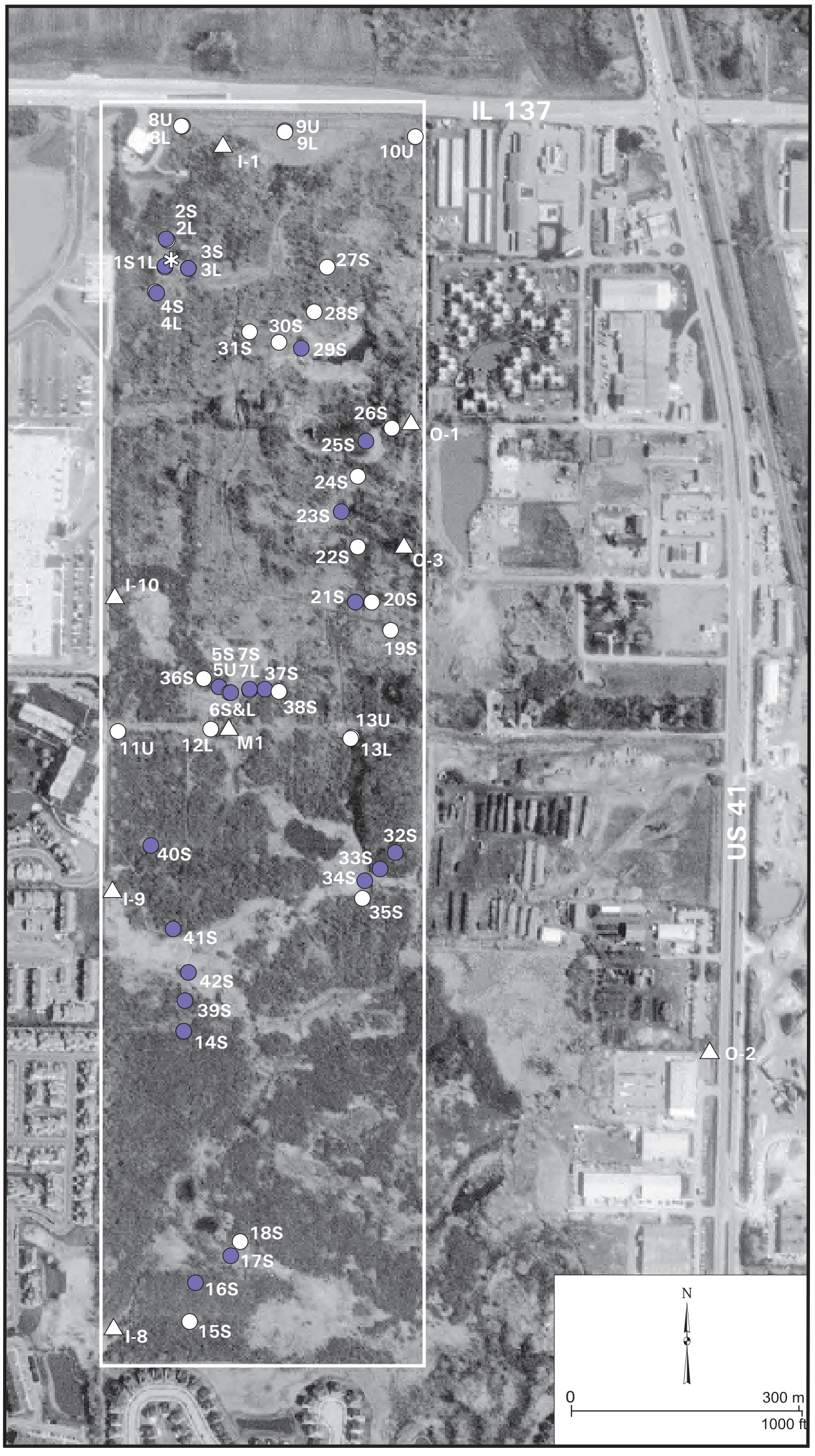


North Chicago Potential Wetland Banking Site

(FAP 120)

Approximate Locations of ISGS Monitoring Instruments

map based on USGS digital orthophotograph, Waukegan, NW quarter quadrangle, produced from 04/17/1998 aerial photography (ISGS 2001)



monitoring wells that met wetland hydrology criteria in 2001

other monitoring wells

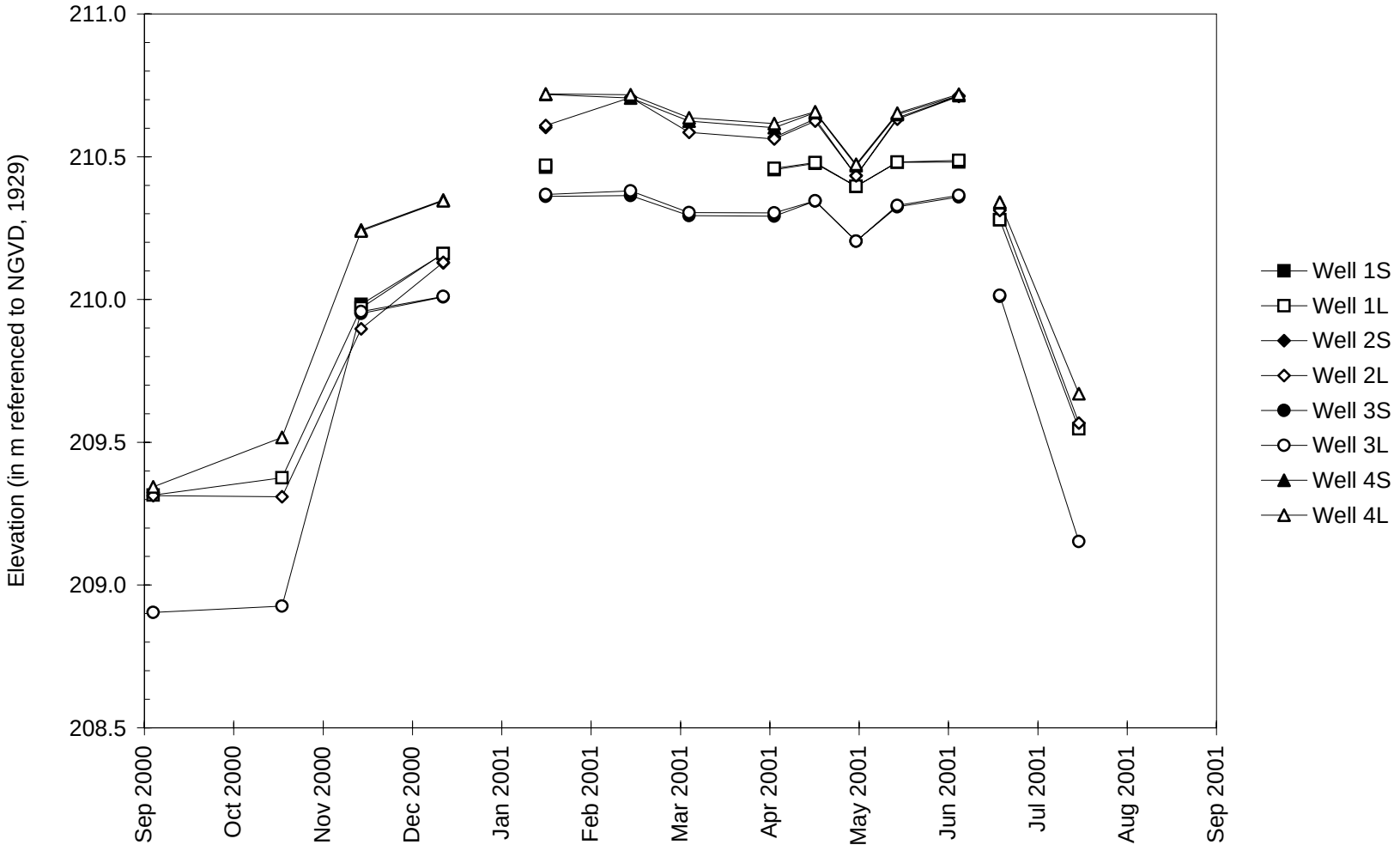
RDS data logger

rain gauge

119

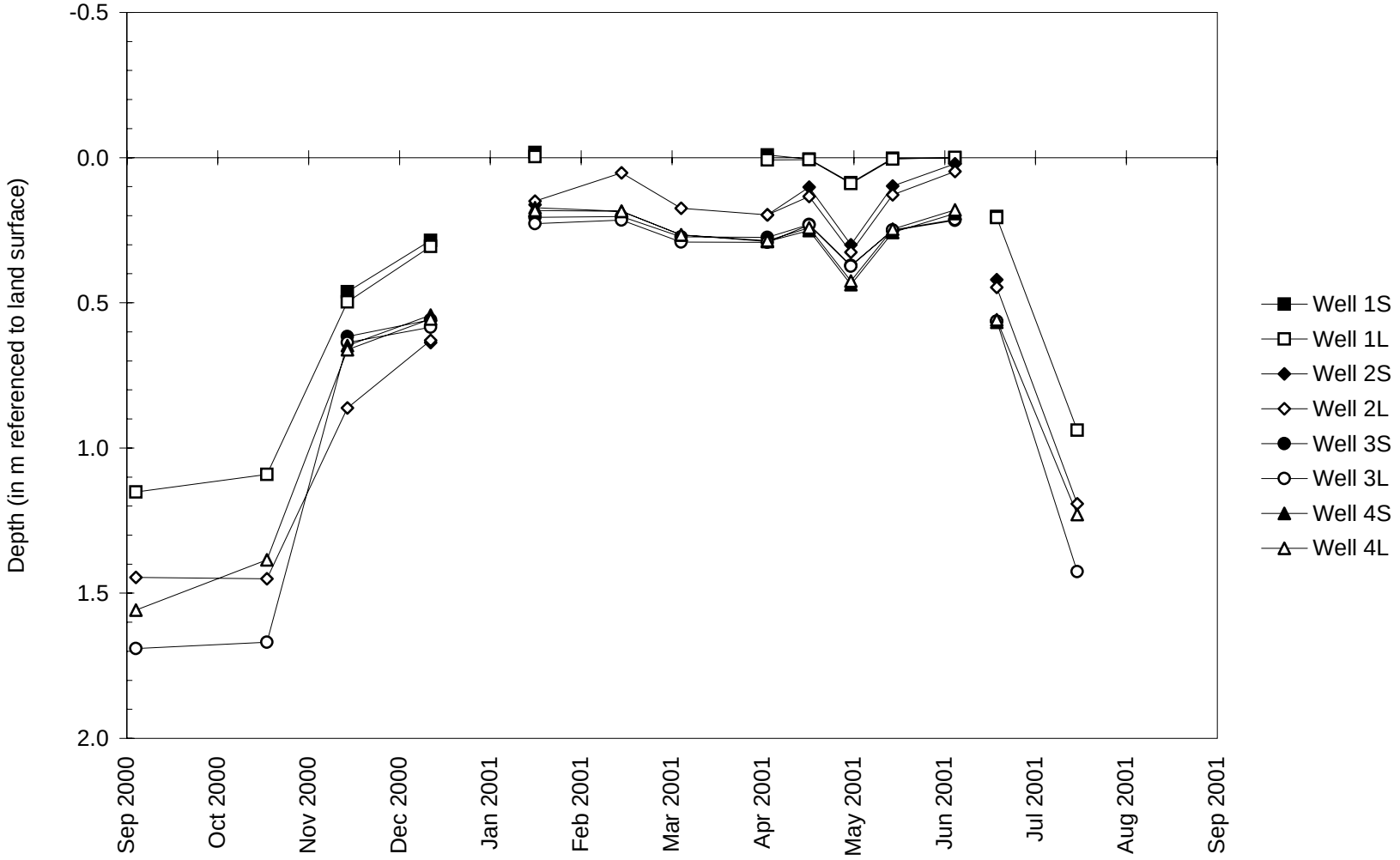
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Water-Level Elevations



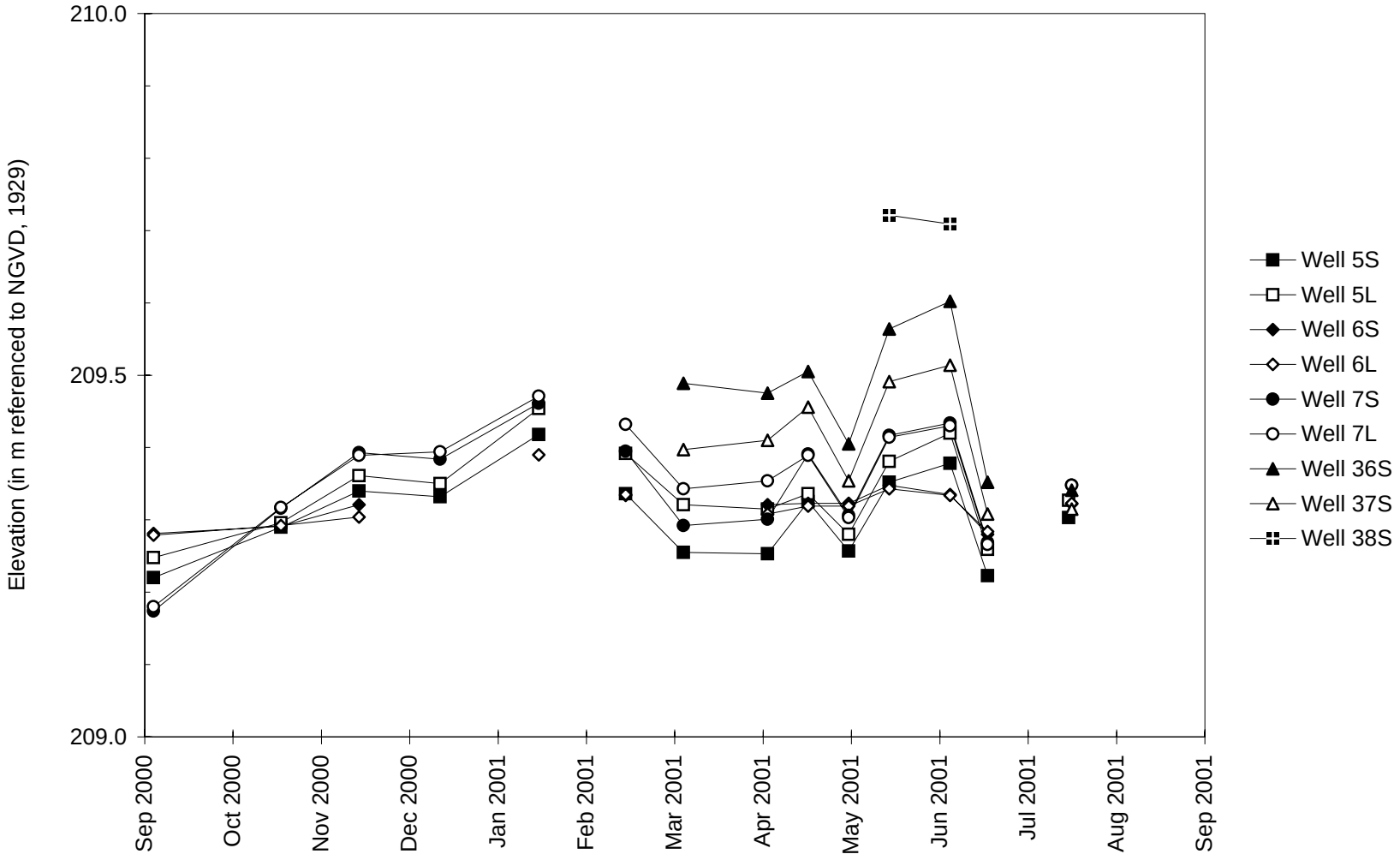
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Depth to Water



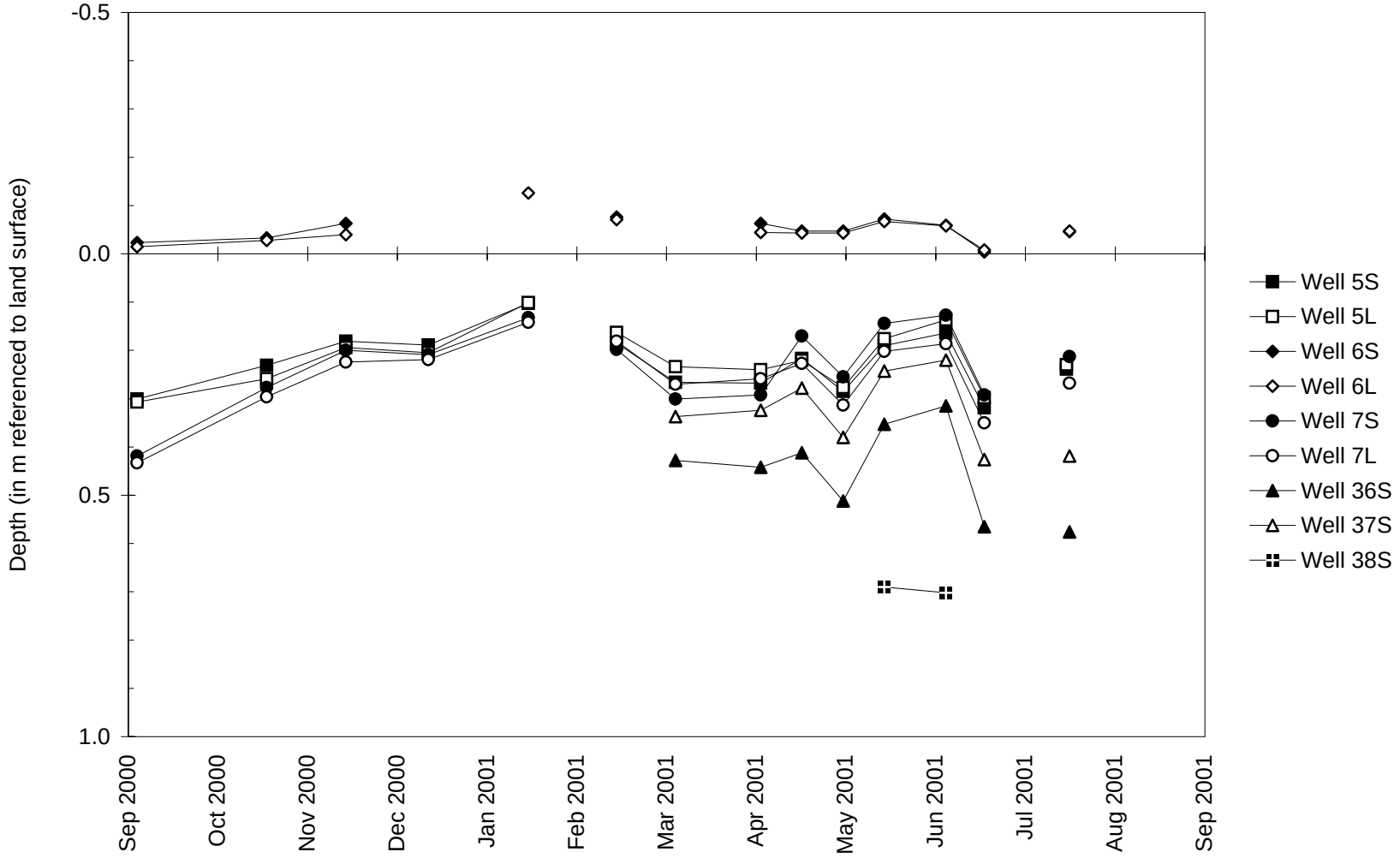
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Water-Level Elevations



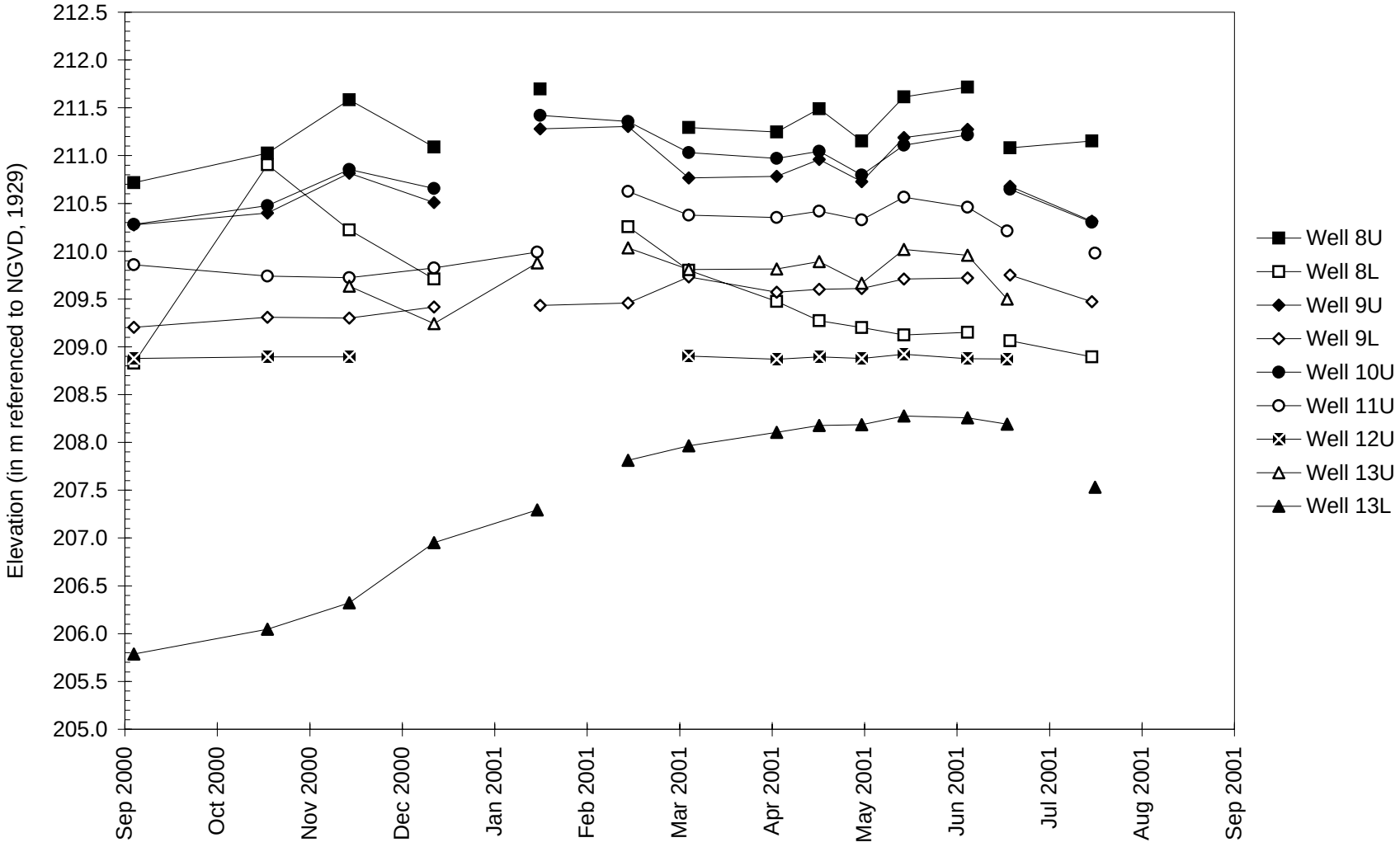
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Depth to Water

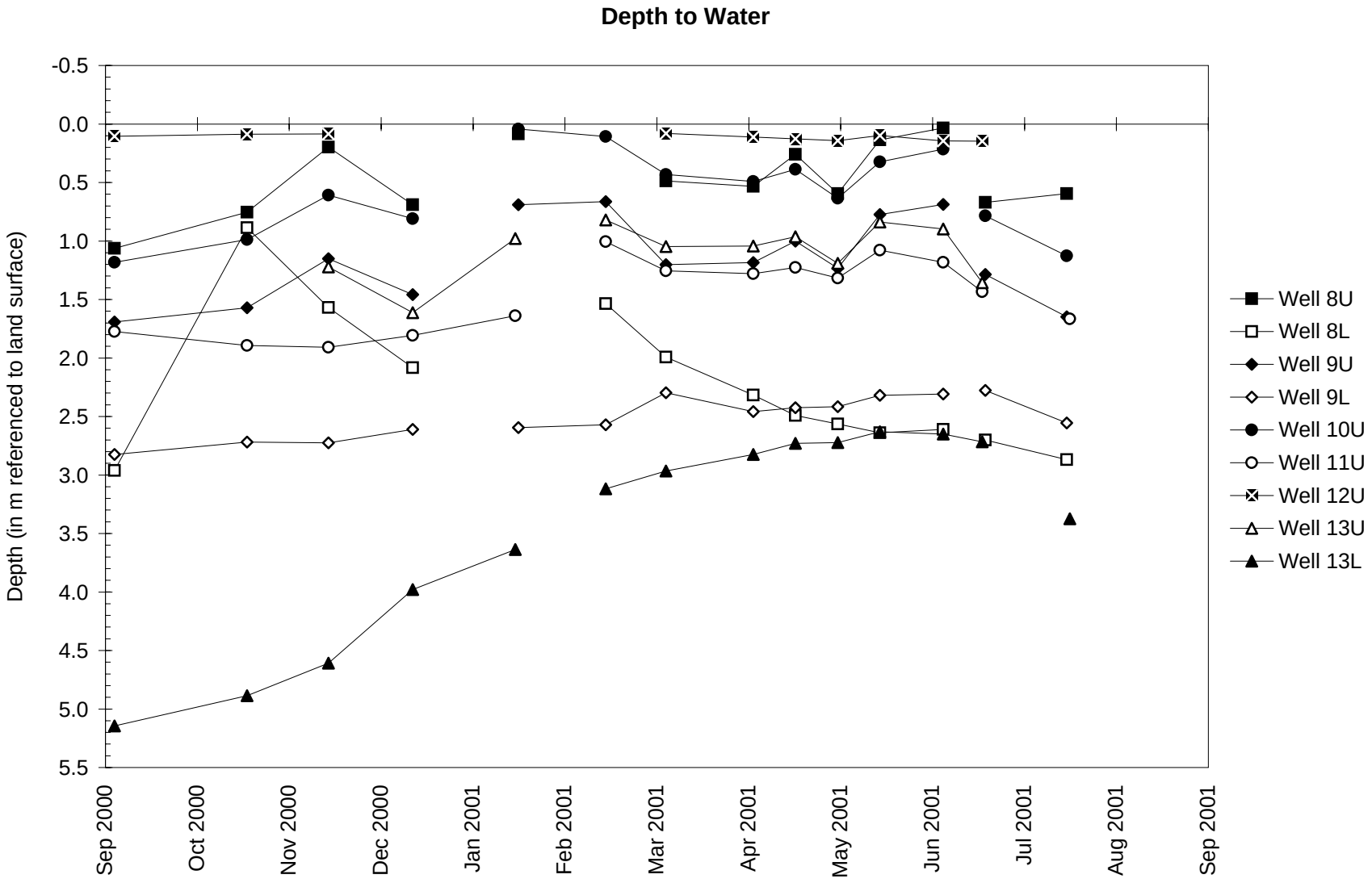


North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Water-Level Elevations

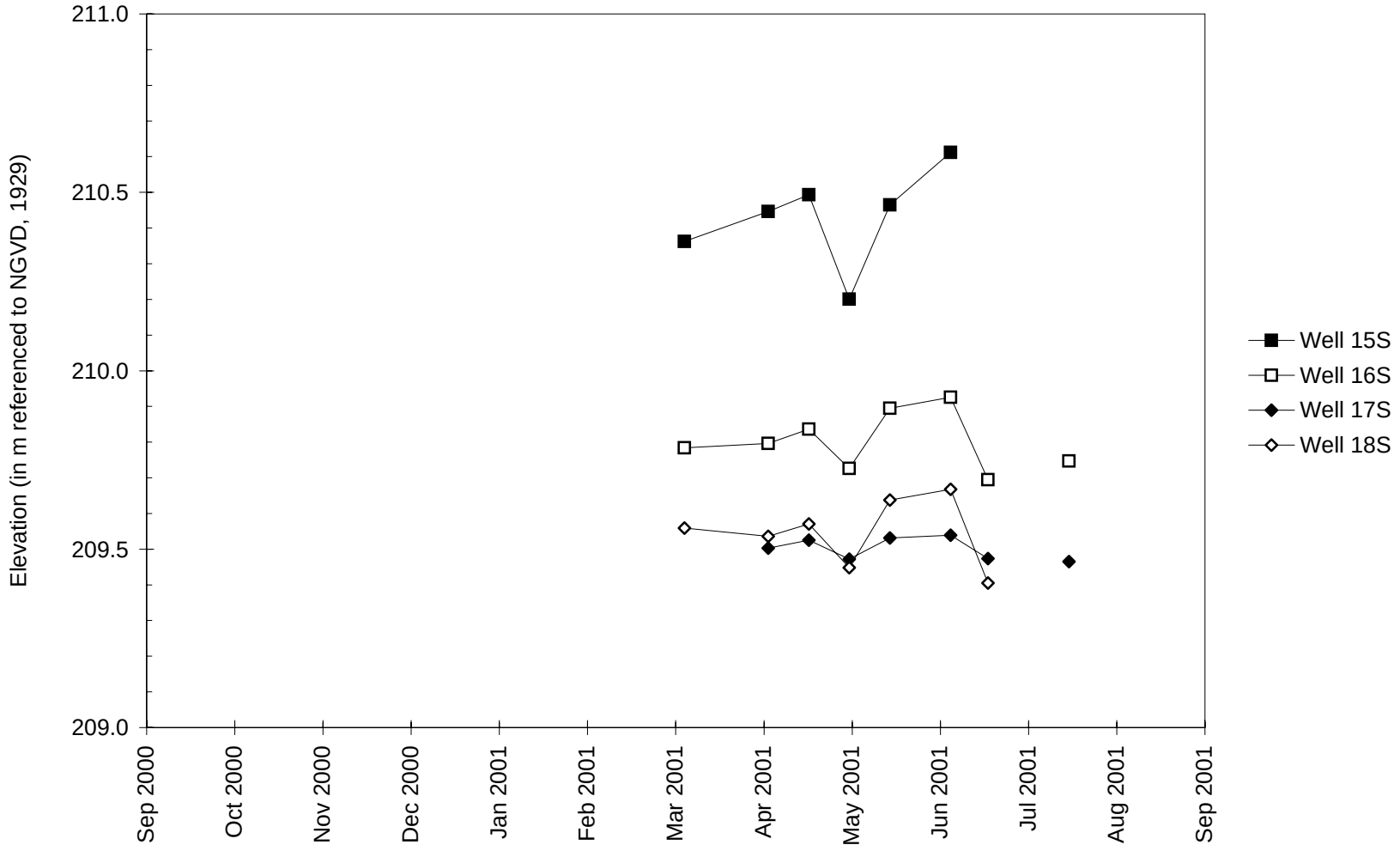


North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001



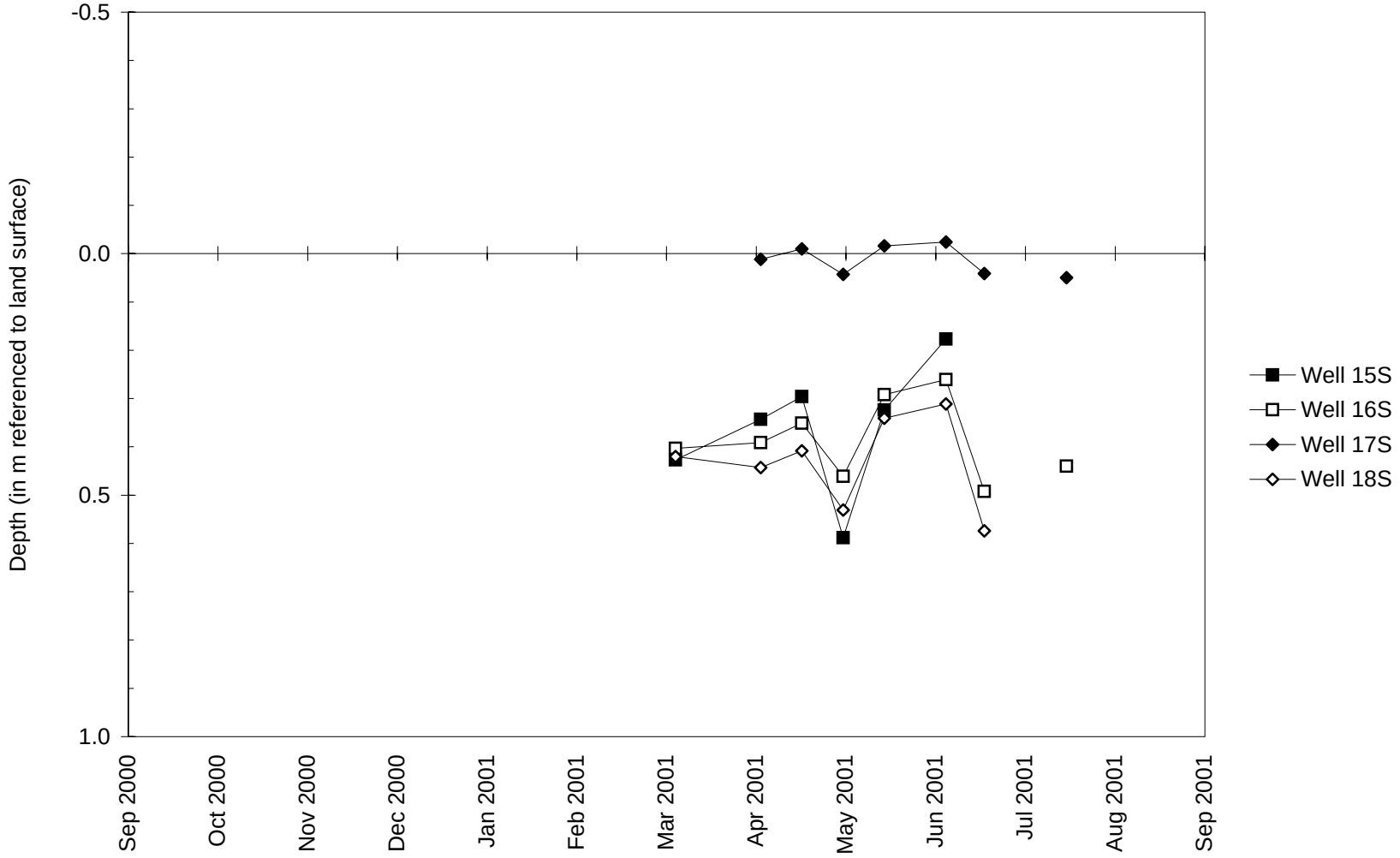
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Water-Level Elevations



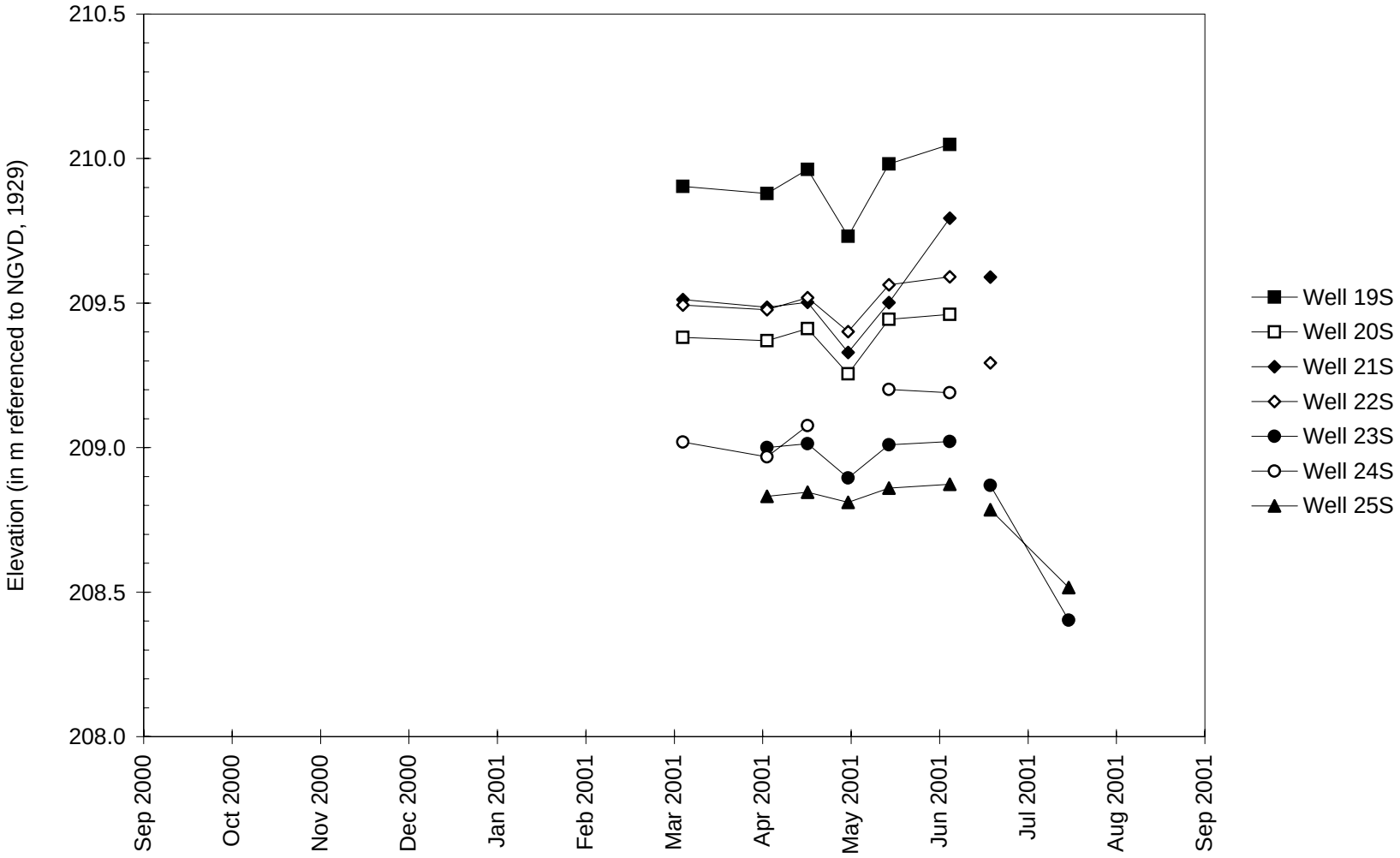
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Depth to Water



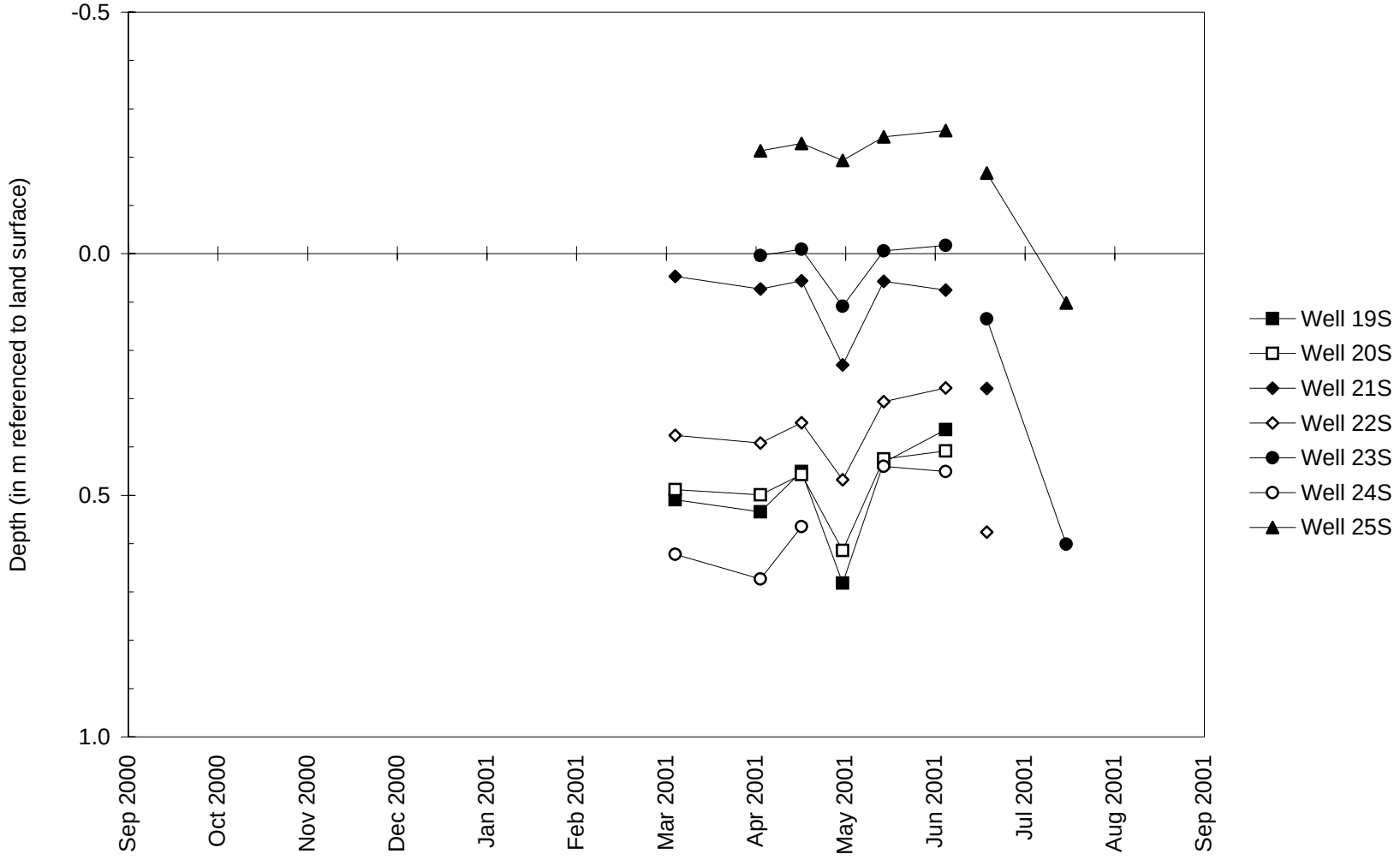
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Water-Level Elevations



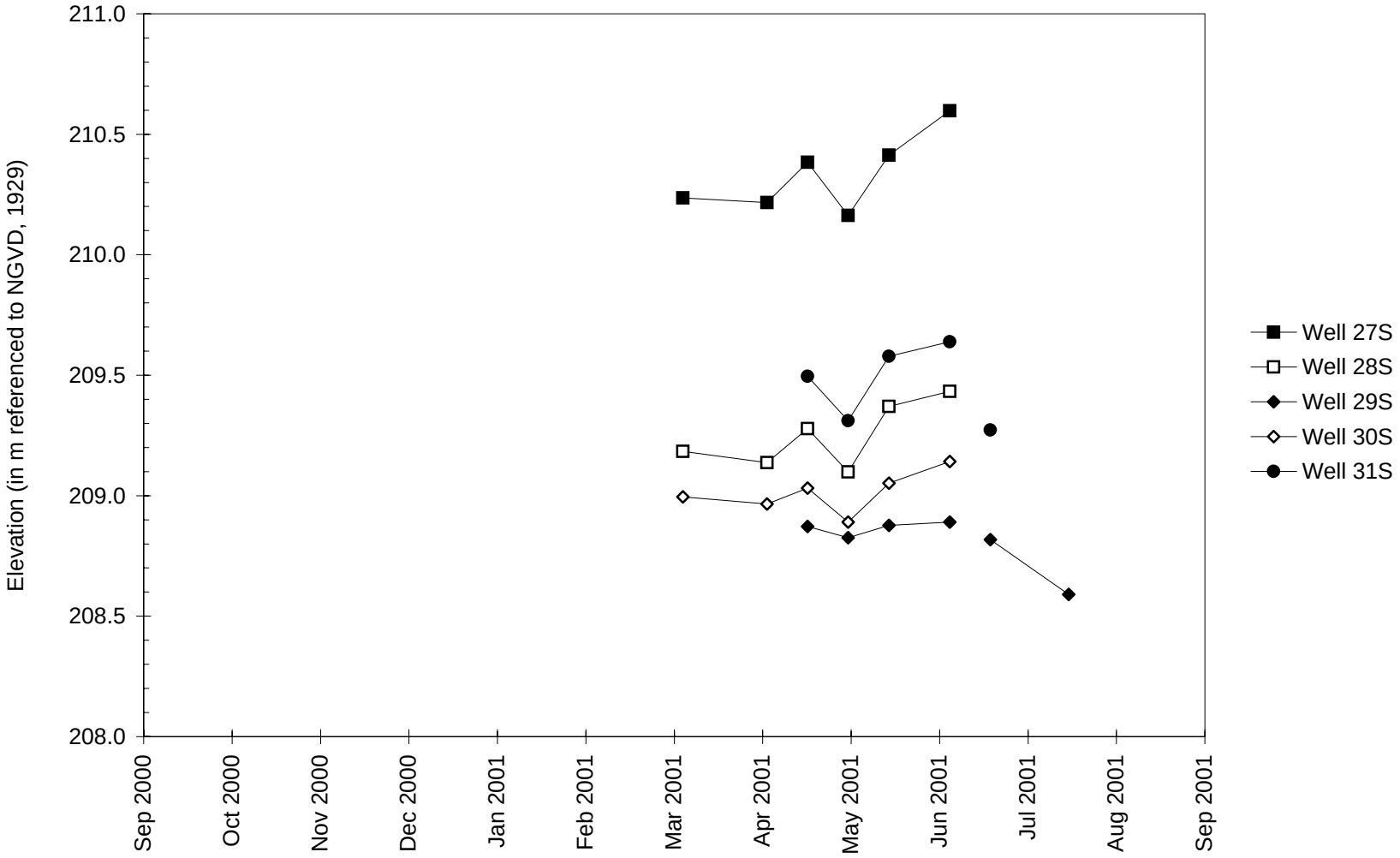
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Depth to Water



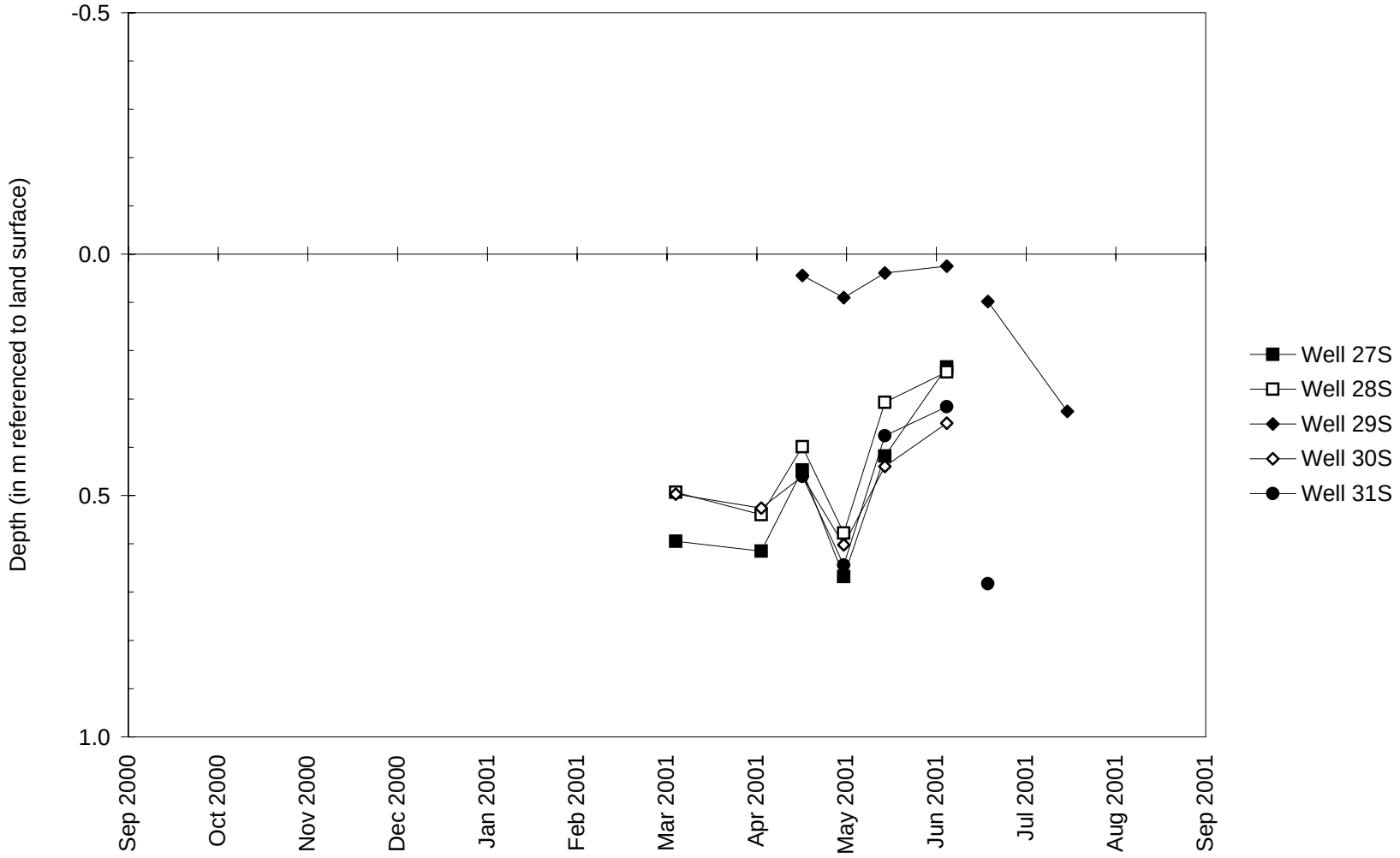
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Water-Level Elevations



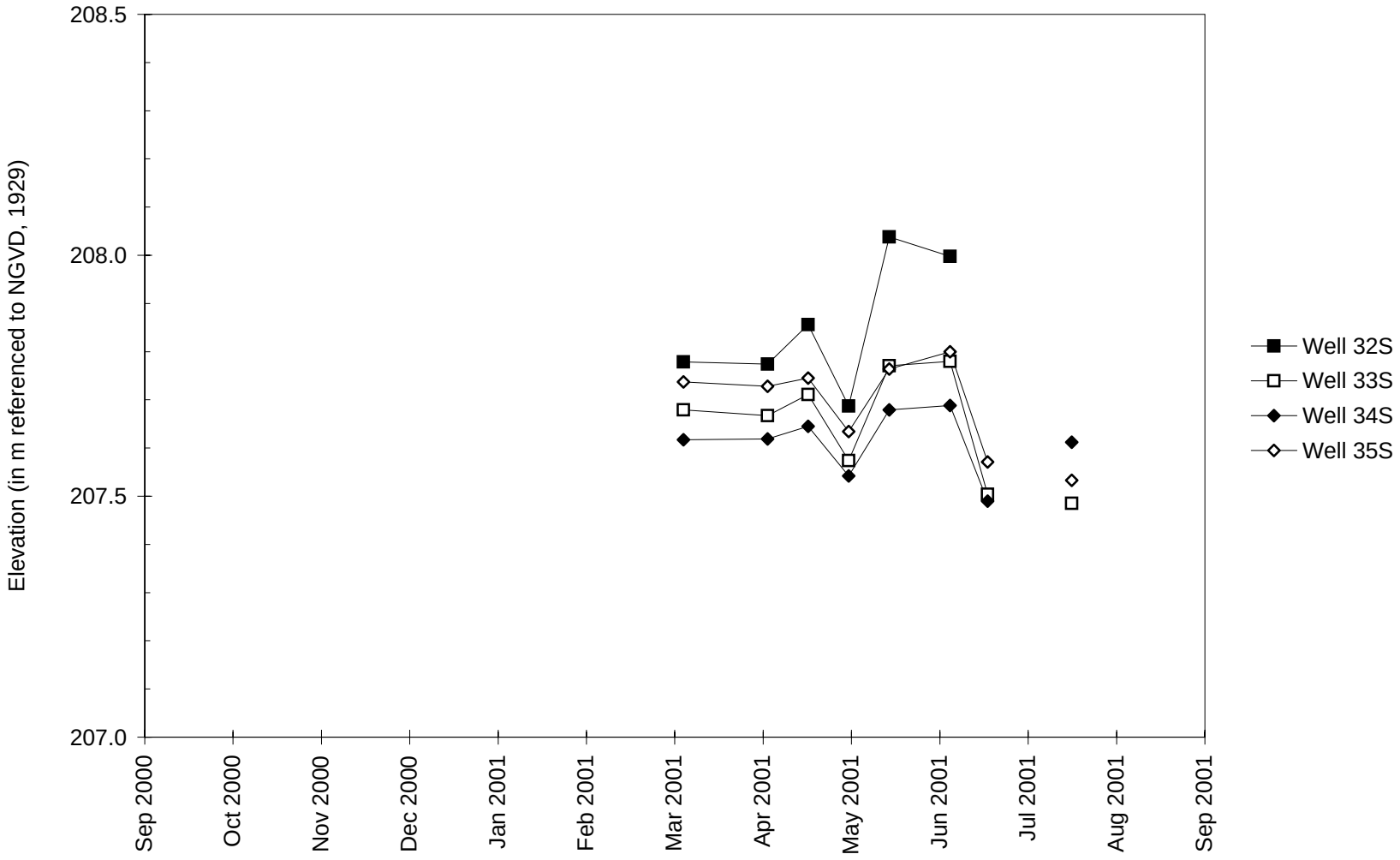
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Depth to Water



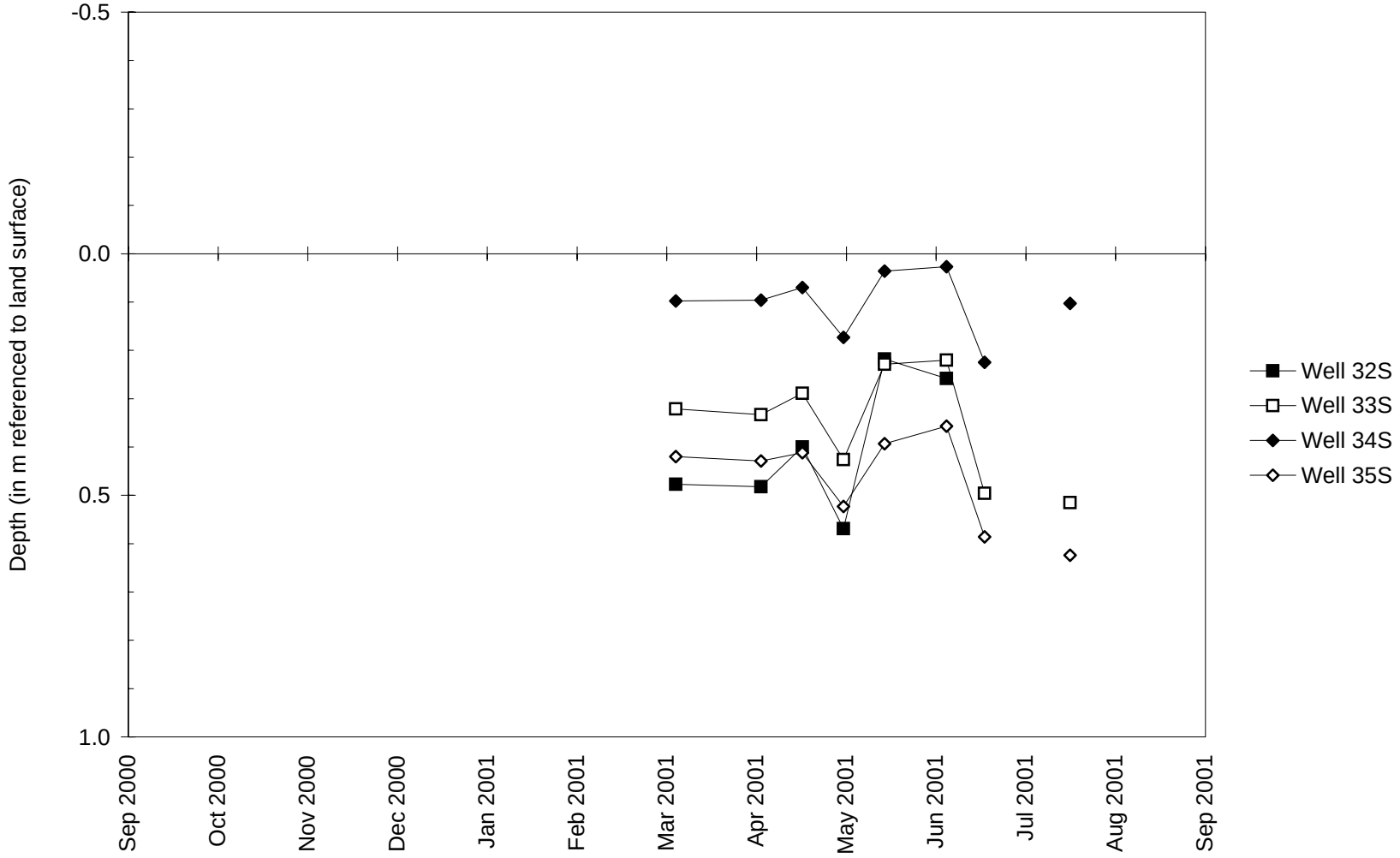
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Water-Level Elevations



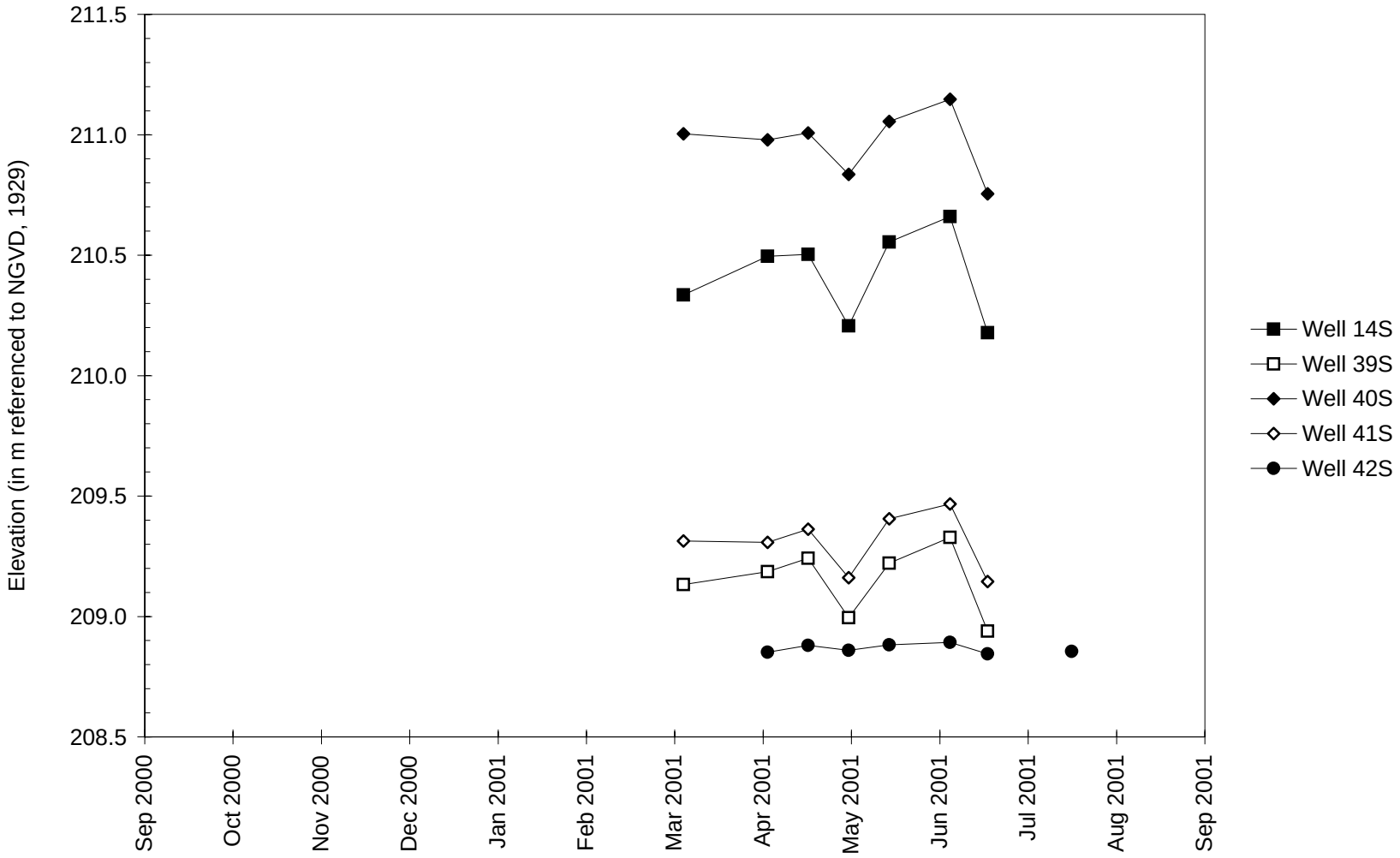
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Depth to Water



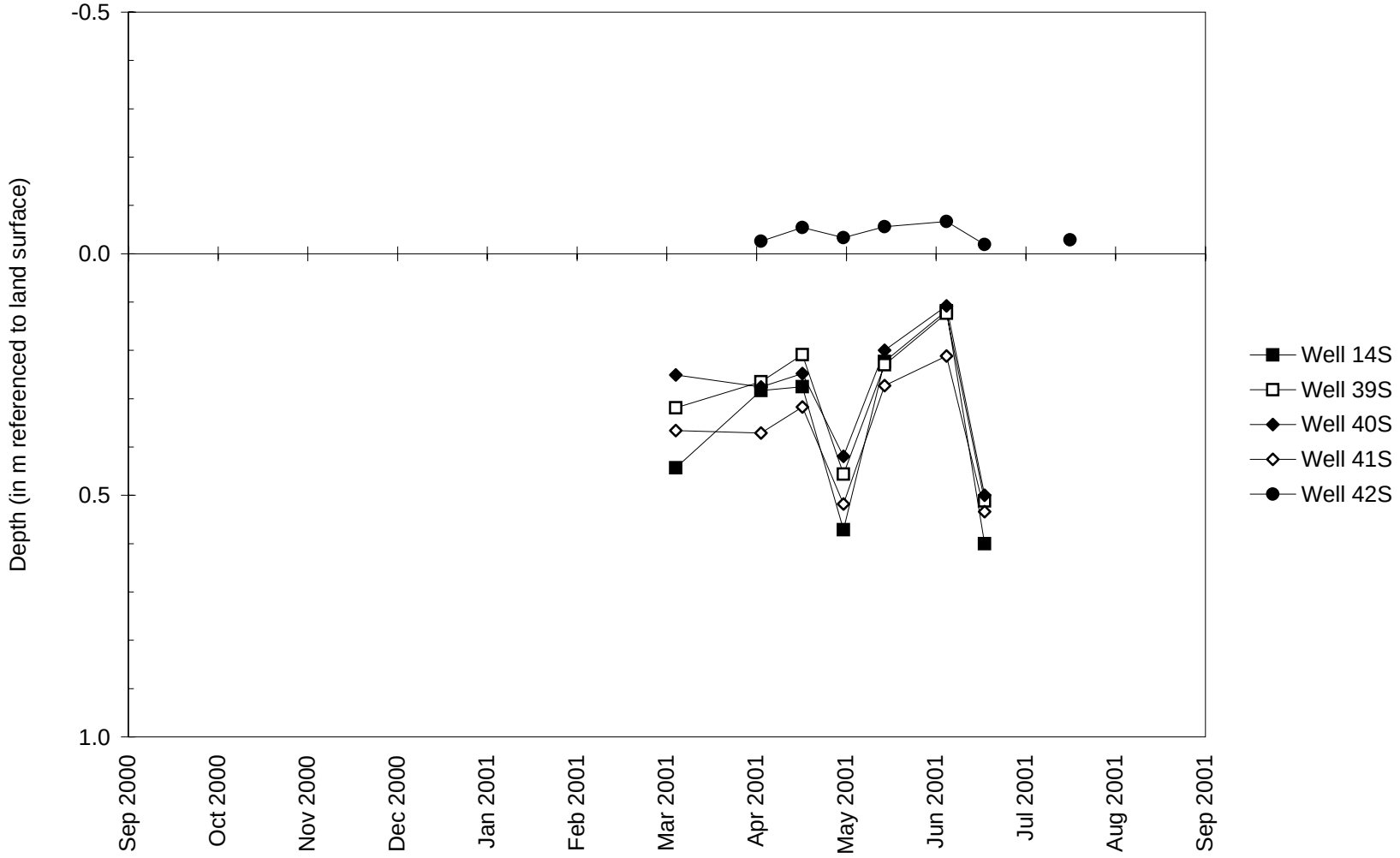
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Water-Level Elevations



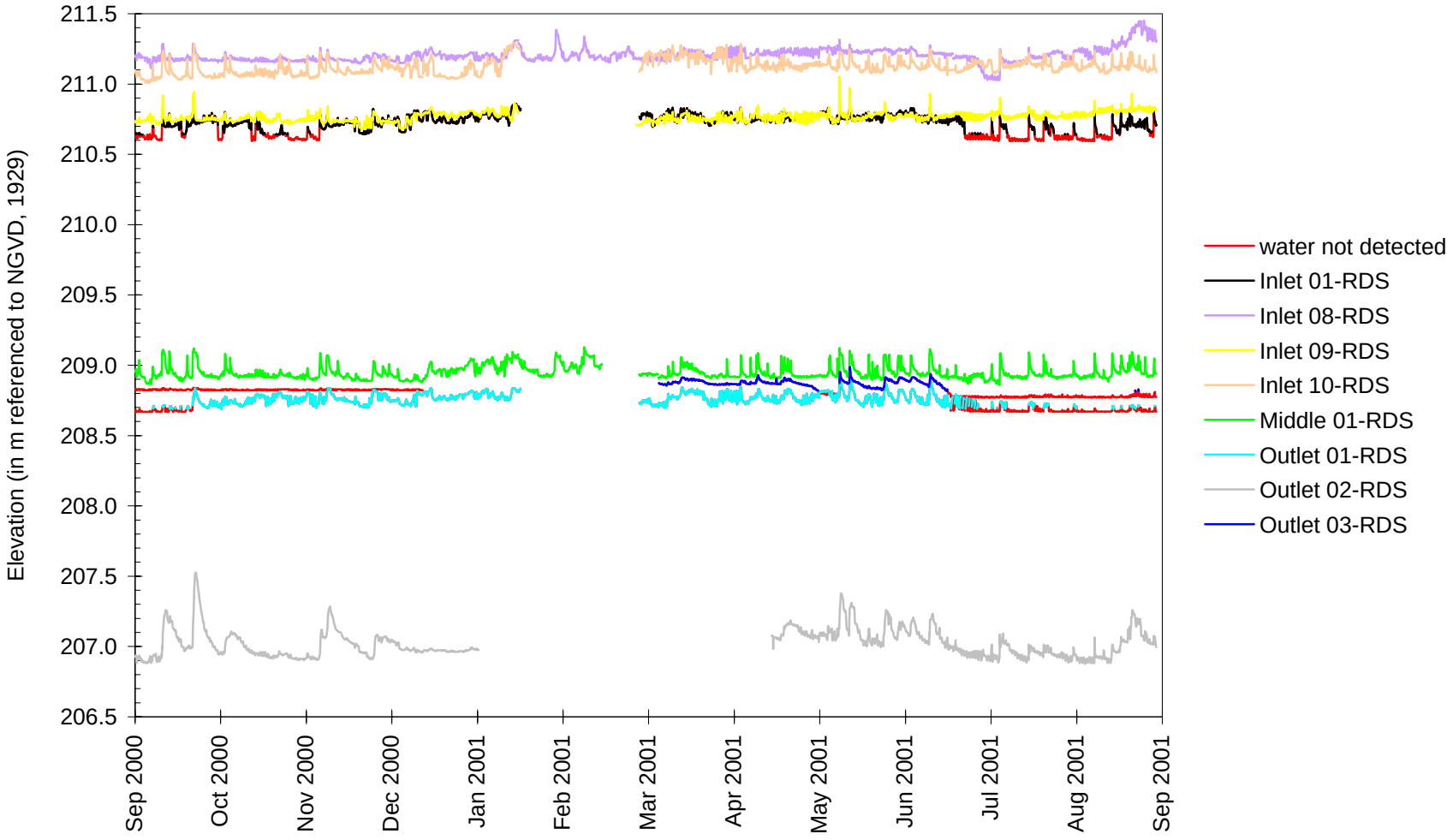
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Depth to Water



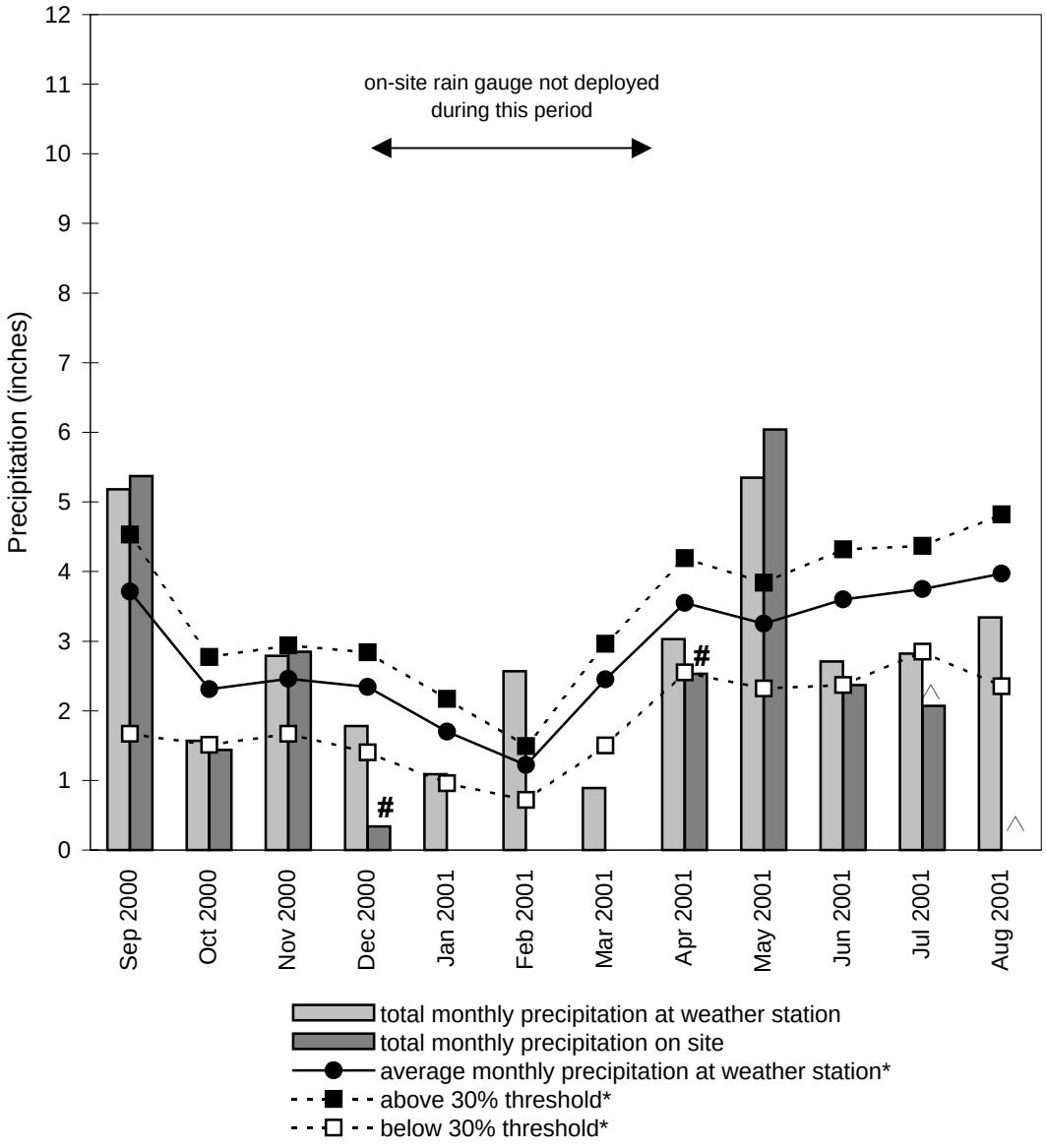
North Chicago Potential Wetland Banking Site
September 1, 2000 to September 1, 2001

Water-Level Elevations in RDS Data Loggers



North Chicago Potential Wetland Banking Site
September 2000 through August 2001

Total Monthly Precipitation Recorded On Site and at the Waukegan, IL Weather Station



on-site rain gauge not deployed for entire month
△ suspect data: collector clogged, represents minimum value for the month
* see text for explanation

Graph last updated October 4, 2001

NORTH CHICAGO **ISGS #31**
POTENTIAL WETLAND BANKING SITE
FAP 120
Lake County, near North Chicago, Illinois
Primary Project Manager: James J. Miner
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- Spring 1995: ISGS submitted an Initial Site Evaluation Report to IDOT.

- Summer and Fall 1998: ISGS installed monitoring wells and surface-water data loggers, and began a geochemical characterization.

- January 2000: A letter report containing initial observations and recommendations was transmitted to IDOT.

- Spring 2001: Twenty-nine additional soil-zone wells were installed throughout the site to monitor the hydrogeologic conditions in areas that were identified by Christopher B. Burke Engineering, LTD., as containing drained hydric soils.

- Spring 2002: IDOT suspended monitoring at this site.

WETLAND HYDROLOGY CALCULATION FOR 2002 AND SUMMARY OF 2002 EVENTS

Monitoring of this site was suspended in Spring 2002 by IDOT, and data collection ceased in June 2002. Data are reported here for informational purposes only.

- According to the Midwestern Climate Center, the median date that the growing season begins in Waukegan is April 14 and the season lasts 195 days; 12.5% of the growing season is 24 days.

- Precipitation data during the monitoring year are missing for November 2001 and June through August 2002. However, clear precipitation trends occur. Fall 2001 was well above normal, with two to three times the average precipitation in September and October. Afterward, precipitation was below normal from November 2001 through January 2002. Precipitation was within the normal range from February through May 2002.

- In 2002, water levels measured in the following wells conclusively satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual: wells 1S, 2S, 3S, 4S, 5S, 6S, 7S, 17S, 21S, 23S, 25S, 29S, 34S, and 42S. Other wells may have but did not conclusively meet wetland hydrology criteria, including wells 32S, 33S, 37S, 39S, and 40S. Other wells also may have met wetland hydrology criteria if the monitoring had not been ended.

ADDITIONAL INFORMATION

- No aquifers have been identified that may supply sufficient ground water to any potential wetland compensation area. Surface water and precipitation are likely the primary water sources for any wetland compensation activities. Clay-rich sediments will likely perch surface water in an efficient manner.

- The berm located on the east side of the site is being breached at several locations by surface water during spring, and erosion may eventually cut completely through the berm and drain several acres of wetlands that rely on the berm to produce flooding.

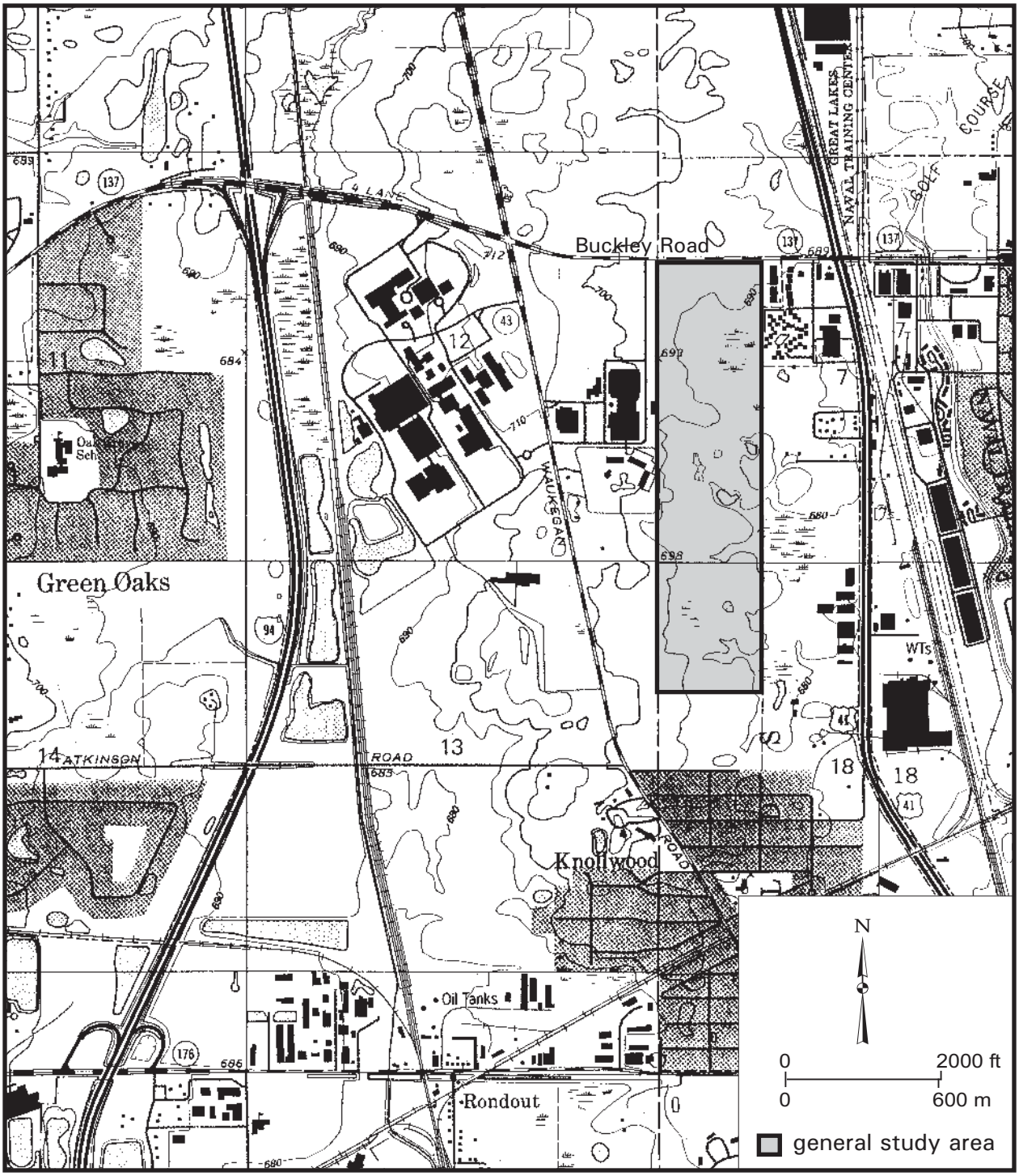
PLANNED FUTURE ACTIVITIES

- Wells remain on site pending resumption of monitoring. When wells are no longer needed, ISGS will remove them.

North Chicago Potential Wetland Banking Site
(FAP 120)

General Study Area and Vicinity

from the USGS Topographic Series, Libertyville, IL (W) (USGS 1993) and Waukegan, IL (E) (USGS 1993)
7.5-minute Quadrangles
contour interval is 10 ft

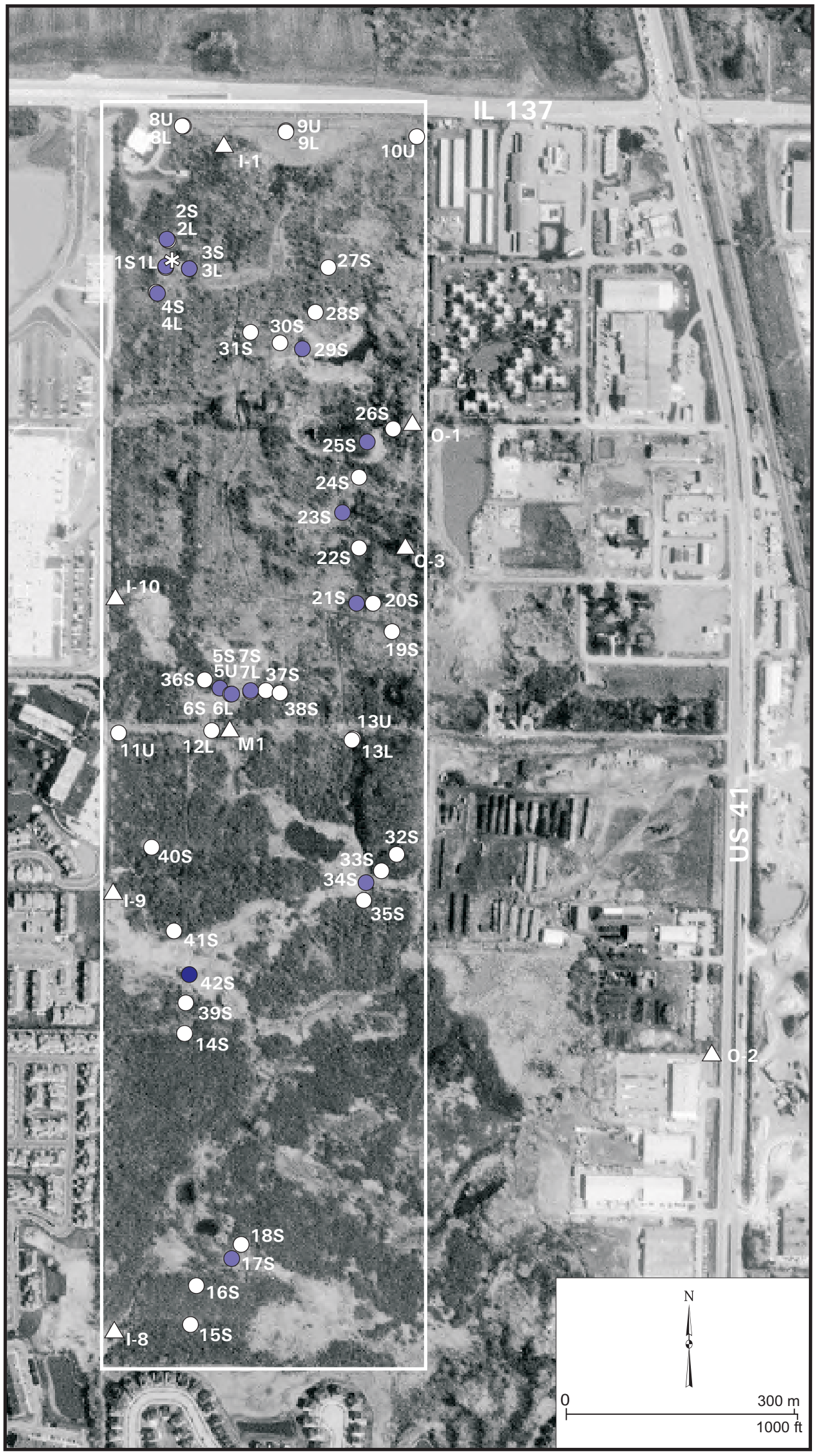


North Chicago Potential Wetland Banking Site

(FAP 120)

ISGS Monitoring Instruments and Wells Meeting Wetland Hydrology Criteria

map based on USGS digital orthophotograph, Waukegan, NW quarter quadrangle,
produced from 04/17/1998 aerial photography (ISGS 2001)



monitoring wells that met wetland hydrology criteria in 2002

other monitoring wells

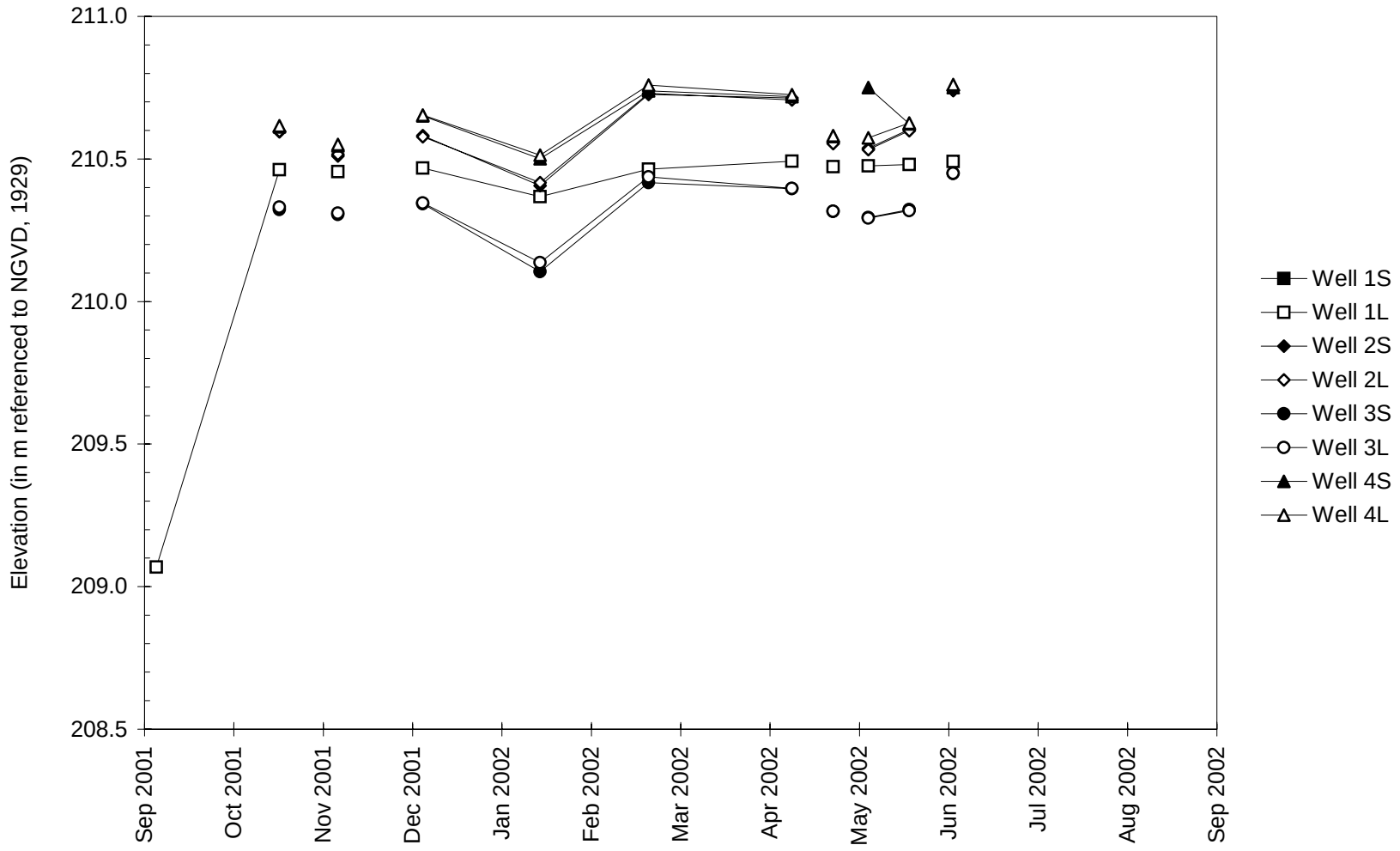
RDS data logger

rain gauge

site boundary

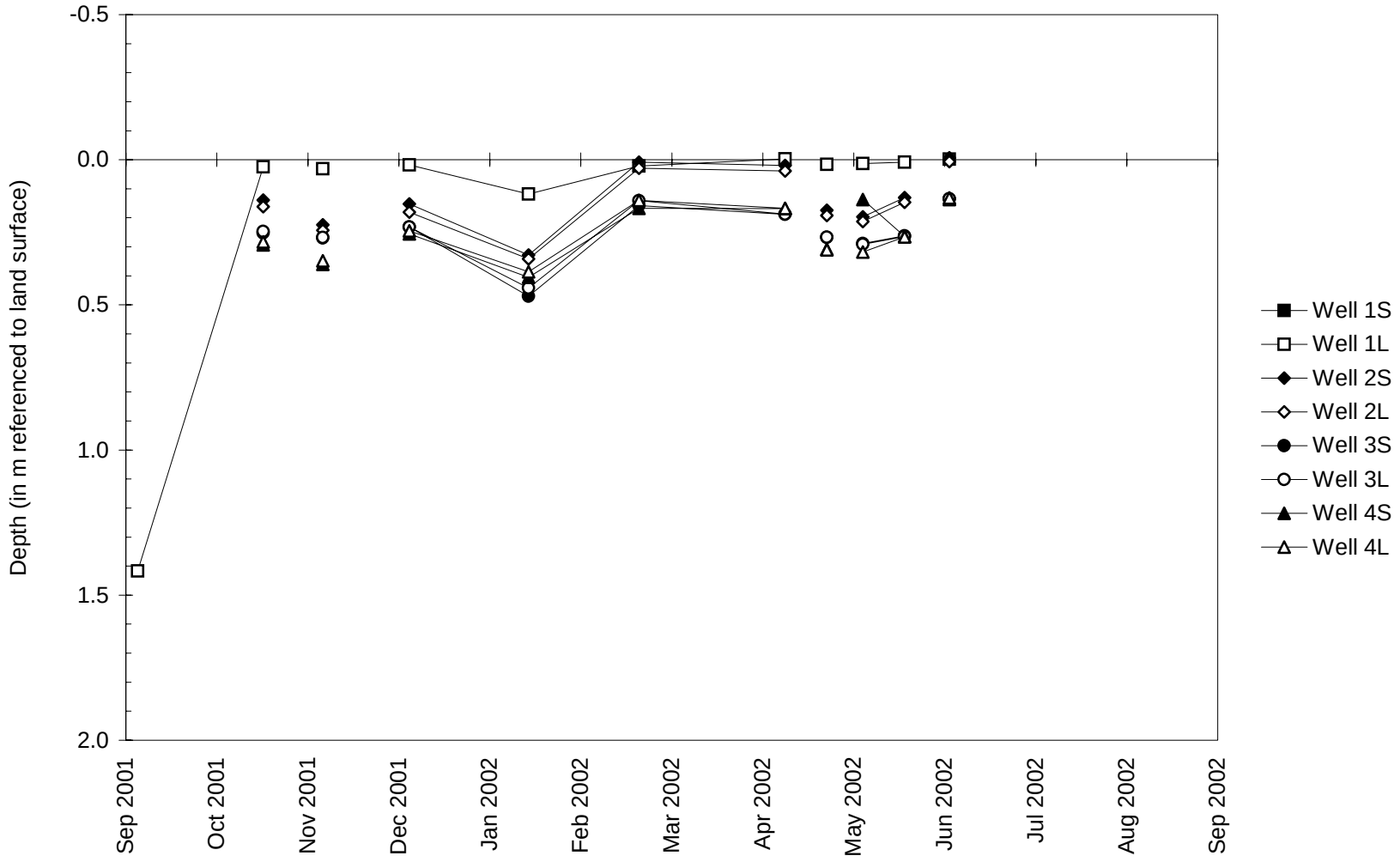
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Water-Level Elevations



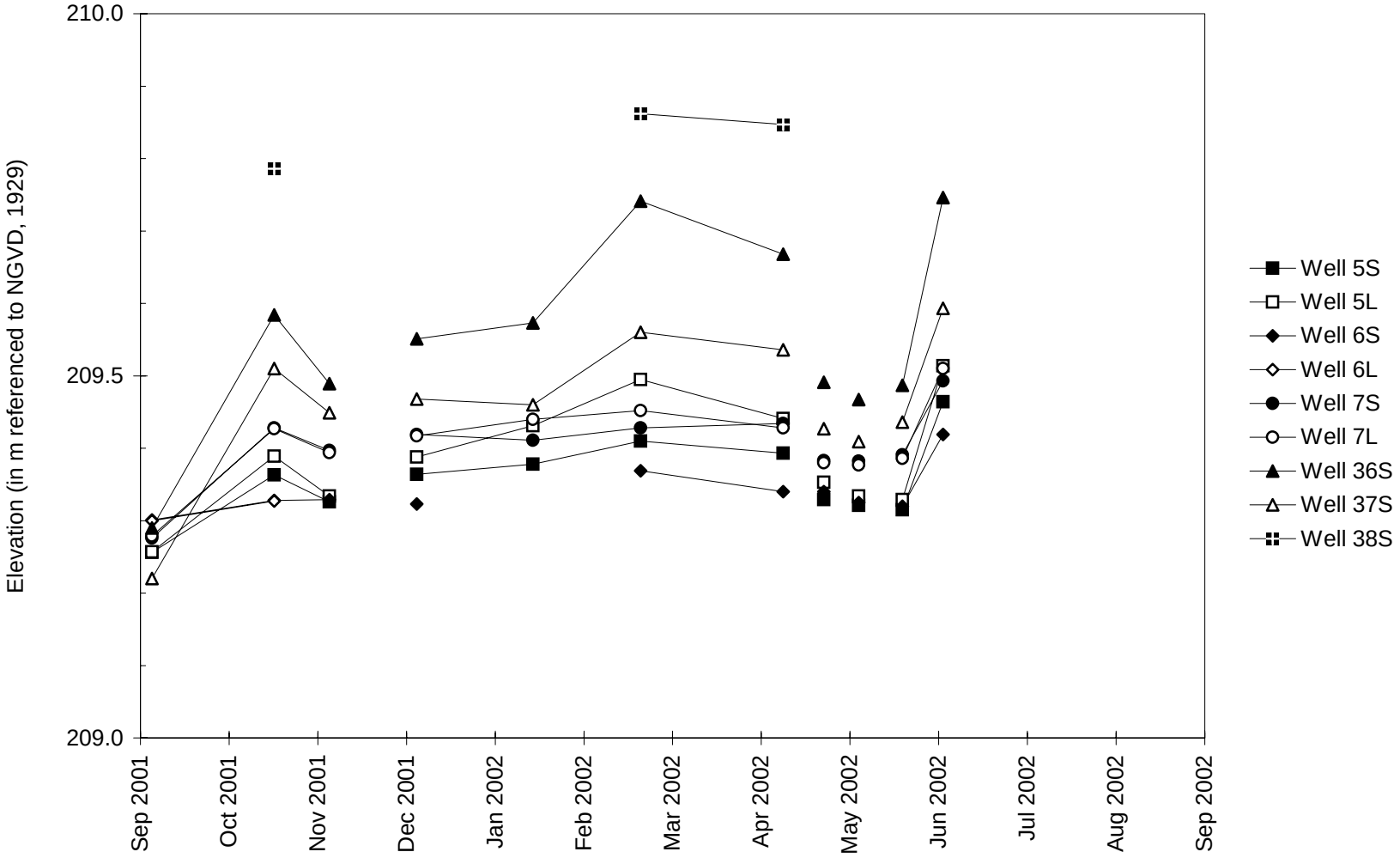
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Depth to Water

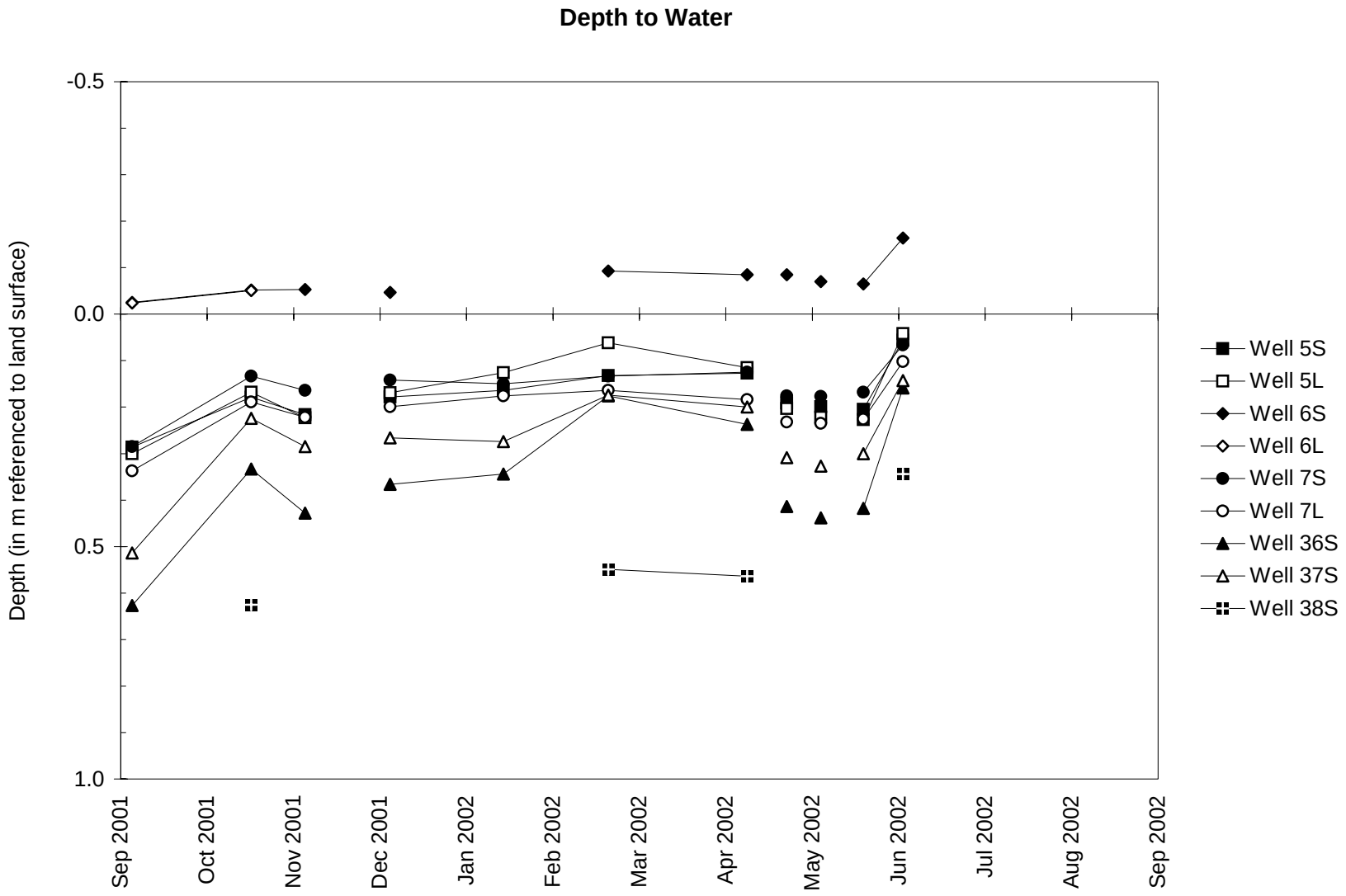


North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Water-Level Elevations

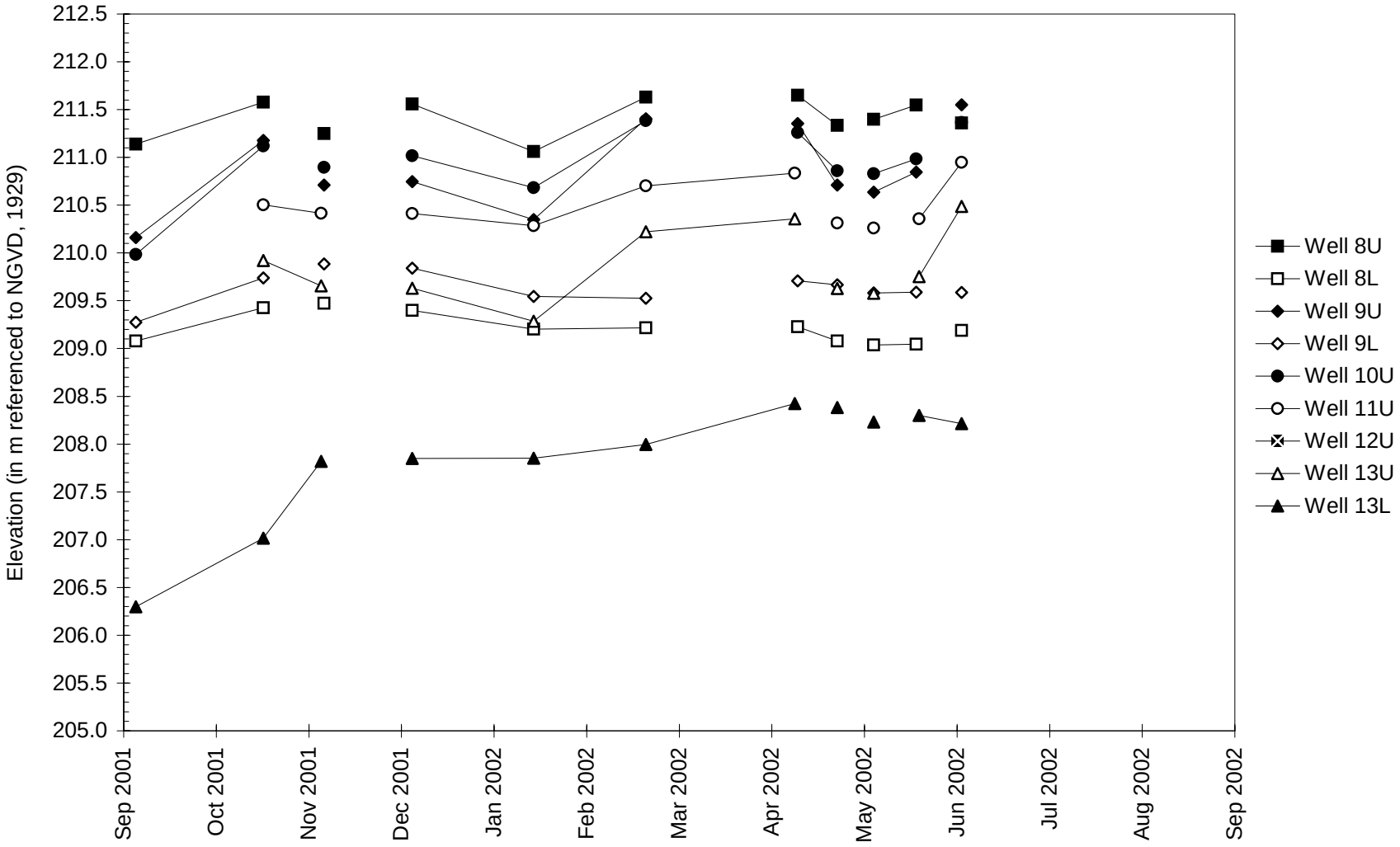


North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

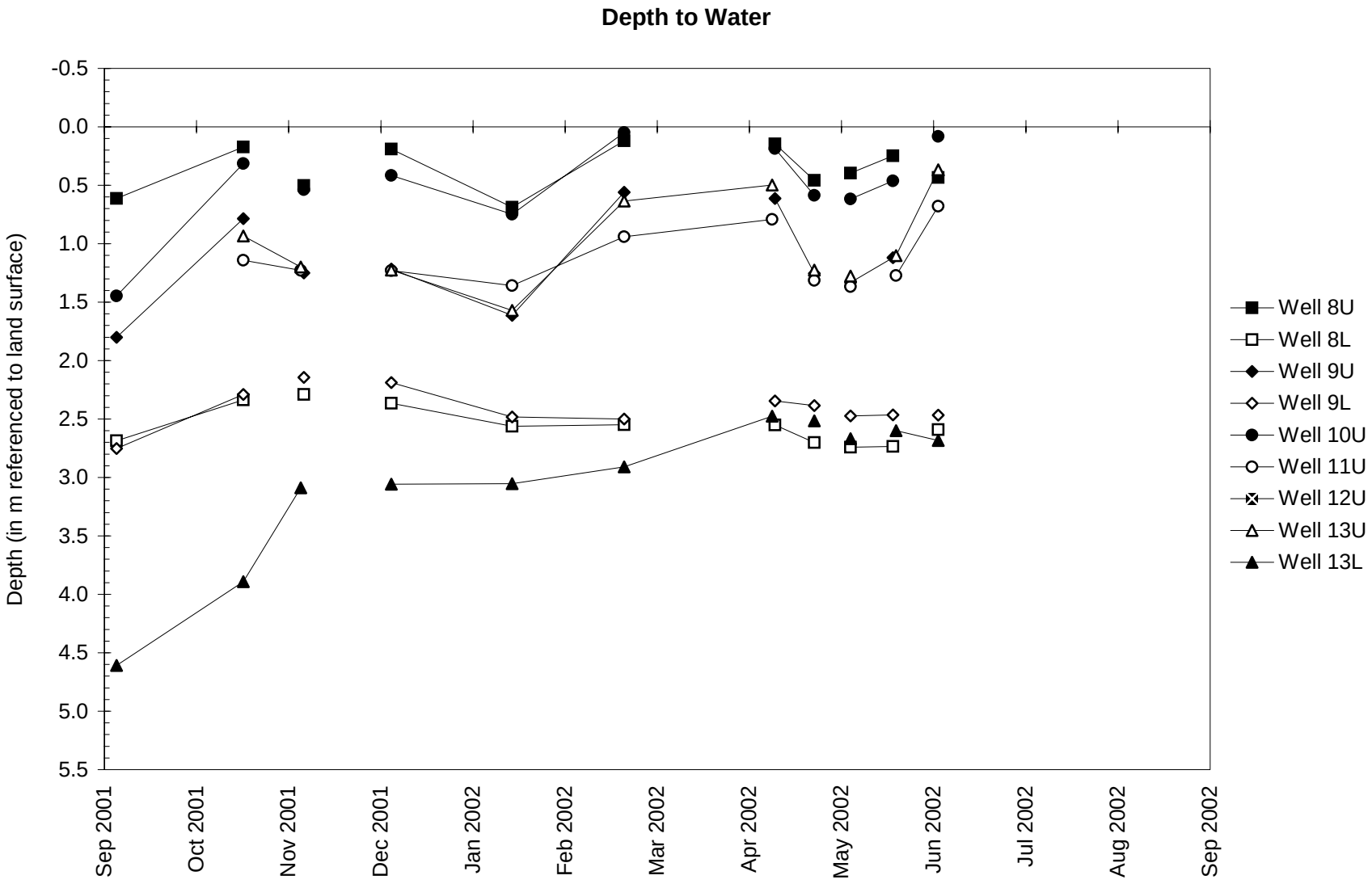


North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Water-Level Elevations

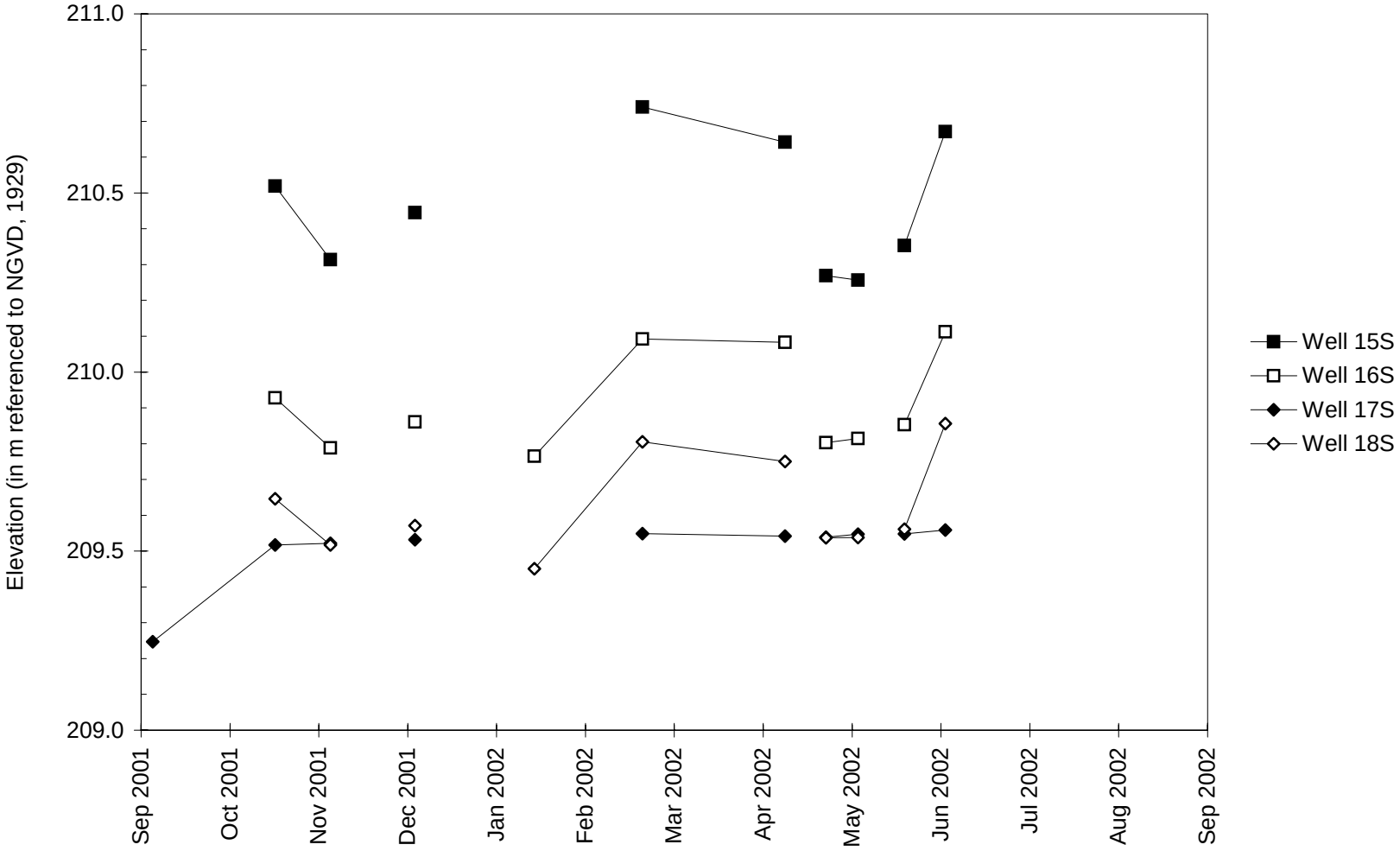


North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002



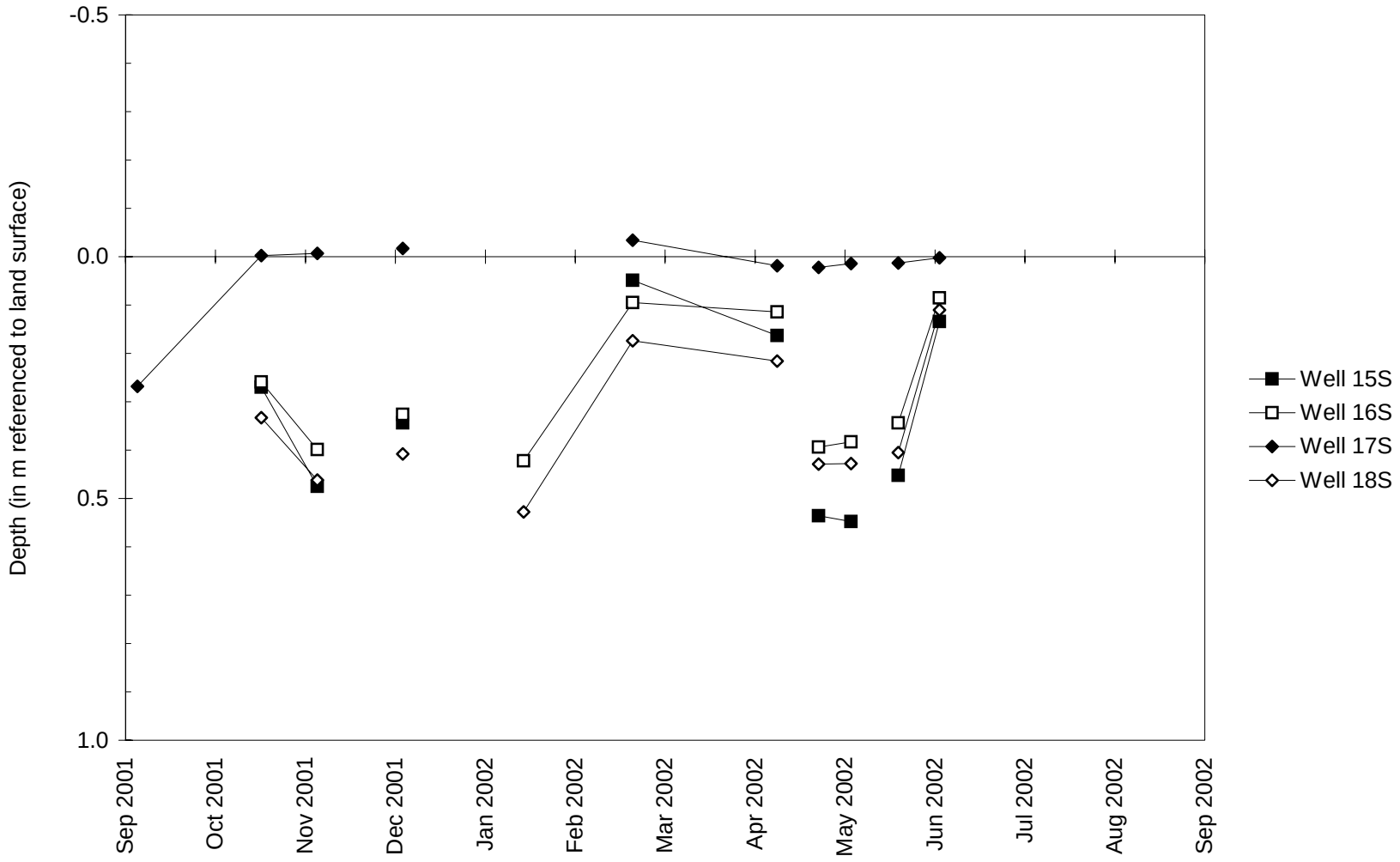
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Water-Level Elevations



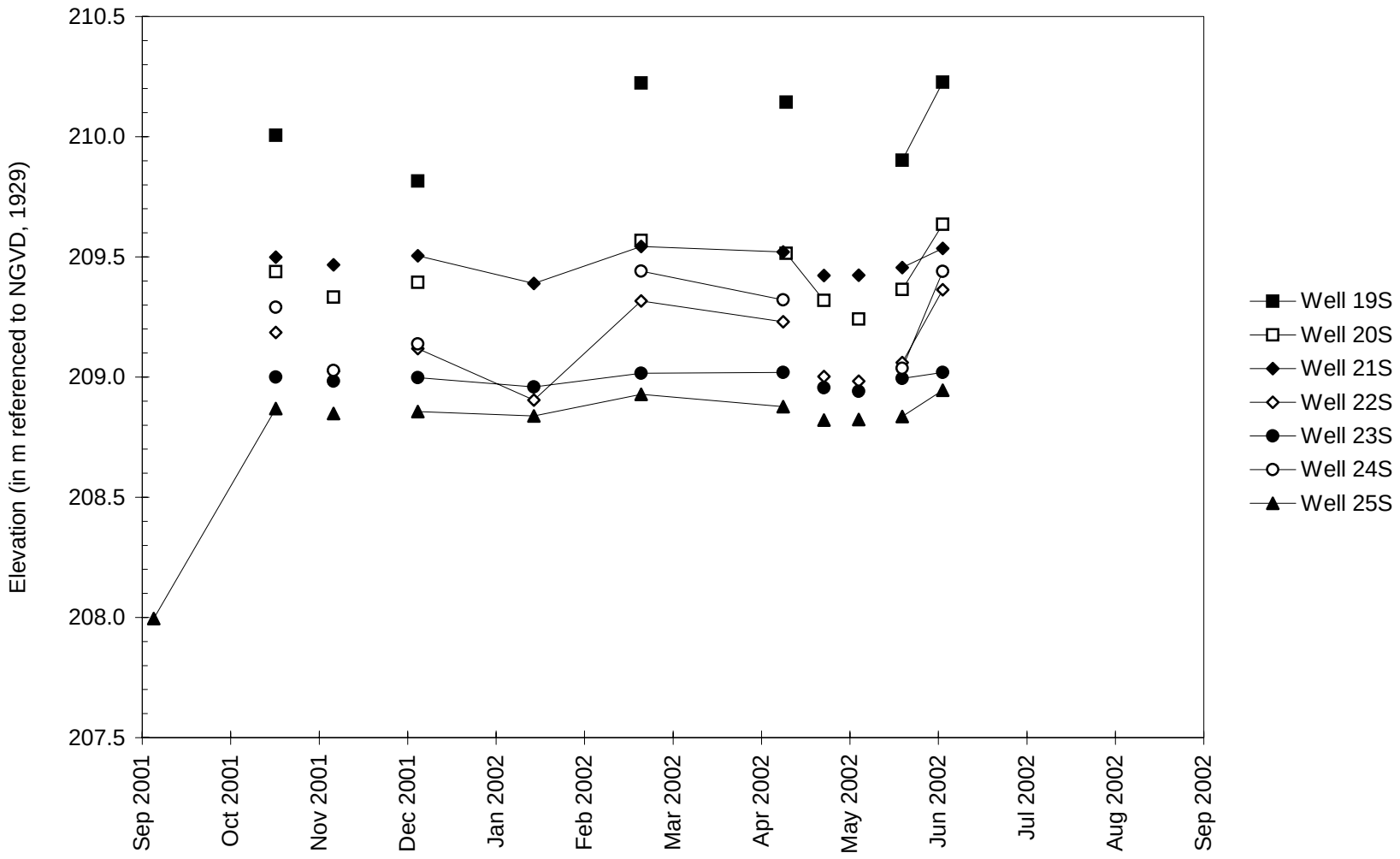
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Depth to Water



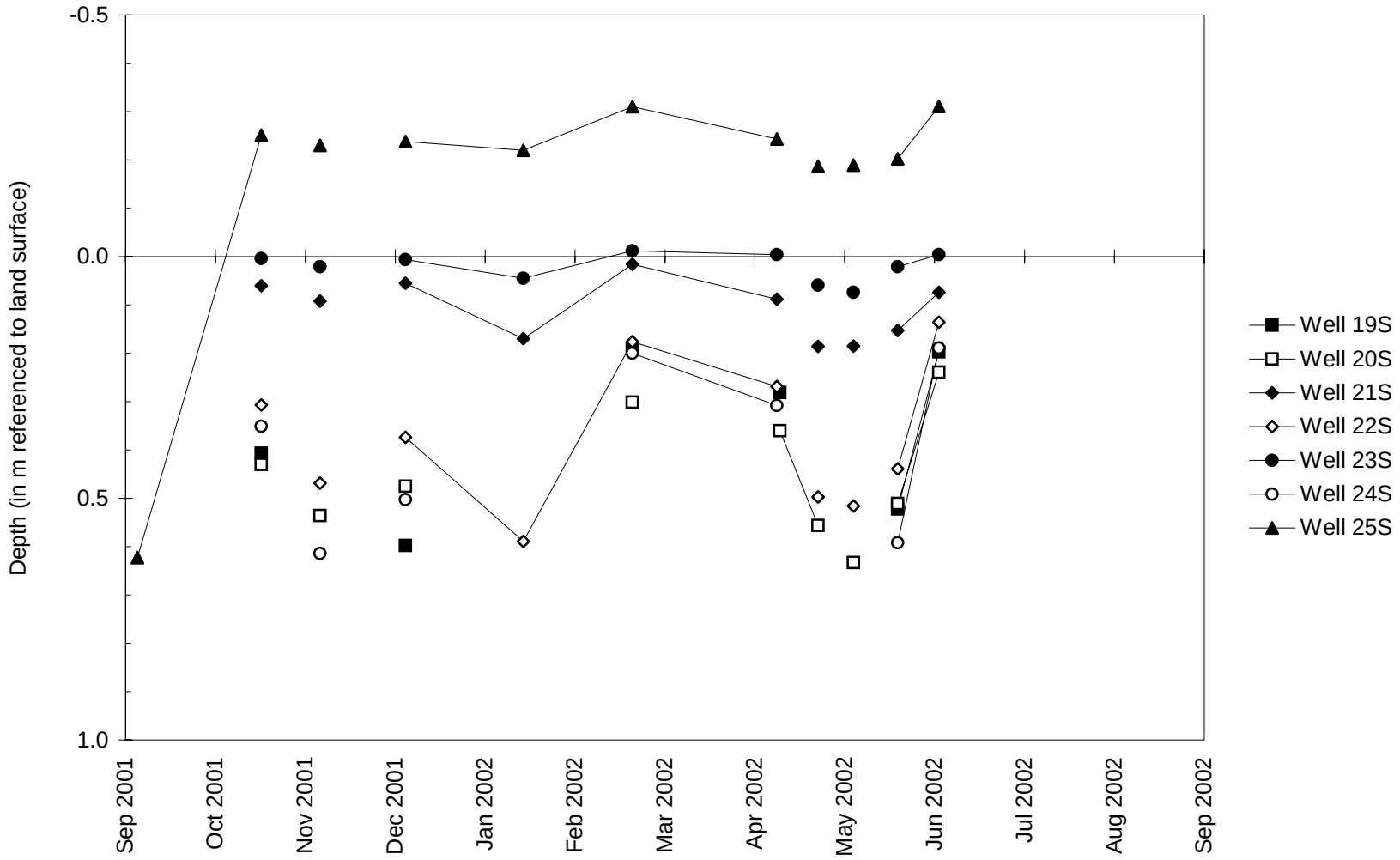
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Water-Level Elevations



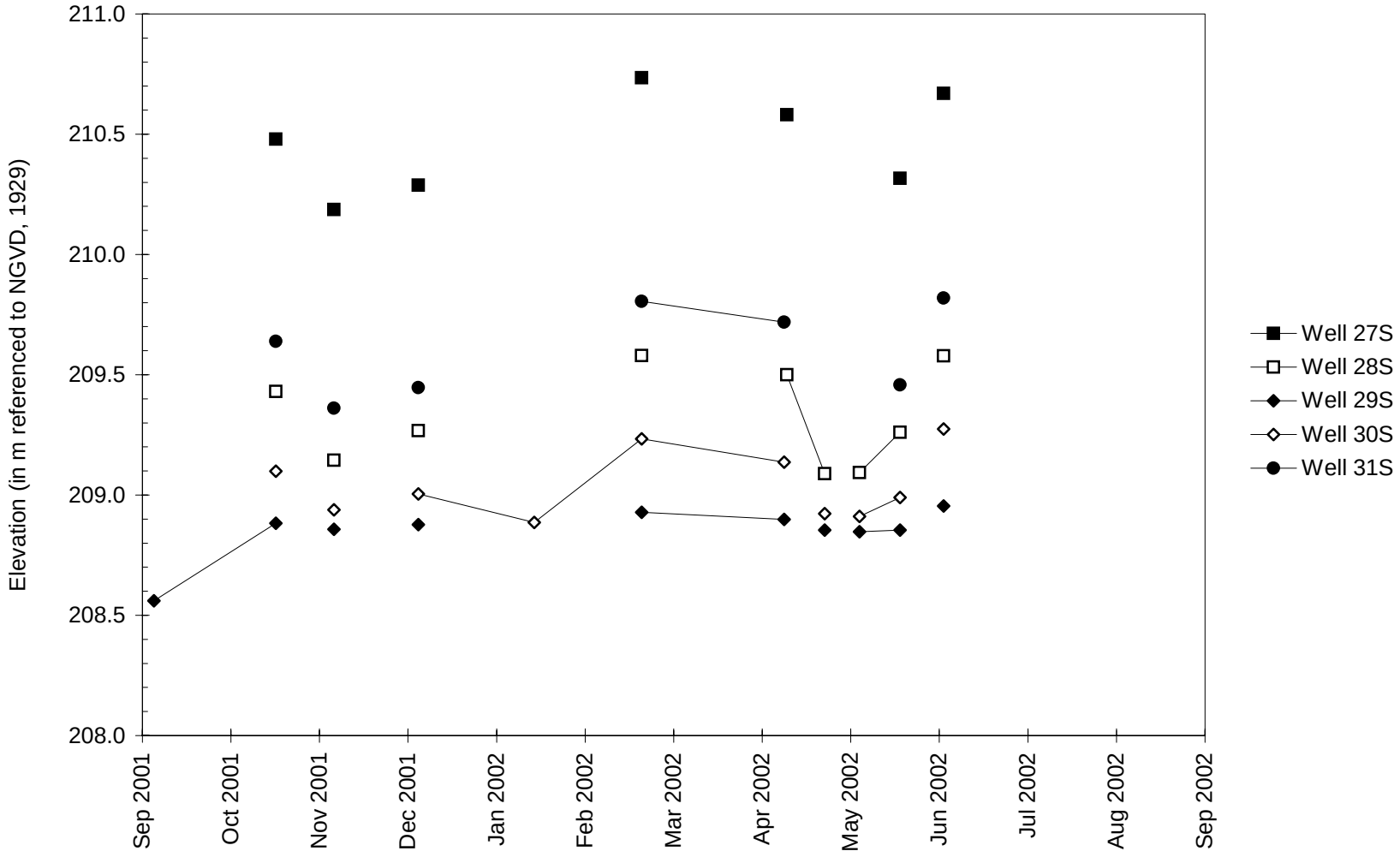
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Depth to Water



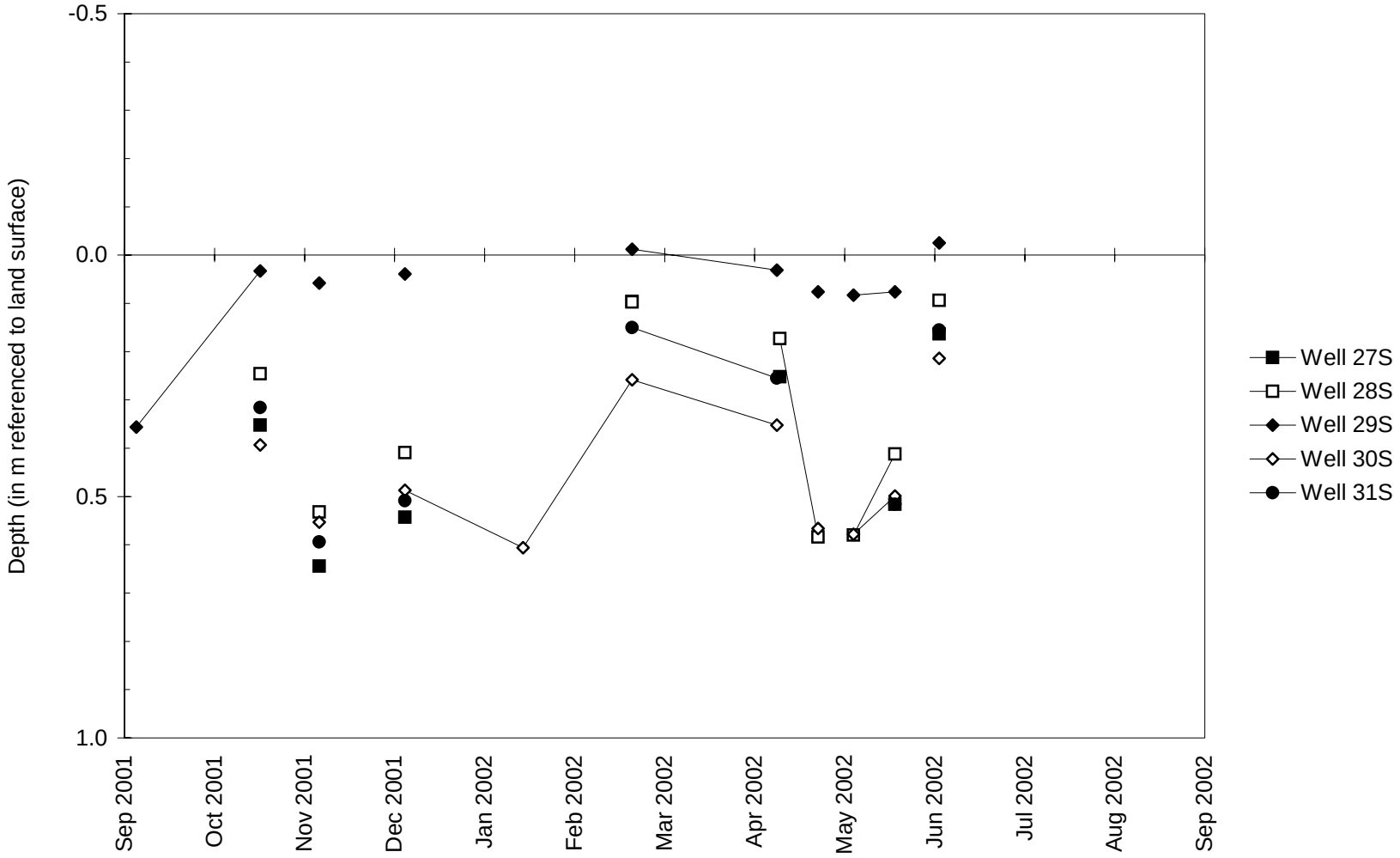
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Water-Level Elevations



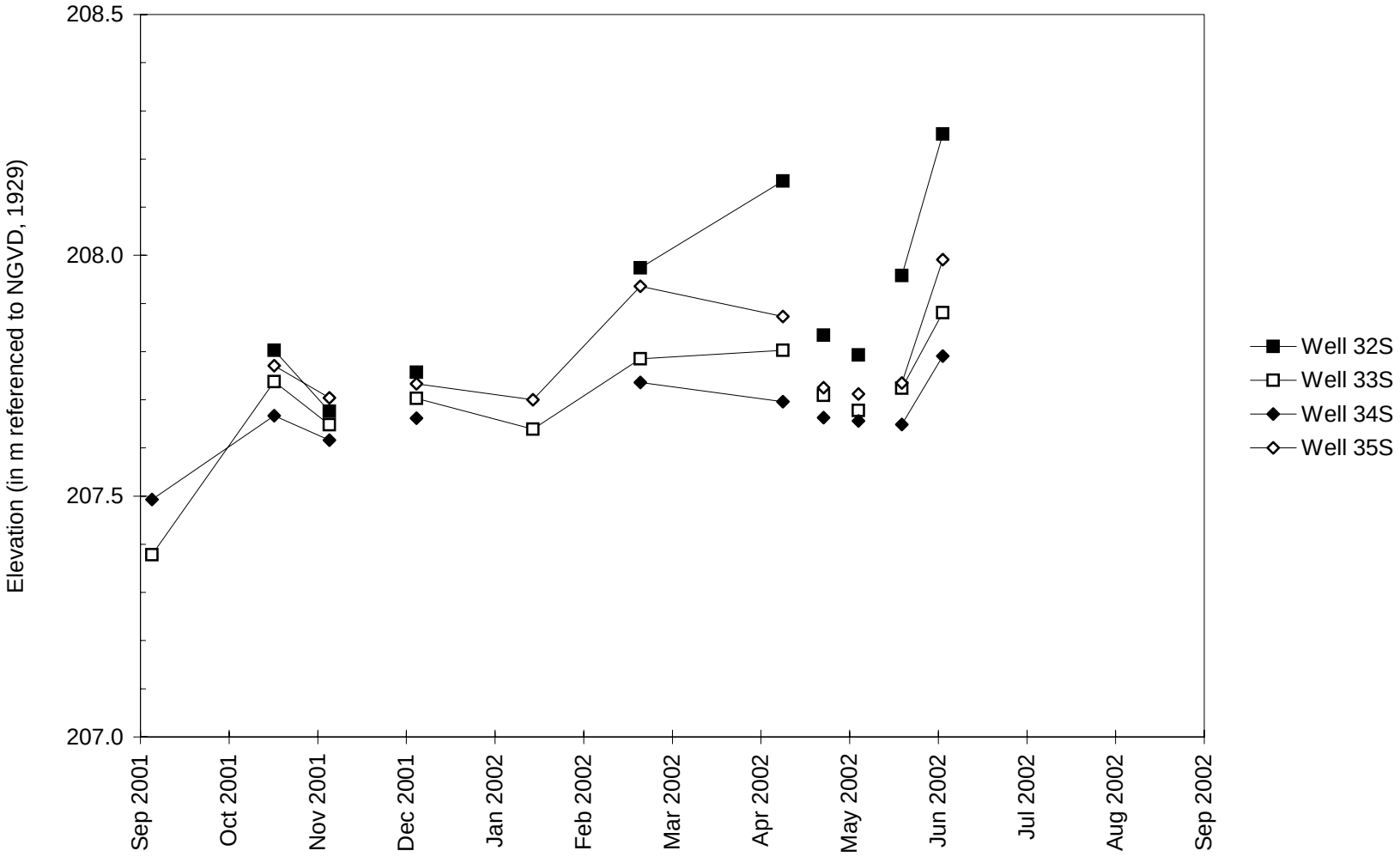
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Depth to Water



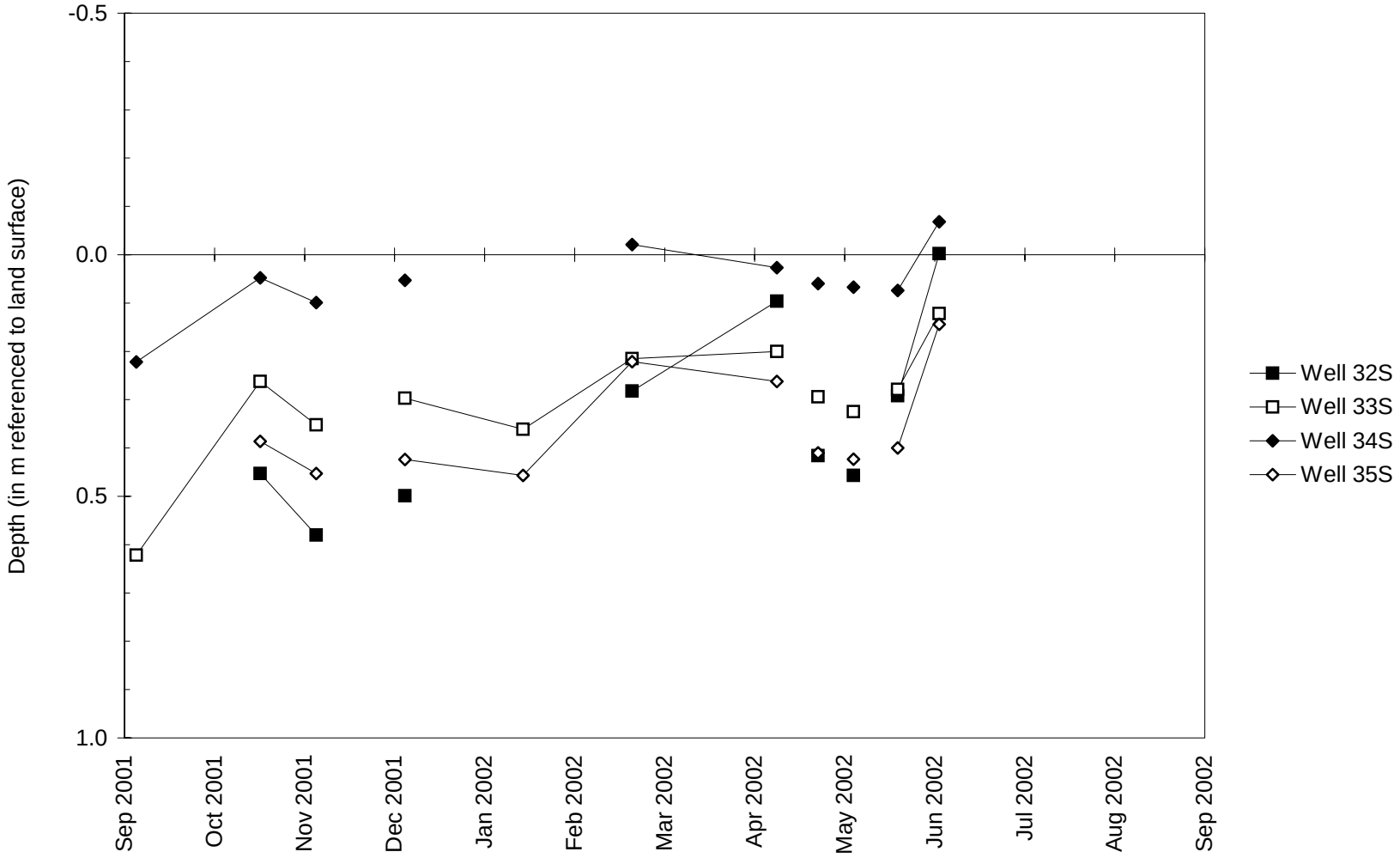
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Water-Level Elevations



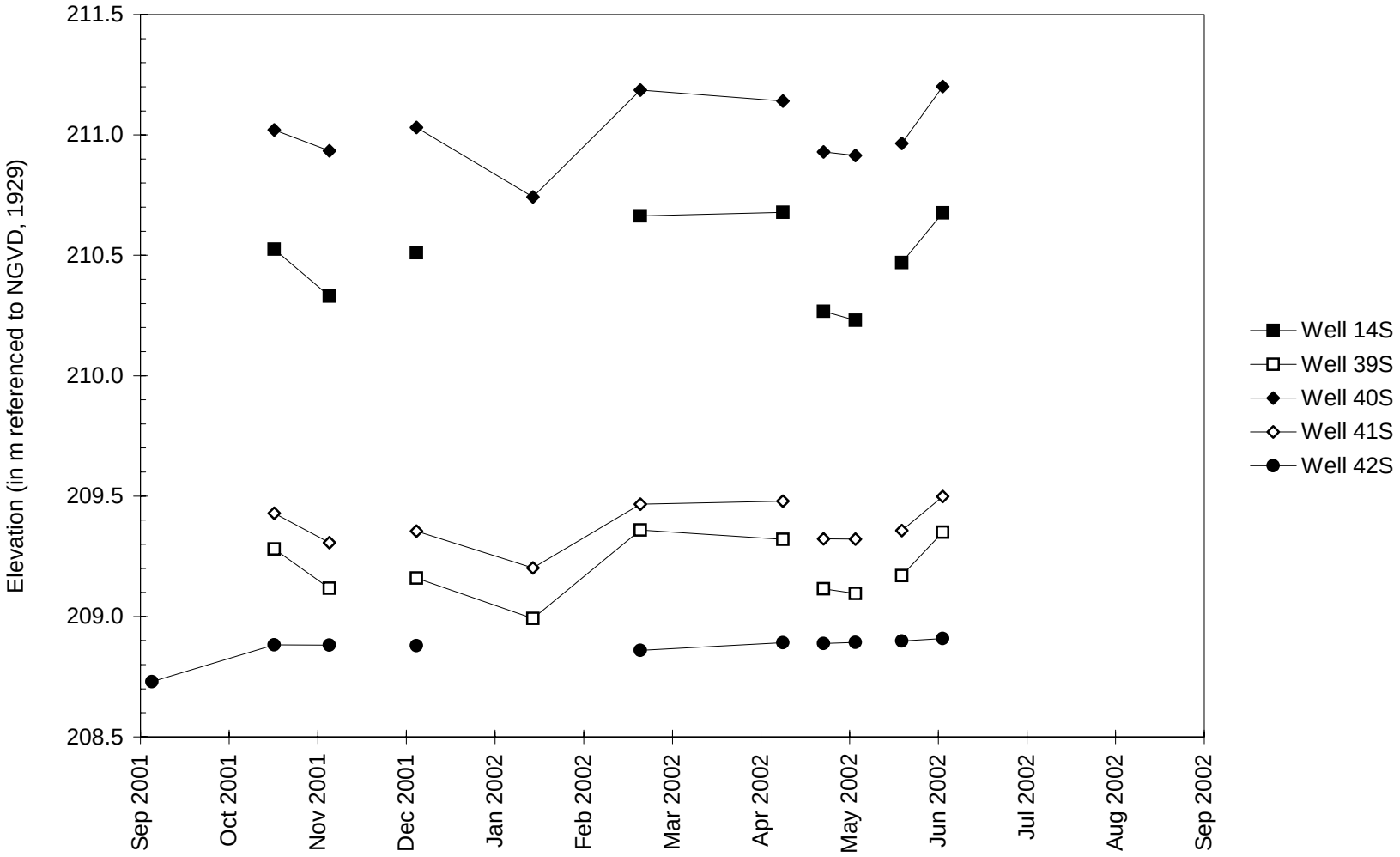
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Depth to Water



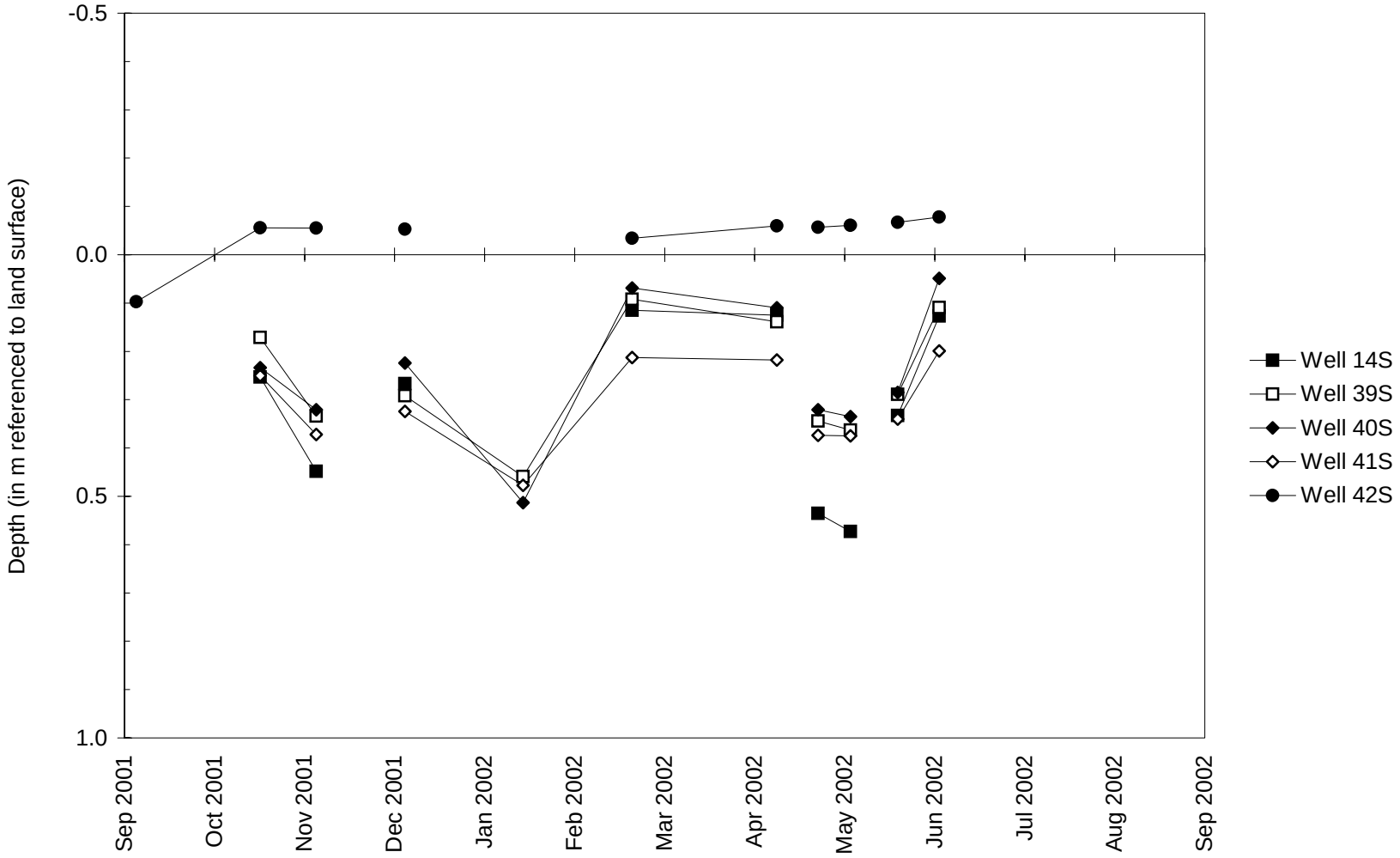
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Water-Level Elevations



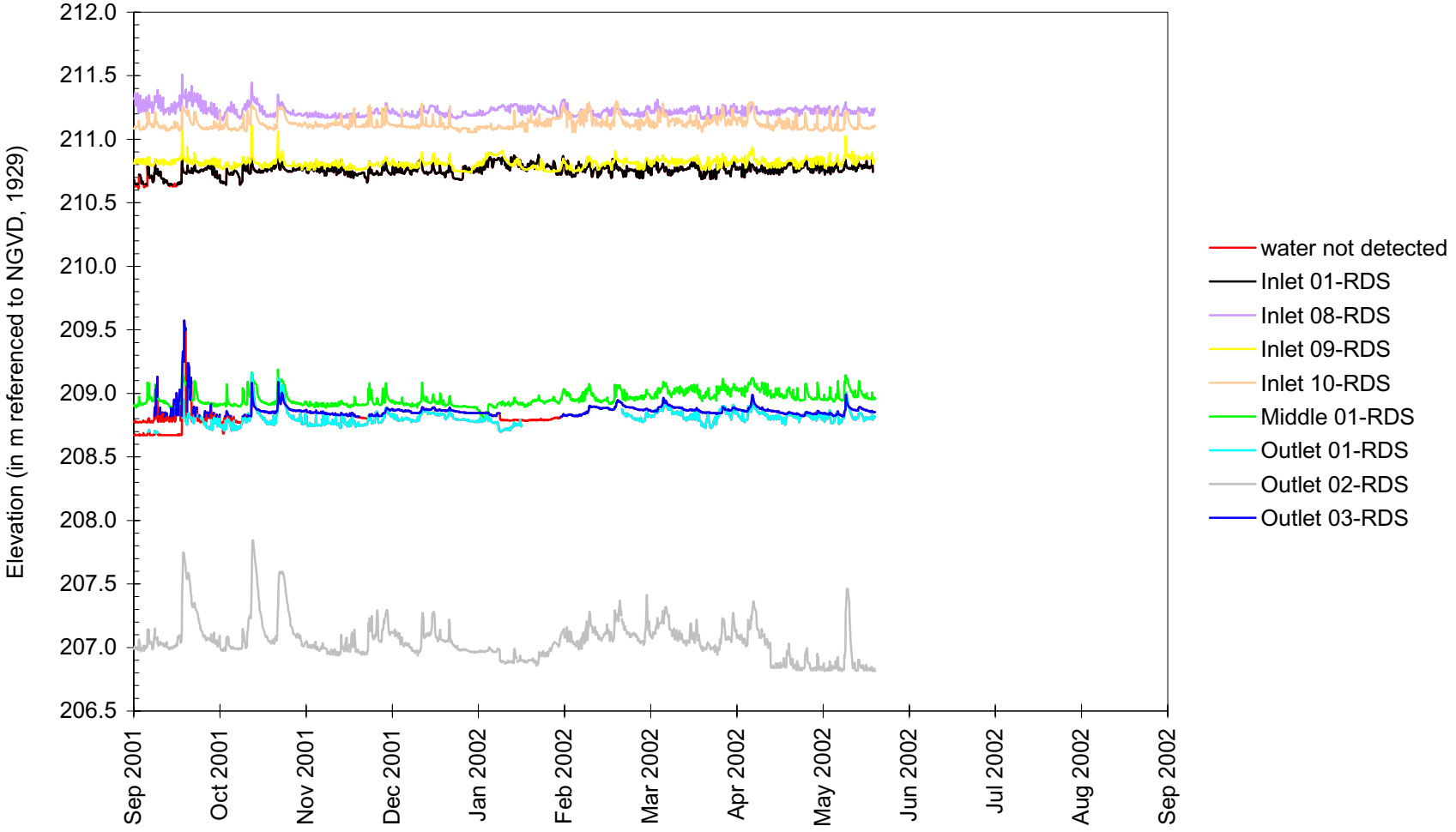
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Depth to Water



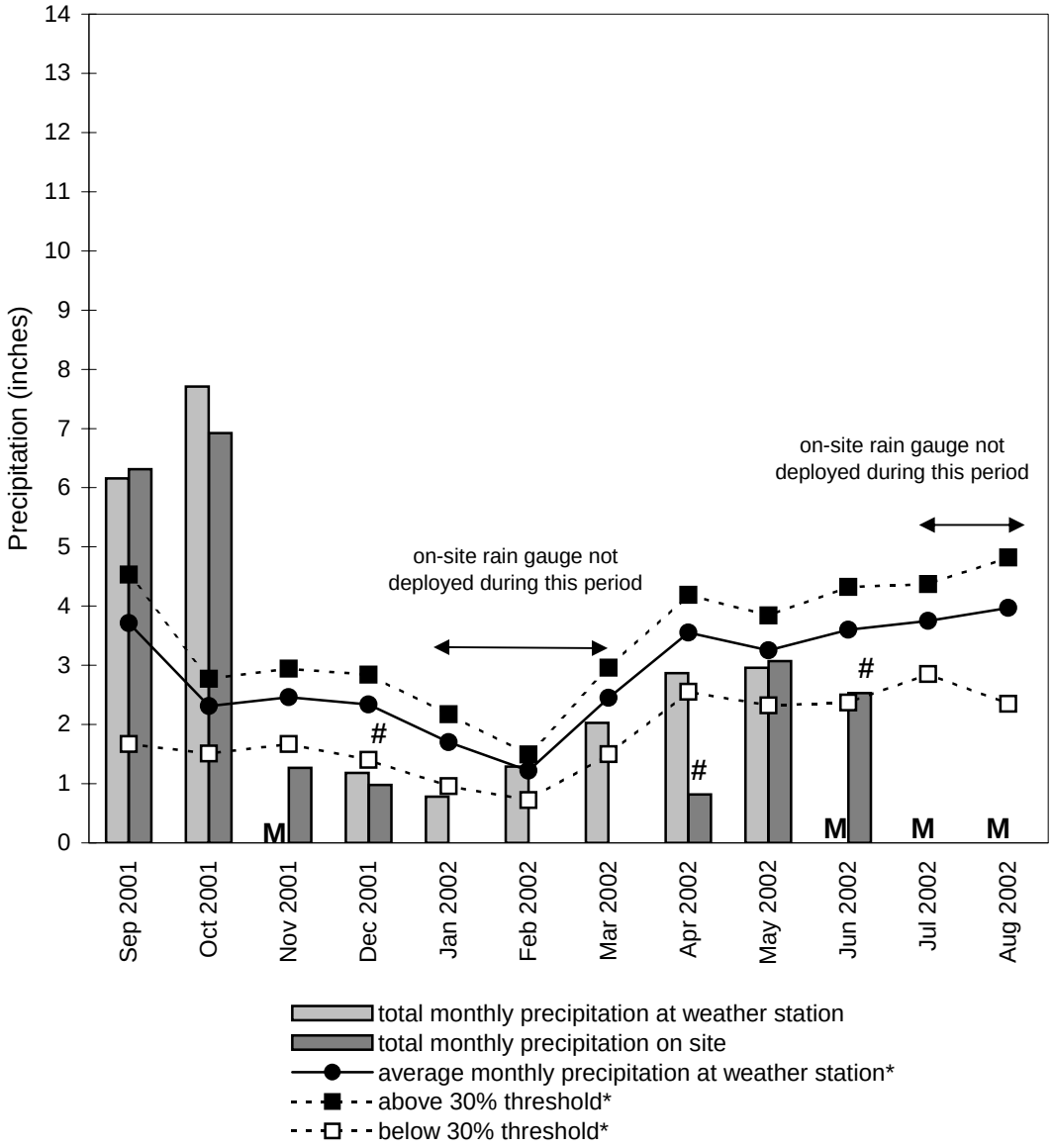
North Chicago Potential Wetland Banking Site
September 1, 2001 to September 1, 2002

Water-Level Elevations in RDS Data Loggers



North Chicago Potential Wetland Banking Site
September 2001 through August 2002

Total Monthly Precipitation Recorded On Site and at the Waukegan, IL Weather Station



on-site rain gauge not deployed for entire month
M missing data at weather station
* see text for explanation

Graph last updated October 11, 2002

North Chicago
1998-2002

	Water-Level Elevations (in m referenced to NGVD, 1929)										
Date	06/08/98	07/09/98	08/07/98	09/18/98	10/15/98	11/20/98	12/14/98	01/22/99	02/25/99	04/01/99	04/15/99
Well 1S	209.95	210.28	dry	dry	dry	dry	210.08	210.49	210.46	210.43	210.47
Well 1L	209.97	210.30	209.33	208.59	dry	209.56	210.10	210.51	210.47	210.43	210.47
Well 2S	dry	210.35	dry	dry	dry	210.12	210.19	210.74	210.54	210.50	210.64
Well 2L	210.00	210.34	209.35	208.93	dry	209.53	210.13	210.73	210.55	210.50	210.64
Well 3S	dry	210.08	dry	dry	dry	dry	209.96	210.49	210.32	210.31	210.36
Well 3L	209.74	210.10	dry	dry	dry	209.52	209.97	210.52	210.34	210.31	210.36
Well 4S	dry	210.36	dry	dry	dry	dry	210.31	210.82	210.59	210.54	210.65
Well 4L	210.06	210.37	209.50	209.20	dry	209.80	210.32	210.85	210.59	210.54	210.64
Well 5S	209.11	209.24	209.11	209.15	209.19	209.27	209.28	209.55	209.31	209.26	209.32
Well 5L	209.13	209.25	209.13	209.16	209.20	209.27	209.28	209.58	209.30	209.26	209.30
Well 6S	209.12	209.24	209.21	209.22	209.19	209.23	209.25	frozen	frozen	209.25	209.30
Well 6L	209.12	209.25	209.23	209.23	209.19	209.24	209.24	209.34	frozen	209.25	209.27
Well 7S	209.08	209.27	209.04	209.08	209.16	209.32	209.35	209.60	209.35	209.32	209.42
Well 7L	209.09	209.27	209.05	209.09	209.15	209.32	209.34	209.61	209.37	209.32	209.41
Well 8U	**	**	**	**	**	**	**	**	**	210.15	210.27
Well 8L	**	**	**	**	**	**	**	**	**	204.80	205.27
Well 9U	**	**	**	**	**	**	**	**	**	210.05	210.21
Well 9L	**	**	**	**	**	**	**	**	**	209.55	209.68
Well 10U	**	**	**	**	**	**	**	**	**	209.65	209.76
Well 11U	**	**	**	**	**	**	**	**	**	dry	dry
Well 13U	**	**	**	**	**	**	**	**	**	209.74	210.06
Well 13L	**	**	**	**	**	**	**	**	**	207.64	207.78
Well 14S	**	**	**	**	**	**	**	**	**	**	**
Well 15S	**	**	**	**	**	**	**	**	**	**	**
Well 16S	**	**	**	**	**	**	**	**	**	**	**
Well 17S	**	**	**	**	**	**	**	**	**	**	**
Well 18S	**	**	**	**	**	**	**	**	**	**	**
Well 19S	**	**	**	**	**	**	**	**	**	**	**
Well 20S	**	**	**	**	**	**	**	**	**	**	**
Well 21S	**	**	**	**	**	**	**	**	**	**	**
Well 22S	**	**	**	**	**	**	**	**	**	**	**
Well 23S	**	**	**	**	**	**	**	**	**	**	**
Well 24S	**	**	**	**	**	**	**	**	**	**	**
Well 25S	**	**	**	**	**	**	**	**	**	**	**
Well 27S	**	**	**	**	**	**	**	**	**	**	**
Well 28S	**	**	**	**	**	**	**	**	**	**	**
Well 29S	**	**	**	**	**	**	**	**	**	**	**
Well 30S	**	**	**	**	**	**	**	**	**	**	**
Well 31S	**	**	**	**	**	**	**	**	**	**	**
Well 32S	**	**	**	**	**	**	**	**	**	**	**
Well 33S	**	**	**	**	**	**	**	**	**	**	**
Well 34S	**	**	**	**	**	**	**	**	**	**	**
Well 35S	**	**	**	**	**	**	**	**	**	**	**
Well 36S	**	**	**	**	**	**	**	**	**	**	**
Well 37S	**	**	**	**	**	**	**	**	**	**	**
Well 38S	**	**	**	**	**	**	**	**	**	**	**
Well 39S	**	**	**	**	**	**	**	**	**	**	**
Well 40S	**	**	**	**	**	**	**	**	**	**	**
Well 41S	**	**	**	**	**	**	**	**	**	**	**
Well 42S	**	**	**	**	**	**	**	**	**	**	**

* no measurement
** not yet installed
S indicates soil-zone monitoring well
U indicates upper monitoring well
L indicates lower monitoring well

North Chicago
1998-2002

	Water-Level Elevations (in m referenced to NGVD, 1929)										
Date	04/29/99	05/13/99	05/27/99	06/17/99	07/19/99	08/16/99	09/15/99	10/21/99	11/16/99	12/07/99	01/25/00
Well 1S	210.47	210.45	210.35	210.38	dry	dry	dry	dry	dry	dry	dry
Well 1L	210.48	210.46	210.36	210.39	209.35	208.64	dry	dry	dry	dry	dry
Well 2S	210.68	210.55	210.44	210.51	dry	dry	dry	dry	dry	dry	dry
Well 2L	210.67	210.55	210.44	210.51	209.36	dry	dry	dry	dry	dry	dry
Well 3S	210.37	210.33	210.23	210.23	dry	dry	dry	dry	dry	dry	dry
Well 3L	210.37	210.33	210.23	210.23	208.90	dry	dry	dry	dry	dry	dry
Well 4S	210.69	210.59	210.47	210.52	dry	dry	dry	dry	dry	210.17	dry
Well 4L	210.68	210.58	210.47	210.52	209.51	209.14	dry	dry	dry	dry	dry
Well 5S	209.35	209.30	209.23	209.25	209.17	209.16	209.10	209.22	209.01	209.34	209.26
Well 5L	209.37	209.31	209.24	209.27	209.19	209.18	209.12	209.22	209.02	209.37	209.29
Well 6S	209.32	209.28	209.27	209.26	209.26	209.26	209.13	209.22	209.00	209.26	frozen
Well 6L	209.22	209.28	209.25	209.26	209.26	209.25	209.15	209.22	208.99	209.26	frozen
Well 7S	209.42	209.36	209.26	209.31	209.11	209.09	209.01	209.22	209.01	209.37	209.28
Well 7L	209.41	209.36	209.26	209.31	209.11	209.09	209.02	209.22	209.01	209.36	209.30
Well 8U	210.44	210.57	210.77	210.95	210.89	210.63	210.71	211.15	210.76	210.90	211.00
Well 8L	205.89	206.51	206.95	207.47	207.87	208.07	208.23	208.48	208.53	208.48	208.74
Well 9U	210.55	210.64	210.66	210.67	210.52	210.27	dry	dry	dry	dry	dry
Well 9L	209.71	209.76	209.62	209.53	209.35	209.07	208.83	208.80	208.57	208.55	208.44
Well 10U	209.91	210.01	210.11	210.24	210.29	210.05	209.64	dry	dry	209.50	dry
Well 11U	209.31	209.38	209.42	209.48	209.47	dry	dry	dry	dry	dry	dry
Well 13U	210.03	209.64	209.54	209.62	208.39	208.39	208.39	208.37	208.37	208.37	208.36
Well 13L	207.85	207.81	207.69	207.66	207.04	206.22	205.28	204.80	204.67	204.65	204.54
Well 14S	**	**	**	**	**	**	**	**	**	**	**
Well 15S	**	**	**	**	**	**	**	**	**	**	**
Well 16S	**	**	**	**	**	**	**	**	**	**	**
Well 17S	**	**	**	**	**	**	**	**	**	**	**
Well 18S	**	**	**	**	**	**	**	**	**	**	**
Well 19S	**	**	**	**	**	**	**	**	**	**	**
Well 20S	**	**	**	**	**	**	**	**	**	**	**
Well 21S	**	**	**	**	**	**	**	**	**	**	**
Well 22S	**	**	**	**	**	**	**	**	**	**	**
Well 23S	**	**	**	**	**	**	**	**	**	**	**
Well 24S	**	**	**	**	**	**	**	**	**	**	**
Well 25S	**	**	**	**	**	**	**	**	**	**	**
Well 27S	**	**	**	**	**	**	**	**	**	**	**
Well 28S	**	**	**	**	**	**	**	**	**	**	**
Well 29S	**	**	**	**	**	**	**	**	**	**	**
Well 30S	**	**	**	**	**	**	**	**	**	**	**
Well 31S	**	**	**	**	**	**	**	**	**	**	**
Well 32S	**	**	**	**	**	**	**	**	**	**	**
Well 33S	**	**	**	**	**	**	**	**	**	**	**
Well 34S	**	**	**	**	**	**	**	**	**	**	**
Well 35S	**	**	**	**	**	**	**	**	**	**	**
Well 36S	**	**	**	**	**	**	**	**	**	**	**
Well 37S	**	**	**	**	**	**	**	**	**	**	**
Well 38S	**	**	**	**	**	**	**	**	**	**	**
Well 39S	**	**	**	**	**	**	**	**	**	**	**
Well 40S	**	**	**	**	**	**	**	**	**	**	**
Well 41S	**	**	**	**	**	**	**	**	**	**	**
Well 42S	**	**	**	**	**	**	**	**	**	**	**

* no measurement
** not yet installed
S indicates soil-zone monitoring well
U indicates upper monitoring well
L indicates lower monitoring well

North Chicago
1998-2002

	Water-Level Elevations (in m referenced to NGVD, 1929)										
Date	02/14/00	03/15/00	04/10/00	04/24/00	05/08/00	05/22/00	06/05/00	07/06/00	08/01/00	09/05/00	10/19/00
Well 1S	dry	210.15	210.43	210.46	210.31	210.48	210.48	210.42	210.27	dry	dry
Well 1L	dry	210.19	210.44	210.47	210.31	210.48	210.48	210.43	210.28	209.32	209.38
Well 2S	dry	210.24	210.56	210.67	210.34	210.73	210.74	210.55	210.32	dry	dry
Well 2L	dry	210.26	210.56	210.68	210.35	210.74	210.73	210.55	210.33	209.31	209.31
Well 3S	dry	209.92	210.32	210.37	210.19	210.42	210.41	210.26	210.05	dry	dry
Well 3L	dry	209.93	210.32	210.37	210.19	210.43	210.42	210.27	210.05	208.90	208.93
Well 4S	dry	210.28	210.62	210.68	210.39	210.74	210.74	210.56	210.33	dry	dry
Well 4L	dry	210.29	210.62	210.68	210.39	210.74	210.75	210.56	210.33	209.34	209.52
Well 5S	209.32	209.28	209.33	209.35	209.23	209.43	209.41	209.28	209.38	209.22	209.29
Well 5L	209.36	209.29	209.36	209.38	209.26	209.46	209.47	209.35	209.42	209.25	209.30
Well 6S	frozen	209.27	209.32	209.32	209.29	209.36	209.35	209.29	209.33	209.28	209.29
Well 6L	frozen	209.27	209.31	209.33	209.28	209.37	209.37	209.29	209.32	209.28	209.29
Well 7S	209.33	209.34	209.38	209.42	209.28	209.49	209.47	209.35	209.41	209.17	209.32
Well 7L	209.35	209.34	209.38	209.42	209.27	209.49	209.46	209.35	209.41	209.18	209.32
Well 8U	211.16	211.30	211.58	211.68	211.09	211.62	211.61	211.48	211.37	210.72	211.03
Well 8L	208.59	208.93	208.94	208.89	208.78	208.84	208.80	208.74	208.80	208.83	210.90
Well 9U	dry	210.61	210.96	211.39	210.59	211.49	211.48	211.10	210.39	210.28	210.40
Well 9L	208.28	208.82	208.97	209.25	209.49	209.48	209.56	209.73	209.66	209.20	209.31
Well 10U	dry	210.99	211.25	211.27	210.82	211.41	211.42	211.01	210.51	210.28	210.48
Well 11U	dry	209.85	210.35	210.83	210.38	210.71	210.55	210.49	210.19	209.86	209.74
Well 13U	208.37	208.38	209.79	210.06	209.60	210.20	210.21	209.78	208.75	dry	dry
Well 13L	204.53	204.54	204.96	205.53	206.18	206.56	206.83	207.30	207.14	205.79	206.05
Well 14S	**	**	**	**	**	**	**	**	**	**	**
Well 15S	**	**	**	**	**	**	**	**	**	**	**
Well 16S	**	**	**	**	**	**	**	**	**	**	**
Well 17S	**	**	**	**	**	**	**	**	**	**	**
Well 18S	**	**	**	**	**	**	**	**	**	**	**
Well 19S	**	**	**	**	**	**	**	**	**	**	**
Well 20S	**	**	**	**	**	**	**	**	**	**	**
Well 21S	**	**	**	**	**	**	**	**	**	**	**
Well 22S	**	**	**	**	**	**	**	**	**	**	**
Well 23S	**	**	**	**	**	**	**	**	**	**	**
Well 24S	**	**	**	**	**	**	**	**	**	**	**
Well 25S	**	**	**	**	**	**	**	**	**	**	**
Well 27S	**	**	**	**	**	**	**	**	**	**	**
Well 28S	**	**	**	**	**	**	**	**	**	**	**
Well 29S	**	**	**	**	**	**	**	**	**	**	**
Well 30S	**	**	**	**	**	**	**	**	**	**	**
Well 31S	**	**	**	**	**	**	**	**	**	**	**
Well 32S	**	**	**	**	**	**	**	**	**	**	**
Well 33S	**	**	**	**	**	**	**	**	**	**	**
Well 34S	**	**	**	**	**	**	**	**	**	**	**
Well 35S	**	**	**	**	**	**	**	**	**	**	**
Well 36S	**	**	**	**	**	**	**	**	**	**	**
Well 37S	**	**	**	**	**	**	**	**	**	**	**
Well 38S	**	**	**	**	**	**	**	**	**	**	**
Well 39S	**	**	**	**	**	**	**	**	**	**	**
Well 40S	**	**	**	**	**	**	**	**	**	**	**
Well 41S	**	**	**	**	**	**	**	**	**	**	**
Well 42S	**	**	**	**	**	**	**	**	**	**	**

* no measurement
** not yet installed
S indicates soil-zone monitoring well
U indicates upper monitoring well
L indicates lower monitoring well

North Chicago
1998-2002

	Water-Level Elevations (in m referenced to NGVD, 1929)										
Date	11/15/00	12/13/00	01/16/01	01/17/01	02/15/01	03/07/01	04/05/01	04/19/01	05/03/01	05/17/01	06/07/01
Well 1S	209.98	210.16	*	210.46	frozen	frozen	210.45	210.48	210.40	210.48	210.48
Well 1L	209.97	210.16	*	210.47	frozen	frozen	210.46	210.48	210.40	210.48	210.49
Well 2S	dry	210.13	*	210.60	frozen	frozen	210.57	210.63	210.43	210.64	210.71
Well 2L	209.90	210.13	*	210.61	210.71	210.59	210.56	210.63	210.43	210.63	210.71
Well 3S	209.95	210.01	*	210.36	210.36	210.29	210.29	210.35	210.20	210.32	210.36
Well 3L	209.96	210.01	*	210.37	210.38	210.30	210.30	210.35	210.20	210.33	210.37
Well 4S	210.24	210.35	*	210.72	210.71	210.63	210.60	210.66	210.47	210.65	210.71
Well 4L	210.24	210.35	*	210.72	210.72	210.64	210.62	210.66	210.47	210.65	210.72
Well 5S	209.34	209.33	209.42	*	209.34	209.26	209.25	209.33	209.26	209.35	209.38
Well 5L	209.36	209.35	209.45	*	209.39	209.32	209.32	209.34	209.28	209.38	209.42
Well 6S	209.32	frozen	frozen	*	209.33	frozen	209.32	209.32	209.32	209.35	209.34
Well 6L	209.30	frozen	209.39	*	209.34	frozen	209.31	209.32	209.32	209.34	209.33
Well 7S	209.39	209.38	209.46	*	209.40	209.29	209.30	209.39	209.31	209.42	209.43
Well 7L	209.39	209.39	209.47	*	209.43	209.34	209.35	209.39	209.30	209.41	209.43
Well 8U	211.58	211.09	*	211.70	frozen	211.29	211.25	211.49	211.15	211.61	211.72
Well 8L	210.22	209.71	*	*	210.26	209.80	209.48	209.27	209.20	209.13	209.15
Well 9U	210.82	210.51	*	211.28	211.31	210.77	210.78	210.96	210.73	211.19	211.27
Well 9L	209.30	209.42	*	209.43	209.46	209.73	209.57	209.60	209.61	209.71	209.72
Well 10U	210.86	210.66	*	211.42	211.36	211.03	210.97	211.04	210.80	211.11	211.22
Well 11U	209.72	209.82	209.99	*	210.63	210.38	210.35	210.42	210.33	210.57	210.46
Well 13U	209.63	209.24	209.88	*	210.04	209.81	209.81	209.89	209.66	210.02	209.96
Well 13L	206.32	206.95	207.29	*	207.81	207.97	208.11	208.18	208.19	208.28	208.26
Well 14S	**	**	**	**	**	210.34	210.50	210.50	210.21	210.56	210.66
Well 15S	**	**	**	**	**	210.36	210.45	210.49	210.20	210.47	210.61
Well 16S	**	**	**	**	**	209.78	209.80	209.84	209.73	209.90	209.93
Well 17S	**	**	**	**	**	frozen	209.50	209.53	209.47	209.53	209.54
Well 18S	**	**	**	**	**	209.56	209.54	209.57	209.45	209.64	209.67
Well 19S	**	**	**	**	**	209.90	209.88	209.96	209.73	209.98	210.05
Well 20S	**	**	**	**	**	209.38	209.37	209.41	209.26	209.44	209.46
Well 21S	**	**	**	**	**	209.51	209.49	209.50	209.33	209.50	209.52
Well 22S	**	**	**	**	**	209.07	209.06	209.10	208.98	209.14	209.17
Well 23S	**	**	**	**	**	frozen	209.00	209.01	208.90	209.01	209.02
Well 24S	**	**	**	**	**	209.02	208.97	209.08	dry	209.20	209.19
Well 25S	**	**	**	**	**	frozen	208.83	208.85	208.81	208.86	208.87
Well 27S	**	**	**	**	**	210.24	210.22	210.38	210.16	210.41	210.60
Well 28S	**	**	**	**	**	209.18	209.14	209.28	209.10	209.37	209.43
Well 29S	**	**	**	**	**	vandalized	vandalized	208.87	208.83	208.88	208.89
Well 30S	**	**	**	**	**	209.00	208.97	209.03	208.89	209.05	209.14
Well 31S	**	**	**	**	**	vandalized	vandalized	209.50	209.31	209.58	209.64
Well 32S	**	**	**	**	**	207.78	207.77	207.86	207.69	208.04	208.00
Well 33S	**	**	**	**	**	207.68	207.67	207.71	207.57	207.77	207.78
Well 34S	**	**	**	**	**	207.62	207.62	207.65	207.54	207.68	207.69
Well 35S	**	**	**	**	**	207.74	207.73	207.75	207.63	207.76	207.80
Well 36S	**	**	**	**	**	209.49	209.48	209.51	209.41	209.56	209.60
Well 37S	**	**	**	**	**	209.40	209.41	209.46	209.35	209.49	209.51
Well 38S	**	**	**	**	**	dry	dry	dry	dry	209.72	209.71
Well 39S	**	**	**	**	**	209.13	209.19	209.24	209.00	209.22	209.33
Well 40S	**	**	**	**	**	211.00	210.98	211.01	210.84	211.06	211.15
Well 41S	**	**	**	**	**	209.31	209.31	209.36	209.16	209.41	209.47
Well 42S	**	**	**	**	**	frozen	208.85	208.88	208.86	208.88	208.89

* no measurement
** not yet installed
S indicates soil-zone monitoring well
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North Chicago
1998-2002

	Water-Level Elevations (in m referenced to NGVD, 1929)										
Date	06/20/01	06/21/01	07/18/01	07/19/01	09/06/01	10/18/01	11/06/01	11/07/01	12/05/01	12/06/01	01/15/02
Well 1S	*	210.28	*	*	*	*	*	*	*	*	*
Well 1L	*	210.28	209.55	*	209.07	210.46	*	210.46	*	210.47	210.37
Well 2S	*	210.31	dry	*	dry	210.60	*	210.51	*	210.58	210.41
Well 2L	*	210.31	209.57	*	dry	210.60	*	210.52	*	210.58	210.42
Well 3S	*	210.01	dry	*	dry	210.32	*	210.31	*	210.34	210.11
Well 3L	*	210.02	209.15	*	dry	210.33	*	210.31	*	210.35	210.14
Well 4S	*	210.34	dry	*	dry	210.61	*	210.55	*	210.65	210.50
Well 4L	*	210.34	209.67	*	dry	210.62	*	210.55	*	210.65	210.51
Well 5S	209.22	*	209.30	*	209.26	209.36	209.33	*	*	209.36	209.38
Well 5L	209.26	*	209.33	*	209.26	209.39	209.33	*	*	209.39	209.43
Well 6S	209.28	*	*	209.32	209.30	209.33	209.33	*	*	209.32	frozen
Well 6L	209.28	*	*	209.32	209.30	209.33	damaged	damaged	damaged	damaged	damaged
Well 7S	209.27	*	*	209.35	209.28	209.43	209.40	*	*	209.42	209.41
Well 7L	209.27	*	*	209.35	209.28	209.43	209.39	*	*	209.42	209.44
Well 8U	*	211.08	211.15	*	211.14	211.58	*	211.25	*	211.56	211.06
Well 8L	*	209.06	208.90	*	209.08	209.43	*	209.47	*	209.40	209.20
Well 9U	*	210.68	210.31	*	210.16	211.18	*	210.71	*	210.75	210.35
Well 9L	*	209.75	209.47	*	209.28	209.74	*	209.88	*	209.84	209.55
Well 10U	*	210.65	210.30	*	209.98	211.12	*	210.90	*	211.02	210.68
Well 11U	210.21	*	*	209.98	dry	210.50	210.42	*	*	210.41	210.29
Well 13U	209.50	*	*	dry	dry	209.92	209.66	*	*	209.63	209.29
Well 13L	208.19	*	*	207.53	206.30	207.02	207.82	*	*	207.85	207.85
Well 14S	210.18	*	*	dry	dry	210.53	210.33	*	*	210.51	dry
Well 15S	dry	*	*	dry	dry	210.52	210.31	*	210.45	*	dry
Well 16S	209.70	*	209.75	*	dry	209.93	209.79	*	209.86	*	209.77
Well 17S	209.47	*	209.47	*	209.25	209.52	209.52	*	209.53	*	frozen
Well 18S	209.41	*	dry	*	dry	209.65	209.52	*	209.57	*	209.45
Well 19S	*	dry	dry	*	dry	210.01	*	dry	*	209.82	dry
Well 20S	*	dry	dry	*	dry	209.44	*	209.33	*	209.39	dry
Well 21S	*	209.32	dry	*	dry	209.50	*	209.47	*	209.50	209.39
Well 22S	*	208.87	dry	*	dry	209.19	*	209.02	*	209.12	208.90
Well 23S	*	208.87	208.40	*	dry	209.00	*	208.98	*	209.00	208.96
Well 24S	*	dry	dry	*	dry	209.29	*	209.03	*	209.14	dry
Well 25S	*	208.79	208.52	*	208.00	208.87	*	208.85	*	208.86	208.84
Well 27S	*	dry	dry	*	dry	210.48	*	210.19	*	210.29	dry
Well 28S	*	dry	dry	*	dry	209.43	*	209.15	*	209.27	dry
Well 29S	*	208.82	208.59	*	208.56	208.88	*	208.86	*	208.88	frozen
Well 30S	*	dry	dry	*	dry	209.10	*	208.94	*	209.01	208.89
Well 31S	*	209.27	dry	*	dry	209.64	*	209.36	*	209.45	dry
Well 32S	dry	*	*	dry	dry	207.80	207.68	*	*	207.76	dry
Well 33S	207.50	*	*	207.49	207.38	207.74	207.65	*	*	207.70	207.64
Well 34S	207.49	*	*	207.61	207.49	207.67	207.62	*	*	207.66	frozen
Well 35S	207.57	*	*	207.53	dry	207.77	207.70	*	*	207.73	207.70
Well 36S	209.35	*	*	209.34	209.29	209.58	209.49	*	*	209.55	209.57
Well 37S	209.31	*	*	209.32	209.22	209.51	209.45	*	*	209.47	209.46
Well 38S	dry	*	*	dry	dry	209.79	dry	*	*	dry	dry
Well 39S	208.94	*	*	dry	dry	209.28	209.12	*	*	209.16	208.99
Well 40S	210.76	*	*	dry	dry	211.02	210.93	*	*	211.03	210.74
Well 41S	209.15	*	*	dry	dry	209.43	209.31	*	*	209.36	209.20
Well 42S	208.85	*	*	208.86	208.73	208.88	208.88	*	*	208.88	frozen

* no measurement
** not yet installed
S indicates soil-zone monitoring well
U indicates upper monitoring well
L indicates lower monitoring well

North Chicago
1998-2002

	Water-Level Elevations (in m referenced to NGVD, 1929)								
Date	02/21/02	04/11/02	04/12/02	04/25/02	05/06/02	05/07/02	05/21/02	05/22/02	06/05/02
Well 1S	*	*	*	*	*	*	*	*	*
Well 1L	210.46	210.49	*	210.47	*	210.48	210.48	*	210.49
Well 2S	210.73	210.71	*	210.56	*	210.54	210.60	*	210.74
Well 2L	210.73	210.71	*	210.55	*	210.53	210.60	*	210.74
Well 3S	210.42	210.40	*	210.32	*	210.30	210.32	*	210.45
Well 3L	210.44	210.40	*	210.32	*	210.29	210.32	*	210.45
Well 4S	210.74	210.72	*	210.58	*	210.75	210.62	*	210.75
Well 4L	210.76	210.73	*	210.58	*	210.57	210.63	*	210.76
Well 5S	209.41	209.39	*	209.33	*	209.32	*	209.32	209.46
Well 5L	209.50	209.44	*	209.35	*	209.33	*	209.33	209.51
Well 6S	209.37	209.34	*	209.34	*	209.33	*	209.32	209.42
Well 6L	damaged	damaged	damaged	damaged	damaged	damaged	damaged	damaged	damaged
Well 7S	209.43	209.43	*	209.38	*	209.38	*	209.39	209.49
Well 7L	209.45	209.43	*	209.38	*	209.38	*	209.39	209.51
Well 8U	211.63	*	211.65	211.34	*	211.40	211.55	*	211.36
Well 8L	209.22	*	209.23	209.08	*	209.04	209.05	*	209.19
Well 9U	211.40	*	211.35	210.71	*	210.64	210.85	*	211.55
Well 9L	209.53	*	209.71	209.67	*	209.58	209.59	*	209.59
Well 10U	211.38	*	211.26	210.86	*	210.83	210.98	*	211.36
Well 11U	210.70	210.84	*	210.31	*	210.26	*	210.36	210.95
Well 13U	210.22	210.36	*	209.63	*	209.58	*	209.75	210.49
Well 13L	208.00	208.42	*	208.38	*	208.23	*	208.30	208.22
Well 14S	210.66	210.68	*	210.27	210.23	*	*	210.47	210.68
Well 15S	210.74	210.64	*	210.27	210.26	*	*	210.35	210.67
Well 16S	210.09	210.08	*	209.80	209.81	*	*	209.85	210.11
Well 17S	209.55	209.54	*	209.54	209.55	*	*	209.55	209.56
Well 18S	209.81	209.75	*	209.54	209.54	*	*	209.56	209.86
Well 19S	210.22	*	210.14	dry	*	dry	*	209.90	210.23
Well 20S	209.57	*	209.52	209.32	*	209.24	*	209.36	209.64
Well 21S	209.54	209.52	*	209.42	*	209.42	*	209.46	209.54
Well 22S	209.32	209.23	*	209.00	*	208.98	*	209.06	209.36
Well 23S	209.02	209.02	*	208.96	*	208.94	*	208.99	209.02
Well 24S	209.44	209.32	*	dry	*	dry	*	209.04	209.44
Well 25S	208.93	208.88	*	208.82	*	208.82	*	208.84	208.95
Well 27S	210.74	*	210.58	dry	*	dry	210.32	*	210.67
Well 28S	209.58	*	209.50	209.09	*	209.09	209.26	*	209.58
Well 29S	208.93	208.90	*	208.85	*	208.85	208.85	*	208.96
Well 30S	209.23	209.14	*	208.92	*	208.91	208.99	*	209.28
Well 31S	209.81	209.72	*	dry	*	dry	209.46	*	209.82
Well 32S	207.97	208.15	*	207.83	*	207.79	*	207.96	208.25
Well 33S	207.79	207.80	*	207.71	*	207.68	*	207.72	207.88
Well 34S	207.74	207.70	*	207.66	*	207.66	*	207.65	207.79
Well 35S	207.94	207.87	*	207.73	*	207.71	*	207.74	207.99
Well 36S	209.74	209.67	*	209.49	*	209.47	*	209.49	209.75
Well 37S	209.56	209.54	*	209.43	*	209.41	*	209.44	209.59
Well 38S	209.86	209.85	*	dry	*	dry	*	dry	210.07
Well 39S	209.36	209.32	*	209.12	209.10	*	*	209.17	209.35
Well 40S	211.19	211.14	*	210.93	210.92	*	*	210.97	211.20
Well 41S	209.47	209.48	*	209.32	209.32	*	*	209.36	209.50
Well 42S	208.86	208.89	*	208.89	208.89	*	*	208.90	208.91

* no measurement
** not yet installed
S indicates soil-zone monitoring well
U indicates upper monitoring well
L indicates lower monitoring well

North Chicago
1998-2002

	Depth to Water (in m referenced to land surface)										
Date	06/08/98	07/09/98	08/07/98	09/18/98	10/15/98	11/20/98	12/14/98	01/22/99	02/25/99	04/01/99	04/15/99
Well 1S	0.52	**0.18**	dry	dry	dry	dry	0.38	**-0.03**	**0.00**	**0.04**	**0.00**
Well 1L	0.51	**0.18**	1.15	1.89	dry	0.92	0.38	**-0.02**	**0.01**	**0.05**	**0.01**
Well 2S	dry	0.39	dry	dry	dry	0.61	0.54	**-0.01**	**0.19**	**0.27**	**0.13**
Well 2L	0.78	0.43	1.43	1.85	dry	1.24	0.65	**0.04**	**0.22**	**0.26**	**0.12**
Well 3S	dry	0.48	dry	dry	dry	dry	0.60	**0.07**	**0.25**	**0.25**	**0.20**
Well 3L	0.84	0.48	dry	dry	dry	1.06	0.61	**0.06**	**0.25**	**0.26**	**0.22**
Well 4S	dry	0.54	dry	dry	dry	dry	0.59	**0.08**	0.32	0.37	**0.25**
Well 4L	0.84	0.53	1.39	1.70	dry	1.10	0.58	**0.05**	0.31	0.36	**0.25**
Well 5S	0.44	0.31	0.44	0.40	0.35	**0.28**	**0.27**	**0.00**	**0.24**	**0.25**	**0.19**
Well 5L	0.42	**0.30**	0.42	0.39	0.35	**0.28**	**0.27**	**-0.03**	**0.25**	**0.30**	**0.26**
Well 6S	**0.15**	**0.03**	**0.06**	**0.05**	**0.08**	**0.03**	**0.02**	frozen	frozen	**0.00**	**-0.05**
Well 6L	**0.15**	**0.02**	**0.04**	**0.04**	**0.08**	**0.03**	**0.03**	**-0.07**	frozen	**0.00**	**-0.02**
Well 7S	0.50	0.32	0.54	0.51	0.43	**0.27**	**0.24**	**-0.01**	**0.24**	**0.24**	**0.14**
Well 7L	0.53	0.35	0.57	0.54	0.48	**0.30**	**0.28**	**0.01**	**0.26**	**0.29**	**0.20**
Well 8U	**	**	**	**	**	**	**	**	**	1.63	1.51
Well 8L	**	**	**	**	**	**	**	**	**	6.99	6.52
Well 9U	**	**	**	**	**	**	**	**	**	1.92	1.76
Well 9L	**	**	**	**	**	**	**	**	**	2.49	2.37
Well 10U	**	**	**	**	**	**	**	**	**	1.81	1.70
Well 11U	**	**	**	**	**	**	**	**	**	dry	dry
Well 12U	**	**	**	**	**	**	**	**	**	flooded	flooded
Well 13U	**	**	**	**	**	**	**	**	**	1.11	0.79
Well 13L	**	**	**	**	**	**	**	**	**	3.25	3.11
Well 14S	**	**	**	**	**	**	**	**	**	**	**
Well 15S	**	**	**	**	**	**	**	**	**	**	**
Well 16S	**	**	**	**	**	**	**	**	**	**	**
Well 17S	**	**	**	**	**	**	**	**	**	**	**
Well 18S	**	**	**	**	**	**	**	**	**	**	**
Well 19S	**	**	**	**	**	**	**	**	**	**	**
Well 20S	**	**	**	**	**	**	**	**	**	**	**
Well 21S	**	**	**	**	**	**	**	**	**	**	**
Well 22S	**	**	**	**	**	**	**	**	**	**	**
Well 23S	**	**	**	**	**	**	**	**	**	**	**
Well 24S	**	**	**	**	**	**	**	**	**	**	**
Well 25S	**	**	**	**	**	**	**	**	**	**	**
Well 27S	**	**	**	**	**	**	**	**	**	**	**
Well 28S	**	**	**	**	**	**	**	**	**	**	**
Well 29S	**	**	**	**	**	**	**	**	**	**	**
Well 30S	**	**	**	**	**	**	**	**	**	**	**
Well 31S	**	**	**	**	**	**	**	**	**	**	**
Well 32S	**	**	**	**	**	**	**	**	**	**	**
Well 33S	**	**	**	**	**	**	**	**	**	**	**
Well 34S	**	**	**	**	**	**	**	**	**	**	**
Well 35S	**	**	**	**	**	**	**	**	**	**	**
Well 36S	**	**	**	**	**	**	**	**	**	**	**
Well 37S	**	**	**	**	**	**	**	**	**	**	**
Well 38S	**	**	**	**	**	**	**	**	**	**	**
Well 39S	**	**	**	**	**	**	**	**	**	**	**
Well 40S	**	**	**	**	**	**	**	**	**	**	**
Well 41S	**	**	**	**	**	**	**	**	**	**	**
Well 42S	**	**	**	**	**	**	**	**	**	**	**

* no measurement
** not yet installed
\- indicates water above land surface
S indicates soil-zone monitoring well
U indicates upper monitoring well
L indicates lower monitoring well

North Chicago
1998-2002

	Depth to Water (in m referenced to land surface)										
Date	04/29/99	05/13/99	05/27/99	06/17/99	07/19/99	08/16/99	09/15/99	10/21/99	11/16/99	12/07/99	01/25/00
Well 1S	**-0.01**	**0.02**	**0.12**	**0.09**	dry	dry	dry	dry	dry	dry	dry
Well 1L	**0.00**	**0.02**	**0.12**	**0.09**	1.13	1.84	dry	dry	dry	dry	dry
Well 2S	**0.09**	**0.22**	0.33	**0.26**	dry	dry	dry	dry	dry	dry	dry
Well 2L	**0.09**	**0.21**	0.32	**0.25**	1.39	dry	dry	dry	dry	dry	dry
Well 3S	**0.19**	**0.24**	0.33	0.33	dry	dry	dry	dry	dry	dry	dry
Well 3L	**0.20**	**0.24**	0.34	0.34	1.68	dry	dry	dry	dry	dry	dry
Well 4S	**0.22**	0.32	0.43	0.39	dry	dry	dry	dry	dry	0.74	dry
Well 4L	**0.21**	0.32	0.42	0.38	1.39	1.75	dry	dry	dry	dry	dry
Well 5S	**0.16**	**0.21**	**0.29**	**0.26**	0.34	0.35	0.41	**0.29**	0.50	**0.17**	**0.26**
Well 5L	**0.19**	**0.25**	0.32	**0.29**	0.37	0.38	0.44	0.34	0.54	**0.19**	**0.27**
Well 6S	**-0.07**	**-0.03**	**-0.02**	**-0.01**	**-0.01**	**-0.01**	**0.12**	**0.03**	**0.25**	**-0.01**	frozen
Well 6L	**0.03**	**-0.03**	**0.00**	**-0.01**	**-0.01**	**0.00**	**0.10**	**0.03**	**0.26**	**-0.01**	frozen
Well 7S	**0.15**	**0.20**	**0.30**	**0.25**	0.46	0.48	0.55	0.34	0.55	**0.19**	**0.29**
Well 7L	**0.20**	**0.26**	0.35	0.30	0.50	0.52	0.59	0.39	0.60	**0.26**	0.32
Well 8U	1.34	1.21	1.01	0.82	0.89	1.15	1.07	0.63	1.02	0.88	0.78
Well 8L	5.90	5.27	4.83	4.32	3.92	3.71	3.55	3.30	3.25	3.30	3.04
Well 9U	1.42	1.33	1.31	1.30	1.45	1.70	dry	dry	dry	dry	dry
Well 9L	2.33	2.28	2.42	2.51	2.69	2.98	3.22	3.24	3.47	3.49	3.61
Well 10U	1.56	1.45	1.35	1.23	1.18	1.42	1.83	dry	dry	1.96	dry
Well 11U	2.30	2.23	2.19	2.14	2.14	dry	dry	dry	dry	dry	dry
Well 12U	flooded	flooded	flooded	flooded	**0.18**	**0.17**	**0.24**	**0.17**	**0.26**	**0.12**	**0.14**
Well 13U	0.82	1.21	1.30	1.22	2.45	2.45	2.46	2.47	2.47	2.48	2.48
Well 13L	3.04	3.08	3.20	3.23	3.85	4.67	5.61	6.09	6.22	6.24	6.35
Well 14S	**	**	**	**	**	**	**	**	**	**	**
Well 15S	**	**	**	**	**	**	**	**	**	**	**
Well 16S	**	**	**	**	**	**	**	**	**	**	**
Well 17S	**	**	**	**	**	**	**	**	**	**	**
Well 18S	**	**	**	**	**	**	**	**	**	**	**
Well 19S	**	**	**	**	**	**	**	**	**	**	**
Well 20S	**	**	**	**	**	**	**	**	**	**	**
Well 21S	**	**	**	**	**	**	**	**	**	**	**
Well 22S	**	**	**	**	**	**	**	**	**	**	**
Well 23S	**	**	**	**	**	**	**	**	**	**	**
Well 24S	**	**	**	**	**	**	**	**	**	**	**
Well 25S	**	**	**	**	**	**	**	**	**	**	**
Well 27S	**	**	**	**	**	**	**	**	**	**	**
Well 28S	**	**	**	**	**	**	**	**	**	**	**
Well 29S	**	**	**	**	**	**	**	**	**	**	**
Well 30S	**	**	**	**	**	**	**	**	**	**	**
Well 31S	**	**	**	**	**	**	**	**	**	**	**
Well 32S	**	**	**	**	**	**	**	**	**	**	**
Well 33S	**	**	**	**	**	**	**	**	**	**	**
Well 34S	**	**	**	**	**	**	**	**	**	**	**
Well 35S	**	**	**	**	**	**	**	**	**	**	**
Well 36S	**	**	**	**	**	**	**	**	**	**	**
Well 37S	**	**	**	**	**	**	**	**	**	**	**
Well 38S	**	**	**	**	**	**	**	**	**	**	**
Well 39S	**	**	**	**	**	**	**	**	**	**	**
Well 40S	**	**	**	**	**	**	**	**	**	**	**
Well 41S	**	**	**	**	**	**	**	**	**	**	**
Well 42S	**	**	**	**	**	**	**	**	**	**	**

* no measurement
** not yet installed
\- indicates water above land surface
S indicates soil-zone monitoring well
U indicates upper monitoring well
L indicates lower monitoring well

North Chicago
1998-2002

	Depth to Water (in m referenced to land surface)										
Date	02/14/00	03/15/00	04/10/00	04/24/00	05/08/00	05/22/00	06/05/00	07/06/00	08/01/00	09/05/00	10/19/00
Well 1S	dry	**0.30**	**0.01**	**-0.02**	**0.13**	**-0.03**	**-0.03**	**0.02**	**0.17**	dry	dry
Well 1L	dry	**0.27**	**0.03**	**0.00**	**0.15**	**-0.02**	**-0.02**	**0.04**	**0.19**	1.15	1.09
Well 2S	dry	0.52	**0.21**	**0.09**	0.42	**0.03**	**0.03**	**0.22**	0.44	dry	dry
Well 2L	dry	0.50	**0.20**	**0.08**	0.41	**0.02**	**0.02**	**0.21**	0.43	1.45	1.45
Well 3S	dry	0.65	**0.24**	**0.20**	0.38	**0.15**	**0.16**	**0.30**	0.52	dry	dry
Well 3L	dry	0.67	**0.27**	**0.23**	0.41	**0.17**	**0.18**	0.33	0.55	1.69	1.67
Well 4S	dry	0.61	**0.27**	**0.21**	0.50	**0.15**	**0.15**	0.33	0.56	dry	dry
Well 4L	dry	0.61	**0.28**	**0.22**	0.52	**0.16**	**0.15**	0.34	0.58	1.56	1.38
Well 5S	**0.20**	**0.24**	**0.19**	**0.17**	**0.29**	**0.09**	**0.11**	**0.24**	**0.14**	**0.30**	**0.23**
Well 5L	**0.20**	**0.26**	**0.20**	**0.17**	**0.29**	**0.09**	**0.09**	**0.21**	**0.14**	0.31	**0.26**
Well 6S	frozen	**-0.01**	**-0.06**	**-0.07**	**-0.03**	**-0.10**	**-0.10**	**-0.04**	**-0.07**	**-0.02**	**-0.03**
Well 6L	frozen	**0.00**	**-0.04**	**-0.06**	**-0.01**	**-0.10**	**-0.10**	**-0.02**	**-0.06**	**-0.01**	**-0.03**
Well 7S	**0.24**	**0.25**	**0.21**	**0.17**	0.32	**0.10**	**0.13**	**0.24**	**0.18**	0.42	**0.28**
Well 7L	**0.26**	**0.28**	**0.23**	**0.20**	0.34	**0.12**	**0.15**	**0.26**	**0.21**	0.43	**0.30**
Well 8U	0.62	0.48	**0.20**	**0.10**	0.69	**0.16**	**0.17**	**0.30**	0.41	1.06	0.75
Well 8L	3.19	2.86	2.85	2.90	3.01	2.95	2.99	3.05	2.99	2.96	0.89
Well 9U	dry	1.36	1.01	0.57	1.38	0.48	0.49	0.87	1.58	1.69	1.57
Well 9L	3.76	3.21	3.06	2.77	2.54	2.55	2.47	2.30	2.37	2.82	2.72
Well 10U	dry	0.48	**0.21**	**0.19**	0.65	**0.05**	**0.05**	0.45	0.95	1.18	0.99
Well 11U	dry	1.78	1.28	0.80	1.25	0.93	1.08	1.14	1.45	1.77	1.89
Well 12U	*	**0.16**	**0.08**	**0.06**	**0.14**	**0.05**	**0.05**	**0.07**	**0.08**	**0.10**	**0.09**
Well 13U	2.48	2.48	1.06	0.80	1.26	0.66	0.64	1.08	2.11	dry	dry
Well 13L	6.36	6.39	5.97	5.40	4.75	4.37	4.10	3.63	3.79	5.14	4.89
Well 14S	**	**	**	**	**	**	**	**	**	**	**
Well 15S	**	**	**	**	**	**	**	**	**	**	**
Well 16S	**	**	**	**	**	**	**	**	**	**	**
Well 17S	**	**	**	**	**	**	**	**	**	**	**
Well 18S	**	**	**	**	**	**	**	**	**	**	**
Well 19S	**	**	**	**	**	**	**	**	**	**	**
Well 20S	**	**	**	**	**	**	**	**	**	**	**
Well 21S	**	**	**	**	**	**	**	**	**	**	**
Well 22S	**	**	**	**	**	**	**	**	**	**	**
Well 23S	**	**	**	**	**	**	**	**	**	**	**
Well 24S	**	**	**	**	**	**	**	**	**	**	**
Well 25S	**	**	**	**	**	**	**	**	**	**	**
Well 27S	**	**	**	**	**	**	**	**	**	**	**
Well 28S	**	**	**	**	**	**	**	**	**	**	**
Well 29S	**	**	**	**	**	**	**	**	**	**	**
Well 30S	**	**	**	**	**	**	**	**	**	**	**
Well 31S	**	**	**	**	**	**	**	**	**	**	**
Well 32S	**	**	**	**	**	**	**	**	**	**	**
Well 33S	**	**	**	**	**	**	**	**	**	**	**
Well 34S	**	**	**	**	**	**	**	**	**	**	**
Well 35S	**	**	**	**	**	**	**	**	**	**	**
Well 36S	**	**	**	**	**	**	**	**	**	**	**
Well 37S	**	**	**	**	**	**	**	**	**	**	**
Well 38S	**	**	**	**	**	**	**	**	**	**	**
Well 39S	**	**	**	**	**	**	**	**	**	**	**
Well 40S	**	**	**	**	**	**	**	**	**	**	**
Well 41S	**	**	**	**	**	**	**	**	**	**	**
Well 42S	**	**	**	**	**	**	**	**	**	**	**

* no measurement
** not yet installed
\- indicates water above land surface
S indicates soil-zone monitoring well
U indicates upper monitoring well
L indicates lower monitoring well

North Chicago
1998-2002

	Depth to Water (in m referenced to land surface)										
Date	11/15/00	12/13/00	01/16/01	01/17/01	02/15/01	03/07/01	04/05/01	04/19/01	05/03/01	05/17/01	06/07/01
Well 1S	0.46	**0.28**	*	**-0.02**	frozen	frozen	**-0.01**	**0.01**	**0.09**	**0.00**	**0.00**
Well 1L	0.50	0.31	*	**0.00**	frozen	frozen	**0.01**	**0.01**	**0.09**	**0.00**	**0.00**
Well 2S	dry	0.64	*	**0.16**	frozen	frozen	**0.20**	**0.10**	**0.30**	**0.10**	**0.02**
Well 2L	0.86	0.63	*	**0.15**	**0.05**	**0.17**	**0.20**	**0.13**	0.33	**0.13**	**0.05**
Well 3S	0.62	0.56	*	**0.21**	**0.20**	**0.27**	**0.28**	**0.23**	0.37	**0.25**	**0.22**
Well 3L	0.64	0.58	*	**0.23**	**0.22**	**0.29**	**0.29**	**0.23**	0.37	**0.25**	**0.21**
Well 4S	0.65	0.54	*	**0.17**	**0.18**	**0.27**	**0.29**	**0.25**	0.44	**0.26**	**0.19**
Well 4L	0.66	0.56	*	**0.18**	**0.18**	**0.27**	**0.29**	**0.24**	0.43	**0.25**	**0.18**
Well 5S	**0.18**	**0.19**	**0.10**	*	**0.18**	**0.27**	**0.27**	**0.22**	**0.29**	**0.19**	**0.16**
Well 5L	**0.19**	**0.21**	**0.10**	*	**0.16**	**0.23**	**0.24**	**0.22**	**0.28**	**0.18**	**0.14**
Well 6S	**-0.06**	frozen	frozen	*	**-0.08**	frozen	**-0.06**	**-0.05**	**-0.05**	**-0.07**	**-0.06**
Well 6L	**-0.04**	frozen	**-0.13**	*	**-0.07**	frozen	**-0.04**	**-0.04**	**-0.04**	**-0.07**	**-0.06**
Well 7S	**0.20**	**0.21**	**0.13**	*	**0.20**	**0.30**	**0.29**	**0.17**	**0.26**	**0.14**	**0.13**
Well 7L	**0.22**	**0.22**	**0.14**	*	**0.18**	**0.27**	**0.26**	**0.23**	0.31	**0.20**	**0.19**
Well 8U	**0.20**	0.69	*	**0.08**	frozen	0.49	0.53	**0.26**	0.60	**0.14**	**0.03**
Well 8L	1.57	2.08	*	*	1.54	1.99	2.32	2.49	2.56	2.64	2.61
Well 9U	1.15	1.46	*	0.69	0.66	1.20	1.18	1.00	1.23	0.77	0.69
Well 9L	2.72	2.61	*	2.59	2.57	2.30	2.46	2.43	2.42	2.32	2.31
Well 10U	0.61	0.81	*	**0.04**	**0.11**	0.43	0.49	0.39	0.63	0.32	**0.22**
Well 11U	1.91	1.81	1.64	*	1.01	1.25	1.28	1.23	1.32	1.08	1.18
Well 12U	**0.09**	*	*	*	*	**0.08**	**0.11**	**0.13**	**0.14**	**0.10**	**0.14**
Well 13U	1.22	1.61	0.98	*	0.82	1.05	1.04	0.96	1.19	0.84	0.90
Well 13L	4.61	3.98	3.64	*	3.12	2.97	2.83	2.73	2.72	2.63	2.65
Well 14S	**	**	**	**	**	0.44	**0.28**	**0.27**	0.57	**0.22**	**0.12**
Well 15S	**	**	**	**	**	0.43	0.34	**0.30**	0.59	0.32	**0.18**
Well 16S	**	**	**	**	**	0.40	0.39	0.35	0.46	**0.29**	**0.26**
Well 17S	**	**	**	**	**	frozen	**0.01**	**-0.01**	**0.04**	**-0.02**	**-0.02**
Well 18S	**	**	**	**	**	0.42	0.44	0.41	0.53	0.34	0.31
Well 19S	**	**	**	**	**	0.51	0.53	0.45	0.68	0.43	0.36
Well 20S	**	**	**	**	**	0.49	0.50	0.46	0.61	0.43	0.41
Well 21S	**	**	**	**	**	**0.05**	**0.07**	**0.06**	**0.23**	**0.06**	**0.04**
Well 22S	**	**	**	**	**	0.42	0.43	0.39	0.51	0.35	0.32
Well 23S	**	**	**	**	**	frozen	**0.00**	**-0.01**	**0.11**	**-0.01**	**-0.02**
Well 24S	**	**	**	**	**	0.62	0.67	0.56	dry	0.44	0.45
Well 25S	**	**	**	**	**	frozen	**-0.21**	**-0.23**	**-0.19**	**-0.24**	**-0.26**
Well 27S	**	**	**	**	**	0.60	0.62	0.45	0.67	0.42	**0.23**
Well 28S	**	**	**	**	**	0.49	0.54	0.40	0.58	0.31	**0.24**
Well 29S	**	**	**	**	**	vandalized	vandalized	**0.04**	**0.09**	**0.04**	**0.03**
Well 30S	**	**	**	**	**	0.50	0.53	0.46	0.60	0.44	0.35
Well 31S	**	**	**	**	**	vandalized	vandalized	0.46	0.64	0.38	0.32
Well 32S	**	**	**	**	**	0.48	0.48	0.40	0.57	**0.22**	**0.26**
Well 33S	**	**	**	**	**	0.32	0.33	**0.29**	0.43	**0.23**	**0.22**
Well 34S	**	**	**	**	**	**0.10**	**0.10**	**0.07**	**0.17**	**0.04**	**0.03**
Well 35S	**	**	**	**	**	0.42	0.43	0.41	0.52	0.39	0.36
Well 36S	**	**	**	**	**	0.43	0.44	0.41	0.51	0.35	0.31
Well 37S	**	**	**	**	**	0.34	0.32	**0.28**	0.38	**0.24**	**0.22**
Well 38S	**	**	**	**	**	dry	dry	dry	dry	0.69	0.70
Well 39S	**	**	**	**	**	0.32	**0.27**	**0.21**	0.46	**0.23**	**0.12**
Well 40S	**	**	**	**	**	**0.25**	**0.28**	**0.25**	0.42	**0.20**	**0.11**
Well 41S	**	**	**	**	**	0.37	0.37	0.32	0.52	**0.27**	**0.21**
Well 42S	**	**	**	**	**	frozen	**-0.03**	**-0.05**	**-0.03**	**-0.06**	**-0.07**

* no measurement
** not yet installed
\- indicates water above land surface
S indicates soil-zone monitoring well
U indicates upper monitoring well
L indicates lower monitoring well

North Chicago
1998-2002

	Depth to Water (in m referenced to land surface)										
Date	06/20/01	06/21/01	07/18/01	07/19/01	09/06/01	10/18/01	11/06/01	11/07/01	12/05/01	12/06/01	01/15/02
Well 1S	*	**0.20**	*	*	*	*	*	*	*	*	*
Well 1L	*	**0.21**	0.94	*	1.42	**0.02**	*	**0.03**	*	**0.02**	**0.12**
Well 2S	*	0.42	dry	*	dry	**0.14**	*	**0.22**	*	**0.15**	0.33
Well 2L	*	0.45	1.19	*	dry	**0.16**	*	**0.24**	*	**0.18**	0.34
Well 3S	*	0.56	dry	*	dry	**0.25**	*	**0.27**	*	**0.23**	0.47
Well 3L	*	0.56	1.43	*	dry	**0.25**	*	**0.27**	*	**0.23**	0.44
Well 4S	*	0.57	dry	*	dry	**0.29**	*	0.36	*	**0.26**	0.41
Well 4L	*	0.56	1.23	*	dry	**0.28**	*	0.35	*	**0.25**	0.39
Well 5S	0.32	*	**0.24**	*	**0.29**	**0.18**	**0.22**	*	*	**0.18**	**0.16**
Well 5L	**0.30**	*	**0.23**	*	**0.30**	**0.17**	**0.22**	*	*	**0.17**	**0.13**
Well 6S	**0.00**	*	*	**-0.05**	**-0.02**	**-0.05**	**-0.05**	*	*	**-0.05**	frozen
Well 6L	**-0.01**	*	*	**-0.05**	**-0.02**	**-0.05**	damaged	damaged	damaged	damaged	damaged
Well 7S	**0.29**	*	*	**0.21**	**0.29**	**0.13**	**0.16**	*	*	**0.14**	**0.15**
Well 7L	0.35	*	*	**0.27**	0.34	**0.19**	**0.22**	*	*	**0.20**	**0.18**
Well 8U	*	0.67	0.60	*	0.61	**0.17**	*	0.50	*	**0.19**	0.69
Well 8L	*	2.70	2.87	*	2.69	2.34	*	2.29	*	2.36	2.56
Well 9U	*	1.28	1.65	*	1.80	0.78	*	1.25	*	1.22	1.61
Well 9L	*	2.28	2.56	*	2.75	2.29	*	2.14	*	2.19	2.48
Well 10U	*	0.78	1.13	*	1.45	0.31	*	0.54	*	0.41	0.75
Well 11U	1.43	*	*	1.67	dry	1.14	1.23	*	*	1.23	1.36
Well 12U	**0.15**	*	*	vandalized	vandalized	vandalized	vandalized	vandalized	vandalized	vandalized	vandalized
Well 13U	1.36	*	*	dry	dry	0.93	1.20	*	*	1.23	1.57
Well 13L	2.72	*	*	3.38	4.61	3.89	3.09	*	*	3.06	3.05
Well 14S	0.60	*	*	dry	dry	**0.25**	0.45	*	*	**0.27**	dry
Well 15S	dry	*	*	dry	dry	**0.27**	0.47	*	0.34	*	dry
Well 16S	0.49	*	0.44	*	dry	**0.26**	0.40	*	0.33	*	0.42
Well 17S	**0.04**	*	**0.05**	*	**0.27**	**0.00**	**-0.01**	*	**-0.02**	*	frozen
Well 18S	0.57	*	dry	*	dry	0.33	0.46	*	0.41	*	0.53
Well 19S	*	dry	dry	*	dry	0.41	*	dry	*	0.60	dry
Well 20S	*	dry	dry	*	dry	0.43	*	0.54	*	0.48	dry
Well 21S	*	**0.24**	dry	*	dry	**0.06**	*	**0.09**	*	**0.05**	**0.17**
Well 22S	*	0.62	dry	*	dry	0.31	*	0.47	*	0.37	0.59
Well 23S	*	**0.13**	0.60	*	dry	**0.00**	*	**0.02**	*	**0.01**	**0.04**
Well 24S	*	dry	dry	*	dry	0.35	*	0.61	*	0.50	dry
Well 25S	*	**-0.17**	**0.10**	*	0.62	**-0.25**	*	**-0.23**	*	**-0.24**	**-0.22**
Well 27S	*	dry	dry	*	dry	0.35	*	0.64	*	0.54	dry
Well 28S	*	dry	dry	*	dry	**0.25**	*	0.53	*	0.41	dry
Well 29S	*	**0.10**	0.33	*	0.36	**0.03**	*	**0.06**	*	**0.04**	frozen
Well 30S	*	dry	dry	*	dry	0.39	*	0.55	*	0.49	0.61
Well 31S	*	0.68	dry	*	dry	0.32	*	0.59	*	0.51	dry
Well 32S	dry	*	*	dry	dry	0.45	0.58	*	*	0.50	dry
Well 33S	0.50	*	*	0.52	0.62	**0.26**	0.35	*	*	**0.30**	0.36
Well 34S	**0.23**	*	*	**0.10**	**0.22**	**0.05**	**0.10**	*	*	**0.05**	frozen
Well 35S	0.59	*	*	0.62	dry	0.39	0.45	*	*	0.42	0.46
Well 36S	0.56	*	*	0.58	0.63	0.33	0.43	*	*	0.37	0.34
Well 37S	0.43	*	*	0.42	0.51	**0.22**	**0.29**	*	*	**0.27**	**0.27**
Well 38S	dry	*	*	dry	dry	0.62	dry	*	*	dry	dry
Well 39S	0.51	*	*	dry	dry	**0.17**	0.33	*	*	**0.29**	0.46
Well 40S	0.50	*	*	dry	dry	**0.23**	0.32	*	*	**0.22**	0.51
Well 41S	0.53	*	*	dry	dry	**0.25**	0.37	*	*	0.32	0.48
Well 42S	**-0.02**	*	*	**-0.03**	**0.10**	**-0.06**	**-0.06**	*	*	**-0.05**	frozen

* no measurement
** not yet installed
\- indicates water above land surface
S indicates soil-zone monitoring well
U indicates upper monitoring well
L indicates lower monitoring well

North Chicago
1998-2002

	Depth to Water (in m referenced to land surface)								
Date	02/21/02	04/11/02	04/12/02	04/25/02	05/06/02	05/07/02	05/21/02	05/22/02	06/05/02
Well 1S	*	*	*	*	*	*	*	*	*
Well 1L	0.02	0.00	*	0.02	*	0.01	0.01	*	0.00
Well 2S	0.01	0.02	*	0.17	*	0.20	0.13	*	-0.01
Well 2L	0.03	0.04	*	0.19	*	0.21	0.15	*	0.01
Well 3S	0.16	0.19	*	0.27	*	0.29	0.26	*	0.14
Well 3L	0.14	0.19	*	0.27	*	0.29	0.27	*	0.13
Well 4S	0.17	0.17	*	0.31	*	0.14	0.26	*	0.14
Well 4L	0.14	0.17	*	0.31	*	0.32	0.27	*	0.13
Well 5S	0.13	0.13	*	0.19	*	0.20	*	0.20	0.06
Well 5L	0.06	0.11	*	0.20	*	0.22	*	0.23	0.04
Well 6S	-0.09	-0.08	*	-0.08	*	-0.07	*	-0.06	-0.16
Well 6L	damaged	damaged	damaged	damaged	damaged	damaged	damaged	damaged	damaged
Well 7S	0.13	0.12	*	0.18	*	0.18	*	0.17	0.07
Well 7L	0.16	0.18	*	0.23	*	0.24	*	0.23	0.10
Well 8U	0.12	*	0.15	0.46	*	0.40	0.25	*	0.43
Well 8L	2.55	*	2.55	2.70	*	2.74	2.74	*	2.59
Well 9U	0.56	*	0.61	1.26	*	1.33	1.12	*	0.42
Well 9L	2.50	*	2.34	2.38	*	2.47	2.46	*	2.47
Well 10U	0.05	*	0.19	0.59	*	0.62	0.46	*	0.08
Well 11U	0.94	0.79	*	1.31	*	1.37	*	1.27	0.68
Well 12U	vandalized	vandalized	vandalized	vandalized	vandalized	vandalized	vandalized	vandalized	vandalized
Well 13U	0.64	0.50	*	1.23	*	1.28	*	1.10	0.37
Well 13L	2.91	2.48	*	2.52	*	2.67	*	2.60	2.68
Well 14S	0.11	0.13	*	0.53	0.57	*	*	0.33	0.13
Well 15S	0.05	0.16	*	0.54	0.55	*	*	0.45	0.13
Well 16S	0.10	0.11	*	0.39	0.38	*	*	0.34	0.09
Well 17S	-0.03	0.02	*	0.02	0.01	*	*	0.01	0.00
Well 18S	0.17	0.22	*	0.43	0.43	*	*	0.41	0.11
Well 19S	0.19	*	0.28	dry	*	dry	*	0.52	0.20
Well 20S	0.30	*	0.36	0.56	*	0.63	*	0.51	0.24
Well 21S	0.02	0.09	*	0.19	*	0.19	*	0.15	0.07
Well 22S	0.18	0.27	*	0.50	*	0.52	*	0.44	0.14
Well 23S	-0.01	0.00	*	0.06	*	0.07	*	0.02	0.00
Well 24S	0.20	0.31	*	dry	*	dry	*	0.59	0.19
Well 25S	-0.31	-0.24	*	-0.19	*	-0.19	*	-0.20	-0.31
Well 27S	0.10	*	0.25	dry	*	dry	0.52	*	0.16
Well 28S	0.10	*	0.17	0.58	*	0.58	0.41	*	0.09
Well 29S	-0.01	0.03	*	0.08	*	0.08	0.08	*	-0.02
Well 30S	0.26	0.35	*	0.57	*	0.58	0.50	*	0.21
Well 31S	0.15	0.25	*	dry	*	dry	0.52	*	0.15
Well 32S	0.28	0.10	*	0.42	*	0.46	*	0.29	0.00
Well 33S	0.22	0.20	*	0.29	*	0.32	*	0.28	0.12
Well 34S	-0.02	0.03	*	0.06	*	0.07	*	0.07	-0.07
Well 35S	0.22	0.26	*	0.41	*	0.42	*	0.40	0.14
Well 36S	0.18	0.24	*	0.41	*	0.44	*	0.42	0.16
Well 37S	0.17	0.20	*	0.31	*	0.33	*	0.30	0.14
Well 38S	0.55	0.56	*	dry	*	dry	*	dry	0.34
Well 39S	0.09	0.14	*	0.34	0.36	*	*	0.29	0.11
Well 40S	0.07	0.11	*	0.32	0.34	*	*	0.29	0.05
Well 41S	0.21	0.22	*	0.37	0.37	*	*	0.34	0.20
Well 42S	-0.03	-0.06	*	-0.06	-0.06	*	*	-0.07	-0.08

* no measurement
** not yet installed
\- indicates water above land surface
S indicates soil-zone monitoring well
U indicates upper monitoring well
L indicates lower monitoring well