ANNUAL REPORT FOR ACTIVE IDOT WETLAND COMPENSATION AND HYDROLOGIC MONITORING SITES

September 1, 2003 to September 1, 2004

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Submitted Under Contract Number IDOT SW WIP FY05 to
Illinois Department of Transportation
Bureau of Design and Environment, Wetlands Unit
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Illinois State Geological Survey
Open File Series 2004-17

INTRODUCTION

This report was prepared by the Illinois State Geological Survey (ISGS) to provide the Illinois Department of Transportation (IDOT) with hydrogeologic data collected from wetland compensation sites and potential wetland compensation sites being monitored under contracts IDOT SW WIP FY04 and IDOT SW WIP FY05. Where appropriate, this report also includes a determination of areas meeting wetland hydrology criteria listed in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (U.S. Army Corps of Engineers 1987). Additional activities performed under this contract, such as water-quality monitoring, are not included in this report. Other site observations are included where appropriate.

Summaries of 31 sites are included in this report. Most summaries contain a location map, a site map showing field instruments and the extent of area satisfying wetland hydrology criteria, hydrographs for selected monitoring wells, and local precipitation data for the period. Site locations are shown on Figure 1 and a list of site names is presented in Table 1. All data included in this report are from September 1, 2003 to September 1, 2004 at IDOT's request, except where noted.

METHODS

The primary purpose of this report is to determine the area within each wetland compensation site that satisfies the wetland hydrology criteria listed in the U.S. Army Corps of Engineers Wetland Delineation Manual (U.S. Army Corps of Engineers 1987). However, to be a wetland, an area must also satisfy soils and vegetation criteria that are assessed by the Illinois Natural History Survey (INHS). INHS will combine the hydrologic data presented in this report with vegetation and soils data they collect, determine the total wetland area of each mitigation site, and report it under separate cover. The total wetland area determined by INHS may differ from the areas that satisfy the wetland hydrology criteria shown in this report.

An area must be inundated or saturated for no less than 5% of the growing season in order to satisfy wetland hydrology criteria. These areas will be determined to be jurisdictional wetlands if vegetation and soils criteria mentioned above are also met. Areas that are inundated or saturated for greater than 12.5% of the growing season satisfy wetland hydrology criteria in a conclusive manner, and strongly indicate wetland conditions regardless of soils and vegetation. To assist in proper characterization of wetland compensation sites where soils or vegetation may be inconclusive, this report shows areas that are inundated or saturated for greater than 5% of the growing season as well as areas that are inundated or saturated for greater than 12.5% of the growing season. Inundation occurs when surface water is present at depths no greater than 2 meters (m) (6.6 feet) (ft). Saturation occurs when the water table is no deeper than 30 centimeters (cm) (1 ft) below land surface.

The Midwestern Climate Center (MCC) provides data regarding the length and beginning date of the growing season (Midwestern Climate Center 2004). The growing season is defined as the time period between the last occurrence of 28°F air temperatures in spring to the first occurrence of 28°F air temperatures in the fall. The median beginning date and length of growing season are calculated by the MCC for individual climate observation stations throughout the state. Data from the nearest observation station with an adequate period of record are used for each site.

Wells and stage gauges where water levels satisfied wetland hydrology criteria are listed in the text for each site. Interpolation between measuring points and/or extrapolation are used to locate the boundary of the area that satisfies wetland hydrology criteria. Best professional judgement is used to refine the location of this boundary, using small-scale topographic features, vegetation, soils, and

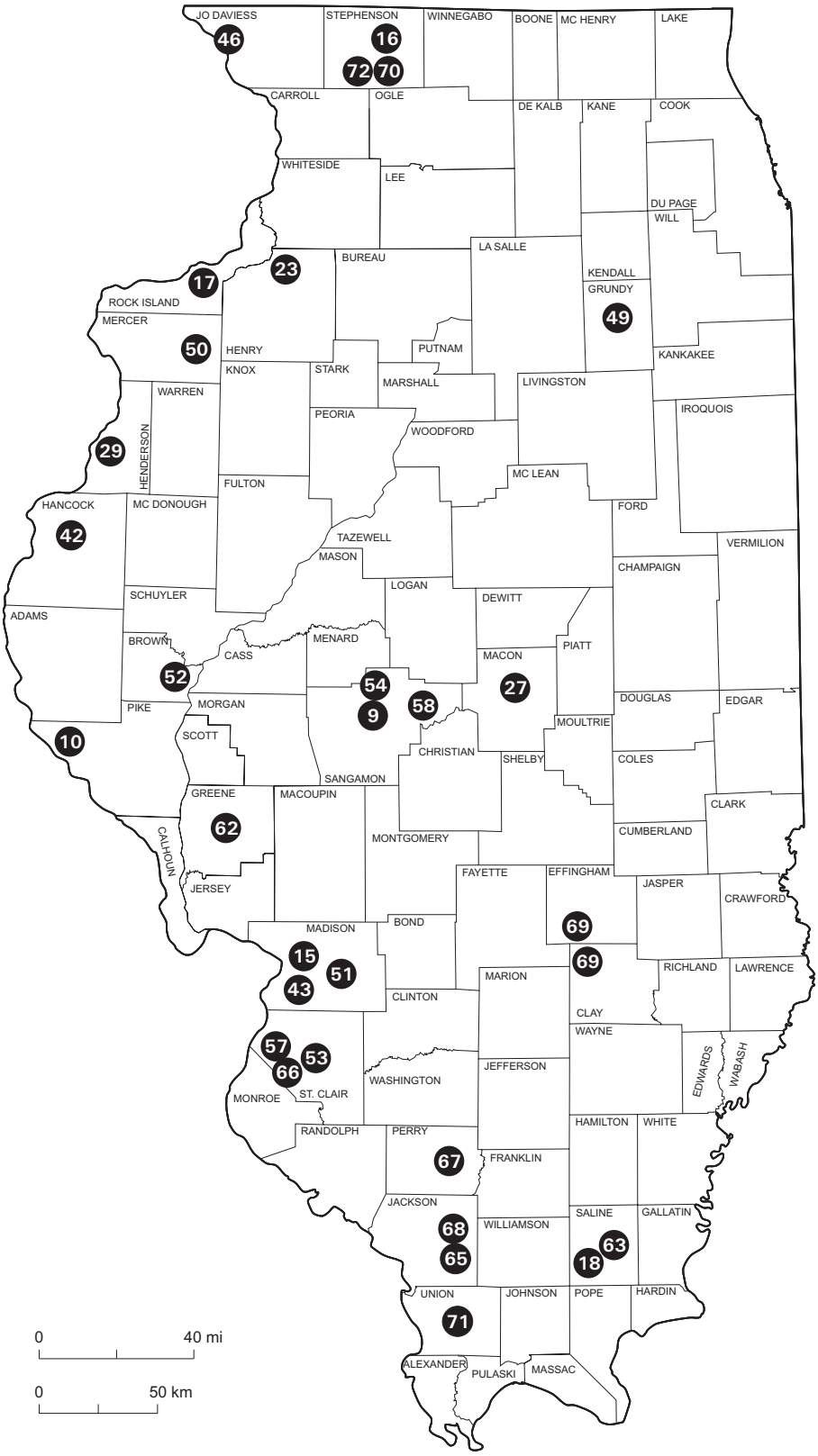


Figure 1 General locations of active water-level sites monitored by ISGS for IDOT between September 1, 2003 and September 1, 2004. Numbers indicate ISGS project numbers and are explained in Table 1.

Active IDOT Water-Level Monitoring Sites
September 1, 2003 to September 1, 2004

ISGS #	Site Name Route and FAP #
9	Veteran's Parkway, Springfield FAP 662
10	Hannibal Bridge US 36 FAP 319
15	Sand Road US 267 FAP 310
16	Orangeville IL 26 FAP 316
17	Milan Beltway, Airport Road FAU 5822
18	Saline County IL 13 FAP 331
23	Joslin IL 92 FAP 585
27	Decatur US 51 FAP 322
29	Gulfport US 34 FAP 313
42	Hancock County near Carthage US 136 FAP 315 & 10
43	Former Eckmann & Bischoff Properties IL 3 FAP 14
46	Galena River Bridge West Stagecoach Trail FAS 67
49	Morris, Illinois River Potential Wetland Bank
50	Edwards River, Mercer County US 67 FAP 310
51	Former Luehmann Property New River Crossing FAP 999
52	Former Wessel Property, La Grange Wetland Bank
53	Fairmont City New River Crossing FAP 999
54	Springfield IL 29 FAP 658
57	Former Tiernan Property New River Crossing FAP 999
58	Buckhart TR 478 FAS 1637
62	Apple Creek near Belltown US 67 FAP 310
63	Harrisburg US 45 FAP 332
65	Carbondale US 51 FAP 322
66	Centreville New River Crossing FAP 999
67	Pyatts Blacktop IL 13 & 127 FAP 42
68	De Soto US 51 FAP 322
69	Edgewood, Effingham County US 45 FAP 328
69	Larkinsburg, Clay County US 45 FAP 328
70	Freeport Bypass East Site 4 US 20 FAP 301
71	Tamms IL 127 FAS 1907
72	Freeport Bypass West Site 6W US 20 FAP 301

Table 1 ISGS project numbers and active water-level sites monitored by ISGS for IDOT between September 1, 2003 and September 1, 2004.

other site features. To measure the size of an area satisfying wetland hydrology criteria, the boundaries were plotted on the best available base map, then measured with a Tamaya Super Planix B digital planimeter and listed in acres (ac) and hectares (ha). If other methods were used to measure this area, they are noted in the site summaries.

The accuracy of each area measurement will vary significantly depending on the accuracy of the underlying base map, the accuracy in locating monitoring devices, and the accuracy of the planimeter at the scale of the base map. The base maps used for these determinations include as-built surveys (done both by IDOT and ISGS), construction plans, U.S. Geological Survey (USGS) 7.5-minute topographic maps, unrectified aerial photographs, and USGS digital orthophotograph quarter-quadrangle (DOQQ) maps (ISGS 2004). In no case is the error of the acreage calculation expected to be less than ±1.5%, and it could be much greater. Given the many potential sources of error, estimates of the amount of error are difficult to calculate and are not included. However, area measurements for each site may differ in the number of significant digits, reflecting the expected accuracy in the base map and the methods.

Water-level data were collected monthly throughout the year, and biweekly during April and May when highest water levels are generally observed. However, this year many sites required biweekly readings into June, because high water levels continued due to heavy rain in late spring.

In different parts of Illinois, 5% of the growing season is about 9 to 10 days, and 12.5% of the growing season ranges from about 23 days to 29 days. Therefore, two consecutive biweekly measurements are required to satisfy wetland hydrology criteria at 5% of the growing season, and three readings are required at 12.5% of the growing season. If fewer readings suggest wetland hydrology, then interpolation of the water levels is performed to determine total number of days of inundation or saturation. Interpolation between two dates is not performed if a water level is not recorded for both dates. Flooding that prevented measurement of a site was considered sufficient evidence of inundation for that site visit. Manual water-level measurements were often supplemented with various automated data logging devices that measured daily or more frequently. These data loggers were used to determine the timing of hydrologic events such as precipitation or flooding that were not recorded in manual measurements. One manual measurement alone is generally considered not sufficient to indicate inundation or saturation for a sufficient duration without a known precipitation or flooding event.

Monitoring wells were given an alphanumeric designation based in part on their relative depths. Monitoring wells designated with an "S" or "VS" are the most shallow type and were specifically constructed for measuring wetland hydrology. Monitoring wells designated with a "U" (upper) are deeper than "S" wells, and may be used to determine wetland hydrology depending on the depth of the well screen. Other types of wells, including "M", "L", and "D", are deeper wells used to collect other hydrogeologic data and cannot be used to determine wetland hydrology. They are included only to document ISGS activities at the site and they are discussed in other ISGS contract reports to IDOT.

Graphs for each site show water-level elevations at wells and surface-water instruments, and depth-to-water below land surface at each well. Depths are shown as negative values when water levels are above land surface. Elevations at most sites are shown relative to the National Geodetic Vertical Datum (NGVD) of 1929; any variations from this are labeled. The water levels recorded during the year are shown in the charts accompanying each site summary. For small sites, all measurements will be shown on the same chart. For sites with more instruments, similar types of instruments are grouped on individual charts, for example all "S" wells may be on a single chart.

For the largest sites, there may be several charts for a single type of instrument.

Multiple data loggers are used to monitor water levels continuously at many sites. Three main types of instruments are being used, each made by a different manufacturer. Each type of instrument has different operations and default values. We have removed or labeled any false readings that result when the instrument is dry (e.g. "0" or other default values) by making observations of the readings of the instrument prior to deployment. Other spurious readings that occurred due to data logger malfunction or natural conditions that cause inaccuracies (e.g. vegetation growth or debris accumulation beneath the logger) were removed after interpretation by ISGS scientists.

On-site precipitation data were collected by ISGS using several types of tipping-bucket rain gauges. Due to inherent difficulties in maintaining rain gauges (e.g., clogging, equipment malfunction, timing of deployments), actual precipitation for each month may be greater than the recorded value. Because all ISGS gauges are nonheated and must be removed in the winter, monthly precipitation data are also shown from climate observation stations maintained year-round by the MCC (MCC 2004). The closest weather station with an adequate period of record is used at each site. Normal (i.e. mean, average) precipitation values, and the above and below normal-range threshold values are calculated by the National Water and Climate Center (NWCC) (NWCC 2004) and are all based on a 30-year period, between either 1961 and 1990 or 1971 and 2000. Precipitation is classified as being within the normal range when the level recorded is within a 30% probability above or below the mean based on a 2-parameter gamma distribution over the 30-year period (NWCC 1995). Precipitation is classified as above or below the normal range when the recorded level is not within the normal range as defined above. "Above 30% threshold" refers to the value at which there is a 30% chance precipitation will be greater than or equal to the value shown. "Below 30% threshold" refers to the value at which there is a 30% chance precipitation will be less than or equal to the value shown. Precipitation may be described relative to "normal" values or the "normal range", depending on the intent of the project manager.

It is expected that accuracy will continue to improve in the 2005 report. Global Positioning System (GPS) location data plotted on DOQQ maps have been included in base maps where possible, but these resources are not yet available for every site. As these tools become available, they will be incorporated, leading to more accurately located site boundaries, instruments, and other important features and producing more accurate area measurements at all sites.

This document is intended to be a summary of all data collected under this contract during the reporting period. Therefore, some details have been omitted that may be necessary for other uses of the data. The primary project manager listed for each site should be contacted for additional information.

REFERENCES

Illinois State Geological Survey, 2004, Illinois Natural Resources Geospatial Data Clearinghouse, Illinois Digital Orthophoto Quarter Quadrangle Data: Illinois State Geological Survey, Champaign, Illinois, available online at http://www.isgs.uiuc.edu/nsdihome/webdocs/doqs/.

Midwestern Climate Center, 2004, Midwestern Climate Information System: Illinois State Water Survey, Champaign, Illinois, available online at http://mcc.sws.uiuc.edu/.

National Water and Climate Center, Natural Resources Conservation Service, 2004, Climate Analysis for Wetlands by County, available online at http://www.wcc.nrcs.usda.gov/climate/wetlands.html.

National Water and Climate Center, Natural Resources Conservation Service, 1995, WETS Table Documentation, available online at http://www.wcc.nrcs.usda.gov/climate/wets_doc.html.

U.S. Army Corps of Engineers, 1987, Corps of Engineers Wetlands Delineation Manual: U. S. Army Corps of Engineers Technical Report Y-87-1, Washington, D.C., 100 p. Available online at http://www.saj.usace.army.mil/permit/documents/87manual.pdf.

VETERAN'S PARKWAY, SPRINGFIELD **ISGS #09**
WETLAND COMPENSATION SITE
FAP 662
Sangamon County, near Springfield, Illinois
Primary Project Manager: Geoffrey E. Pociask
Secondary Project Manager: not assigned

SITE HISTORY

- Spring 1997: ISGS initiated water-level monitoring to determine pattern of water-level fluctuation in the ponded area. Water in the ponded area was monitored throughout most of the growing season in 1997. Water-level increases were strongly associated with storm events. Upon determining the relationship between water levels in the pond and the adjacent creek, monitoring of the pond was discontinued in Fall 1997.

- July 1999: Water-level monitoring for the purpose of determining the extent of wetland hydrology was initiated at the request of IDOT. Three "S" wells were installed in the shallow exposed shelf in the northwestern corner of the excavation. A surface-water data logger was re-installed to monitor pond water levels.

- November 2003: Project completed, IDOT requested monitoring be terminated. All monitoring instruments were removed.

HANNIBAL BRIDGE **ISGS #10**
WETLAND COMPENSATION SITE
FAP 319
Pike County, near East Hannibal, Illinois
Project Manager: Eric T. Plankell
Secondary Project Manager: Geoffrey E. Pociask

SITE HISTORY

- October 1992: ISGS installed monitoring wells and began a hydrogeologic characterization.
- June 1995: ISGS submitted a draft final hydrogeologic characterization report to IDOT.
- July 1997: IDOT completed construction of the created wetland.
- March 1998: ISGS submitted the final hydrogeologic characterization report to IDOT (ISGS Open File Series 1998–2).
- August 2004: Project met all permit requirements and was signed off by the U.S. Army Corps of Engineers. IDOT requested that site monitoring be terminated.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area of created wetland that satisfied wetland hydrology criteria for greater than 5% of the 2004 growing season was 17.4 ac (7.0 ha), and the area that satisfied wetland hydrology criteria for greater than 12.5% of the 2004 growing season was also 17.4 ac (7.0 ha). These estimates are out of an excavation of 17.4 ac (7.0 ha), and are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Hannibal, Missouri, is April 7 and the season lasts 217 days; 5% of the growing season is 11 days and 12.5% of the growing season is 27 days.
- During the period from September 2003 through August 2004, total precipitation at the Hannibal weather station was 113% of normal. Precipitation was above normal in September and December 2003, and in March and August 2004. Precipitation was below normal for all other months of the reporting year.
- In 2004, water levels measured in all U and S wells within the excavation satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 12.5 % of the growing season. No additional areas within the excavation satisfied wetland hydrology criteria for greater than 5% of the growing season.
- Water-level records for the data logger RDS2 indicated inundation for elevations below approximately 139.92 m (459.06 ft), for a duration that satisfied the wetland hydrology criteria for greater than 5% of the growing season. Water-level records for data logger RDS2 indicated inundation for elevations below approximately 139.90 m (458.99 ft), for a duration that satisfied the wetland hydrology criteria for greater than 12.5% of the growing season. Water levels recorded at RDS 1, located in an area of pre-existing natural wetland along the west-central border of the site, also exhibited similar water-level elevations.

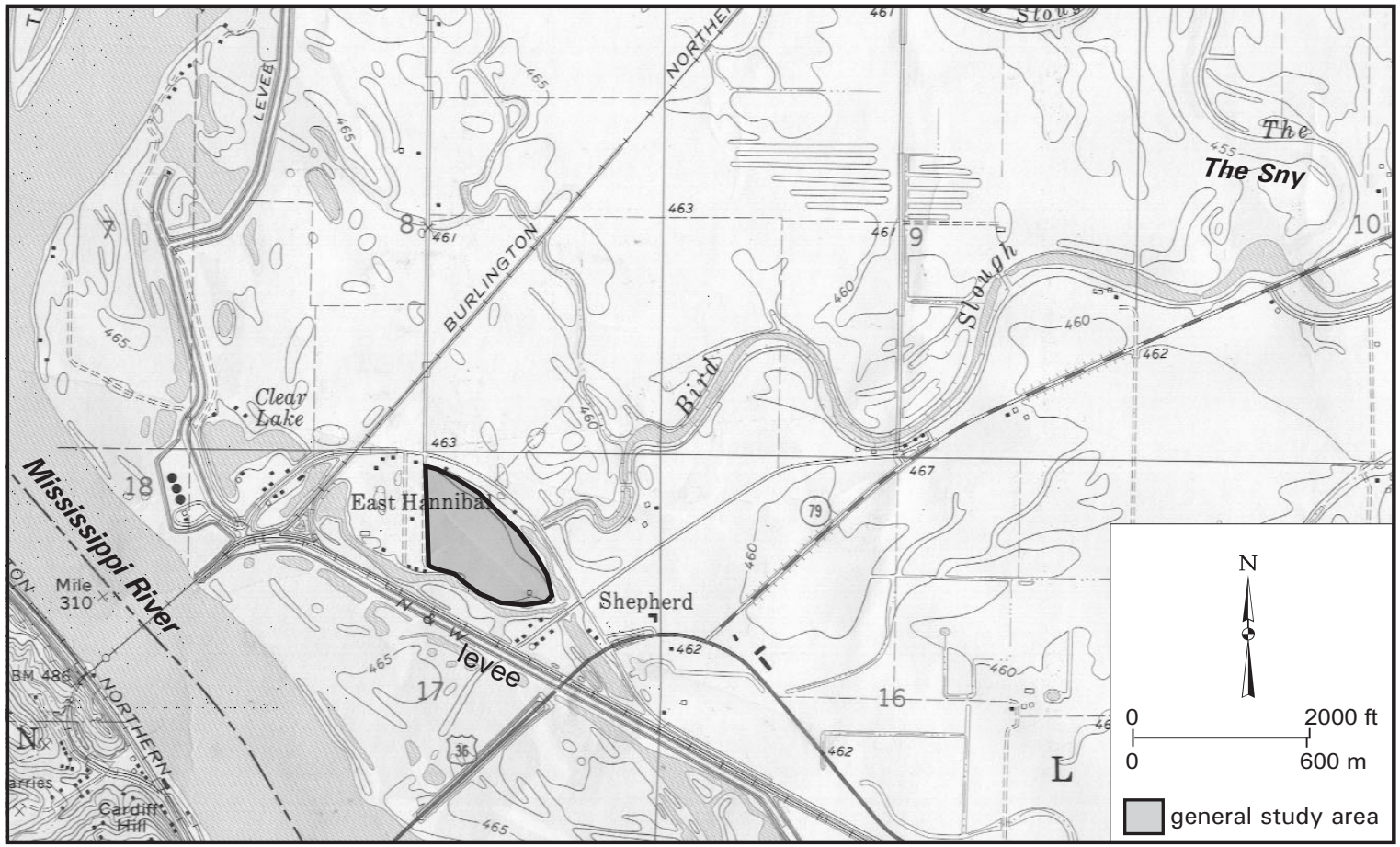
- Limitations of the wetland hydrology determination are as follows:
  - The calculation does not include any area attributable to the pre-existing, natural wetland along the west-central border of the site.
  - A portion of the site outside the excavated wetland's boundaries also likely met wetland hydrology for greater than 12.5 % of the 2004 growing season, but was not included.

PLANNED FUTURE ACTIVITIES

- Site monitoring was discontinued in August 2004, per IDOT's request. The site will be decommissioned shortly.

Hannibal Bridge Wetland Compensation Site
(FAP 319)
General Study Area and Vicinity

from the USGS Topographic Series, Hannibal East, IL-MO 7.5-minute Quadrangle (USGS 1971)
contour interval is 5 feet east of the Mississippi River and 20 feet west of the Mississippi River



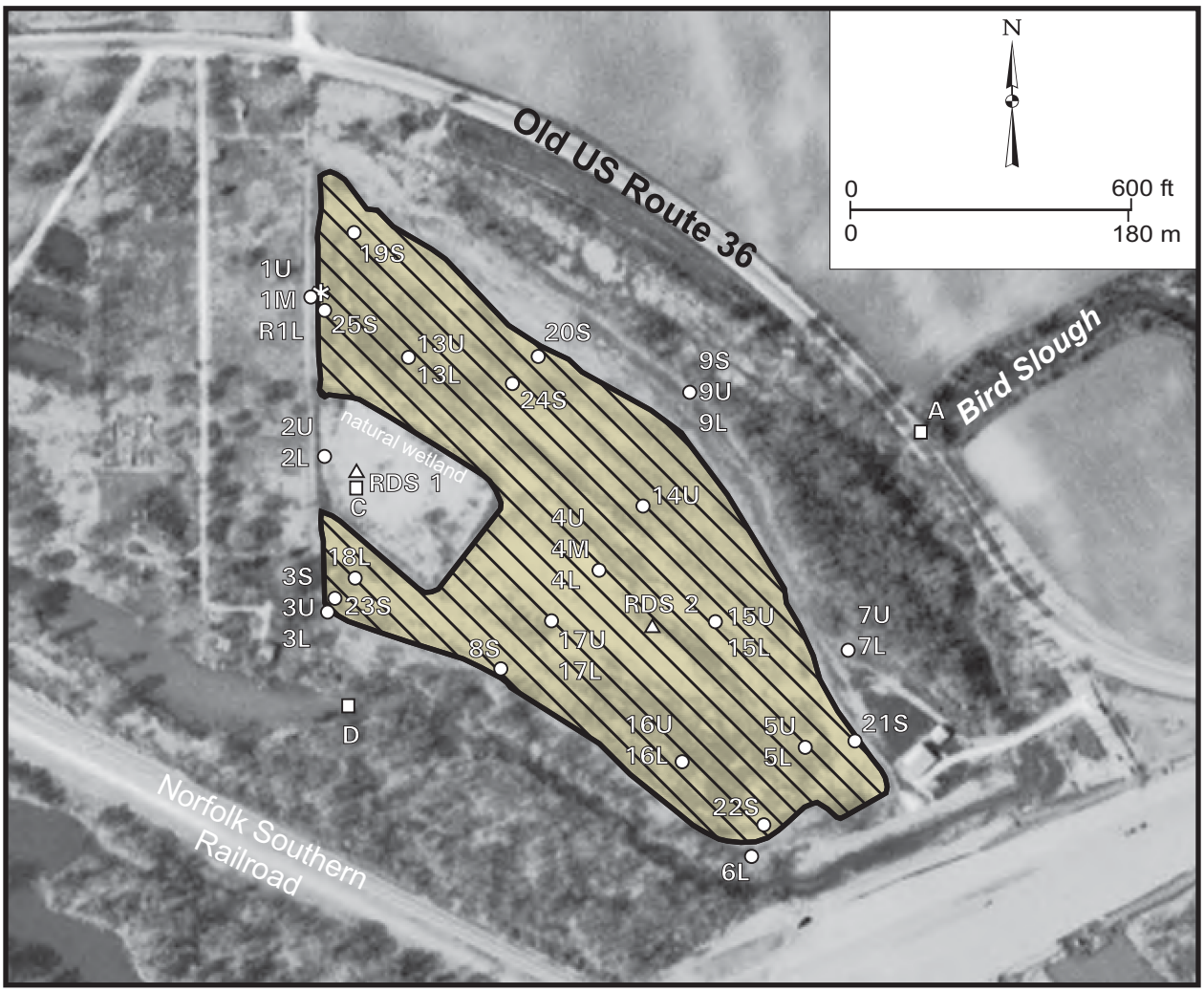
Hannibal Bridge Wetland Compensation Site

(FAP 319)

Estimated Areal Extent of 2004 Wetland Hydrology

Based on data collected between September 1, 2003 and September 1, 2004

map based on USGS digital orthophotograph Hannibal East, NW quarter quadrangle
produced from 4/12/99 aerial photography (ISGS 2002)



2004 Wetland Hydrology

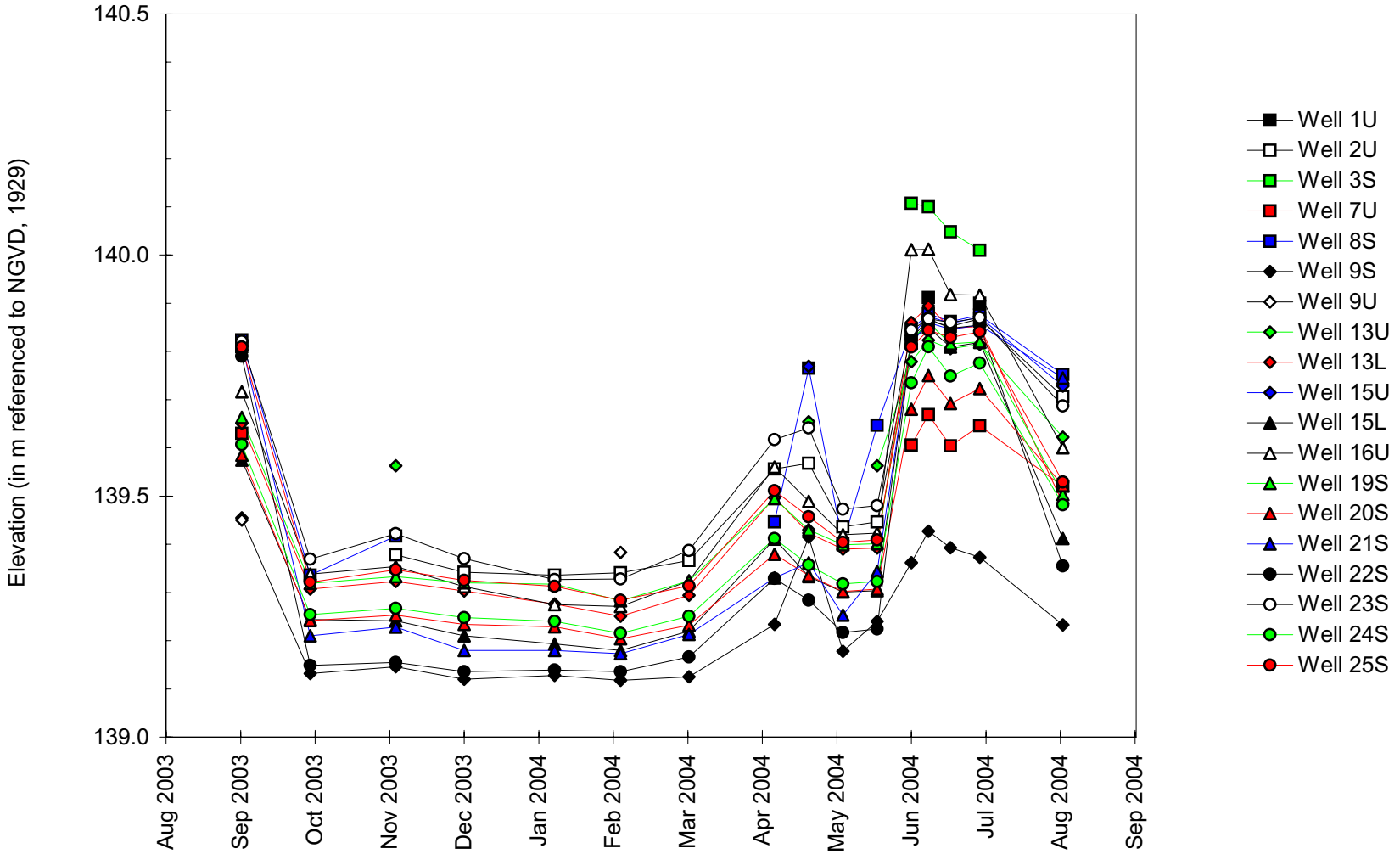
- >12.5% of the growing season
- >5% of the growing season

- ○ monitoring well
- □ stage gauge
- △ RDS data logger
- ❄ rain gauge

Hannibal Bridge Wetland Compensation Site

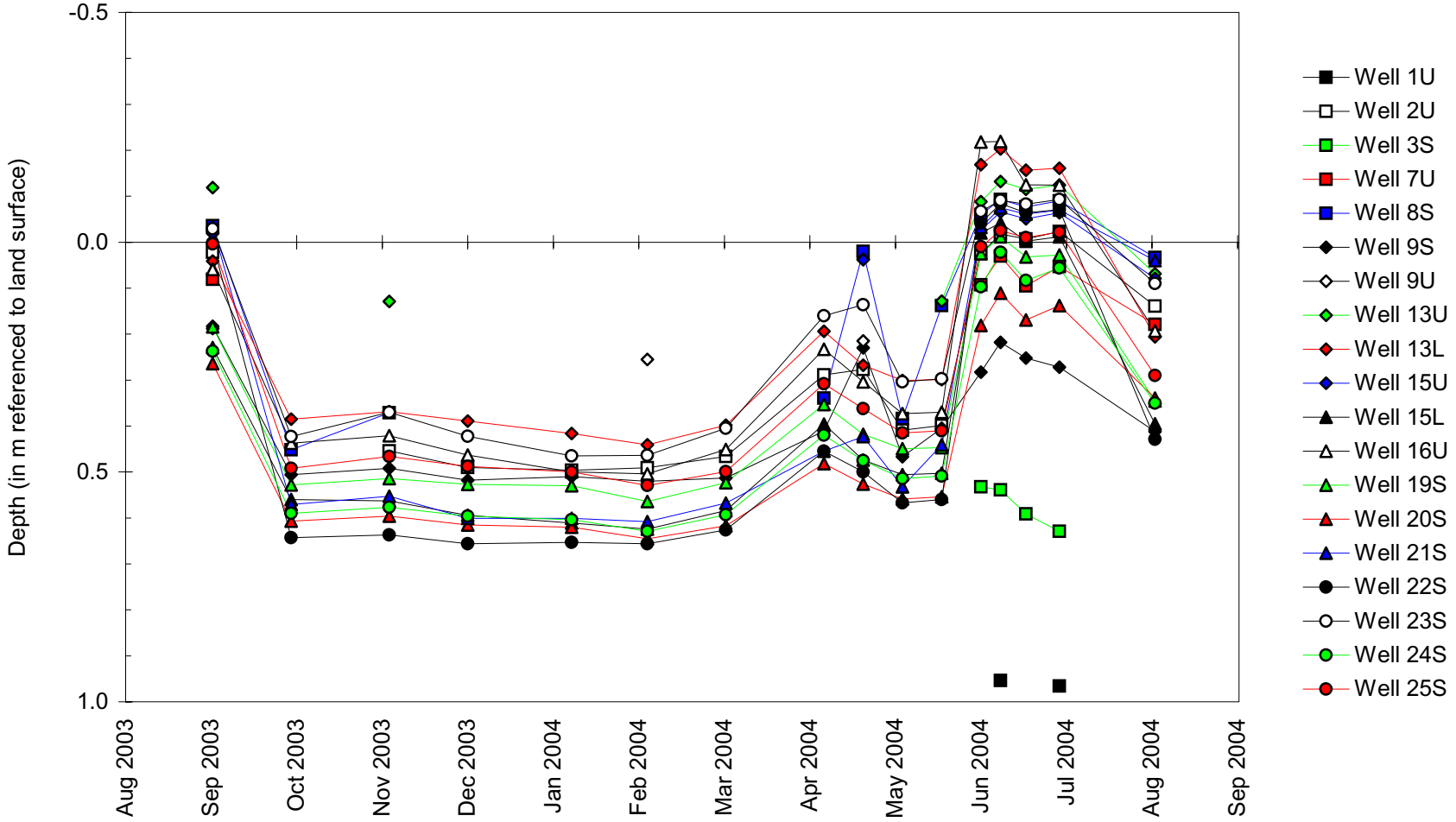
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria



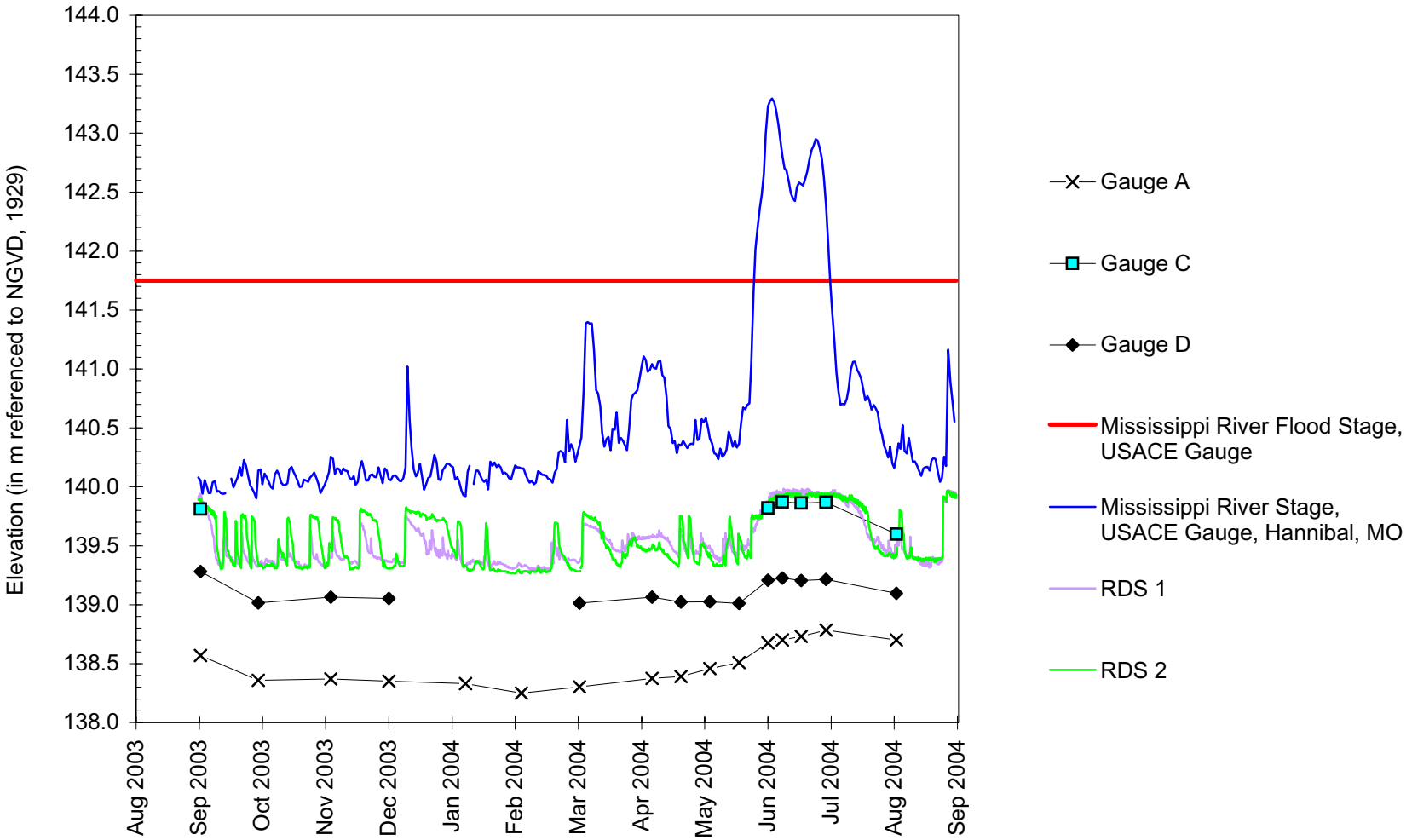
Hannibal Bridge Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water
in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria

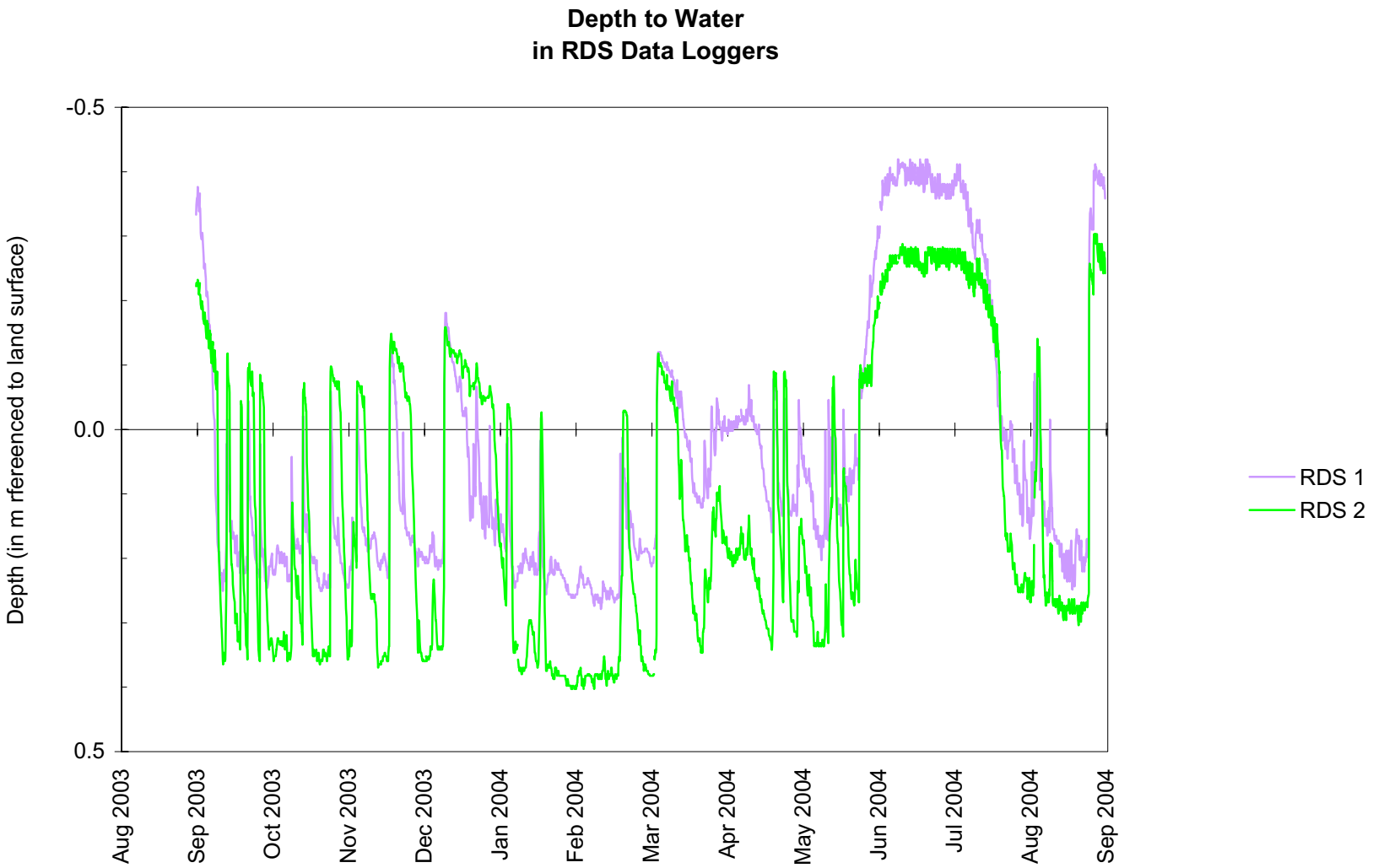


Hannibal Bridge Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
in RDS Data Loggers and on Stage Gauges

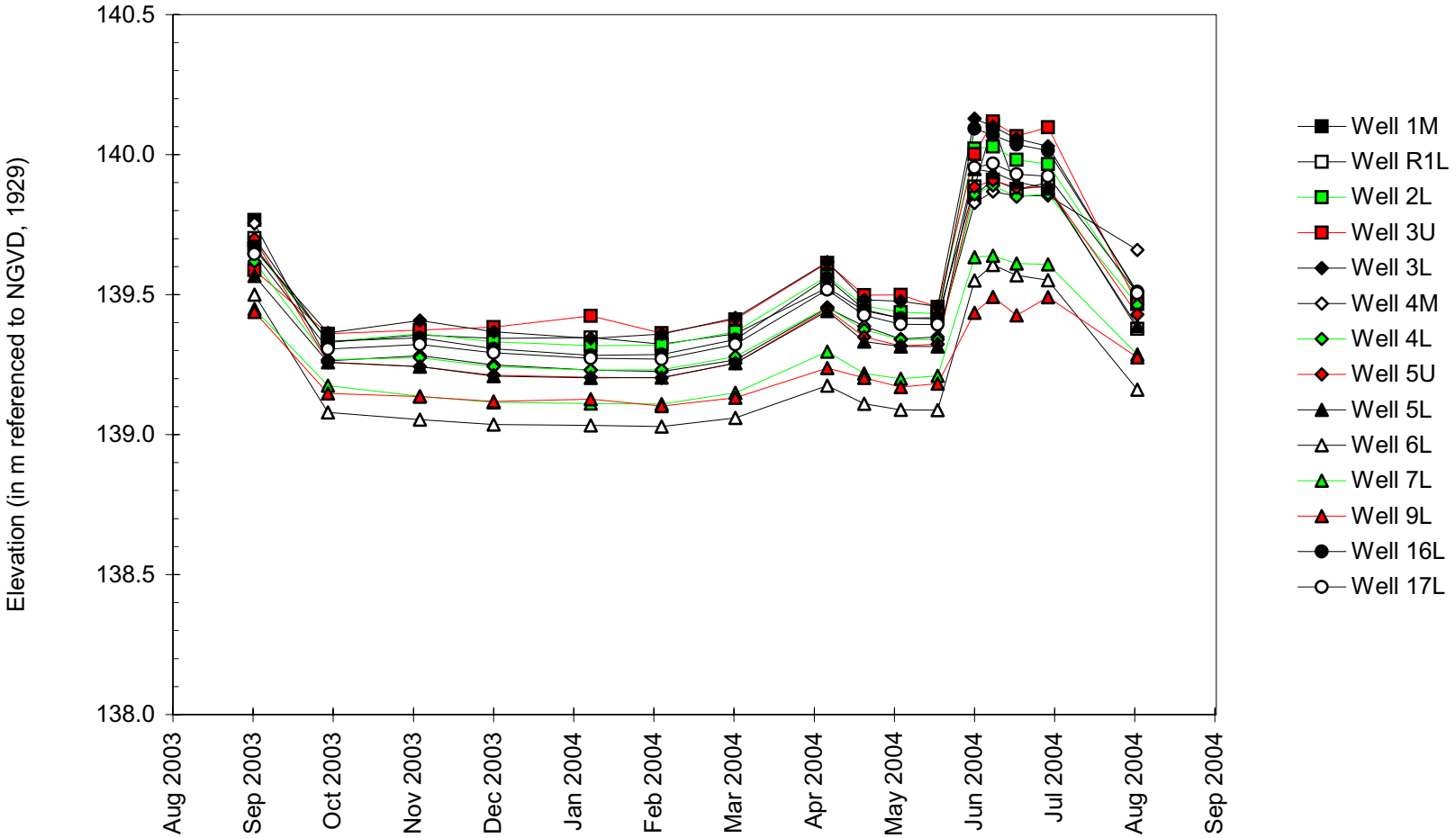


Hannibal Bridge Wetland Compensation Site
September 1, 2003 to September 1, 2004



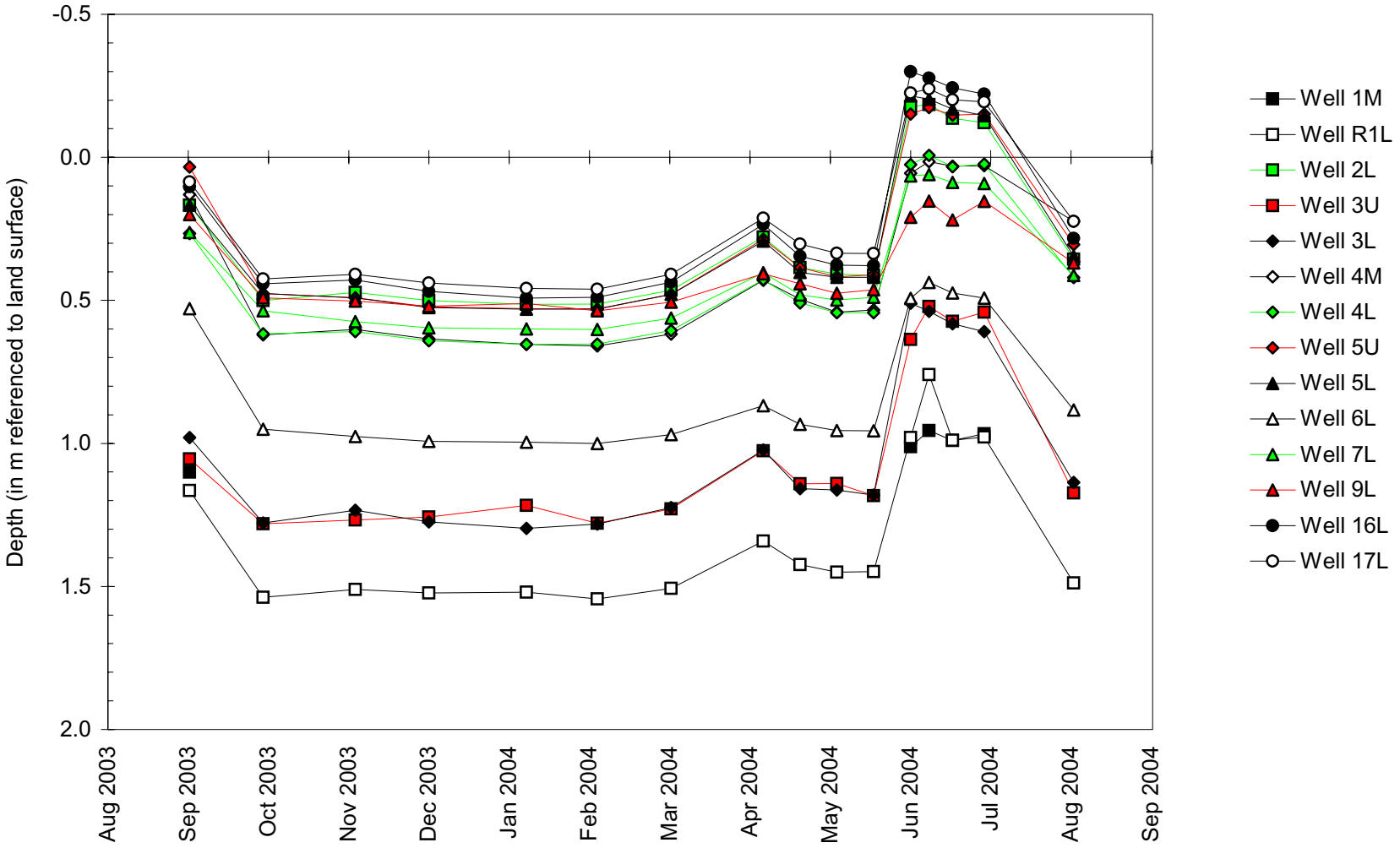
Hannibal Bridge Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations in Deeper Monitoring Wells



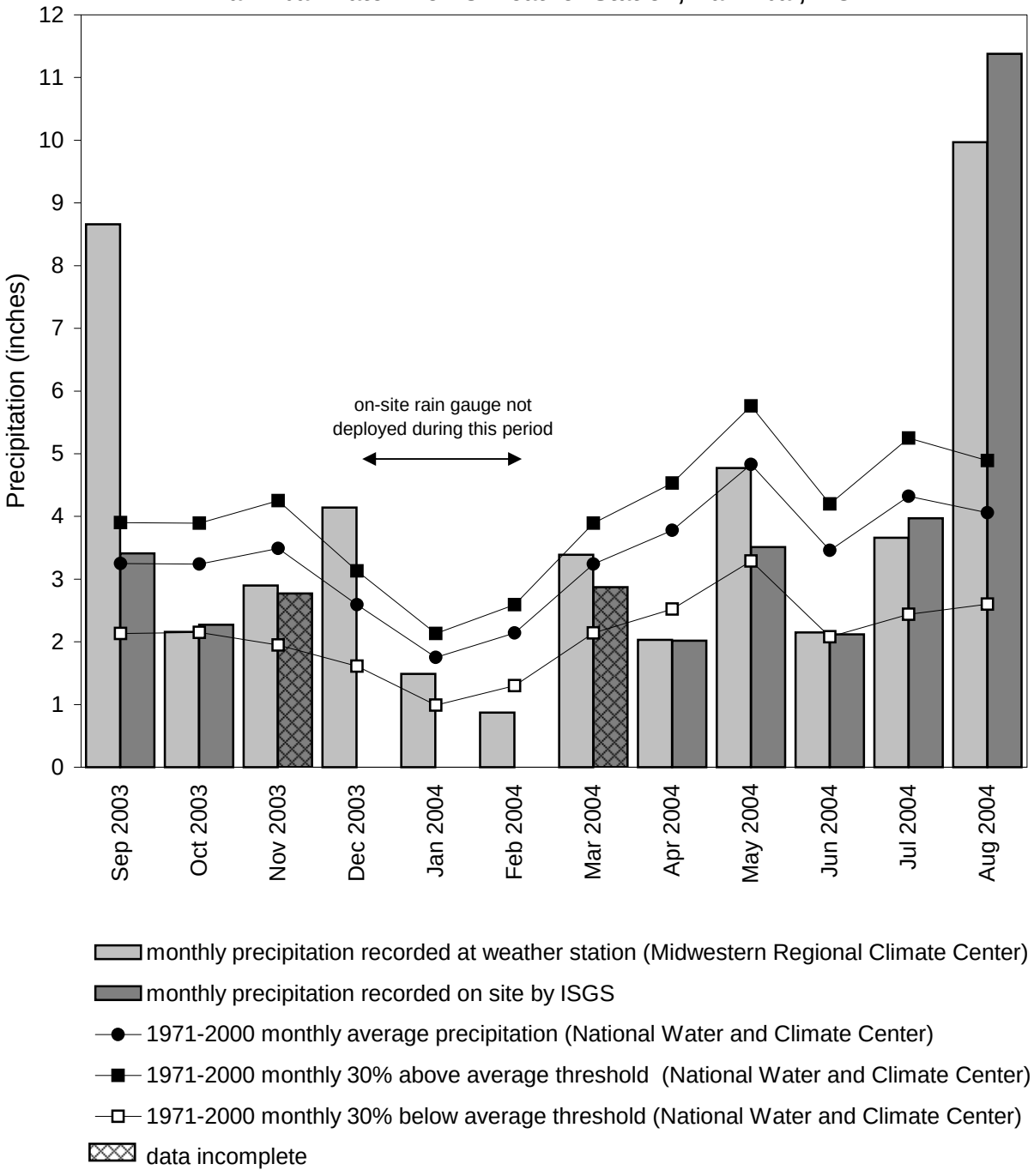
Hannibal Bridge Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water
in Deeper Monitoring Wells



Hannibal Bridge Wetland Compensation Site
September 2003 through August 2004

Total Monthly Precipitation Recorded On Site and at the Hannibal Water Works Weather Station, Hannibal, MO



Graph last updated October 1, 2004

SAND ROAD **ISGS #15**
WETLAND COMPENSATION SITE
FAP 310
Madison County, near Poag, Illinois
Primary Project Manager: Bonnie J. Robinson
Secondary Project Manager: Steven E. Benton

SITE HISTORY

- August 1996: IDOT issued a task order to the ISGS to conduct a detailed mitigation site assessment. The hydrogeologic characterization of the site was initiated with the installation of monitoring wells and staff gauges.

- July 1997: An interim hydrogeologic characterization report was submitted to IDOT.

- Fall 1998: A berm, incorporating a water control structure, was built along the south margin of the site.

- March–November 2001: Twenty-one soil-zone (S) monitoring wells were installed to better define the area of wetland hydrology and the transition zone along the slope of the sand terrace.

- July 2004: IDOT requested that site monitoring be terminated.

WETLAND HYDROLOGY CALCULATION FOR 2004

The area that satisfied the criteria for wetland hydrology for greater than 5% of the growing season was estimated to be 13.6 ac (5.5 ha), whereas the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season in 2004 was estimated to be 12.0 ac (4.80 ha). These estimates for 2004 are based on the following:

- According to the Midwestern Climate Center, the median length of the growing season, as measured at the Belleville Weather Station, is 203 days (April 5 to October 25). Therefore, 5% of the growing seasons is 10 days and 12.5% of the growing season is 25 days.

- Precipitation at the nearby Edwardsville weather station during the monitoring period was 135% of normal. Despite above normal precipitation in September, dry conditions persisted onsite until lower evapotranspiration rates coupled with above normal precipitation occurred in November 2003. Alternating above and below normal precipitation continued throughout the winter, keeping water levels reasonably stable from November 2003 to the beginning of April 2004. Below normal precipitation in April 2004 (33% of normal) caused a steep drop in water levels onsite. Abnormally high precipitation in May 2004 (292% of normal) resulted in water levels rebounding and surface water persisting onsite until mid July when data loggers were removed.

- In 2004, water levels measured in wells 3S, 4U, 8U, 15S, 16S, 17S, 18S, 19S, 21S, 23S, 24S, 25S, 26S and 27S satisfied wetland hydrology criteria for greater than 5% of the growing season. All of the wells cited above, with the exception of 4U and 8U, also satisfied the criteria for wetland hydrology for a period greater than 12.5% of the growing season.

- Surface-water levels measured by the RDS data logger indicated that inundation occurred to an elevation of 128.4 m (421.26 ft) for a duration longer than 5% of the growing season and to an elevation of 128.345 m (421.08 ft) for a period that exceeded 12.5% of the growing season.

- Surface-water levels remained at or above the normal elevation of 128.0 m (420 ft) as specified in the IDOT Conceptual Wetland and Illinois Chorus Frog Compensation Plan from November 17, 2003 until monitoring ceased on July 8, 2004.

- Limitations of the wetland hydrology determination are as follows:
  - The wetland acreage determination contains pre-existing wetland.

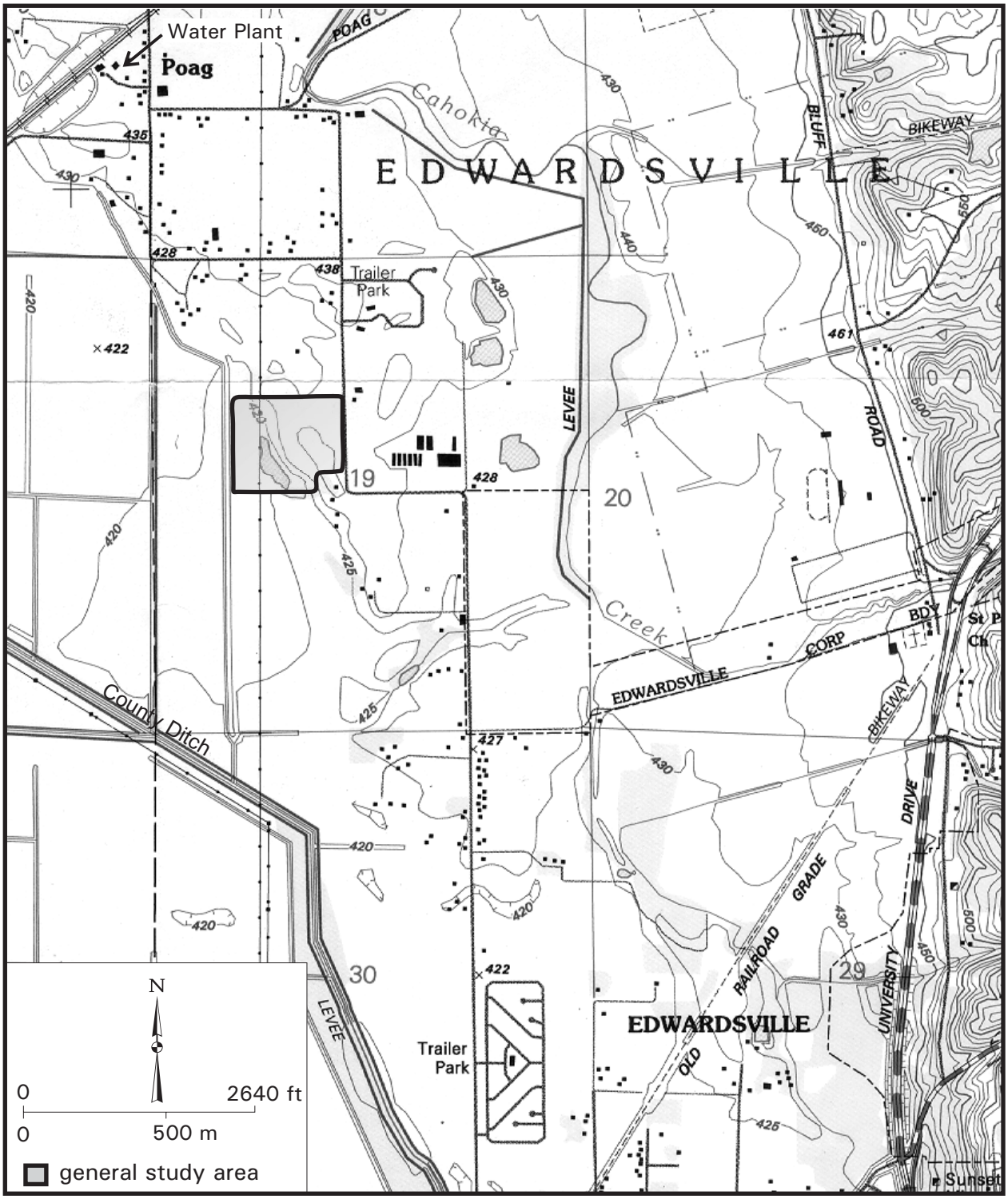
Sand Road Wetland Compensation Site

(FAP 310)

General Study Area and Vicinity

from the USGS Topographic Series, Wood River, IL-MO 7.5-minute Quadrangle (USGS 1994)

contour interval is 10 feet



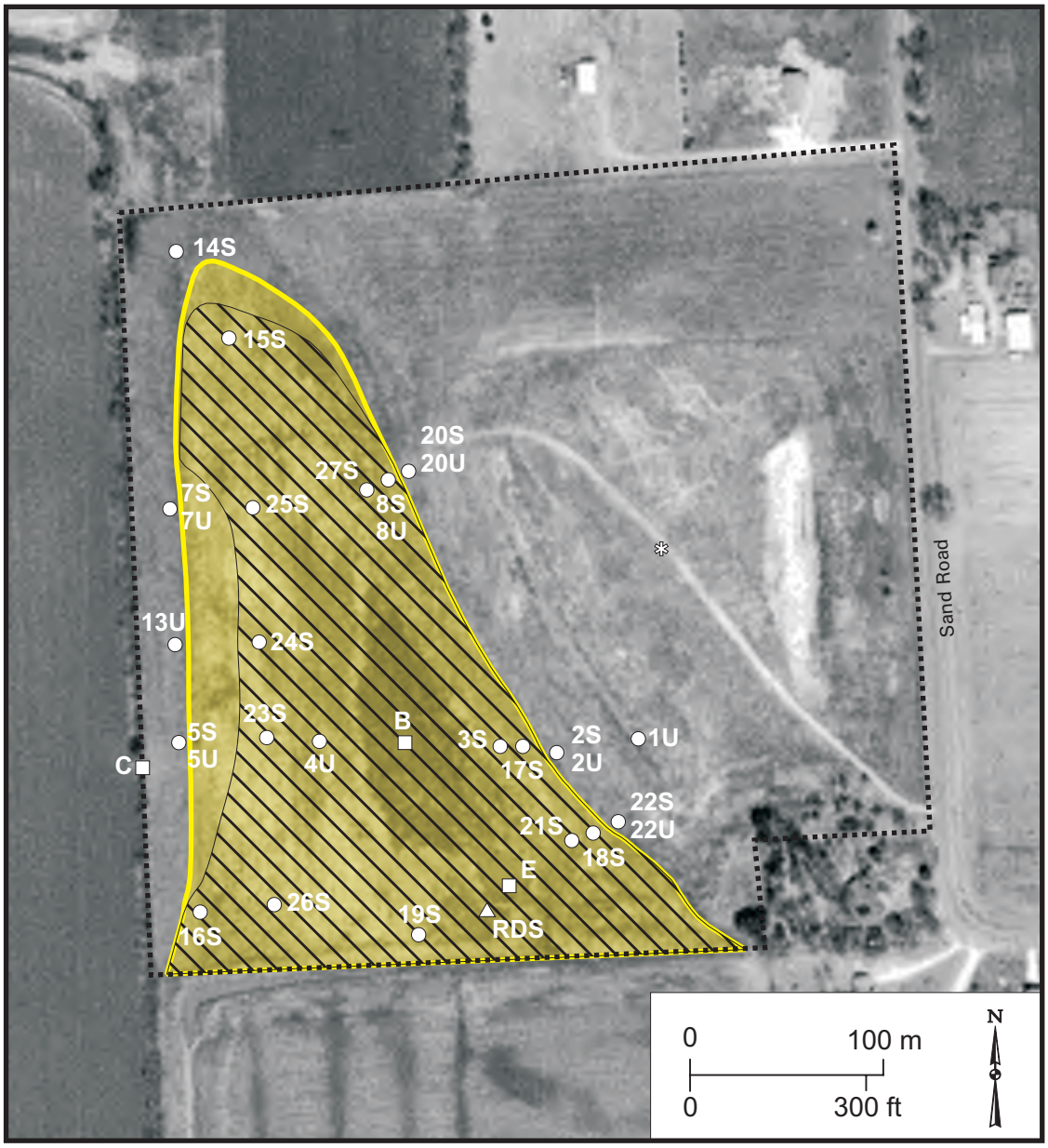
Sand Road Wetland Compensation Site

(FAP 310)

Estimated Areal Extent of 2004 Wetland Hydrology

based on data collected between September 1, 2003 and September 1, 2004

map based on USGS digital orthophotograph, Wood River, SE quarter quadrangle produced from 4/2/1998 aerial photography (ISGS 2001)



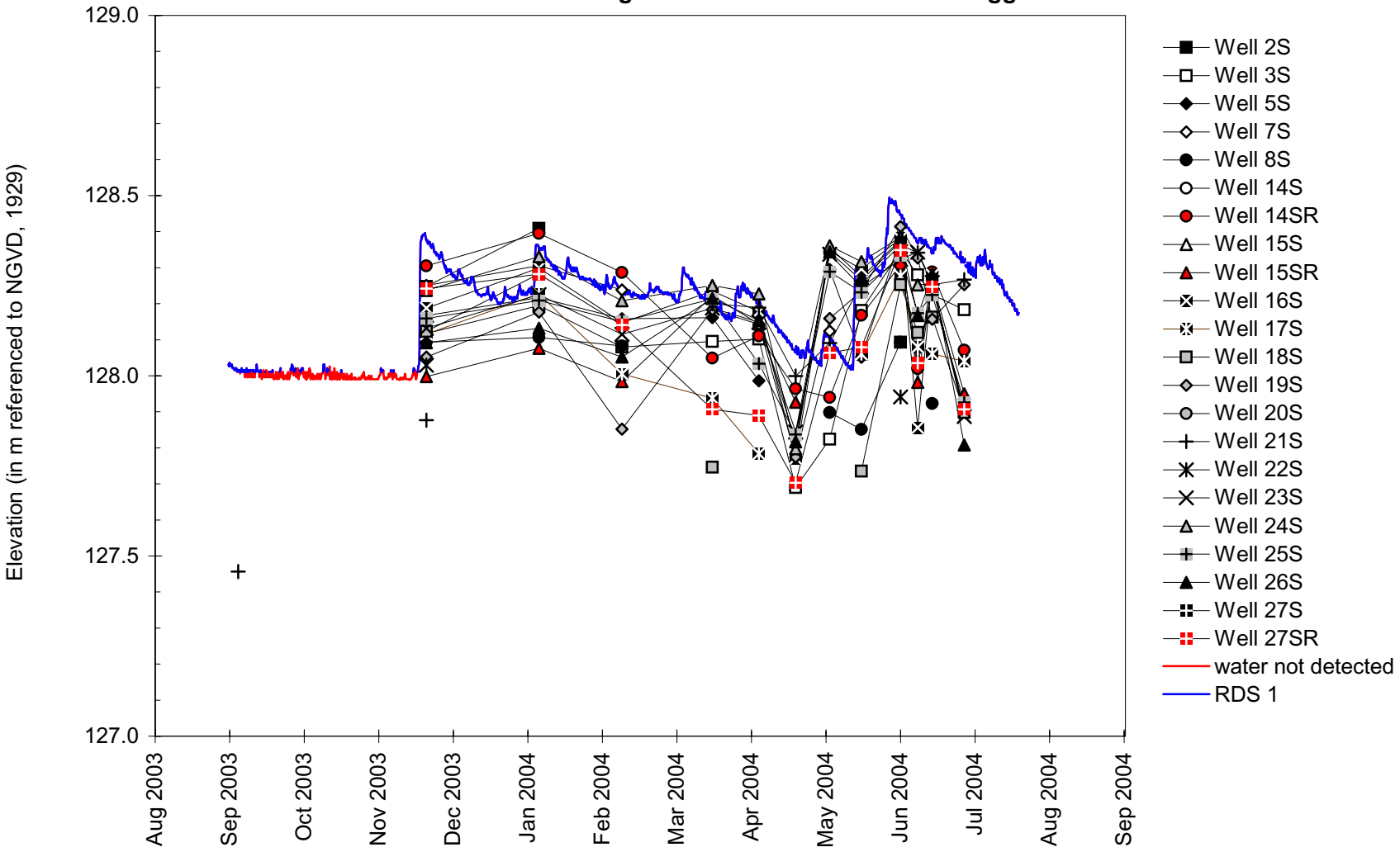
- monitoring well
- stage gauge
- rain gauge
- RDS surface-water stage recorder
- site boundary

2004 Wetland Hydrology

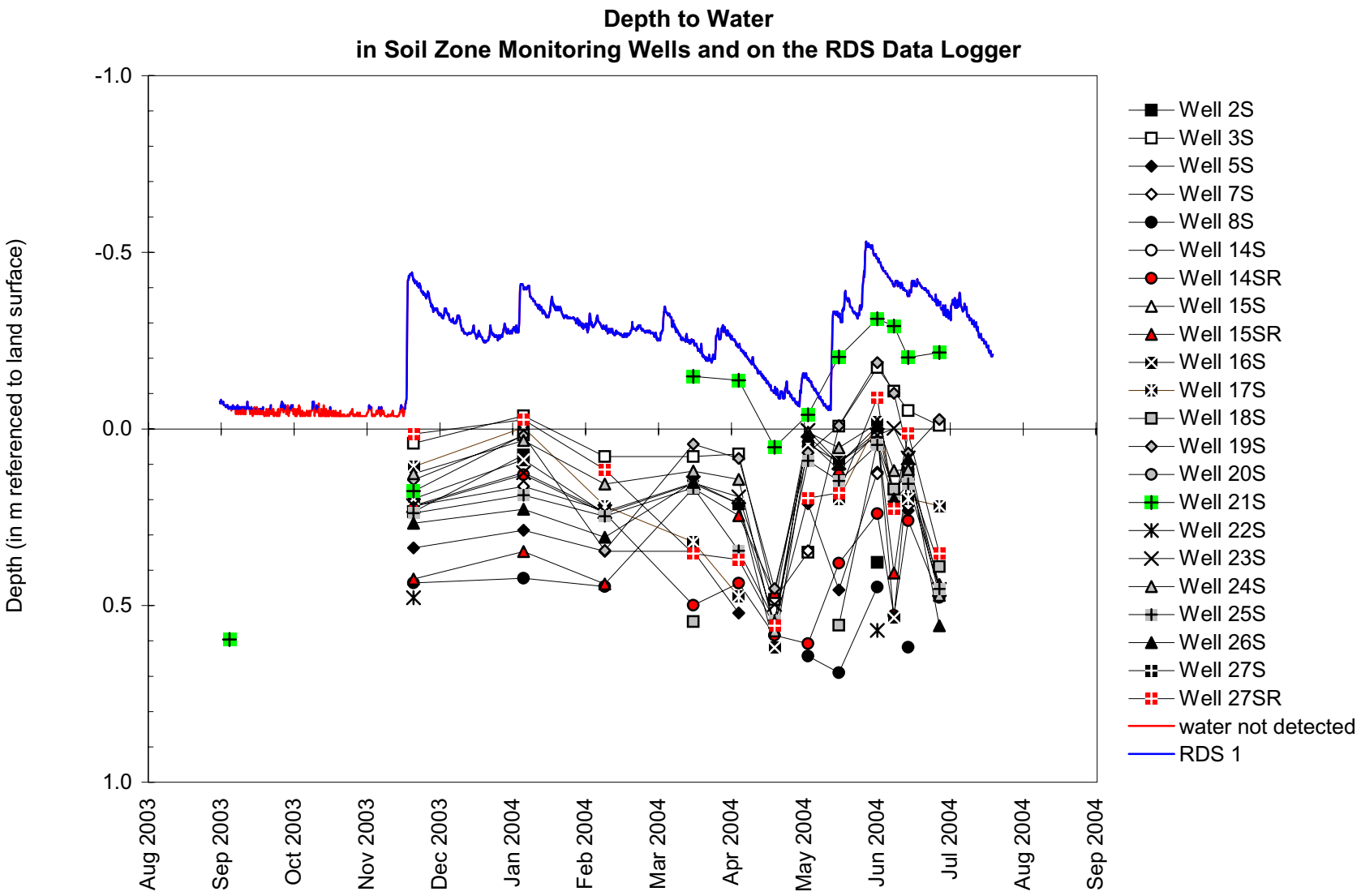
- >12.5% of the growing season
- >5% of the growing season

Sand Road Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Soil Zone Monitoring Wells and on the RDS Data Logger

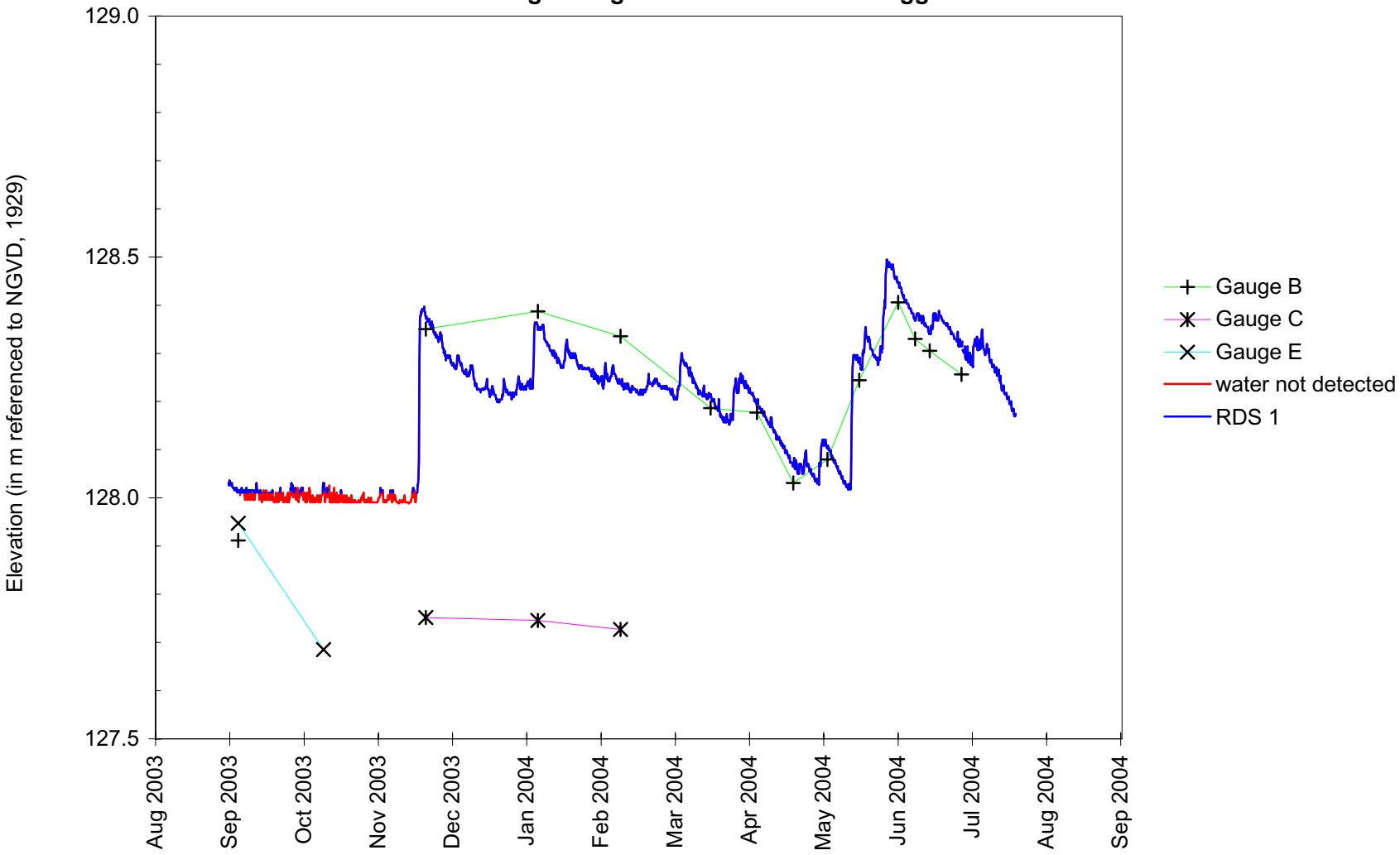


Sand Road Wetland Compensation Site
September 1, 2003 to September 1, 2004



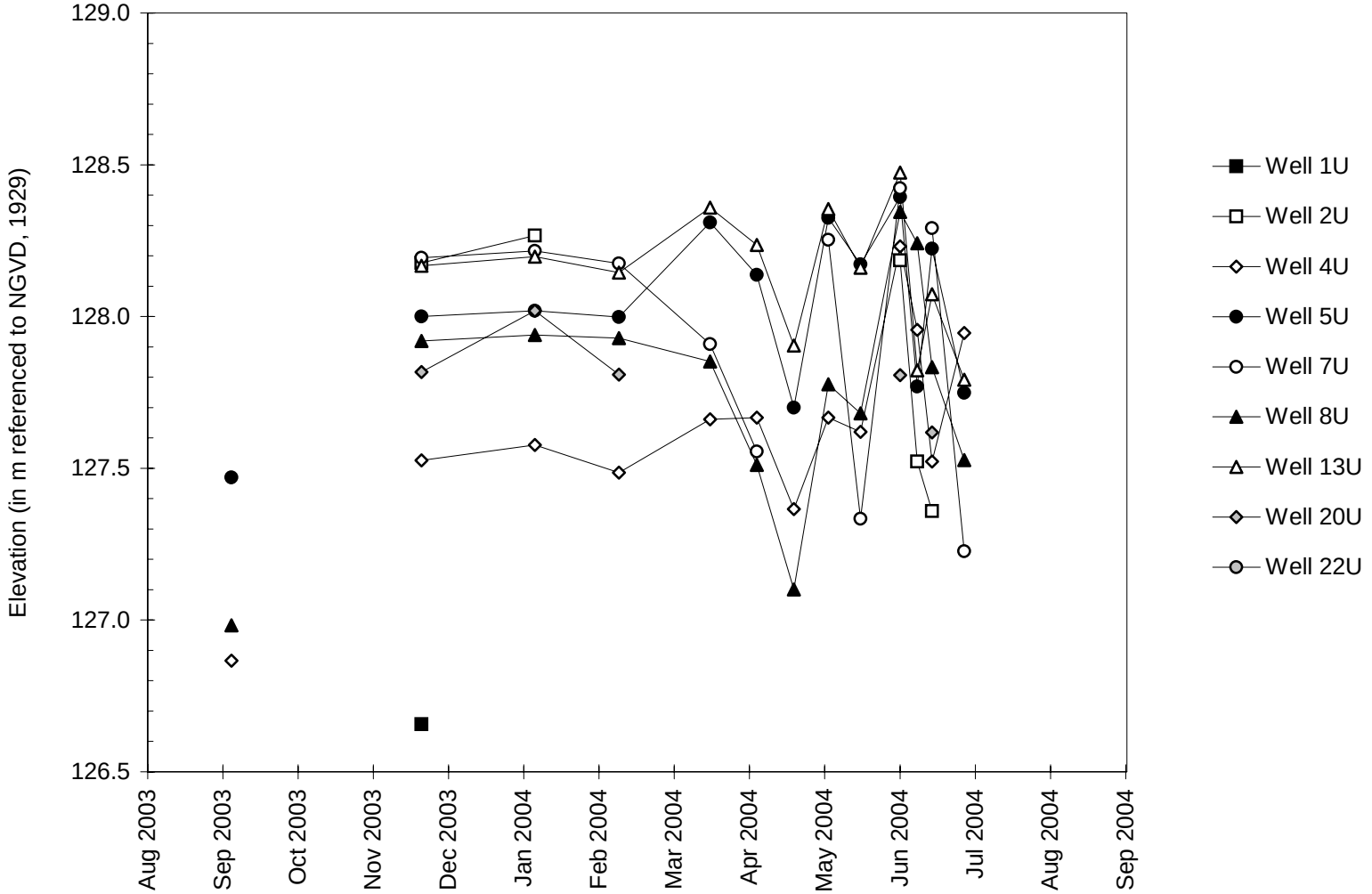
Sand Road Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
on Stage Gauges and the RDS Data Logger



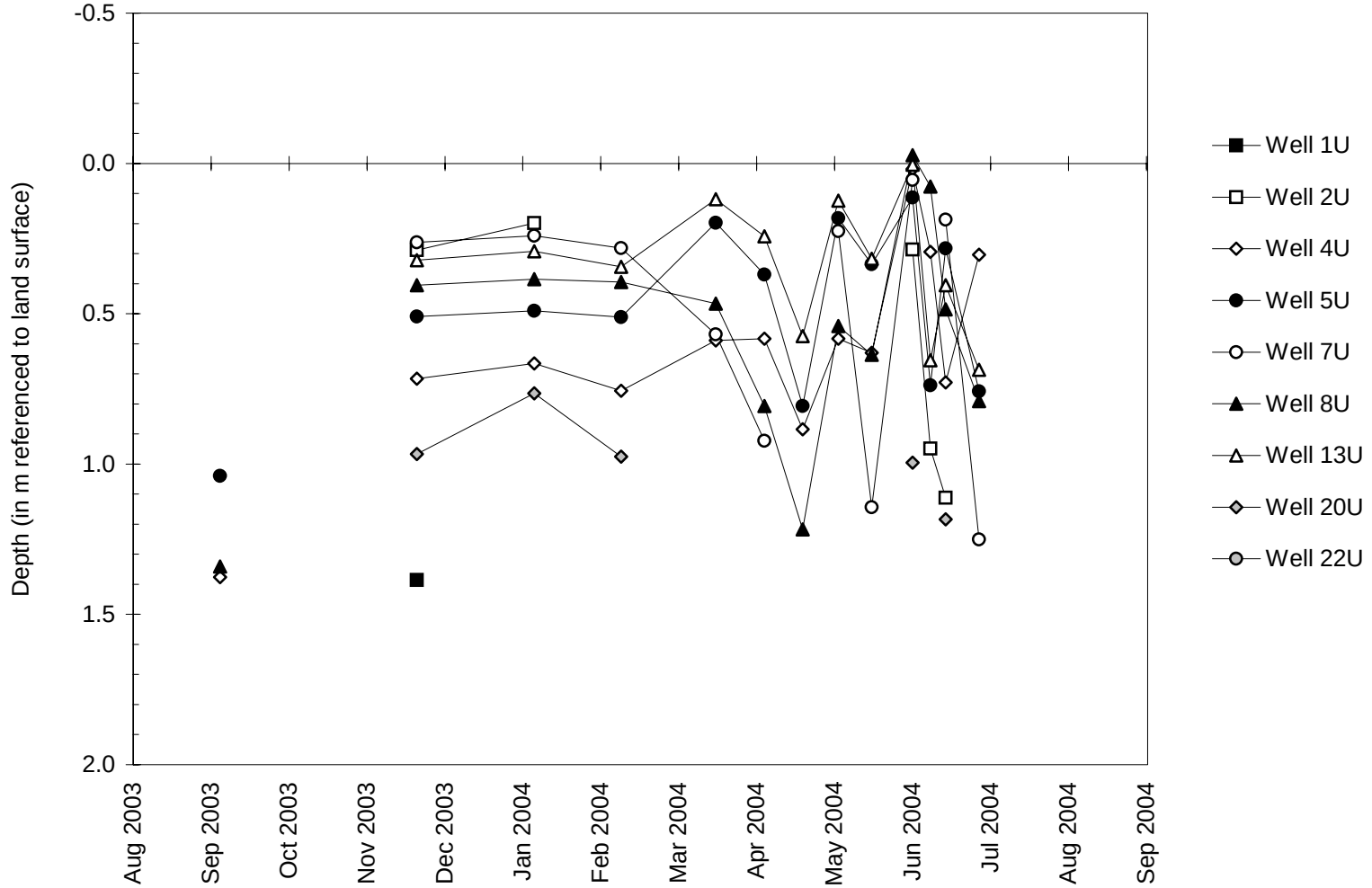
Sand Road Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations in Upper Monitoring Wells



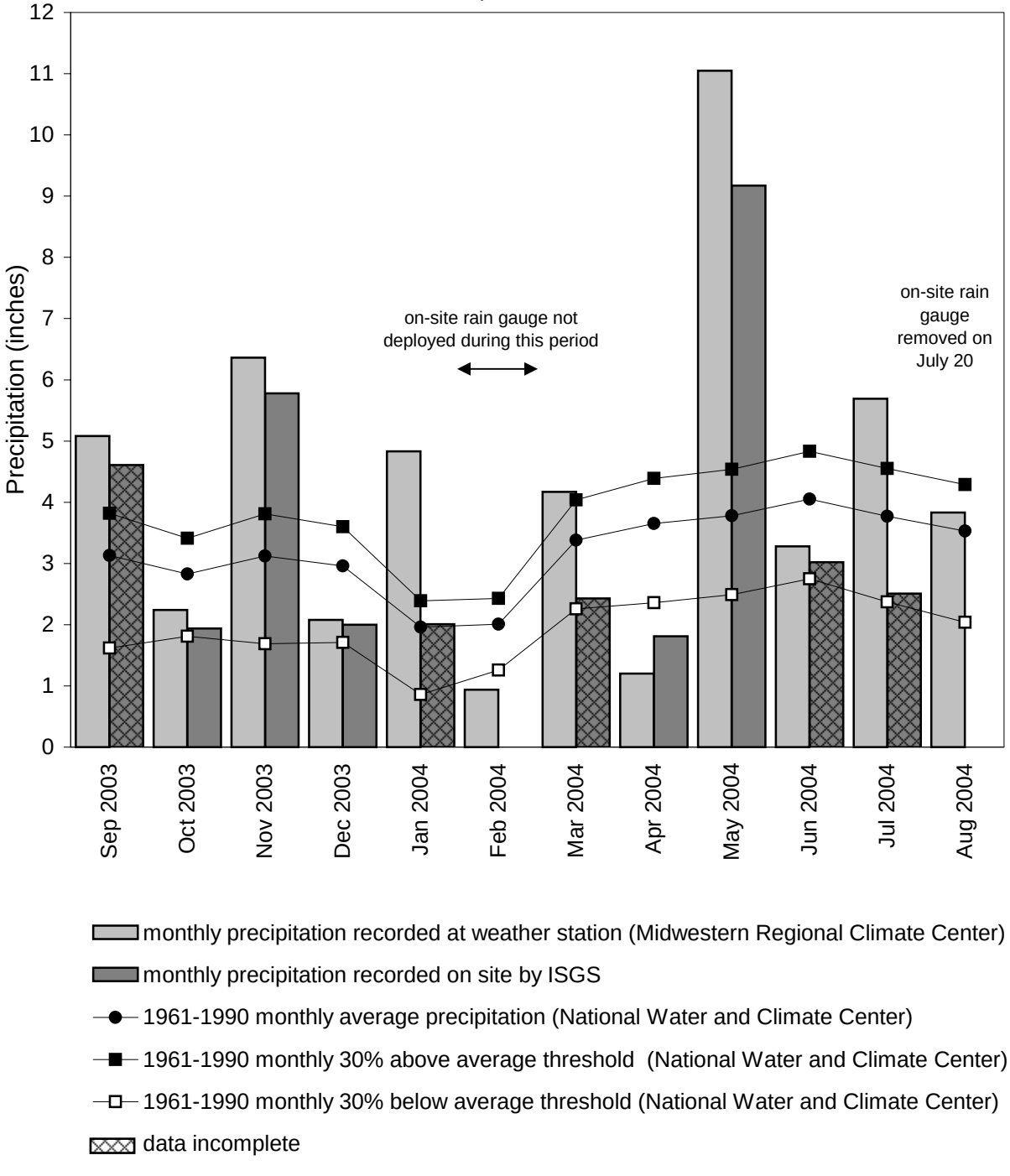
Sand Road Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water
in Upper Monitoring Wells



Sand Road Wetland Compensation Site
September 2003 through August 2004

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



Graph last updated October 1, 2004

ORANGEVILLE **ISGS #16**
WETLAND COMPENSATION SITE
FAP 316
Stephenson County, near Orangeville, Illinois
Primary Project Manager: Kelli D. Weaver
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- March 1993: IDOT tasked ISGS to determine ground-water levels on the site.

- March 1997: A final hydrogeologic characterization report was submitted to IDOT (ISGS Open File Series 1997–3).

- June 2000: IDOT requested that ISGS monitor two newly constructed wetland compensation sites. The two sites are labeled Site 1 (most northerly) and Site 2 (most southerly).

- Springs 2001–2004: Site has been augmented with the installation of 30 soil-zone monitoring wells, 4 stage gauges, 1 RDS water-level data logger, 1 Ecotone water-lever data logger, a sonic water-level logger and a rain gauge. The ISGS also produced topographic base maps of the site in 2002.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area that satisfied wetland hydrology criteria (U.S. Army Corps of Engineers 1987) for greater than 5% of the growing season was 11.81 ac (4.78 ha) with 7.88 ac (3.19 ha) at Site 1 and 3.93 ac (1.59 ha) at Site 2. In addition, the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season in 2004 was 11.59 ac (4.69 ha), with 7.88 ac (3.19 ha) at Site 1 and 3.71 ac (1.50 ha) at Site 2. These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in nearby Freeport, Illinois, is April 13 and the season lasts 183 days; 5% of the growing season is 9 days, and 12.5% of the growing season is 23 days.

- Total precipitation for the monitoring period of September 2003 to August 2004 was 116% of normal. Despite drier than normal conditions for the months of September and October 2003, and January, February and April 2004, the near- to above-normal precipitation in November and December 2003, and March and May through August 2004, led to wetter than typical conditions during the 2004 growing season.

- At Site 1, 2004 water levels measured in wells 2S, 3S, 10S, 11S, 12S, 28S, 29S and 30S, satisfied wetland hydrology criteria for a period greater than 12.5% of the growing season. No additional wells satisfied wetland hydrology criteria for greater than 5% of the growing season.

- At Site 1, surface-water levels measured by the RDS B data logger indicated that inundation occurred to an elevation of 240.56 m (789.24 ft) for a duration greater than 5% of the growing season, and an elevation of 240.53 m (789.15 ft) for a period that exceeded

12.5% of the growing season.

- At Site 2, 2004 water levels measured at wells, 4S, 5S, 6S, 8S, 9S, 13S 16S, 17S, 18S, 19S, 20S, 22S, 23S, 24S, 25S, 26S and 27S satisfied wetland hydrology criteria for a period greater than 5% of the growing season. Water levels measured at all aforementioned wells (excluding wells 4S and 13S) also satisfied wetland hydrology criteria for a period greater than 12.5% of the growing season.

- At Site 2, water levels measured at stage gauge C indicated that inundation occurred to an elevation of 240.63 m (789.45 ft) for a period greater than 5% of the growing season, and remained at the same elevation for a period that exceeded 12.5% of the growing season.

- Surface-water levels measured by Infinites sonic logger A indicate that Site 2 was inundated by Richland Creek on May 22, 2004 to a peak elevation of 240.985 m (790.63 ft). Flood-water remained above the average elevation of the site for approximately one day, which is not sufficient to satisfy wetland hydrology criteria.

- Limitations of the wetland hydrology determination are as follows:
  - The area of wetland hydrology was measured planimetrically using a digitally produced ISGS topographic contour map. The acreage polygons generated from these maps were then superimposed upon the digital topographic maps used for the figures in this report.
  - Mitigation site boundaries for Sites 1 and 2 are estimated from IDOT as-built maps.

PLANNED FUTURE ACTIVITIES

- Additional soil-zone monitoring wells will be added to further delineate wetland hydrology.

- Monitoring for wetland hydrology will continue at this site through 2005 or until no longer required by IDOT.

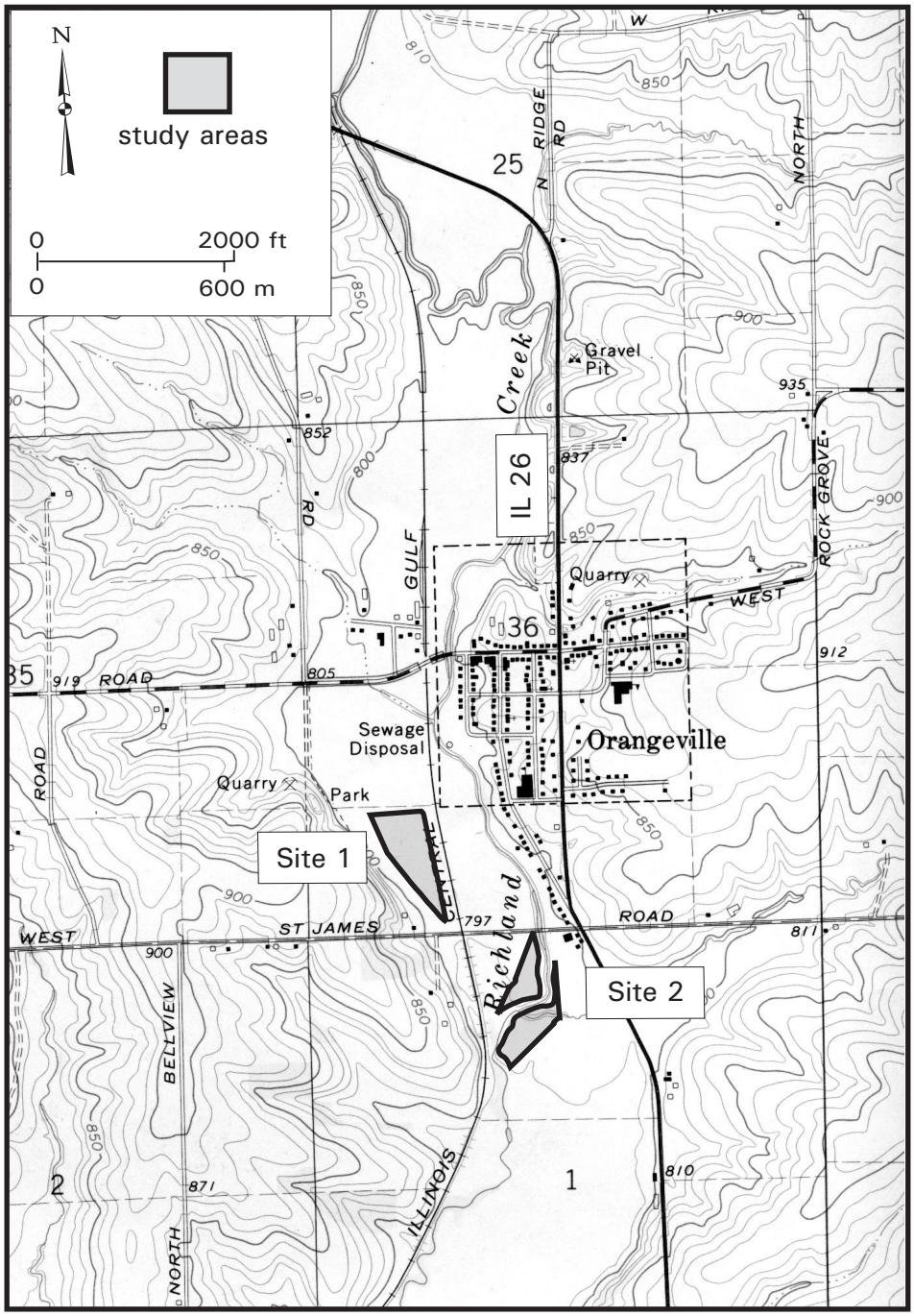
Orangeville Wetland Compensation Site

(FAP 316)

General Study Area and Vicinity

from the USGS Topographic Series, Orangeville, IL 7.5-minute Quadrangle (USGS 1971)

contour interval is 10 feet



Orangeville Wetland Compensation Site

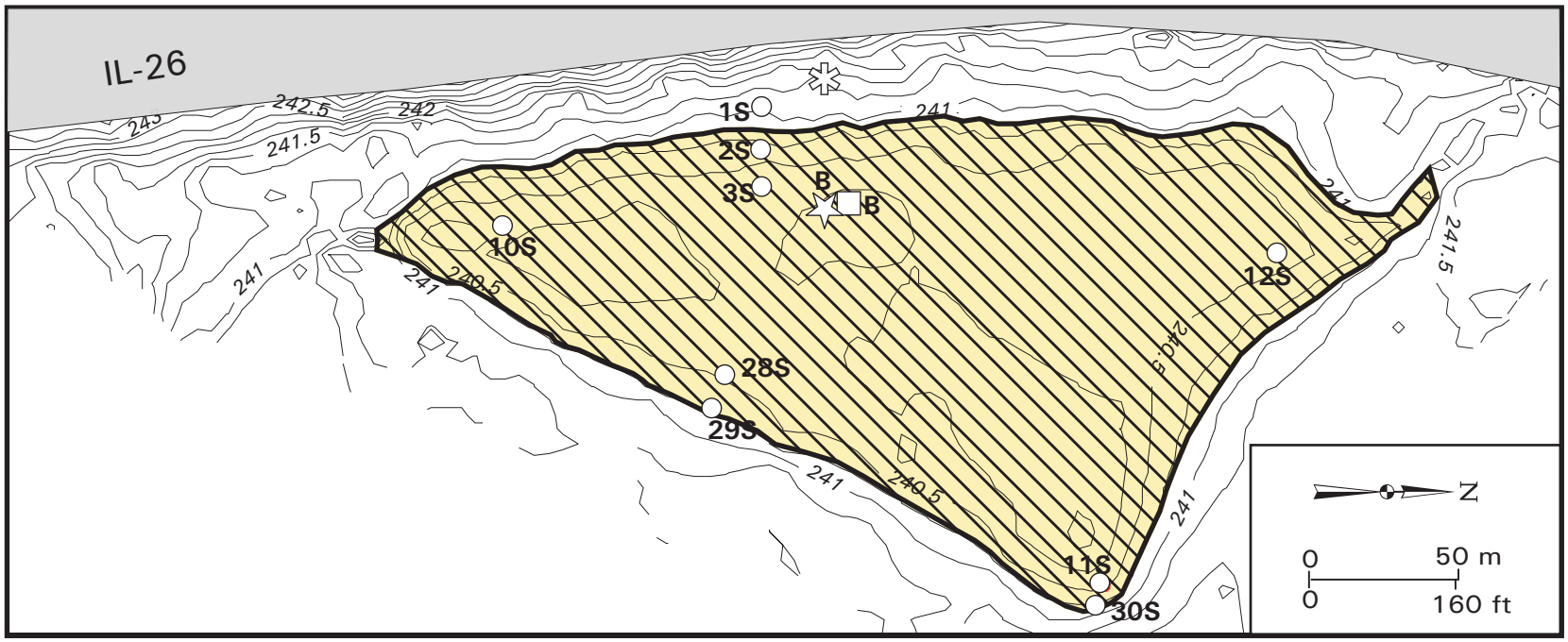
(FAP 316)

Estimated Areal Extent of 2004 Wetland Hydrology at Site 1

based on data collected between September 1, 2003 and September 1, 2004

map based on 2002 ISGS topographic survey referenced to NGVD, 1929

contour interval is 0.25 meters



○ ISGS monitoring well

❄ rain gauge

□ RDS level logger

☆ stage gauge

——— elevation contour
(contour interval is 0.25 meters)

2004 Wetland Hydrology

▨ > 12.5% of the growing season

▭ > 5% of the growing season

Orangeville Wetland Compensation Site

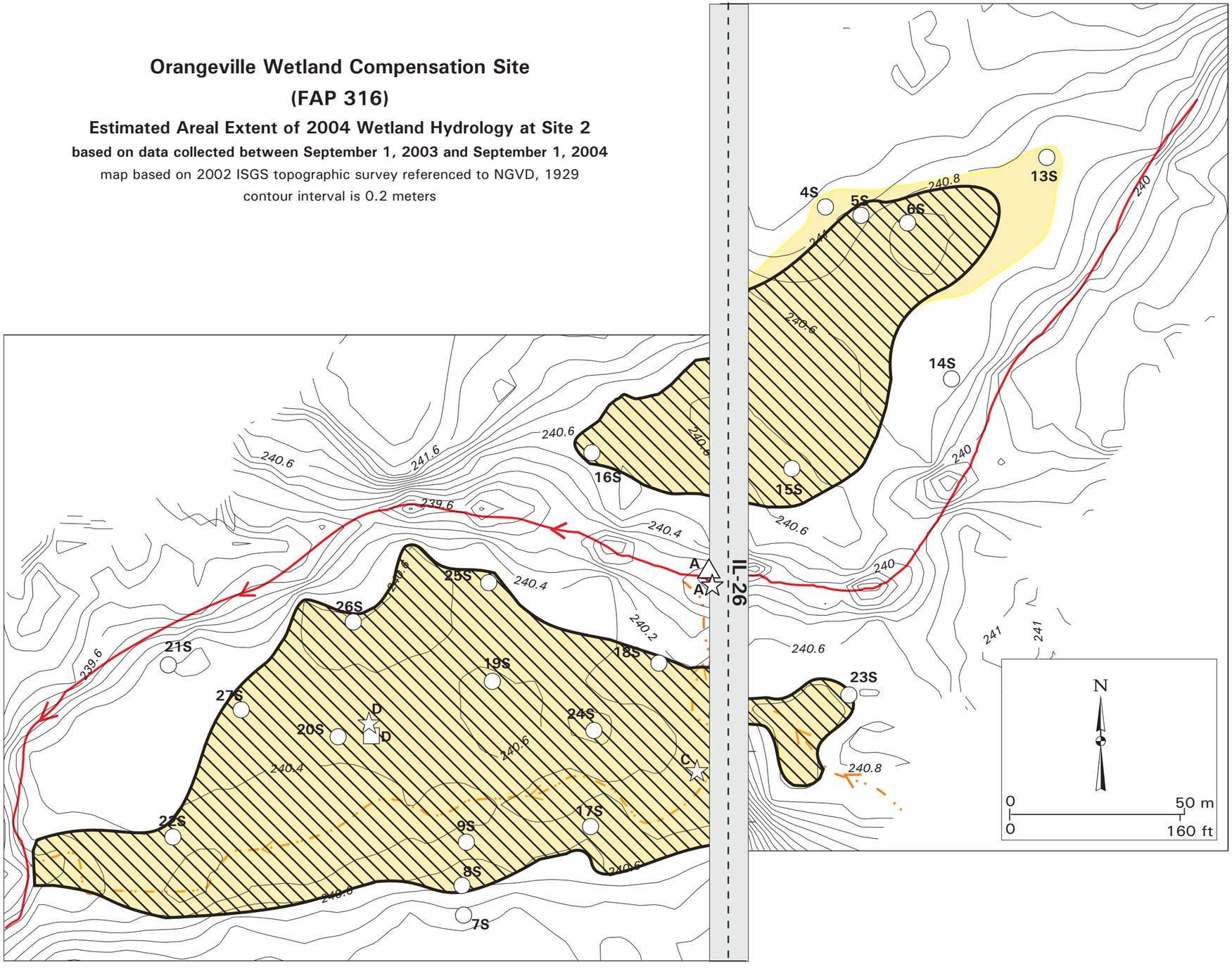
(FAP 316)

Estimated Areal Extent of 2004 Wetland Hydrology at Site 2

based on data collected between September 1, 2003 and September 1, 2004

map based on 2002 ISGS topographic survey referenced to NGVD, 1929

contour interval is 0.2 meters

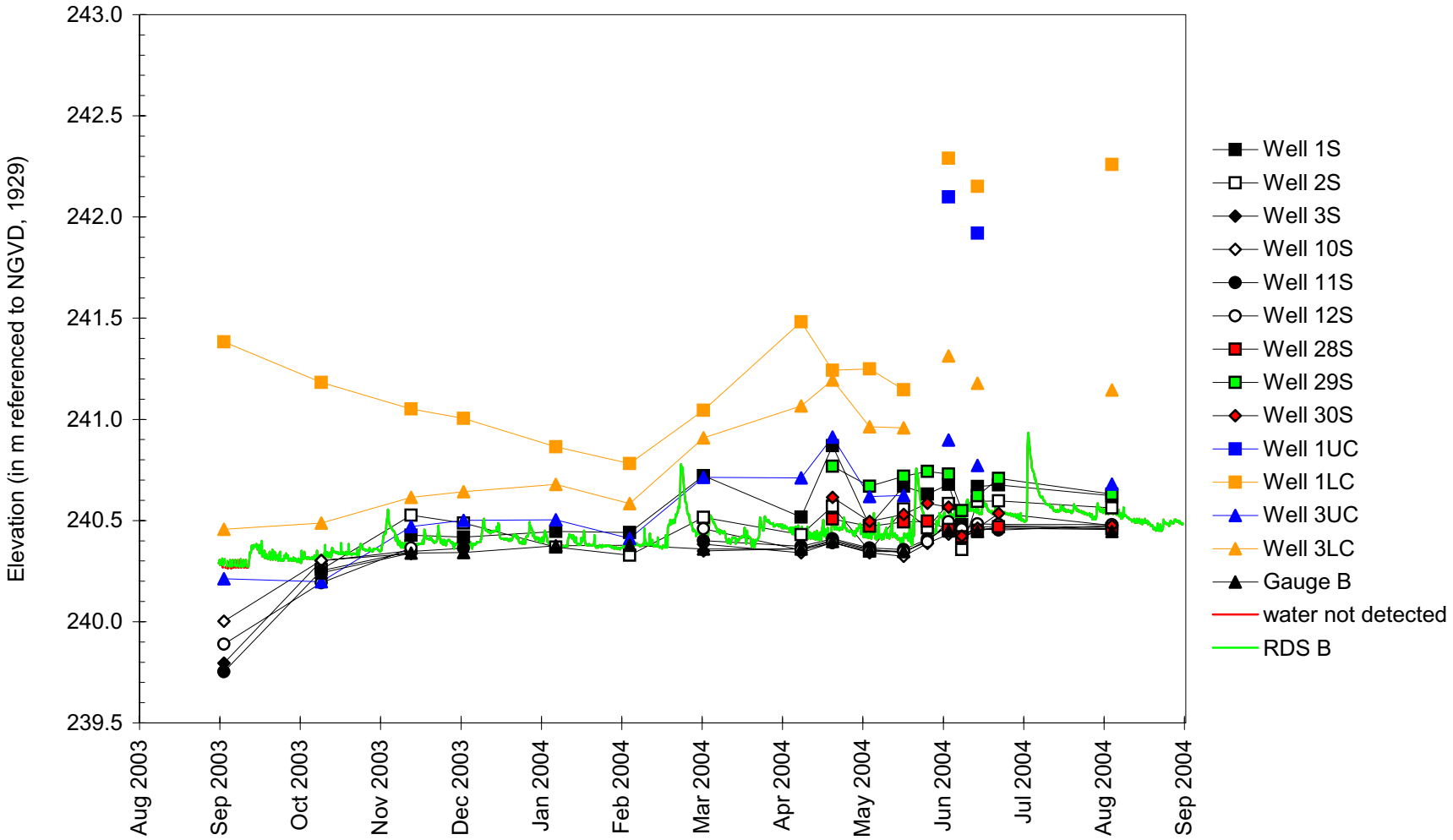


2004 Wetland Hydrology

- > 12.5% of the growing season
- > 5% of the growing season
- elevation contour (contour interval is 0.20 meters)
- Richland Creek
- diverted rivulet
- ISGS monitoring well
- RDS level logger
- Infinities sonic data recorder
- stage gauge

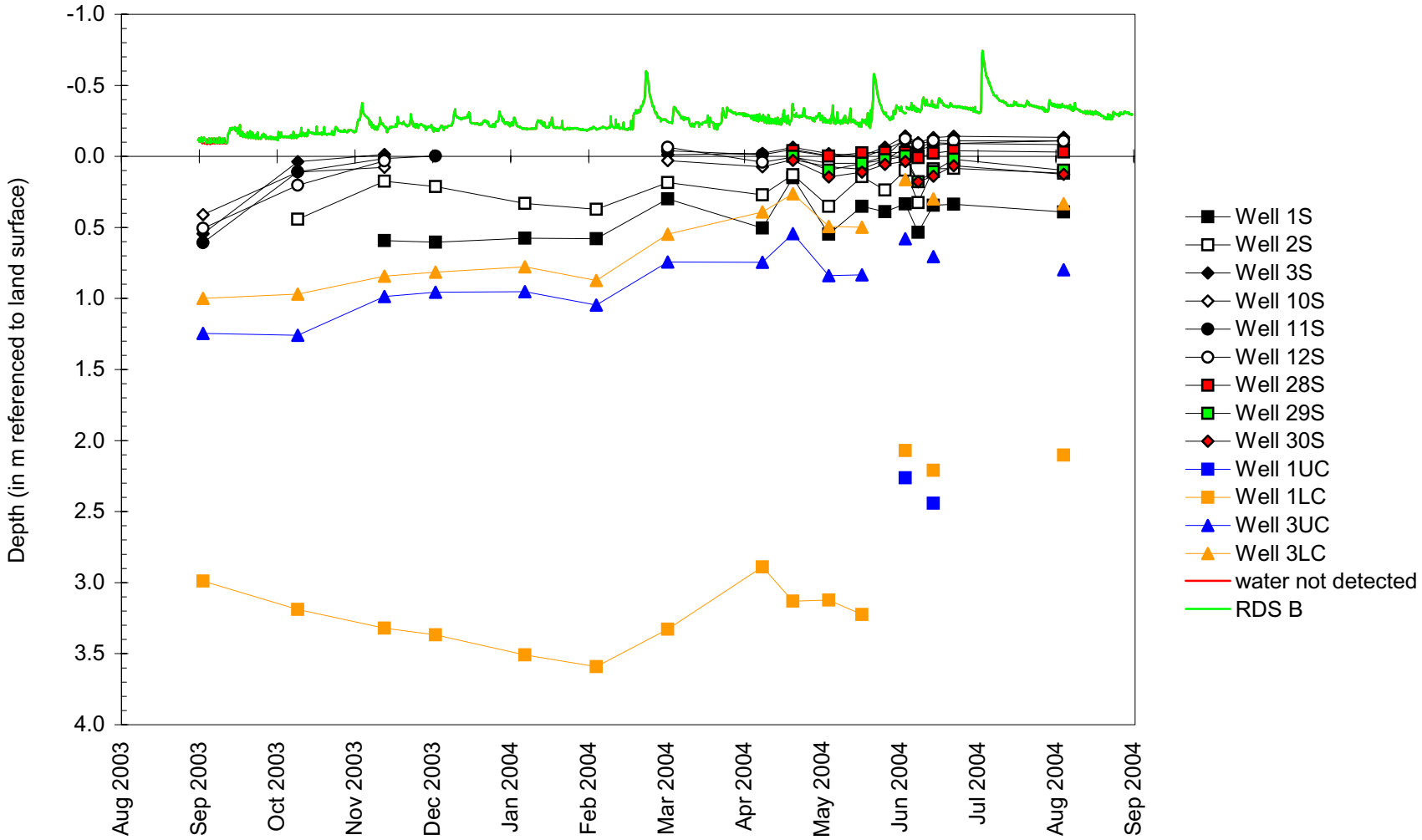
Orangeville Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations at Site 1



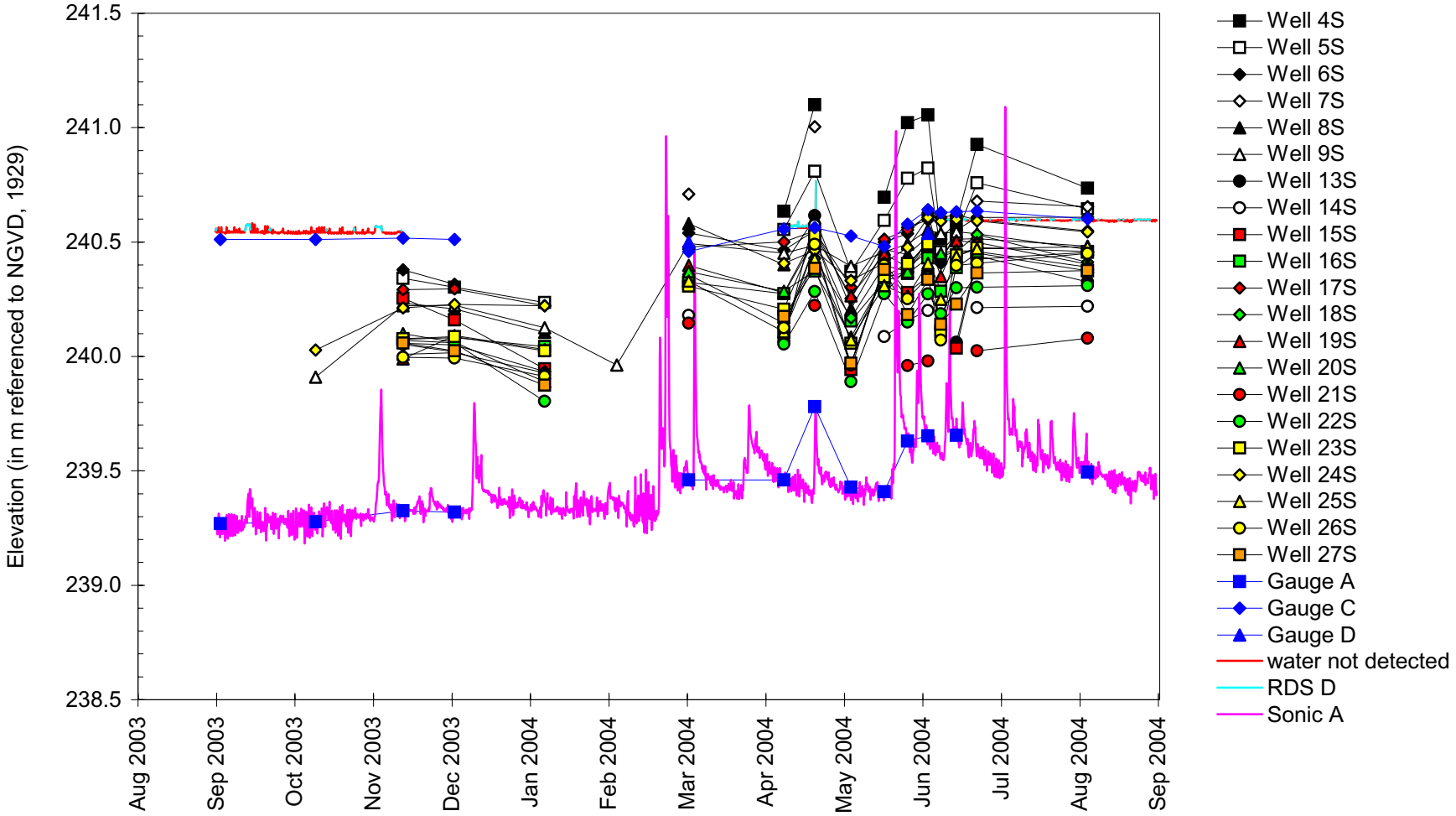
Orangeville Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water at Site 1



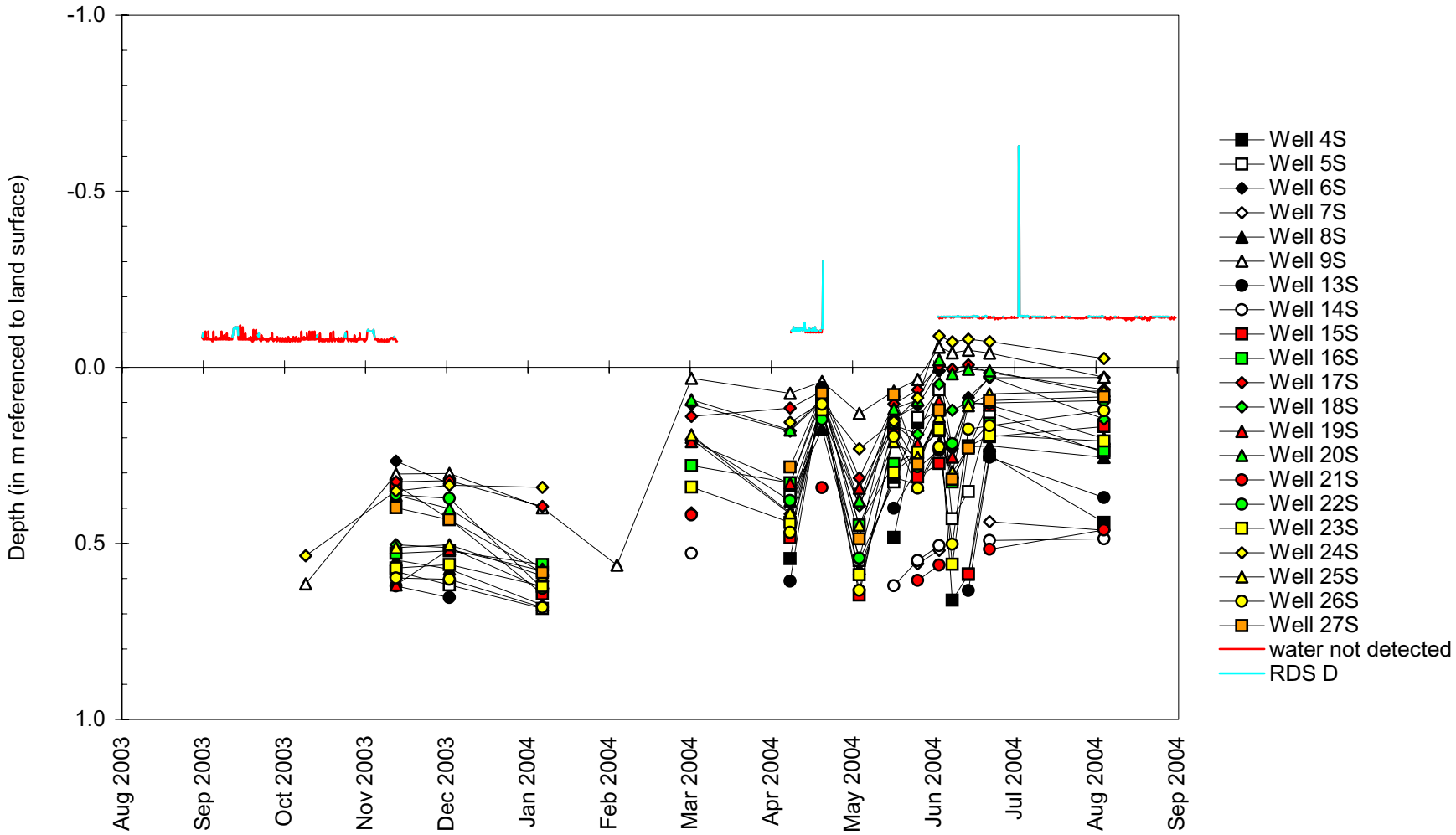
Orangeville Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations at Site 2

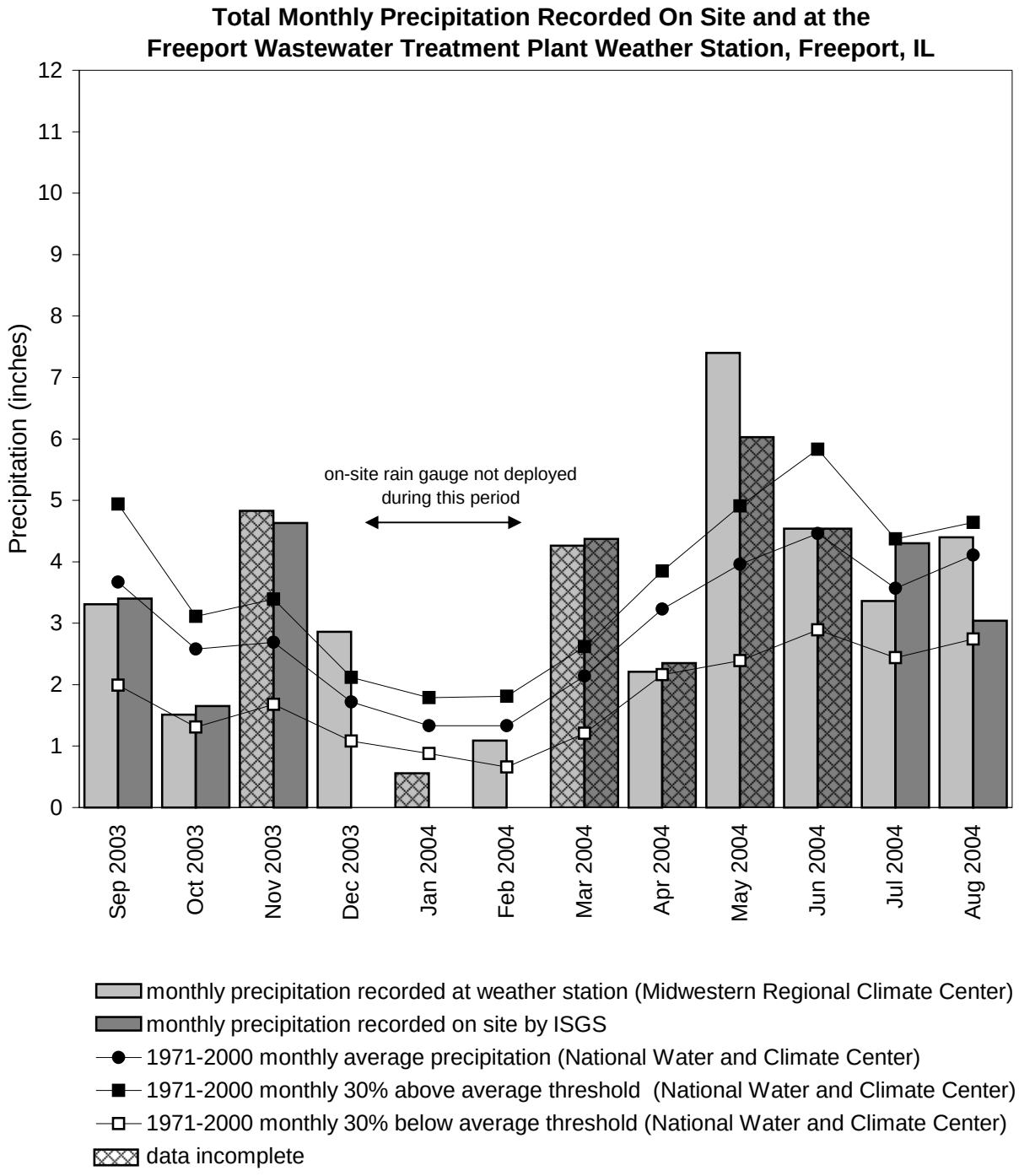


Orangeville Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water at Site 2



Orangeville Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

MILAN BELTWAY, AIRPORT ROAD **ISGS #17**
WETLAND COMPENSATION SITE
FAU 5822
Rock Island County, near Milan, Illinois
Primary Project Manager: Steven E. Benton
Secondary Project Manager: Keith Carr

SITE HISTORY

- July 1996: ISGS submitted an Initial Site Evaluation Report to IDOT.
- February 1997: IDOT issued a task order for a hydrologic characterization of the site.
- August 1997: ISGS data collection was initiated with the installation of monitoring wells and staff gauges.
- August 2000: ISGS sent a letter to IDOT recommending approximate excavation depths required to attain wetland hydrology in the southern third of the site.
- May 2001: At IDOT's request, ISGS reviewed a mitigation plan for the site.

WETLAND HYDROLOGY CALCULATION FOR 2004

The area of the site that satisfied wetland hydrology criteria (U.S. Army Corps of Engineers 1987) for more than 5% of the 2004 growing season was estimated to be 20.1 ac (8.1 ha) out of an area of 28.4 ac (11.5 ha). The area that satisfied wetland hydrology criteria for more than 12.5% of the growing season was also estimated to be 20.1 ac (8.1 ha). These estimates are based on the following factors:

- According to the Midwestern Climate Center, the median date that the growing season begins at the Quad City International Airport, Moline, IL is April 13 and the season lasts 192 days; 12.5% of the growing season is 24 days.
- Total precipitation during the monitoring period was 37.15 inches, which was 97% of normal. The wettest month during the period was May 2004 (215% of normal), and the driest months were October 2003 and July 2004 (43% and 42% of normal, respectively). There were no extended periods greater than2 months of either above or below normal precipitation.
- In 2004, ground-water levels measured in wells 1S, 2S, 3S, 5S, 6S, 7S, 8S, 10SR, and 11S satisfied the wetland hydrology criteria for more than 5% of the growing season. These wells also satisfied wetland hydrology criteria for more than 12.5% of the growing season.
- Surface-water elevations recorded at RDS1 reveal that the portions of the site below an elevation of about 171.45 m were inundated for more than 5% of the growing season. The same portions were also inundated for more than 12.5% of the growing season.

PLANNED FUTURE ACTIVITIES

- If the previously planned excavation on the site is undertaken, several wells and data

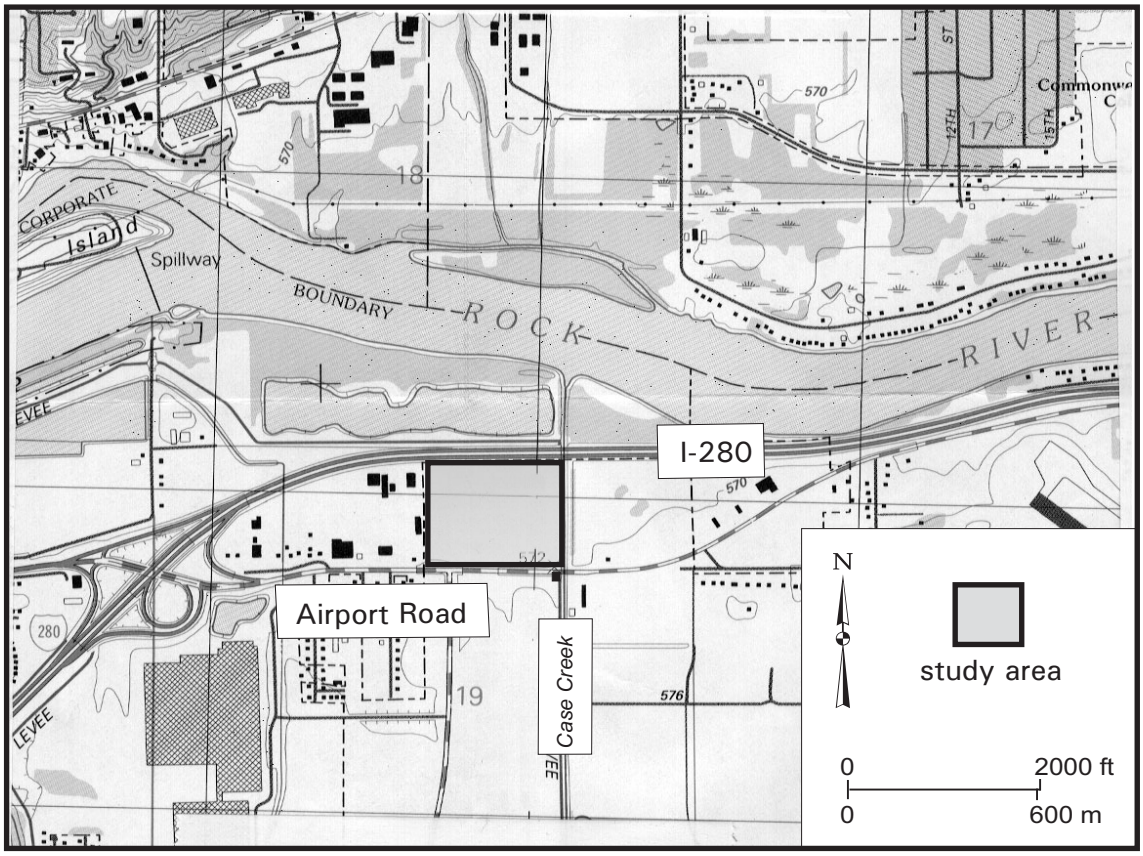
loggers will have to be removed prior to this excavation and re-deployed afterwards.

- A Level II hydrogeologic characterization report is in preparation.

Milan Beltway, Airport Road Wetland Compensation Site
(FAU 5822)

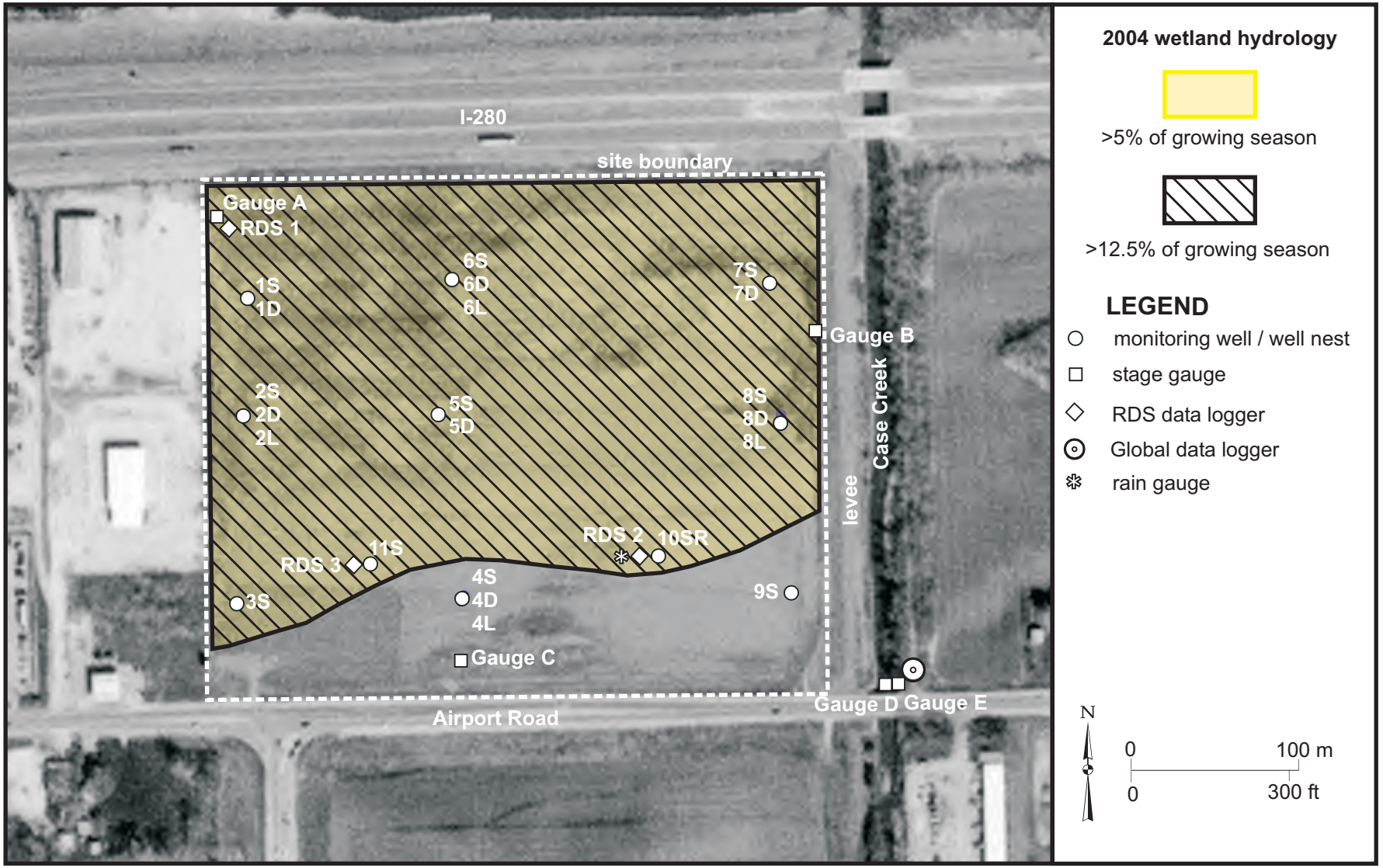
General Study Area and Vicinity

from the USGS Topographic Series, Milan IL-IA 7.5-minute Quadrangle (USGS 1992)
contour interval is 10 feet

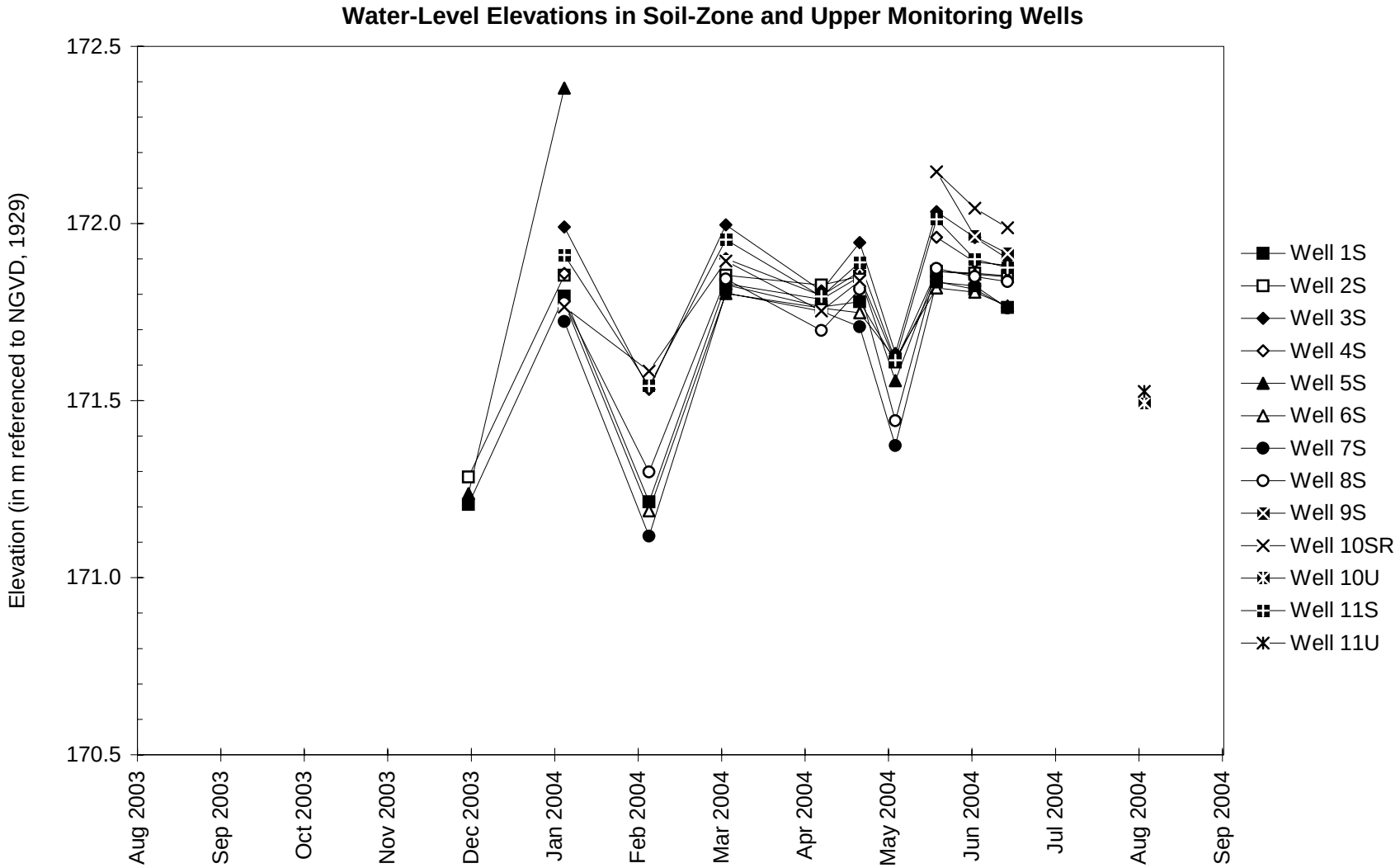


Milan Beltway, Airport Road Wetland Compensation Site
(FAU 5822)
Extent of 2004 Wetland Hydrology
based on data collected between September 1, 2003 and September 1, 2004

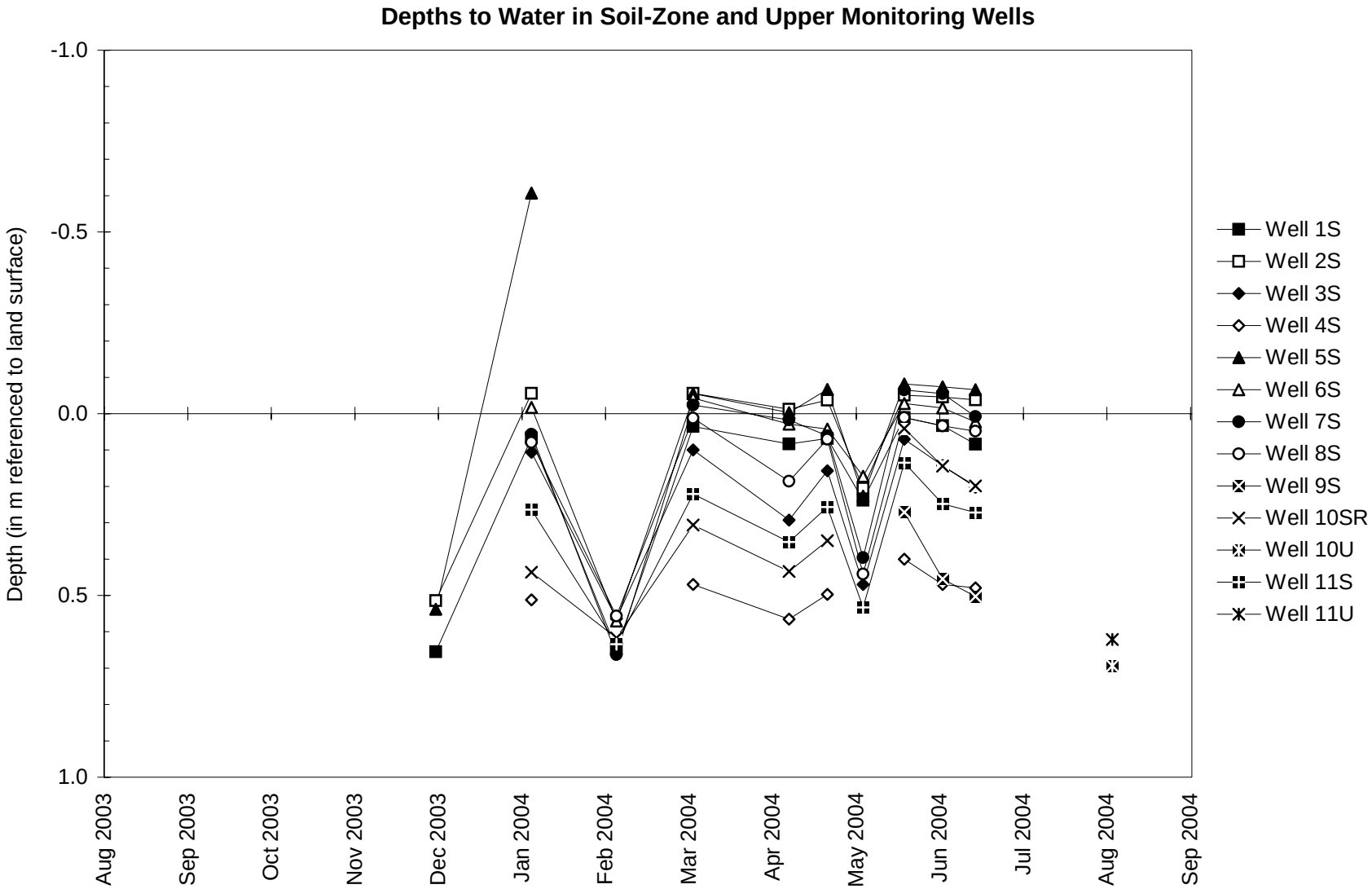
map based on USGS digital orthophotograph, Milan SW quarter quadrangle
from 03/30/2000 aerial photography (ISGS 2002)



Milan Beltway, Airport Road Wetland Compensation Site
September 1, 2003 to September 1, 2004

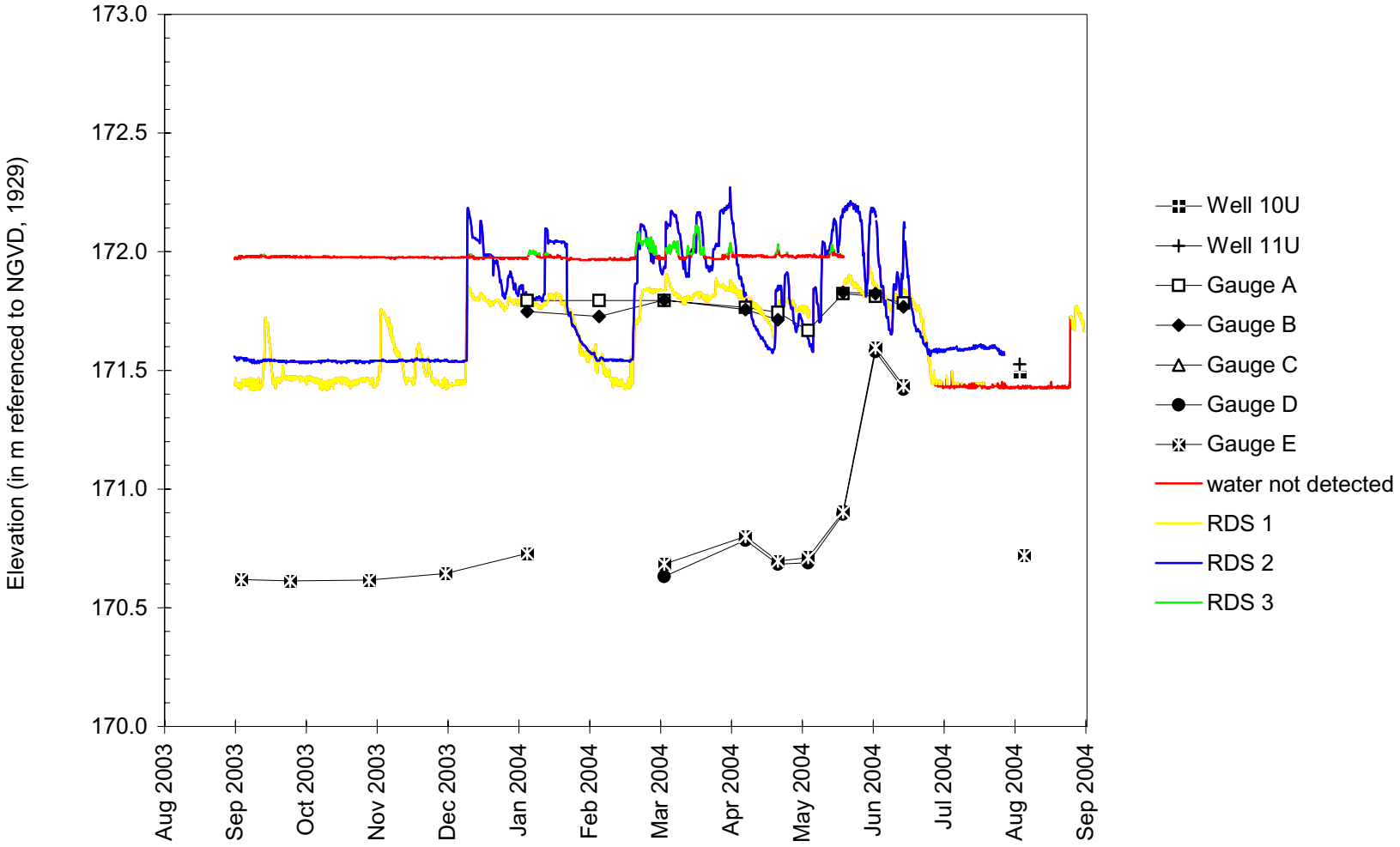


Milan Beltway, Airport Road Wetland Compensation Site
September 1, 2003 to September 1, 2004

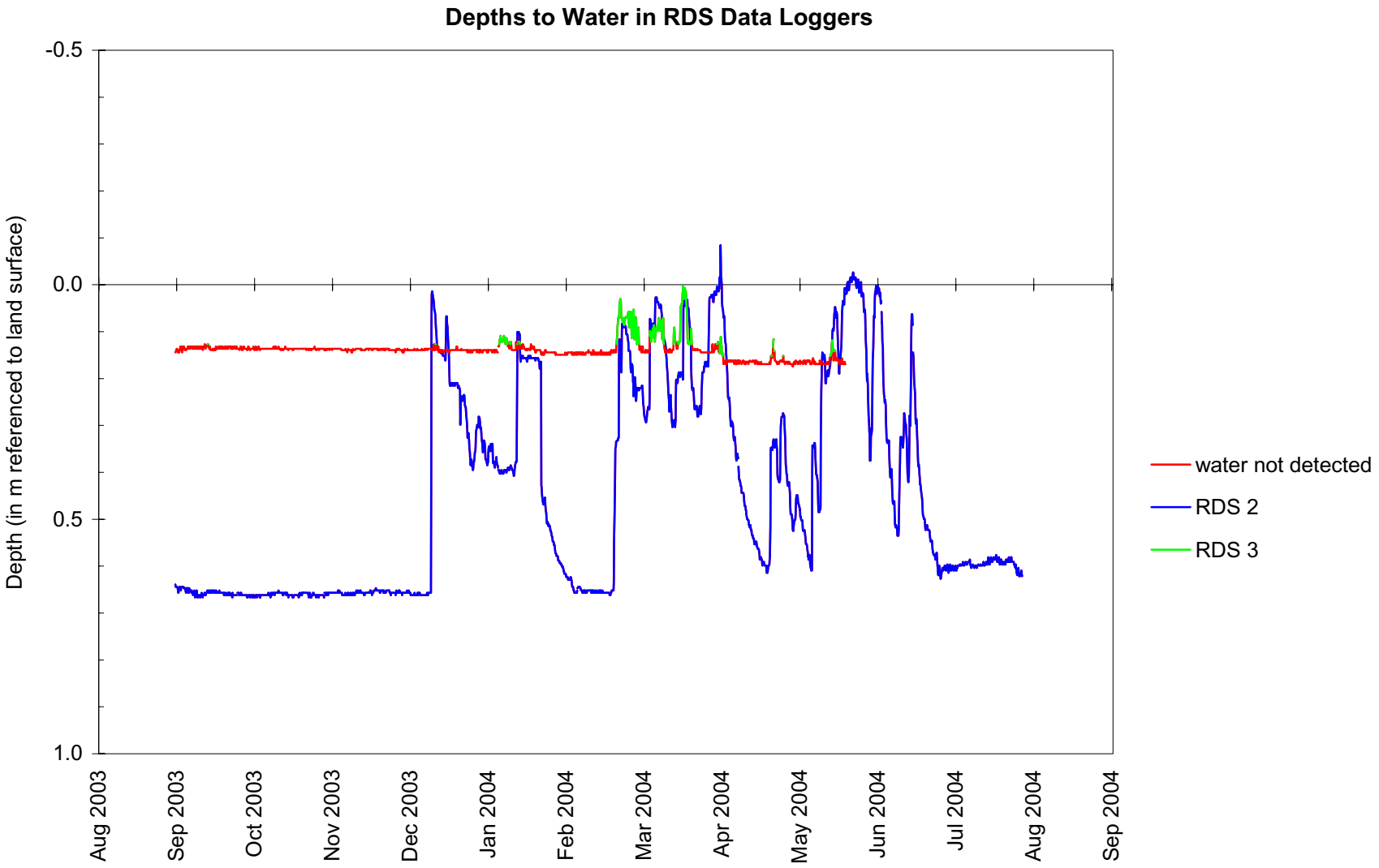


Milan Beltway, Airport Road Wetland Compensation Site
September 1, 2003 to September 1, 2004

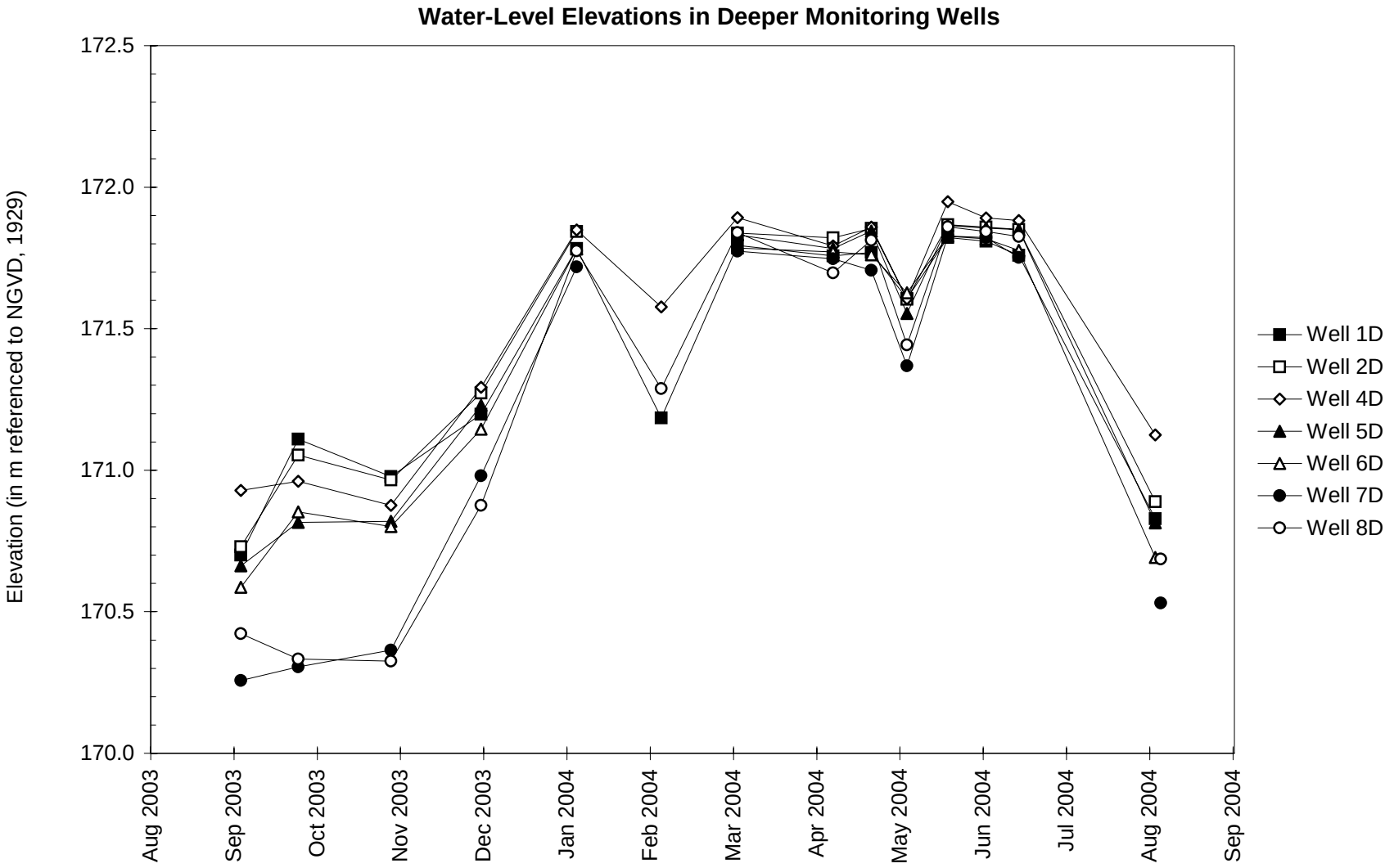
Water-Level Elevations
in Upper Monitoring Wells, RDS Data Loggers, and on Stage Gauges



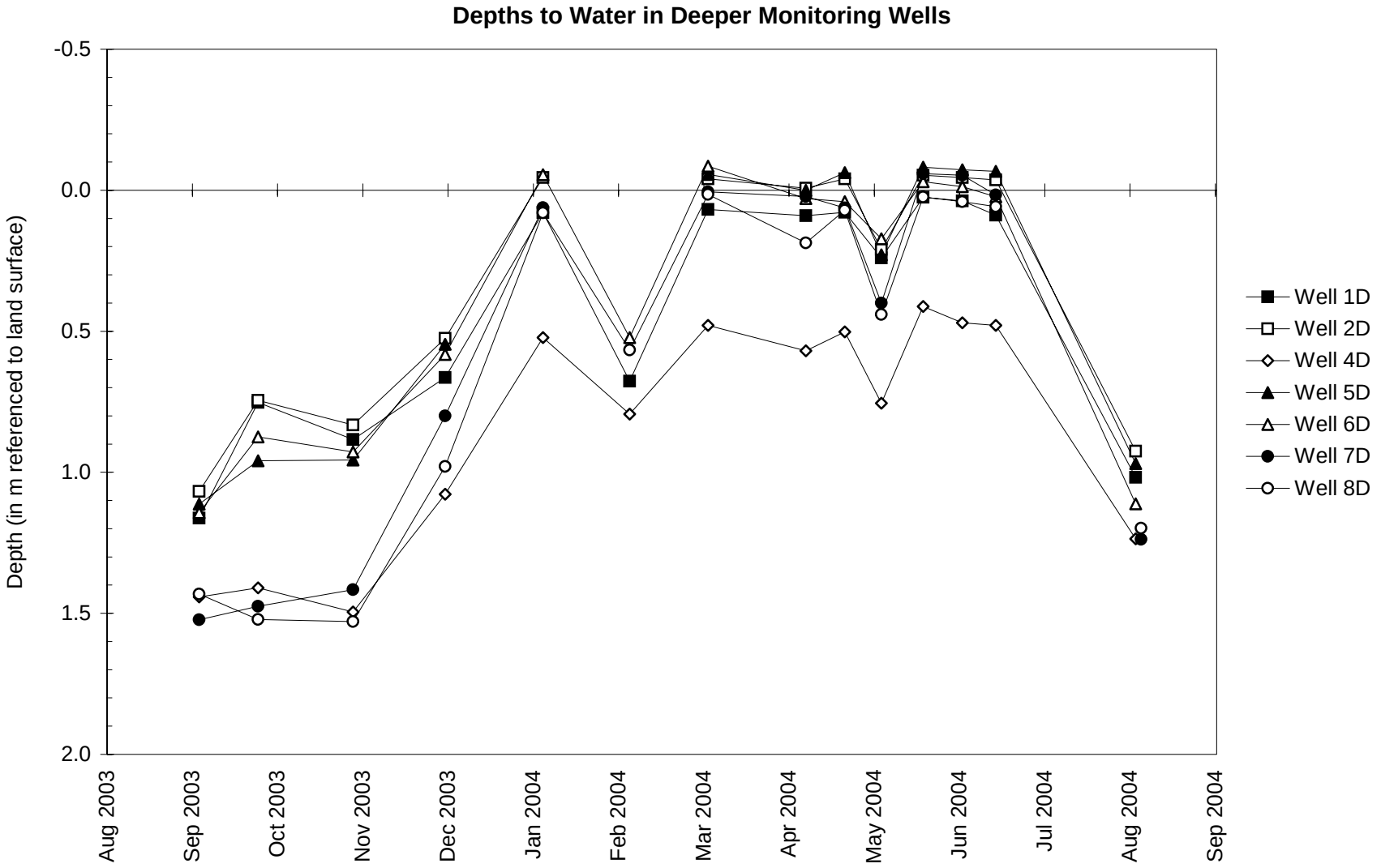
Milan Beltway, Airport Road Wetland Compensation Site
September 1, 2003 to September 1, 2004



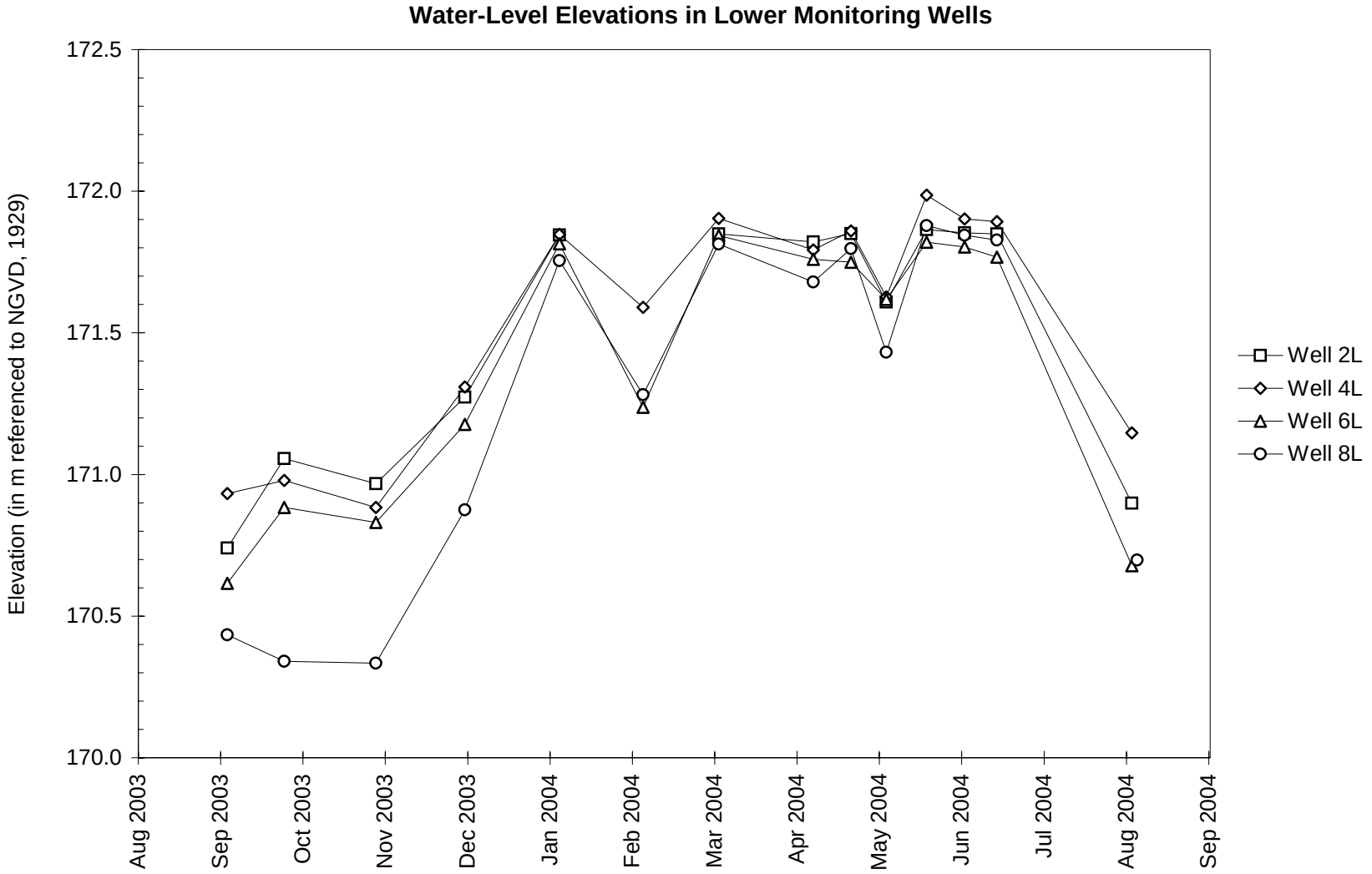
Milan Beltway, Airport Road Wetland Compensation Site
September 1, 2003 to September 1, 2004



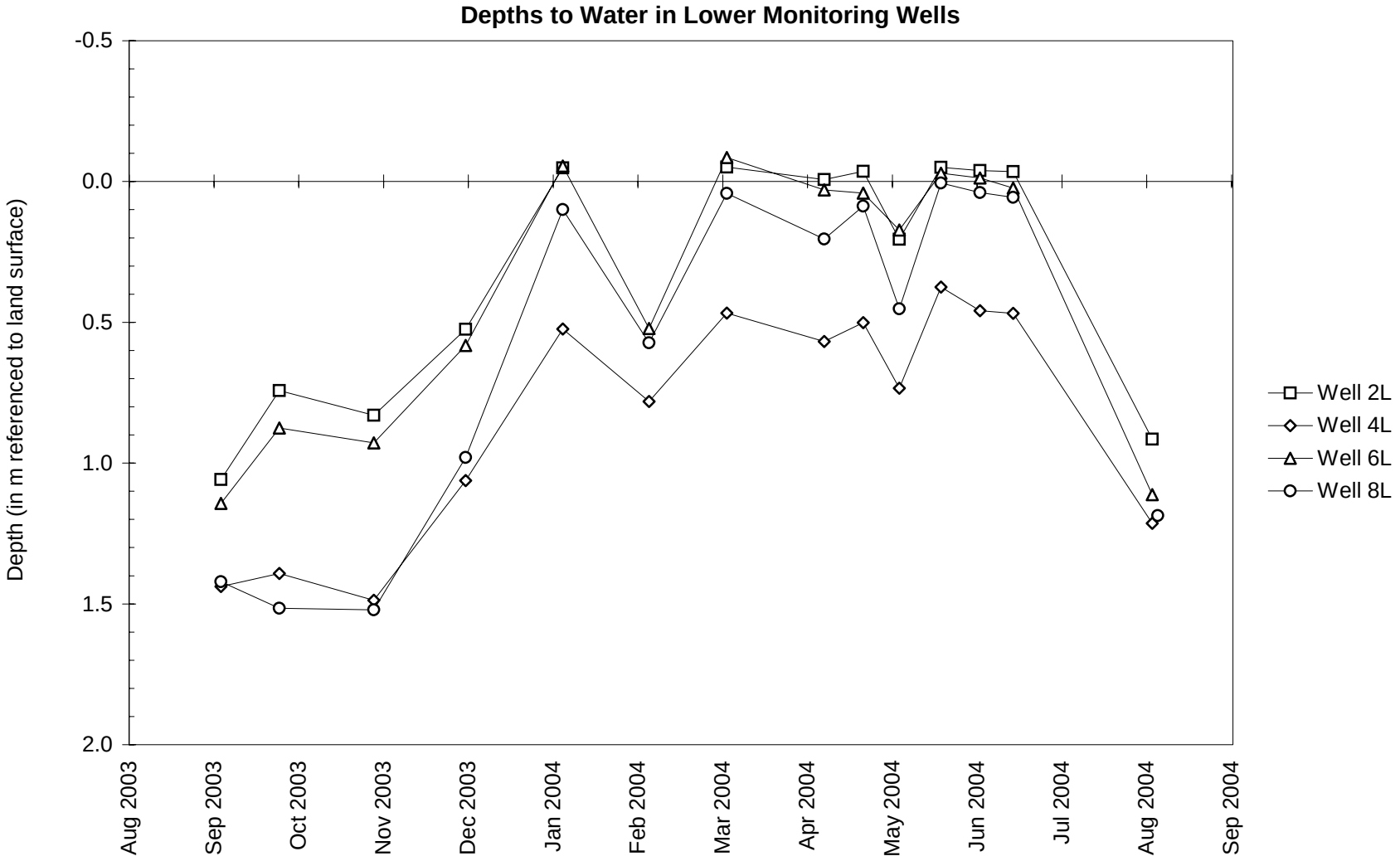
Milan Beltway, Airport Road Wetland Compensation Site
September 1, 2003 to September 1, 2004



Milan Beltway, Airport Road Wetland Compensation Site
September 1, 2003 to September 1, 2004

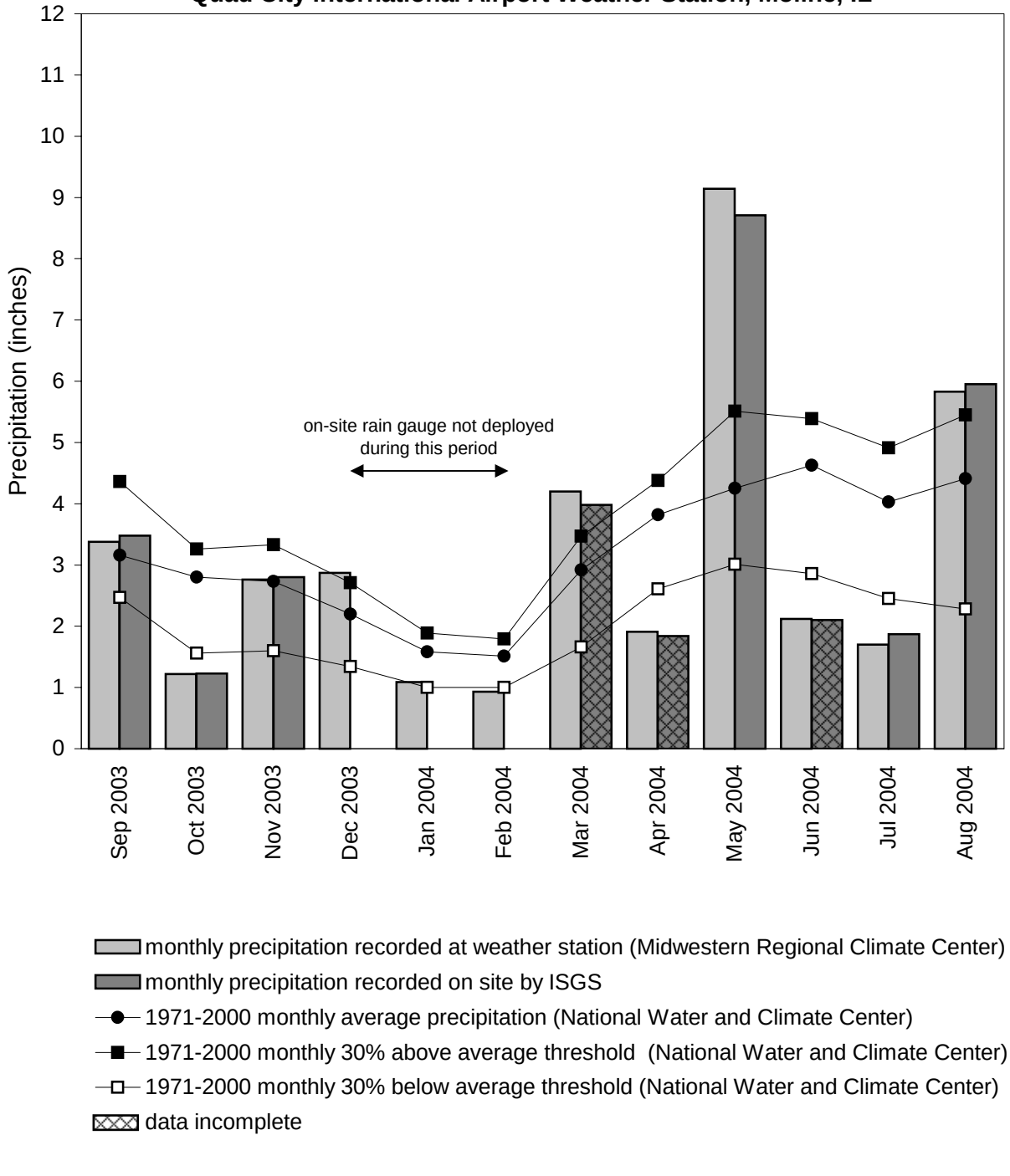


Milan Beltway, Airport Road Wetland Compensation Site
September 1, 2003 to September 1, 2004



Milan Beltway, Airport Road
Wetland Compensation Site
September 2003 through August 2004

Total Monthly Precipitation Recorded On Site and at the Quad City International Airport Weather Station, Moline, IL



Graph last updated September 30, 2004

SALINE COUNTY **ISGS #18**
WETLAND COMPENSATION SITE
FAP 331
Saline County, near Harrisburg, Illinois
Primary Project Manager: Bonnie J. Robinson
Secondary Project Manager: not assigned

SITE HISTORY

- May 1994: The ISGS began a hydrogeologic characterization of the site.
- June 1995: An interim hydrogeologic characterization report was submitted to IDOT.
- October 1996: An area of the site was excavated as part of the wetland mitigation. A berm around the new wetland was completed in August 1997.
- March 1998: Level II hydrogeological characterization report submitted to IDOT
- March 1999–April 2000: Fourteen additional soil-zone monitoring wells and one staff gauge were installed. Seven additional soil-zone wells were installed in April 2001.
- September 2001: IDOT tasked continued monitoring following a "close-out" meeting with various agencies.
- June 2004: IDOT requested that site monitoring be terminated.

WETLAND HYDROLOGY CALCULATION FOR 2004

In 2004, 19.0 ac (7.3 ha) of the compensation site satisfied the criteria for wetland hydrology for greater than 5% of the growing season, while the area that satisfied the criteria for wetland hydrology for greater than 12.5% of the growing season was 17.7 ac (7.2 ha). The estimates for 2004 are based on the following factors:

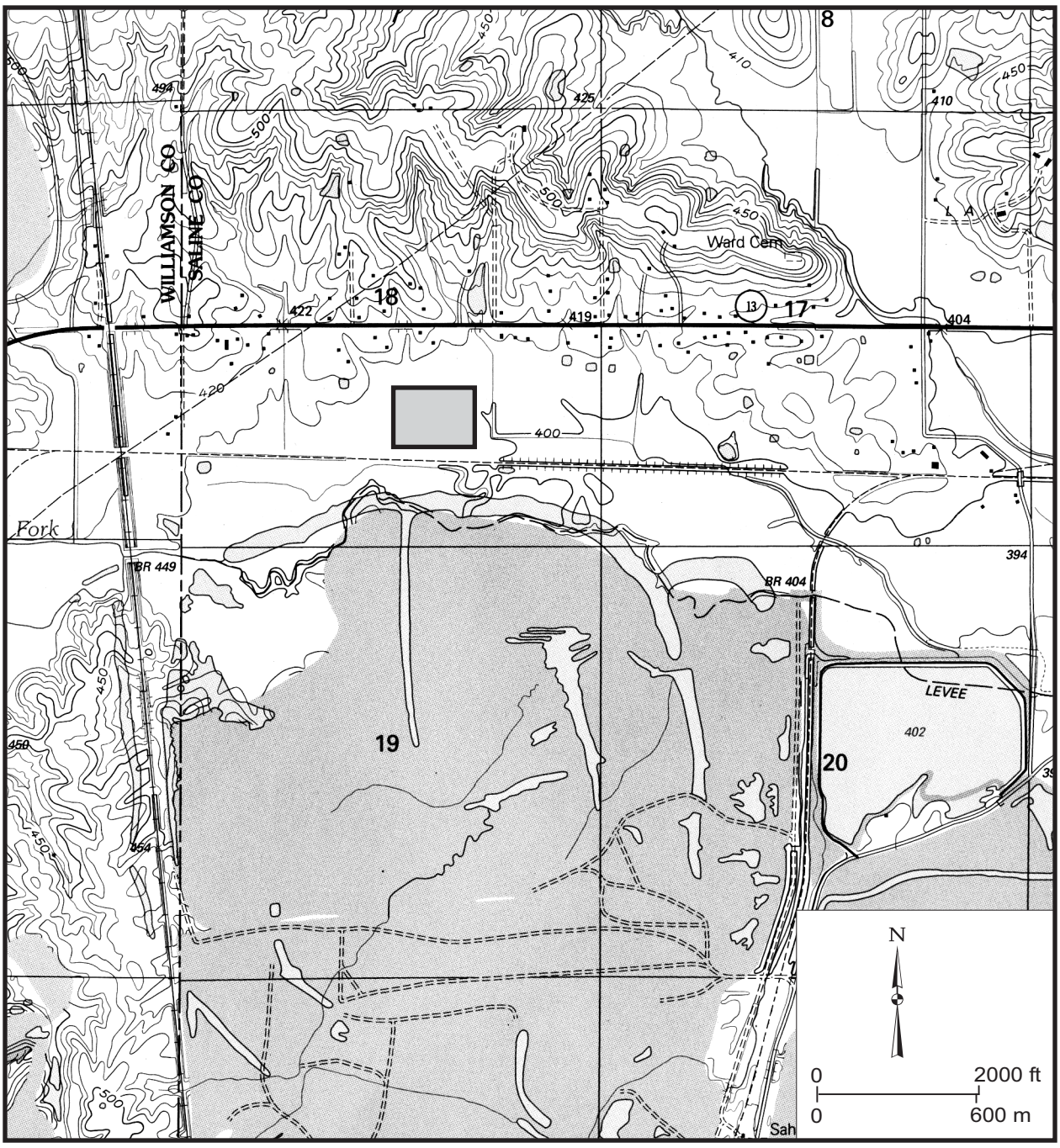
- According to the Midwestern Climate Center, the median length of the growing season at Harrisburg, Illinois is 211 days, starting April 1 and ending October 29. Therefore, 5% of the growing season is 11 days and 12.5% of the growing season is 26 days.
- Precipitation at the nearby Harrisburg weather station during the monitoring period was 80% of normal. Normal to above-normal precipitation in September and November 2003, and January 2004 promoted near-surface saturation throughout the winter and into early spring. Despite heavy rainfall reported in late March, water levels dropped in response to below normal precipitation throughout April. Heavy rainfall reported onsite in late April, coupled with above normal precipitation throughout May, resulted in water levels rebounding, then gradually falling in response to the below normal June precipitation. Data loggers were removed at the end of the month.
- Water levels in all the S wells, except for 9S, were observed above or within 30 cm (1 ft) of the surface for more than 5% of the growing season. Of these wells, only 21 S did not have water levels that were above or within 30 cm (1 ft) of the surface for a period greater than 12.5% of the growing season.

- Limitations of the wetland hydrology determination are as follows:
  - The wetland acreage determination contains pre-existing wetland.

Saline County Wetland Compensation Site
(FAP 331)

General Study Area and Vicinity

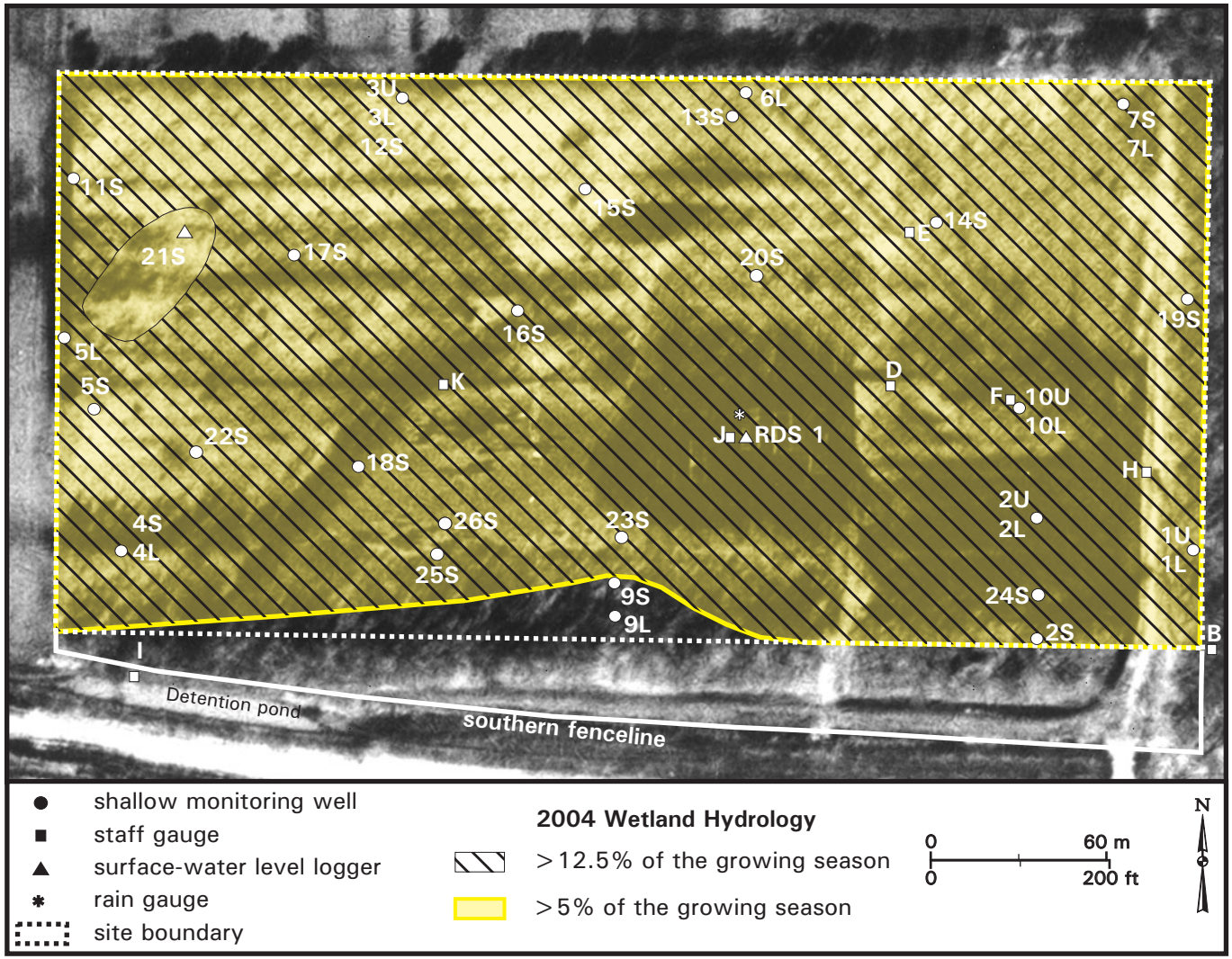
from the USGS Topographic Series, Carrier Mills, IL 7.5-minute Quadrangle (USGS 1996)
contour interval is 10 feet



general study area

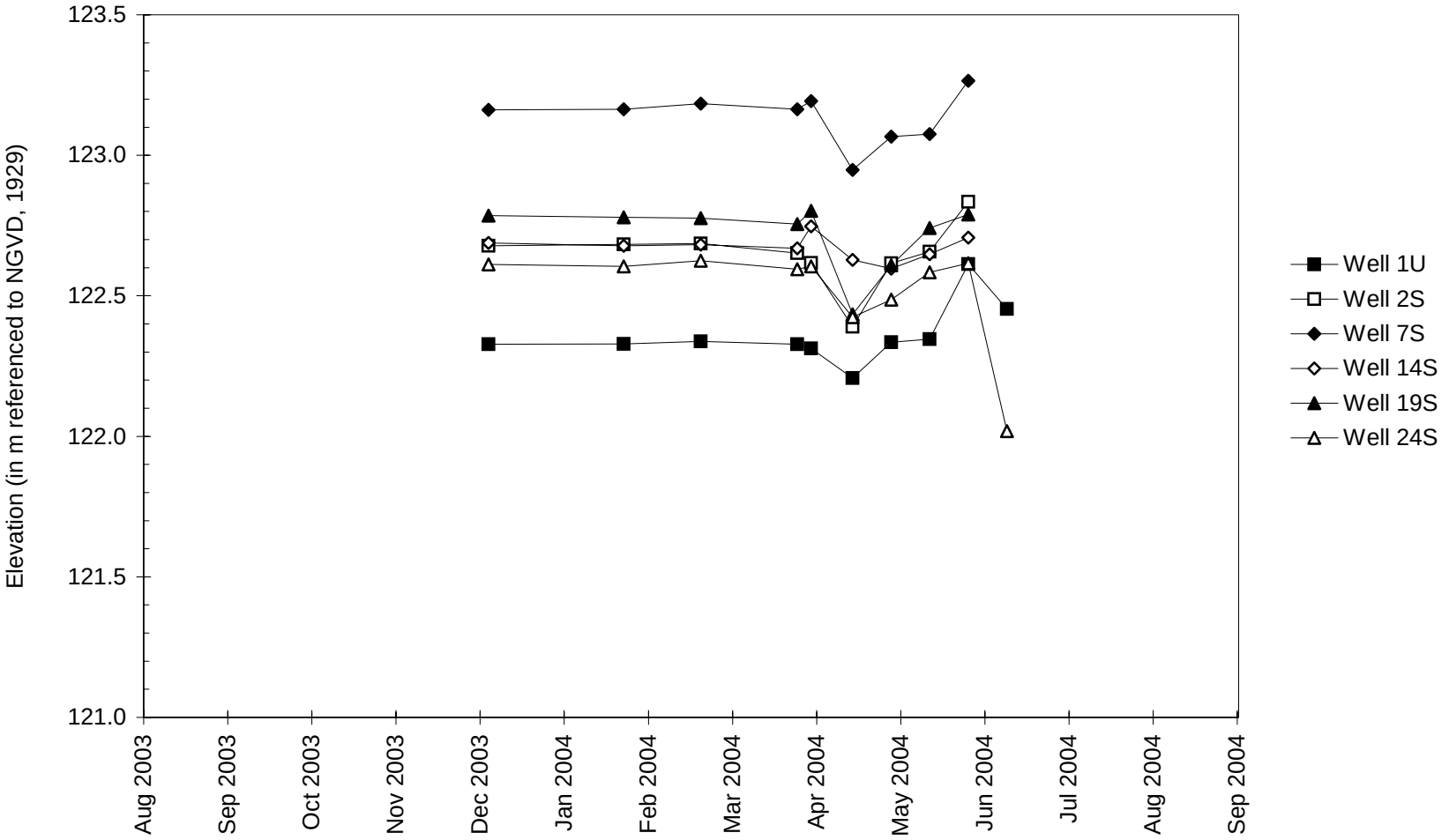
Saline County Wetland Compensation Site
(FAP 331)
Estimated Areal Extent of 2004 Wetland Hydrology
based on data collected between September 1, 2003 and September 1, 2004

map based on unrectified aerial photography from IDOT (1998, NAPP 22-441)



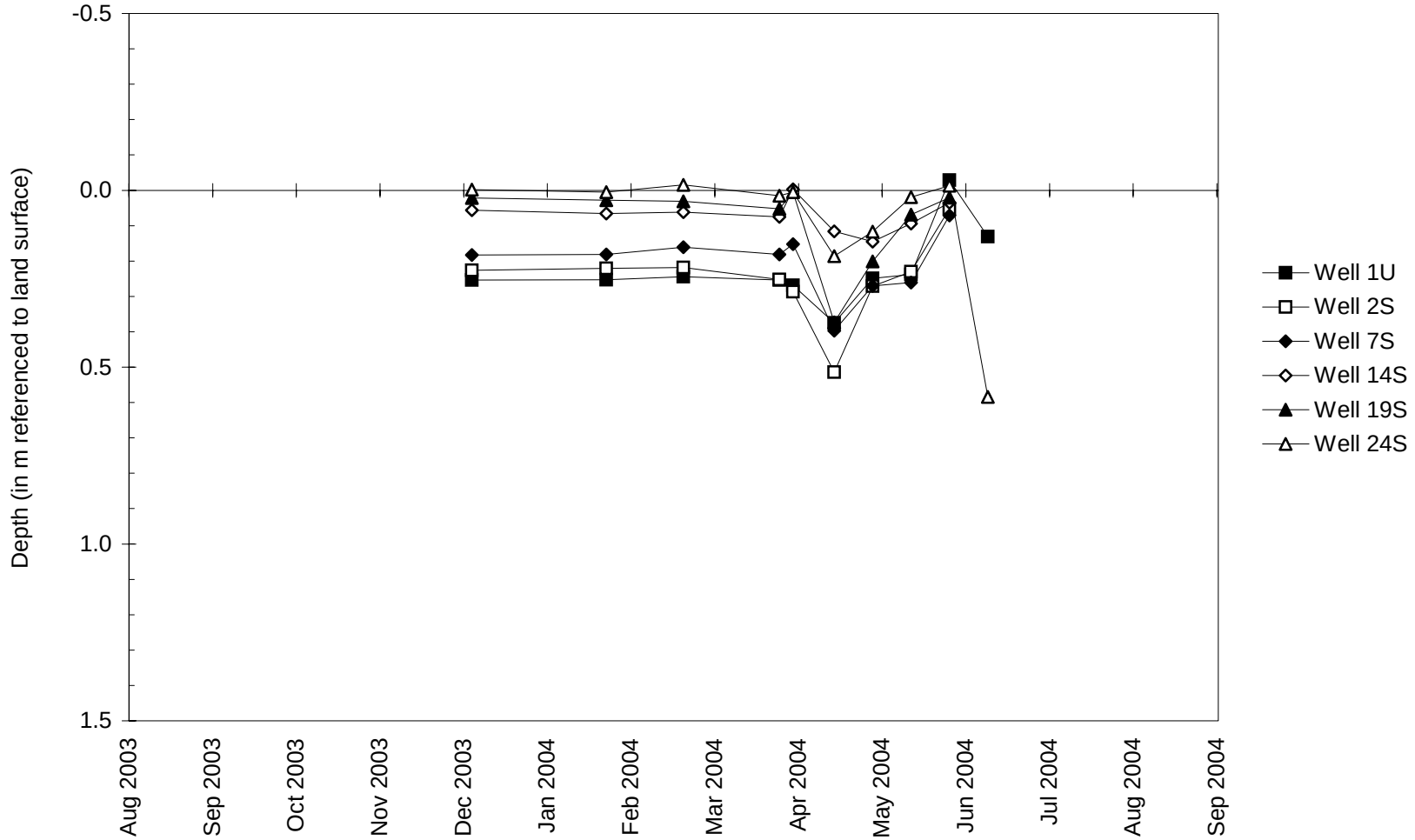
Saline County Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria
in the Eastern Portion of the Site



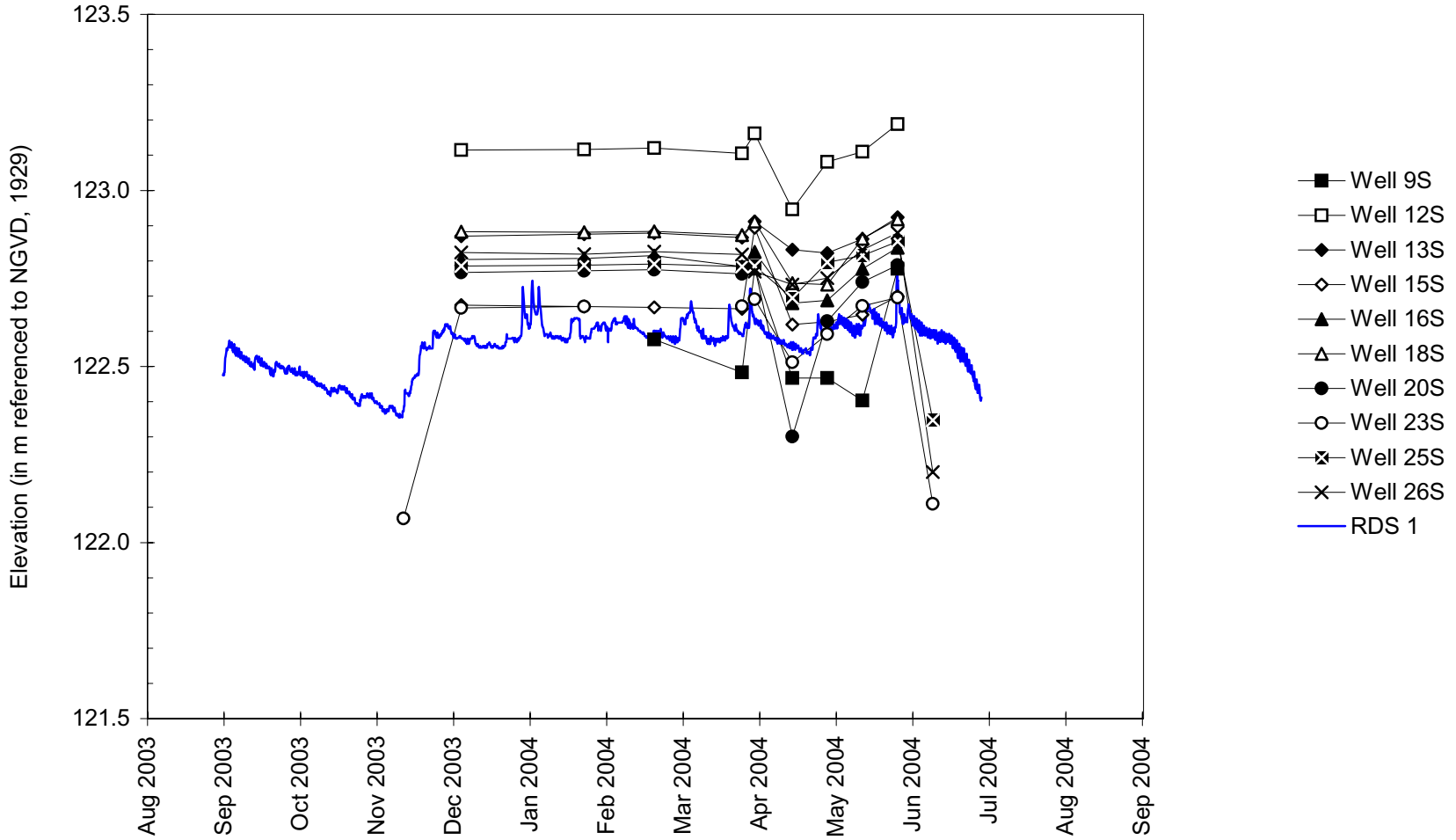
Saline County Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water
in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria
in the Eastern Portion of the Site



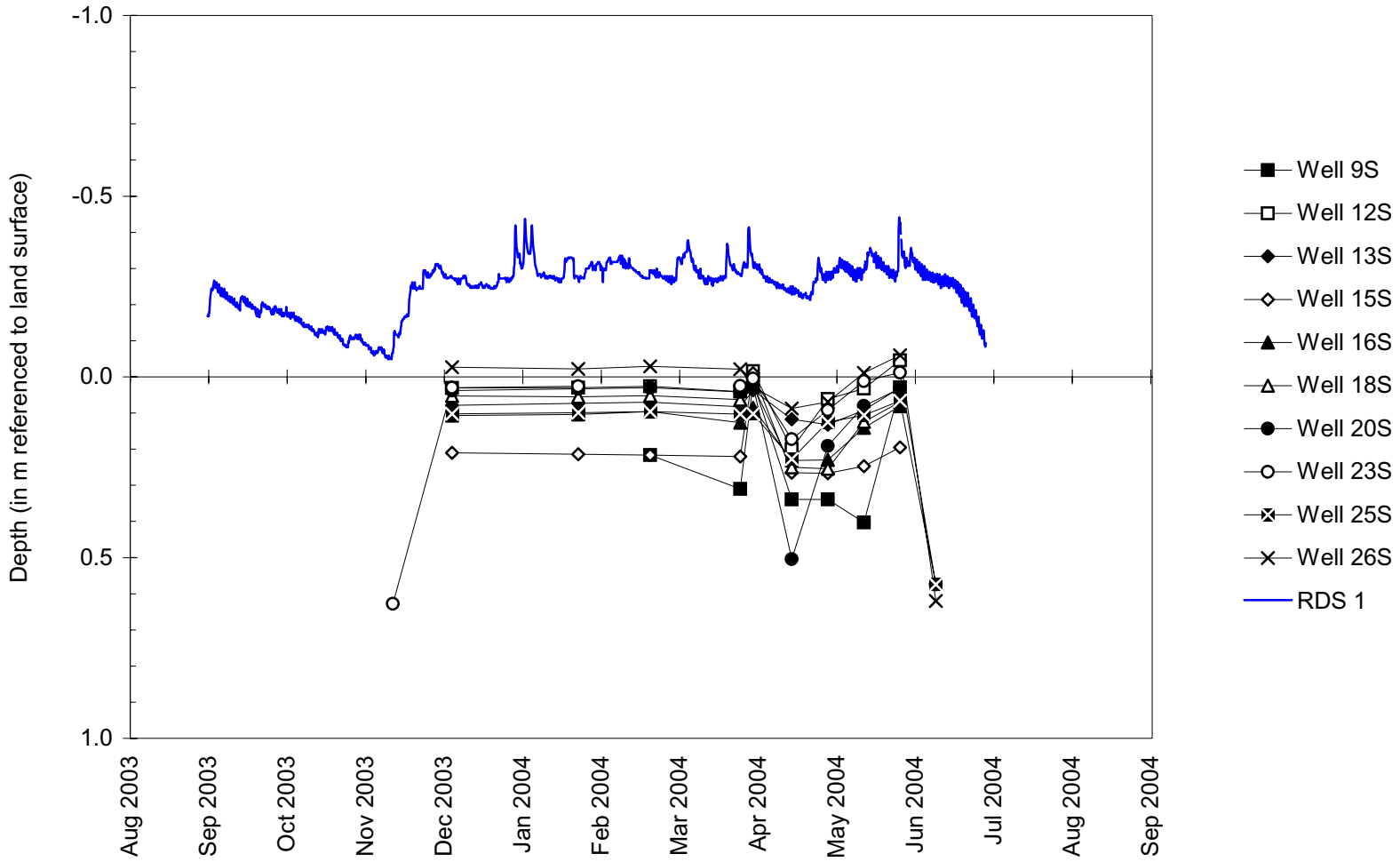
Saline County Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria
in the Central Portion of the Site



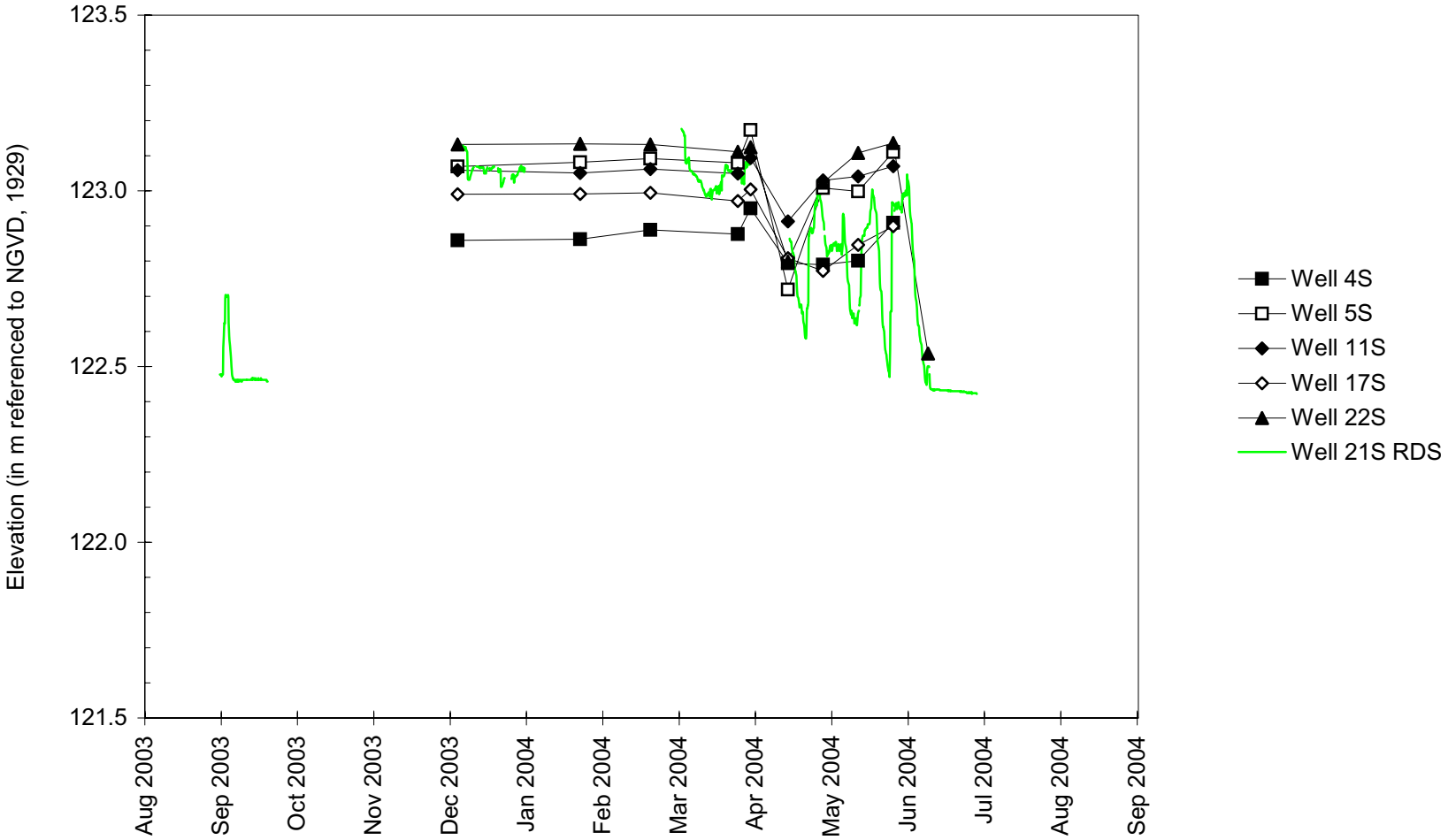
Saline County Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water
in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria
in the Central Portion of the Site



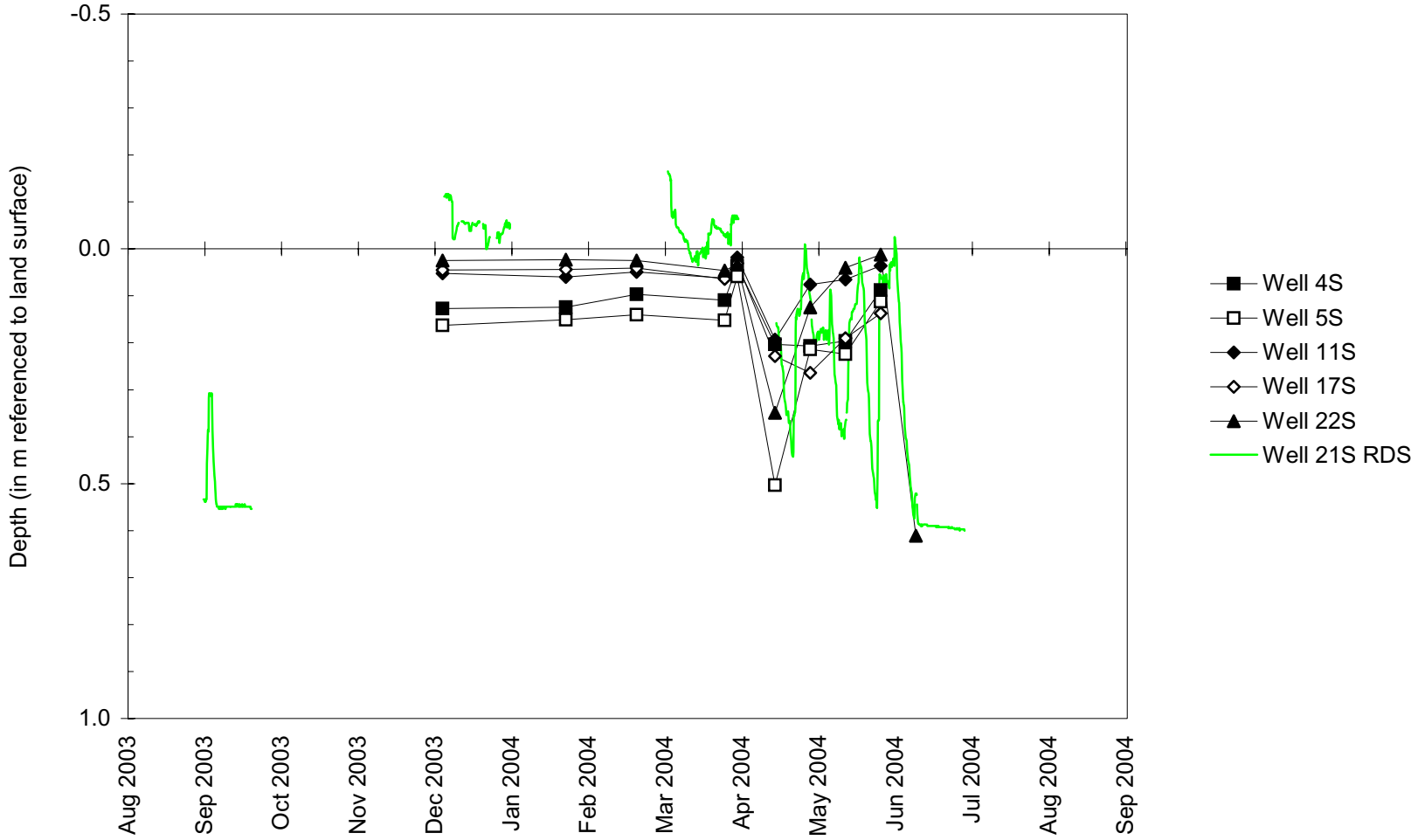
Saline County Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria
in the Western Portion of the Site



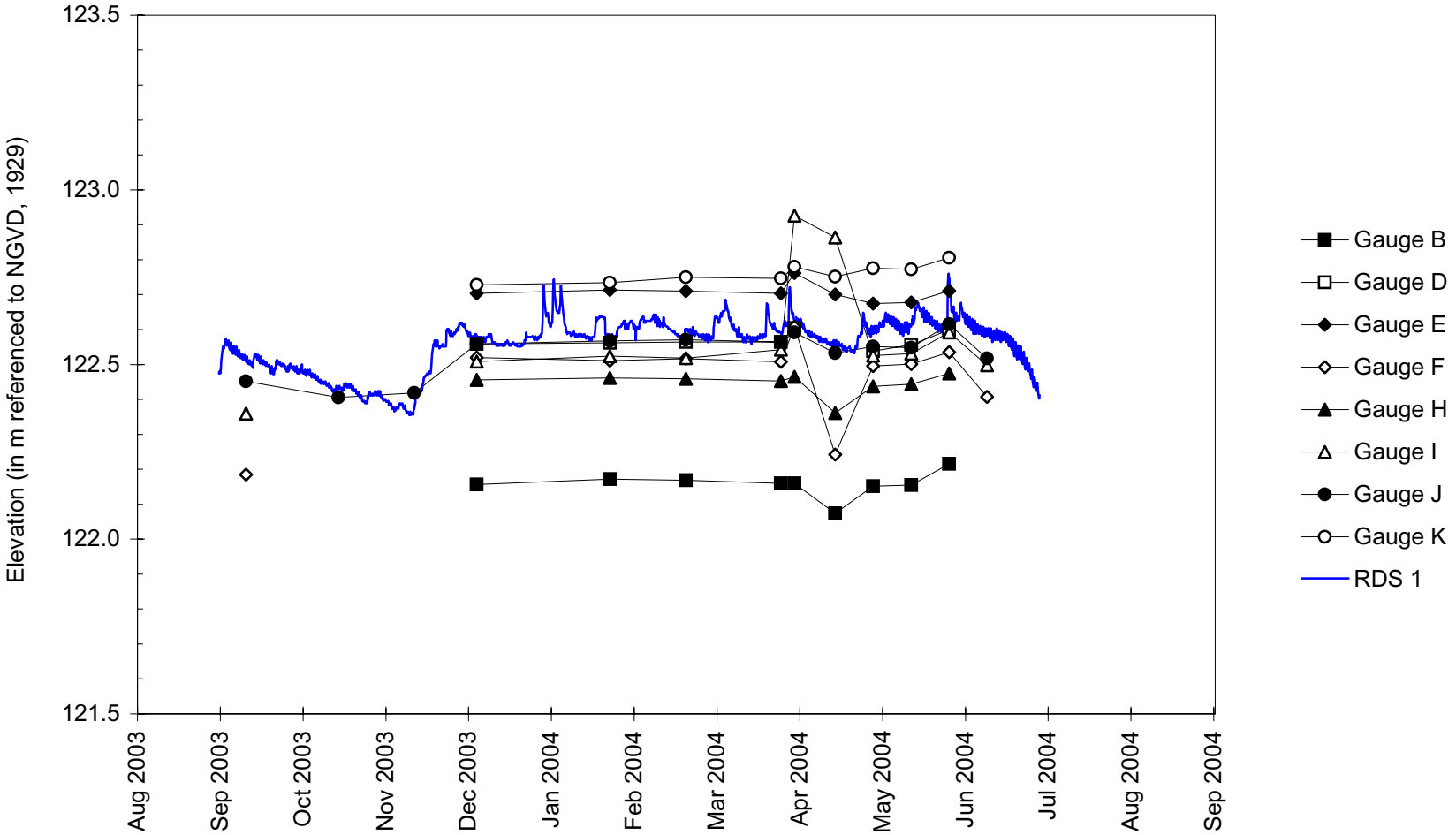
Saline County Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water
in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria
in the Western Portion of the Site



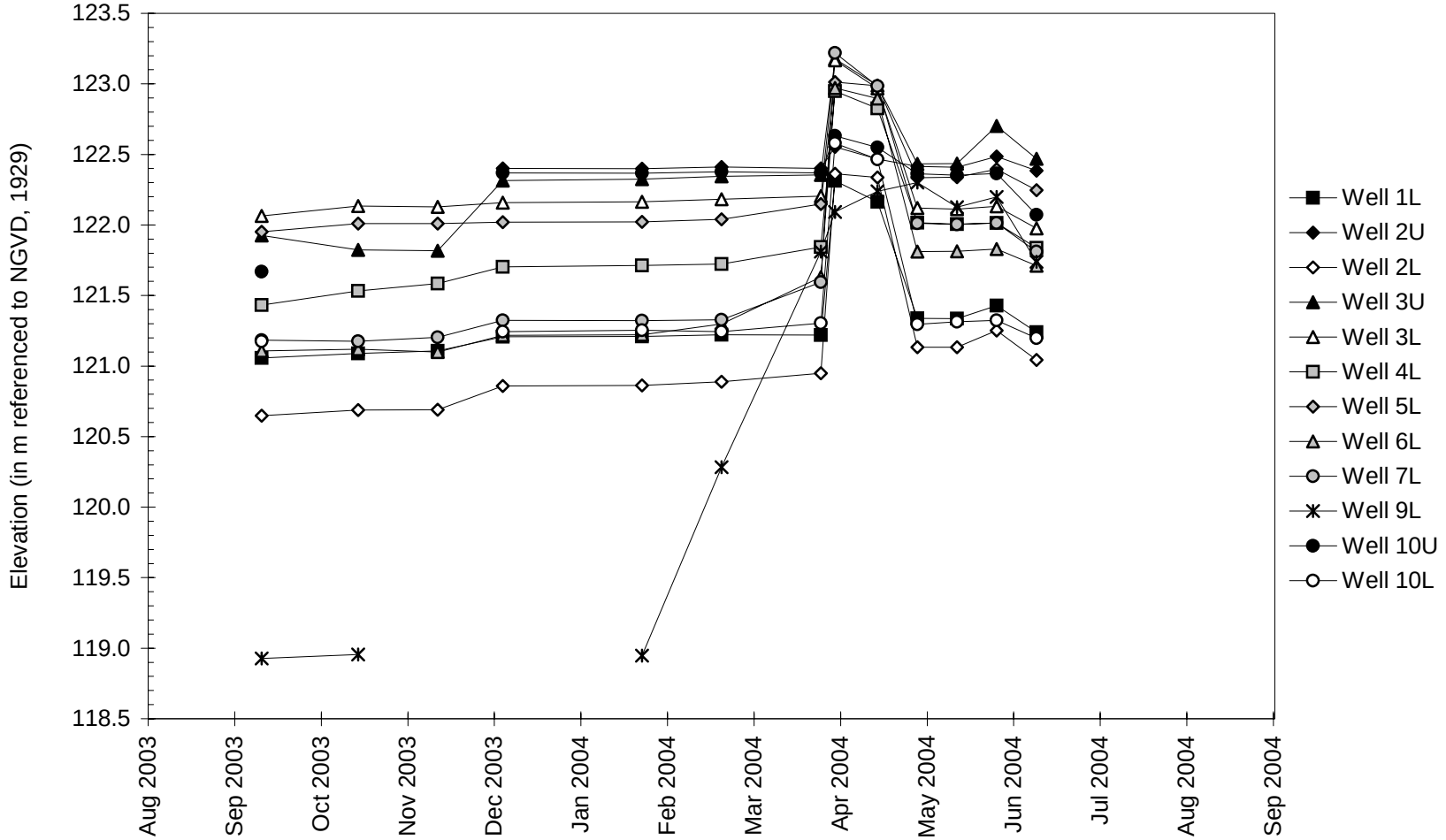
Saline County Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations on Stage Gauges

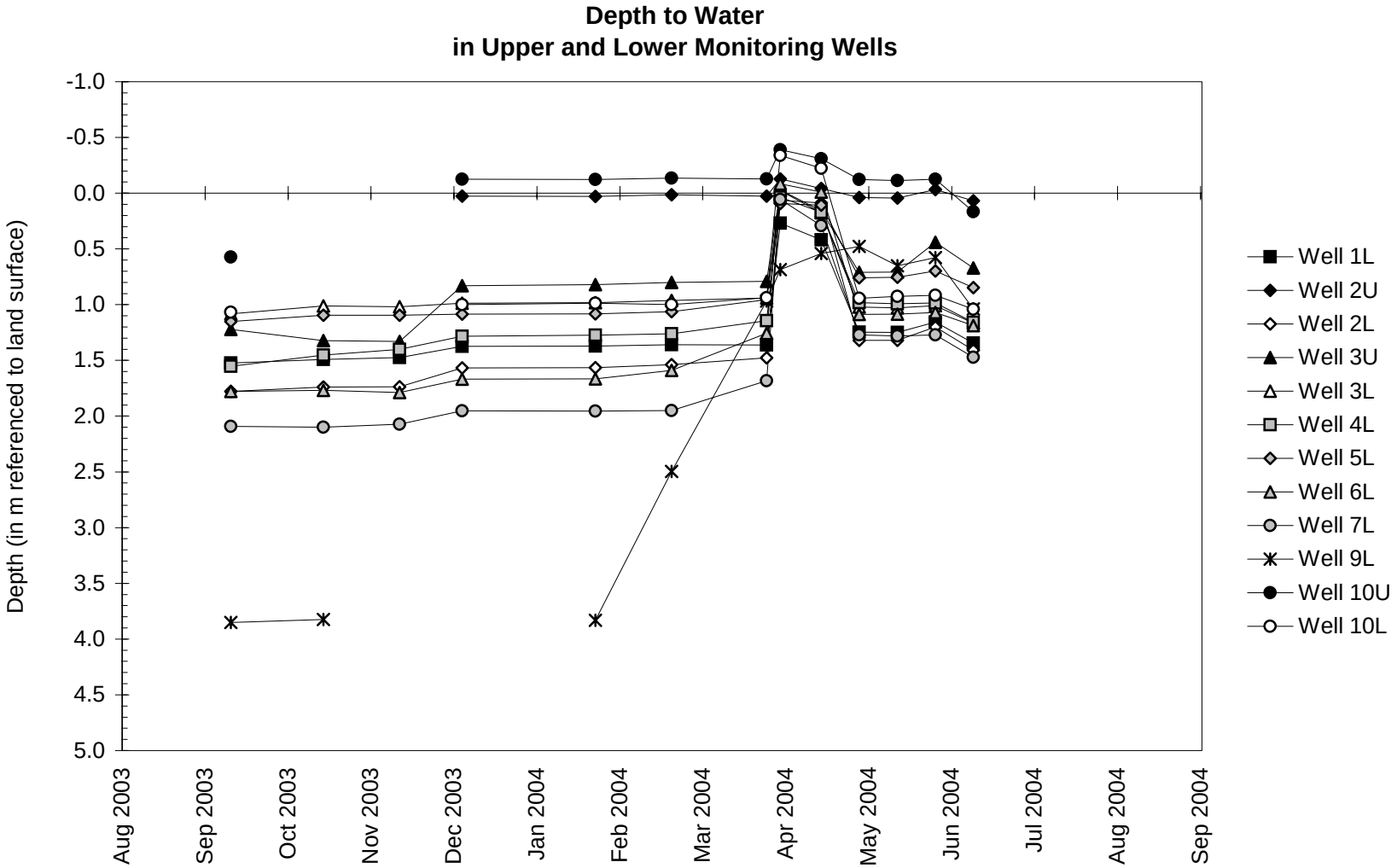


Saline County Wetland Compensation Site
September 1, 2003 to September 1, 2004

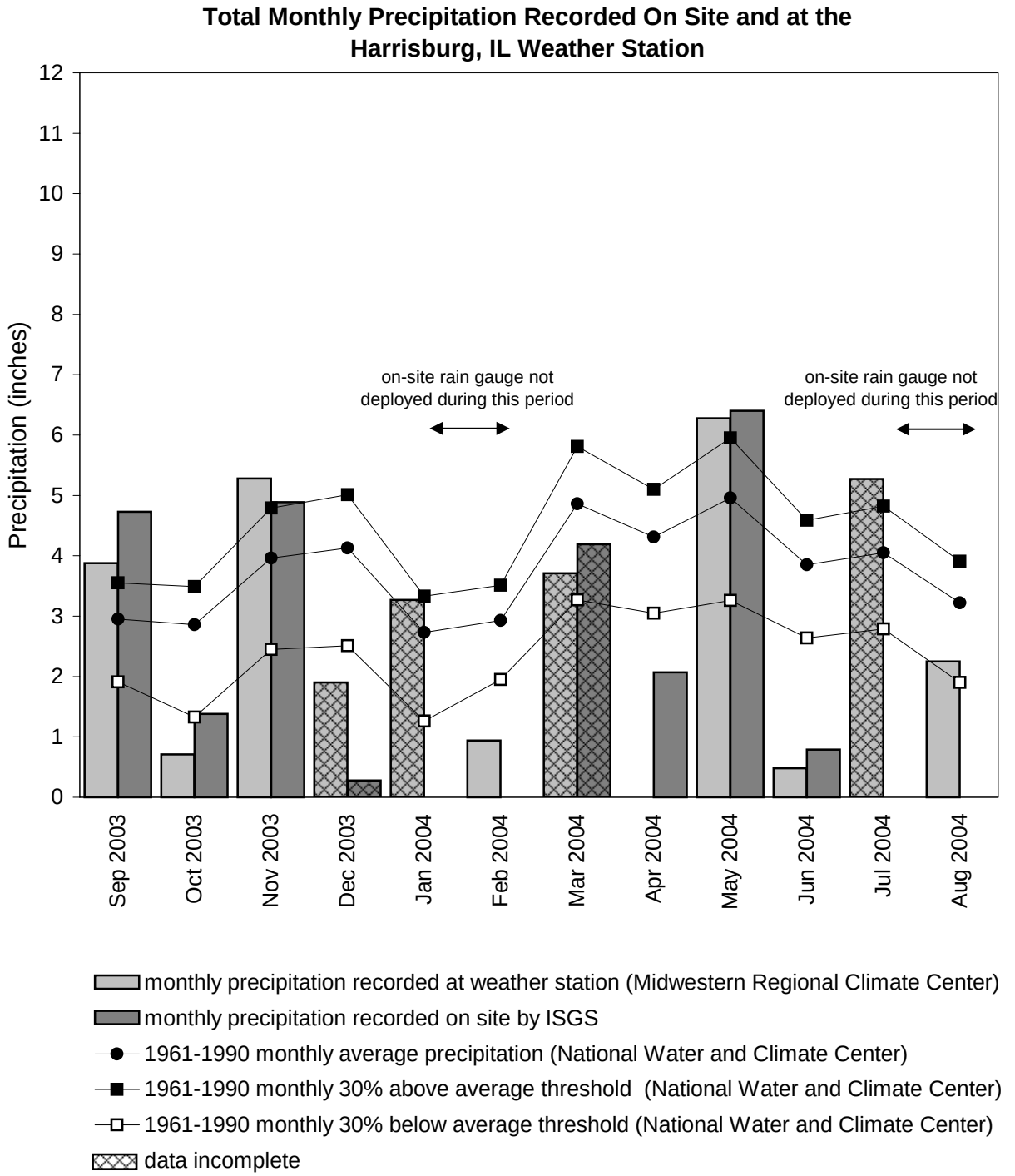
Water-Level Elevations
in Upper and Lower Monitoring Wells



Saline County Wetland Compensation Site
September 1, 2003 to September 1, 2004



Saline County Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

JOSLIN **ISGS #23**
WETLAND COMPENSATION SITE
FAP 585
Henry County, near Joslin, Illinois
Primary Project Manager: Kelli D. Weaver
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- January 1995: An initial ISGS topographic survey and hydrologic analysis were sent to IDOT.

- Summer 1998: ISGS installed 18 soil-zone monitoring wells.

- April 2001: ISGS installed an RDS data logger and a stage gauge to monitor surface water. This station monitors a backwater slough that communicates with the Rock River and parallels the eastern site margin.

- March 2004: IDOT requested site monitoring be discontinued.

DECATUR, U.S. ROUTE 51 **ISGS #27**
WETLAND COMPENSATION SITE
FAP 322
Macon County, near Elwin, Illinois
Primary Project Manager: Eric T. Plankell
Secondary Project Manager: Geoffrey E. Pociask

SITE HISTORY

- May 1999: ISGS was tasked to conduct hydrologic monitoring.

- March and May 2000: ISGS installed a surface-water data logger (RDS 1) and a rain gauge, then later completed several shallow soil borings to investigate the presence and condition of a shallow confined aquifer across the site.

- June 2001: Construction of the wetland was completed.

- December 2001: ISGS installed eleven S wells (1S–8S and 10S–12S), two surface-water staff gauges (A and B), and one additional surface-water data logger (RDS 2) at the site.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area of created wetland that satisfied wetland hydrology criteria for greater than 5% of the 2004 growing season was 5.9 ac (2.4 ha), whereas the area that satisfied wetland hydrology criteria for greater than 12.5% of the 2004 growing season was 4.9 ac (2.0 ha). These estimates are out of a total site area of approximately 11.6 ac (4.7 ha). These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Decatur is April 9 and the season lasts 193 days; 5% of the growing season is 10 days and 12.5% of the growing season is 24 days.

- During the period from September 2003 through August 2004, total precipitation at the Decatur weather station was 103% of normal. Precipitation on-site or in the vicinity was below normal for the months of October and December 2003 and February, April, and July 2004. Precipitation amounts were above normal for the remaining months of the 2003–2004 period.

- In 2004, water levels in wells 4S, 6S, 7S, 8S, 10S, 11S, and 12S satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 5% of the growing season. In addition, wells 6S, 8S, 10S, 11S, and 12S also satisfied the wetland hydrology criteria for greater than 12.5% of the growing season.

- Water-level records for the data loggers RDS1 and RDS2 indicated inundation for elevations below approximately 221.00 m (725.07 ft) and 221.02 m (725.13 ft), respectively, for a duration that satisfied the wetland hydrology criteria for greater than 5% of the growing season. Water-level records for the data loggers RDS1 and RDS2 indicated inundation for elevations below approximately 220.93 m (724.84 ft) and 220.95 m (724.90), respectively, for a duration that satisfied the wetland hydrology criteria for greater than 12.5% of the growing season.

- Limitations of the wetland hydrology determination are as follows:
  - The base photo represents site conditions before the wetland basin was excavated. As such, wet/dry indicators on the photo do not necessarily follow the current patterns that are present on the site.

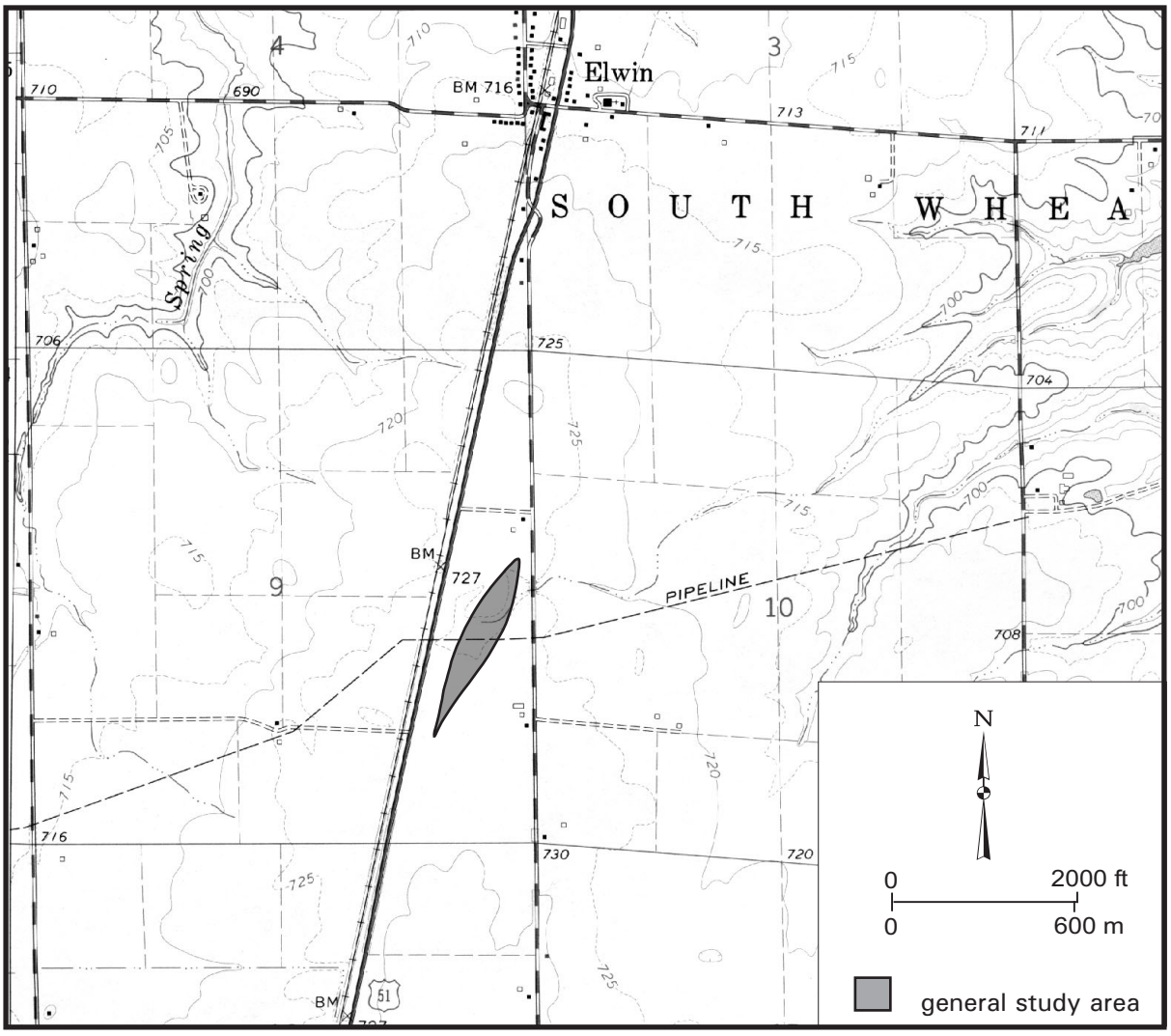
PLANNED FUTURE ACTIVITIES

- The current monitoring scheme will continue until July 2006, or until no longer required by IDOT.

Decatur, U.S. Route 51 Wetland Compensation Site
(FAP 322)

General Study Area and Vicinity

from the USGS Topographic Series, Decatur, IL 7.5-minute Quadrangle (USGS 1967; photorevised 1975)
contour interval is 10 feet

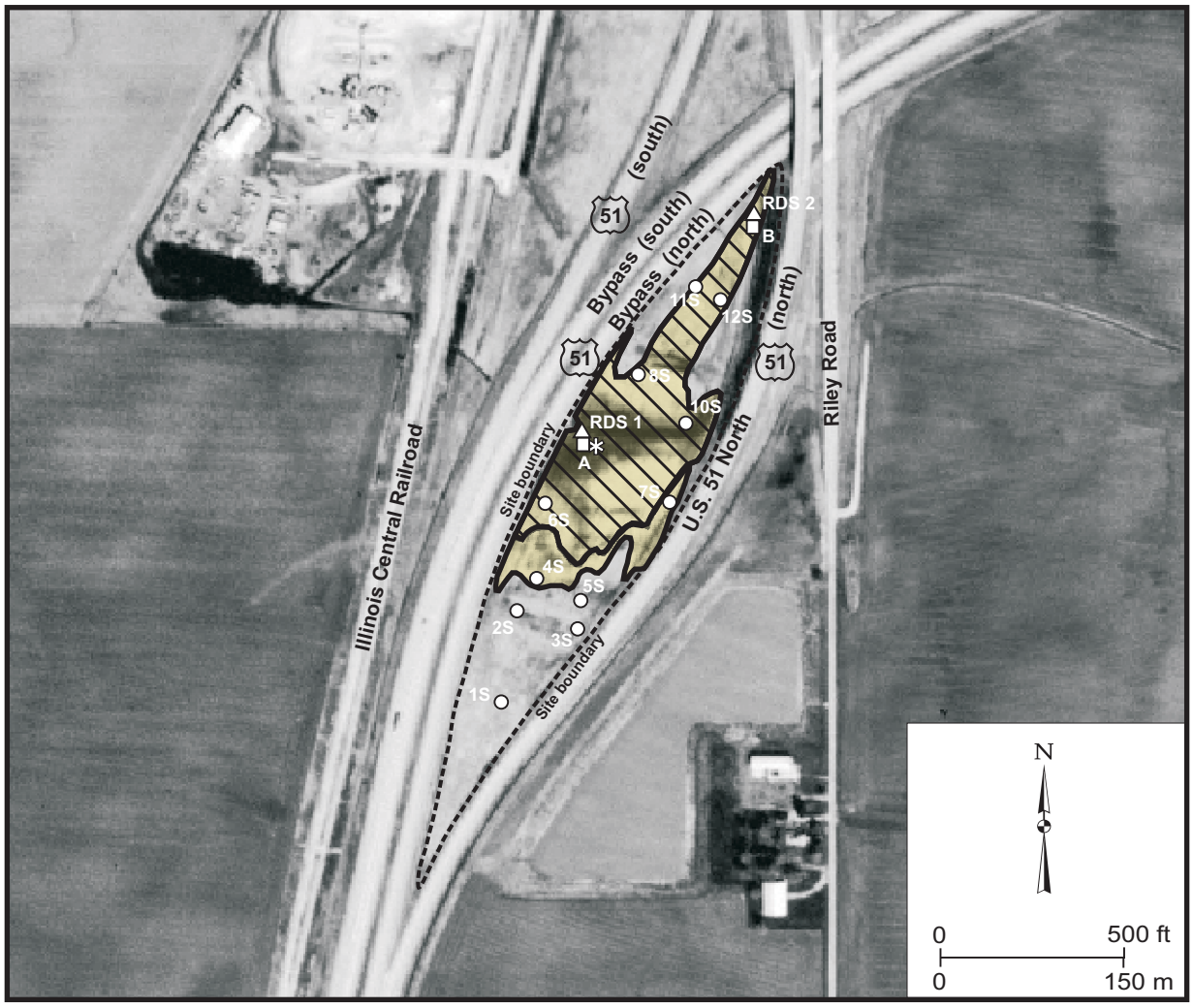


Decatur, U.S. Route 51 Wetland Compensation Site
(FAP 322)

Estimated Areal Extent of 2004 Wetland Hydrology

Based on data collected between September 1, 2003 and September 1, 2004

map based on USGS digital orthophotograph Decatur, SW quarter quadrangle
produced from 4/14/98 aerial photography (ISGS 2002)



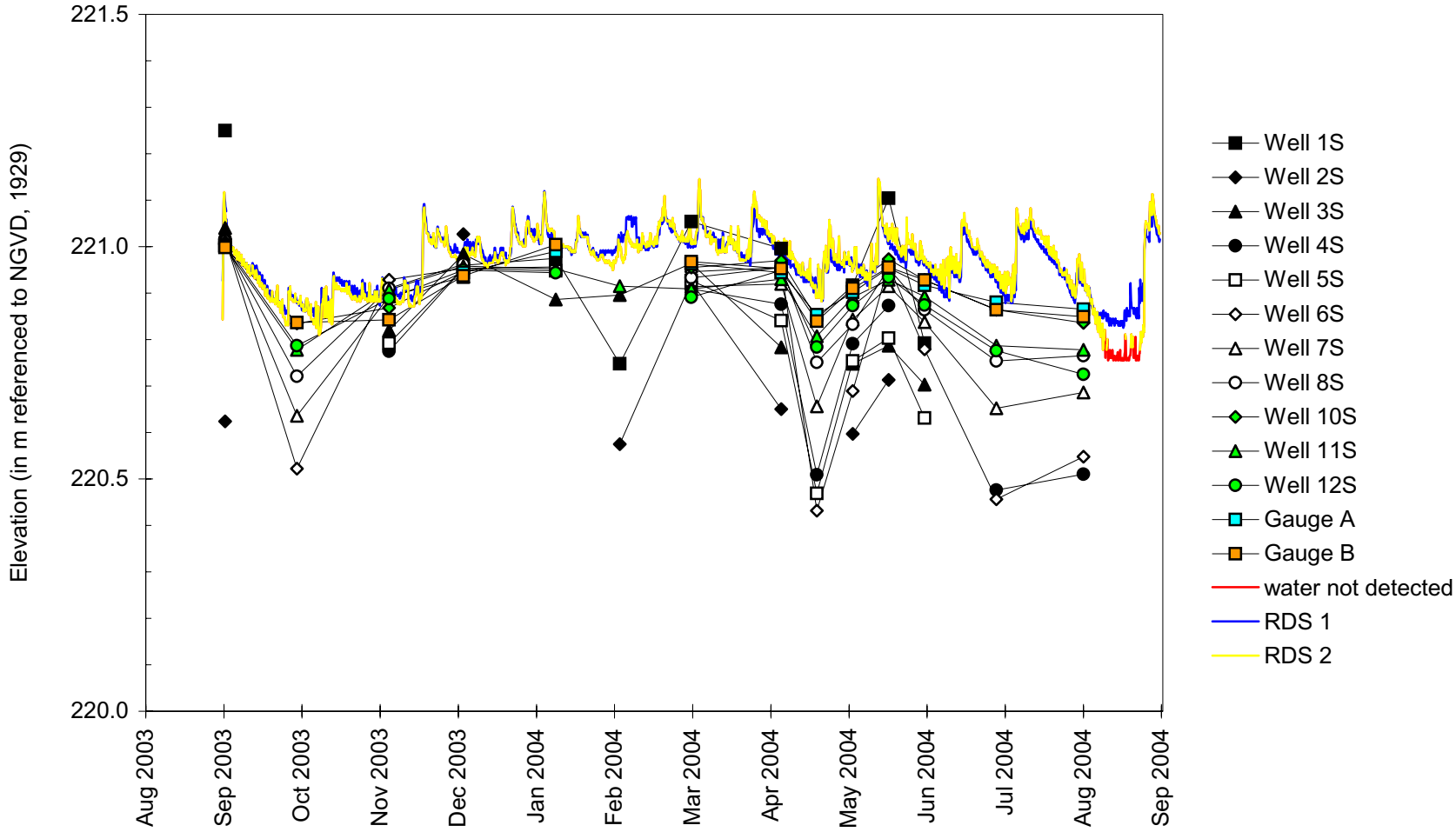
2004 Wetland Hydrology

- >12.5% of the growing season
- >5% of the growing season

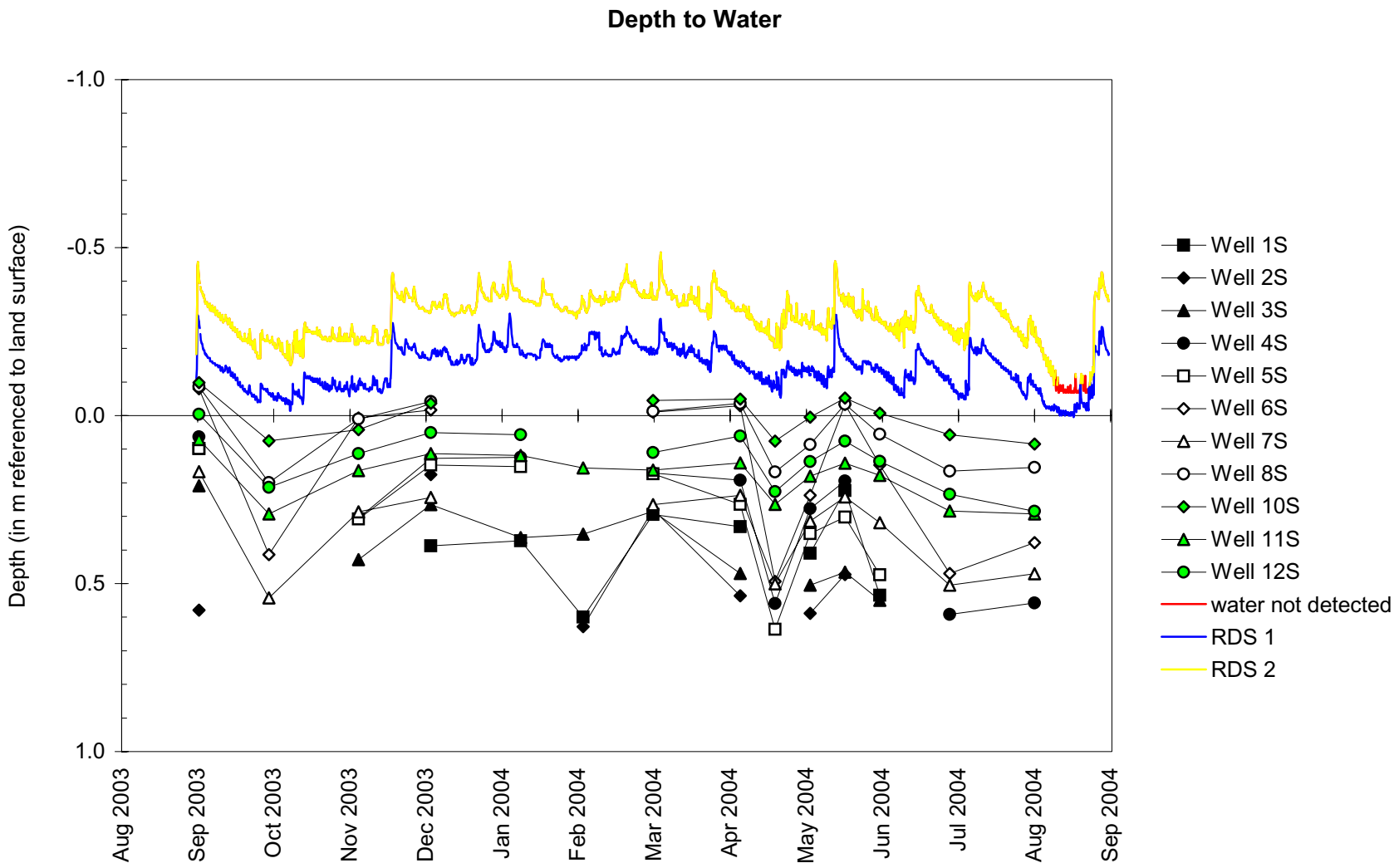
- ○ monitoring well
- □ stage gauge
- △ RDS data logger
- ❄ rain gauge

Decatur, U.S. Route 51 Wetland Compensation Site
September 1, 2003 to September 1, 2004

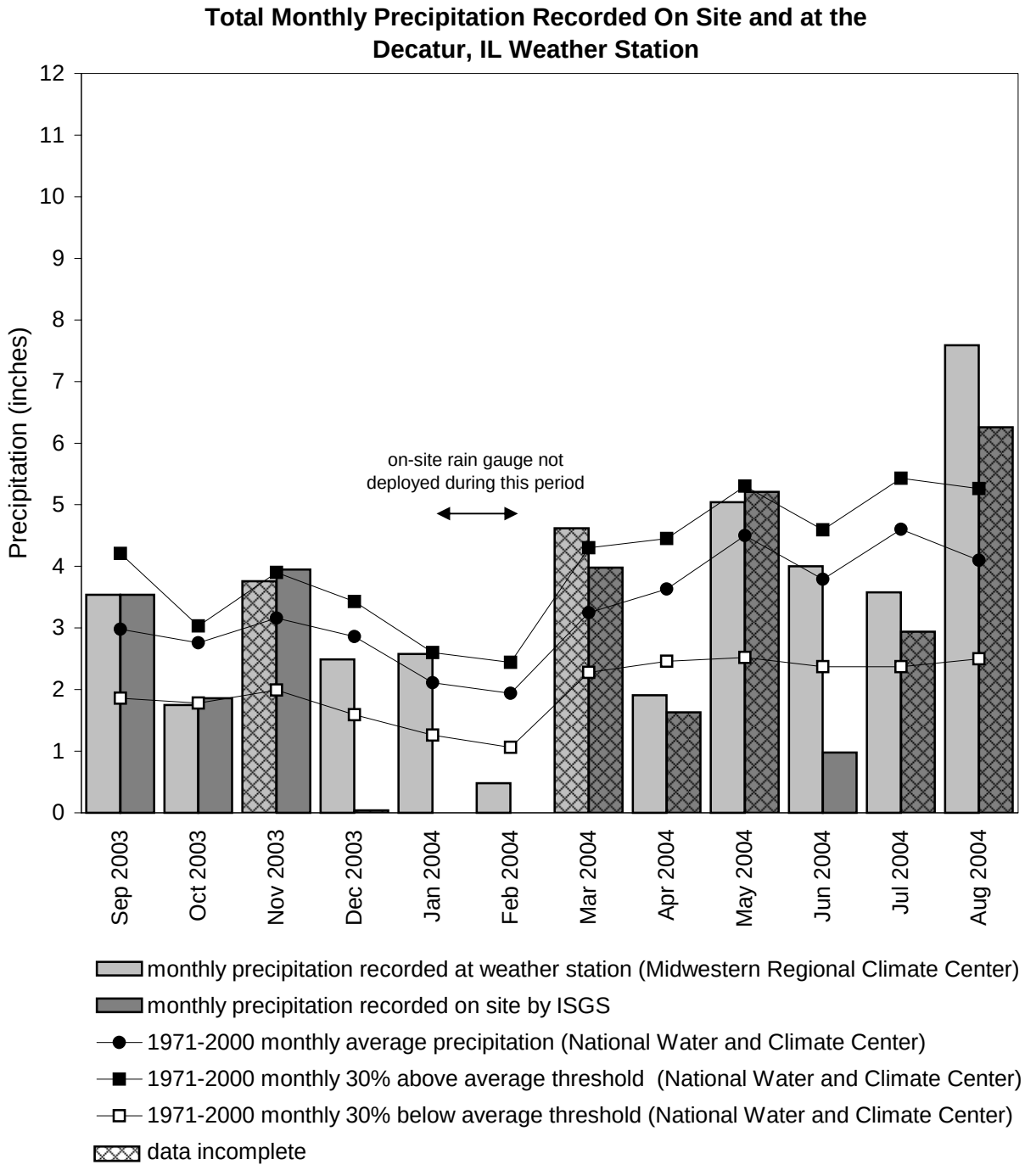
Water-Level Elevation



Decatur, U.S. Route 51 Wetland Compensation Site
September 1, 2003 to September 1, 2004



Decatur Wetland Compensation Site
September 2003 through August 2004



Graph last updated September 30, 2004

GULFPORT **ISGS #29**
WETLAND COMPENSATION SITE
FAP 313
Henderson County, near Gulfport, Illinois
Primary Project Manager: Kelli D. Weaver
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- September 1994: ISGS submitted an Initial Site Evaluation Report to IDOT.
- Fall 1997: IDOT completed excavation of the wetland basin.
- January 1998: ISGS began surface-water elevation monitoring at the site.
- April 1999: ISGS installed soil-zone wells for ground-water elevation monitoring at the site.
- April 2001: ISGS installed additional soil-zone wells for further definition of the extent of wetland hydrology.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area that satisfied wetland hydrology criteria (U.S. Army Corps of Engineers 1987) for greater than 5% of the 2004 growing season was 4.68 ac (1.89 ha). In addition, the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season in 2004 was 3.30 ac (1.34 ha). The site, as defined by construction limits on an IDOT site plan, is 10.54 ac (4.27 ha) in size. These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Burlington, Iowa, is April 7 and the season lasts 206 days; 5% of the growing season is 10 days, and 12.5% of the growing season is 26 days.
- Total precipitation for the monitoring period from September 2003 to August 2004 was 103% of normal. Although spring and summer precipitation totals for the months of March, May, July, and August 2004, were normal to slightly above normal, precipitation totals for April, and June 2004 were much below normal, leading to a drier than normal growing season. Additionally, precipitation levels outside of the growing season were above normal for September, November and December 2003, and below normal for October 2003, and January and February 2004.
- In 2004, water levels in wells 5S, 6VS, 9VS, 10VS, 11VS, and 12VS satisfied wetland hydrology criteria for greater than 5% of the growing season. Only well 10VS had water levels that satisfied wetland hydrology criteria for a period greater than 12.5% of the growing season.
- Surface-water levels measured by the RDS 1 data logger indicated that inundation occurred to an elevation of 157.29 m (516.04 ft) for a duration longer than 5% of the growing season, and to an elevation of 157.26 m (515.94 ft) for a period that exceeded 12.5% of the growing season.

- Limitations of the wetland hydrology determination are as follows:
  - The base map used to determine the acreage of the wetland hydrology is an IDOT construction plan of the proposed wetland basin prior to construction. No as-built topographic survey of the site was provided by IDOT.
  - The area of wetland hydrology was measured planimetrically using the topographic contours at 0.2-m (0.66 -ft) intervals shown on the construction plan. The construction plan was overlain and adjusted to match the digital orthophotography to produce the figure shown in this report.

PLANNED FUTURE ACTIVITIES

- Post-construction monitoring has been performed for a total of seven years at this site. Monitoring will continue through 2004 or until no longer required by IDOT.

Gulfport Wetland Compensation Site

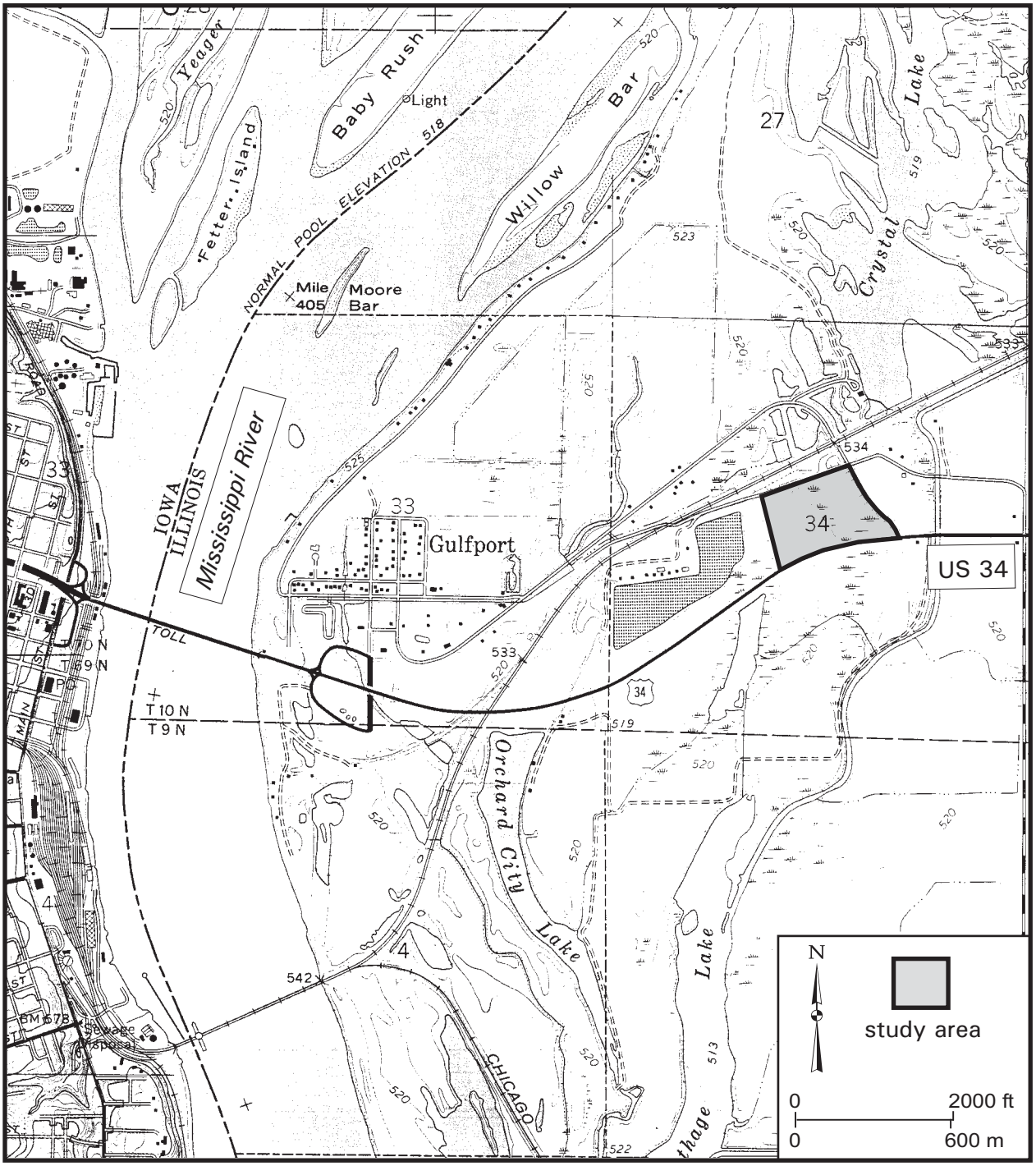
(FAP 313)

General Study Area and Vicinity

from the USGS Topographic Series, Burlington, IA-IL 7.5-minute Quadrangle

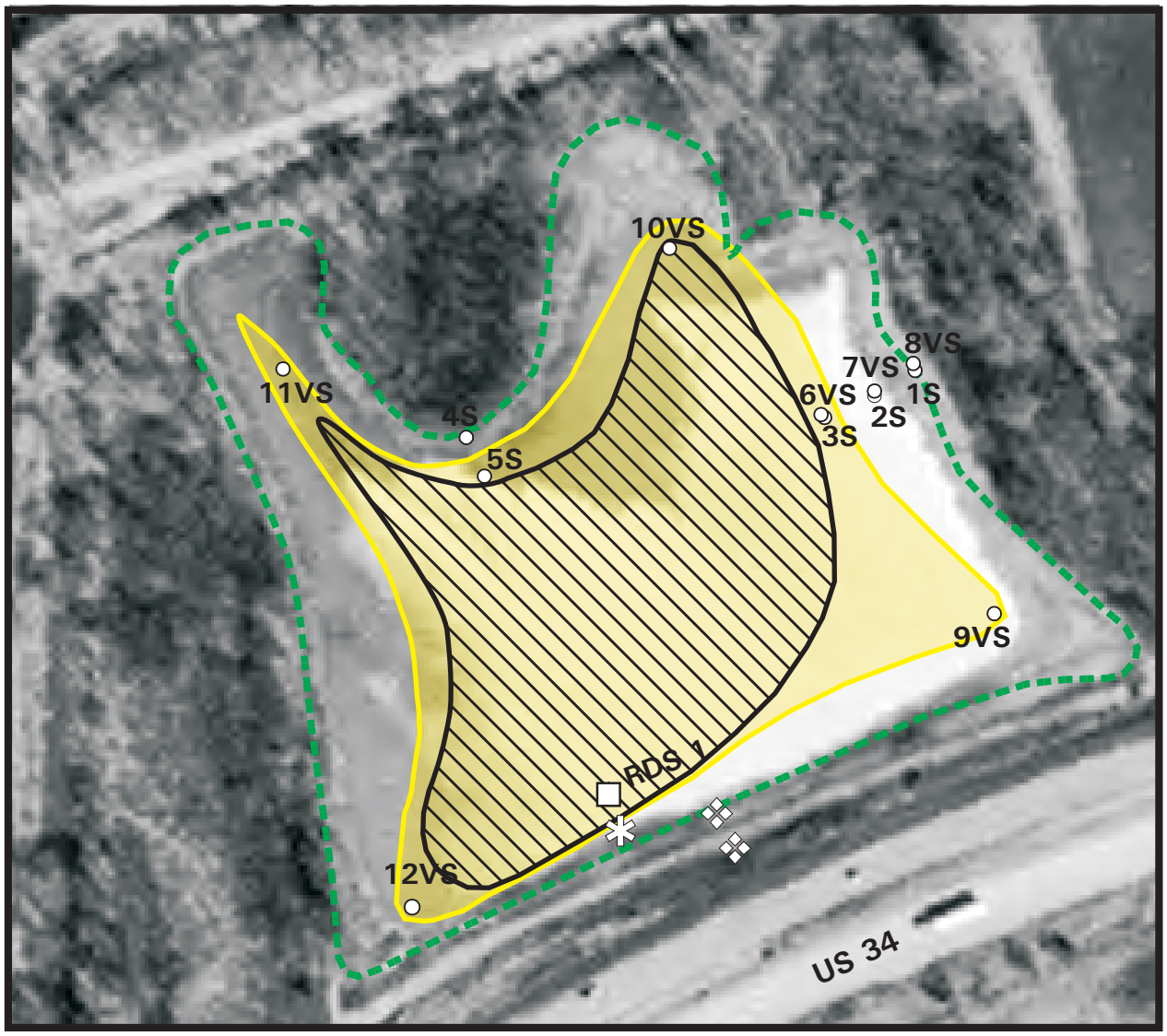
(USGS 1964, photorevised 1976)

contour interval is 10 feet



Gulfport Wetland Compensation Site
(FAP 313)
Estimated Areal Extent of 2004 Wetland Hydrology

based on data collected between September 1, 2003 and September 1, 2004
map based on USGS digital orthophotograph, Burlington NW Quadrangle
produced from aerial photography (ISGS 1999)



○ ISGS monitoring well

◈ ISGS benchmark

✳ rain gauge

□ RDS data logger

▭ estimated areal extent of IDOT excavation

0 — 100 m
0 — 300 ft

N

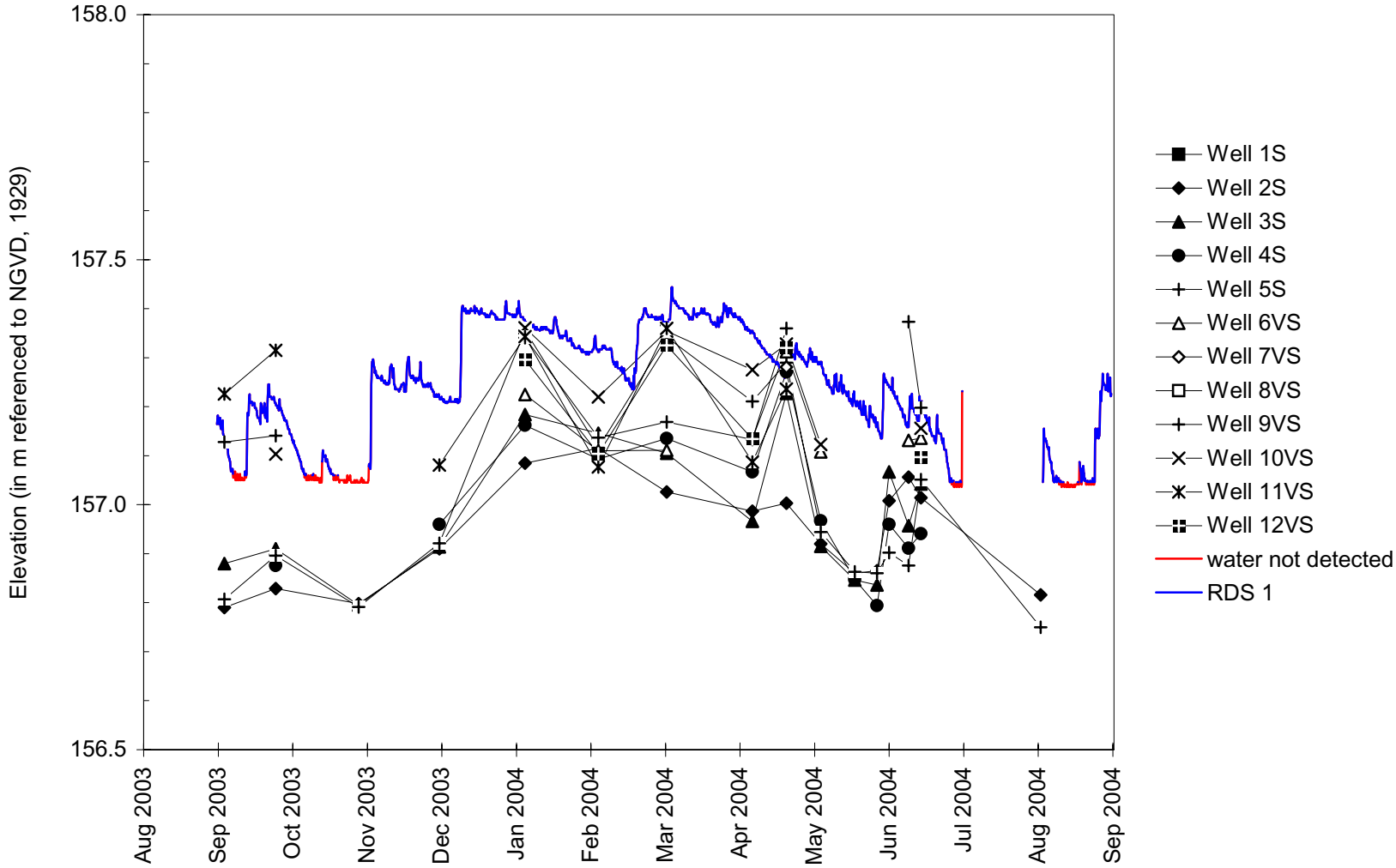
2004 Wetland Hydrology

▨ > 12.5% of the growing season

▭ > 5% of the growing season

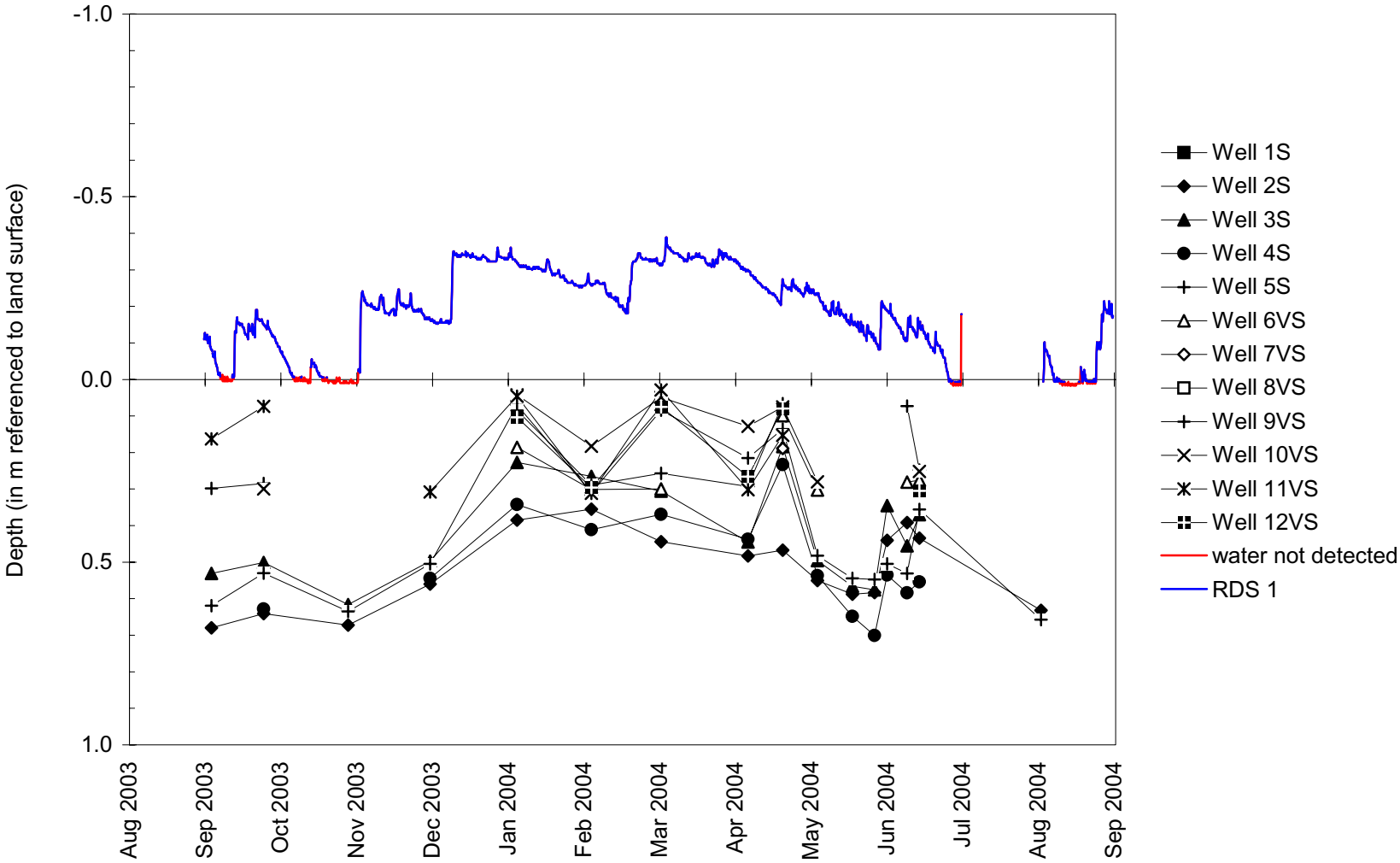
Gulfport Wetland Compenstion Site
September 1, 2003 to September 1, 2004

Water-Level Elevations

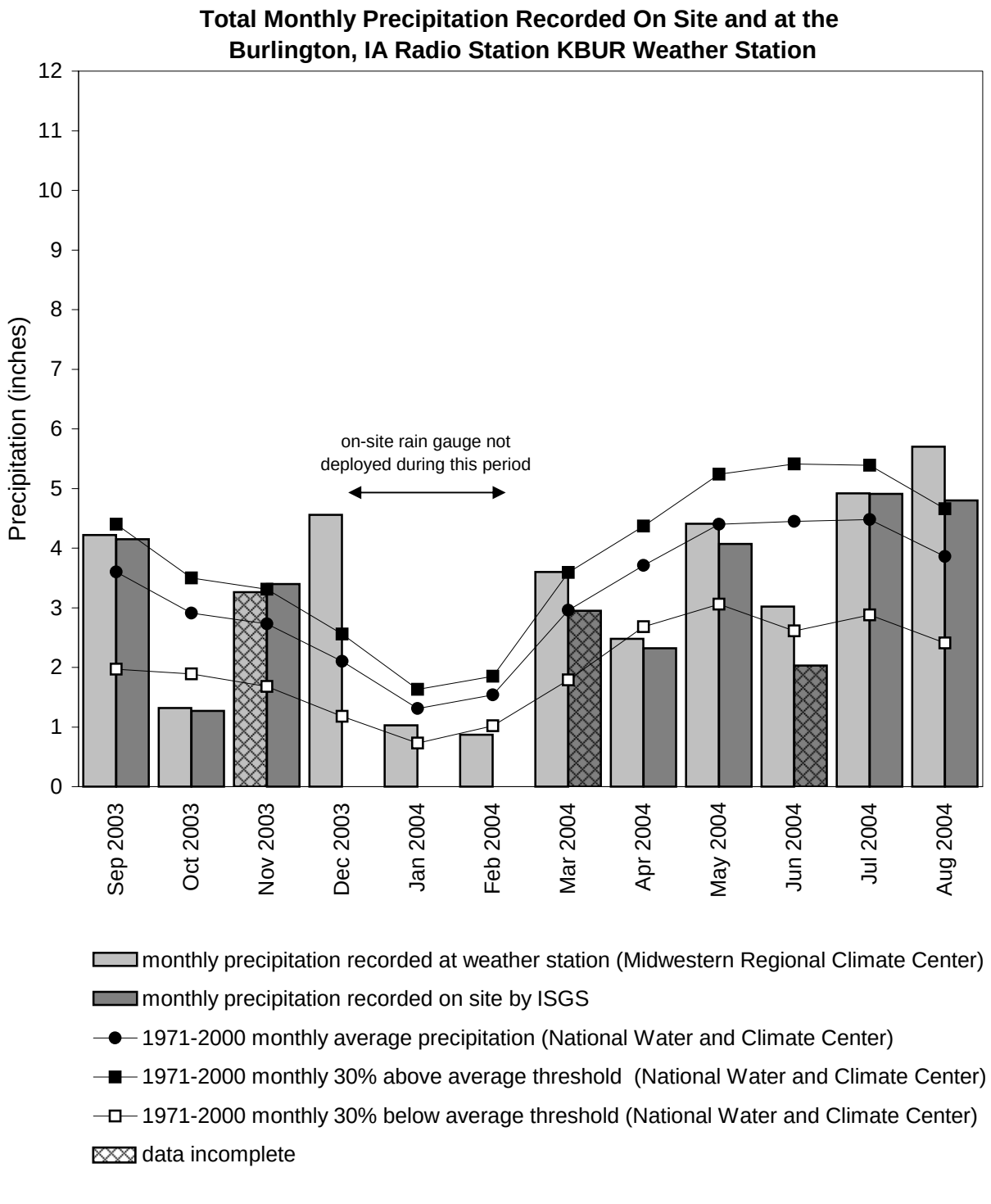


Gulfport Wetland Compenstion Site
September 1, 2003 to September 1, 2004

Depth to Water



Gulfport Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

HANCOCK COUNTY NEAR CARTHAGE **ISGS #42**
POTENTIAL WETLAND COMPENSATION SITE
FAP 315 & 10
Hancock County, near Carthage, Illinois
Primary Project Manager: Steven E. Benton
Secondary Project Manager: not assigned

SITE HISTORY

- March 1997: IDOT tasked ISGS to monitor site.

- February 1998: ISGS installed monitoring wells and began a hydrogeologic characterization of the site.

- August 2000: ISGS presented a summary of hydrologic data gathered to-date and participated in general site discussion at a planning meeting with IDOT and Christopher B. Burke Engineering, Ltd. The meeting included discussion of wetland design concerns and construction ideas for the final compensation plan at the site.

- August 2004: A Level II hydrogeologic characterization report was submitted to IDOT.

WETLAND HYDROLOGY CALCULATION FOR 2004

The area of the site that satisfied wetland hydrology criteria (U.S. Army Corps of Engineers 1987) for more than 5% of the 2004 growing season was estimated to be 12.0 ac (4.8 ha) out of an area of 44.3 ac (17.9 ha). No portion of the site satisfied wetland hydrology criteria for more than 12.5% of the growing season. These estimates are based on the following factors:

- According to the Midwestern Climate Center, the median date that the growing season begins in La Harpe is April 9 and the season lasts 196 days; 12.5% of the growing season is 25 days and 5% of the growing season is 10 days.

- Precipitation recorded at Bentley, IL during the monitoring period was 35.61 inches, exclusive of August 2004 which was not available. However, the on-site rain gauge recorded 7.7 inches in August, which, combined with the Bentley data, gives a total of 43.31 inches (117% of normal) during the monitoring period. The wettest month during the period as recorded at Bentley, IL was September 2003 (178% of normal), and the driest month was February 2004 (41% of normal). There were no extended periods greater than 2 months of either above or below normal precipitation, though only one month (March 2004) was near or above normal in the period from January 2004 to April 2004.

- In 2004, water levels measured in wells 1U, 2U, 4U, 5U, 7S, 8U, 9S, 11S, 12S, and 16S satisfied the wetland hydrology criteria for more than 5% of the growing season. No wells satisfied the wetland hydrology criteria for more than 12.5% of the growing season.

- Surface-water elevations measured at gauges RDS1 and RDS2 reveal that inundation occurred for more than 5% of the growing season in June 2004. At RDS1, inundation to an elevation greater than 165.23 m occurred for 15 days (7.6% of the growing season) in June, while at RDS2, inundation to an elevation greater than 165.61 m occurred for 12 days (6.2% of the growing season) in June. At RDS3, inundation did not occur for any significant

period of time. Inundation for more than 12.5% of the growing season did not occur in 2004.

- Limitations of the wetland hydrology determination are as follows:
  - The precipitation total for this reporting period does not include data from August 2004.

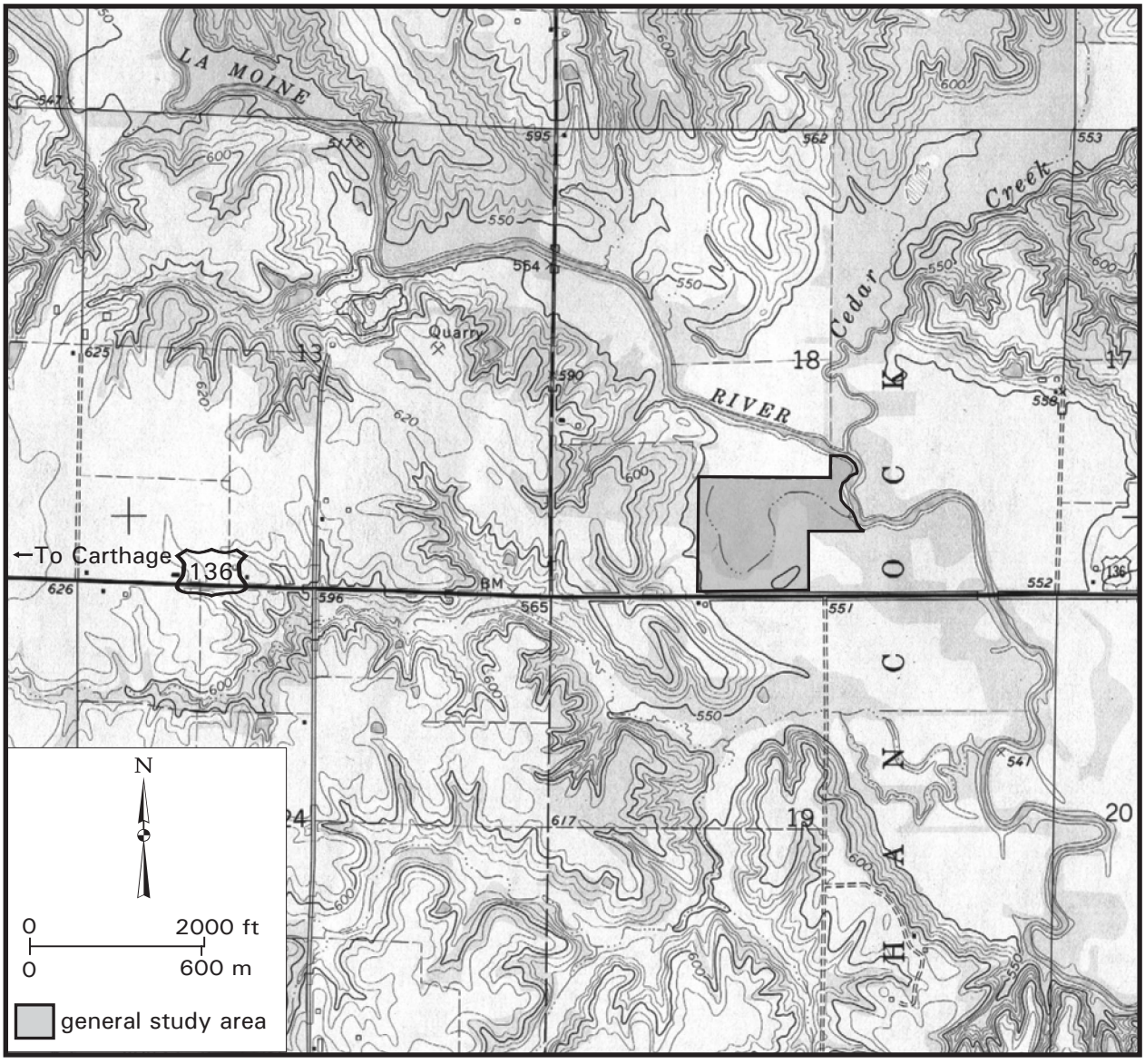
PLANNED FUTURE ACTIVITIES

- Monitoring of the site will continue until no longer required by IDOT.

Hancock County near Carthage
Potential Wetland Compensation Site
(FAP 315 and FAP 10)

General Study Area and Vicinity

from the USGS Topographic Series, Carthage East, IL 7.5-minute Quadrangle (USGS 1974)
contour interval is 10 feet



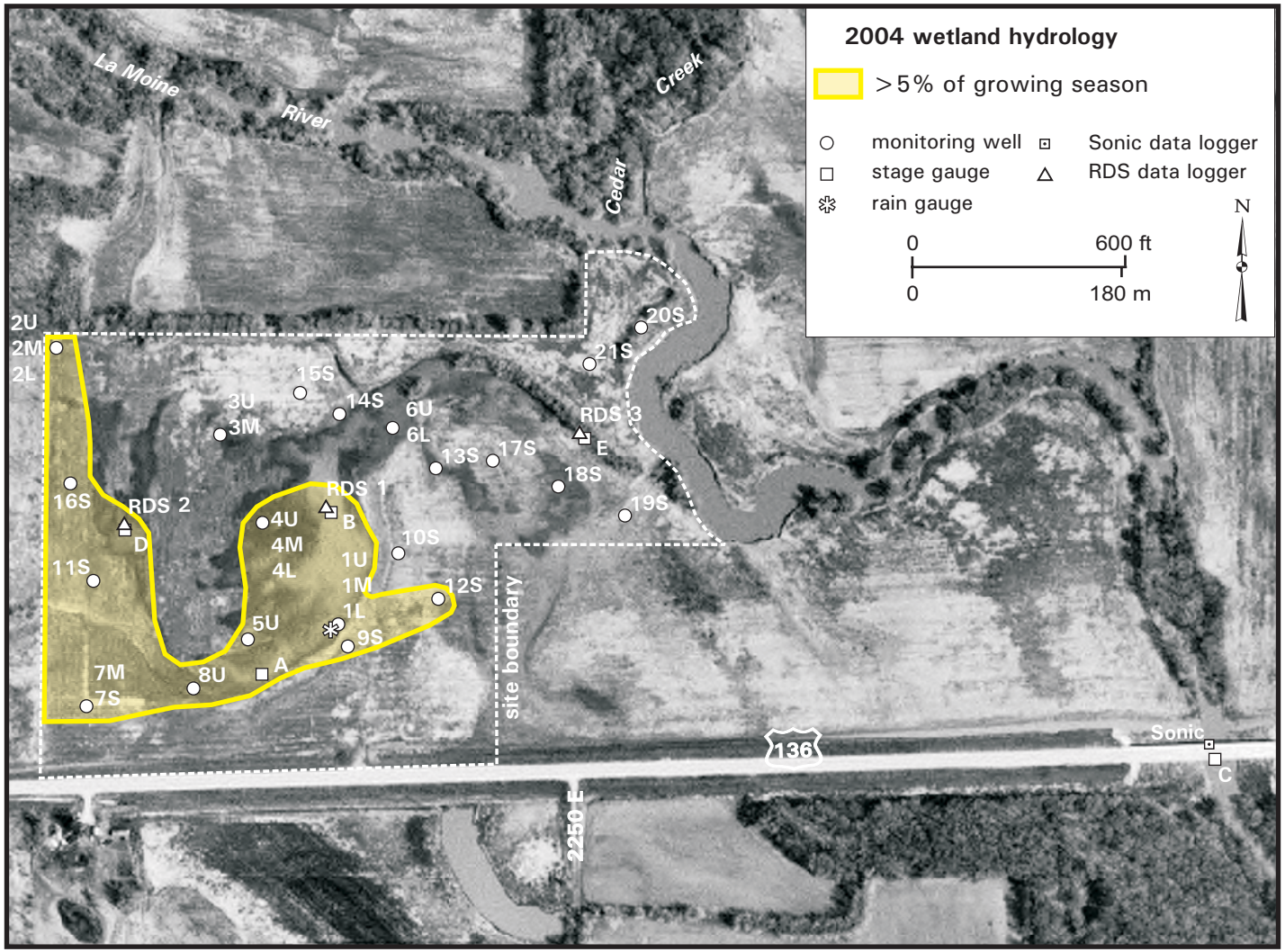
Hancock County near Carthage Potential Wetland Compensation Site (FAP 315 and FAP 10)

Extent of 2004 Wetland Hydrology

based on data collected between September 1, 2003 and September 1, 2004

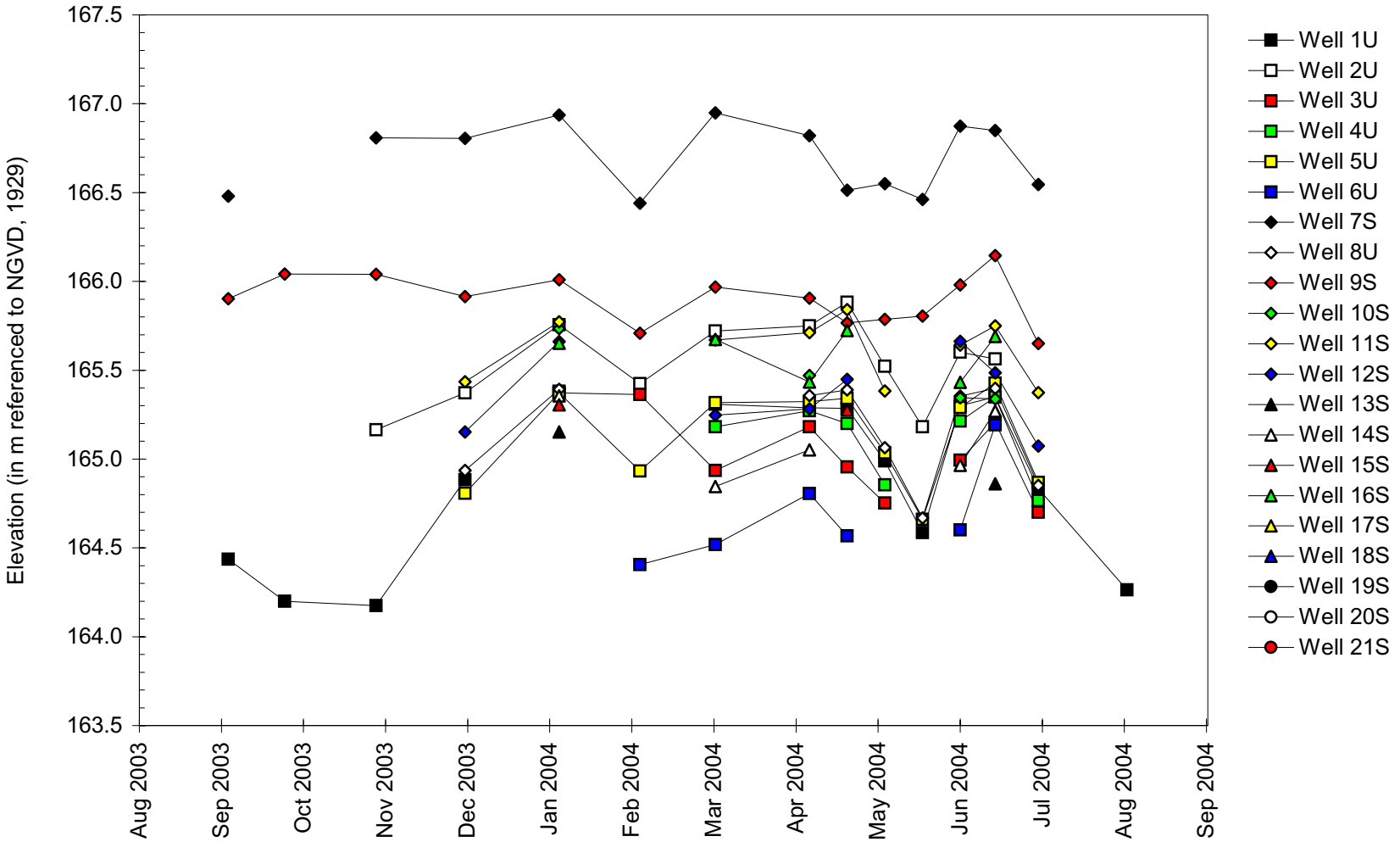
map based on USGS digital orthophotograph Carthage East, SE quarter quadrangle

produced from 4/14/98 aerial photography (ISGS 2002)



Hancock County near Carthage Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

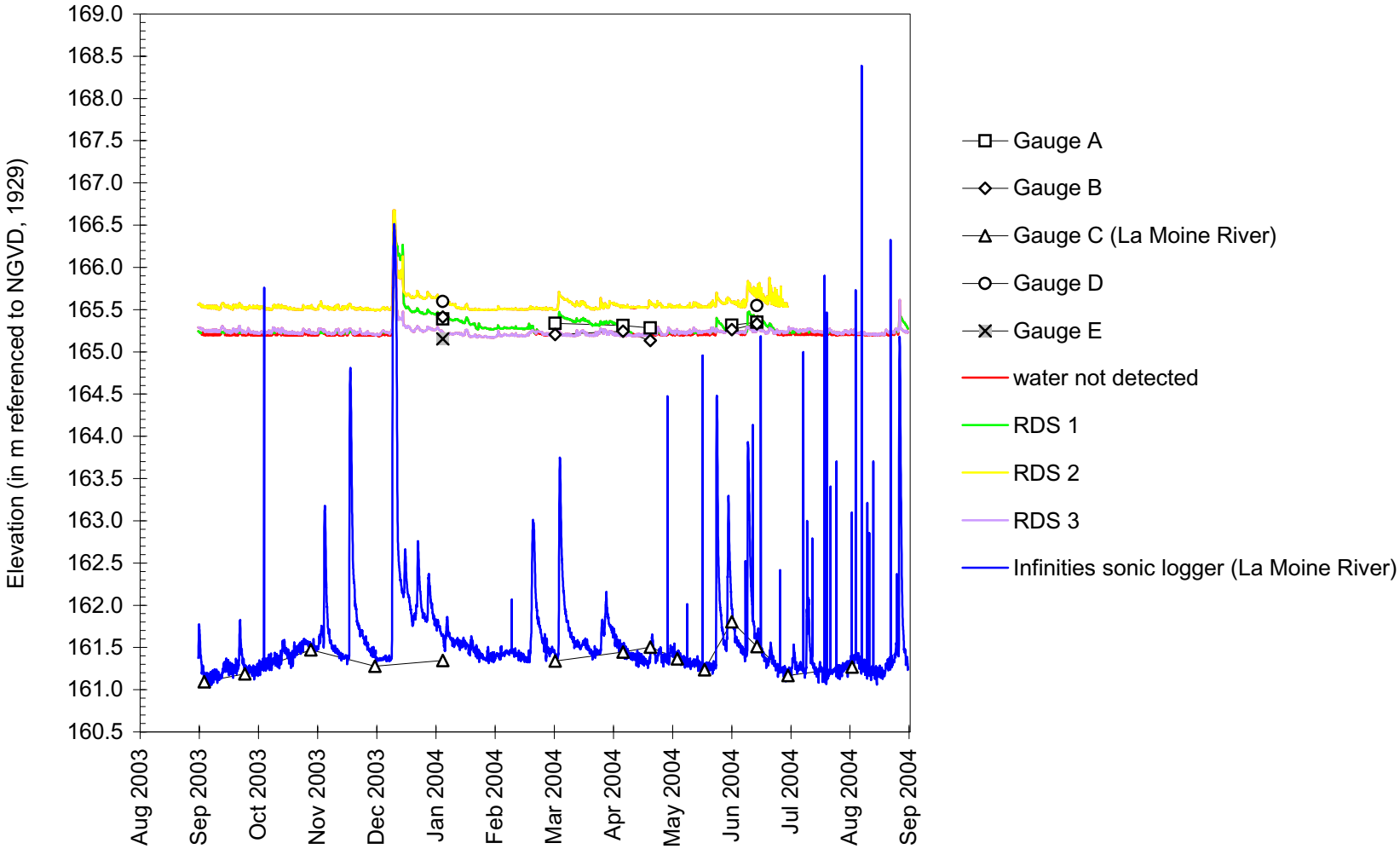
Water-Level Elevations
in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria



Hancock County near Carthage Potential Wetland Compensation Site

September 1, 2003 to September 1, 2004

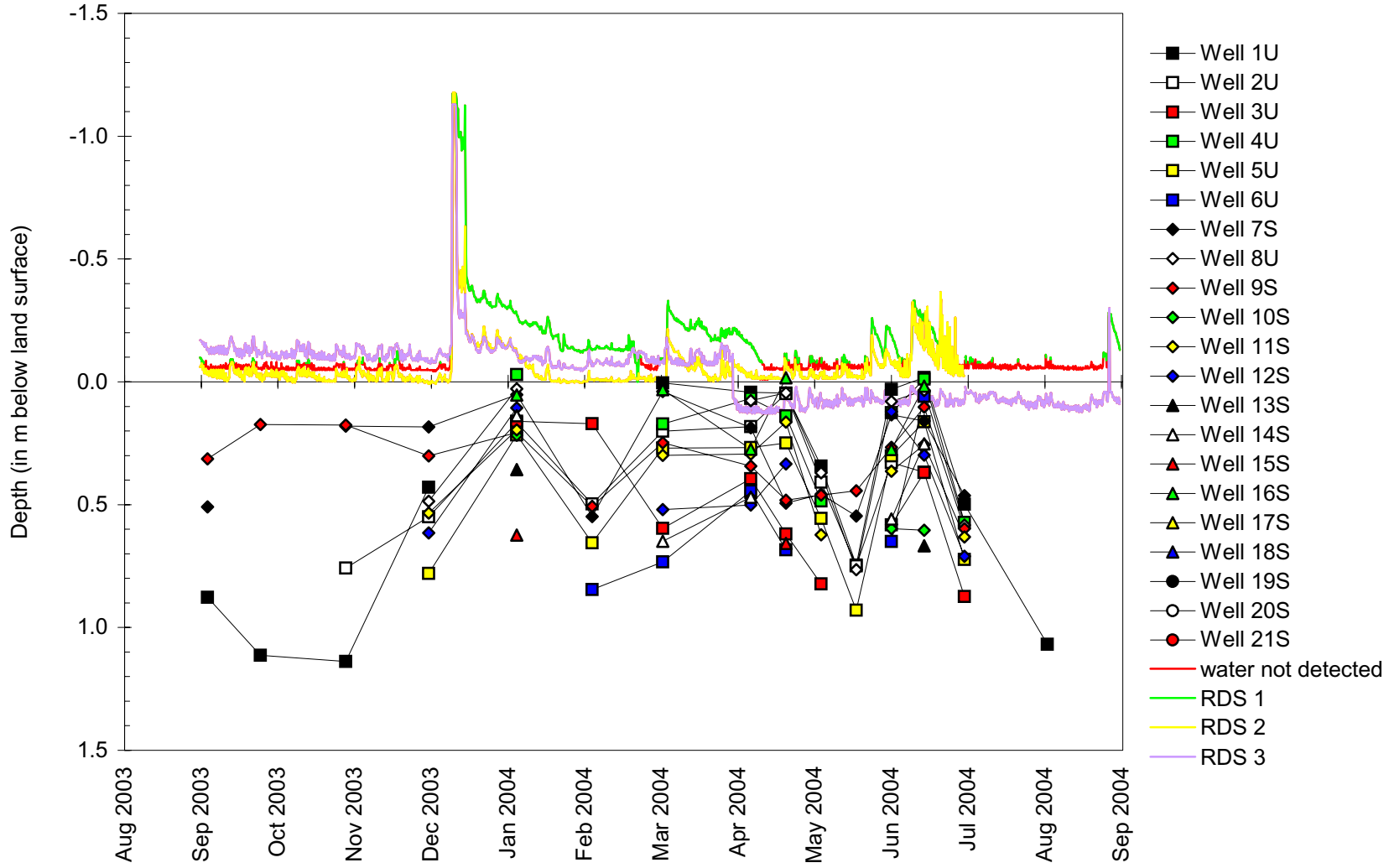
Water-Level Elevations on Stage Gauges and at Data Loggers



Hancock County near Carthage Potential Wetland Compensation Site

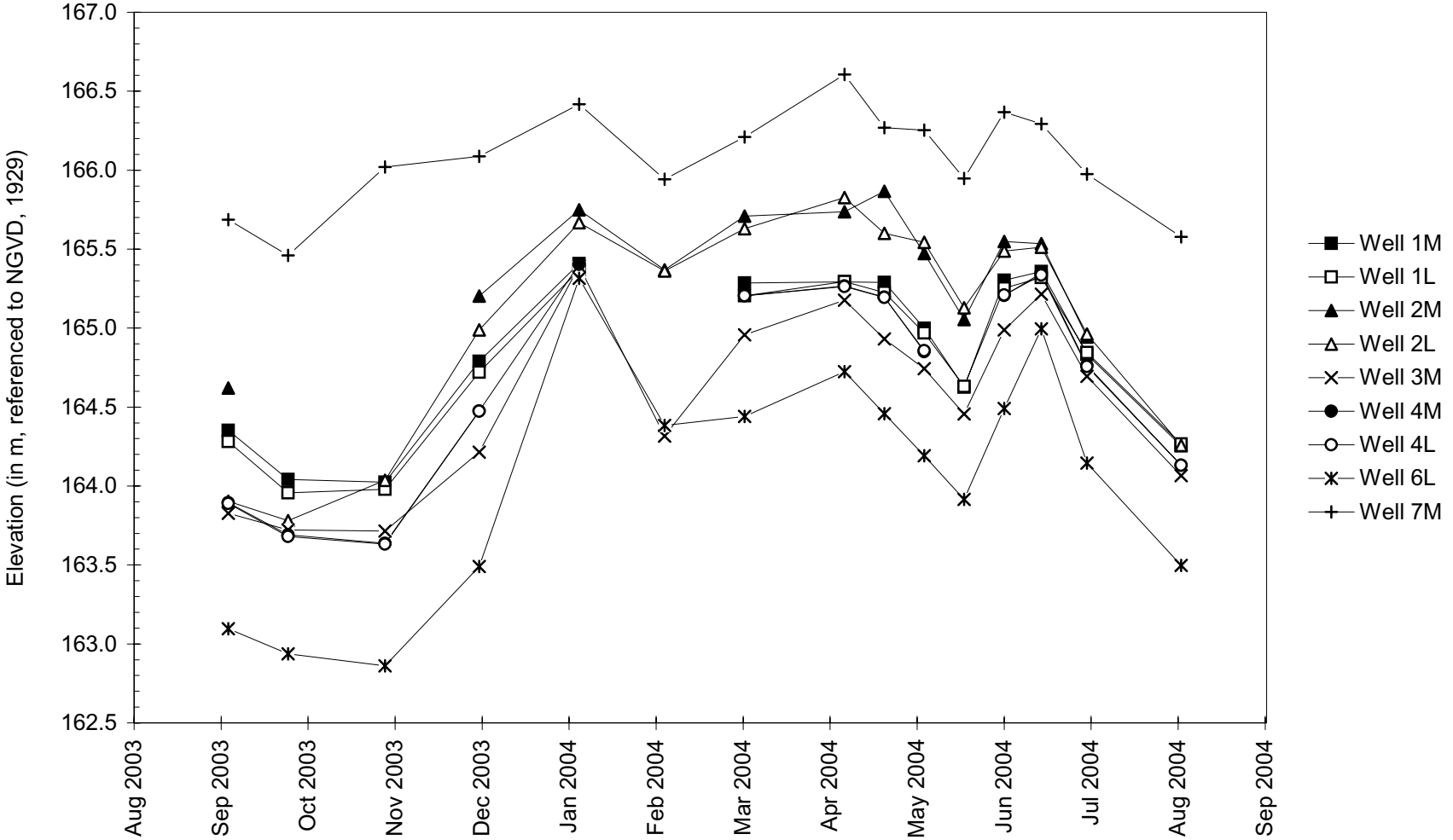
September 1, 2003 to September 1, 2004

Depth to Water
in Wells Used to Determine Areas Satisfying Wetland Hydrology Criteria

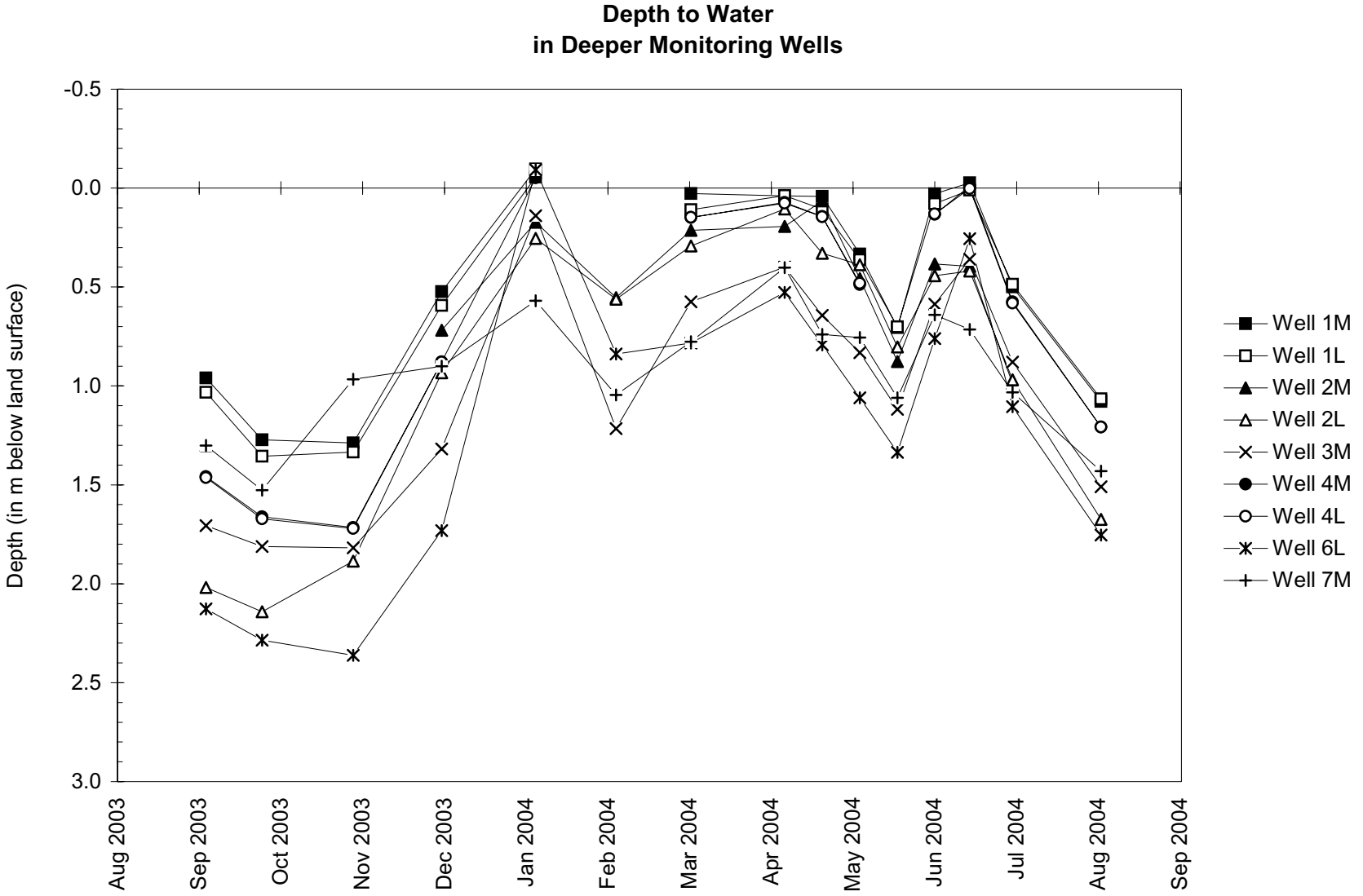


Hancock County near Carthage Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Deeper Monitoring Wells

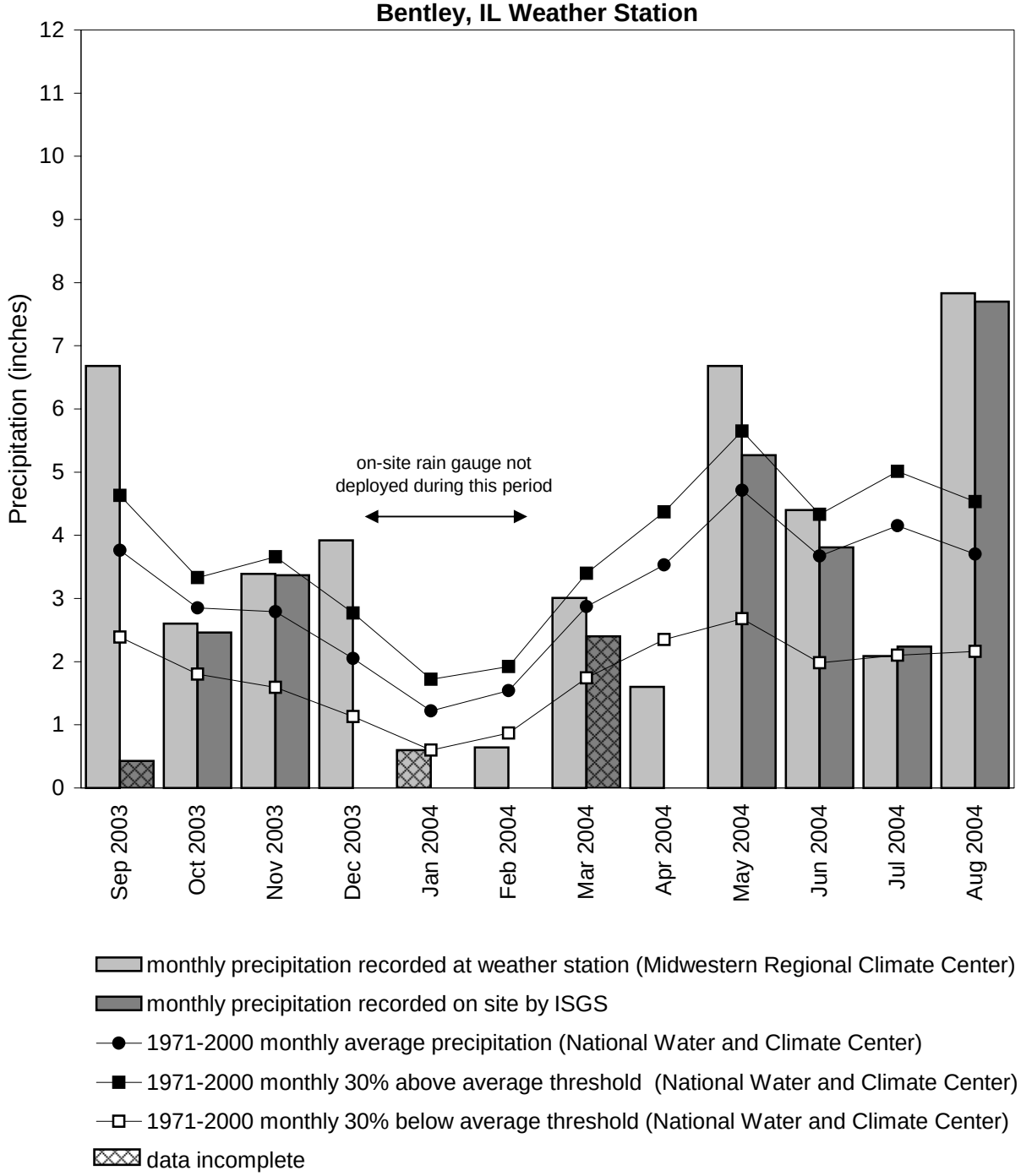


Hancock County near Carthage Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004



Hancock County near Carthage
Potential Wetland Compensation Site
September 2003 through August 2004

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



Graph last updated October 1, 2004

FORMER ECKMANN AND BISCHOFF PROPERTIES **ISGS #43**
POTENTIAL WETLAND COMPENSATION SITE
FAP 14
Madison County, near Collinsville, Illinois
Primary Project Manager: Bonnie J. Robinson
Secondary Project Manager: not assigned

SITE HISTORY

- November 1994: The ISGS submitted an Initial Site Evaluation Report to IDOT.
- February and March 1997: A hydrogeologic characterization of the site was initiated with the installation of monitoring wells and staff gauges.
- October 1998: A draft interim Level II hydrogeologic characterization report was submitted to IDOT.
- March, April, and July 2000: Four soil-zone monitoring wells were installed in the Eckmann property and nine soil-zone monitoring wells were installed in the former Bischoff property.
- September 2003: In conjunction with the INHS, a letter was submitted to IDOT identifying the 42.6 ac (17.2 ha) of the site that met the criteria for wetland following 6 years of monitoring.
- August 2004: IDOT suspended site monitoring.

WETLAND HYDROLOGY CALCULATION FOR 2004

The area that satisfied the criteria for wetland hydrology for greater than 5% of the growing season was estimated to be 58.0 ac (23.5 ha), whereas the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season in 2004 was estimated to be 55.8 ac (22.6 ha). The estimates for 2004 are based on the following factors.

- According to the Midwestern Climate Center, the median length of the growing season, as measured at the Belleville Weather Station, is 203 days (April 5 to October 25). Therefore, 5% of the growing season is 10 days and 12.5% of the growing season is 25 days.
- Precipitation during the monitoring period was 125% of normal. Despite above normal precipitation in September, dry conditions persisted onsite until above normal precipitation occurred in November 2003. Low evapotranspiration rates kept water levels reasonably stable throughout the winter despite precipitation values alternating between above and below normal. Below normal precipitation in April 2004 (34% of normal) caused a drop in water levels onsite. Abnormally high precipitation in May 2004 (210% of normal) resulted in water levels rebounding, then gradually falling with below average precipitation in June. High summer evapotranspiration rates meant that the heavy rains in July only resulted in short-lived increases in water levels.
- In 2004, water levels measured in all wells, with the exception of 17S and 18S along the eastern flank of the levee, satisfied the criteria for wetland hydrology for greater than 5% of the growing season. Water levels in 16S were within 30 cm (1 ft) of land surface for a

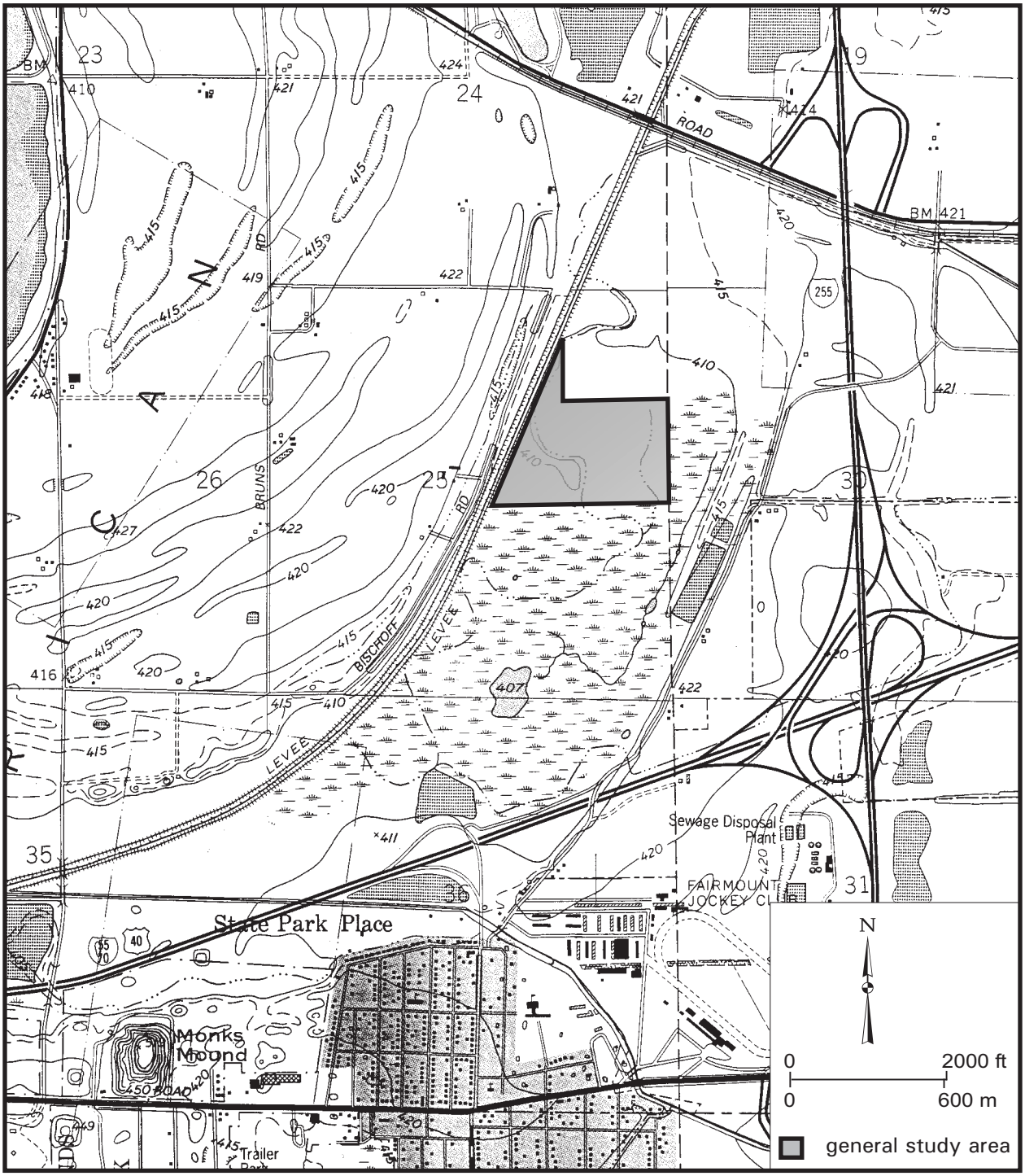
period greater than 5%, but less than 12.5% of the growing season while all the other wells also met the criteria for wetland hydrology for greater than 12.5% of the growing season.

- Limitations of the wetland hydrology determination are as follows:
  - The area meeting wetland hydrology criteria on the former Bischoff property was derived from a mathematical interpolation of the shallow ground-water surface derived from water level readings at the monitoring wells.

Former Eckmann and Bischoff Properties
Potential Wetland Compensation Site
(FAP 14)

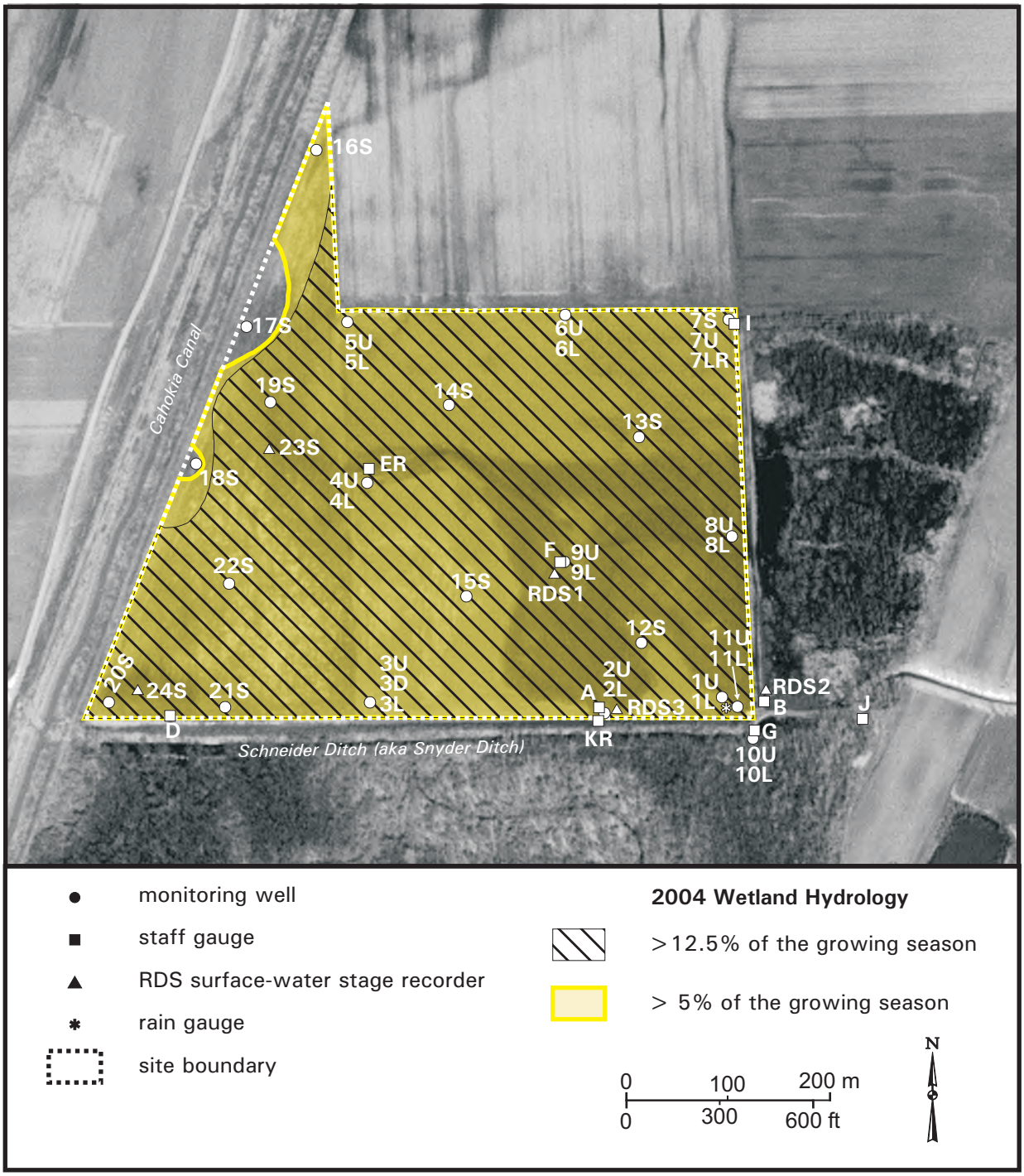
Study Area and Vicinity

from the USGS Topographic Series, Monks Mound IL 7.5-minute Quadrangle (USGS 1954, revised 1993)
contour interval is 10 feet



Former Eckmann and Bischoff Properties
Potential Wetland Compensation Site
(FAP 14)
Estimated Areal Extent of 2004 Wetland Hydrology
based on data collected between September 1, 2003 and September 1, 2004

map based on USGS digital orthophotograph, Monk's Mound, SE quarter quadrangle
produced from 4/2/98 aerial photography (ISGS 2000)



- monitoring well
- staff gauge
- RDS surface-water stage recorder
- rain gauge
- site boundary

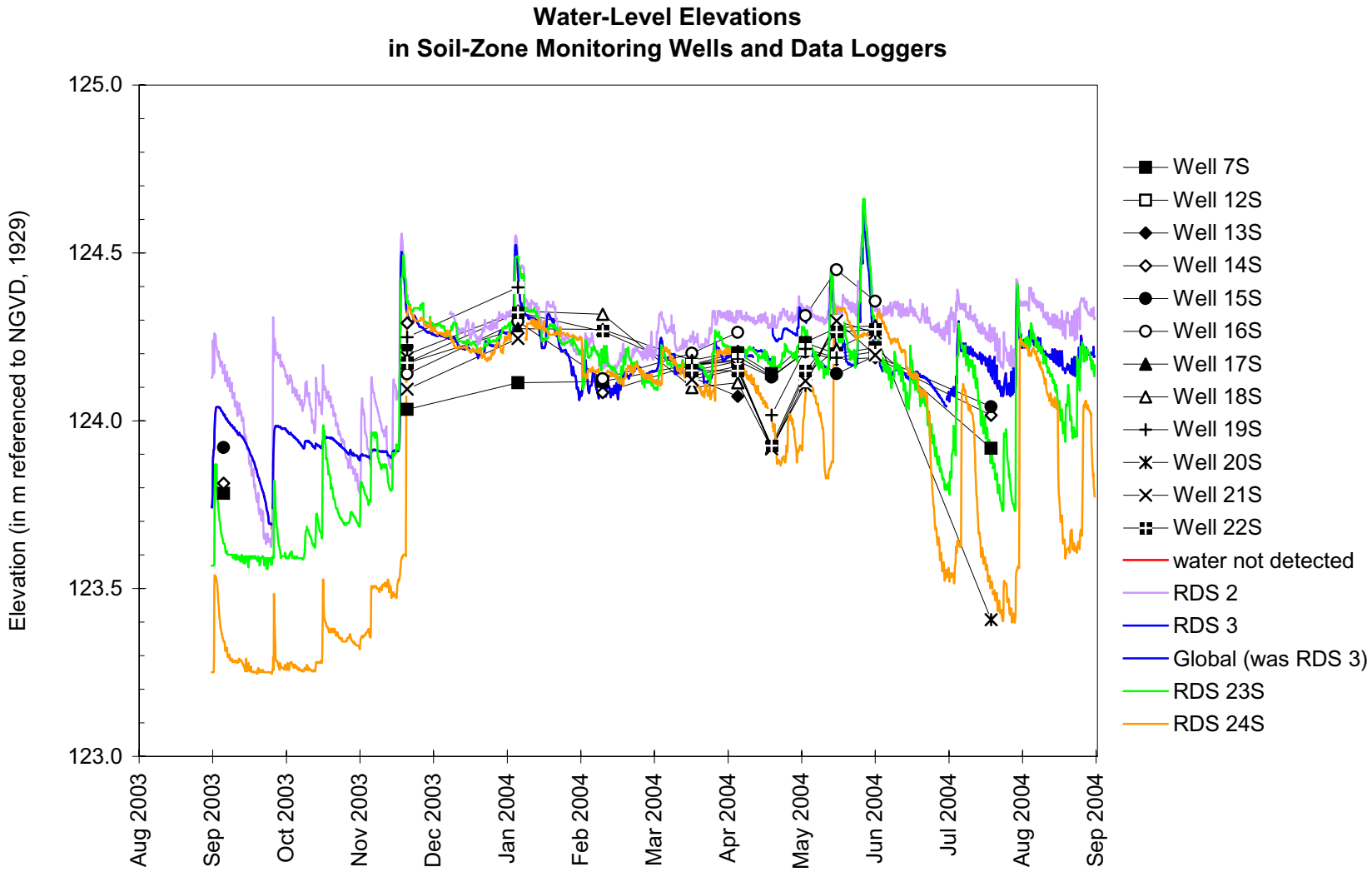
2004 Wetland Hydrology

- >12.5% of the growing season
- > 5% of the growing season

0 100 200 m
0 300 600 ft

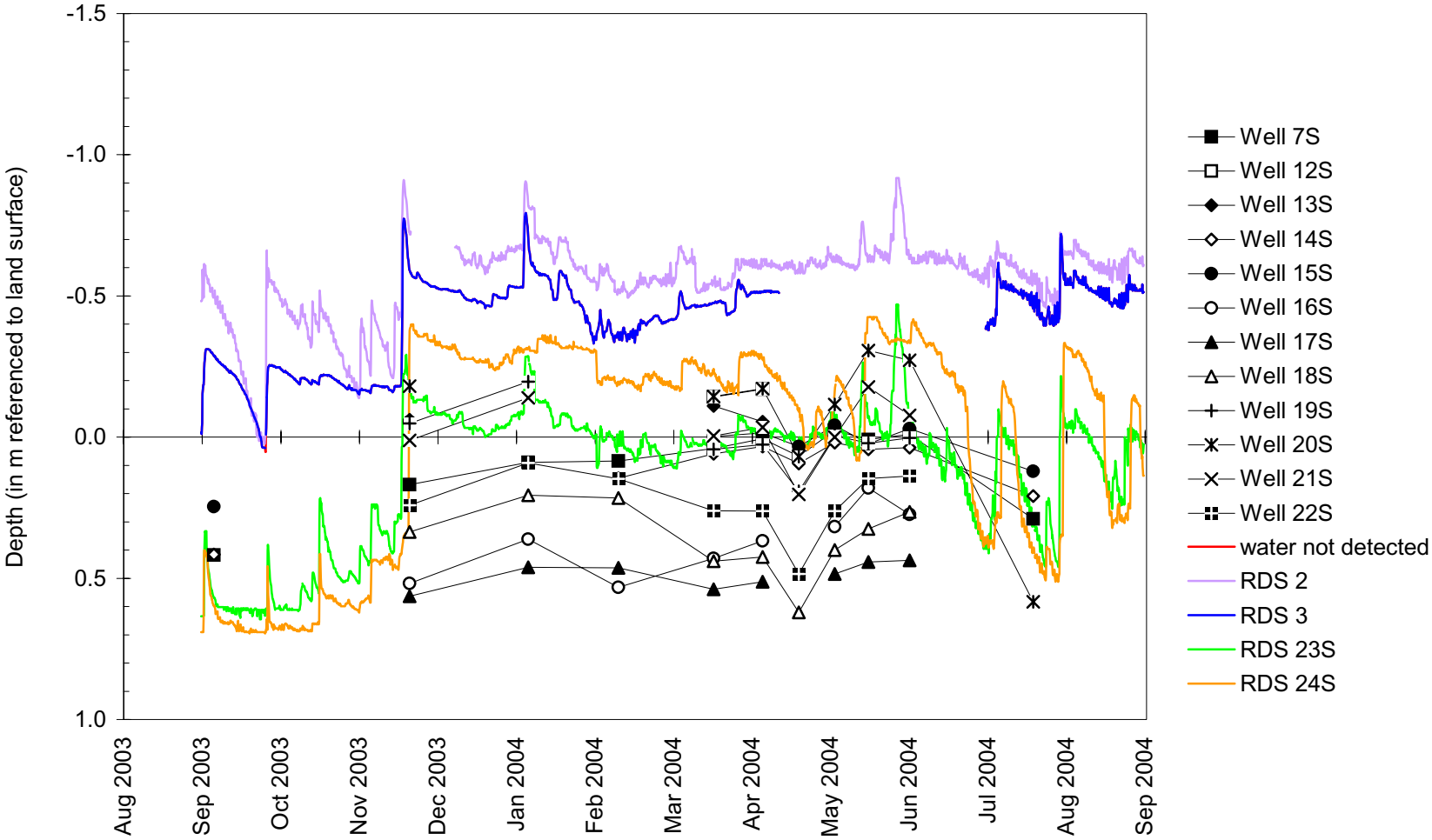
N

Former Eckmann and Bischoff Properties Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

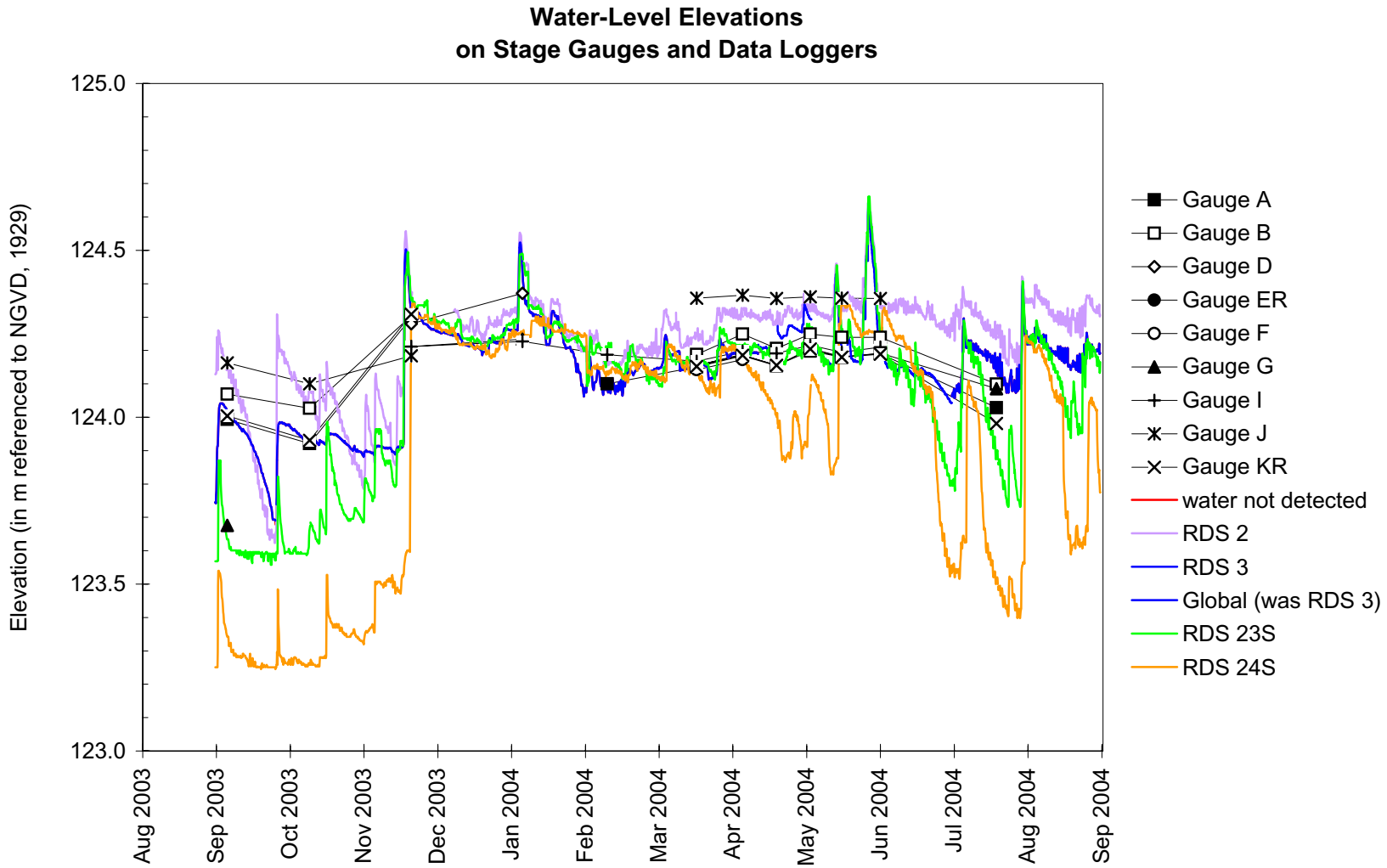


Former Eckmann and Bischoff Properties Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

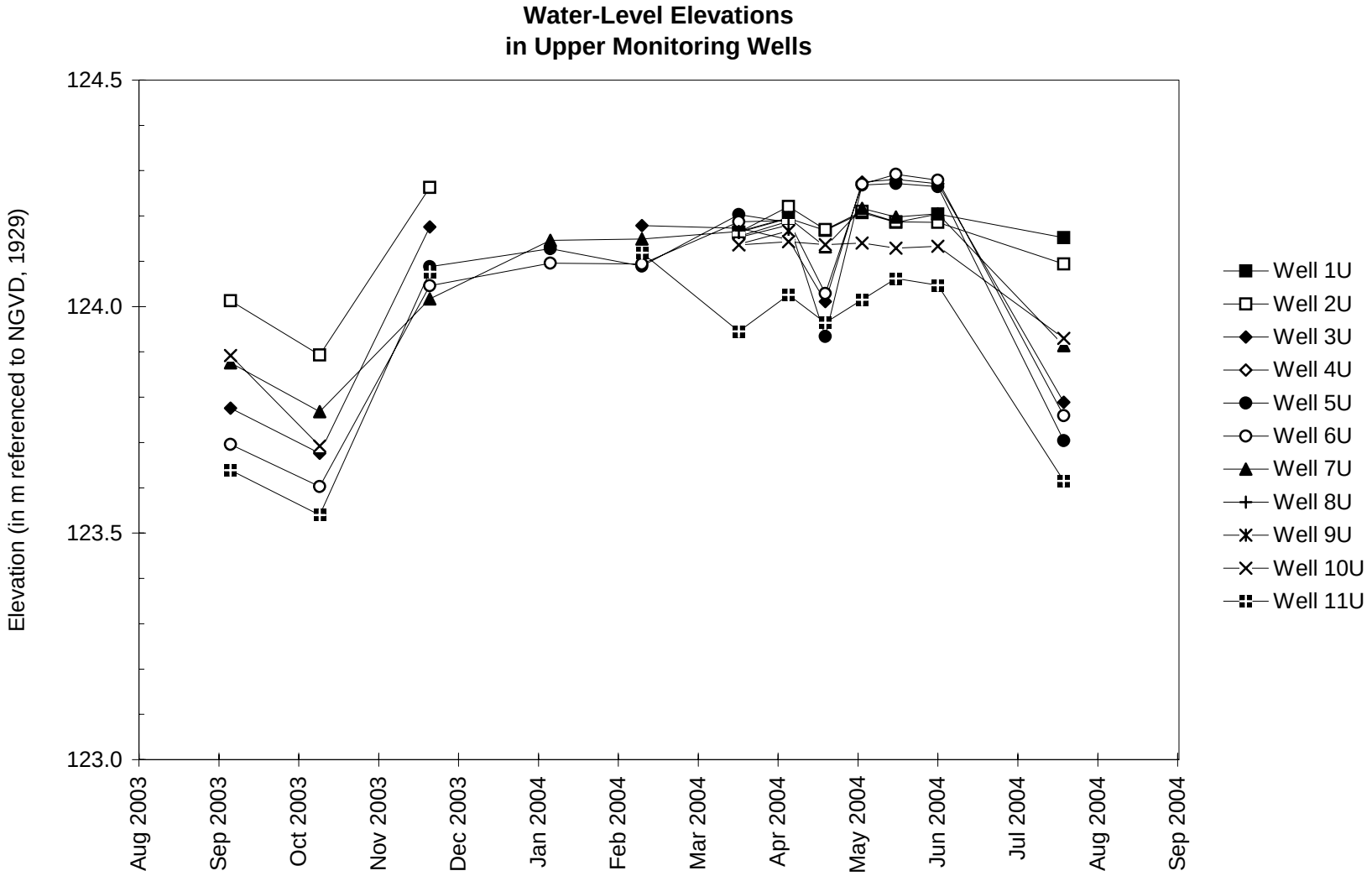
Depth to Water
in Soil-Zone Monitoring Wells and Data Loggers



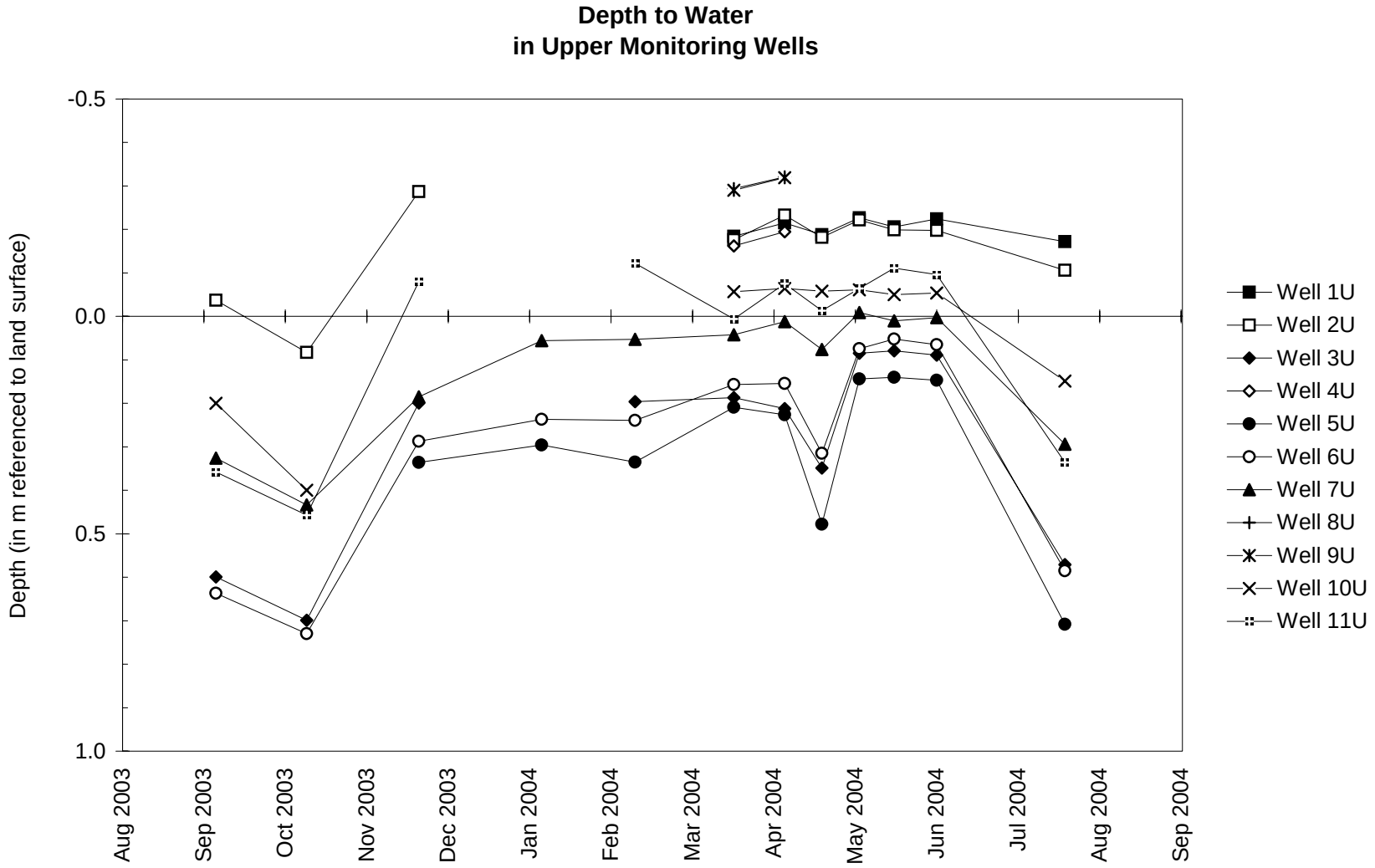
Former Eckmann and Bischoff Properties Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004



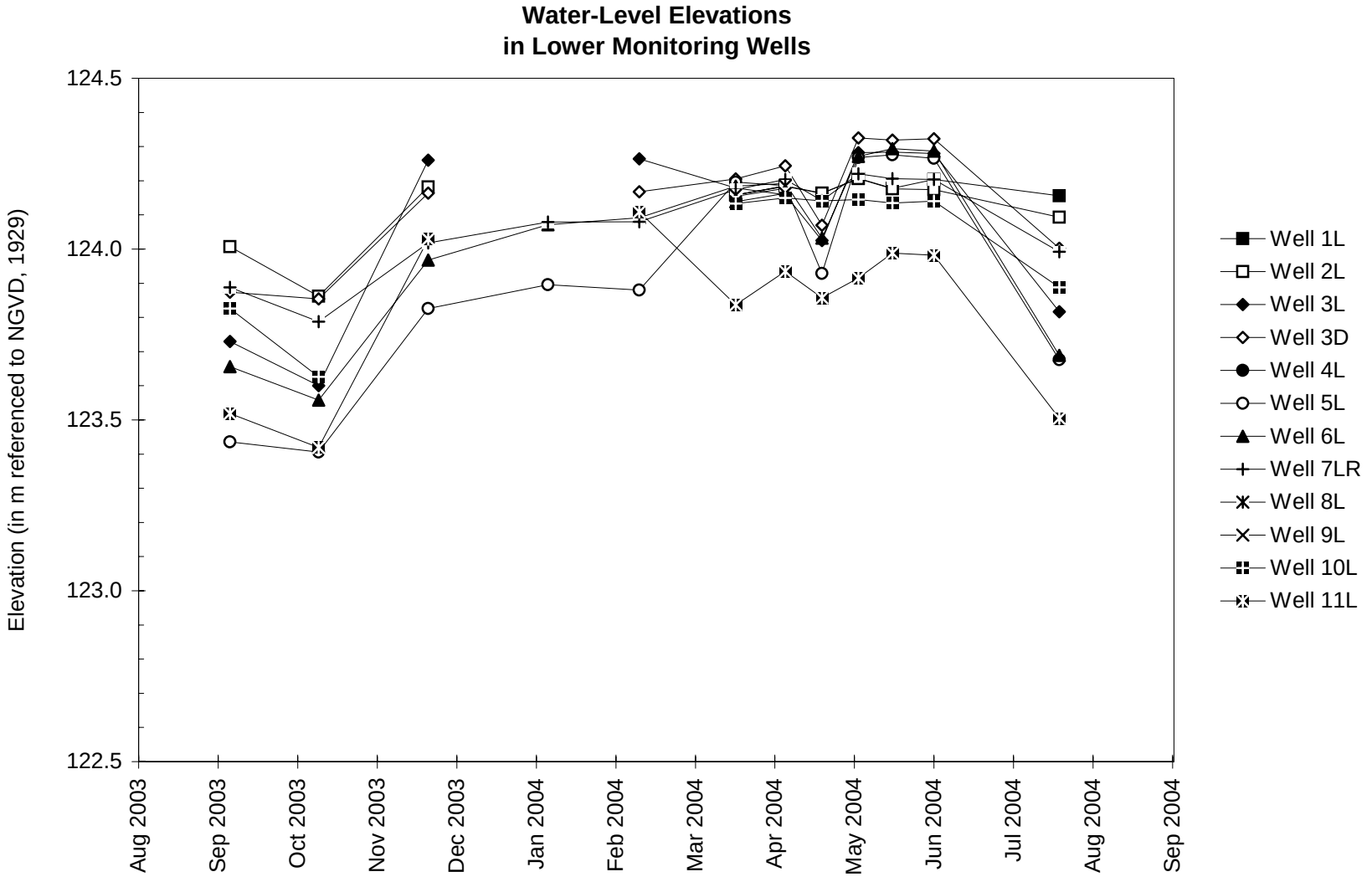
Former Eckmann and Bischoff Properties Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004



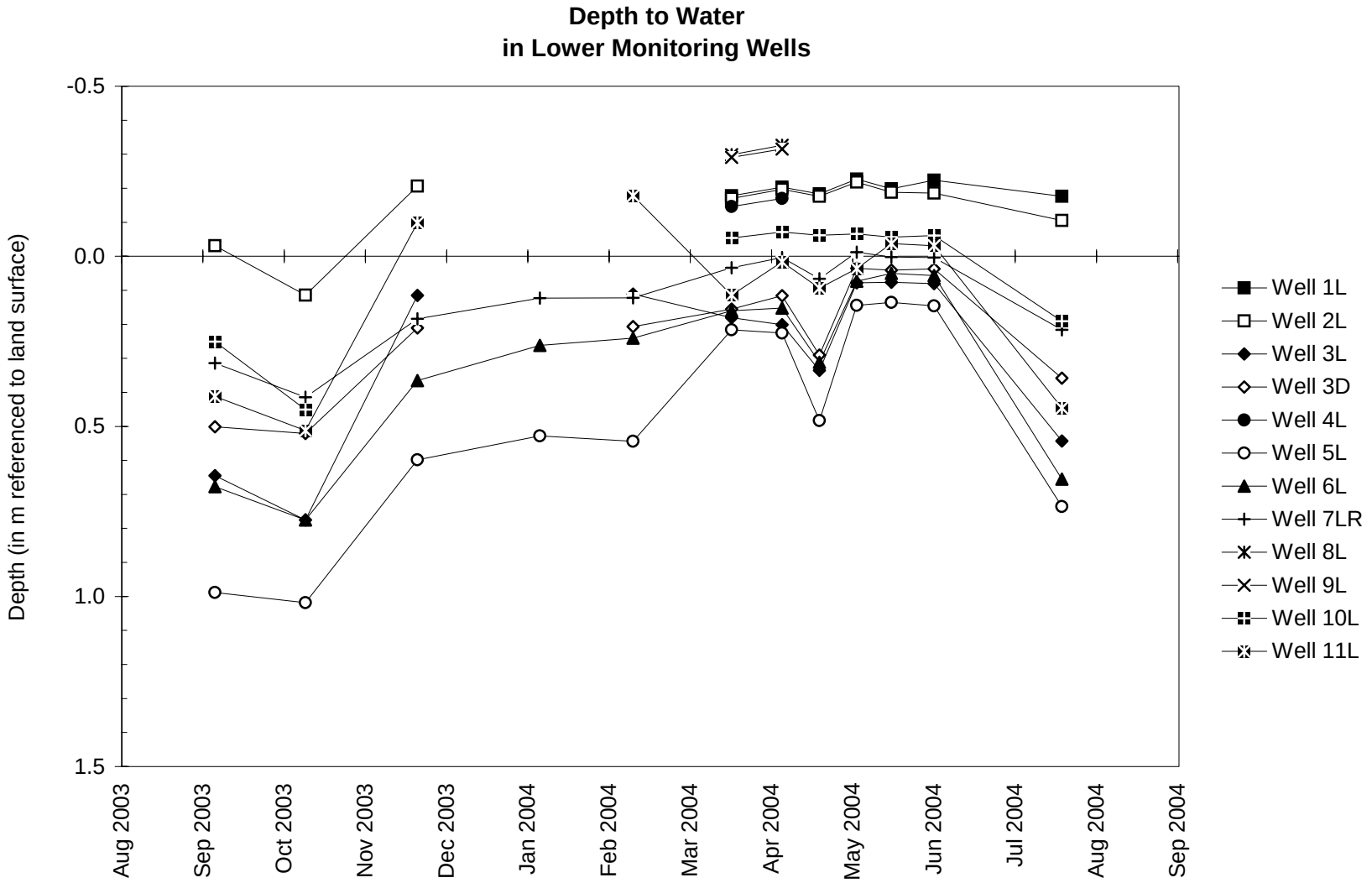
Former Eckmann and Bischoff Properties Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004



Former Eckmann and Bischoff Properties Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

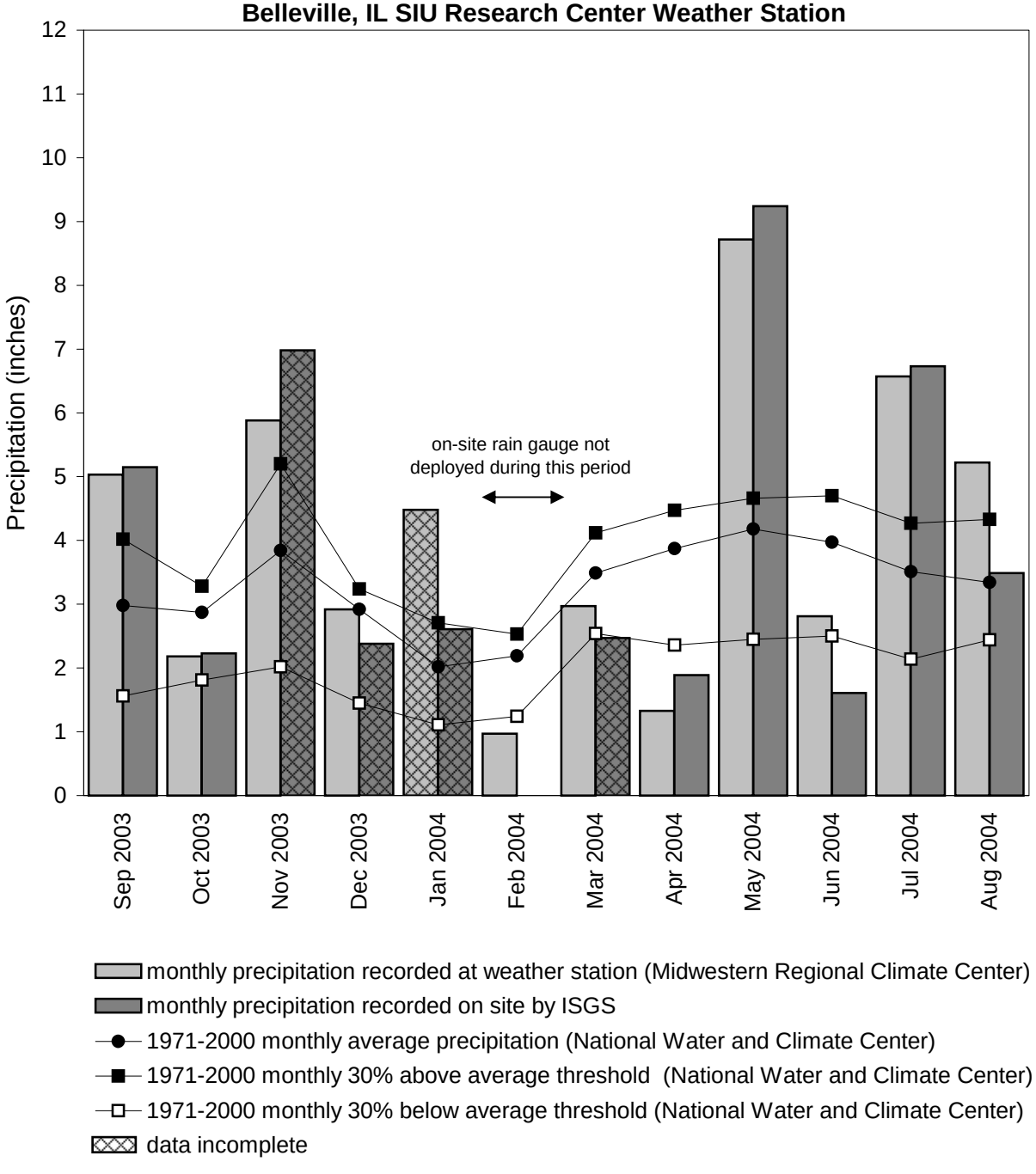


Former Eckmann and Bischoff Properties Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004



Former Eckmann and Bischoff Properties
Potential Wetland Compensation Site
September 2003 through August 2004

Total Monthly Precipitation Recorded On Site and at the Belleville, IL SIU Research Center Weather Station



Graph last updated October 1, 2004

GALENA RIVER BRIDGE **ISGS #46**
WETLAND COMPENSATION SITE
FAS Route 67
Jo Davies County, near Galena, Illinois
Primary Project Manager: Kelli D. Weaver
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- Spring 1999: ISGS began monitoring surface- and ground-water levels at the site.

- Fall 2000: An Infinities sonic data logger was added on a telescoping mount to catch the often substantial flood peaks common to the site. A second RDS was added to the site, as were two very shallow (VS) soil-zone wells and one standard (S) soil-zone well.

- Spring 2003: A telescoping global unit was installed to monitor ground-water elevations in the center of the site and a crest gauge was installed to monitor the stream along the south site margin.

- Spring 2004: Stop-logs were put into the north overflow weir, and the leaks sealed to see if surface water could be retained. The RDS unit was relocated to a better position within the site, and one additional soil-zone monitoring well was installed. Additionally, a field tile was directed into the eastern edge of the site from the adjacent farm field.

- October 2004: IDOT requested that site monitoring be discontinued.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area that satisfied wetland hydrology criteria (U.S. Army Corps of Engineers 1987) for greater than 5% of the 2004 growing season was 6.24 ac (2.52 ha). In addition, the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season in 2004 was 5.67 ac (2.29 ha). These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Dubuque, Iowa, is April 13 and the season lasts 188 days; 5% of the growing season is 9 days, 12.5% of the growing season is 24 days.

- The total precipitation for the monitoring period from September 2003 to August 2004 was 104% of normal. Near-normal precipitation for September and December 2003 and June and July 2004, coupled with significantly above normal rainfall in November 2003, and March, and May 2004 led to a wetter than normal 2004 growing season. Precipitation for the months of October 2003, January, February, April and August 2004 was below-normal.

- In 2004, water levels in wells 1S, 1VS, 2S, 2VS, 3S, 4S, 5S, 7S, 8S, 9S, 10S, 12S, 13S, and 14S satisfied wetland hydrology criteria for greater than 5% of the growing season. Water levels measured in the same groups of wells (excluding wells 3S and 7S) also satisfied wetland hydrology criteria for a period greater than 12.5% of the growing season.

- Surface-water levels measured by the RDS 2 data logger indicated that inundation occurred to an elevation of 183.20 m (601.05 ft) for a duration longer than 5% of the growing season.

Additionally, RDS 2 indicates site inundation occurred to an elevation of 183.09 m (600.69 ft) for a period that exceeded 12.5% of the growing season.

- The crest gauge and the Infinities sonic data logger indicate that the site was inundated to a maximum elevation of approximately 184.04 m (603.82 ft) by the Galena River at least once during the spring of 2004.

- Limitations of the wetland hydrology determination are as follows:
  - The area of wetland hydrology was measured planimetrically using a digitally produced ISGS topographic contour map with 0.10-m (0.33-ft) contour intervals. The acreage polygon generated from this topographic map was then superimposed upon the digital topographic map used for the figure in this report.

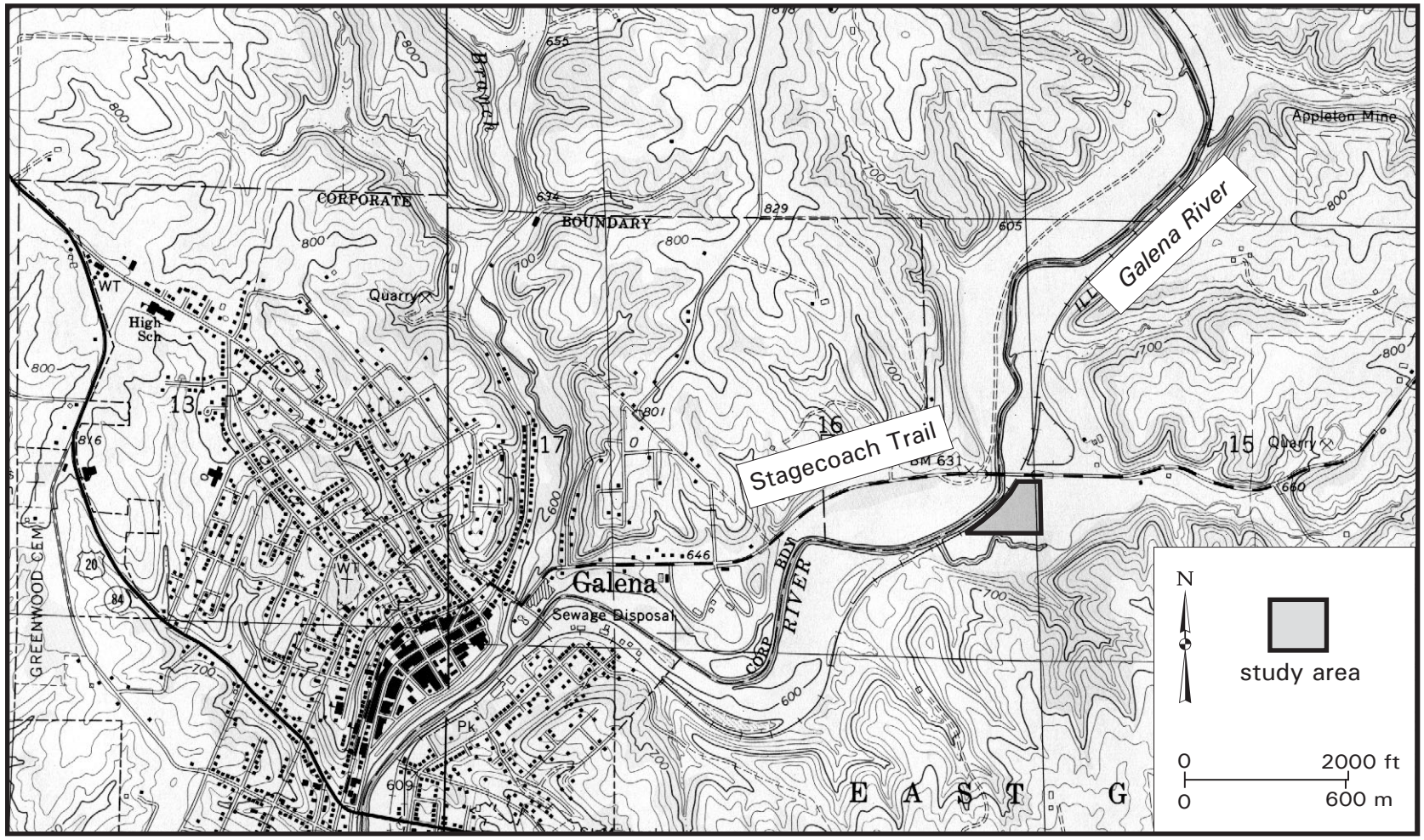
Galena River Bridge Wetland Compensation Site

(FAS Route 67)

General Study Area and Vicinity

from the USGS Topographic Series, Galena, IL-Iowa 7.5 minute Quadrangle (USGS 1988)

contour interval is 10 feet



Galena River Bridge Wetland Compensation Site

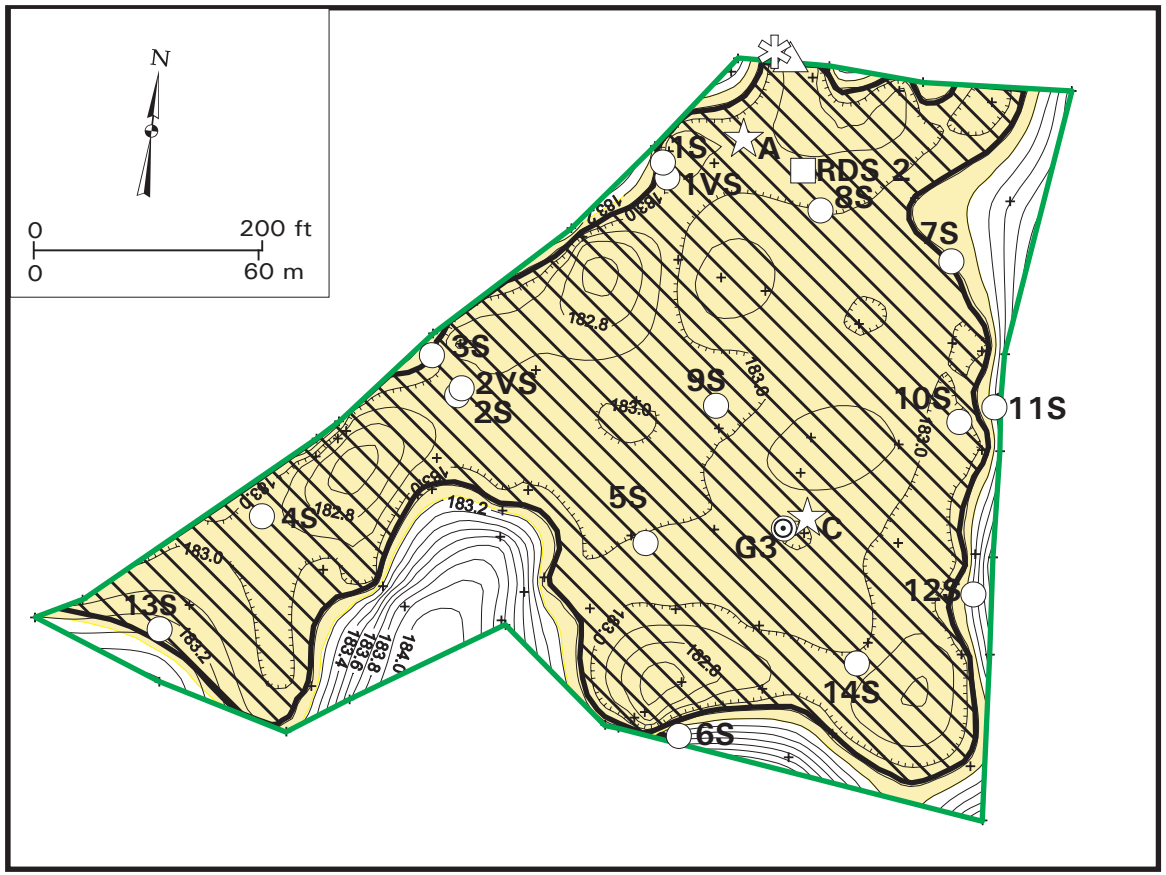
(FAS Route 67)

Estimated Areal Extent of 2004 Wetland Hydrology

based on data collected between September 1, 2003 and September 1, 2004

map based on 1999 ISGS elevation survey referenced to NGVD, 1929

contour interval is 0.1 meters

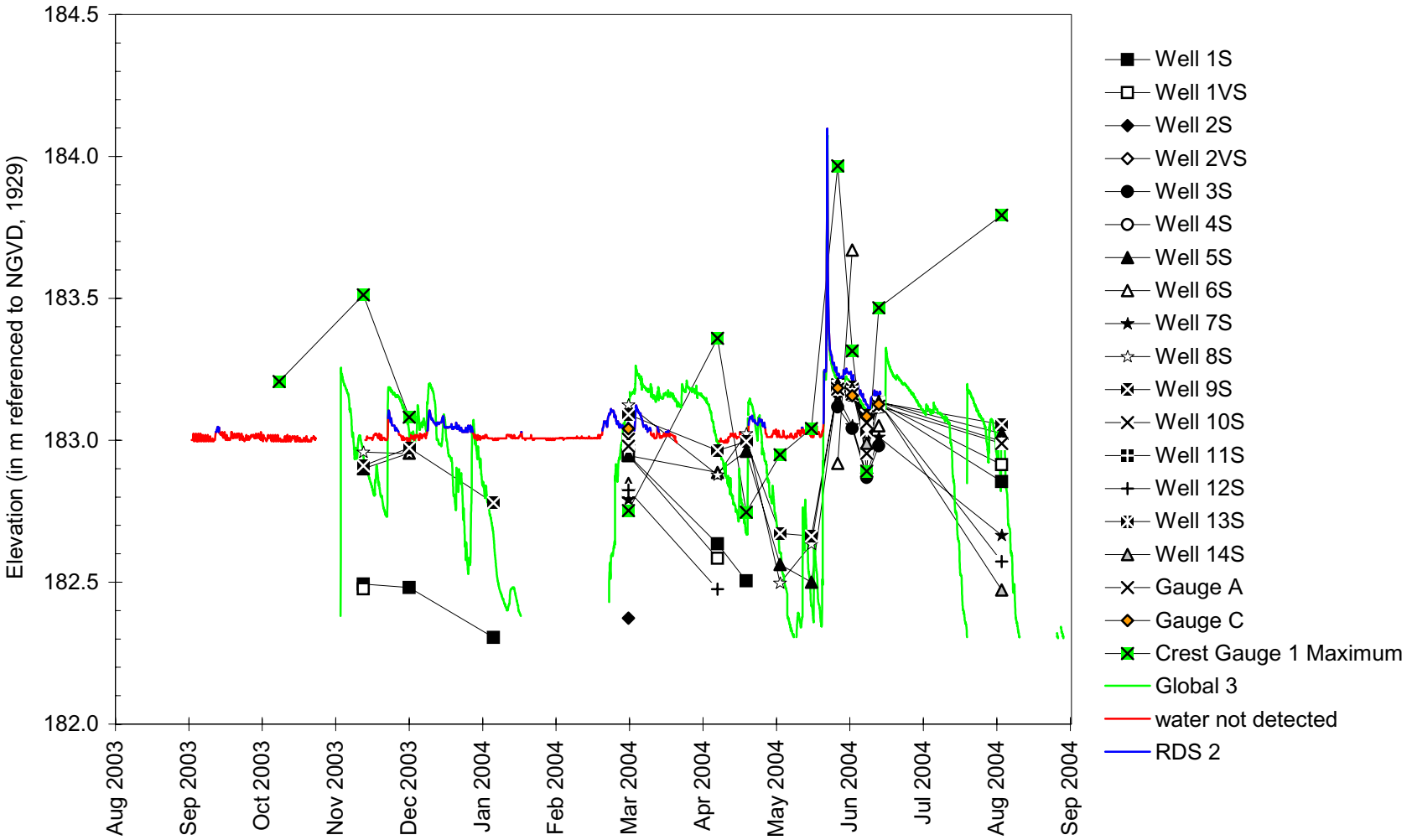


2004 Wetland Hydrology

- > 12.5% of the growing season
- > 5% of the growing season
- ISGS elevation survey boundary
- elevation contour (interval is 0.1 meters)
- \+ XYZ survey point
- ○ ISGS monitoring well
- rain gauge
- □ RDS data logger
- △ Infinity sonic data recorder
- ☆ stage gauge
- ⊙ Global pressure transducer

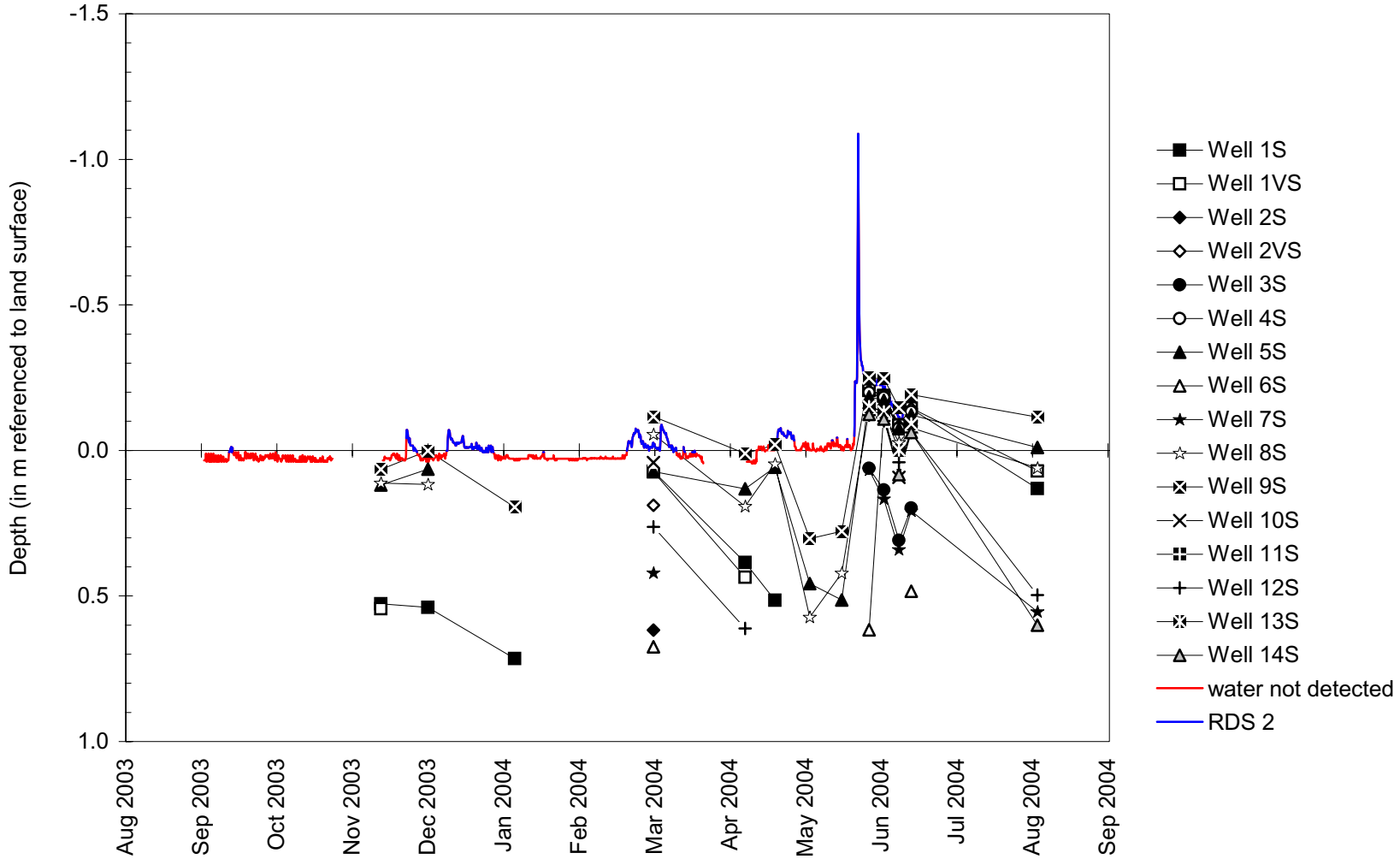
Galena River Bridge Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations

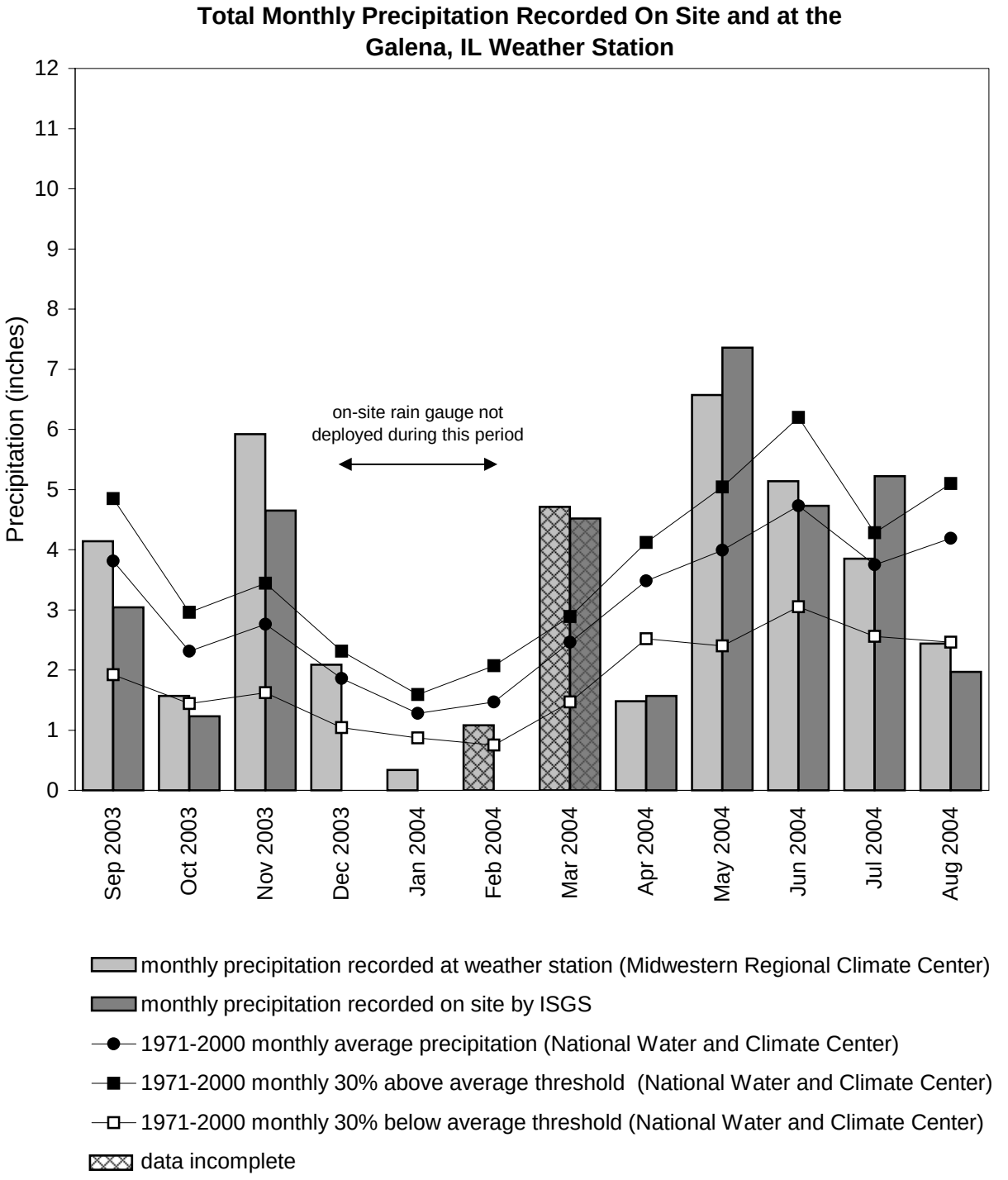


Galena River Bridge Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water



Galena River Bridge Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

MORRIS, ILLINOIS RIVER **ISGS #49**
WETLAND BANK SITE
Grundy County, near Morris, Illinois
Primary Project Manager: Keith W. Carr
Secondary Project Manager: Geoffrey E. Pociask

SITE HISTORY

- March 1999: ISGS was tasked by IDOT to perform a Level II hydrogeologic assessment of the potential banking site.

- August 1999: ISGS began monitoring ground- and surface-water levels at the site.

- March 2001: Two letters were sent by ISGS to IDOT Central Office. The first was a review of a wetland mitigation plan proposed by IDOT. The second provided general information regarding site hydrological conditions.

- April 2003: During this month, drainage tile removal activities began in the east field, an area also known as the "spider" field. A second segment of tile was removed from this field during December of 2003. This concluded tile removal work at the bank site.

- Spring 2004: Trees were planted over large areas of the site. These areas, generally underlain by mapped hydric soils, were fields slated for wetland restoration in the banking instrument.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area of the site that satisfied wetland hydrology criteria for greater than 5% of the growing season in 2004 was 13.62 ac (5.52 ha). Also in 2004, 9.1 ac (3.69 ha) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. These estimates are based on the following factors:

- According to the Midwestern Climate Center, the median date that the growing season begins in Morris, Illinois is April 13 and the season lasts 187 days; 5% of the growing season is 9 days and 12.5% of the growing season is 23 days.

- Total precipitation for the monitoring period from September 2003 to March 2004 was 90% of normal, leading to fairly typical moisture conditions entering the growing season. In the April 2004 to August 2004 period, however, precipitation was 76% of normal. The precipitation during each of these five months either above or below normal, ending with a very wet August during which precipitation was 265% of normal. When averaged for the entire September 2003 to August 2004 monitoring period, however, precipitation was near the 1971–2000 average.

- In 2004, water levels measured in 14 of the 43 soil-zone monitoring wells satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for a period greater than 5% of the growing season. Further, 8 of the 43 soil-zone monitoring wells satisfied wetland hydrology criteria for a period greater than 12.5% of the growing season in 2004.

- Soil-zone wells which showed inundation or saturation for greater than 5% of the growing season included wells 11S,12S, 16S, 18S, 21S, 35S, 42S, 43S, 43VS, 44S, 44VS, 46S, 48S and 51S.

- Soil-zone wells which showed inundation or saturation for greater than 12.5% of the growing season included wells 11S, 21S, 42S, 43S, 43VS, 44S, 44VS, and 48S.

- In 2004, two combined Illinois and Mazon River floods occurred within the growing season that had a peak stage value sufficient to inundate areas at or below 150.27 m (493 ft). This elevation encompasses the most extensive of the areas slated for wetland restoration. The flood duration, however, was short, as was the case in previous years, amounting to only 2.4 days and 2.8 days of inundation (respectively) on average in these restoration areas.

- Based upon both surface-water data and data from soil-zone wells 21S, 42S, 43S, and 44S (listed above), a total of 3.74 ac (1.51 ha) satisfied wetland hydrology criteria for a period greater than 5% of the growing season in the "spider" field. This area, also known as the "east" field, underwent drainage tile removal in April and December of 2003. A data logger in the field showed surface-water inundation to a level of 150.50 m (493.77 ft) for a period greater than 5% of the growing season. The same logger also showed surface-water inundation to a level of 150.49 m (493.73 ft) for a period greater than 12.5% of the growing season. As these elevations are within 1.0 cm (0.4 in) of one another and the same four wells noted above also met the 12.5% criteria, the acreage for the 12.5% threshold will be the same at 3.74 ac (1.51 ha).

- Also, according to staff gauge data, a closed depression near SW5 exhibited surface-water elevations that met wetland hydrology criteria for a period greater than both 5% and 12.5% of the growing season to a level of 149.81 m (491.50 ft). Also, according to staff gauge and logger data, an additional closed depression near SW7 exhibited surface-water elevations that met wetland hydrology criteria for a period greater than both 5% and 12.5% of the growing season to a level of 150.34 m (493.24 ft).

- As in previous years, perennial water bodies such as the creek channels were not included in areas having met wetland hydrology criteria.

- Limitations of the wetland hydrology determination are as follows:
  - The area of wetland hydrology was calculated planimetrically from an INHS-generated topographic map with a 0.3 m (1.0 ft) contour interval. The raw data for this map were provided by IDOT, and were generated through an aerial survey tied to 28 benchmarks set out on site by IDOT using a survey grade GPS. Although the contours and surface elevations seem to generally reflect the land surface and match ISGS-determined elevations, the accuracy of this contour map is unknown. ISGS well locations were determined via GPS and superimposed upon this geo-rectified map.

ADDITIONAL INFORMATION

- At the Morris site, past monitoring has shown that significant areas of floodplain forest exhibiting predominantly hydrophytic vegetation are present at elevations above those that are saturated or inundated for greater than 12.5% of the growing season. Further, these areas normally have not demonstrated wetland hydrology for periods greater than 5% of the growing season. In contrast to previous years when none of these areas met wetland

hydrology criteria, lower-lying portions of this floodplain forest were somewhat wetter in 2004. According to data from two soil-zone wells, coupled with topographic data, flood-water elevations, and first-hand observations, several limited areas of this floodplain forest satisfied wetland hydrology criteria for a period exceeding 5% of the growing season. In addition, a smaller area satisfied wetland hydrology criteria for a period exceeding 12.5% of the growing season.

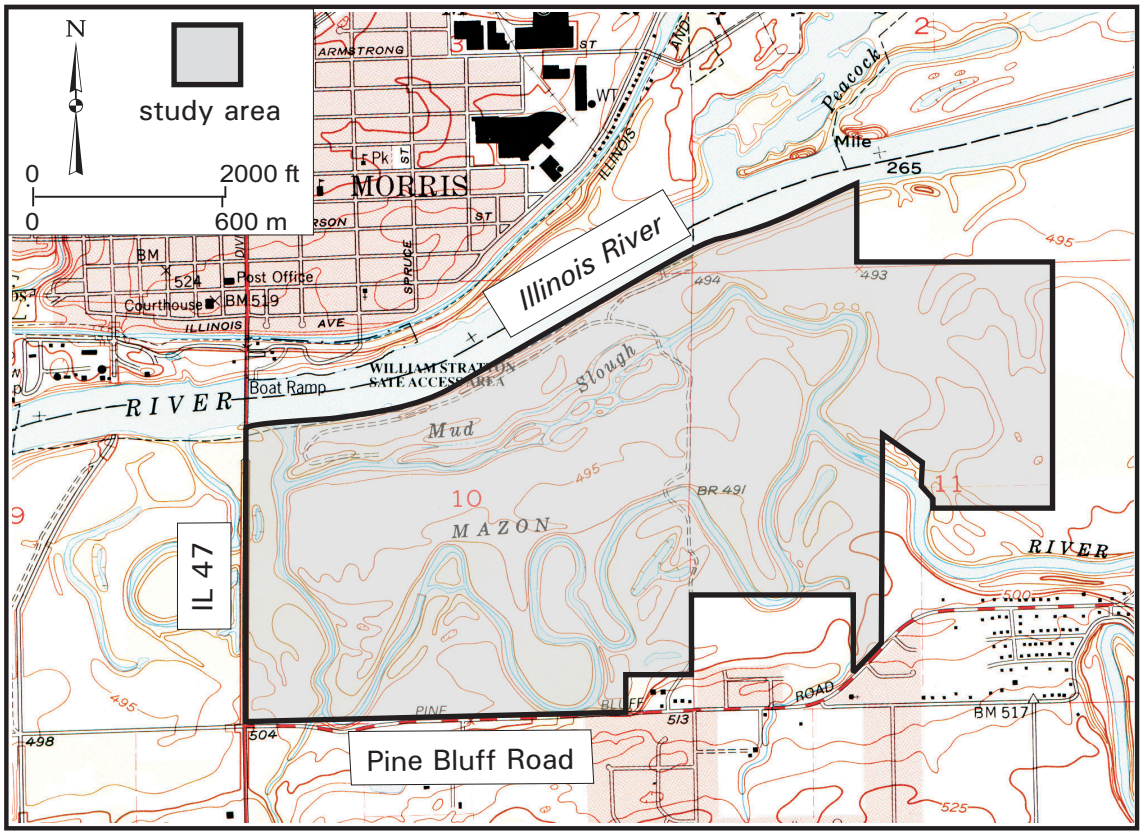
PLANNED FUTURE ACTIVITIES

- Monitoring will continue until no longer required by IDOT.
- A Level II hydrogeological characterization report is under preparation for submission to IDOT.

Morris, Illinois River Wetland Bank Site

General Study Area and Vicinity

from the USGS Topographic Series, Morris, IL 7.5-minute Quadrangle (USGS 1993)
contour interval is 5 feet

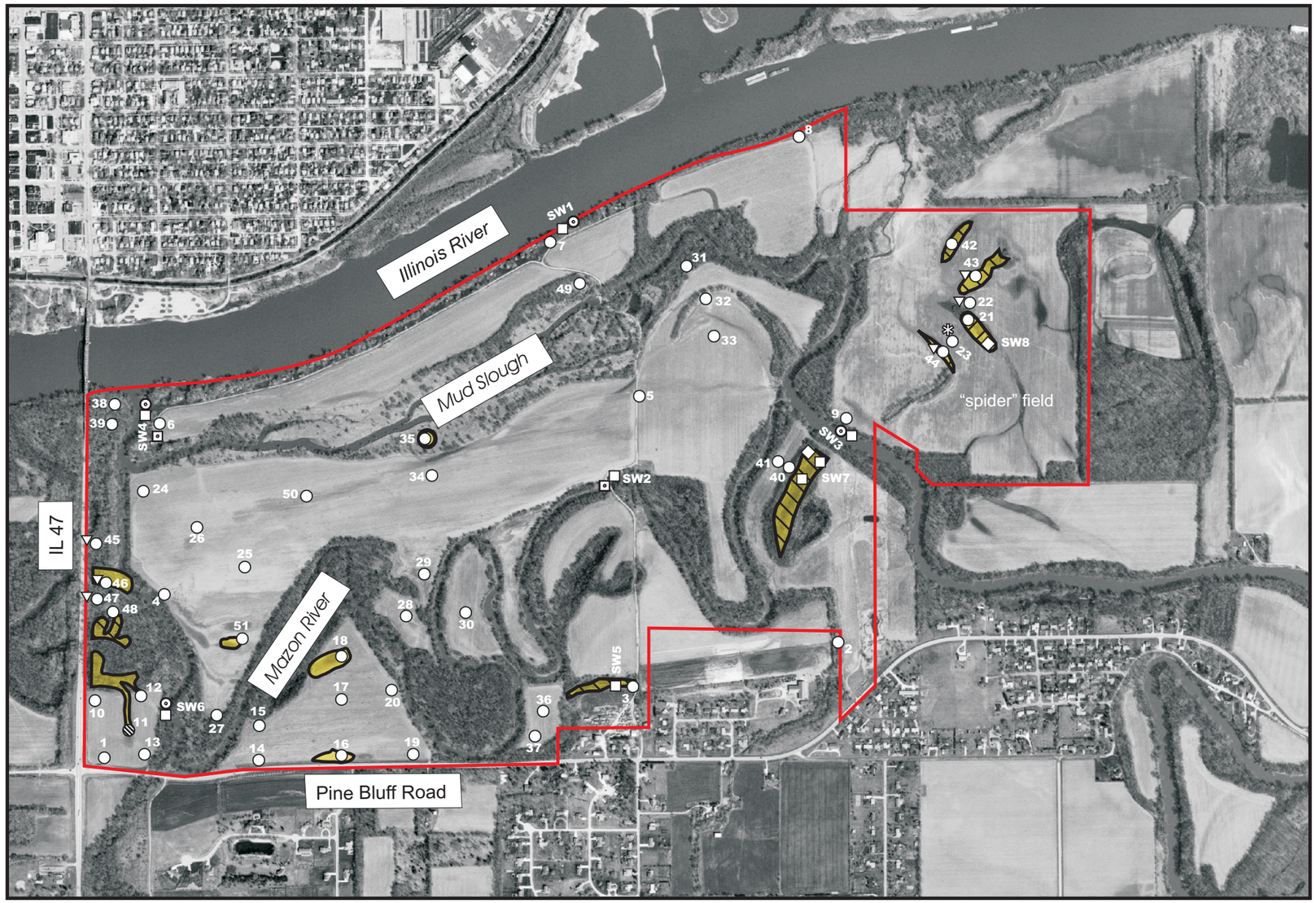


Morris, Illinois River Wetland Bank Site

Estimated Areal Extent of 2004 Wetland Hydrology

based on data collected between September 1, 2003 and September 1, 2004

map based on USGS digital orthophotograph, Morris NE quarter quadrangle
from 4/5/1998 aerial photography (ISGS 2001)



LEGEND

2004 WETLAND HYDROLOGY

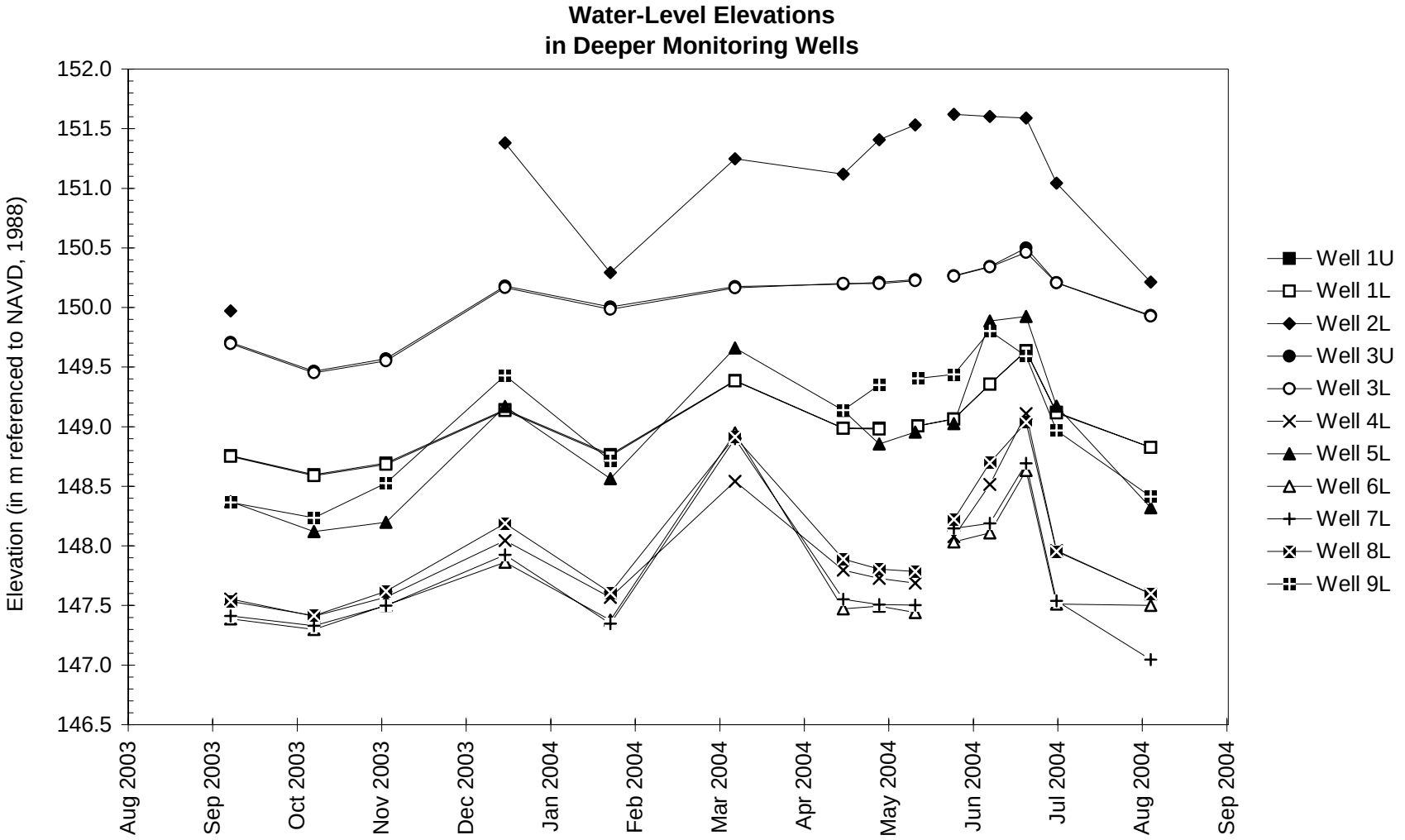
- > 5% of the growing season
- > 12.5% of the growing season
- approximate site boundary

- ▽ soil-moisture probe
- □ stage gauge
- ⊡ Infinities sonic data logger
- ◇ RDS data logger
- ❄ rain gauge
- ○ ISGS monitoring well
- ⊙ Global data logger

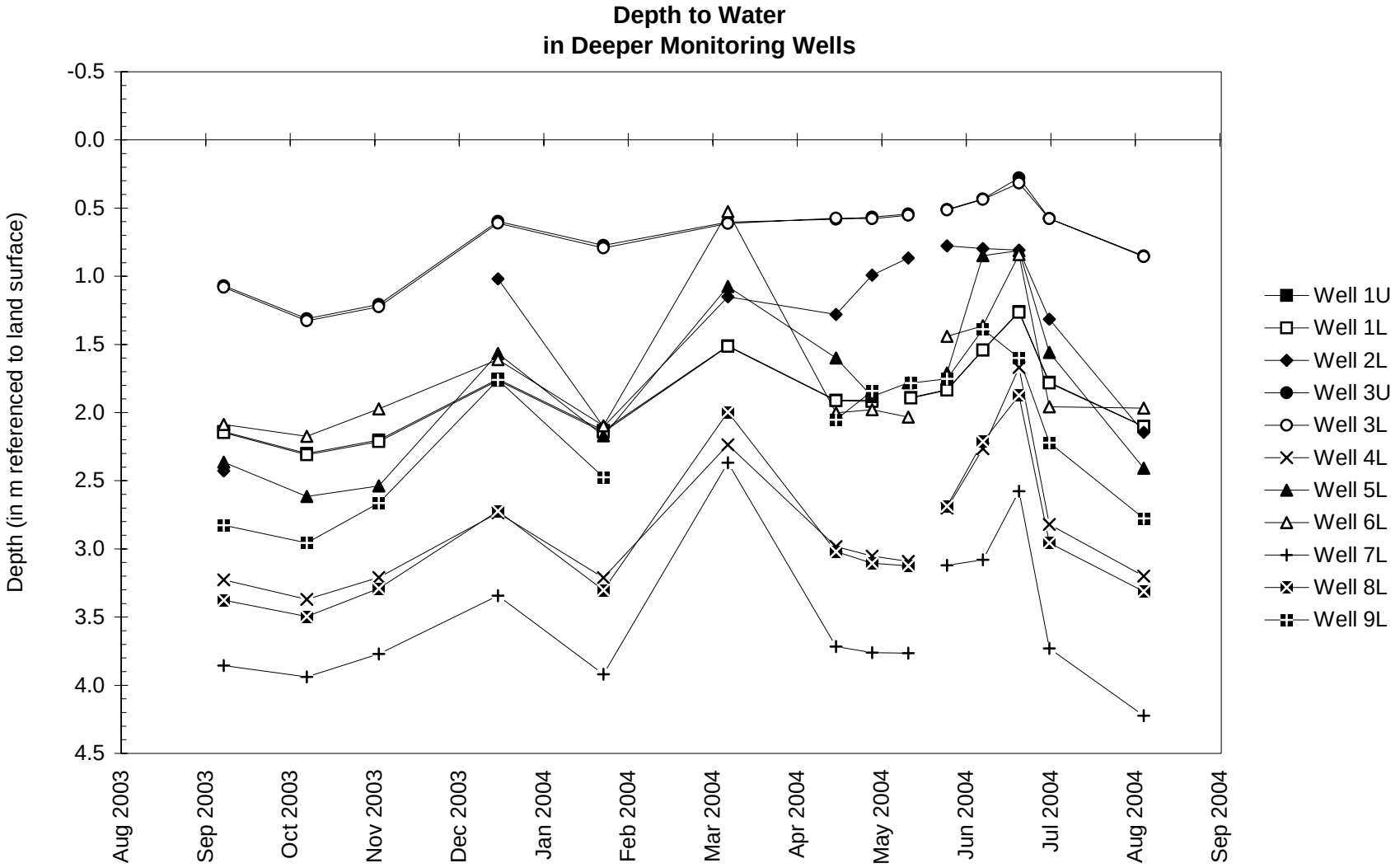
0 500 m
0 1500 ft

N

Morris, Illinois River Potential Wetland Banking Site
September 1, 2003 to September 1, 2004

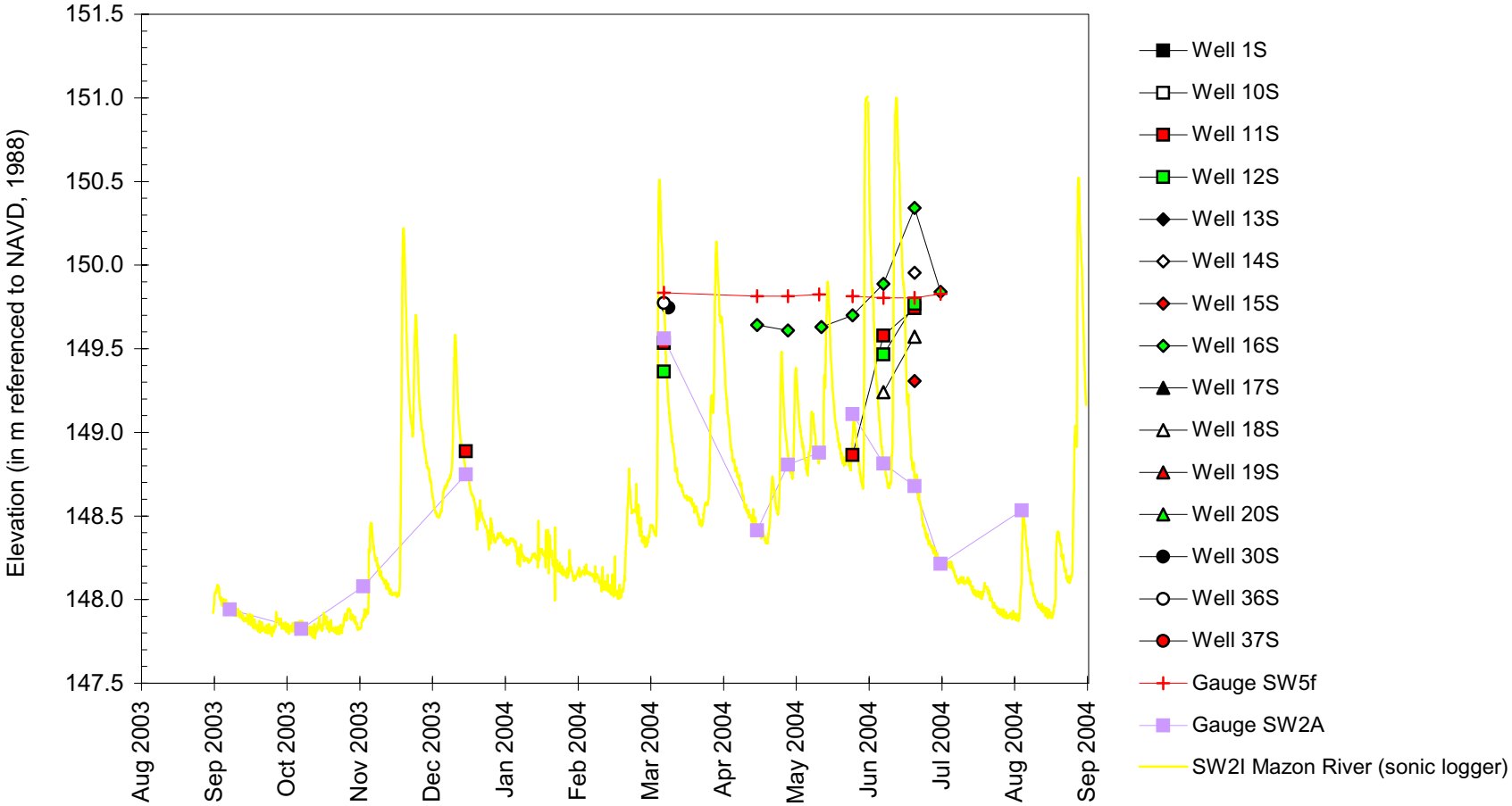


Morris, Illinois River Potential Wetland Banking Site
September 1, 2003 to September 1, 2004

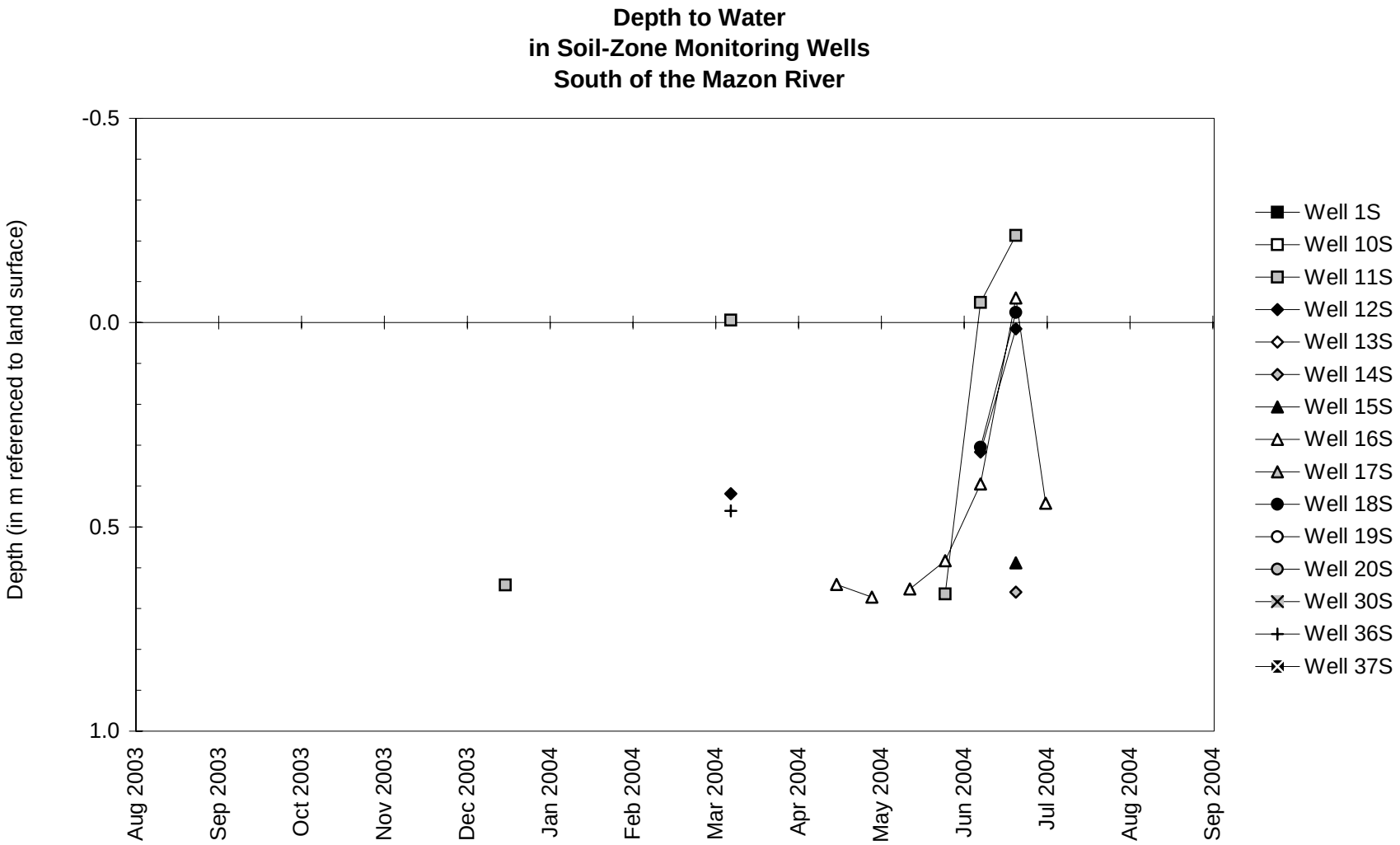


Morris, Illinois River Potential Wetland Banking Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Soil-Zone Monitoring Wells, Data Loggers, and Stage Gauges
South of the Mazon River

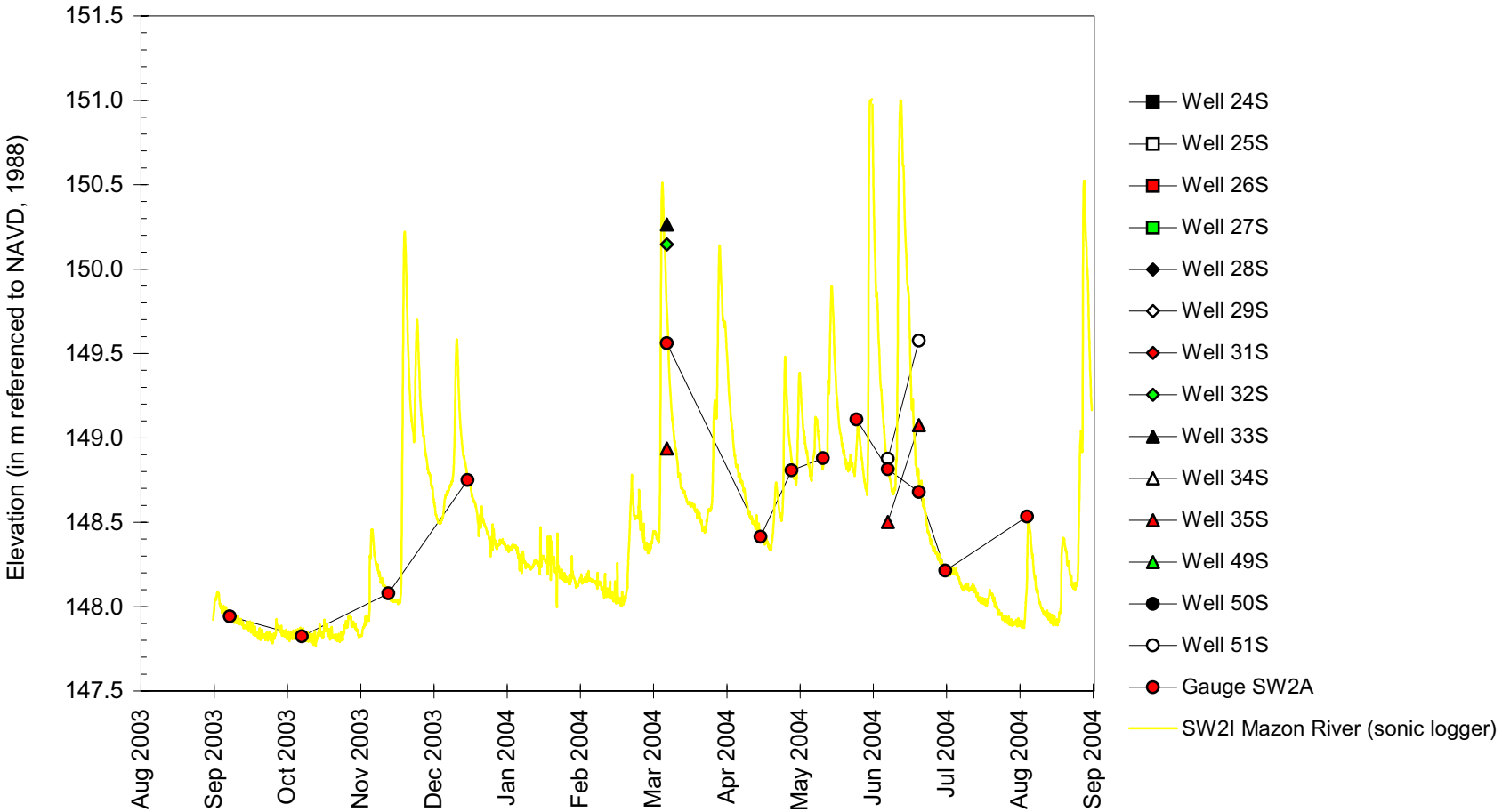


Morris, Illinois River Potential Wetland Banking Site
September 1, 2003 to September 1, 2004

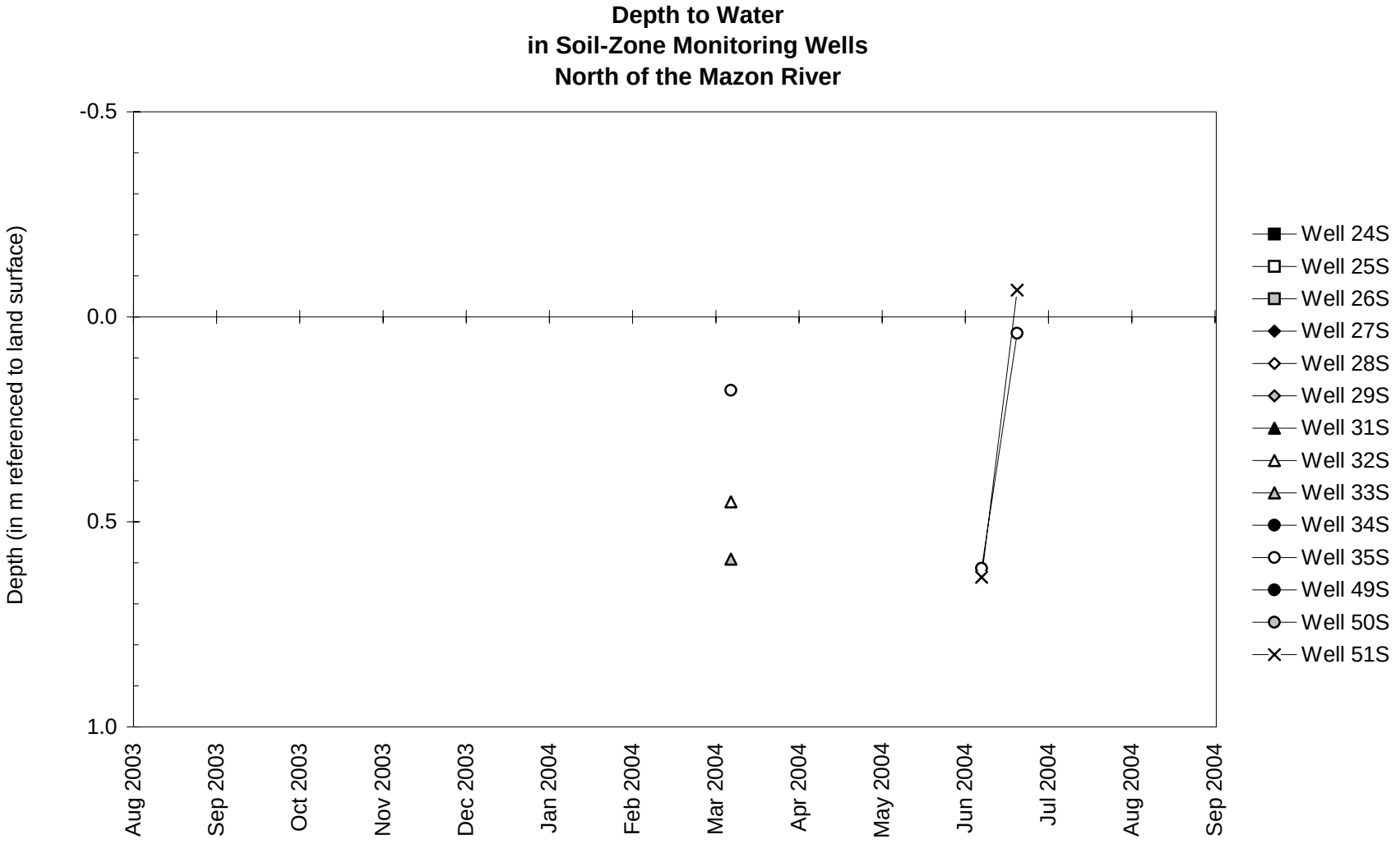


Morris, Illinois River Potential Wetland Banking Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Soil-Zone Monitoring Wells, Data Loggers, and Stage Gauges
North of the Mazon River

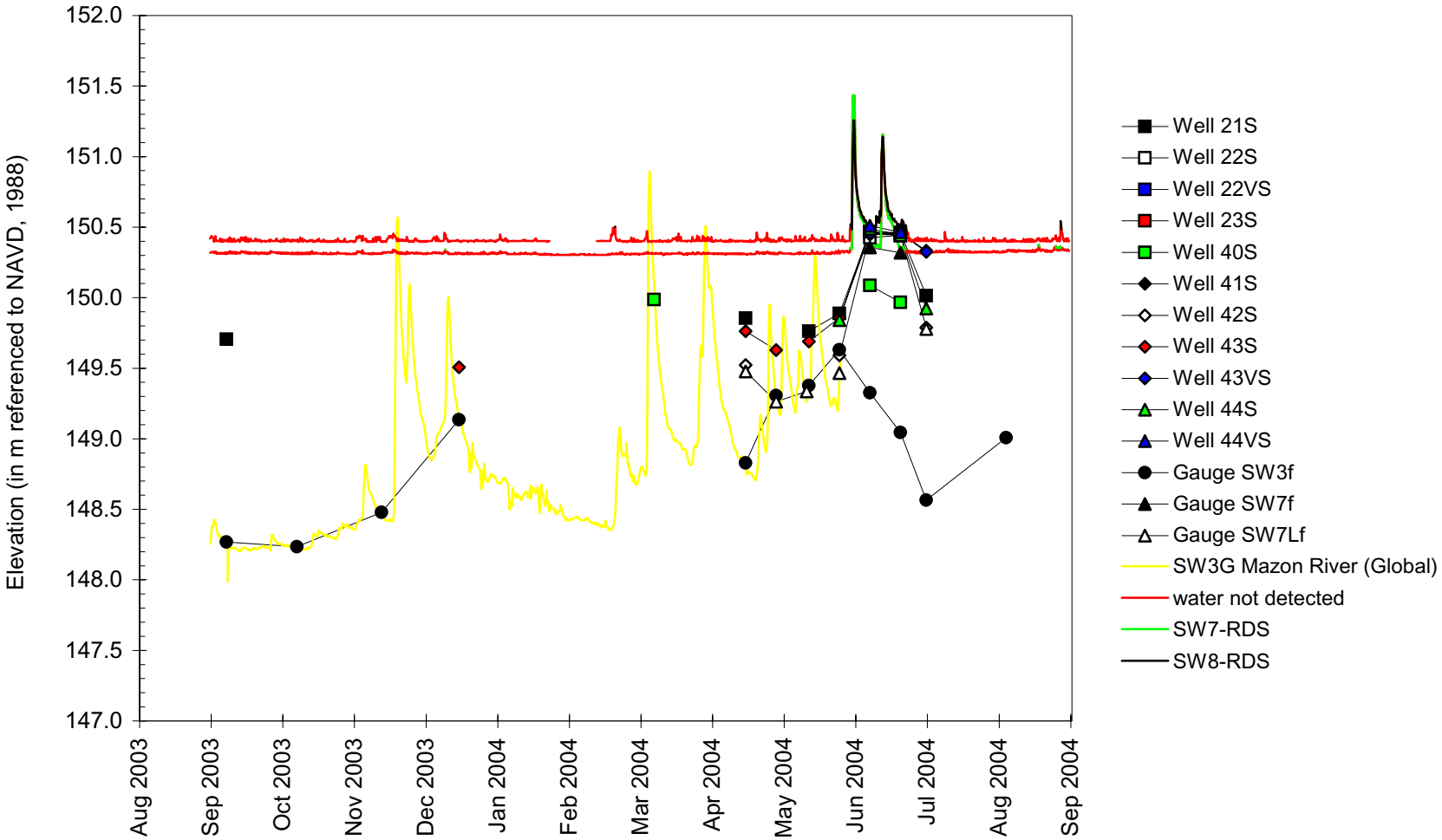


Morris, Illinois River Potential Wetland Banking Site
September 1, 2003 to September 1, 2004



Morris, Illinois River Potential Wetland Banking Site
September 1, 2003 to September 1, 2004

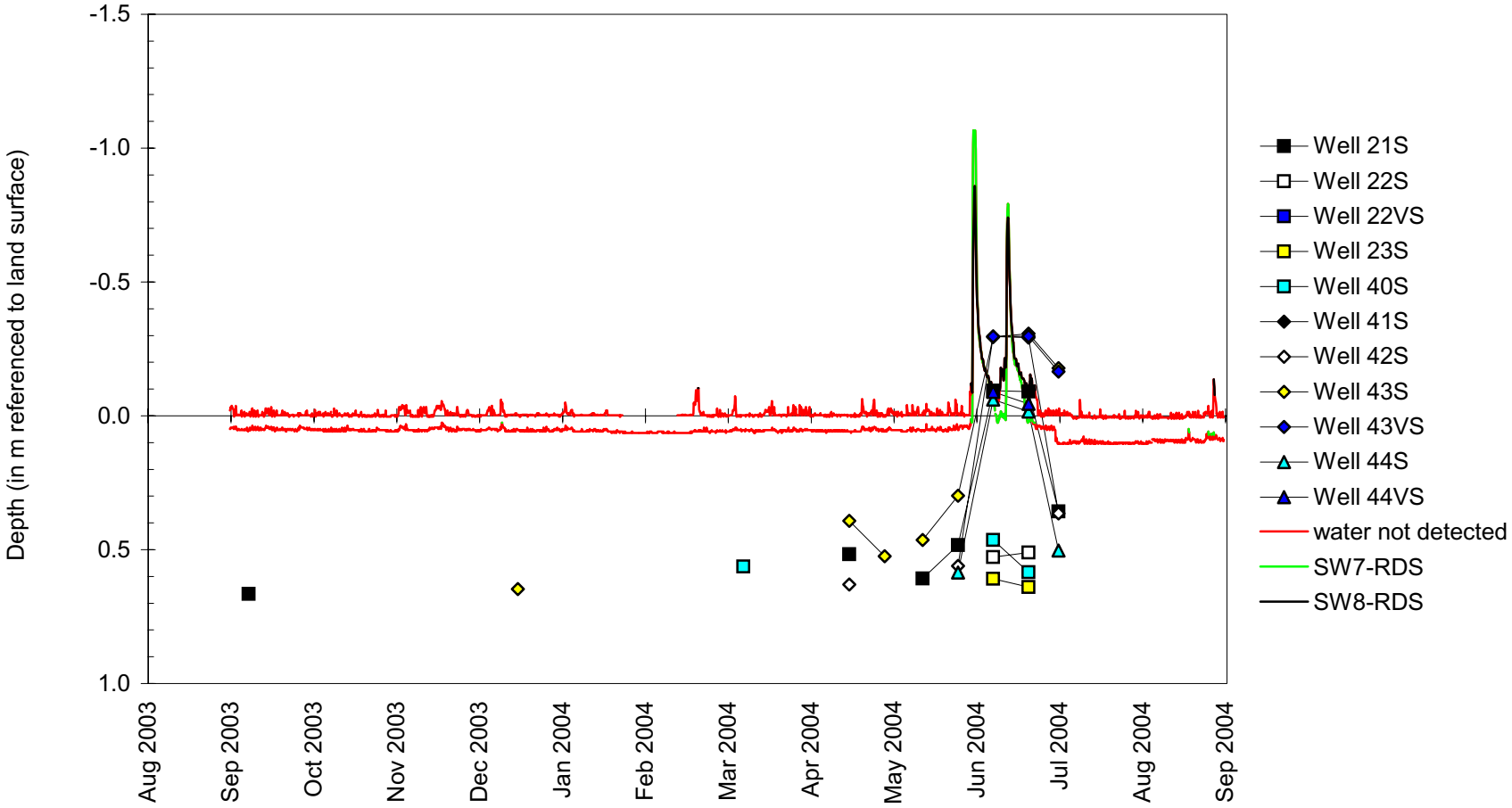
Water-Level Elevations
in Soil-Zone Monitoring Wells, Data Loggers, and Stage Gauges
in the East Field and near the Natural Slough



Morris, Illinois River Potential Wetland Banking Site

September 1, 2003 to September 1, 2004

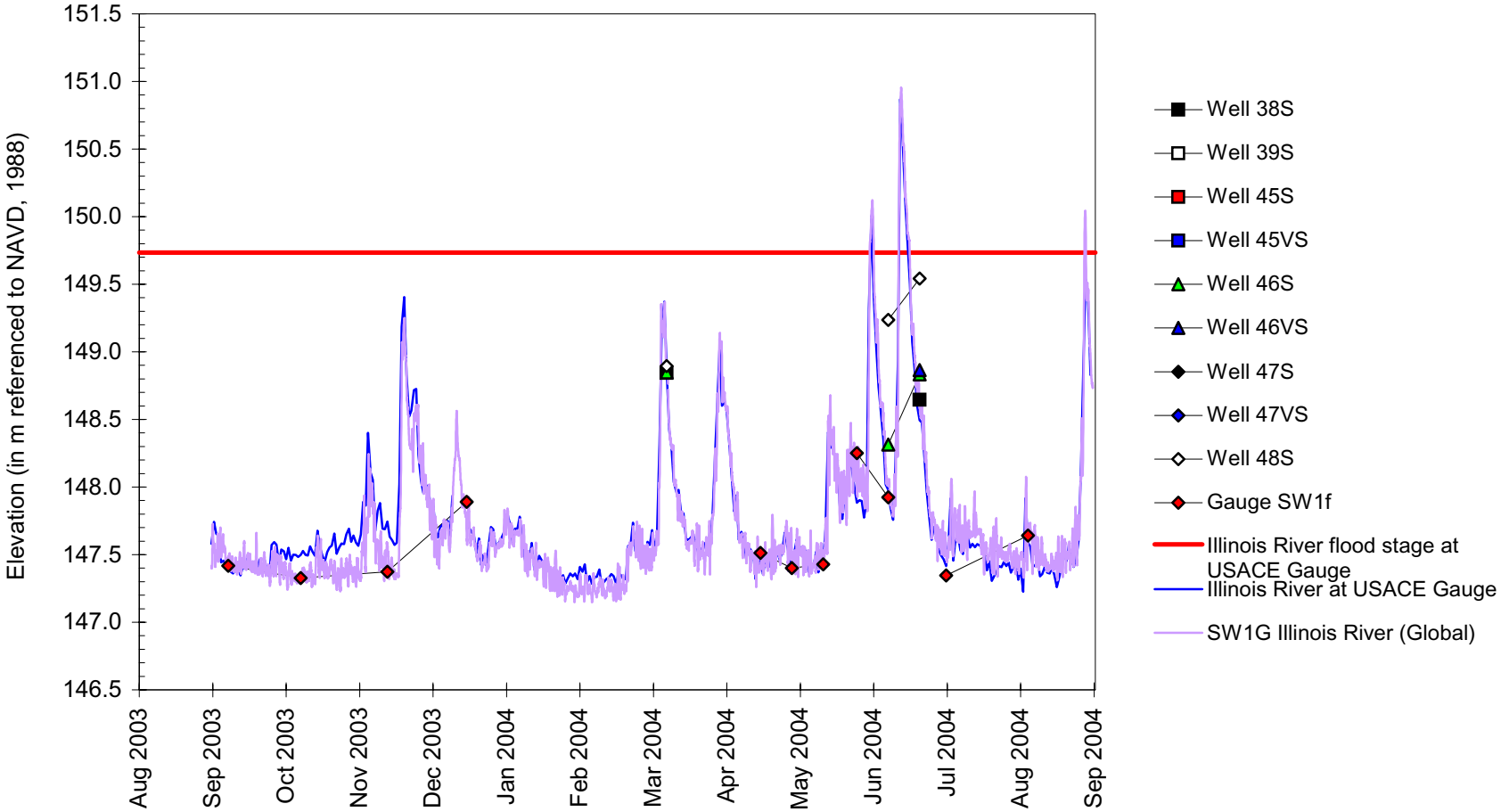
Depth to Water
in Soil-Zone Monitoring Wells and Data Loggers
in the East Field and near the Natural Slough



Morris, Illinois River Potential Wetland Banking Site

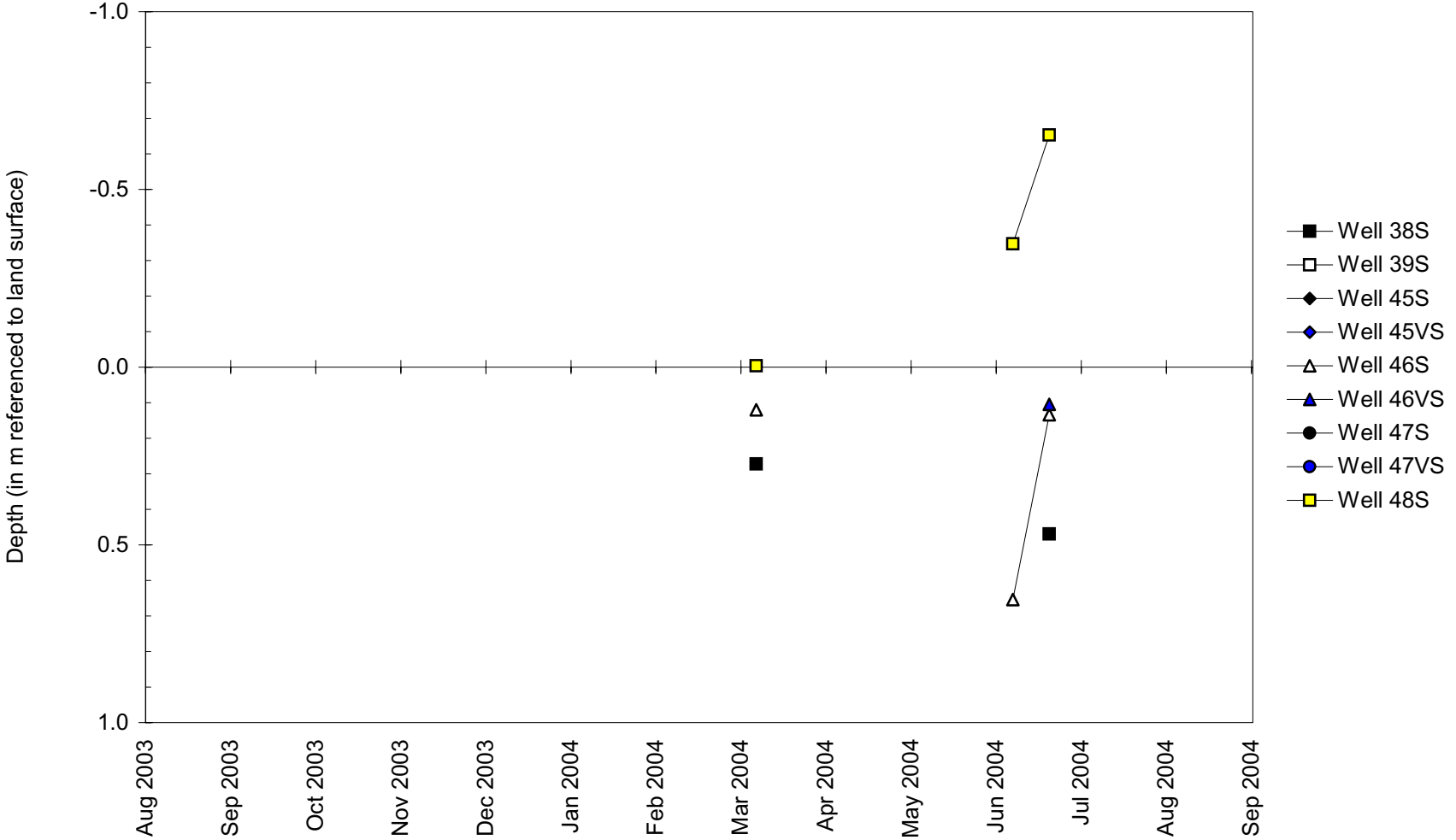
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Monitoring Wells, Data Loggers, and Stage Gauges
near the Illinois River Floodplain Forest

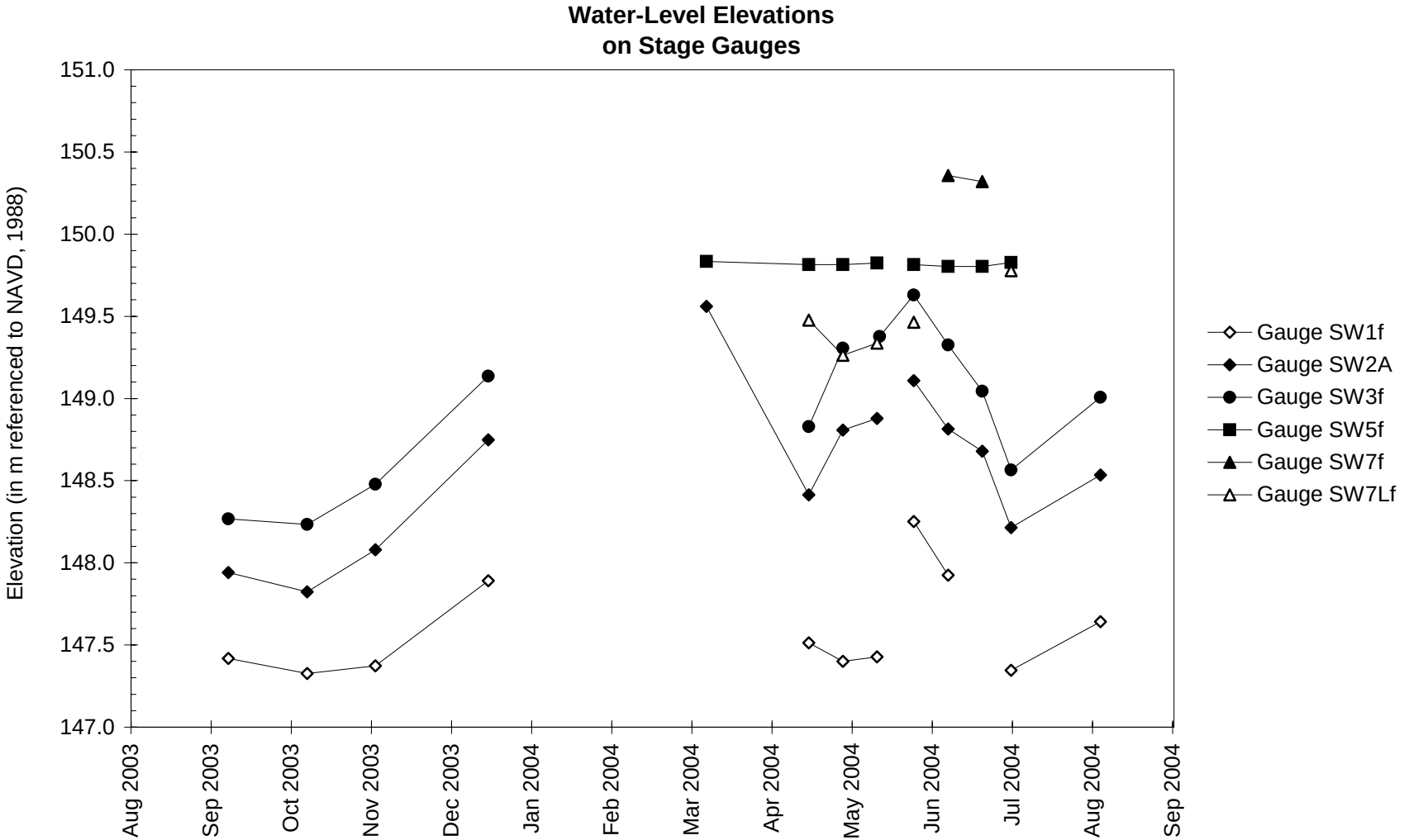


Morris, Illinois River Potential Wetland Banking Site
September 1, 2003 to September 1, 2004

Depth to Water
in Monitoring Wells
near the Illinois River Floodplain Forest

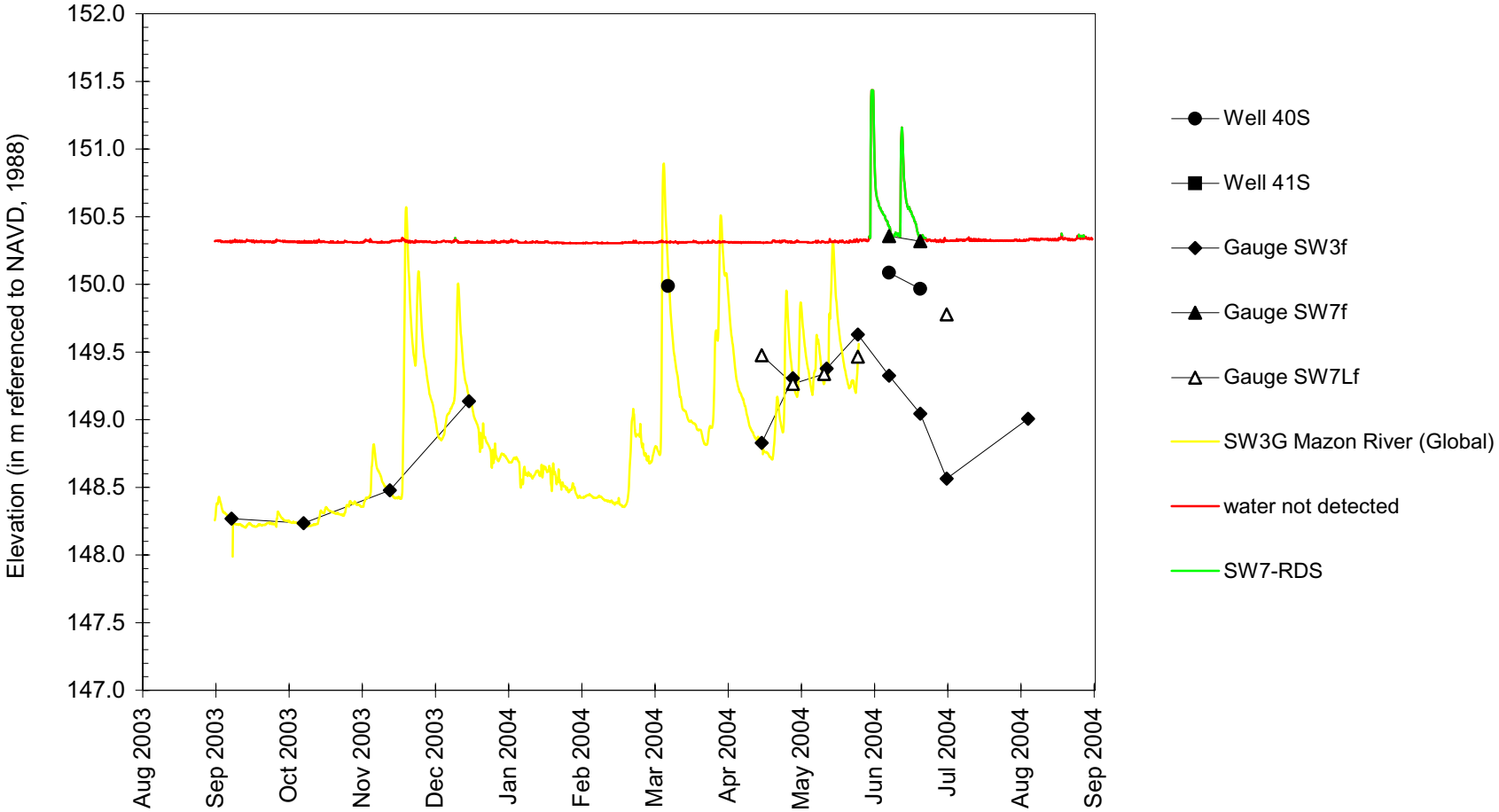


Morris, Illinois River Potential Wetland Banking Site
September 1, 2003 to September 1, 2004



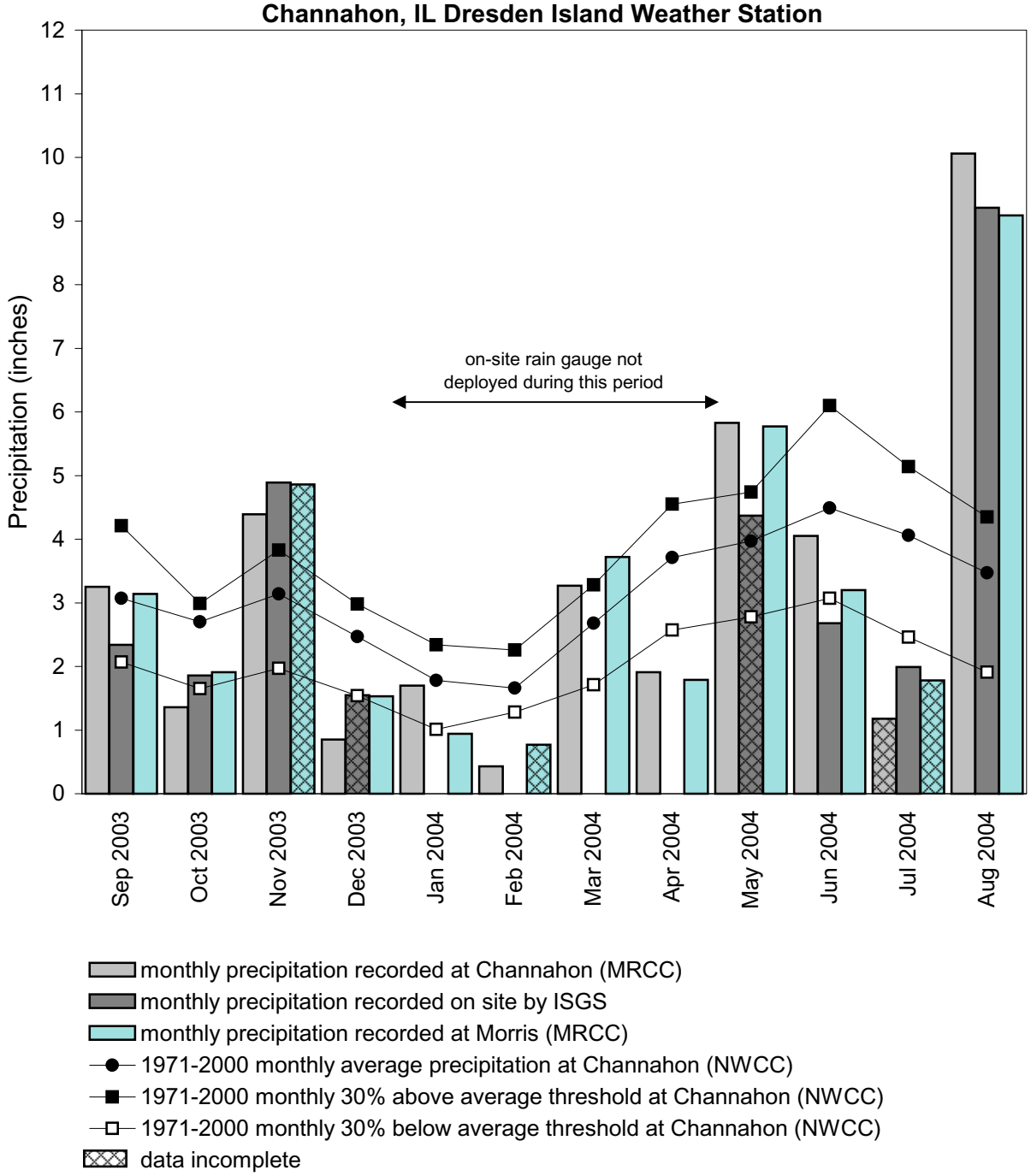
Morris, Illinois River Potential Wetland Banking Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Soil-Zone Monitoring Wells, Data Loggers, and Stage Gauges
near the Natural Slough



Morris, Illinois River
Potential Wetland Banking Site
September 2003 through August 2004

Total Monthly Precipitation Recorded On Site and at the Channahon, IL Dresden Island Weather Station



Graph last updated October 7, 2004

EDWARDS RIVER, MERCER COUNTY **ISGS #50**
WETLAND COMPENSATION SITE
FAP 310
Mercer County, near Boden, Illinois
Primary Project Manager: Kelli D. Weaver
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- May 1996: ISGS submitted an Initial Site Evaluation Report to IDOT.

- Spring 1999: ISGS began monitoring ground- and surface-water levels, and in Fall 1999, a total of 11 sediment traps were added to the site.

- Spring 2001: One RDS surface-water data logger, one stage gauge, and three very shallow (VS) soil-zone wells were added to the wetland basin.

- April 2002: Three soil-zone monitoring wells were added along the base of the US Route 67 embankment to better delineate wetland hydrology along the western site margin.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area that satisfied wetland hydrology criteria (U.S. Army Corps of Engineers 1987) for greater than 5% of the growing season was 0.93 ac (0.38 ha). In addition, the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season in 2004 was 0.88 ac (0.36 ha). These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Aledo, Illinois, is April 11 and the season lasts 195 days; 5% of the growing season is 10 days, and 12.5% of the growing season is 24 days.

- Total precipitation for the monitoring period from September 2003 to August 2004 was 104% of normal. Despite the very dry growing season conditions during the months of April, June, and July 2004, the higher-than-normal precipitation totals during the months of March, May, and August 2004 led to slightly wetter than normal conditions during the 2004 monitoring period. Additionally, precipitation levels were below normal for the months of October 2003, and January and February 2004, and were above normal in September, November and December 2003.

- In 2004, water levels measured in wells 3S, 3VS, 5VS, 6S, 7S, 8VS, 9S, and 11S satisfied wetland hydrology criteria for greater than 5% of the growing season. Wells 3S, 3VS, 8VS, 9S, and 11S also satisfied wetland hydrology criteria for a period greater than 12.5% of the growing season.

- The elevation and duration of surface-water flooding events were recorded both in the Edwards River channel and in the wetland basin. Since the beginning of the 2004 growing season, flood water input into the basin was limited to three separate events with a total duration of approximately five days, a period of time insufficient to satisfy wetland hydrology criteria. In all events, the hydroperiod within the excavated basin virtually mimics that of the

river. As in previous years, flood waters in 2004 only stayed in the basin for a period of hours after the river stage had dropped below the site inlet.

ADDITIONAL INFORMATION

- Once a year, the sediment is removed from 11 sediment traps and is quantified in an ISGS laboratory. From April 15, 2003, to April 14, 2004, the traps on the site accumulated between 1.1 and 3.5 cm of sediment. The sediment traps located near the perimeter of the excavated basin, T1, T2, T3, and T4, and on top of the natural levee, T8 and T9, accumulated the smallest amounts of sediment, 1.1 to 1.8 cm. The greatest thicknesses of sediment, 2.9 to 3.5 cm, were trapped within the excavated wetland basin. The maximum amount of sediment, 3.5 cm, was collected from T7, which is at the lowest elevation on the site. Calculations for sediment thickness are based on personal communication with Richard Cahill, ISGS Sediment Geochemist.

- We have determined that the site is being drained too efficiently through the inlet/outlet in the northwest corner of the site. Raising the elevation of this inlet/outlet to approximately 194.20 m (637.14 ft) will cause longer-term retention of surface water in the excavated basin. Additionally, the berm might also enhance sediment deposition due to the longer flood-water residence time.

- Limitations of the wetland hydrology determination are as follows:
  - The area of wetland hydrology was measured planimetrically using a digitally produced ISGS topographic map with 0.20-meter (0.66-ft) contour intervals. The acreage polygon generated from this topographic map was then superimposed upon the digital topographic map used for the figure in this report.

PLANNED FUTURE ACTIVITIES

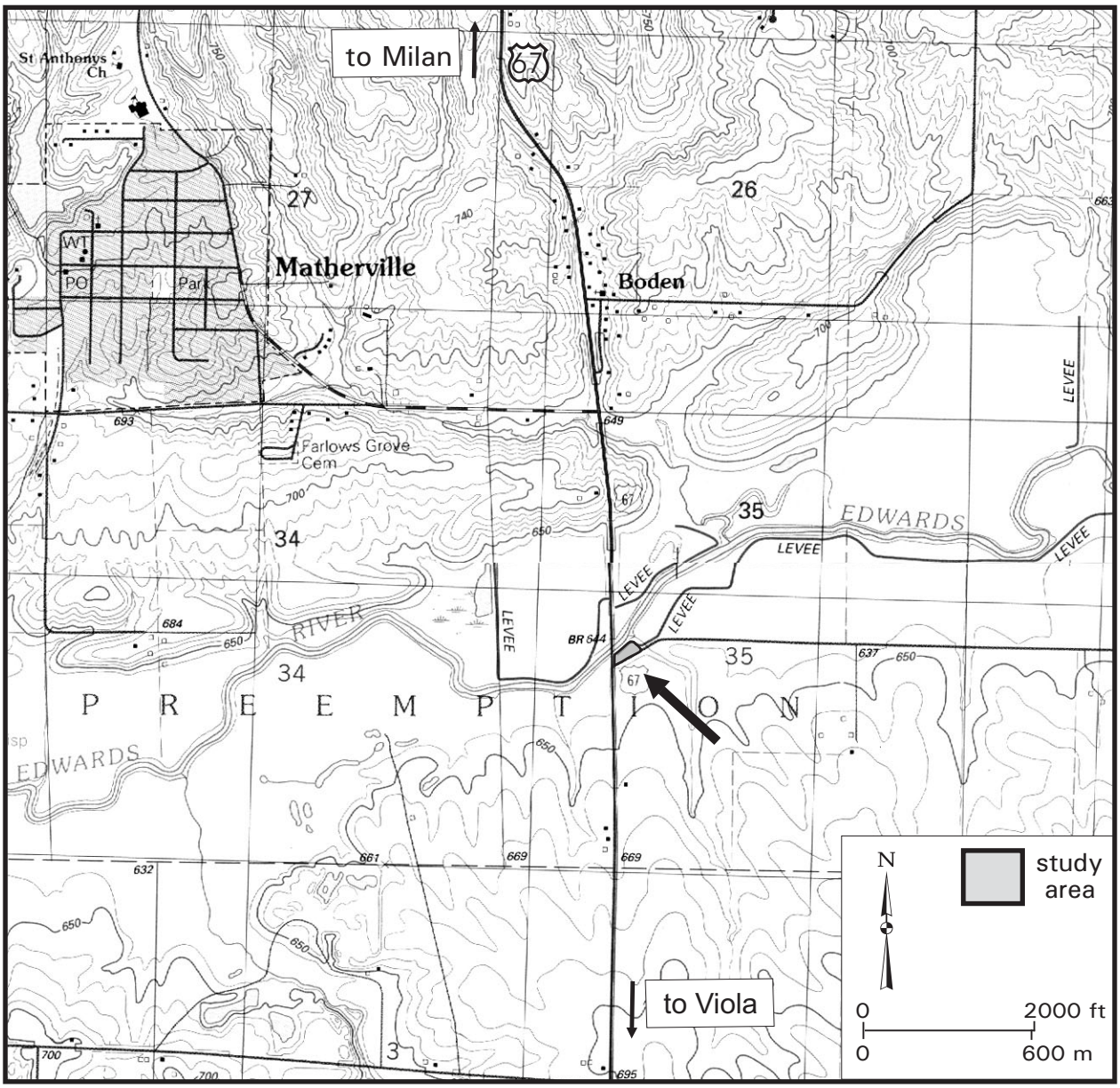
- Additional shallow-water monitoring wells will be added to further delineate wetland hydrology.

- Monitoring of hydrology and sediment deposition will continue until no longer required by IDOT.

Edwards River, Mercer County Wetland Compensation Site
(FAP 310)

General Study Area and Vicinity

from the USGS Topographic Series, Viola, IL (USGS 1992) and
Matherville, IL (USGS 1991) 7.5 Minute Quadrangles
contour interval is 10 ft



Edwards River, Mercer County Wetland Compensation Site

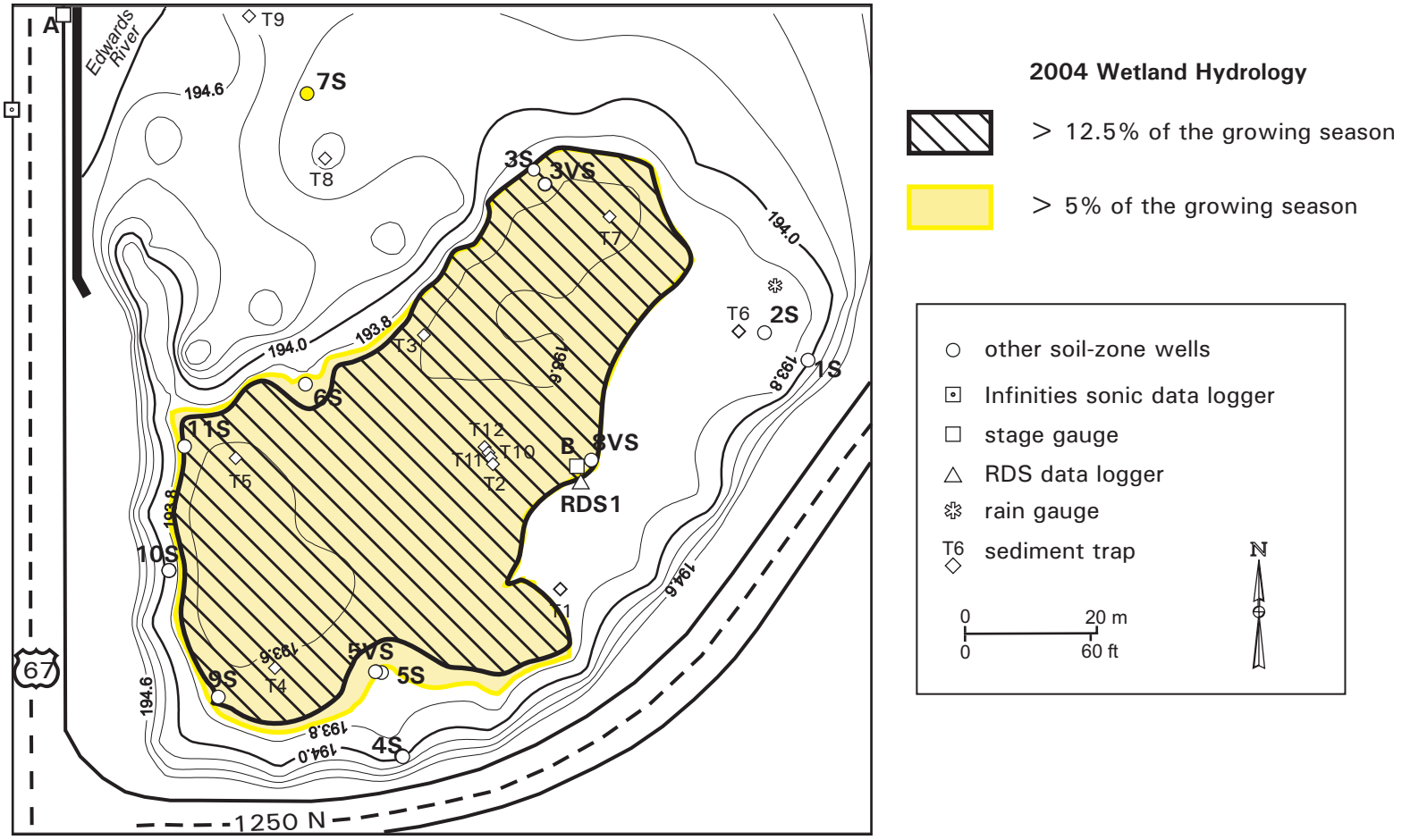
(FAP 310)

Estimated Areal Extent of 2004 Wetland Hydrology

based on data collected between September 1, 2003 and September 1, 2004

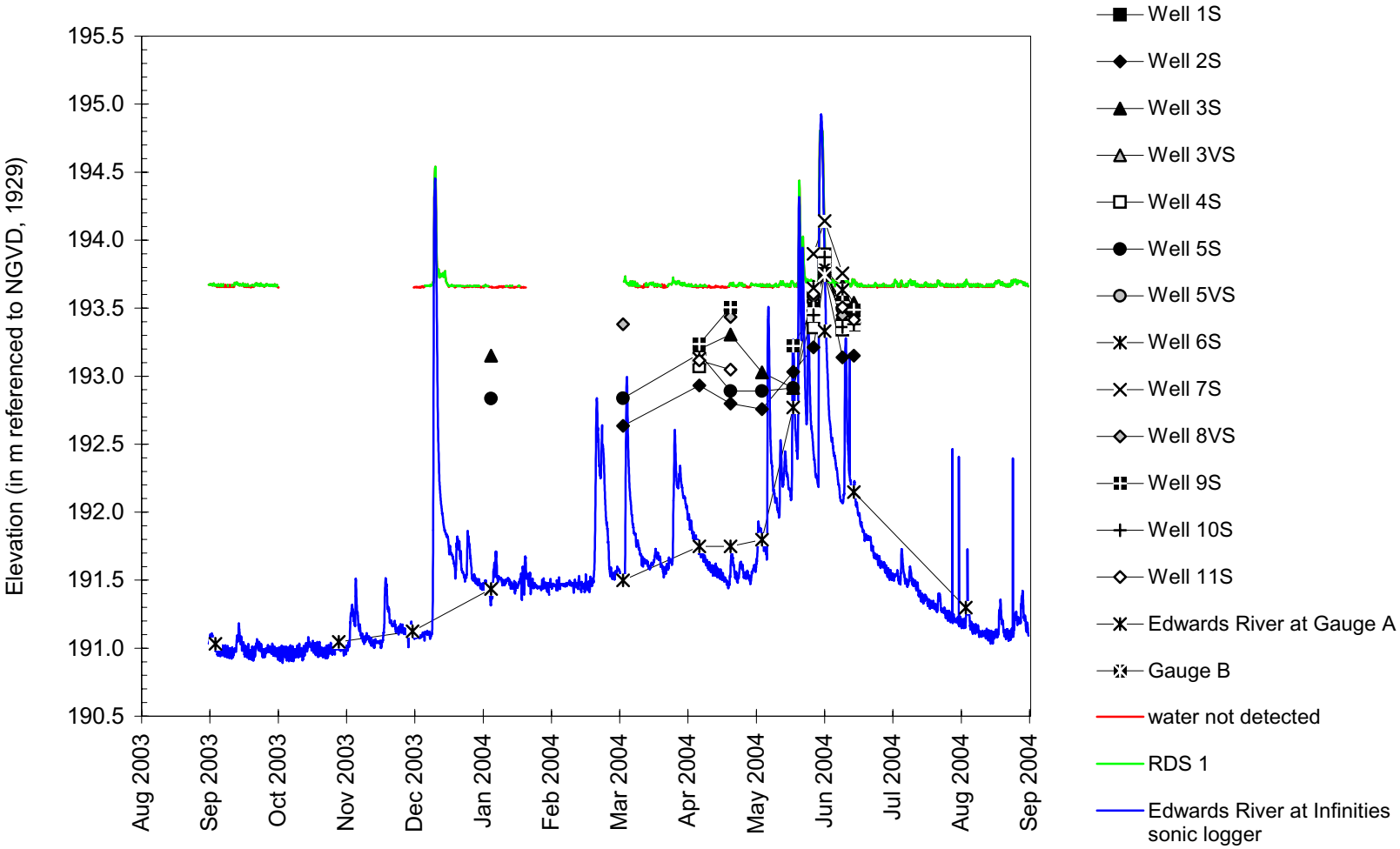
map based on 2002 ISGS elevation survey referenced to NGVD, 1929

contour interval is 0.2 meters

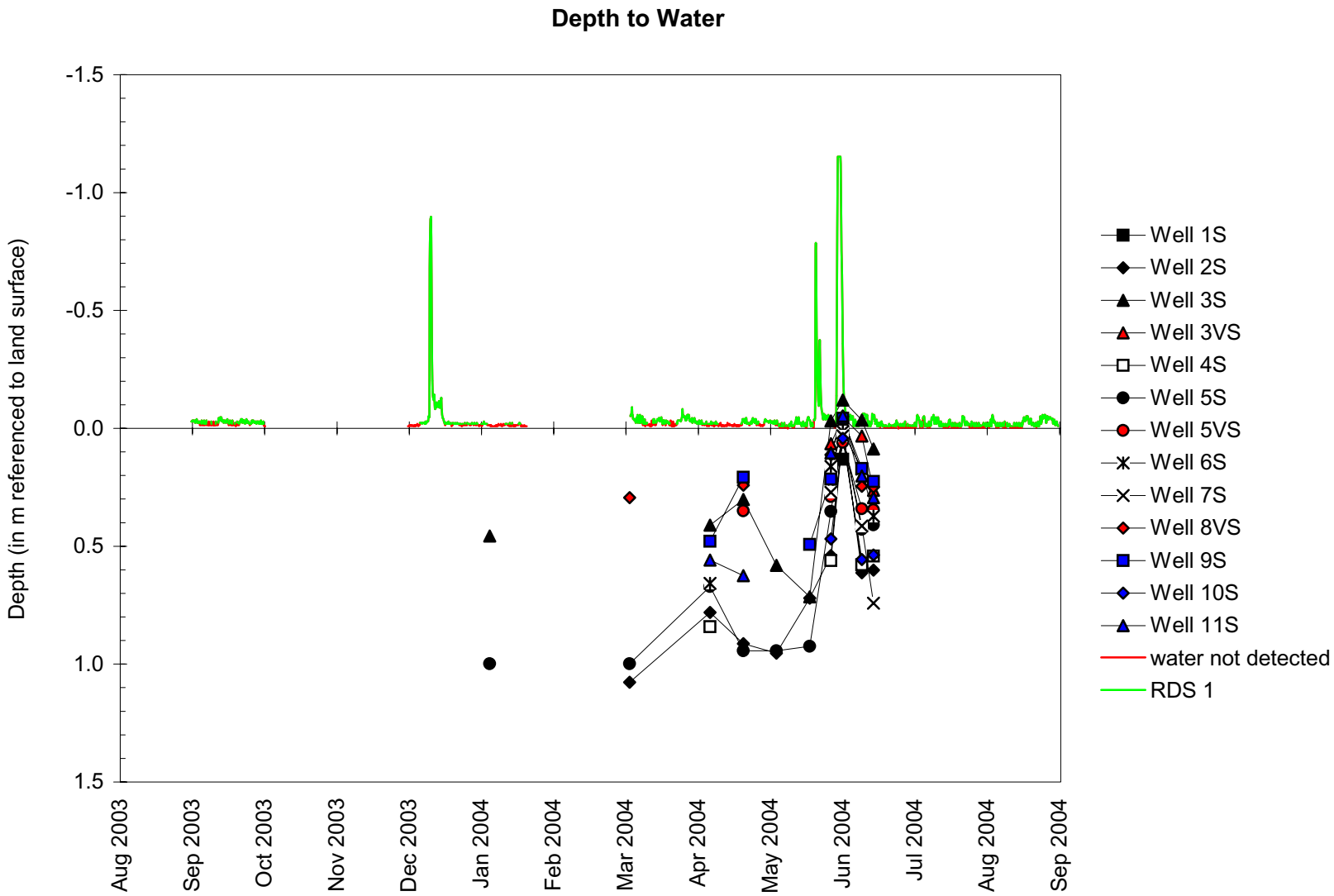


Edwards River, Mercer County Wetland Compensation Site
September 1, 2003 to September 1, 2004

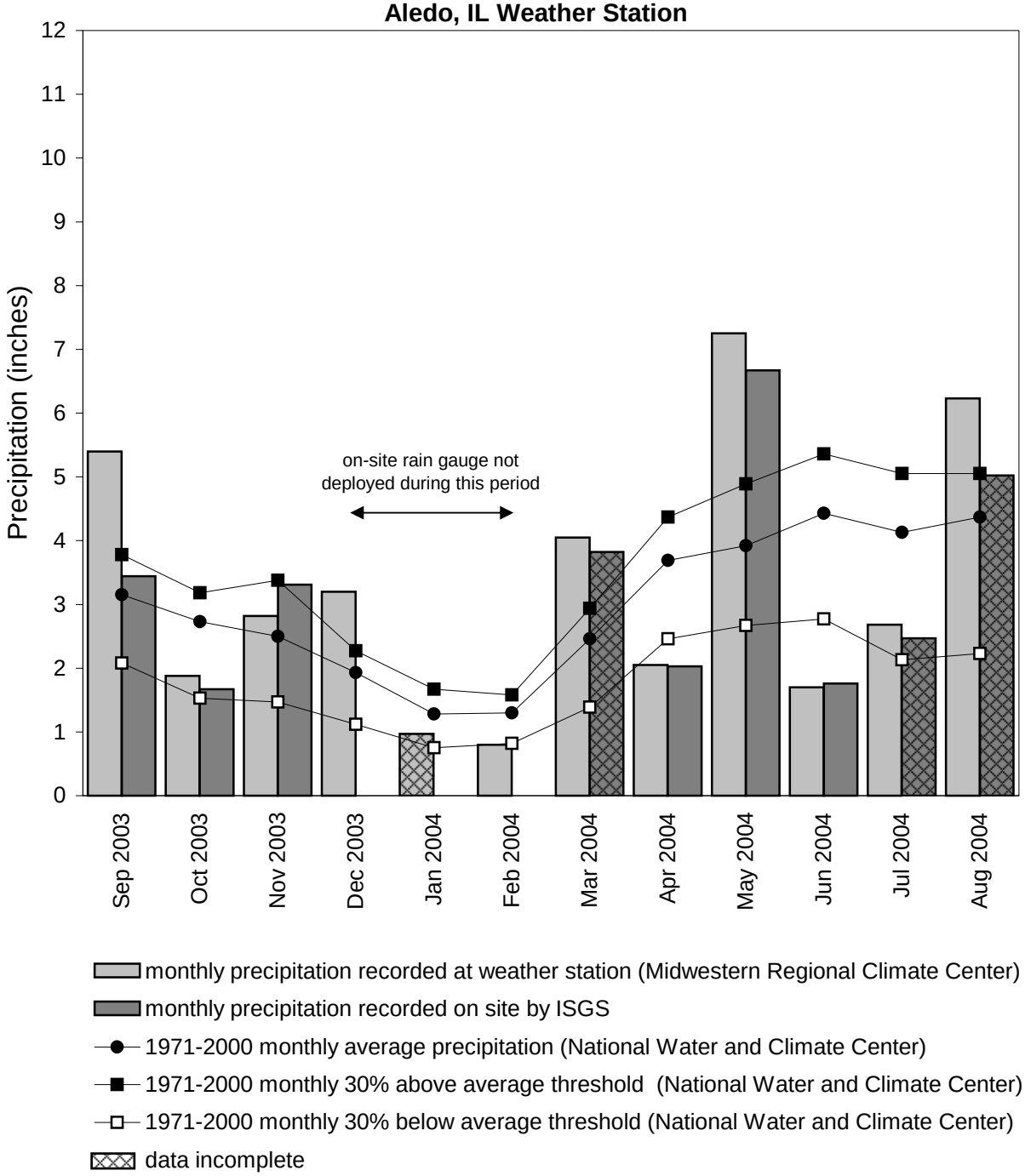
Water-Level Elevations



Edwards River, Mercer County Wetland Compensation Site
September 1, 2003 to September 1, 2004



Edwards River, Mercer County
Wetland Compensation Site
September 2003 through August 2004
Total Monthly Precipitation Recorded On Site and at the Aledo, IL Weather Station



Graph last updated October 1, 2004

FORMER LUEHMANN PROPERTY, NEW RIVER CROSSING **ISGS #51**
POTENTIAL WETLAND COMPENSATION SITE
FAP 999
Madison County, near Stallings, Illinois
Primary Project Manager: Bonnie J. Robinson
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- February 2000: The ISGS was tasked to perform a Level II hydrogeologic assessment of the site.

- March–June 2000: Nine well clusters, one staff gauge, one rain gauge and three water-level loggers were installed on site.

- April 2002: A Sonic water-level meter was added to the IL162 bridge over Cahokia Canal to record stage.

- August 2002: All wells located outside the new site boundaries were abandoned. A Starflow flow-velocity meter was installed in the east ditch NNE of well cluster nine.

- May 2003: A Level II hydrogeological characterization report was submitted to IDOT.

- June 2003: IDOT requested the suspension of ground-water monitoring. The collection of data from surface-water instruments is ongoing.

SUMMARY OF 2004 EVENTS

Because this site is a potential compensation site, and ground-water monitoring was suspended, an estimate of the areas satisfying the criteria for wetland hydrology is not required for this report.

- According to the Midwestern Climate Center, the median length of the growing season, as measured at the Belleville Weather Station, is 203 days (April 5 to October 25). Therefore, 12.5% of the growing season is 25 days and 5% of the growing season is 10 days.

- Precipitation at the nearby Edwardsville weather station during the monitoring period was 135% of normal. Precipitation values alternated between above and below normal for the entire monitoring period. Below normal precipitation in April 2004 (33% of normal) was followed by abnormally high precipitation in May 2004 (292% of normal).

- Although the largest flow recorded in the ditch at the south end of the site was not during the growing season, if the runoff could be maintained onsite into the spring, it could result in considerable flooding. During the growing season, there were five recorded events discharging between 3.1 and 12.9 ac-ft per event.

- Measurements in the Cahokia Canal indicate that the water level exceeded 127.0 m NGVD, 1929 (416 ft NAVD, 1988) on several occasions during the growing season, including May 1, 13–15, 19 and 25–31, 2004.

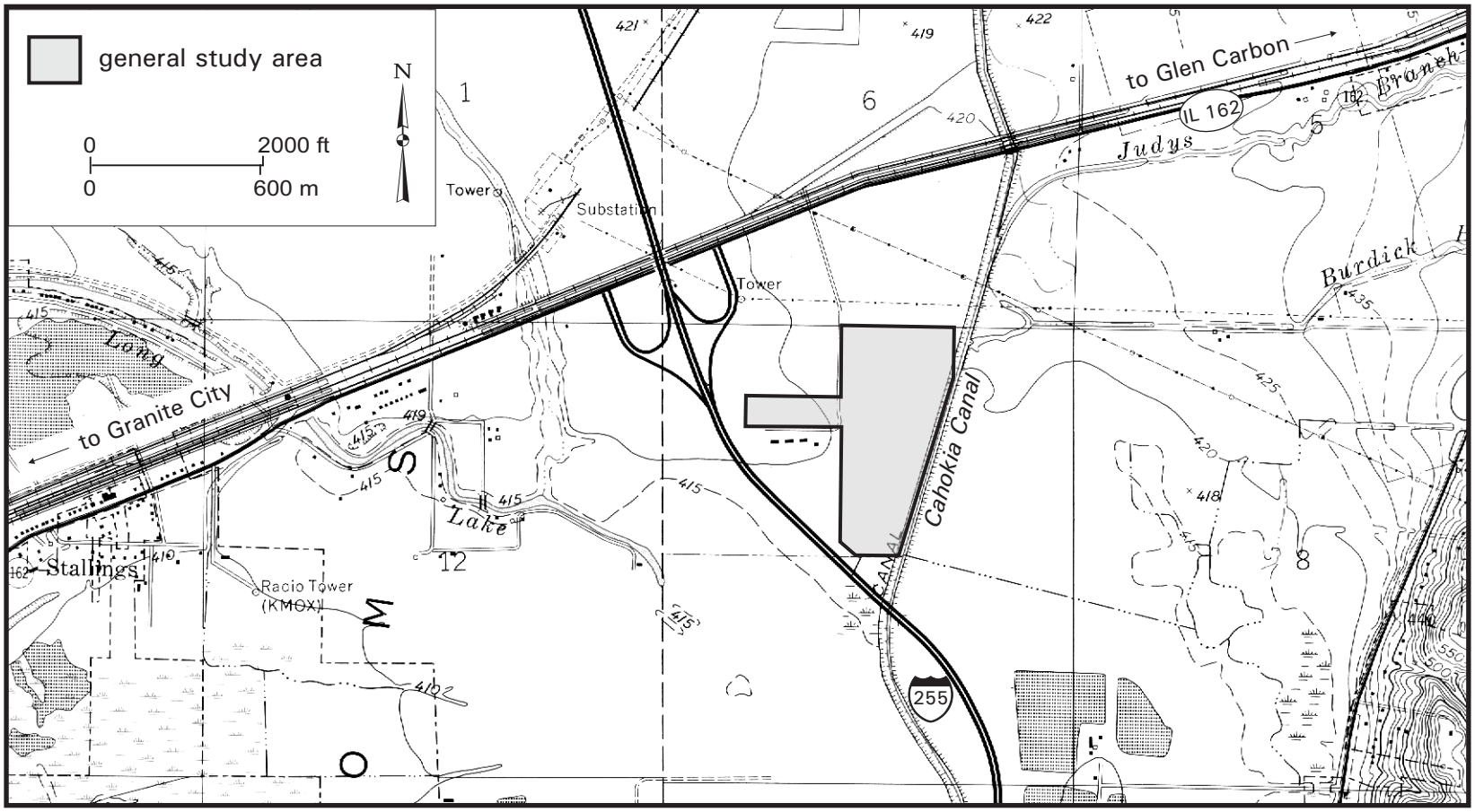
PLANNED FUTURE ACTIVITIES

- Soil permeability tests will be conducted on site in the fall of 2004.
- Collection of surface-water data will continue at this site until no longer required by IDOT.

Former Luehmann Property, New River Crossing Potential Wetland Compensation Site (FAP 999)

General Study Area and Vicinity

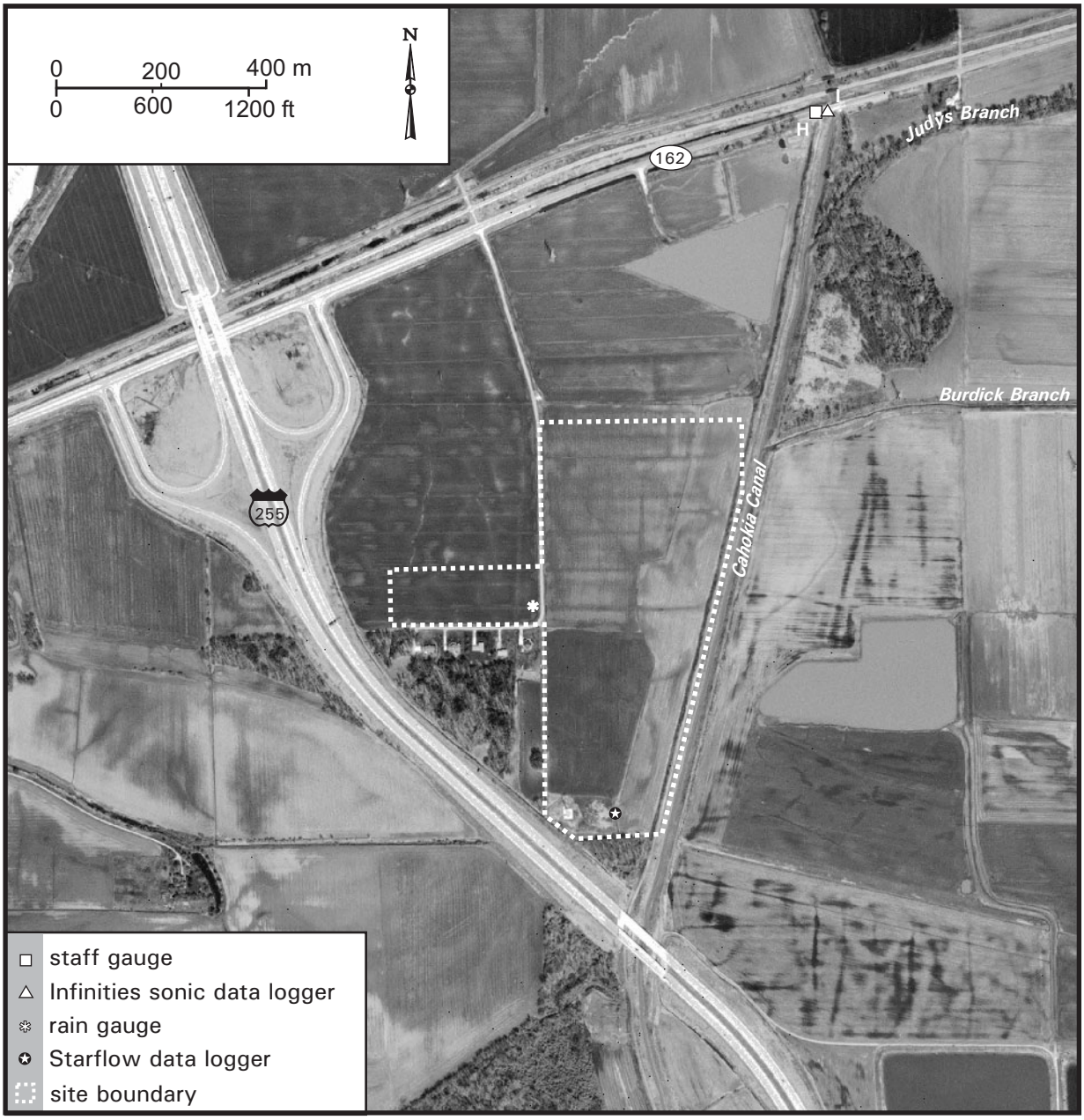
from the USGS Topographic Series, Monks Mound, IL 7.5-minute Quadrangle (USGS 1993)
contour interval is 10 feet



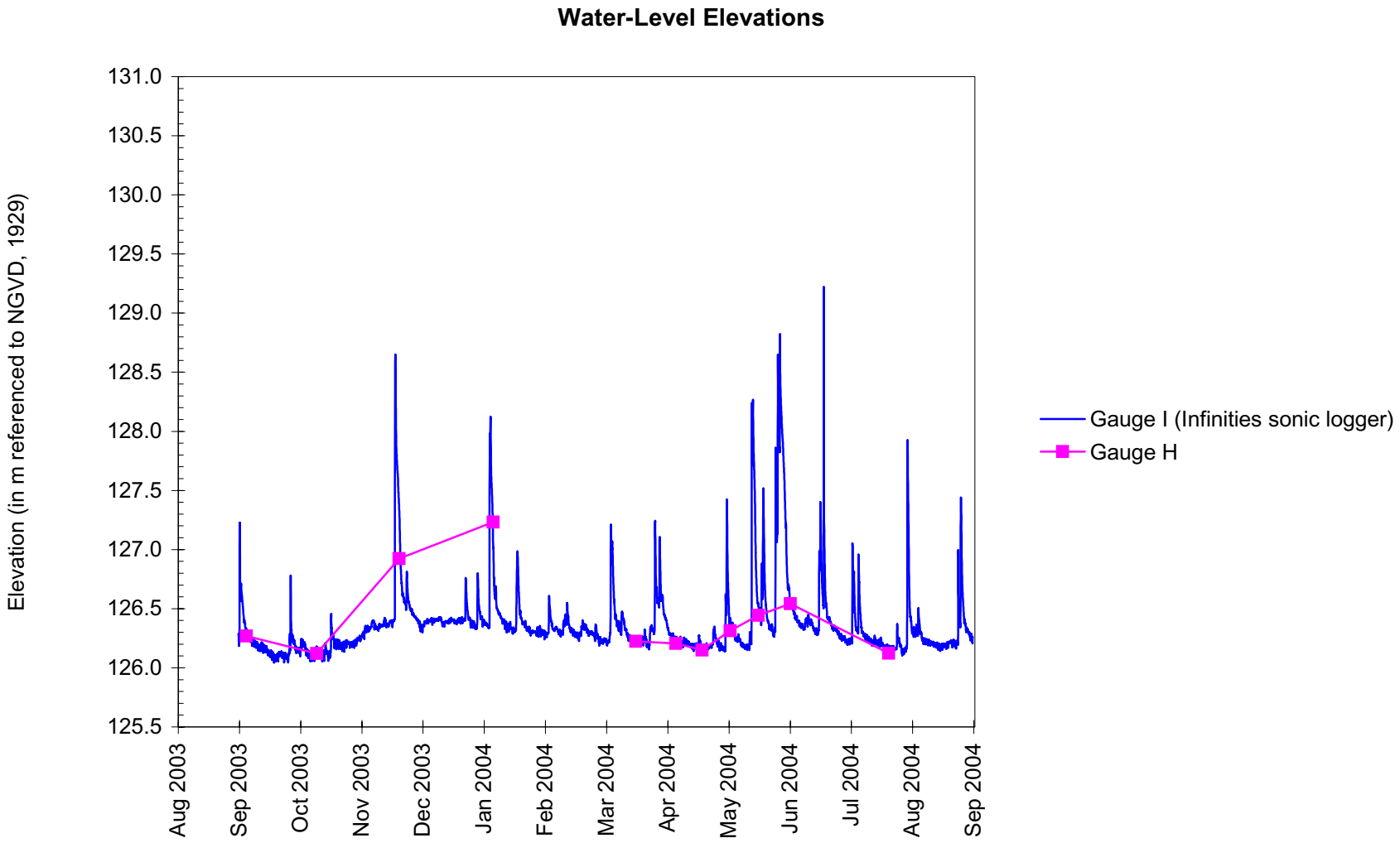
Former Luehmann Property, New River Crossing
Potential Wetland Compensation Site
(FAP 999)

Locations of ISGS Monitoring Instruments

map based on USGS digital orthophotograph, Monk's Mound NE quarter quadrangle
produced from 4/2/98 aerial photography (ISGS 2001)



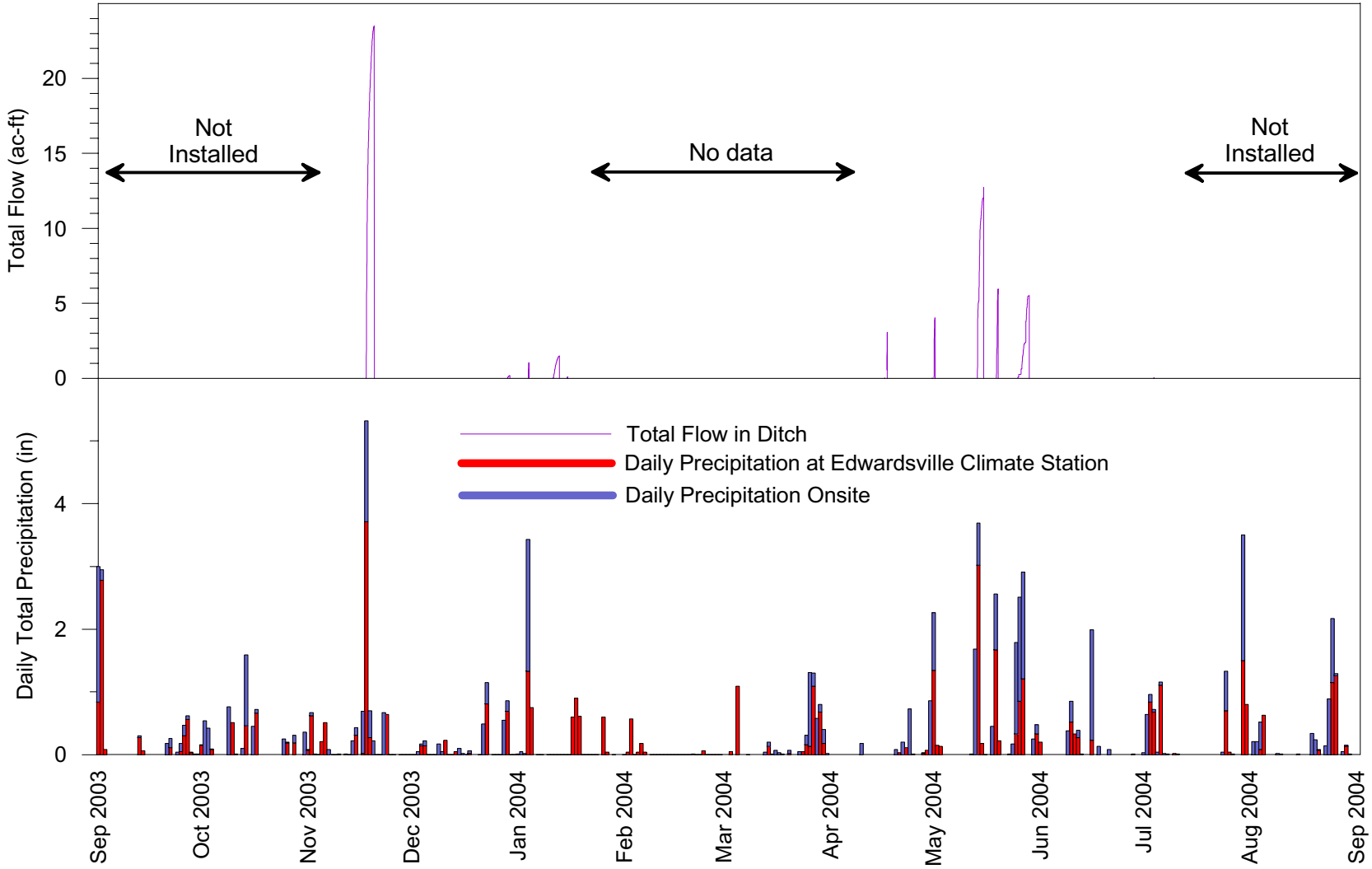
Former Luehmann Property, New River Crossing Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004



Former Luehmann Property, New River Crossing Potential Wetland Compensation Site

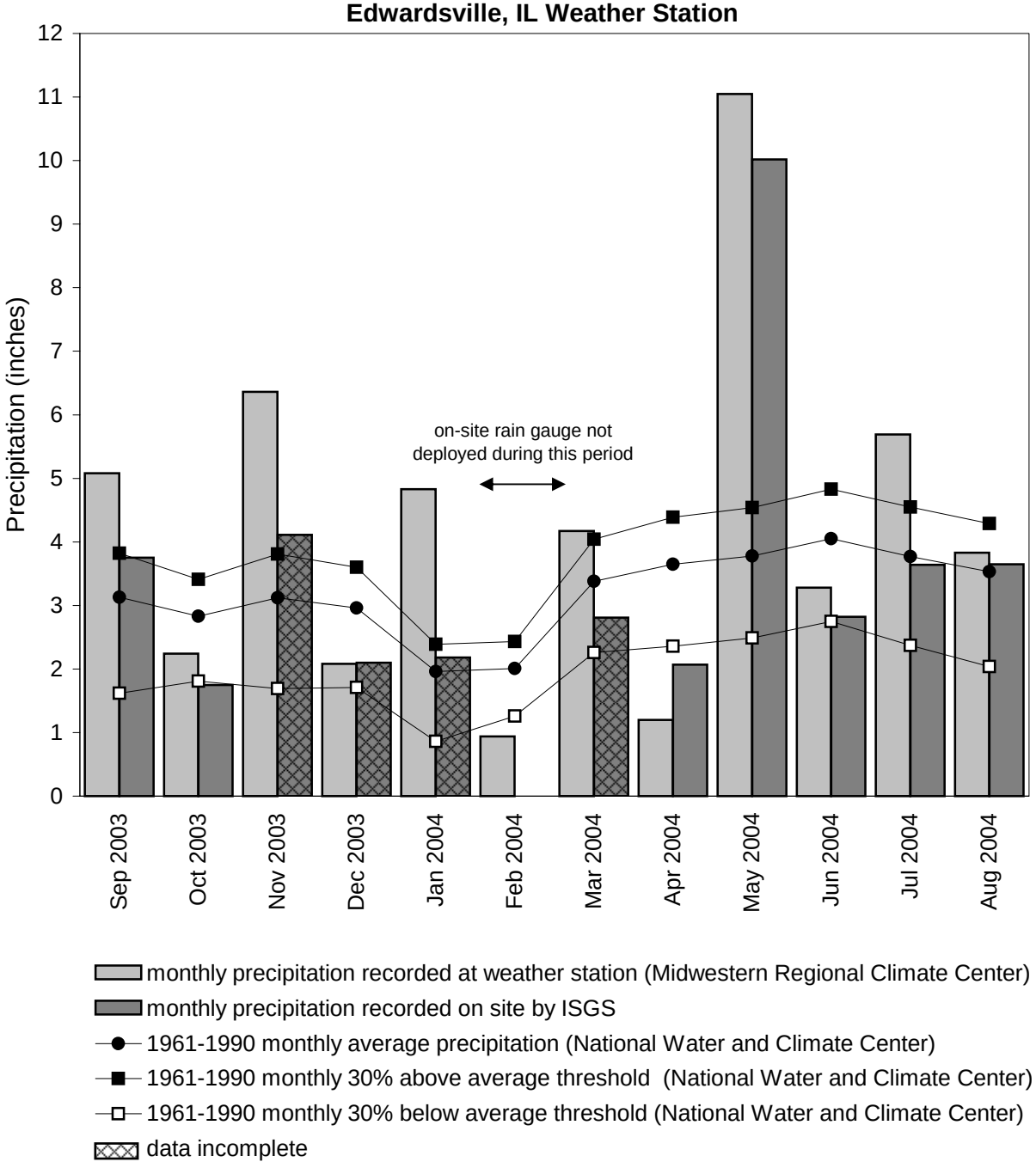
September 1, 2003 to September 1, 2004

Flow in the Ditch and Daily Precipitation



Former Luehmann Property, New River Crossing
Wetland Compensation Site
September 2003 through August 2004

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



Graph last updated October 1, 2004

FORMER WESSEL PROPERTY **ISGS #52**
LA GRANGE WETLAND BANK SITE
Brown County, near La Grange, Illinois
Primary Project Manager: Keith W. Carr
Secondary Project Manager: Geoffrey E. Pociask

SITE HISTORY

- February 2000: ISGS was tasked by IDOT to conduct a Level II hydrogeologic assessment of the site.

- Spring 2000: ISGS began on-site activities with the installation of surface-water monitoring equipment and two monitoring wells in selected areas.

- Spring, Summer, and Fall 2001: ISGS installed wetland hydrology monitoring instrumentation at the site; IDOT completed a preliminary topographic survey of the site based on data acquired during the summer of 2000.

- February 2002: IDOT prepared an initial wetland banking prospectus.

- May 2002: Levees breached at two locations on the site; major portions of the site were inundated for approximately 45 days. Later in the month, the banking prospectus prepared by IDOT was presented to a group representing the Mitigation Bank Review Team (MBRT).

- August 2002: IDOT tasked ISGS and INHS to prepare a draft wetland banking instrument.

- February 2003: IDOT submitted a draft wetland banking instrument to the MBRT; final revisions are ongoing through a comment/review process.

- 2004: The bank site was declared an Exemplary Ecosystem Initiative by the Federal Highway Administration.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area of the site that satisfied wetland hydrology criteria for greater than 5% of the growing season in 2004 was 1004 ac (406 ha). In addition, 876 ac (354 ha) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. These estimates are based on the following factors:

- According to the Midwestern Climate Center, the median date that the growing season begins in nearby Rushville is April 6 and the season lasts 208 days; 5% of the growing season is 10 days and 12.5% of the growing season is 26 days.

- During the period from September 2003 to August 2004, a significant portion of the data were missing from the two nearby MRCC weather stations (Beardstown and Rushville). Due to flood damage of the ISGS rain gauge, as well as database problems at the nearby MRCC stations, June, July and August of 2004 lack any sort of complete precipitation data set. Nevertheless, using data from both MRCC stations, augmented with ISGS on-site data where available, total precipitation at the site (and in the vicinity) between September 2003 and March 2004 was found to be generally below the normal range, leading to relatively dry

conditions at the start of the growing season. The three months immediately preceding the 2004 growing season (January to March) were especially dry, with precipitation only about 52% of normal. Precipitation returned to the normal range in May 2004, contributing to the eventual flooding of the site.

- In 2004, water levels measured in the following 16 soil-zone wells satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual. Soil-zone wells showing saturation for greater than 5% of the growing season included 6S, 7S, 8S, 9S, 10S, 11S, 12S, 13S, 15S, 16S, 17S, 18S, 19S, 20S, 21S and 23S. In addition, the same 16 wells also satisfied wetland hydrology criteria for greater than 12.5% of the growing season.

- Also in 2004, data loggers, staff gauges, and off-site U.S. Army Corps of Engineers gauging data indicated surface-water inundation in the Big Lake basin to an elevation of 132.35 m (434.21 ft) for a period greater than 5% of the growing season. The same suite of loggers and gauges also showed surface-water inundation in the Big Lake basin to a slightly lower elevation of 132.10 m (433.39 ft) for a period greater than 12.5% of the growing season. This difference in inundation elevation, amounting to 0.25 m (0.82 ft), was the primary reason for the slightly greater acreage of documented wetland hydrology at the 5% threshold (in comparison to the 12.5% threshold).

- Limitations of the wetland hydrology determination are as follows:
  - On several occasions during this monitoring year, persons unknown opened or closed a gate valve connecting the site to the Illinois River in order to raise or lower water levels across the site. The actual area and timing of wetland hydrologic conditions may have been affected by these changes.
  - The area of wetland hydrology was calculated using GIS methods. The wetland hydrology polygons were guided by both soil-zone well locations, and by a topographic map of the site. This map, produced from ground-surface elevations surveyed by IDOT, was generated with a 0.25 m [0.76 ft]) contour interval and superimposed on a DOQ of the site.
  - Instrument locations were determined using a differentially-corrected Trimble GPS unit. These GPS locations were superimposed on a digital orthophotograph, and were subsequently entered into the GIS model of the site.

PLANNED FUTURE ACTIVITIES

- Monitoring of hydrology will continue until no longer required by IDOT.

- Installation of five to six additional soil-zone monitoring wells may help improve delineation of wetland hydrology in some portions of the site.

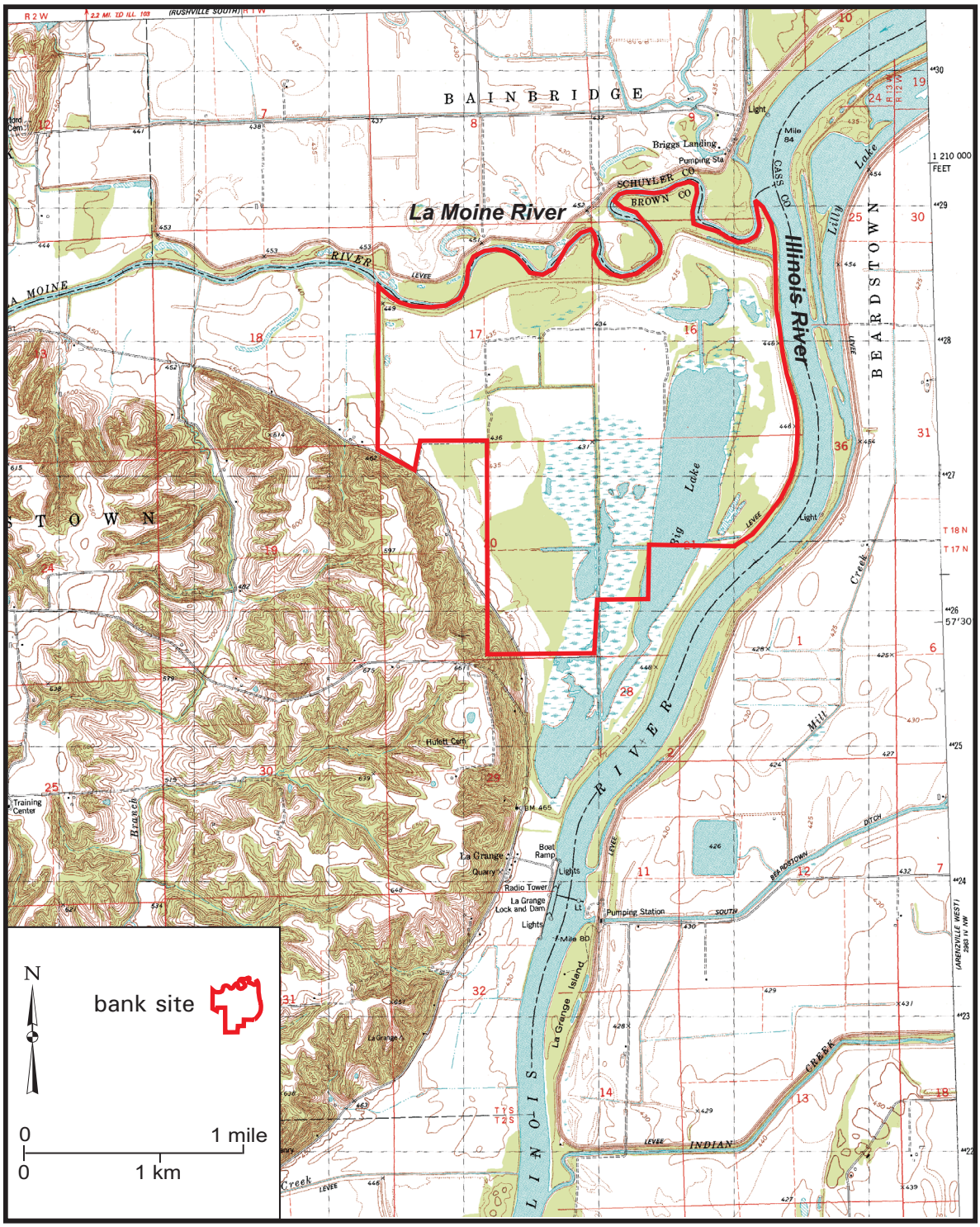
- Current plans call for the installation of a network of staff gauges to measure sediment accumulation across the site. Installation will likely take place in the Spring of 2005.

- A Level II Hydrogeologic Characterization Report prepared for this site is currently in review.

Former Wessel Property, La Grange Wetland Bank Site

General Study Area and Vicinity

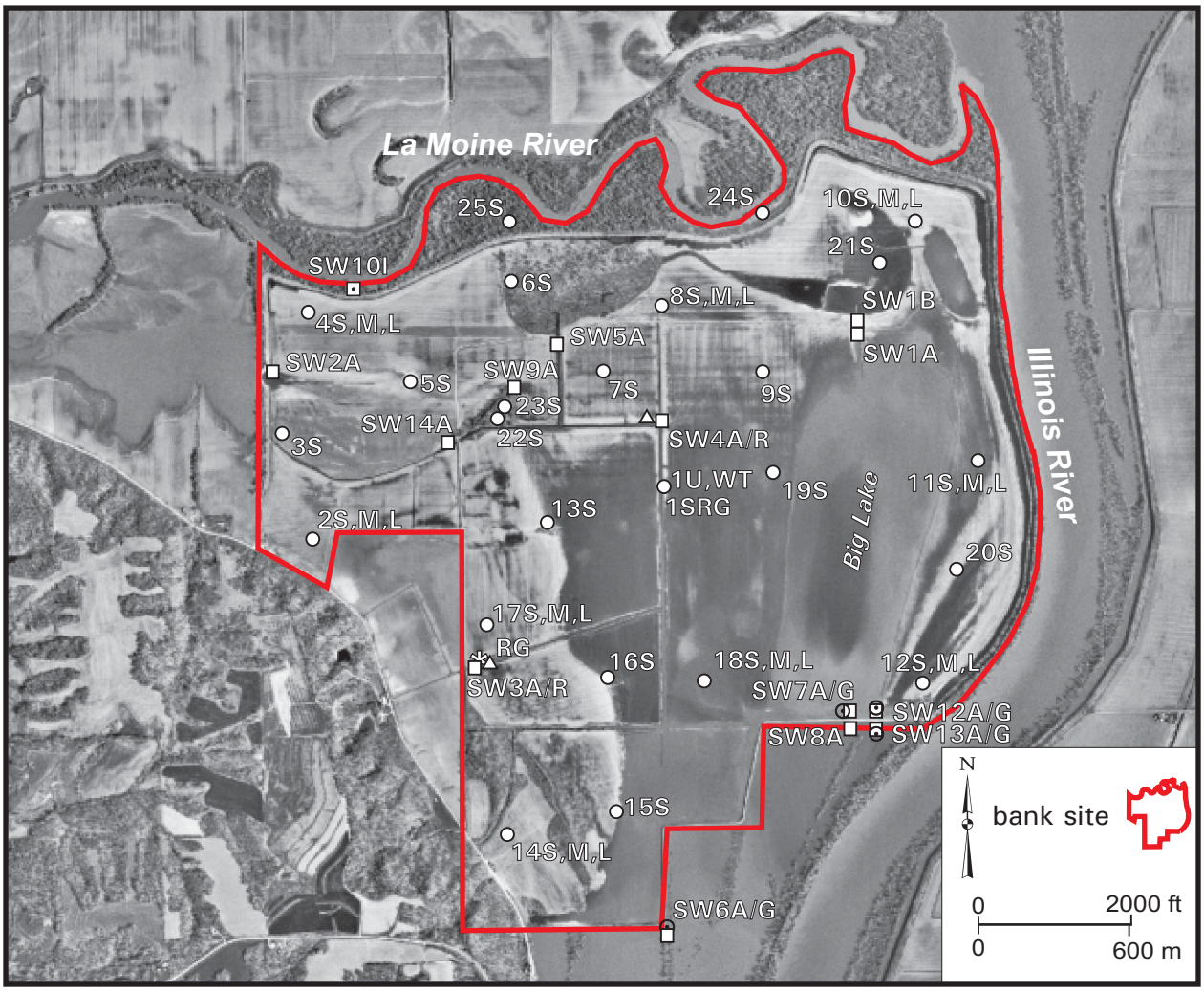
from the USGS Topographic Series, Cooperstown, IL 7.5-minute Quadrangle (USGS 1980)
contour interval is 10 feet



Former Wessel Property, La Grange Wetland Bank Site

Locations of ISGS Monitoring Equipment

map based on USGS digital orthophotograph Cooperstown, NE quarter quadrangle
produced from 4/14/98 aerial photography (ISGS 2002)



△ RDS data logger

○ monitoring well

❄ rain gauge

□ staff (stage) gauge

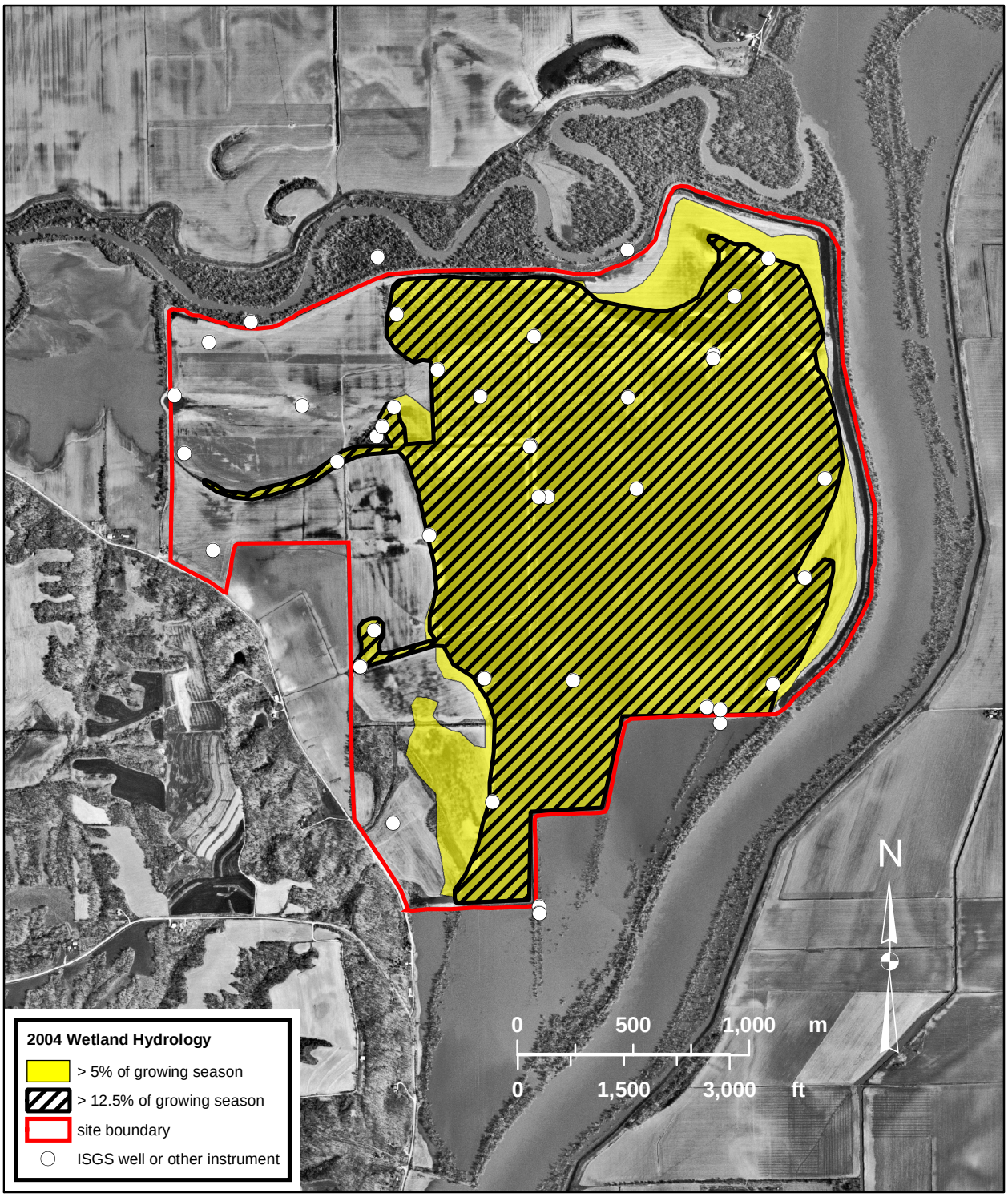
⊙ Global data logger

⊡ Sonic data logger

Former Wessel Property, La Grange Wetland Bank Site

Extent of 2004 Wetland Hydrology

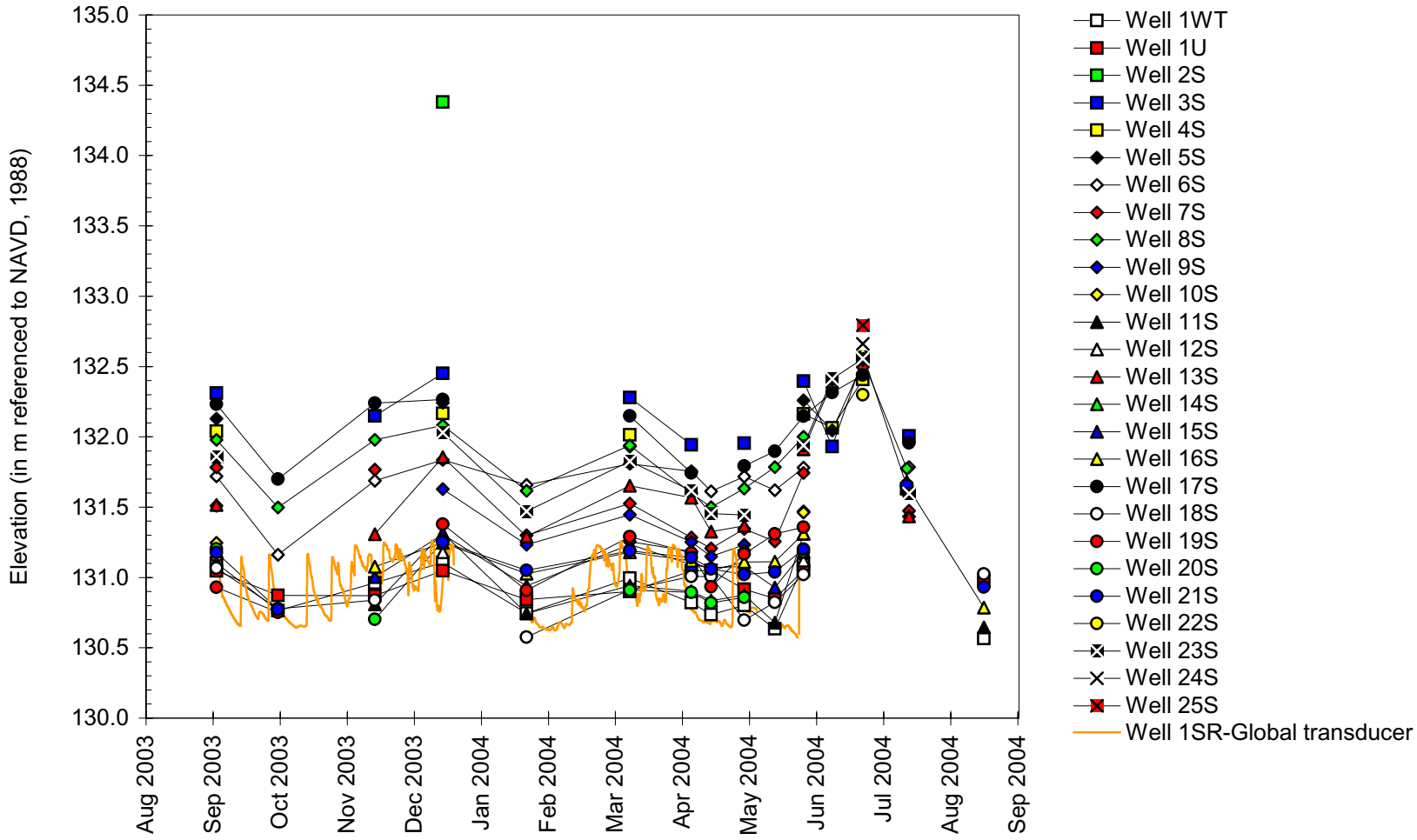
map based on USGS digital orthophotograph, Cooperstown, NE quarter quadrangle
produced from 4/14/98 aerial photography (ISGS 2002)



Former Wessel Property, La Grange Wetland Bank Site

September 1, 2003 to September 1, 2004

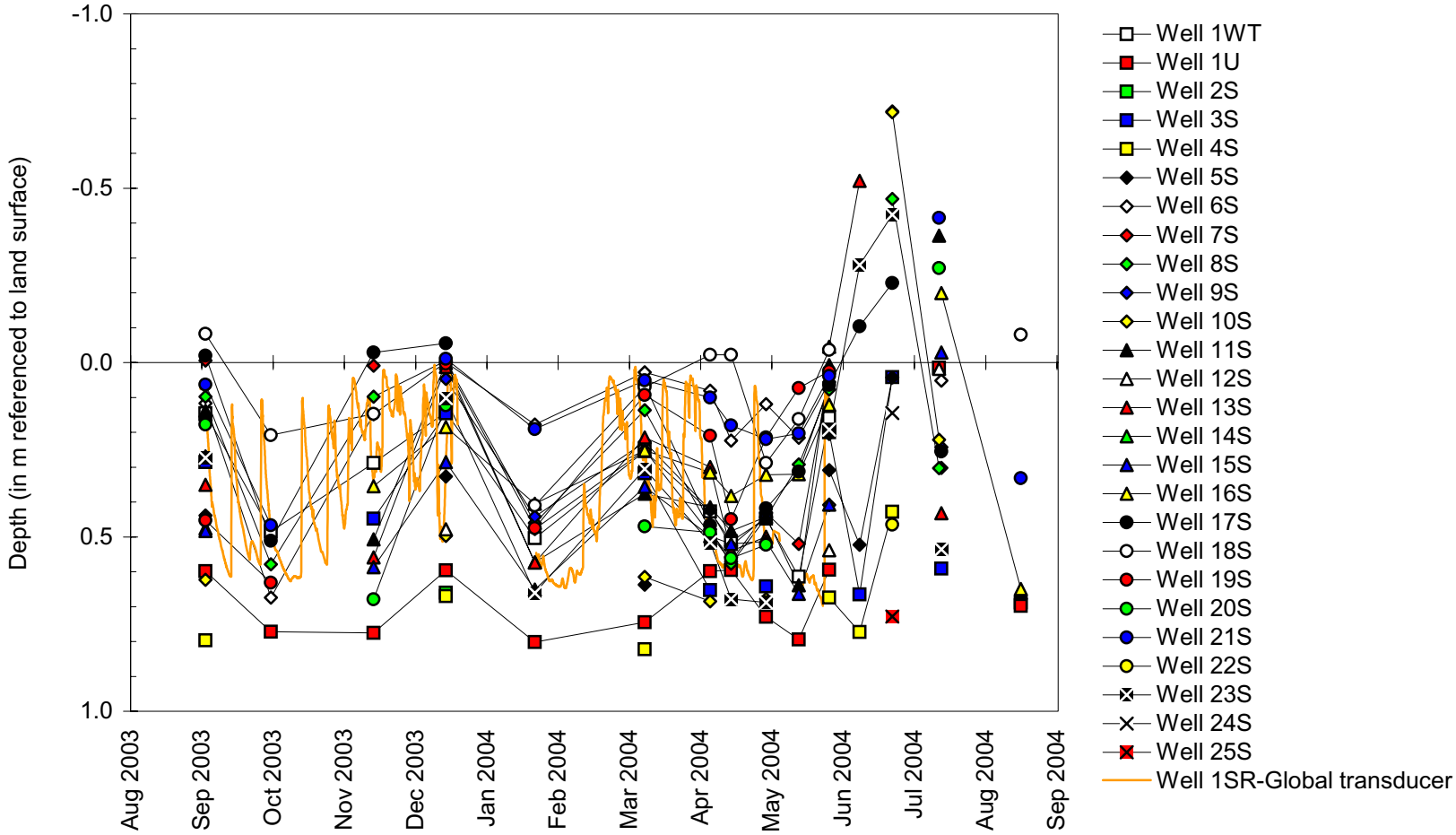
Water-Level Elevations in Shallow Monitoring Wells



Former Wessel Property, La Grange Wetland Bank Site

September 1, 2003 to September 1, 2004

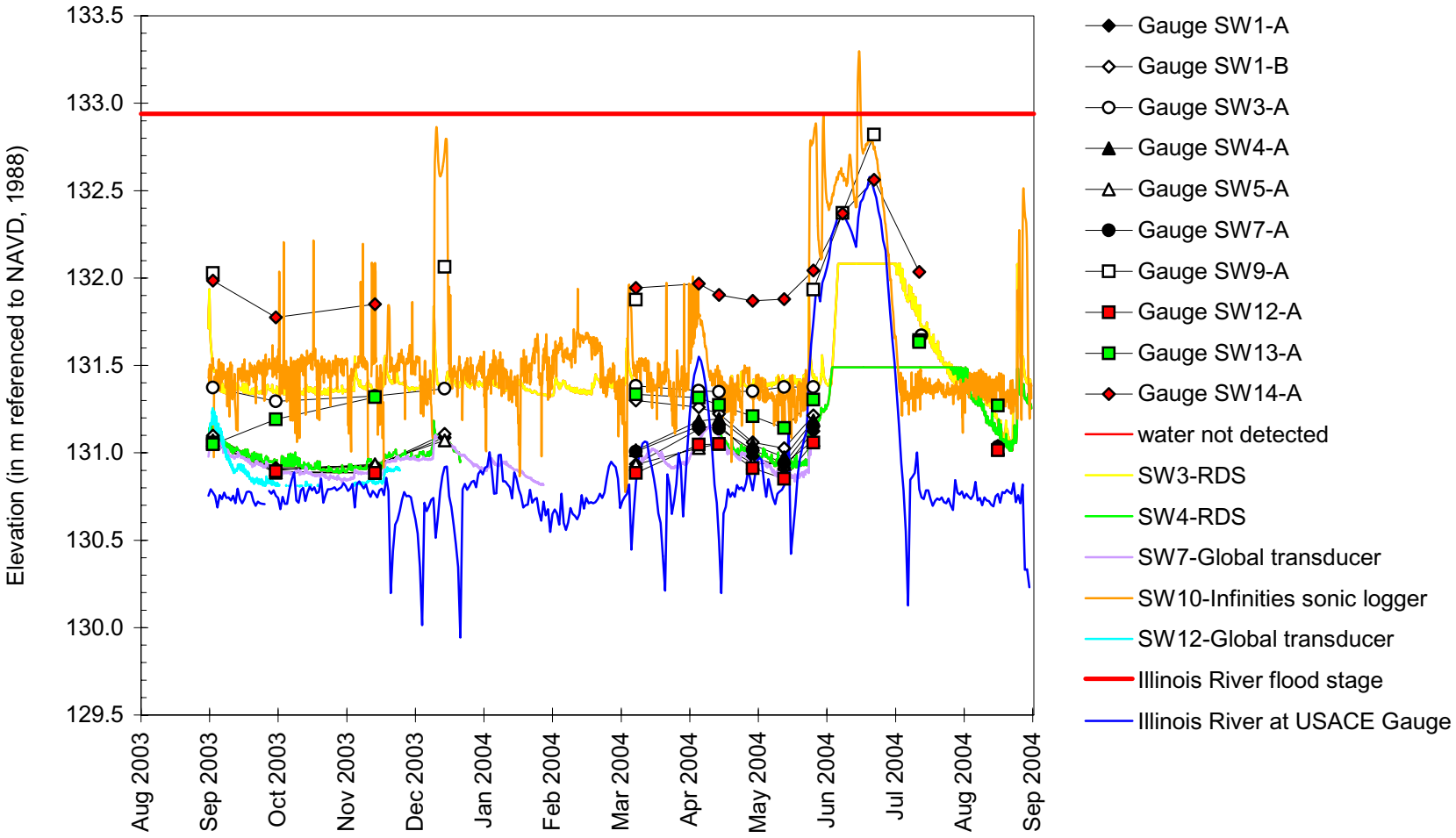
Depth to Water
in Shallow Monitoring Wells



Former Wessel Property, La Grange Wetland Bank Site

September 1, 2003 to September 1, 2004

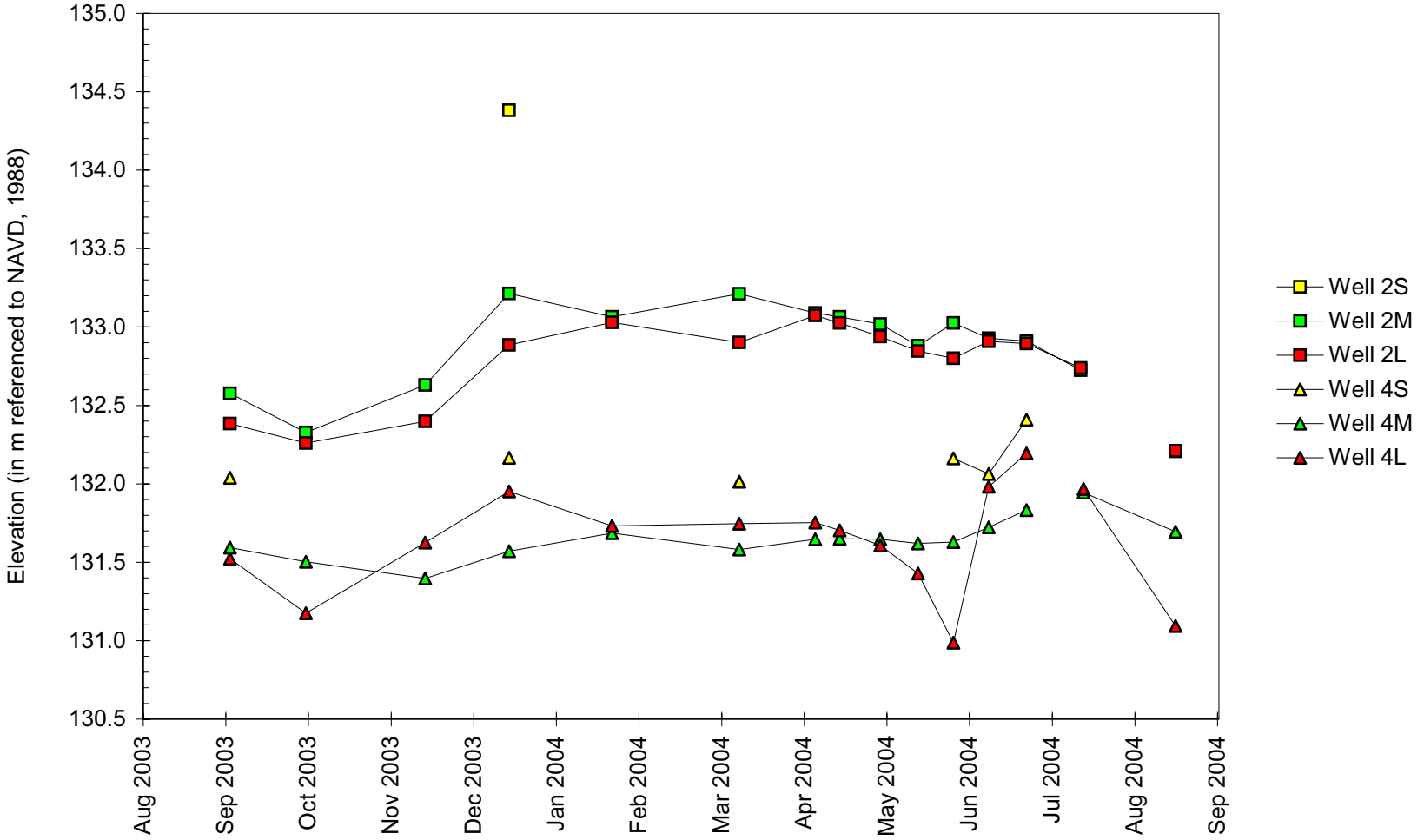
Water-Level Elevations on Stage Gauges and Data Loggers



Former Wessel Property, La Grange Wetland Bank Site

September 1, 2003 to September 1, 2004

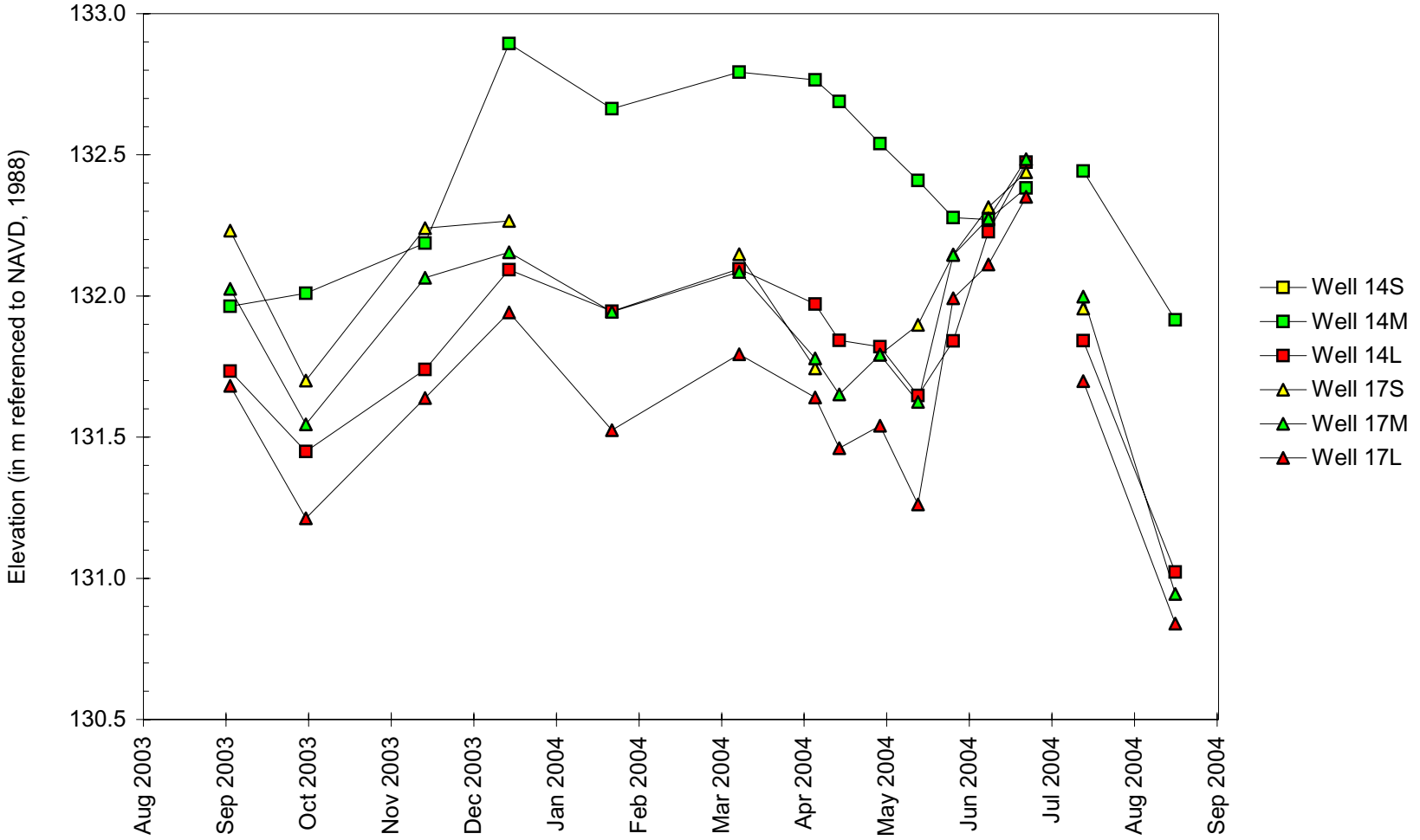
Water-Level Elevations in Well Nests on the Upper Terrace



Former Wessel Property, La Grange Wetland Bank Site

September 1, 2003 to September 1, 2004

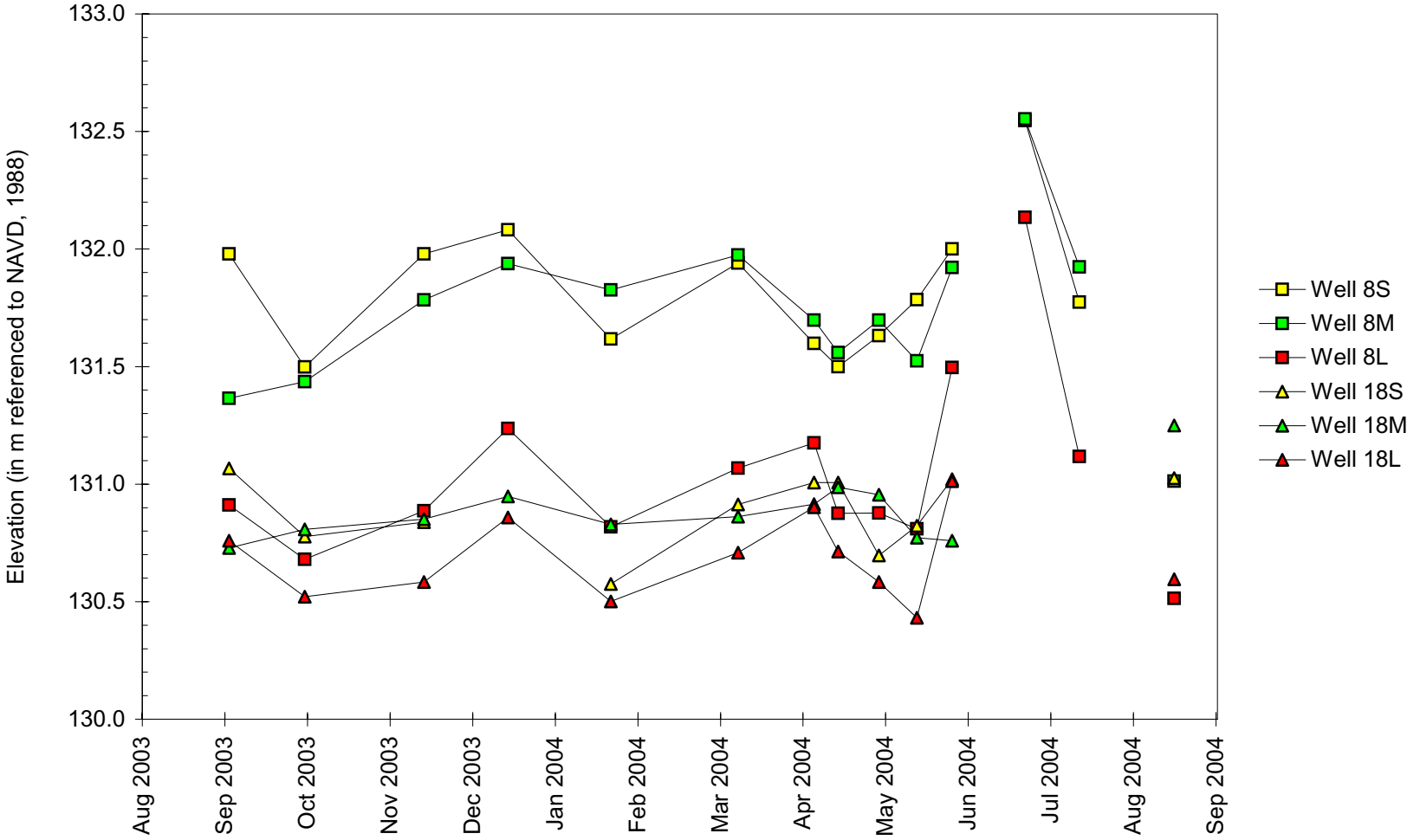
Water-Level Elevations in Well Nests on the Upper Terrace



Former Wessel Property, La Grange Wetland Bank Site

September 1, 2003 to September 1, 2004

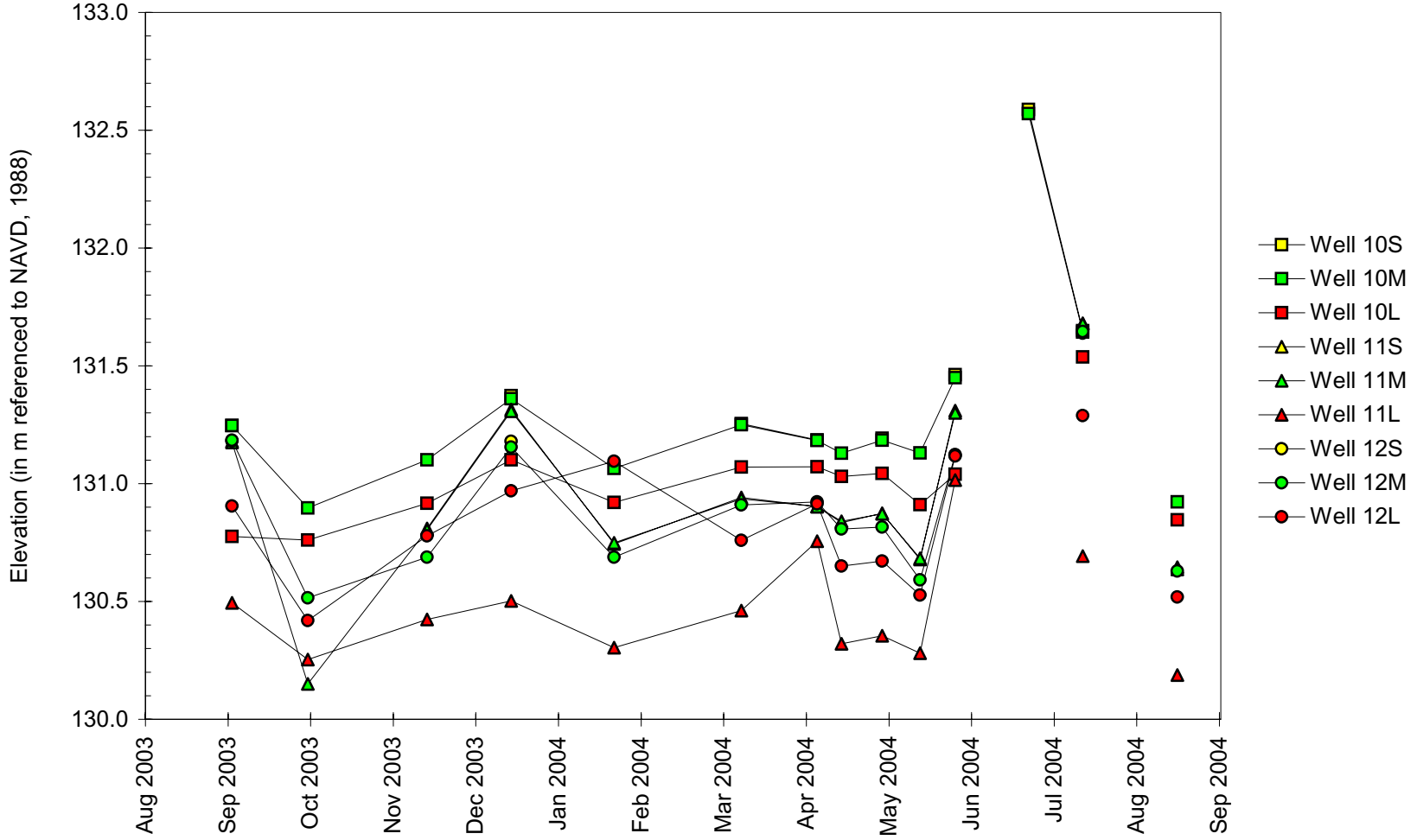
Water-Level Elevations in Well Nests on the Lake Plain



Former Wessel Property, La Grange Wetland Bank Site

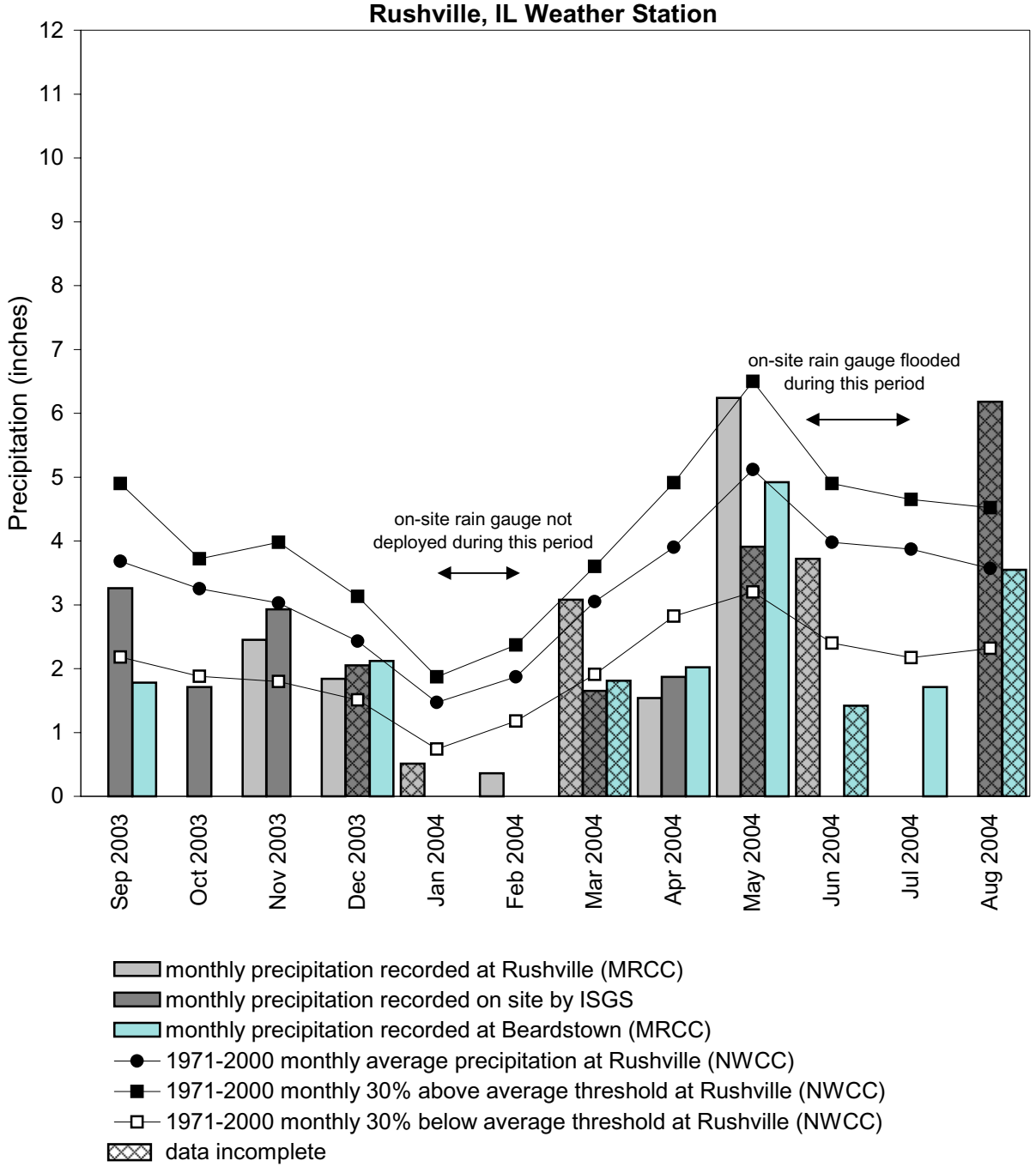
September 1, 2003 to September 1, 2004

Water-Level Elevations in Well Nests near the River



Former Wessel Property,
La Grange Wetland Bank Site
September 2003 through August 2004

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



Graph last updated October 1, 2004

FAIRMONT CITY, NEW RIVER CROSSING **ISGS #53**
POTENTIAL WETLAND COMPENSATION SITE
FAP 999
St. Clair County, near Fairmont City, Illinois
Primary Project Manager: Steven E. Benton
Secondary Project Manager: not assigned

SITE HISTORY

- August 1999: The ISGS conducted an initial site evaluation of the proposed compensation site. The results were reported to IDOT by letter in November.

- June 2000: IDOT requested that the ISGS perform a Level II investigation of the proposed compensation site.

- September 2000: Field work commenced at the site with the installation of a ground-water and surface-water monitoring network.

- March 2003: A Level II hydrogeologic characterization report was submitted to IDOT.

WETLAND HYDROLOGY CALCULATION FOR 2004

The area of the site that satisfied wetland hydrology criteria (U.S. Army Corps of Engineers 1987) for more than 5% of the 2004 growing season was estimated to be 30.6 ac (12.4 ha). The area that satisfied wetland hydrology criteria for more than 12.5% of the 2004 growing season was also estimated to be 30.6 ac (12.4 ha). These estimates are based on the following factors:

- According to the Midwestern Climate Center, the median length of the growing season at Belleville, Illinois is 203 days, starting April 5 and ending October 24. Therefore, 12.5% of the growing season is 25 days.

- Total precipitation recorded at the Belleville, Illinois weather station during the 2004 monitoring period was 49.07 inches, which was 125% of normal. The wettest month during the period was May 2004 (209% of normal), and the driest month was April 2004 (34% of normal). The longest period of below normal precipitation was from February 2004 to April 2004. There were no extended periods greater than 2 months of above normal precipitation.

- In 2004, water levels in monitoring wells 1S, 2S, 3S, 4S, 5S, 8S, 12S, 13S, 14S, 15S, and 17S satisfied the wetland hydrology criteria for more than 5% of the growing season. These wells also satisfied the wetland hydrology criteria for more than 12.5% of the growing season.

- Water levels in the three monitoring wells (20S, 21S, and 22S) on the Fairmont City 2 site also satisfied the wetland hydrology criteria for more than 5% of the growing season. These wells also satisfied the wetland hydrology criteria for more than 12.5% of the growing season. Due to the limited areal coverage of these wells, no wetland hydrology polygon was drawn.

- Surface-water data recorded by RDS1 reveal that the portions of the Fairmont City 1 site

below an elevation of 122.3 m were inundated for more than 5% of the growing season, and the portions below an elevation of 122.2 m were inundated for more than 12.5% of the growing season. No other areas were inundated for more than 5% of the growing season.

- Surface-water data recorded by RDS3/Global2 on the Fairmont City 2 site reveal that the portions of the site below an elevation of 122.2 m were inundated for more than 12.5% of the growing season. Due to the limited areal coverage of the data logger, no wetland hydrology polygon was drawn.

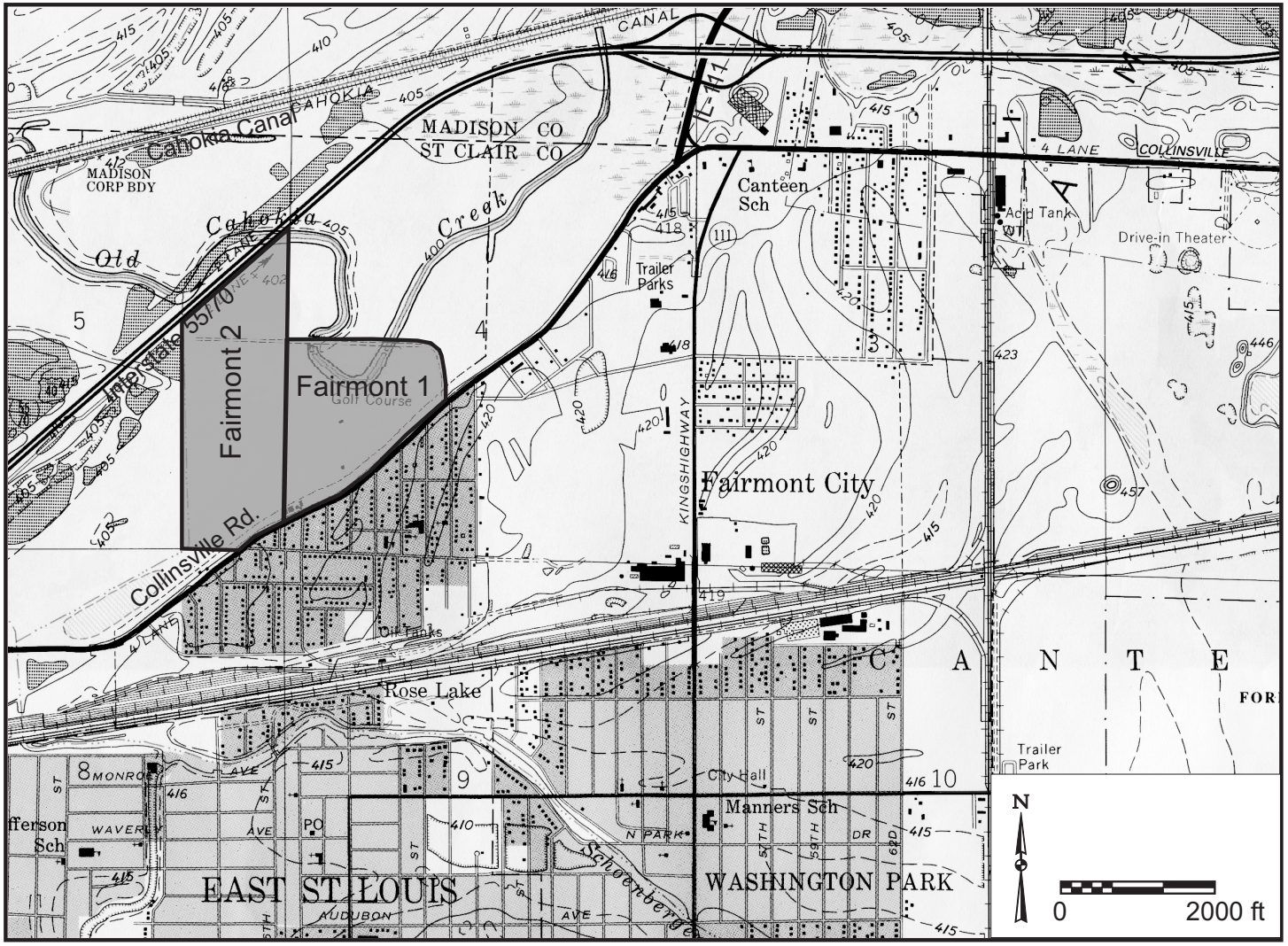
PLANNED FUTURE ACTIVITIES

- Surface- and ground-water monitoring will continue at this site until notified otherwise by IDOT.

Fairmont City, New River Crossing Potential Wetland Compensation Site (FAP 999)

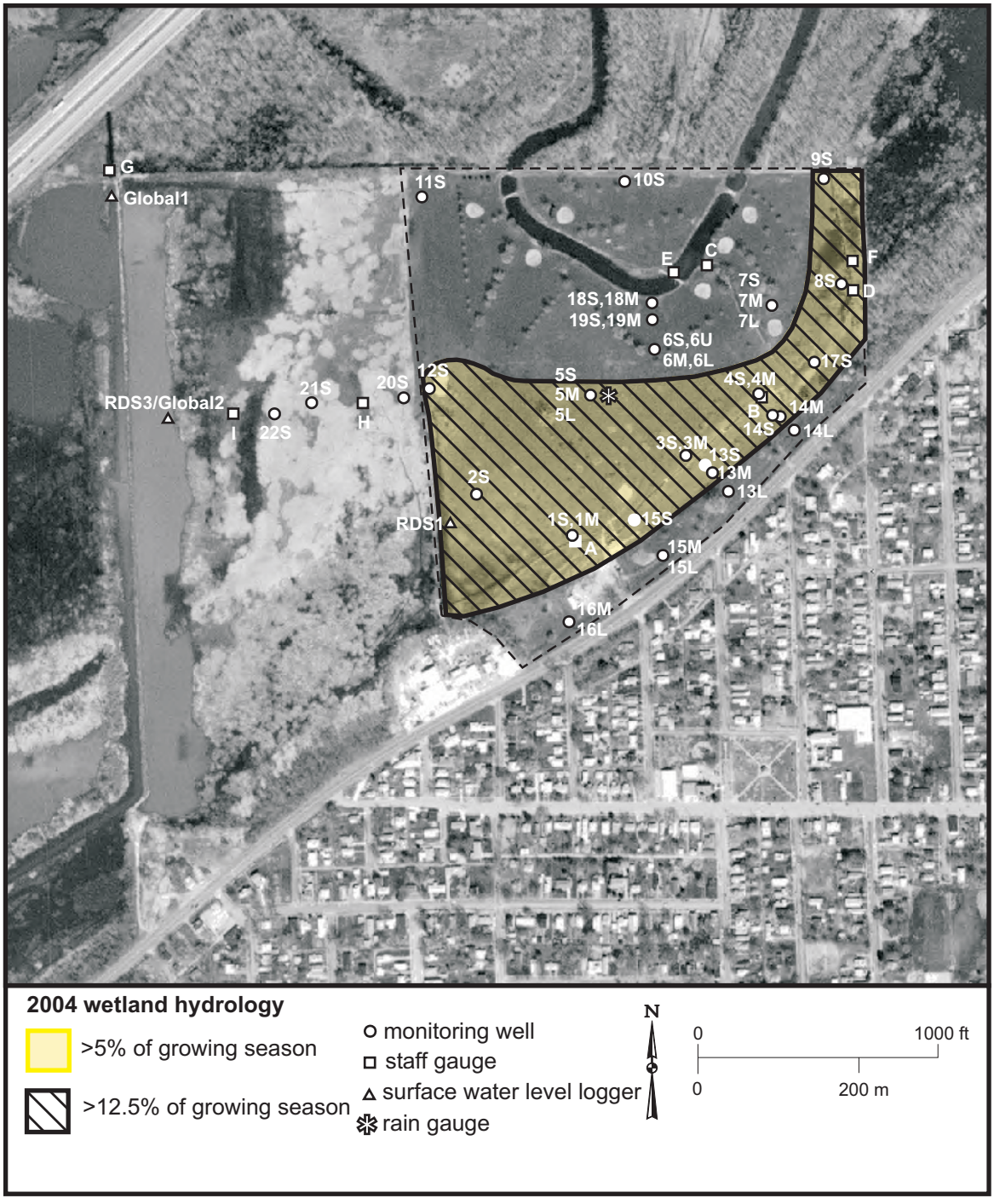
General Study Area and Vicinity

from the USGS Topographic Series, Monks Mound, IL 7.5-minute Quadrangle (USGS 1993)



Fairmont City Potential Wetland Compensation Site
(FAP 999)
Extent of 2004 Wetland Hydrology
based on data collected between September 1, 2003 and September 1, 2004

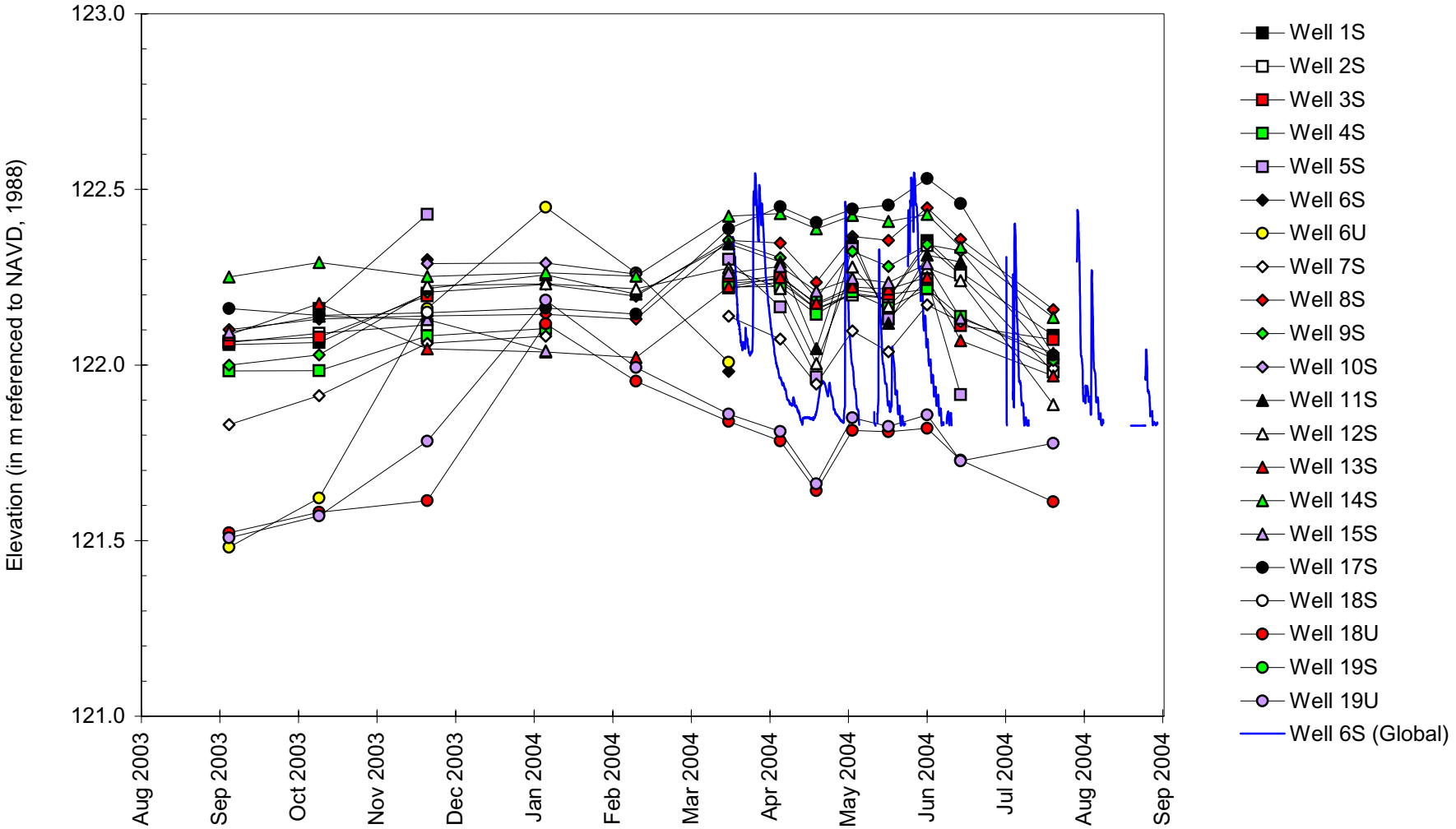
map based on the USGS, Monks Mound SW, Digital Orthophoto Quadrangle (NAPP 1998/99)
Monitoring well, staff gauge and data logger locations from GPS survey



Fairmont City, New River Crossing Potential Wetland Compensation Site

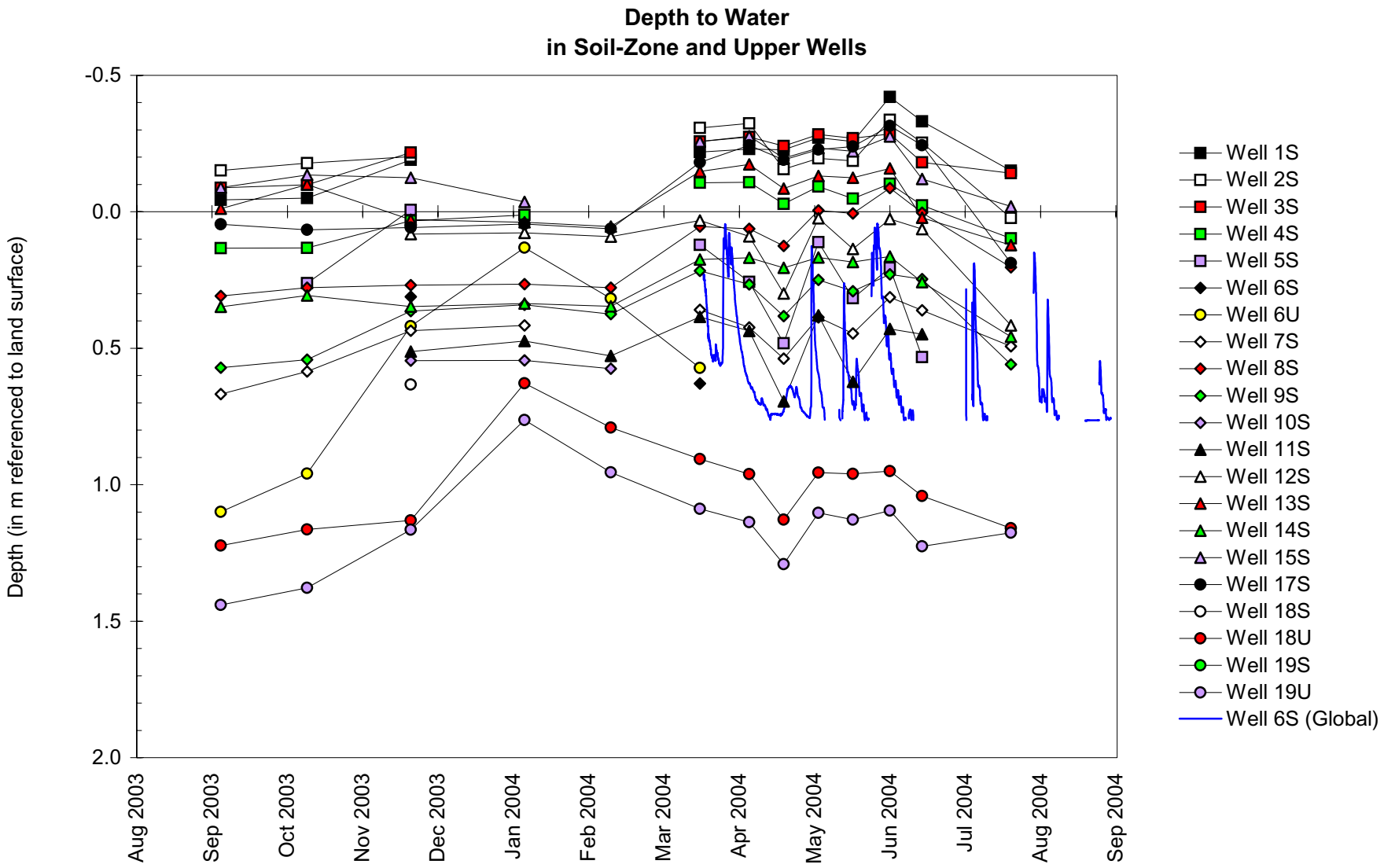
September 1, 2003 to September 1, 2004

Water-Level Elevations in Soil-Zone and Upper Wells



Fairmont City, New River Crossing Potential Wetland Compensation Site

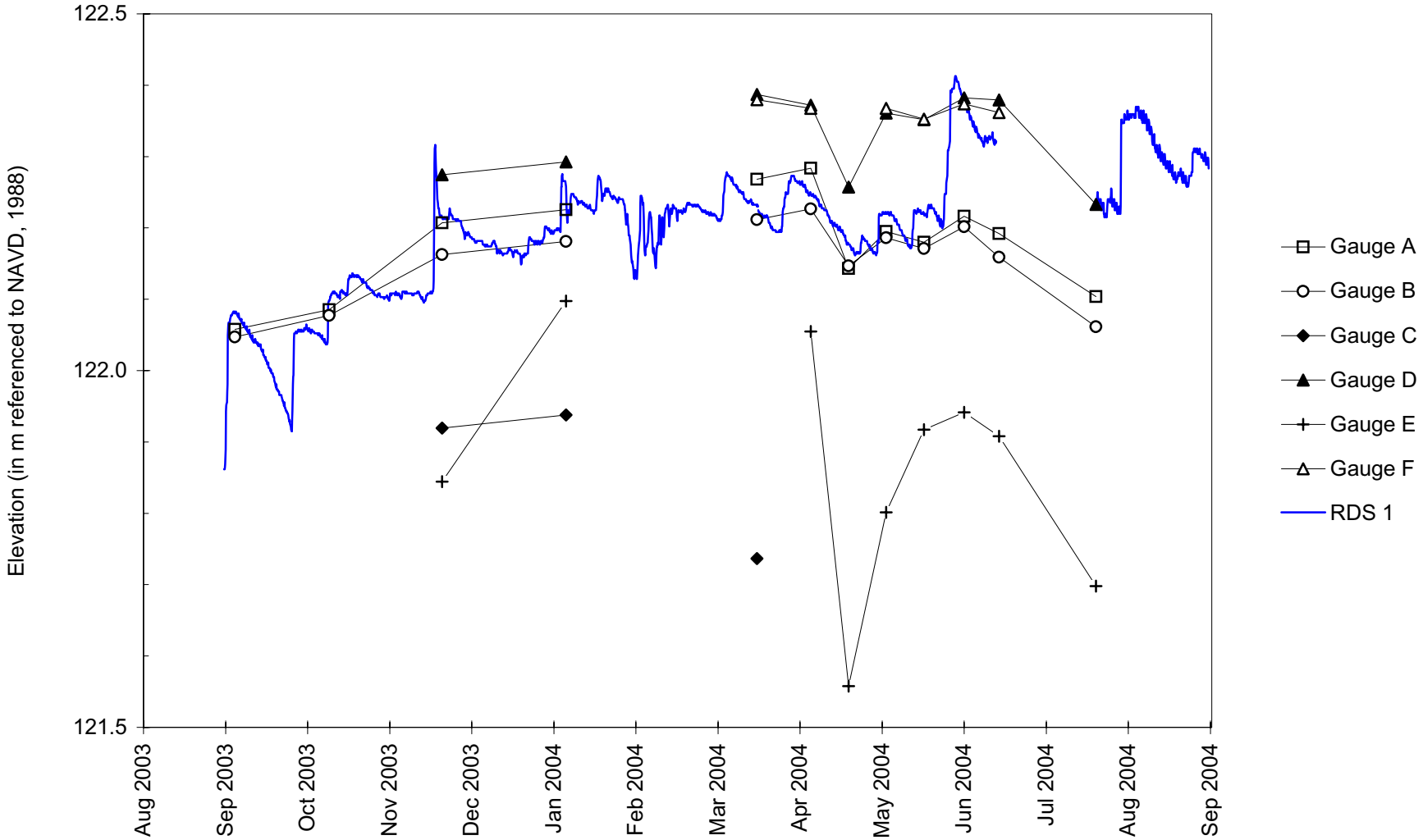
September 1, 2003 to September 1, 2004



Fairmont City, New River Crossing Potential Wetland Compensation Site

September 1, 2003 to September 1, 2004

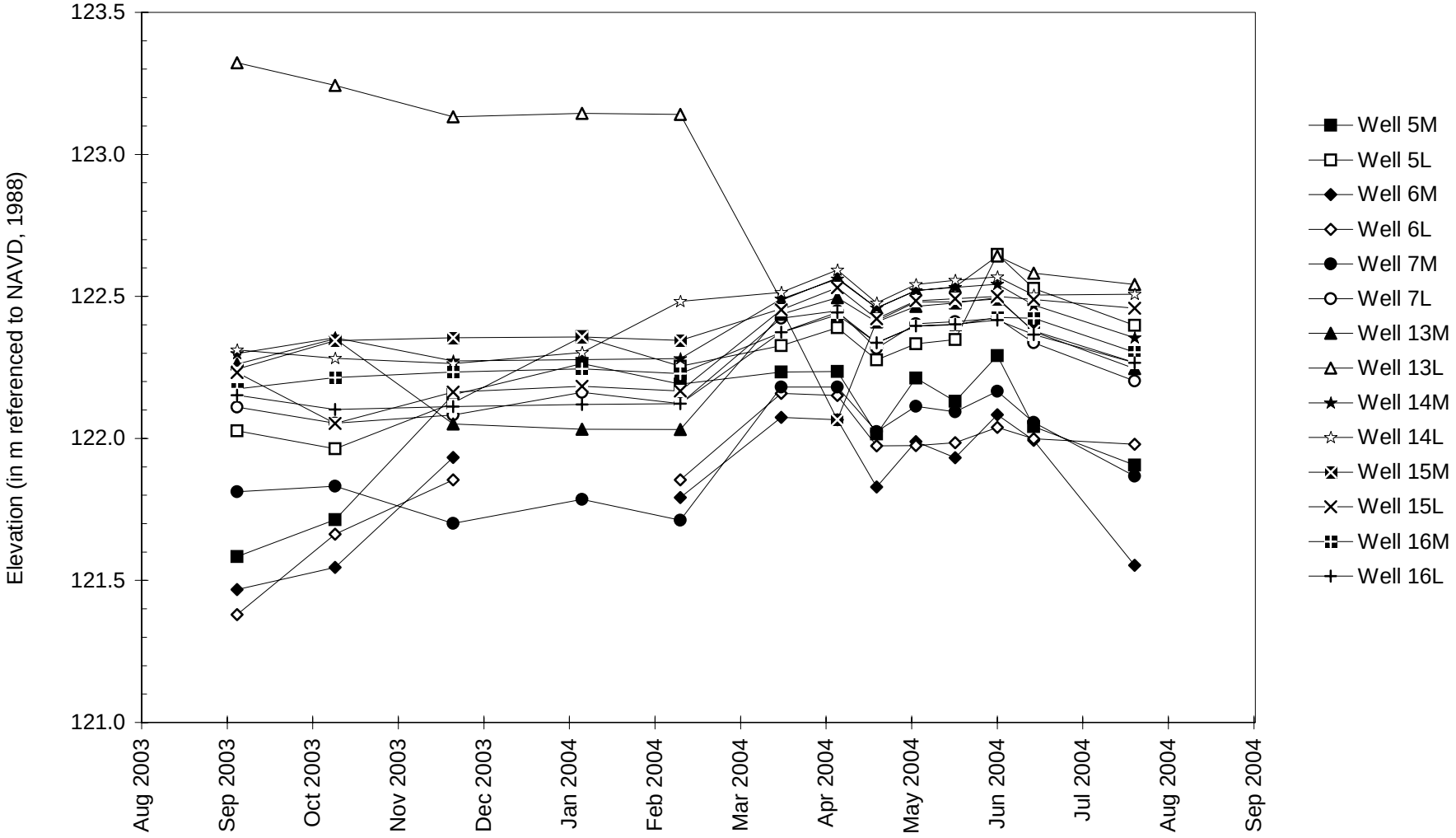
Water-Level Elevations
on Stage Gauges and Data Loggers in the Fairmont City 1 Site



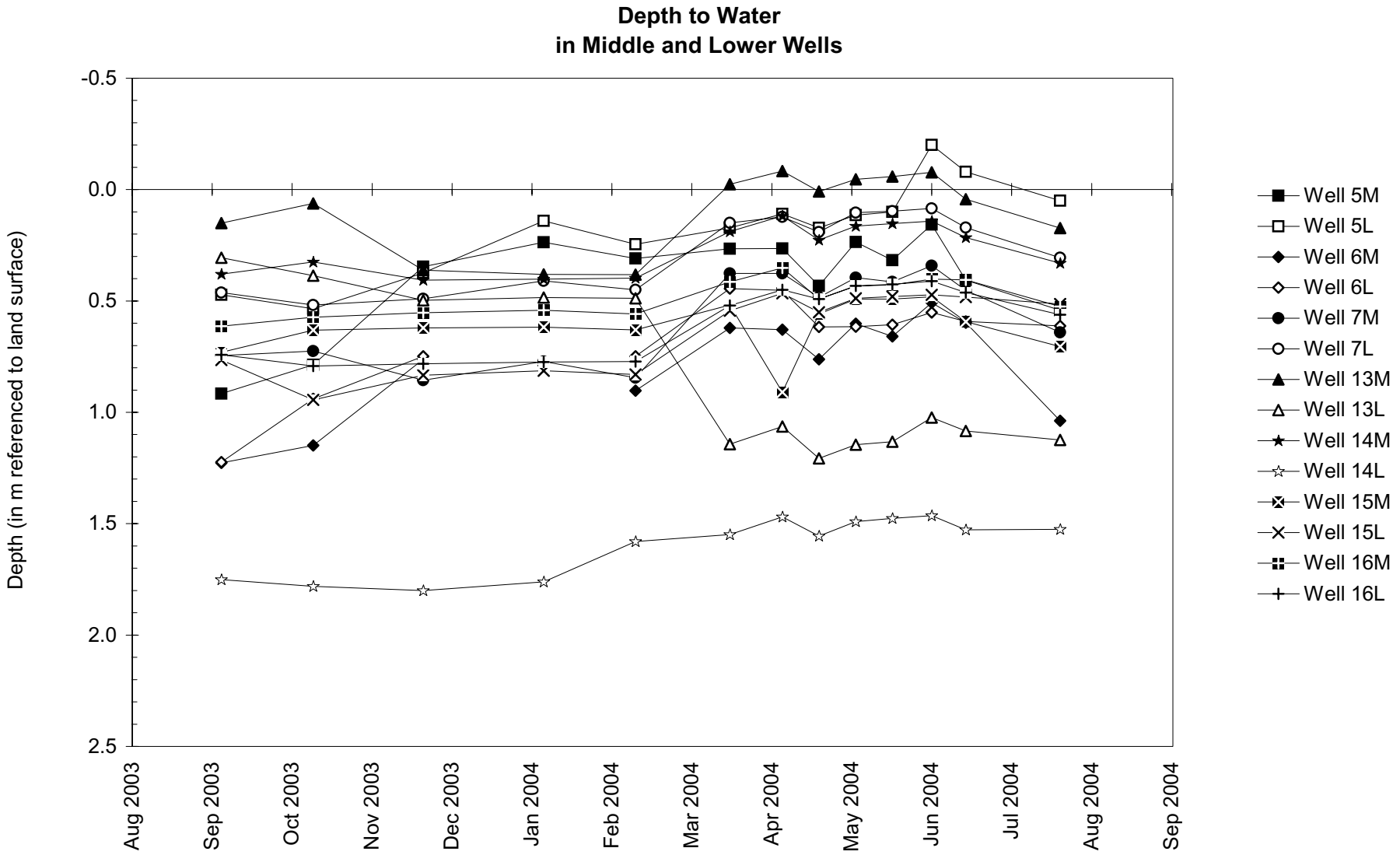
Fairmont City, New River Crossing Potential Wetland Compensation Site

September 1, 2003 to September 1, 2004

Water-Level Elevations in Middle and Lower Wells



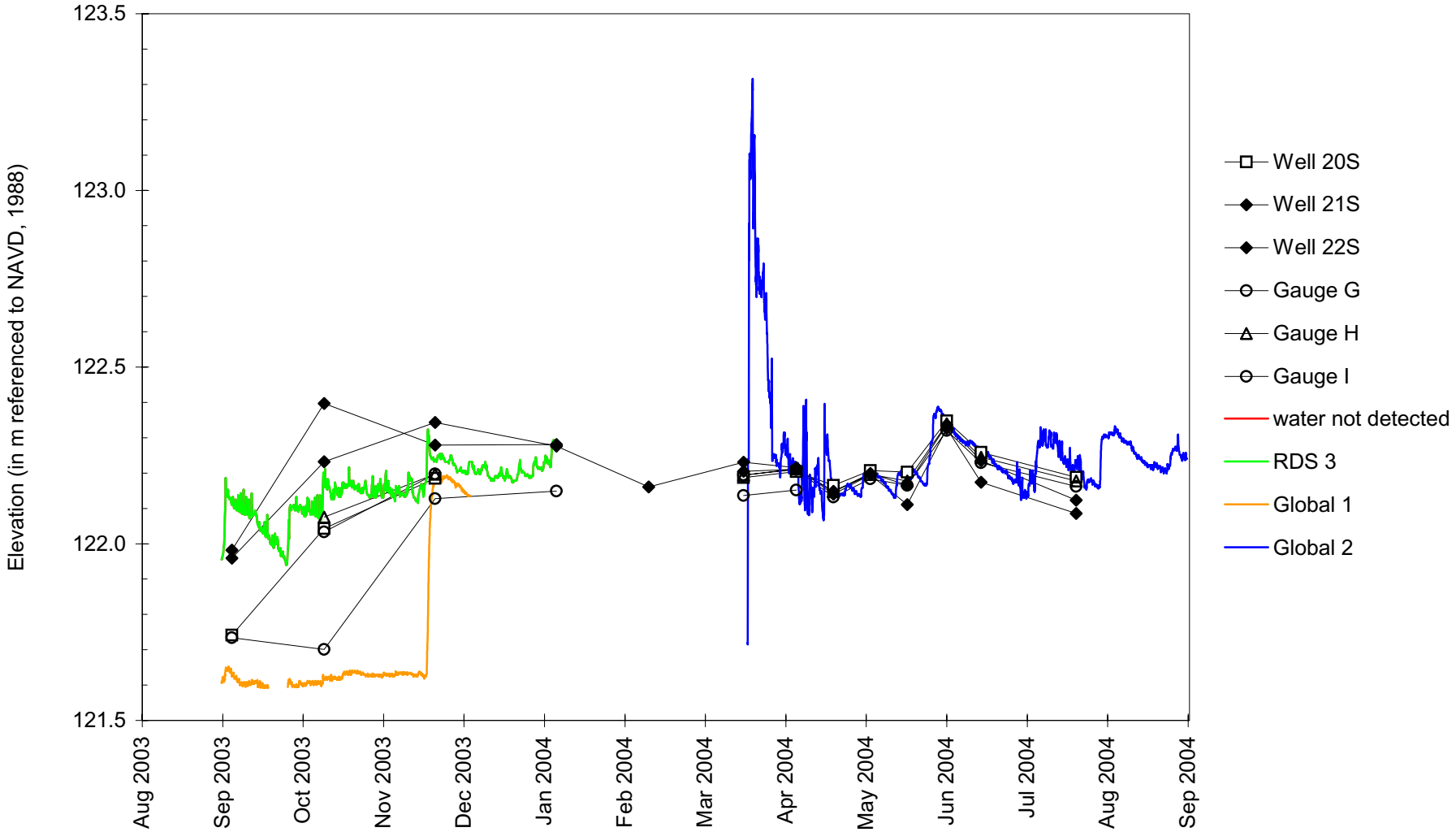
Fairmont City, New River Crossing Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004



Fairmont City, New River Crossing Potential Wetland Compensation Site

September 1, 2003 to September 1, 2004

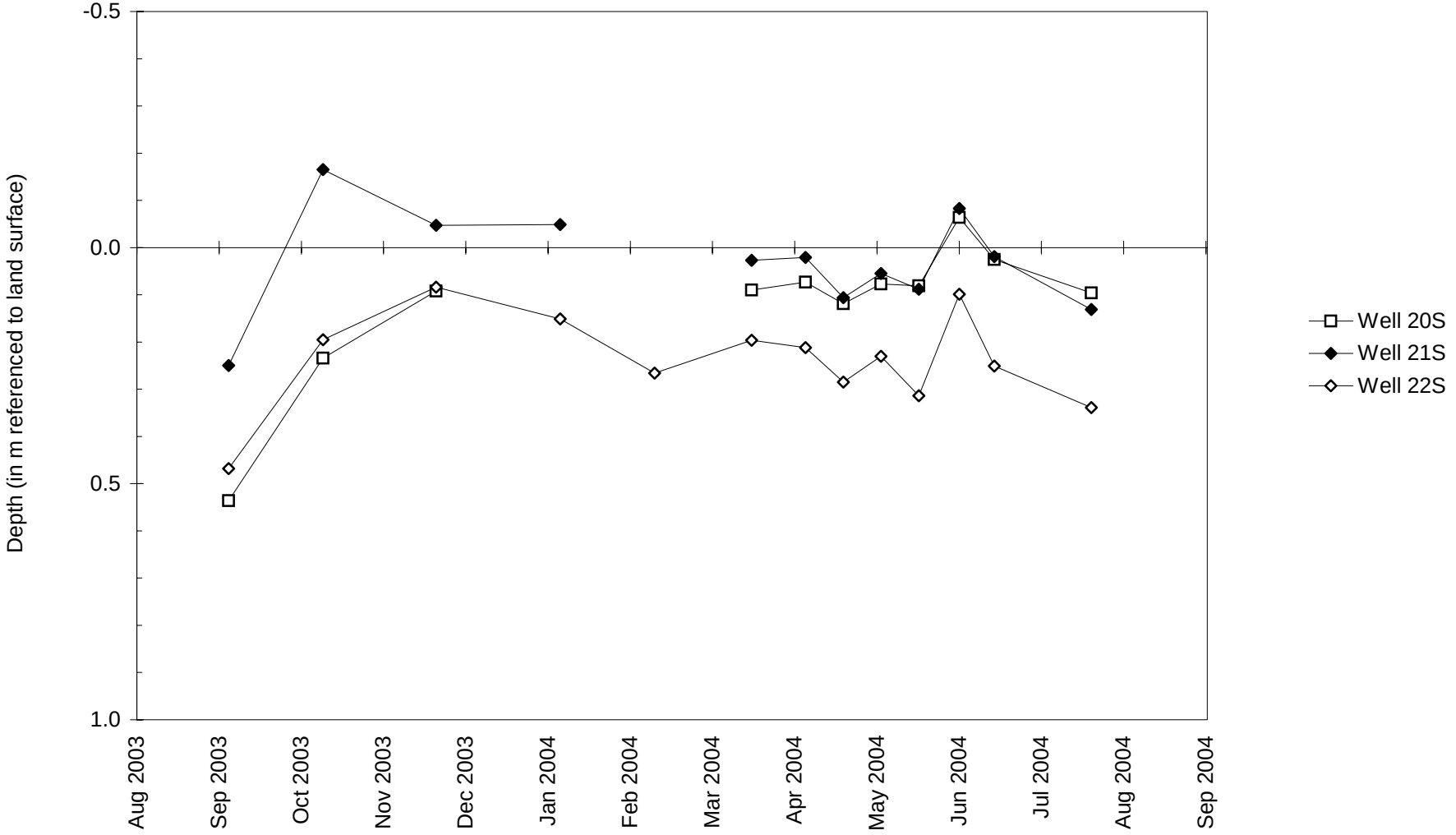
Water-Level Elevations
in Soil-Zone Wells, Stage Gauges and Data Loggers in Fairmont City 2 Site



Fairmont City, New River Crossing Potential Wetland Compensation Site

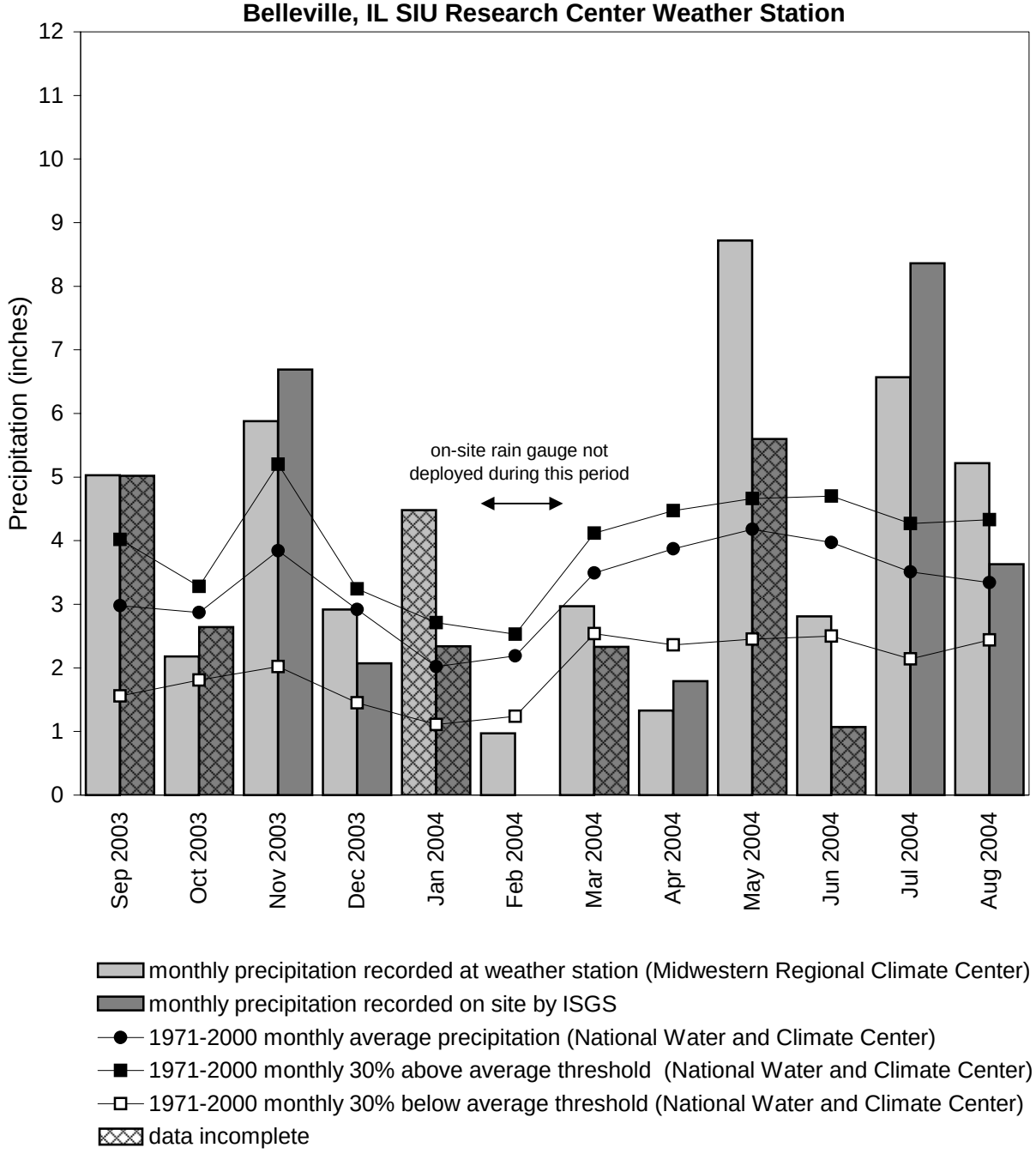
September 1, 2003 to September 1, 2004

Depth to Water
in Soil-Zone Wells in the Fairmont City 2 Site



Fairmont City, New River Crossing
Potential Wetland Compensation Site
September 2003 through August 2004

Total Monthly Precipitation Recorded On Site and at the Belleville, IL SIU Research Center Weather Station



Graph last updated October 1, 2004

SPRINGFIELD, IL ROUTE 29 **ISGS #54**
WETLAND COMPENSATION SITE
FAP 658
Sangamon County near Springfield, Illinois
Primary Manager: Geoffrey E. Pociask
Secondary Manager: Eric T. Plankell

SITE HISTORY

- September 1996: ISGS conducted an initial site evaluation of the proposed compensation site and reported findings to IDOT.

- June 2000: ISGS was tasked by IDOT to monitor wetland hydrology for the north portion of the compensation site. Monitoring activities began September 2000.

- September 2001: ISGS was tasked by IDOT to monitor wetland hydrology for the south portion of the compensation site. Monitoring activities began December 2001.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that 2.4 ac (1.0 ha) out of an excavation of 5.4 ac (2.2 ha) satisfied wetland hydrology criteria for greater than 5% of the growing season in 2004, whereas the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season was 1.4 ac (0.6 ha). The 2004 estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Springfield is April 6 and the season lasts 205 days; 5% of the growing season is 10 days and 12.5% of the growing season is 26 days.

- Total precipitation for the reporting period from September 2003 through August 2004 was 93% of normal. Drier than normal conditions prevailed in September 2003, December 2003 through February 2004, April through June 2004, and in August 2004. Precipitation amounts were at or above normal for October and November 2003 and in March and July 2004.

- Wells 1S, 2S, 4S, 9S, 10S, 11S and 12S satisfied wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 5% of the growing season. Furthermore, wells 9S, 10S, 11S and 12S, also satisfied the wetland hydrology criteria for greater than 12.5% of the growing season.

- The surface-water data logger, RDS1, indicated that surface-water inundation occurred to 156.6 m (513.8 ft) for a duration sufficient to satisfy wetland hydrology criteria for 5% of the growing season in the closed depression in the north end of the site. No area was inundated for 12.5% of the growing season.

- Limitations of the wetland hydrology determination are as follows:
  - The area of wetland hydrology was calculated using GIS methods. The wetland-hydrology polygon was drawn from an ISGS topographic map (0.1-meter contour interval) rectified to GPS positions of water-level instruments and point features identifiable from digital orthophotography.

- GPS coordinates of the water-level instruments were determined during July 2002.

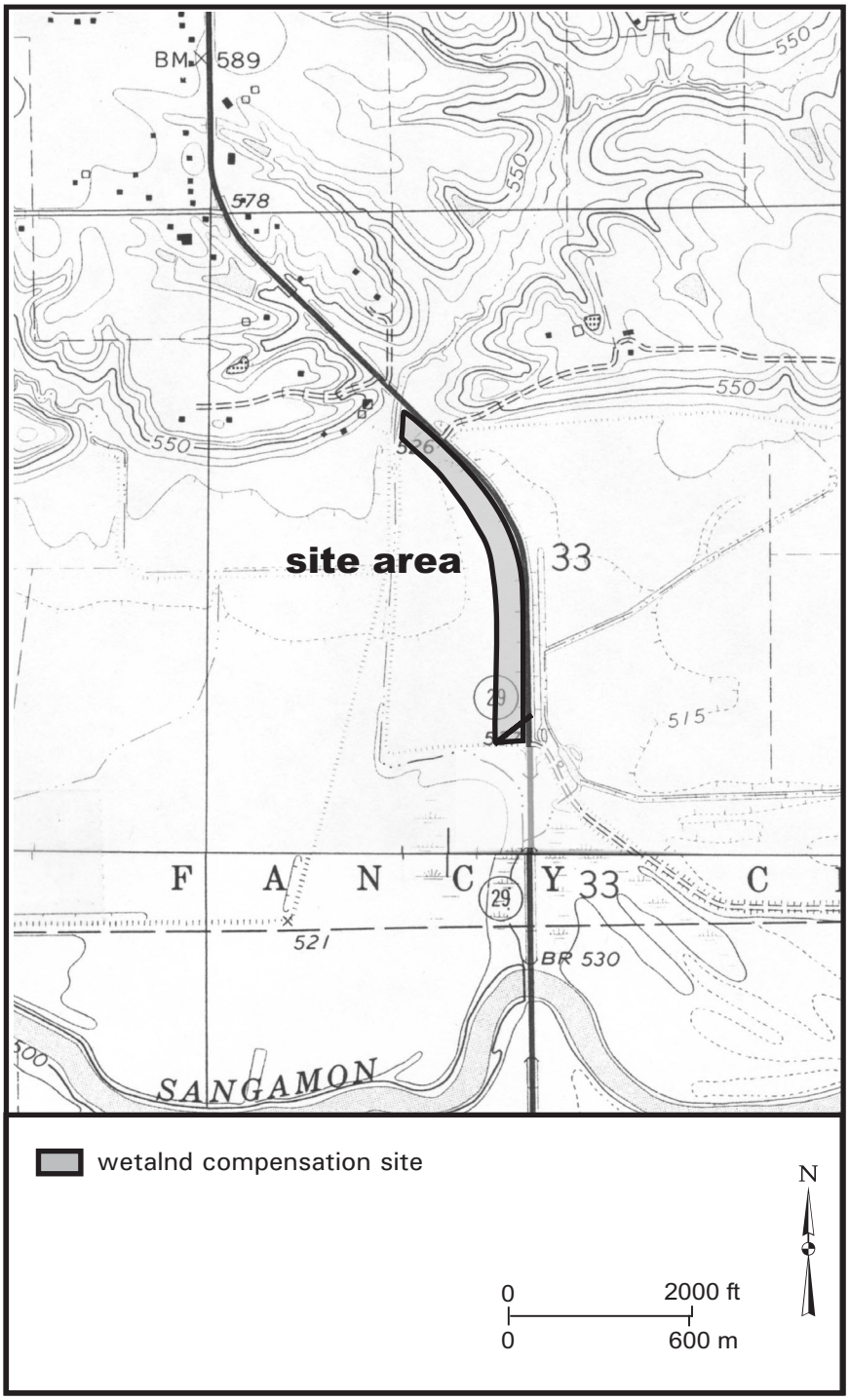
PLANNED FUTURE ACTIVITIES

- Monitoring will continue through 2005 or until no longer required by IDOT.

Springfield, IL Route 29 Wetland Compensation Site
(FAP 658)

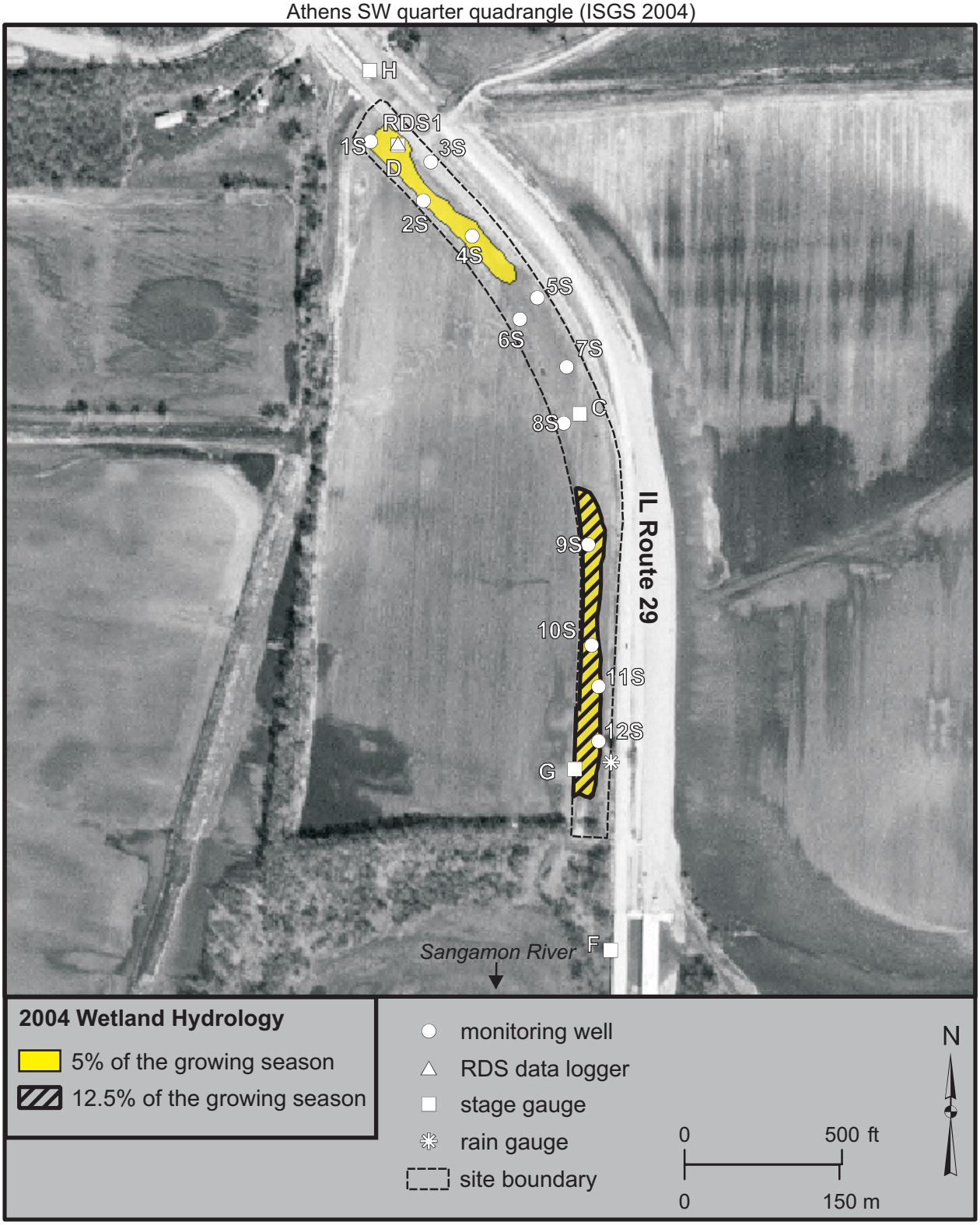
General Study Area and Vicinity

from the USGS Topographic Series, Athens, IL (USGS 1966; photorevised 1971 and 1976) and Springfield West, IL (USGS 1965; photorevised 1971 and 1976) 7.5-minute Quadrangles
contour interval is 10 feet



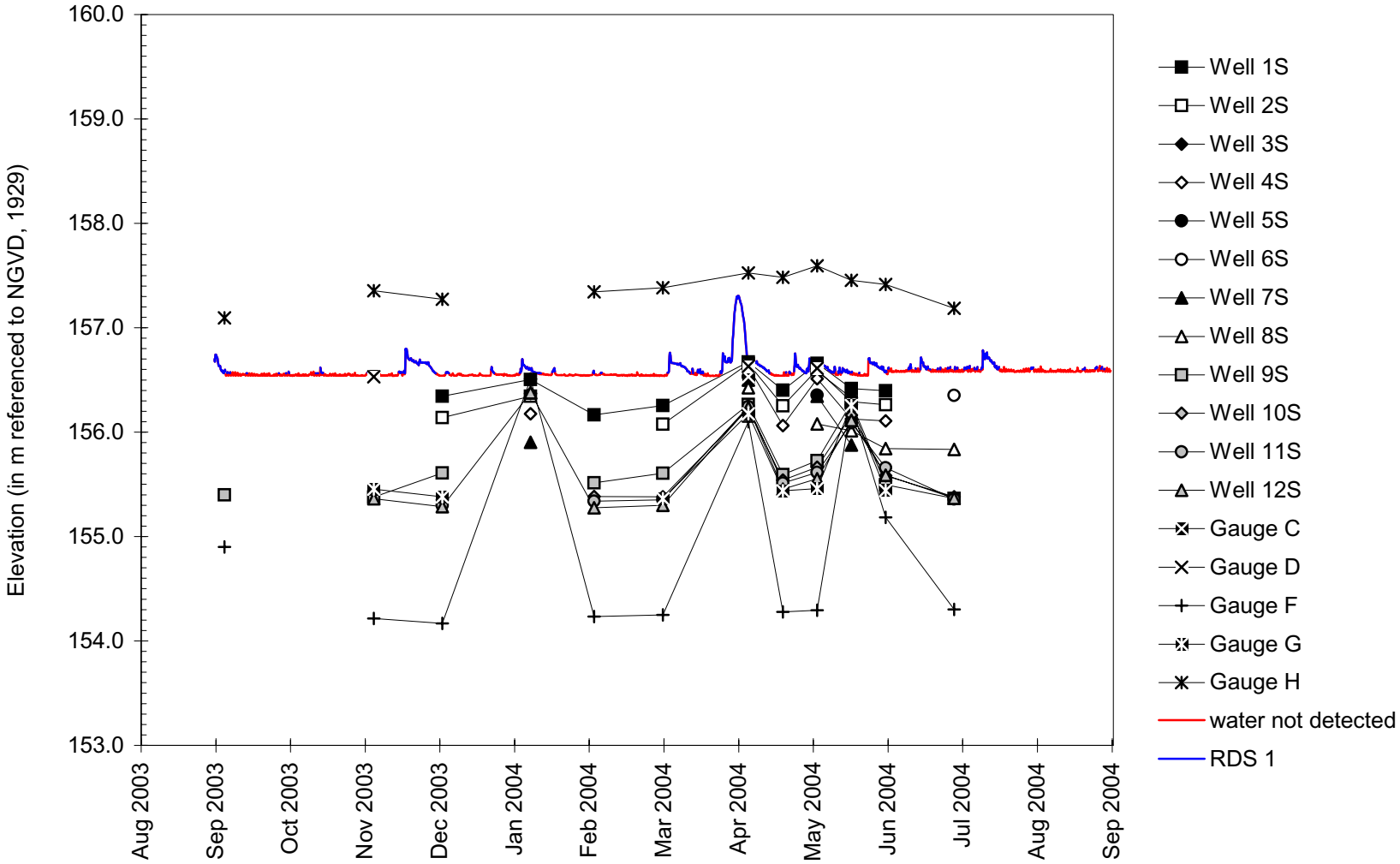
Springfield, IL Route 29 Wetland Compensation Site
(FAP 658)
Estimated Areal Extent of 2004 Wetland Hydrology

map based on IDOT design plans and ISGS topography rectified to USGS digital orthophotograph
Athens SW quarter quadrangle (ISGS 2004)

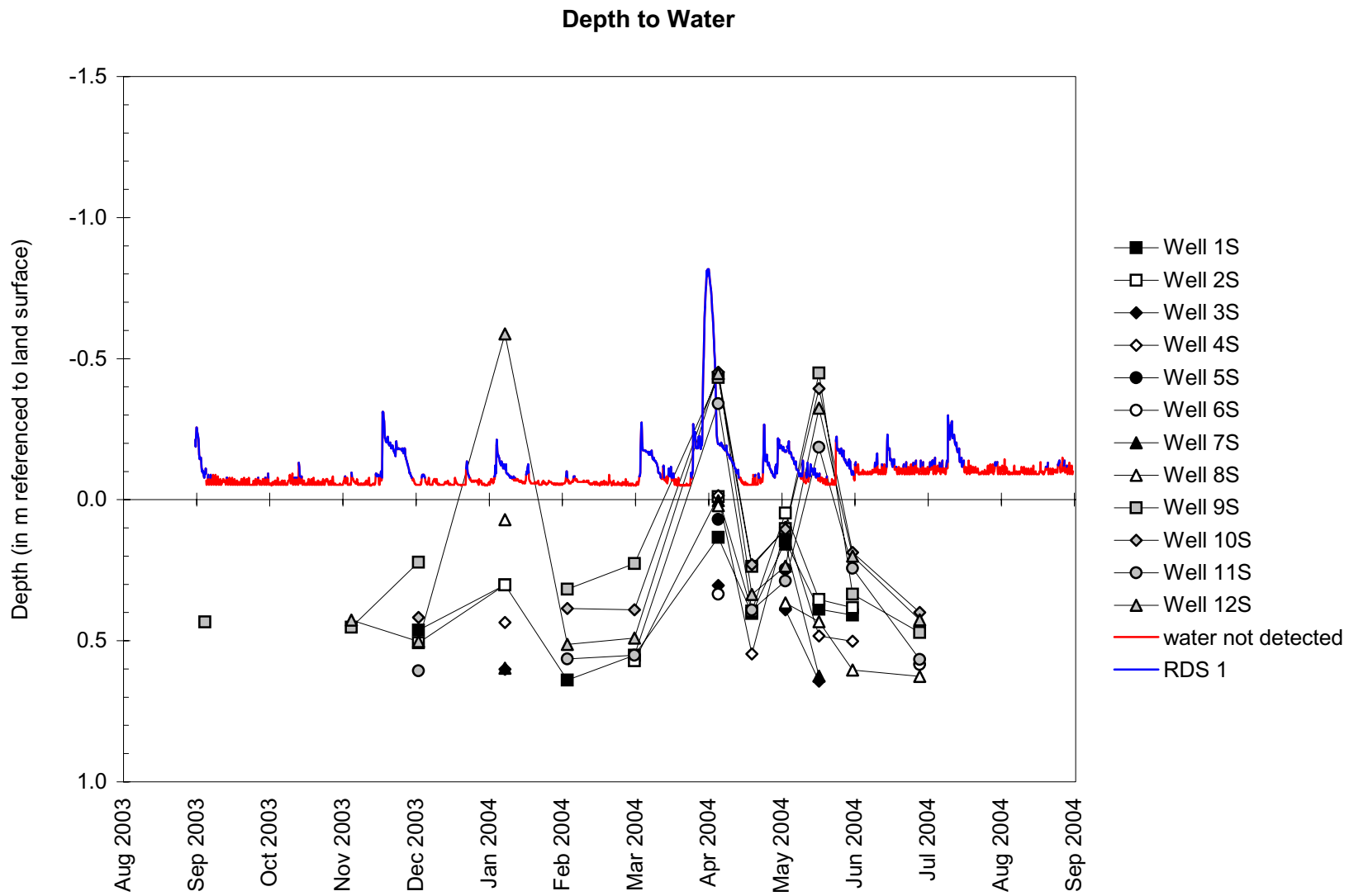


Springfield, IL Route 29 Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations

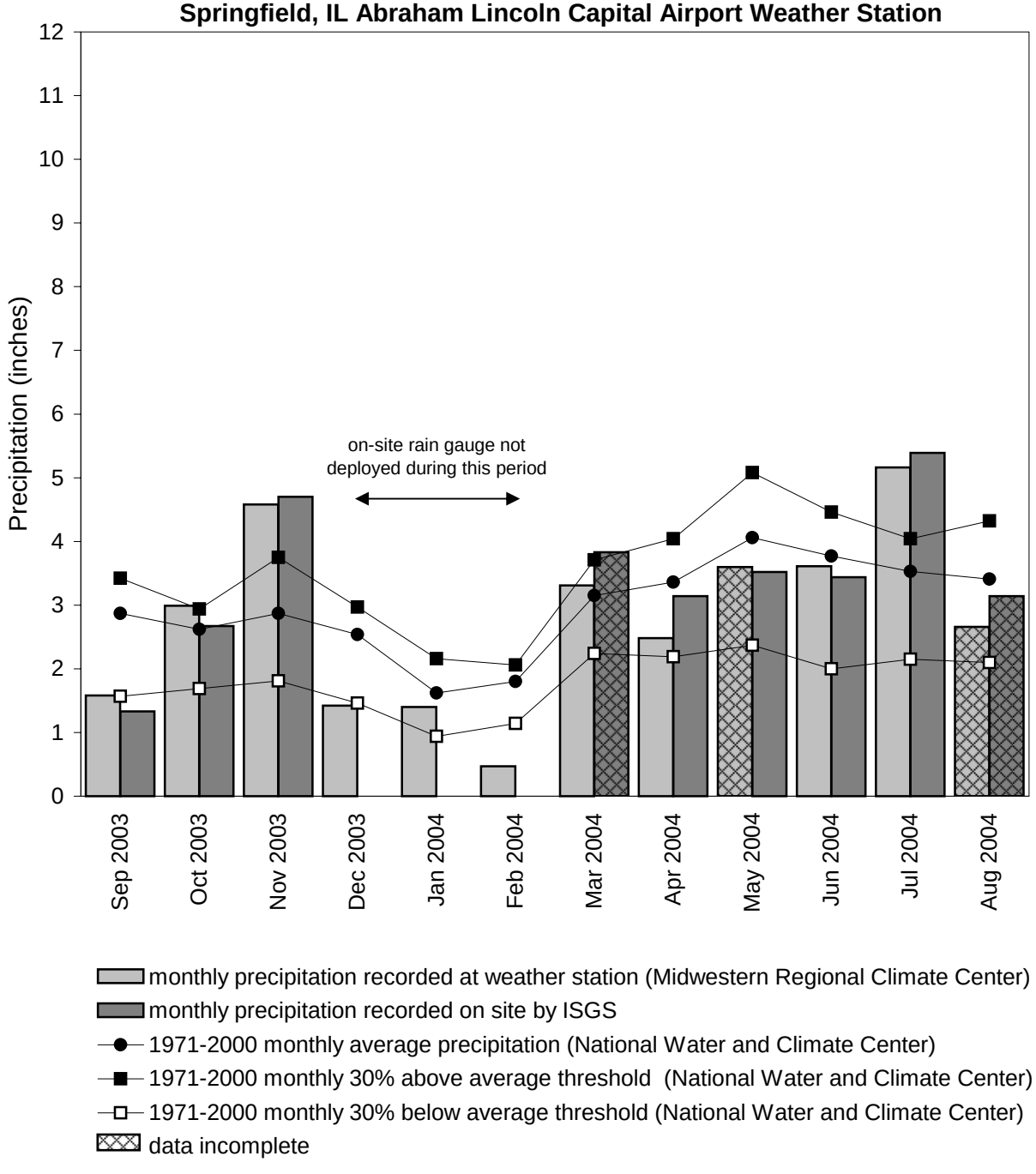


Springfield, IL Route 29 Wetland Compensation Site
September 1, 2003 to September 1, 2004



Springfield, IL Route 29
Wetland Compensation Site
September 2003 through August 2004

Total Monthly Precipitation Recorded On Site and at the Springfield, IL Abraham Lincoln Capital Airport Weather Station



Graph last updated October 1, 2004

FORMER TIERNAN PROPERTY, NEW RIVER CROSSING **ISGS #57**
POTENTIAL WETLAND COMPENSATION SITE
FAP 999
St. Clair County, near Cahokia, Illinois
Primary Project Manager: Bonnie J. Robinson
Secondary Project Manager: not assigned

SITE HISTORY

- July 2000: The ISGS was tasked to perform a Level II hydrogeologic assessment of the site.

- March–May 2001: Thirty-two S wells, ten VS wells, two staff gauges, and six benchmarks were installed and surveyed. Six soil-moisture probes were installed in three clusters in the northern field. Water-quality sampling was terminated because no quality standards were exceeded in any of the initial samples.

- August 2001: One deep well was added to the center of the northern field to investigate deep ground-water fluctuations. Four additional deep wells were installed in November.

- April 2002: Three dielectric soil-moisture probes were added to the northern field, as well as a transducer in the channel draining the south wetland.

WETLAND HYDROLOGY CALCULATION FOR 2004

The area that satisfied the criteria for wetland hydrology for greater than 5% of the growing season was estimated to be 25.9 ac (10.5 ha), and was identical to the area that satisfied the criteria for greater than 12.5% of the growing season. The estimates for 2004 are based on the following factors.

- According to the Midwestern Climate Center, the median length of the growing season, as measured at the Belleville Weather Station, is 203 days (April 5 to October 25). Therefore, 5% of the growing season is 10 days and 12.5% of the growing season is 25 days.

- Precipitation during the monitoring period was 125% of normal. Despite above normal precipitation in September, dry conditions persisted onsite until above normal precipitation occurred in November 2003. Low evapotranspiration rates kept water levels reasonably stable throughout the winter despite precipitation values alternating between above and below normal. Below normal precipitation in April 2004 (34% of normal) caused a drop in water levels onsite. Abnormally high precipitation in May 2004 (210% of normal) resulted in water levels rebounding, then gradually falling with below normal precipitation in June. High summer evapotranspiration rates meant that the heavy rains in July only resulted in short lived increases in water levels.

- In 2004, water levels measured in wells 8S, 9S, 13S, 14S, 15S, 16S, 19S, 20S, 21S, 22S, 24S, 24VS, 25S, 25VS, 26S, 26VS, 27S, 27VS, 28S, 28VS, 29S, 29VS, 30S, 30VS, 31S and 31VS satisfied the wetland hydrology criteria for greater than 12.5% of the growing season. No additional wells satisfied wetland hydrology criteria for between 5% and 12.5% of the growing season. Surface-water stage data from Gauge D indicate that inundation occurred to an elevation of 120.880 m (395.588 ft) for a period sufficient to satisfy wetland

insufficient data to determine whether inundation at this elevation occurred for greater than 12.5% of the growing season.

- Most of the southern half of the site (the former borrow pit) is mapped as pre-existing wetland, the hydrology of which is controlled primarily by the water level in Blue Waters Ditch southeast of the site. Above normal precipitation throughout May resulted in widespread flooding in the southern half of the site that gradually receded through the period of below normal precipitation in June.

- The hydrology of the northern half of the site (the former farm field) is dominated by precipitation ponding on the surface. Identification of saturated conditions in the northern half of the site was augmented using data from soil-moisture probes deployed at well clusters 26, 27, and 28. Data from all the probes indicate saturated conditions in the upper 0.30 m of the soil column for nearly the entire period from mid-February to early June, confirming the water level readings in the adjacent wells.

PLANNED FUTURE ACTIVITIES

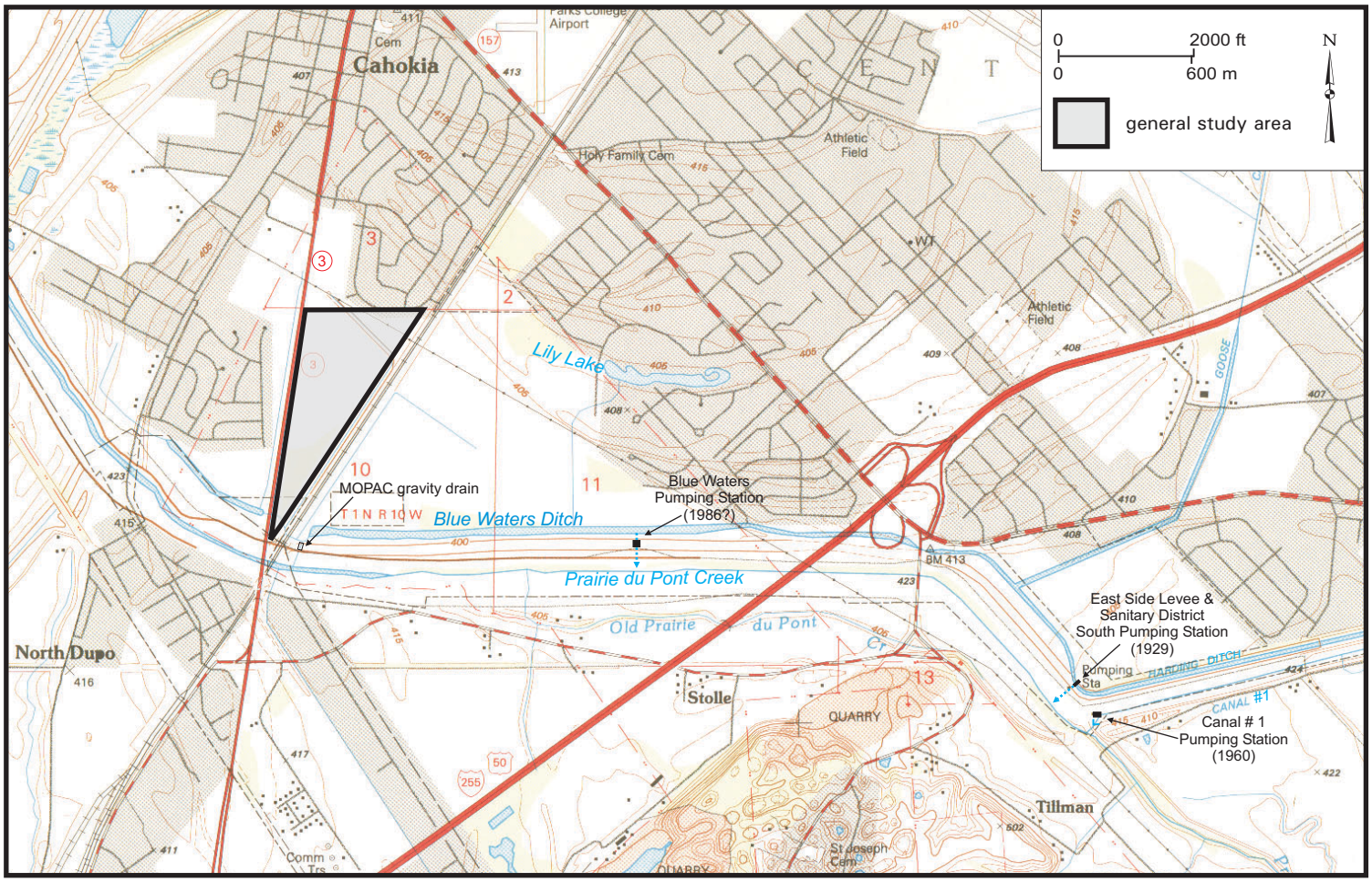
- A Level II hydrogeological characterization report is in preparation. Site suitability and recommendations regarding site design will be included.

- Monitoring will continue until no longer required by IDOT.

Tiernan Property (Cahokia) Potential Wetland Compensation Site
(FAP 999)

General Study Area and Vicinity

from the USGS Topographic Series, Cahokia, IL 7.5-minute Quadrangle (USGS 1993)
contour interval is 10 feet

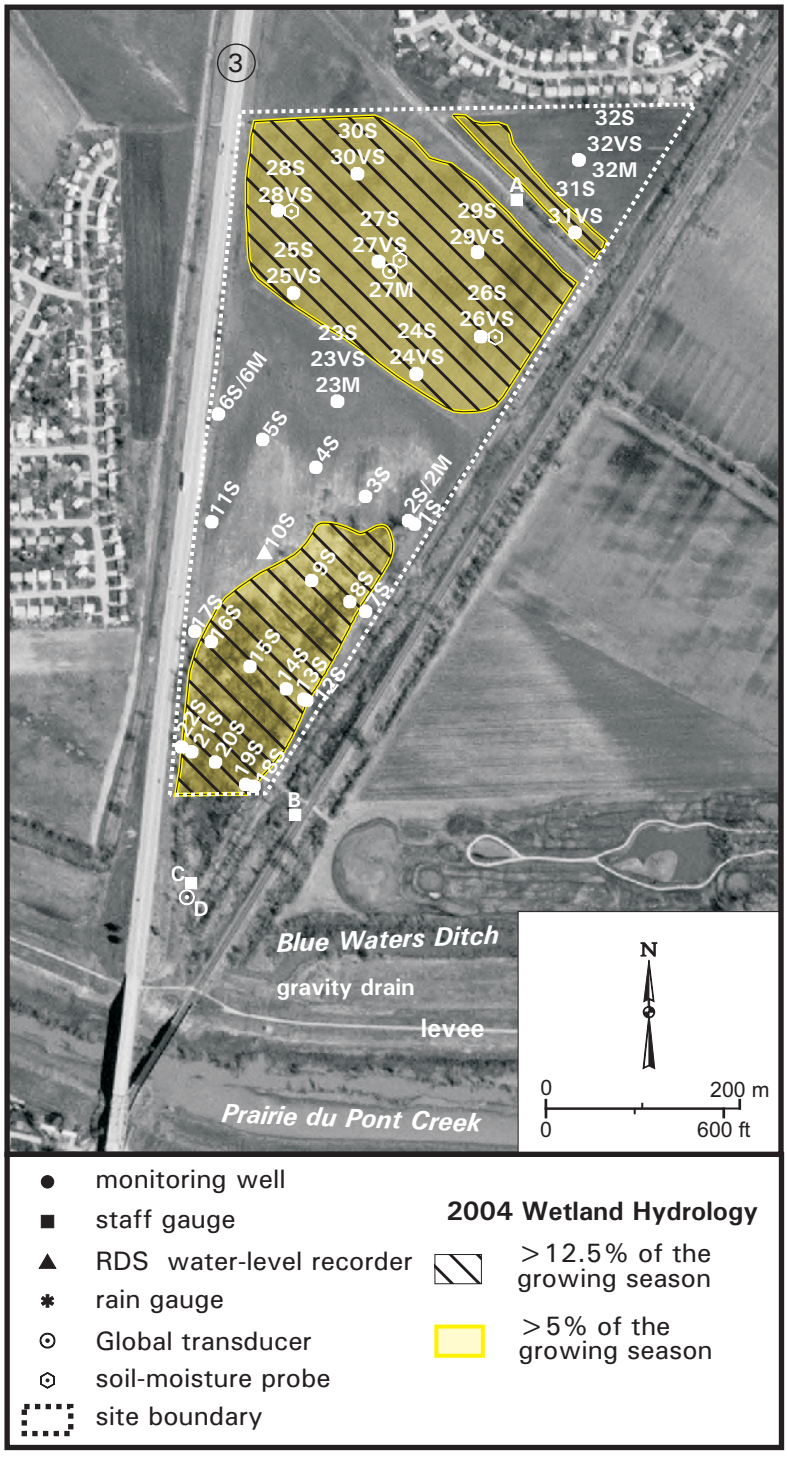


Former Tiernan Property, New River Crossing
Potential Wetland Compensation Site
(FAP 999)

Estimated Areal Extent of 2004 Wetland Hydrology

based on data collected between September 1, 2003 and September 1, 2004

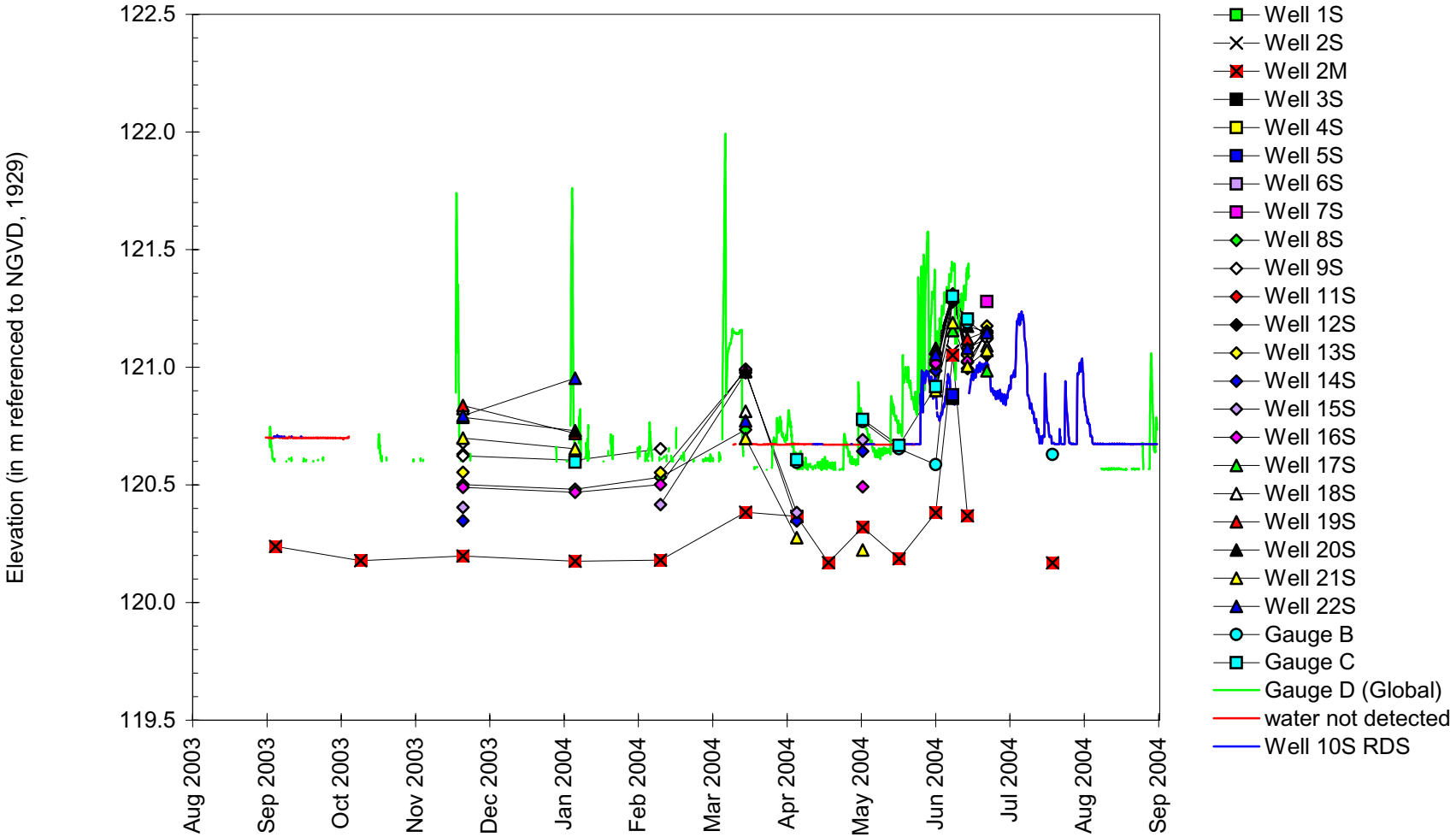
map based on USGS digital orthophotograph, Cahokia, SW quarter quadrangle
produced from 4/2/98 aerial photography (ISGS, 2000)



Former Tiernan Property, New River Crossing Potential Wetland Compensation Site

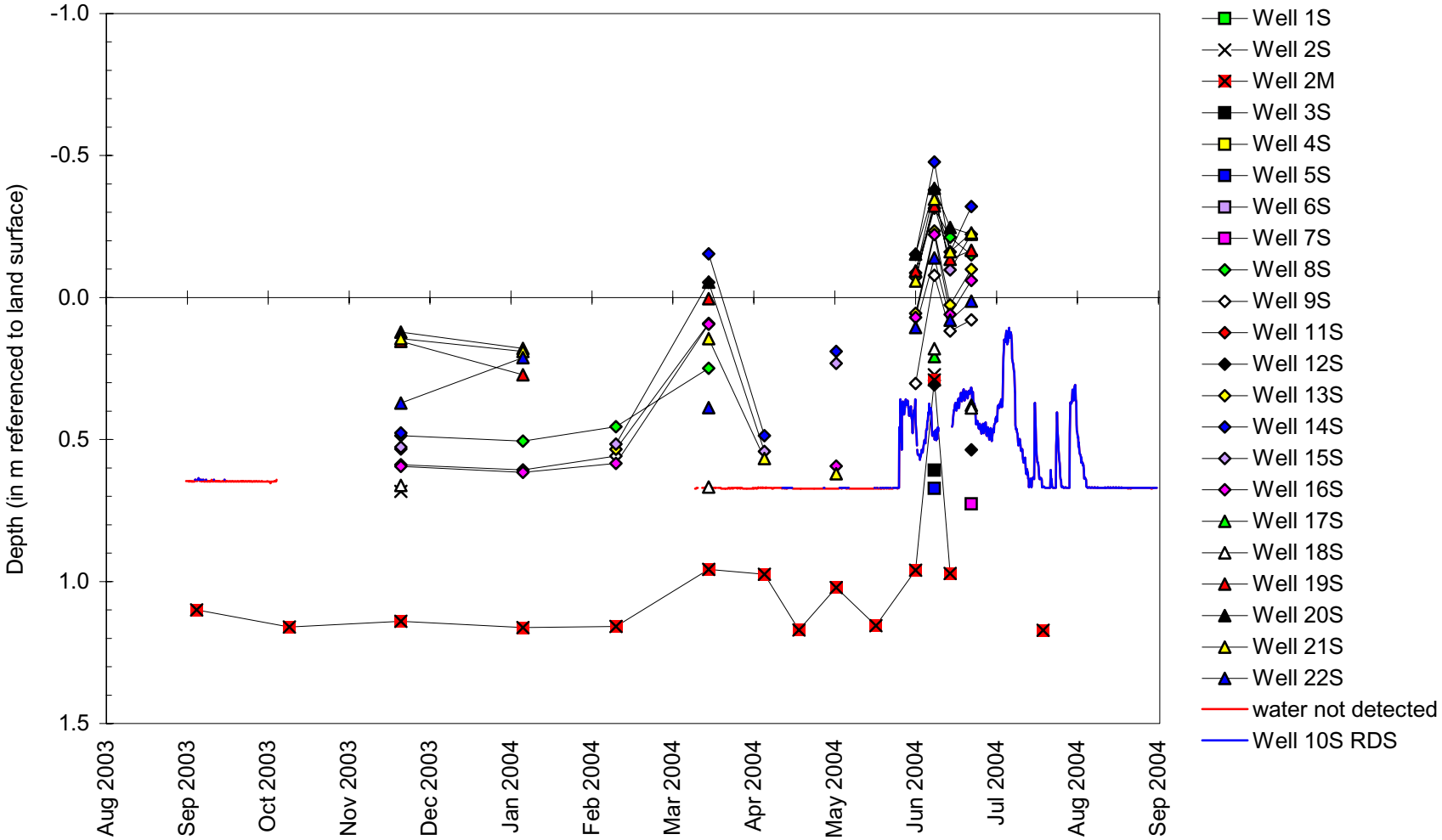
September 1, 2003 to September 1, 2004

Water-Level Elevations



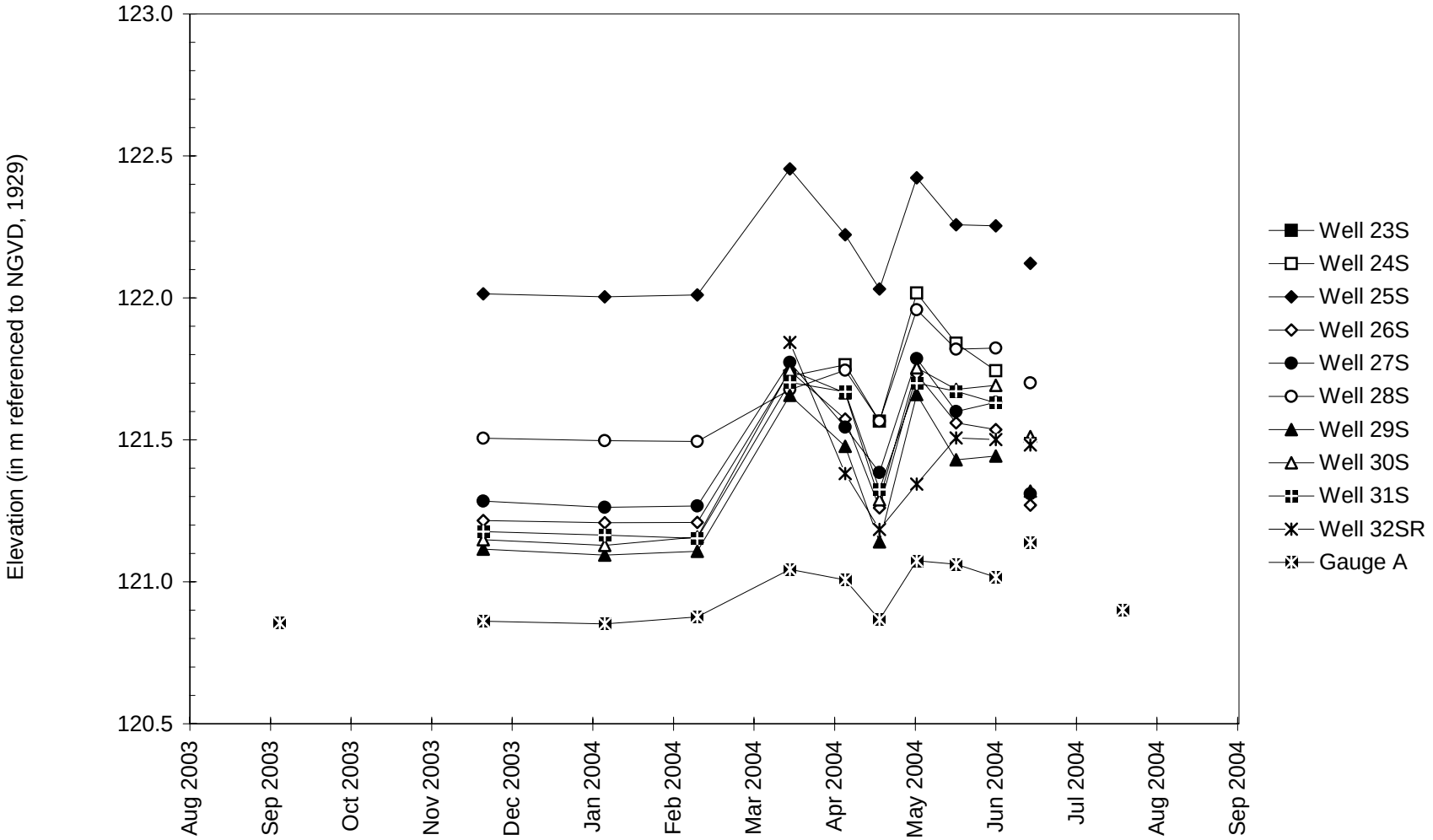
Former Tiernan Property, New River Crossing Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water

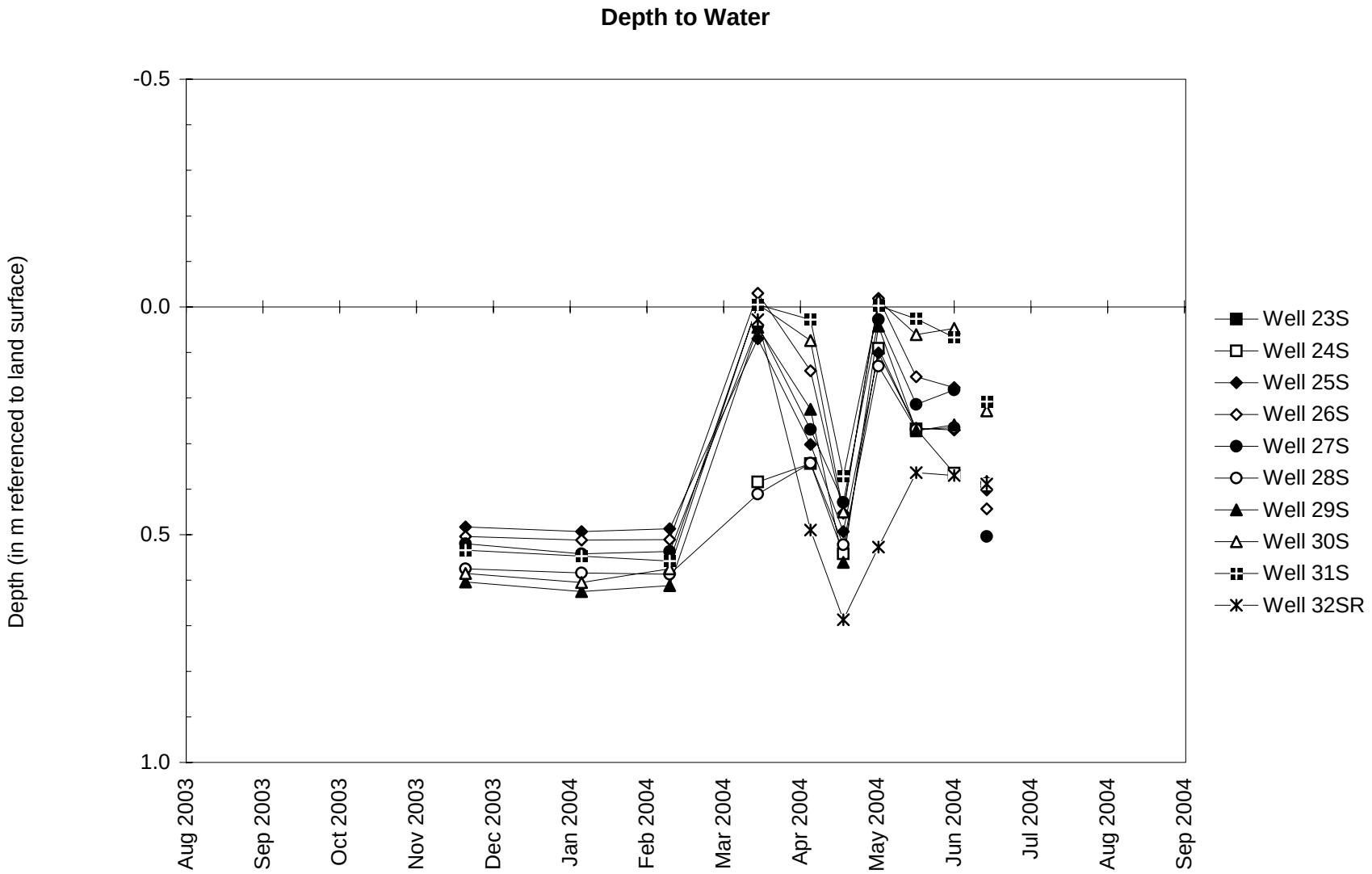


Former Tiernan Property, New River Crossing Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations

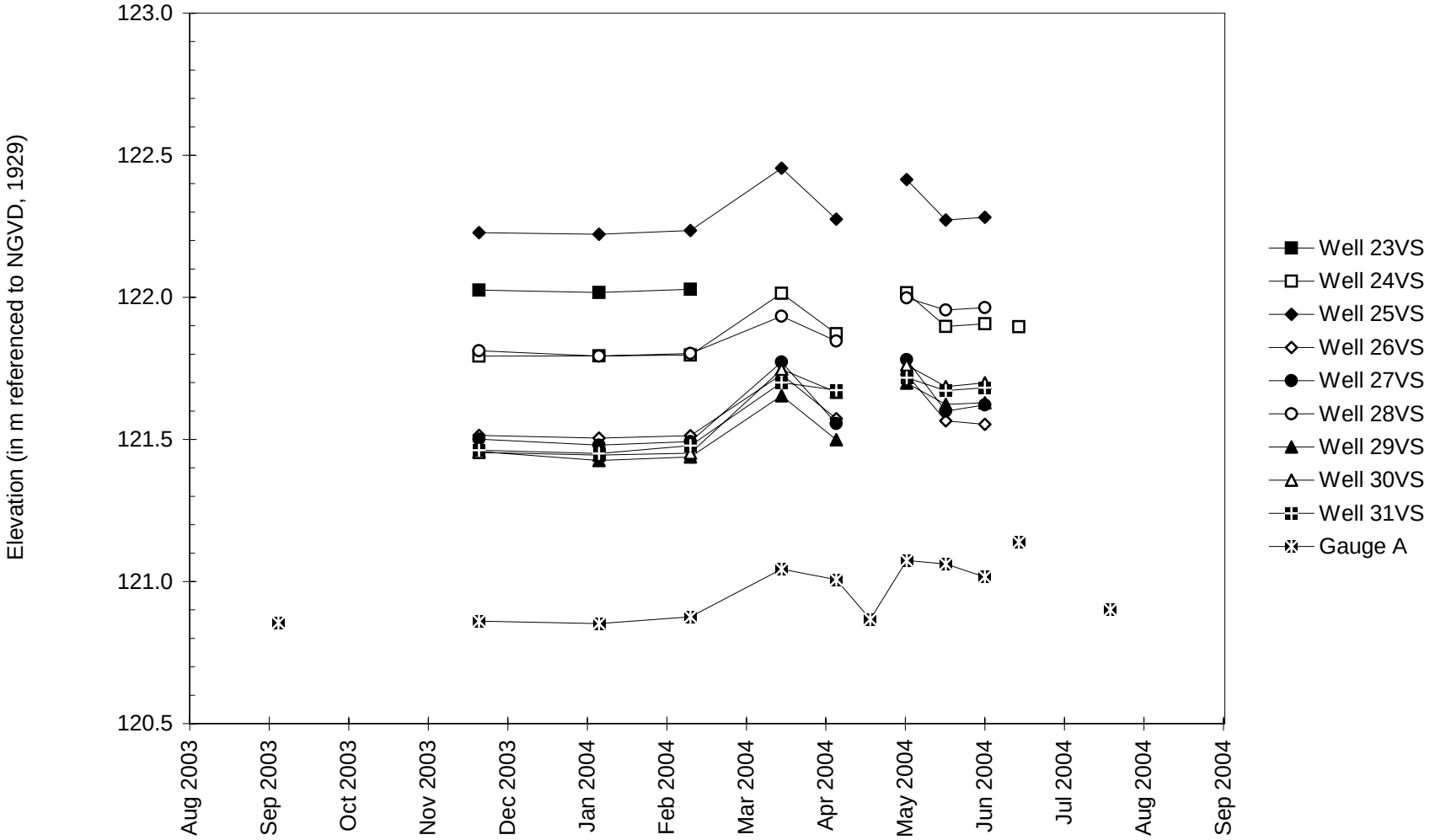


Former Tiernan Property, New River Crossing Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

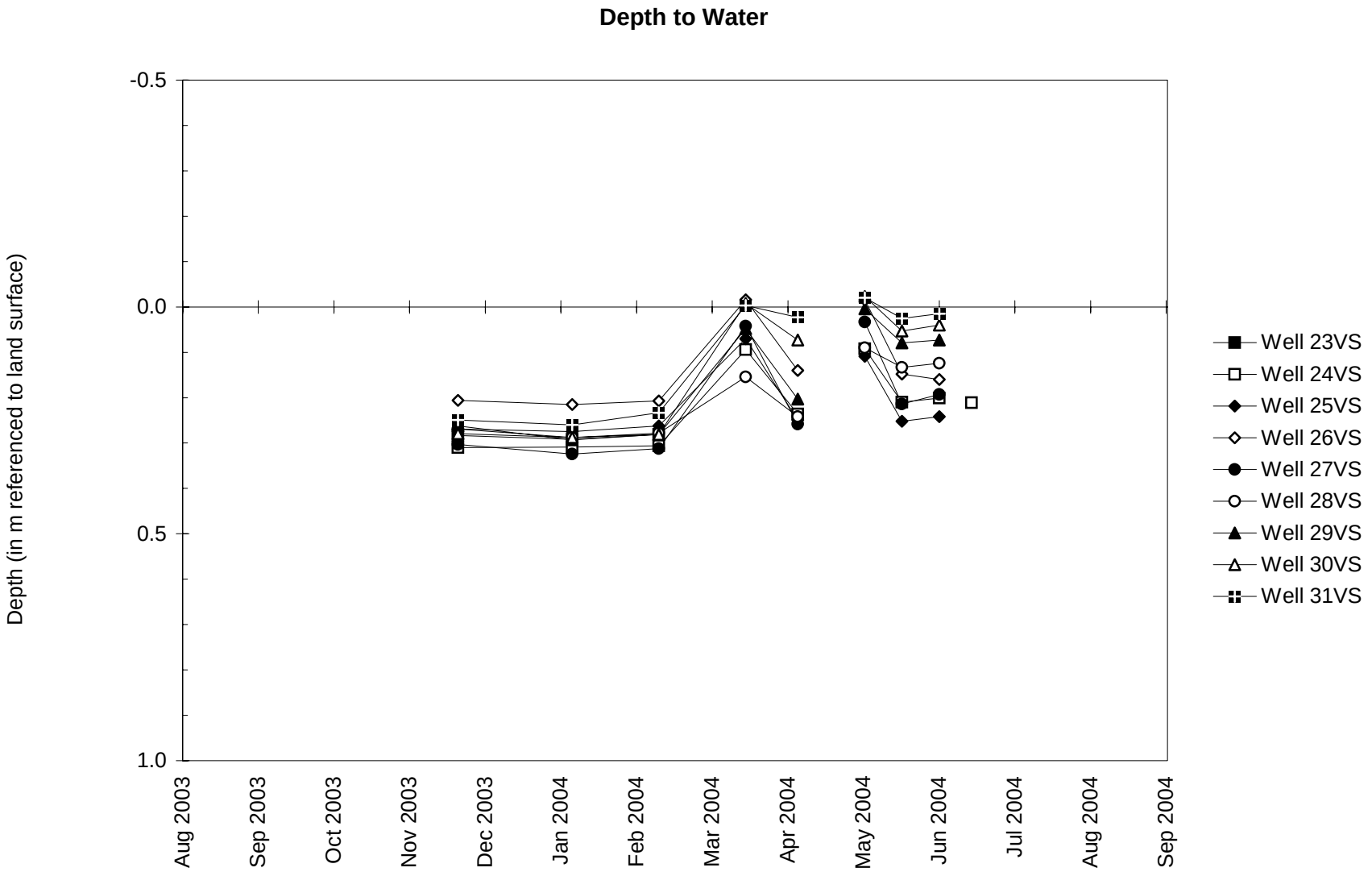


Former Tiernan Property, New River Crossing Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations

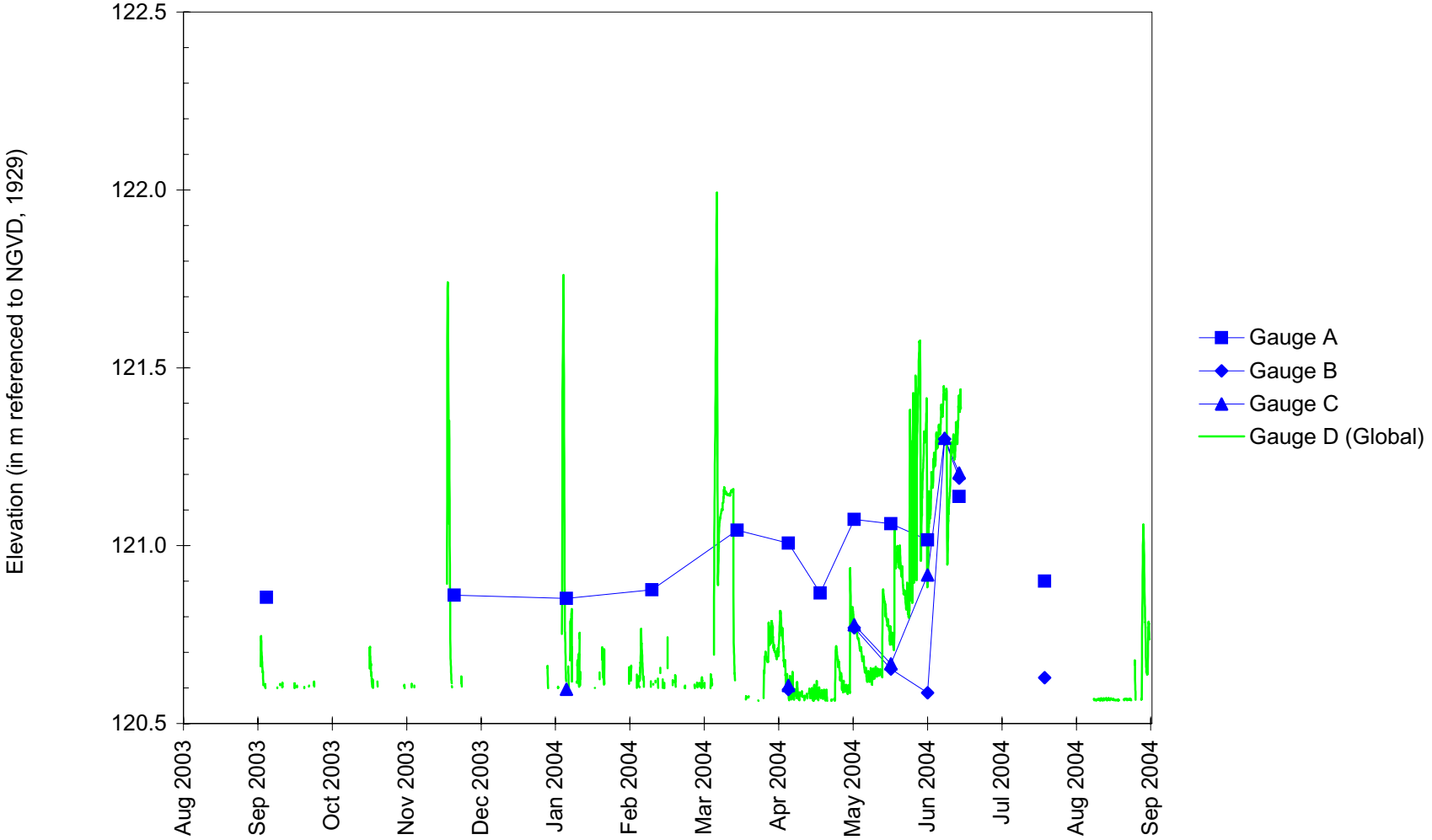


Former Tiernan Property, New River Crossing Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004



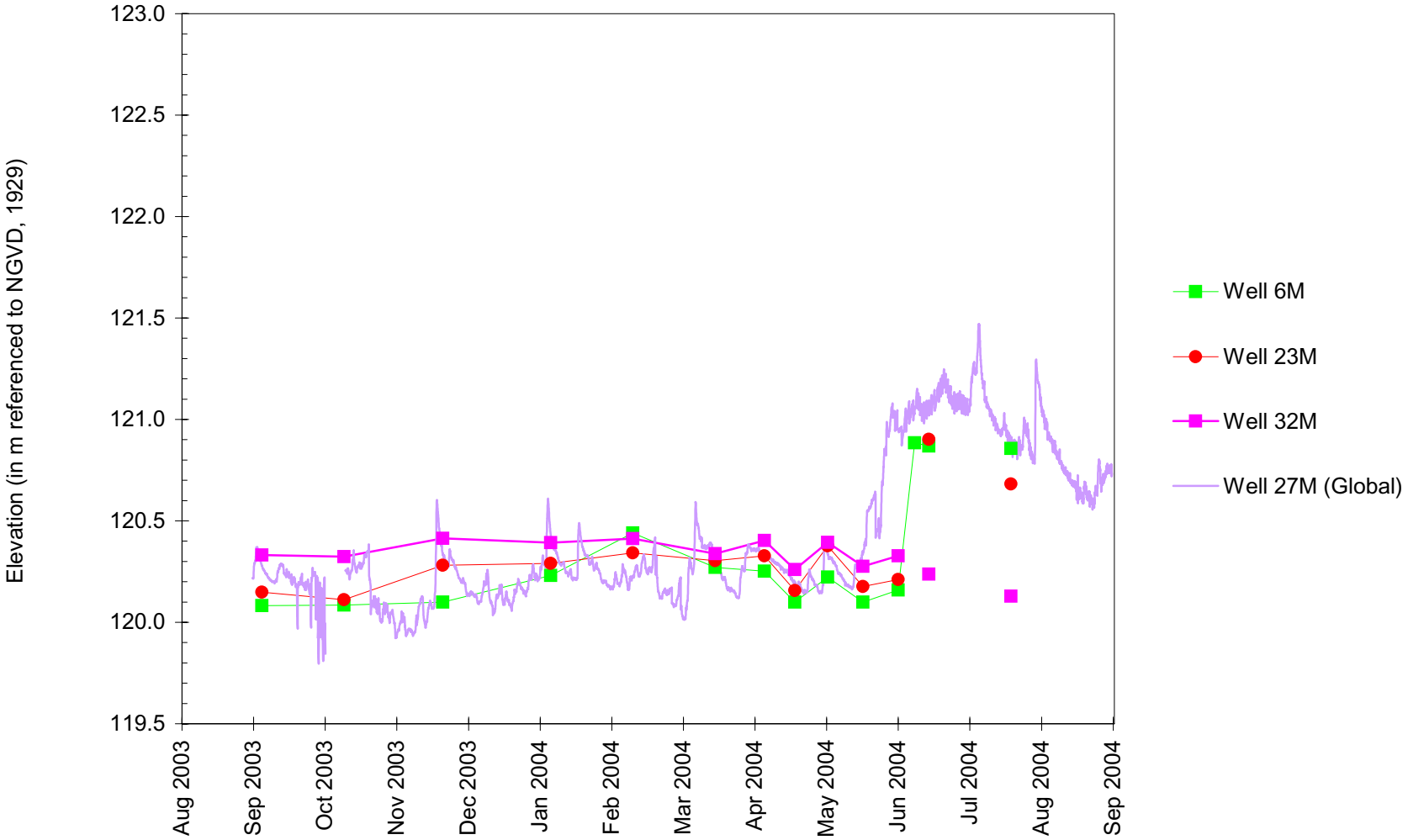
Former Tiernan Property, New River Crossing Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations



Former Tiernan Property, New River Crossing Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

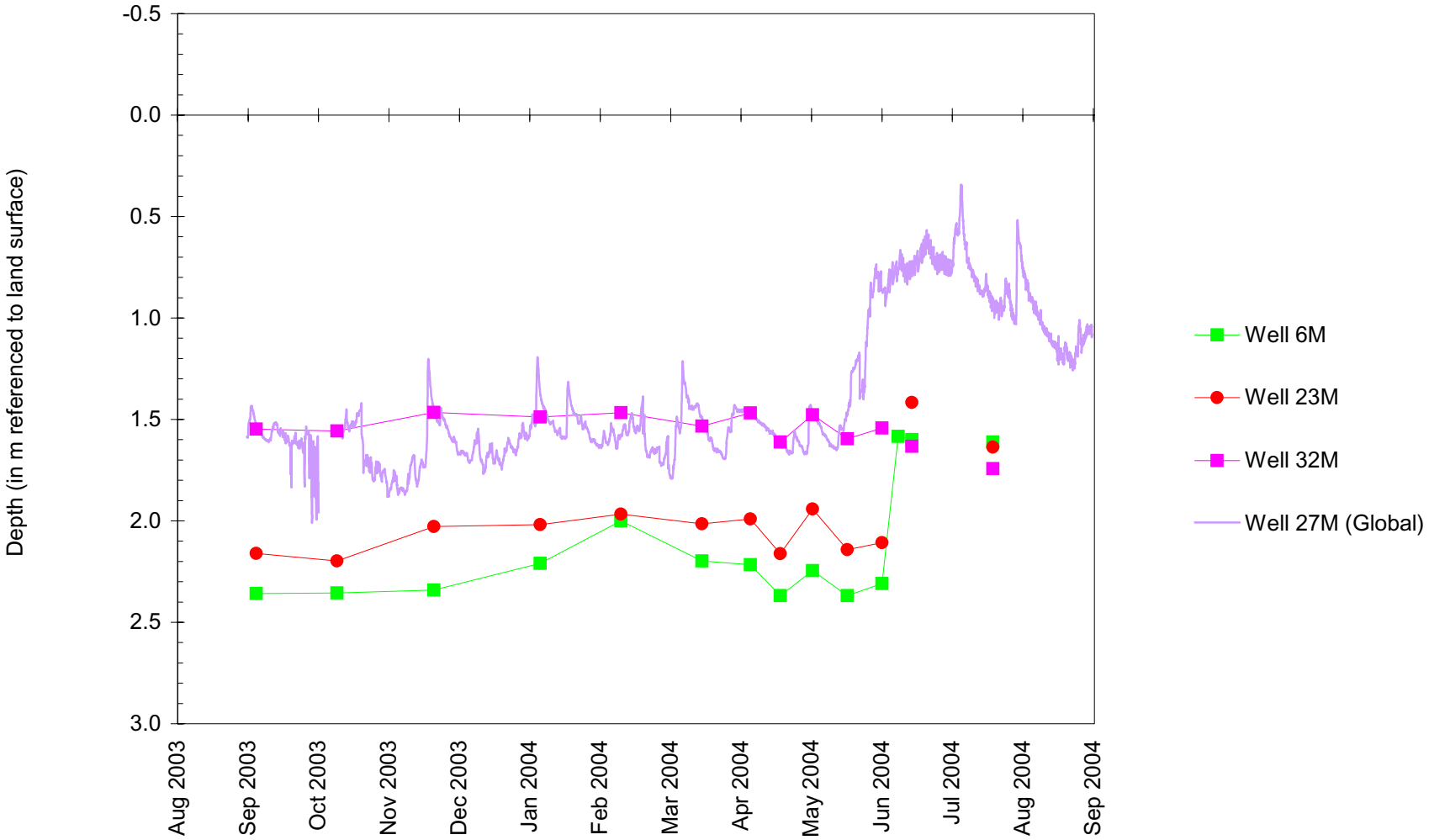
Water-Level Elevations



Former Tiernan Property, New River Crossing Potential Wetland Compensation Site

September 1, 2003 to September 1, 2004

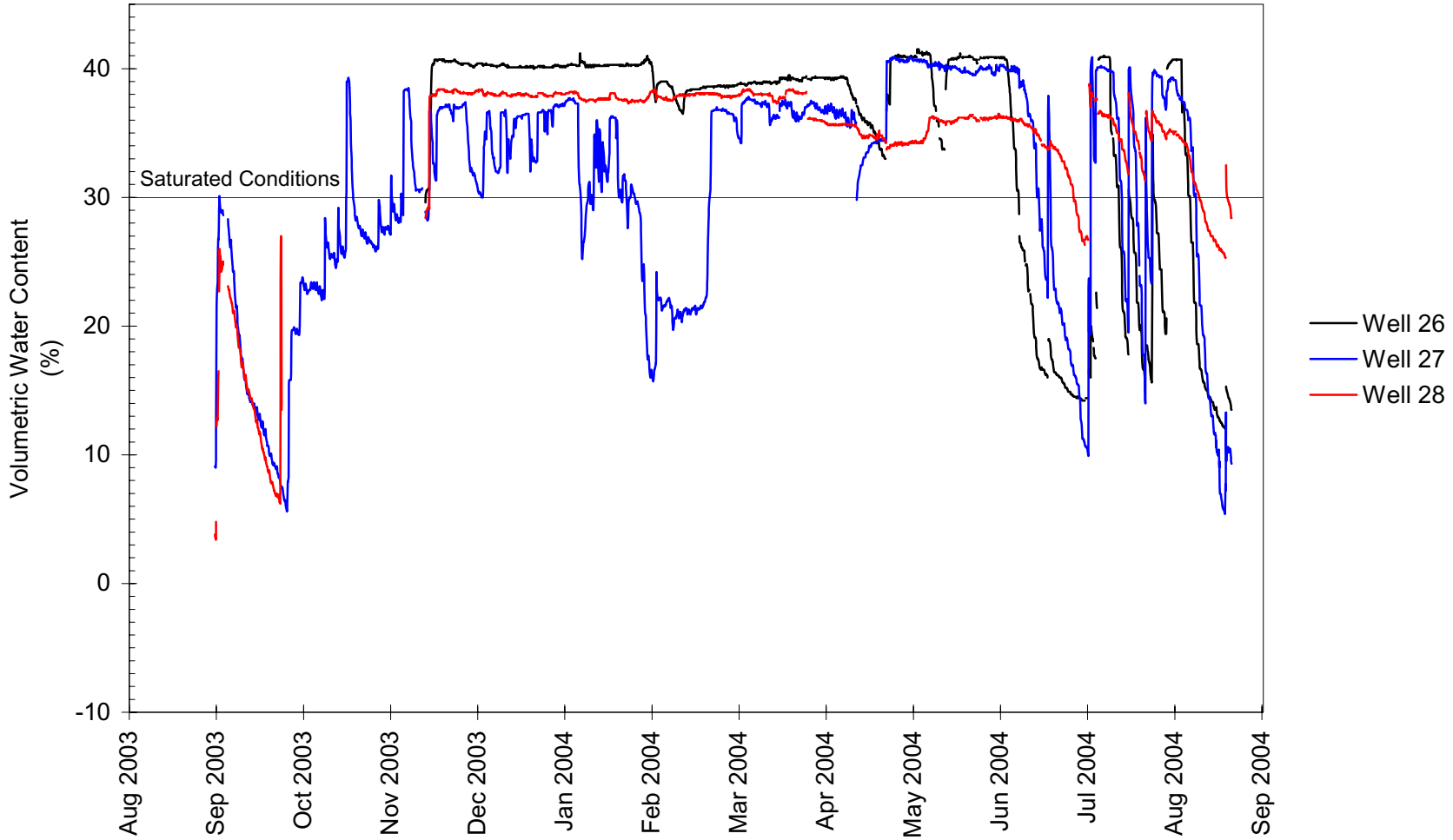
Depth to Water



Former Tiernan Property, New River Crossing Potential Wetland Compensation Site

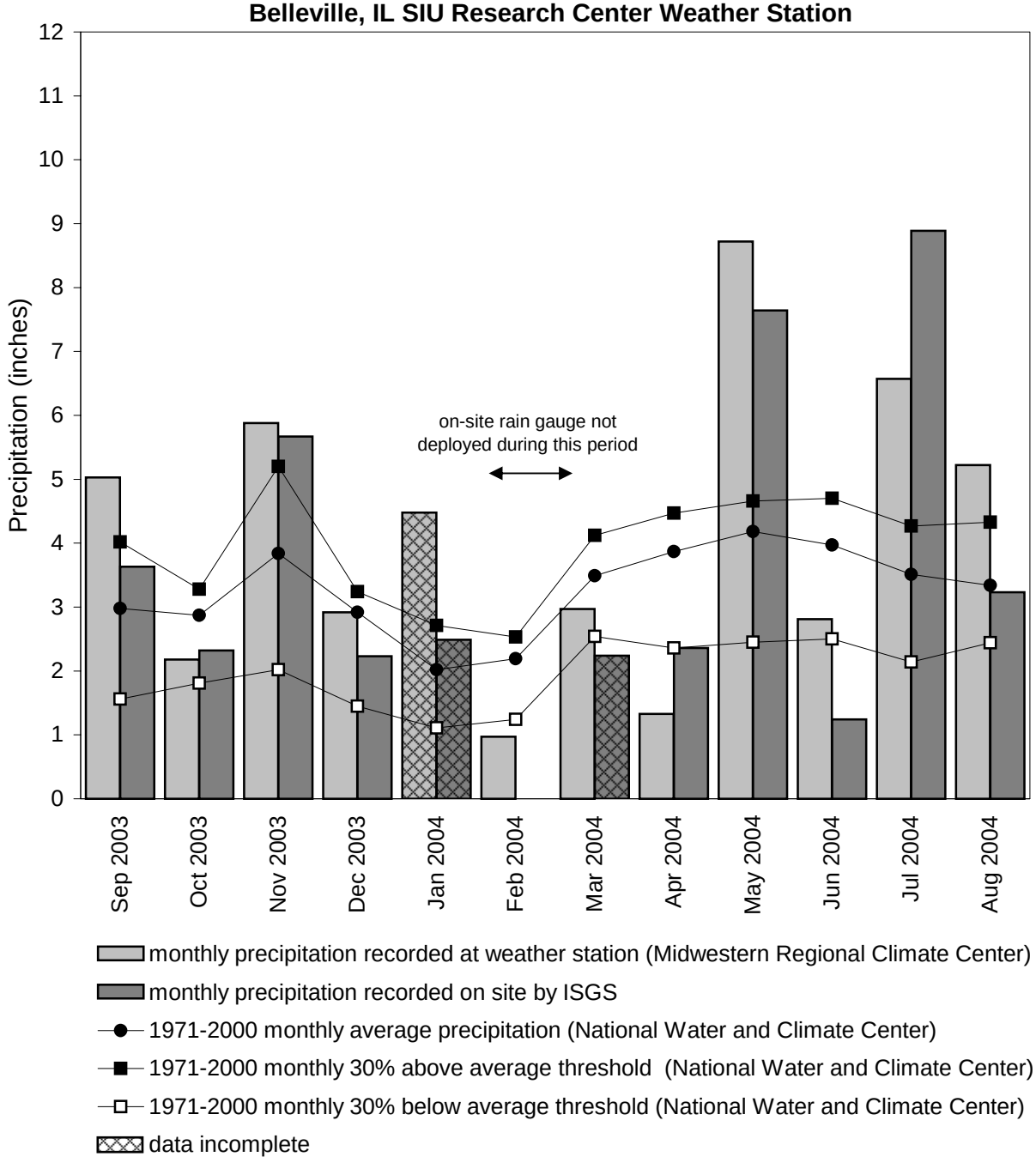
September 1, 2003 to Septermber 1, 2004

Soil Moisture Content at Wells 26, 27 and 28



Former Tiernan Property, New River Crossing
Potential Wetland Compensation Site
September 2003 through August 2004

Total Monthly Precipitation Recorded On Site and at the Belleville, IL SIU Research Center Weather Station



Graph last updated October 1, 2004

BUCKHART **ISGS #58**
WETLAND COMPENSATION SITE
FAS 1637 TR 478
Sangamon County, near Buckhart, Illinois
Primary Project Manager: Eric T. Plankell
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- 1996: Young Road was realigned and a new bridge was constructed over the Sangamon River. Construction of wetland mitigation areas was subsequently completed.

- July 2000: ISGS was tasked to conduct hydrologic monitoring for the presence and extent of wetland hydrology. Prior to the installation of any monitoring instruments at the site, monitoring was halted by IDOT.

- April 2004: ISGS was again tasked to conduct hydrologic monitoring at three mitigation sites labeled as Mitigation Areas 1–3.

- May–June 2004: ISGS installed eight S wells (1S – 8S), two VS wells (1VS and 8VS), three surface-water staff gauges (A, B, and C), and a rain gauge at the site. Additionally, a fixed point (D) was marked on the bridge from which the Sangamon River stage could be measured.

- August 2004: ISGS installed a surface-water data logger (RDS 1) and a river-stage data logger (Sonic). Instrument elevations were determined using a rod and level, and instrument locations were determined using a Trimble XR Pro GPS unit. In addition, a topographic survey of the site was completed using a Leica TC 702 Total Station.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area of created wetland that satisfied wetland hydrology criteria for greater than 5% of the 2004 growing season was 1.8 ac (0.7 ha), whereas the area that satisfied wetland hydrology criteria for greater than 12.5% of the 2004 growing season was 1.5 ac (0.6 ha). These estimates are out of a total site area of 2.5 ac (1.0 ha) and are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in nearby Springfield is April 6 and the season lasts 205 days; 5% of the growing season is 10 days and 12.5% of the growing season is 26 days.

- Total precipitation at the nearby Springfield, IL Abraham Lincoln Capital Airport Weather Station was 93% of normal for the period from September 2003 through August 2004. Precipitation at this station was below normal in September and December 2003 and in January, February, April, May, June, and August 2004. Precipitation at this station was above normal for all other months in the reporting year.

- In 2004, water levels in wells 1S, 3S, 7S, 8S, and 8VS satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 5% of the growing season. In addition, wells 7S, 8S, and 8VS also satisfied the

wetland hydrology criteria for greater than 12.5% of the growing season.

- In 2004, surface-water staff gauge A, located within a closed depression in Mitigation Area 3, recorded inundation to a depth of at least 164.19 m (538.67 ft) for greater than 5% of the growing season. Staff gauge A also recorded inundation to a depth of at least 164.01 m (538.08 ft) for greater than 12.5% of the growing season.

- Flooding is known to have occurred at the site at least twice during the 2004 growing season. On May 18, 2004, wells 7S, 8S, 8VS, and staff gauge A, all located within a closed depression in Mitigation Area 3, were observed to be inundated. Subsequent visits to the site showed that these instruments continued to be inundated until at least June 9, with approximately 2.5 cm of standing water observed at the base of well 7S. The water-level elevation was equal to 164.03 m (538.15 ft), the highest of these instruments. A second flooding event was observed at this site on June 18, 2004. All wells in Mitigation Areas 1 and 3 and staff gauge A were observed to be inundated at this time.

- Limitations of the wetland hydrology determination are as follows:
  - The wetland-hydrology polygons in Mitigation Area 3 were drawn on an ISGS topographic map with a 0.1-meter contour interval. The areas of wetland hydrology were calculated using a Tamaya Super PLANIX β Digitizing Area-Line Meter.
  - Due to an incomplete topographic data set for Mitigation Area 1, it was not possible to accurately draw wetland-hydrology polygons around wells 1S and 3S. Therefore, wetland acreage in the vicinity of these two wells was not calculated.
  - The first reliable water-level measurements were recorded at the site on May 18, 2004. Water levels at the site during the early part of the growing season, from April 6 through May 17, are unknown. It is possible that additional areas of the site may have met wetland hydrology criteria during this time frame, and that the overall acreage meeting wetland hydrology criteria for the 2004 reporting year could have been greater than as reported.

PLANNED FUTURE ACTIVITIES

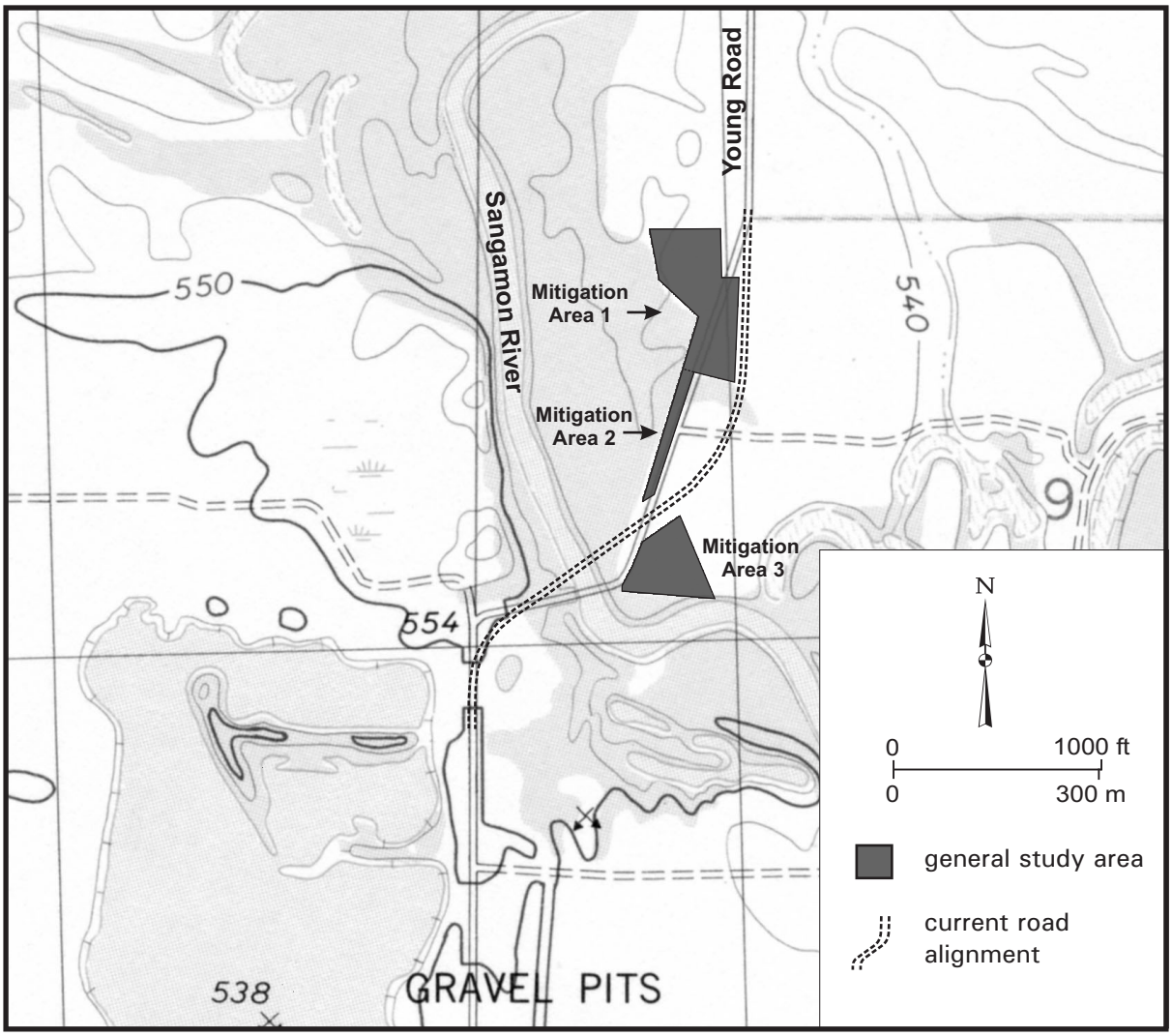
- Monitoring will continue until no longer required by IDOT.

Buckhart Wetland Compensation Site

[FAS 1637 (TR 478)]

General Study Area and Vicinity

from the USGS Topographic Series, Mechanicsburg, IL 7.5-minute Quadrangle (USGS 1982)
contour interval is 10 feet



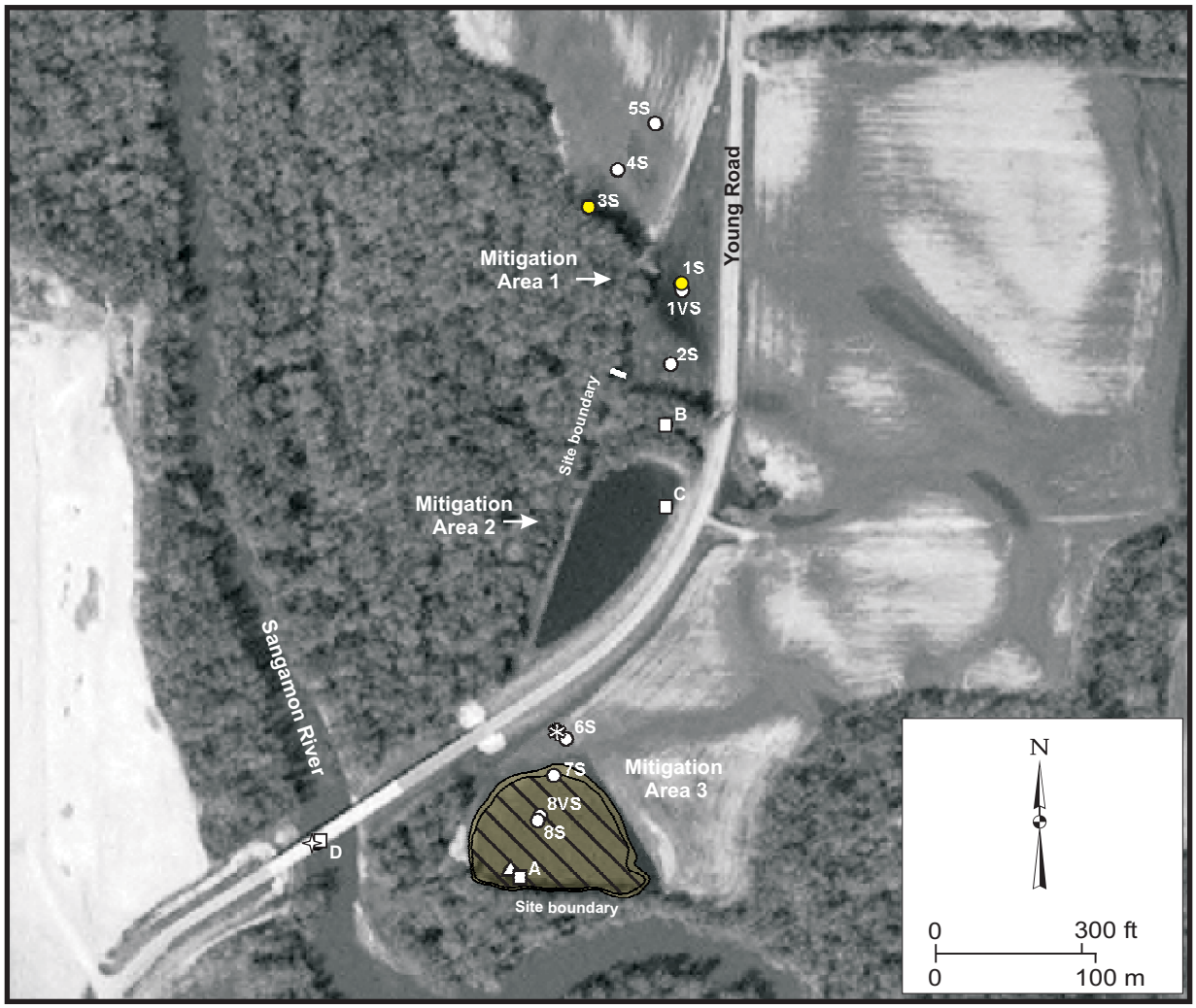
Buckhart Wetland Compensation Site

[FAS 1637 (TR 478)]

Estimated Areal Extent of 2004 Wetland Hydrology

Based on data collected between May 18, 2004 and September 1, 2004

map based on USGS digital orthophotographs Mechanicsburg, SE and SW quarter quadrangles
produced from 4/12/98 aerial photography (ISGS 2001)

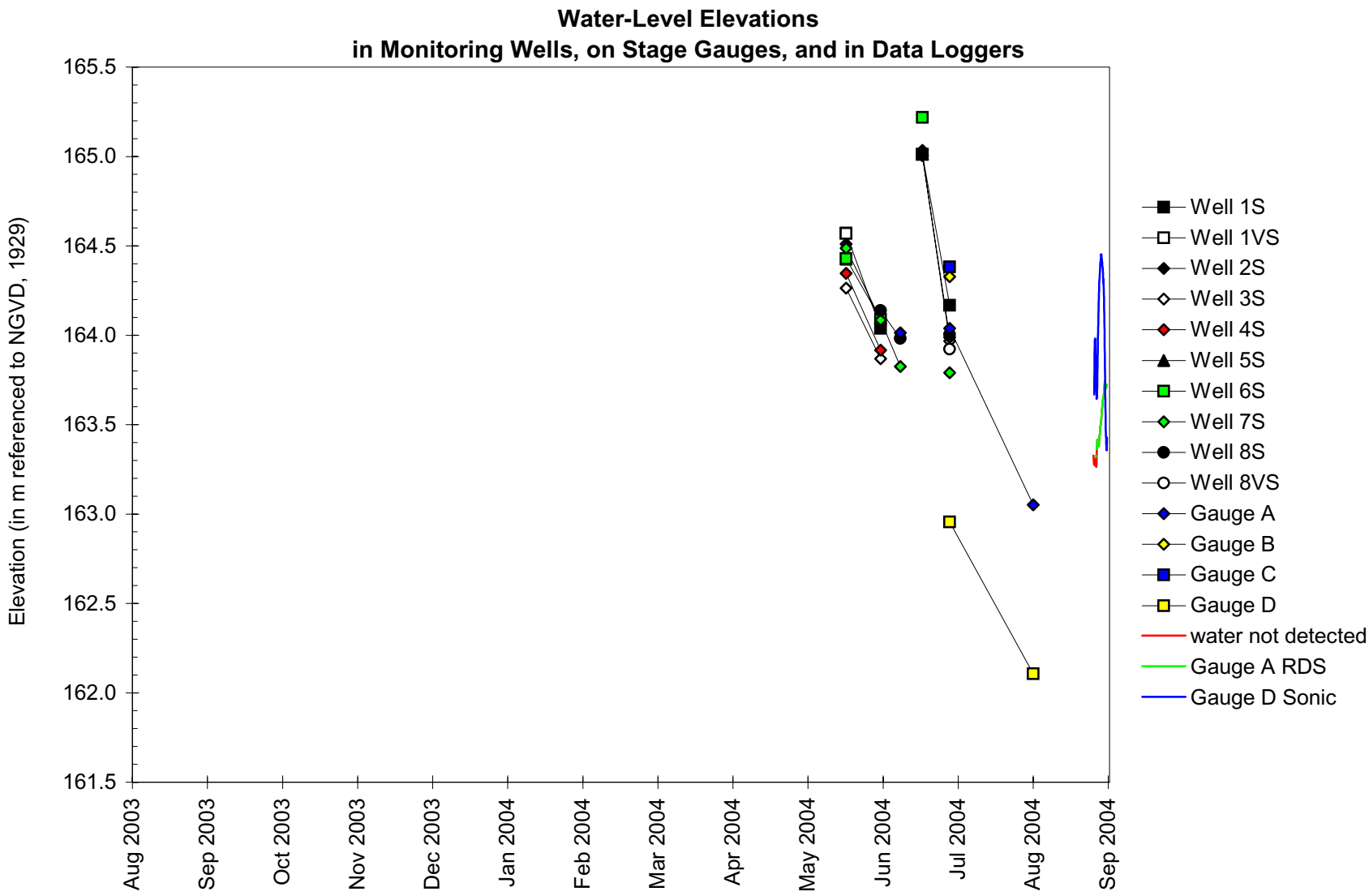


2004 Wetland Hydrology

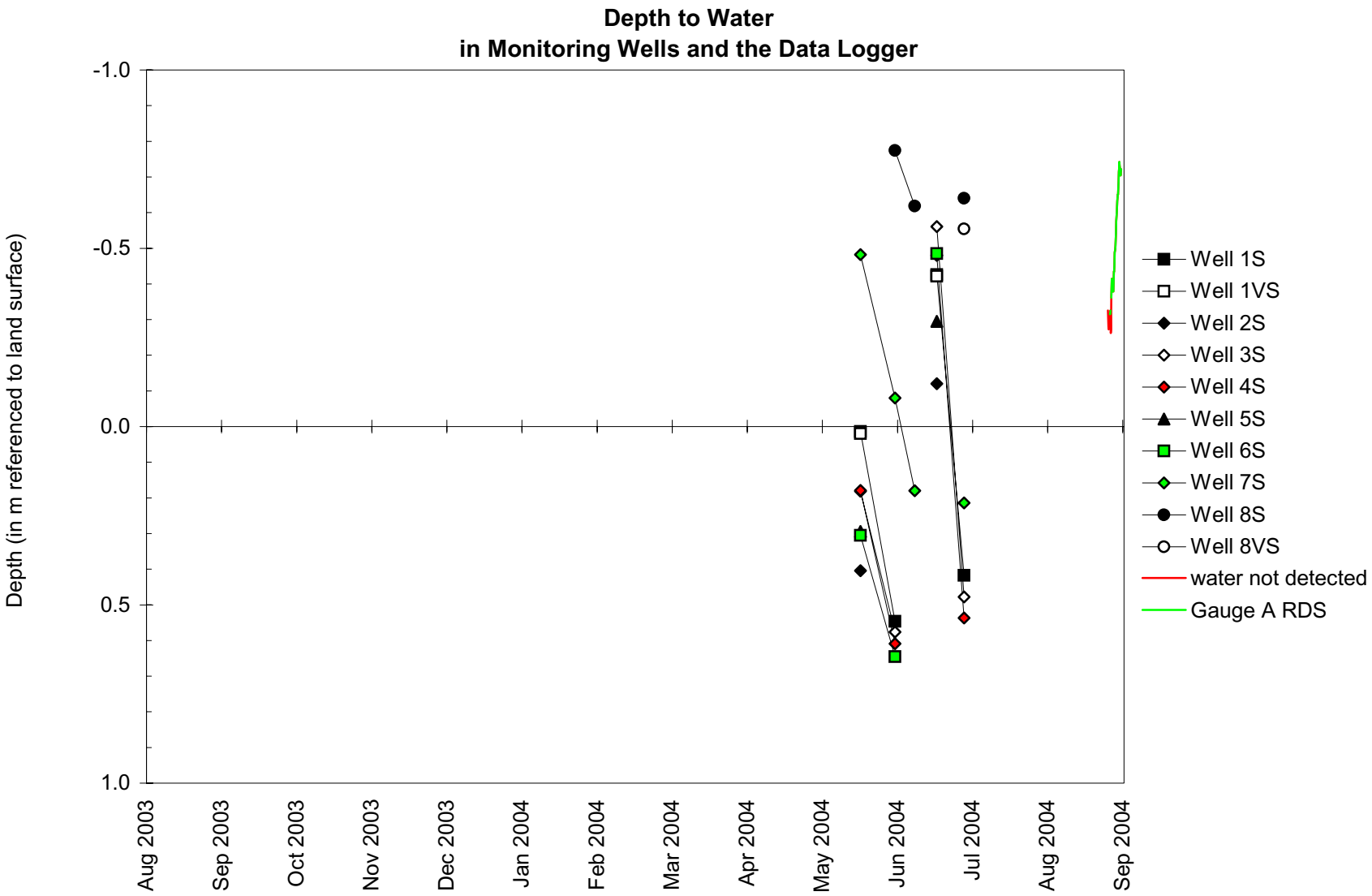
- >12.5% of the growing season
- >5% of the growing season

- ○ monitoring well
- □ stage gauge
- △ RDS data logger
- ❄ rain gauge
- ✧ Sonic data logger

Buckhart Wetland Compensation Site
September 1, 2003 to September 1, 2004

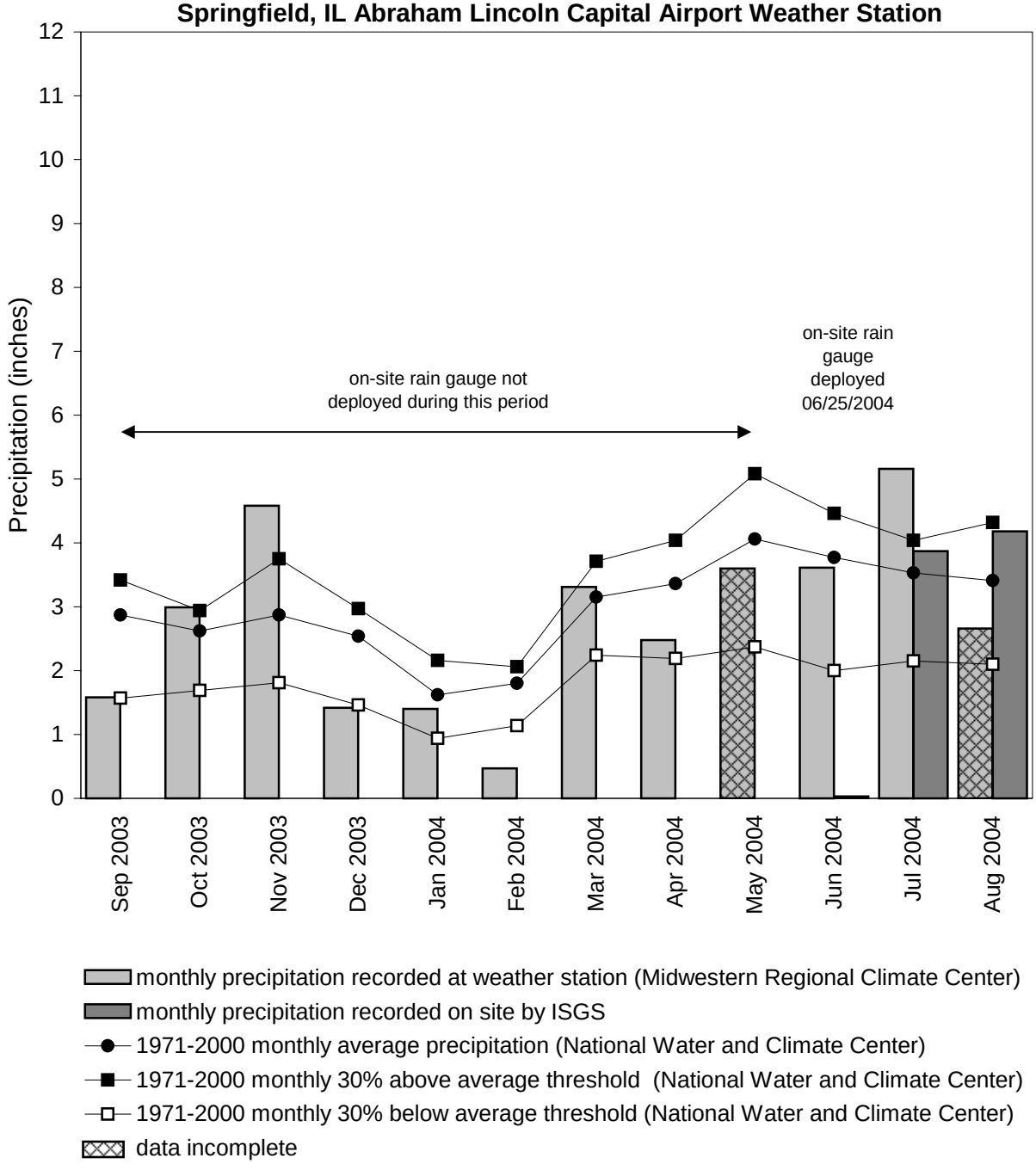


Buckhart Wetland Compensation Site
September 1, 2003 to September 1, 2004



Buckhart Wetland Compensation Site
September 2003 through August 2004

Total Monthly Precipitation Recorded On Site and at the Springfield, IL Abraham Lincoln Capital Airport Weather Station



Graph last updated October 1, 2004

APPLE CREEK NEAR BELLTOWN **ISGS #62**
POTENTIAL WETLAND COMPENSATION SITE
FAP 310
Greene County, Illinois
Primary Project Manager: Bonnie J. Robinson
Secondary Project Manager: Kelli D. Weaver

SITE HISTORY

- October 2001: ISGS submitted an Initial Site Evaluation report.
- December 2001: ISGS was tasked by IDOT to conduct a Level II hydrogeologic assessment of the site.
- April–August 2002: Eighteen shallow wells, two surface-water level loggers, two staff gauges and one rain gauge were installed on site.
- February 2004: A Level II hydrogeological characterization report was submitted to IDOT.

WETLAND HYDROLOGY CALCULATION FOR 2004

The total area that satisfied wetland hydrology criteria for greater than 5% of the growing season was estimated to be 21.7 ac (8.8 ha), whereas the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season in 2004 was estimated to be 15.8 ac (6.4 ha). The estimates for 2004 are based on the following factors.

- According to the Midwestern Climate Center, the median length of the growing season, as measured at the White Hall climate station, is 210 days (April 6 to November 2); 5% of the growing season is 11 days and 12.5% of the growing season is 26 days.
- Total precipitation during the monitoring period was 120% of normal. Despite above normal precipitation in September, a drying trend was observed onsite until low evapotranspiration rates coupled with above normal precipitation occurred in November 2003. Near normal precipitation in December 2003 and January 2004 kept water levels reasonably stable through most of the winter. Below normal precipitation in February 2004 (35% of normal) resulted in a decrease in water levels until they rebounded in response to near to above normal precipitation in March through May 2004. Despite above normal precipitation in July and August, water levels declined throughout the summer as a result of high evapotranspiration rates.
- In 2004, water levels measured in wells 1S, 2S, 3S, 6S, 8S, 10S, 12S, 13S, 14S, 15S, and 18S satisfied the criteria for wetland hydrology for greater than 5% of the growing season. All the above wells, with the exception of 15S, also met the criteria for wetland hydrology for greater than 12.5% of the growing season. Surface-water levels inside the levee at RDS1 indicate that surface inundation occurred to an elevation of 136.121 m (446.591 ft) for greater than 5% of the growing season and greater than 136.105 m (446.539 ft) for 12.5% of the growing season.
- The water level in Apple Creek did not reach an elevation sufficient to overtop the levee during the entire monitoring period. Measurements in the creek indicate that the water level

exceeded 138.0 m (450.8 ft), on only one occasion, November 18 through 21, 2003. This is the suggested elevation of the notch in the southern levee after restoration as proposed in the Level II report (Robinson 2004).

- Limitations of the wetland hydrology determination are as follows:
  - The area meeting wetland hydrology criteria was derived from a mathematical interpolation of the shallow ground-water surface derived from water level readings at the monitoring wells.

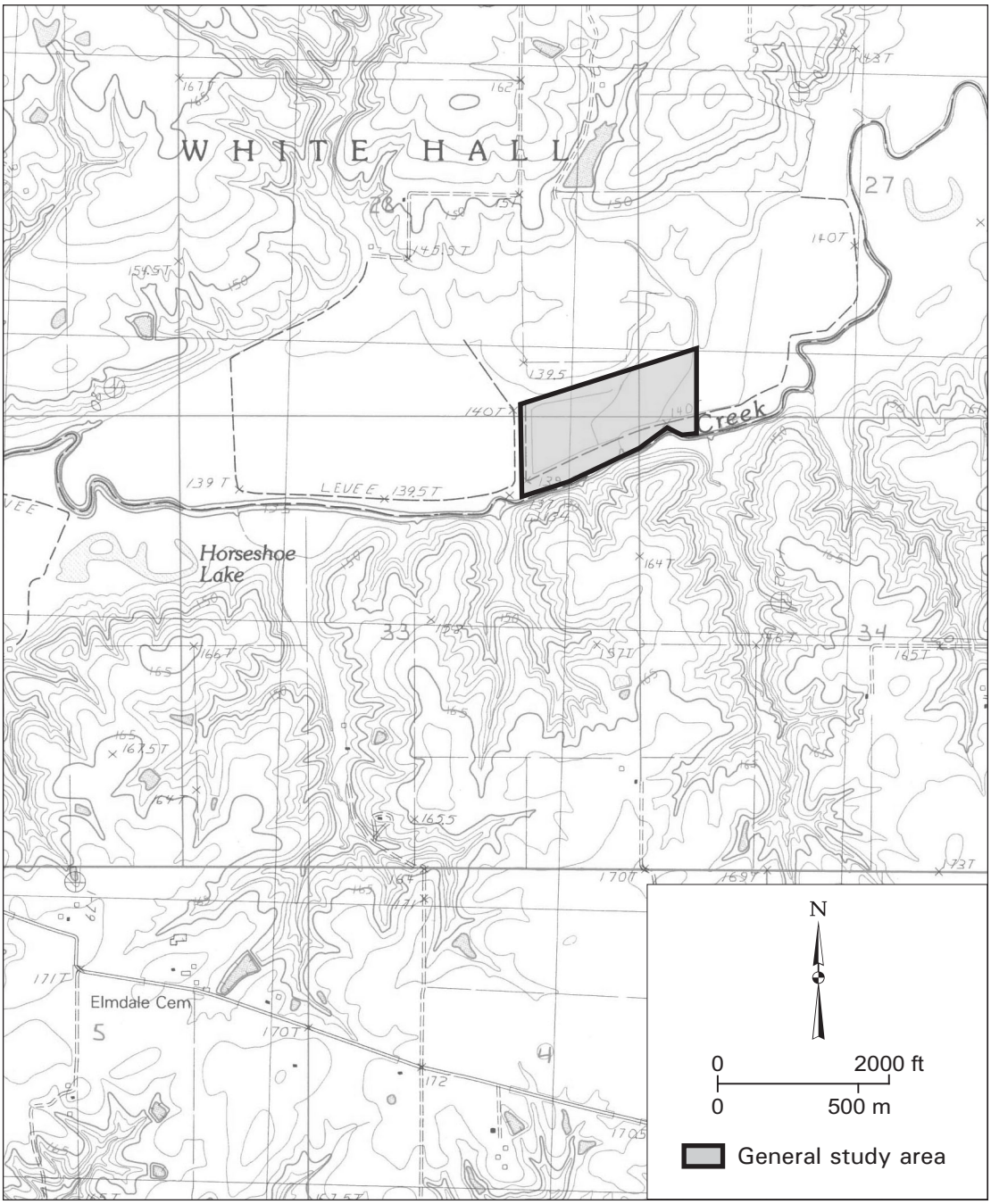
REFERENCES

Robinson, B.J., 2004, Level 2 Hydrogeologic Characterization Report: Apple Creek near Belltown, Greene County, IL (US 67, FAP 310): Illinois State Geological Survey Open File Series 2004–5, 24 p.

Apple Creek Potential Wetland Compensation Site
(US 67, FAP 310)

General Study Area and Vicinity

from the USGS Topographic Series, Carrollton, IL 7.5-minute Quadrangle (USGS 1983)
contour interval is 10 feet



Apple Creek Potential Wetland Compensation Site

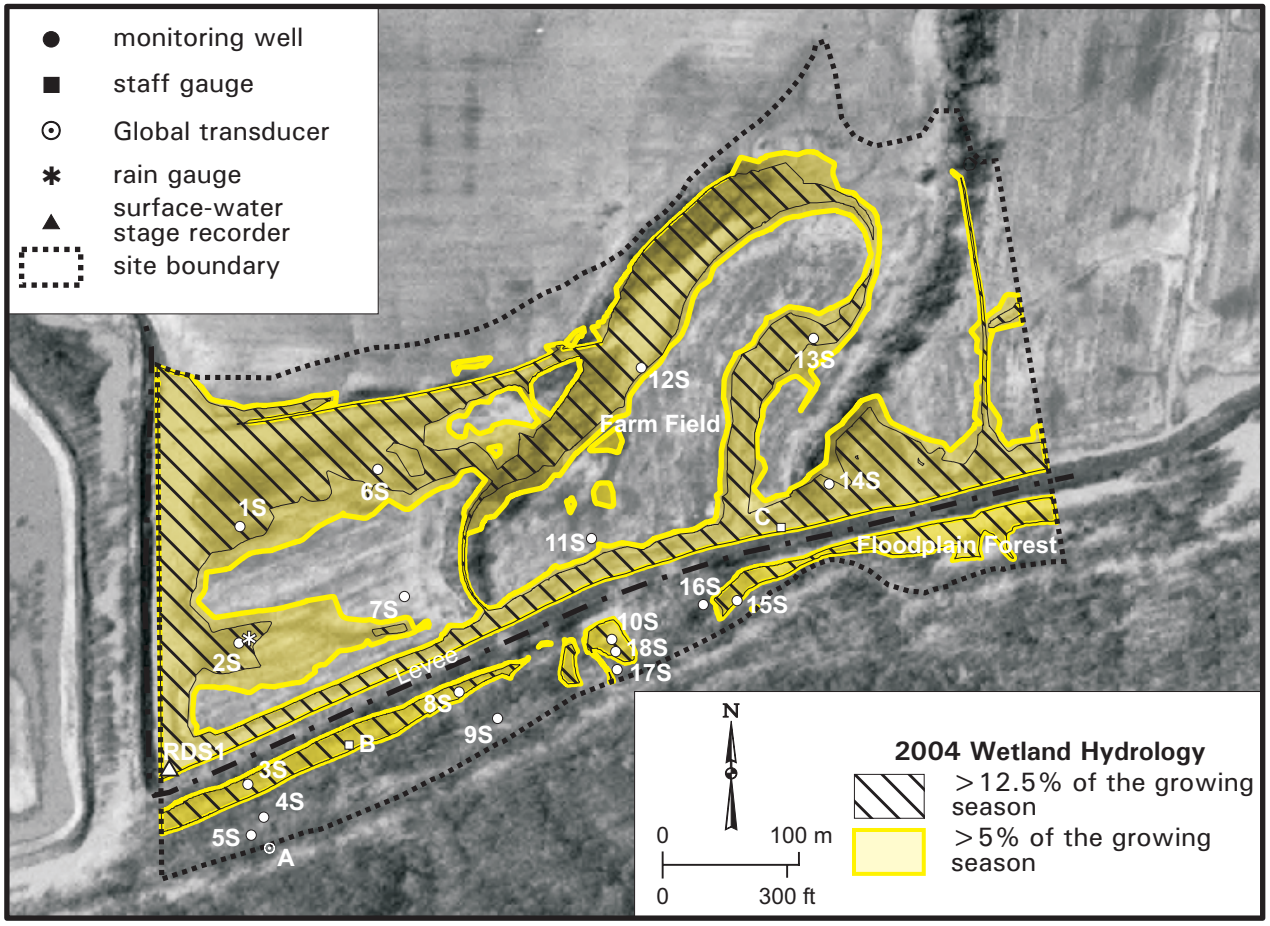
(US 67, FAP 310)

Estimated Areal Extent of 2004 Wetland Hydrology

based on data collected between September 1, 2003 and September 1, 2004

map based on USGS digital orthophotograph, Carrollton NE quarter quadrangle

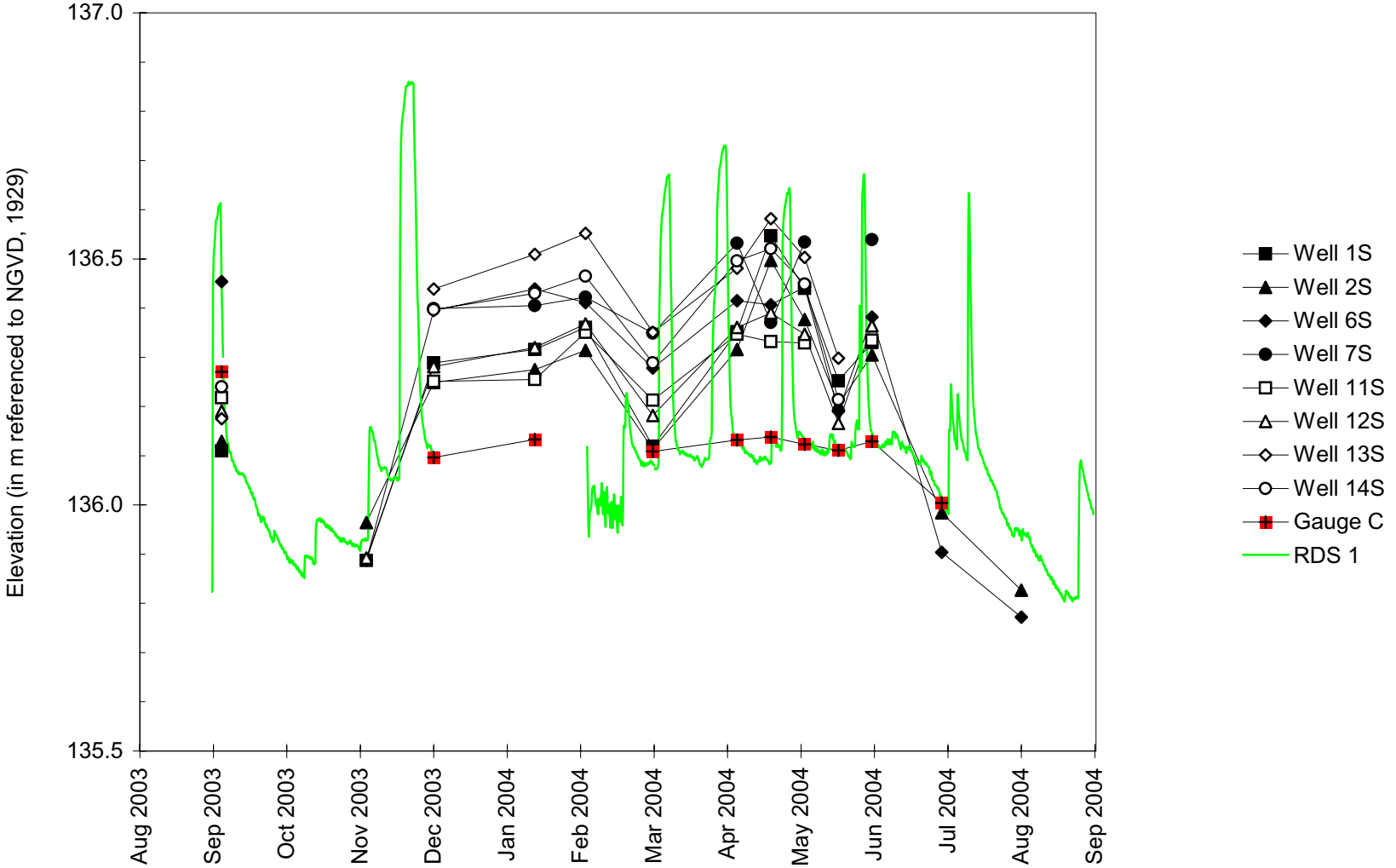
quadrangle produced from 4/5/1998 aerial photography (ISGS 2001)



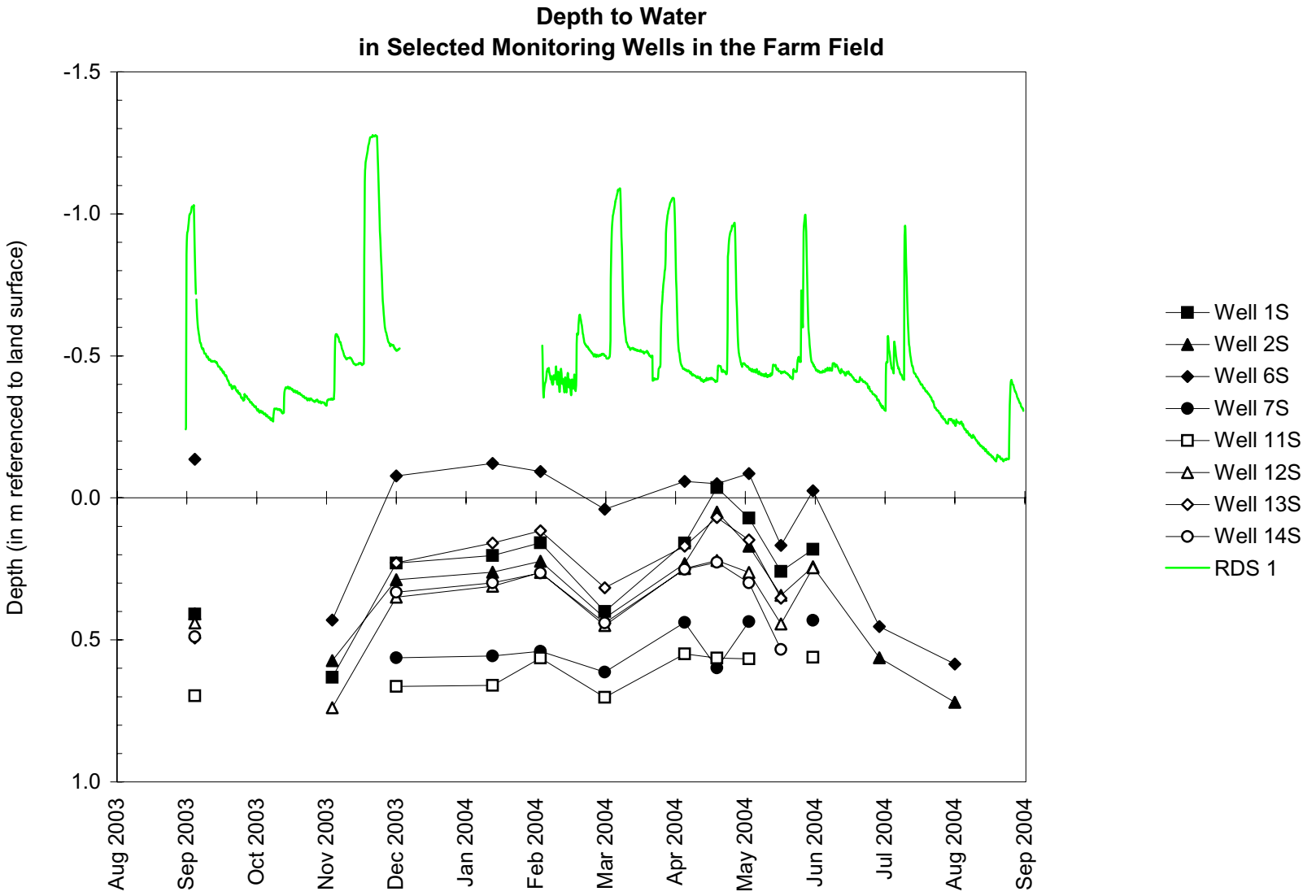
Apple Creek Potential Wetland Compensation Site

September 1, 2003 to September 1, 2004

Water-Level Elevations in Selected Monitoring Wells in the Farm Field

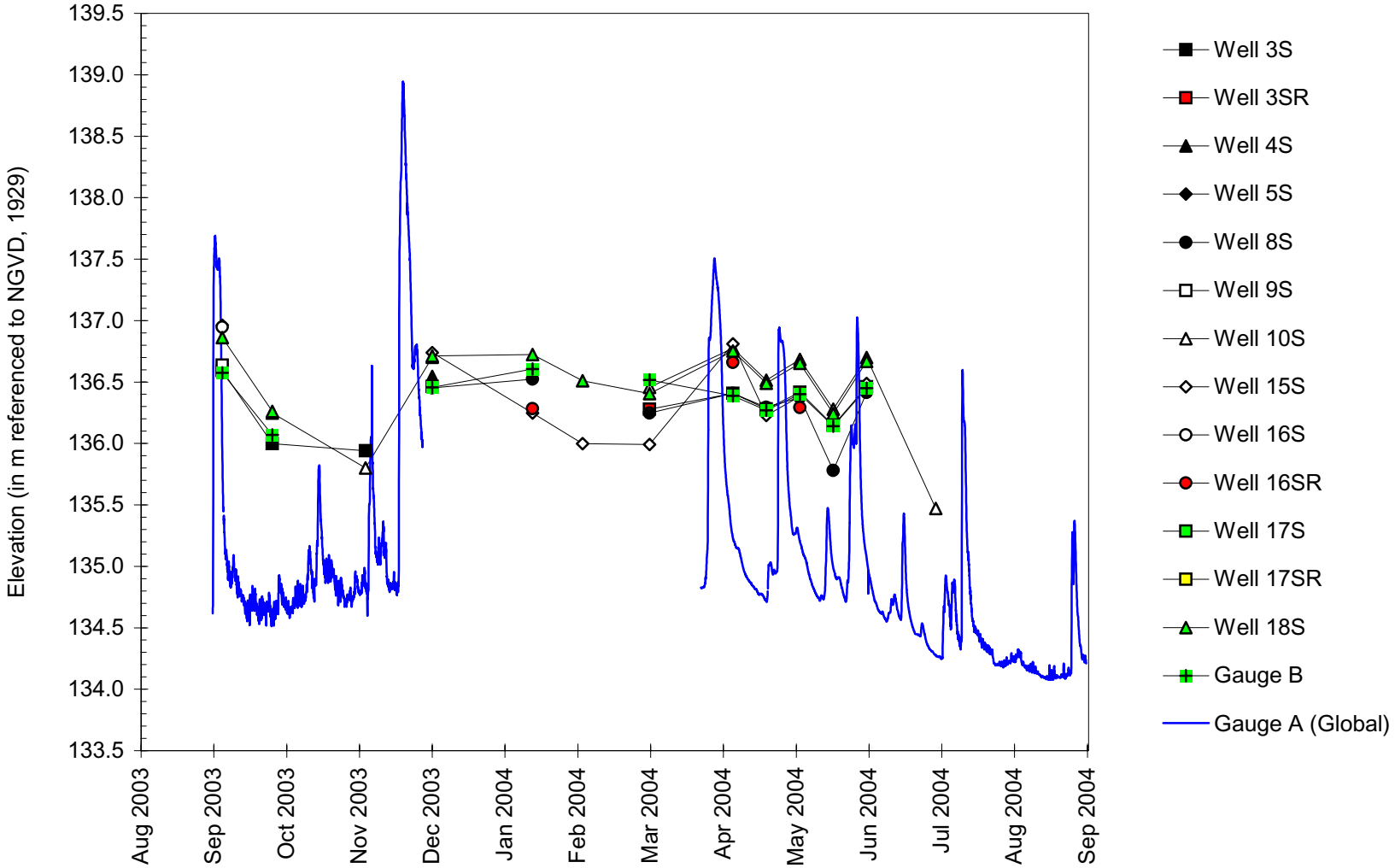


Apple Creek Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

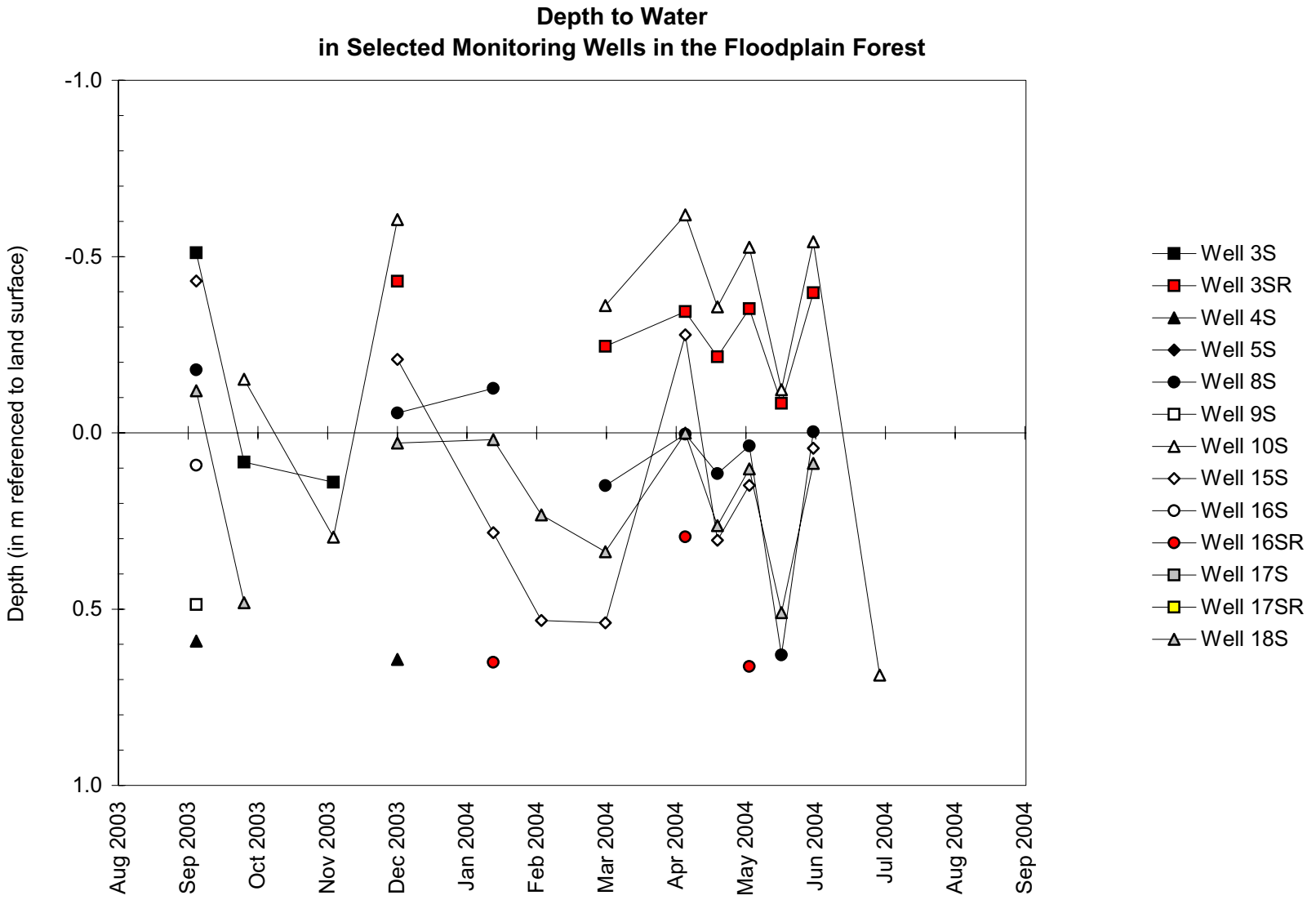


Apple Creek Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Selected Monitoring Wells in the Floodplain Forest

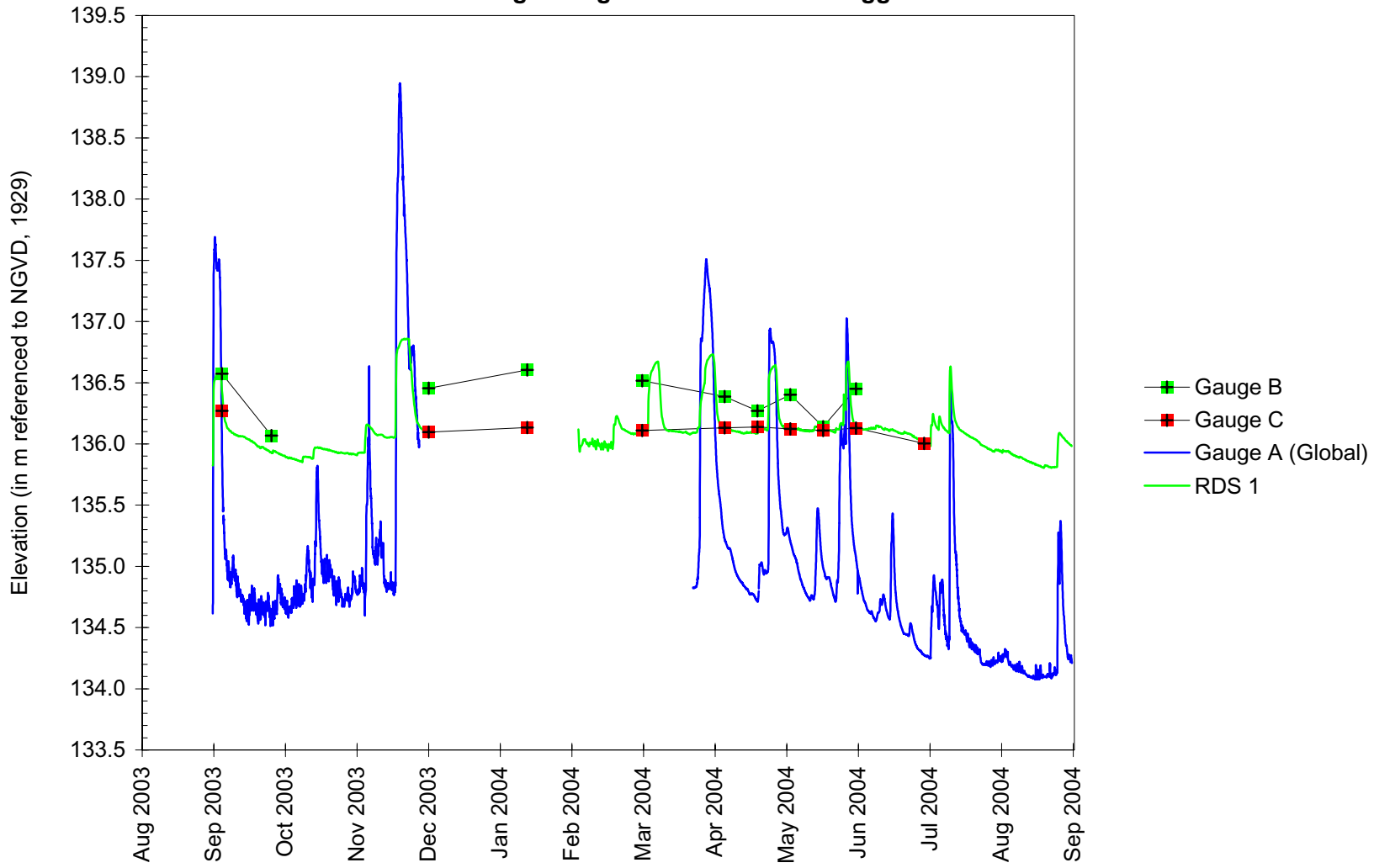


Apple Creek Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

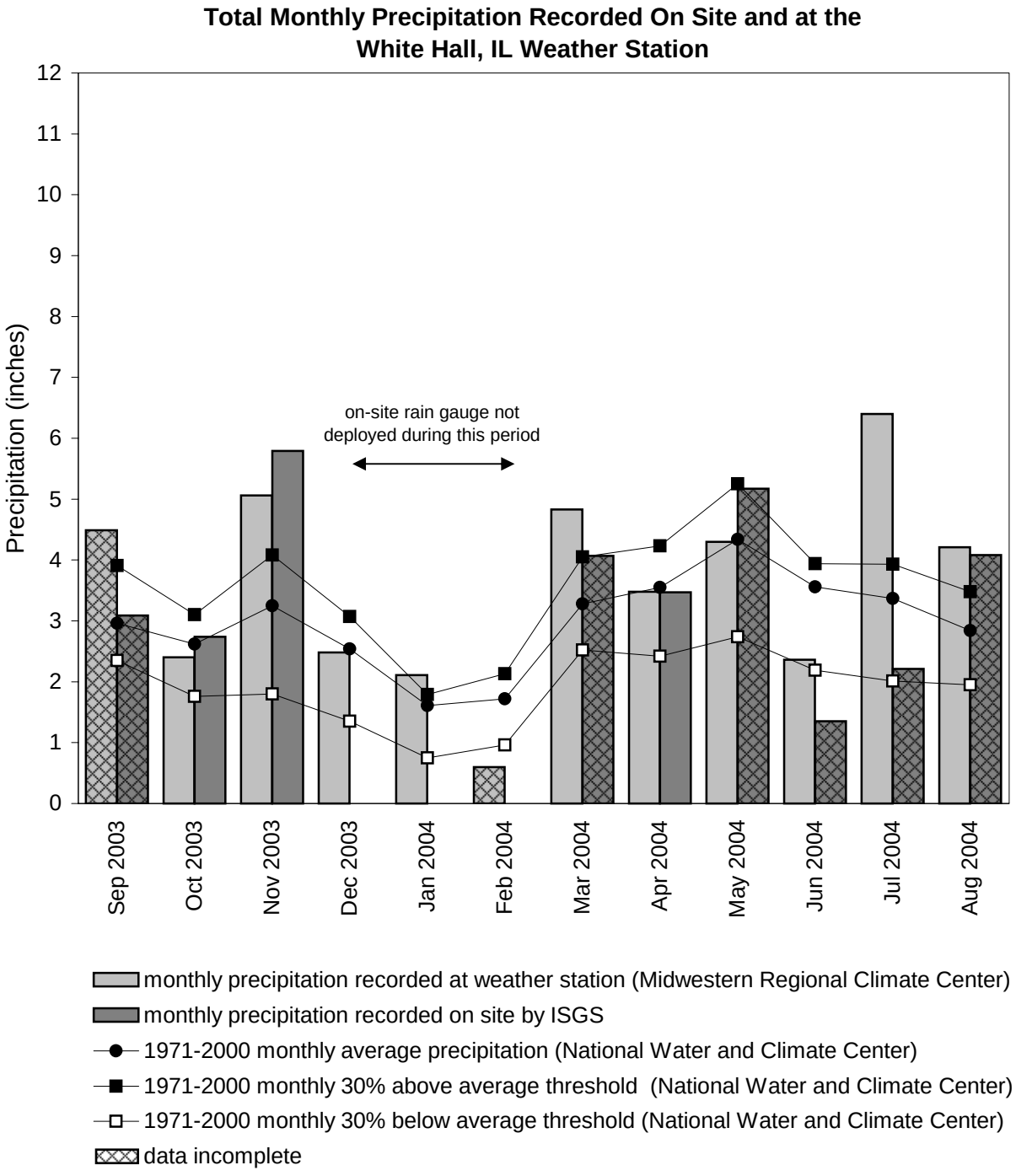


Apple Creek Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
on the Stage Gauges and at the Data Loggers



Apple Creek Potential Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

HARRISBURG **ISGS #63**
POTENTIAL WETLAND COMPENSATION SITE
FAP 332
Saline County, near Harrisburg, Illinois
Primary Project Manager: Geoffrey E. Pociask
Secondary Project Manager: Gregory A. Shofner

SITE HISTORY

- January 2000: ISGS was tasked by IDOT to conduct an Initial Site Evaluation of the site.
- April 2000: ISGS submitted an Initial Site Evaluation report identifying the site as having low-moderate potential for wetland restoration.
- December 2001: ISGS was tasked by IDOT to conduct a Level II hydrogeologic characterization of the site.
- March 2002: ISGS initiated monitoring activities at the site.
- April 2004: Level II hydrologic characterization report was submitted to IDOT, and the created wetland was constructed.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that 1.3 ac (0.5 ha) out of an excavation of 20.0 ac (8.1 ha) satisfied wetland hydrology criteria for greater that 5% of the growing season in 2004, whereas no area satisfied wetland hydrology for greater than 12.5% of the growing season. These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Harrisburg is April 1 and the season lasts 211 days; 5% of the growing season is 11 days and 12.5% of the growing season is 26 days.
- Total precipitation for the period from September 2003 through August 2004 was 85% of normal. Drier than normal conditions prevailed in October and December 2003 and during February through April, and June 2004. Precipitation amounts were at or above normal for September and November 2003 and in January, May, July, and August 2004.
- In 2004, monitoring wells 4S, 5S and 6S satisfied wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 5% of the growing season. No wells satisfied the wetland hydrology criteria for greater than 12.5% of the growing season.
- The RDS data logger, located at the confluence of the drainage ditches at the east end of the site, indicated that surface-water inundation occurred below 111.0 m (364.2 ft) for a duration sufficient to satisfy wetland hydrology criteria for greater than 5% of the growing season. No area was inundated for greater than 12.5% of the growing season.
- Limitations of the wetland hydrology determination are as follows:
  - The area of wetland hydrology was calculated using GIS methods. The wetland-

hydrology polygon was drawn from an ISGS topographic map (0.1-meter contour interval) rectified to GPS locations of water-level instruments.

- GPS coordinates of the water-level instruments were determined during July 2003.

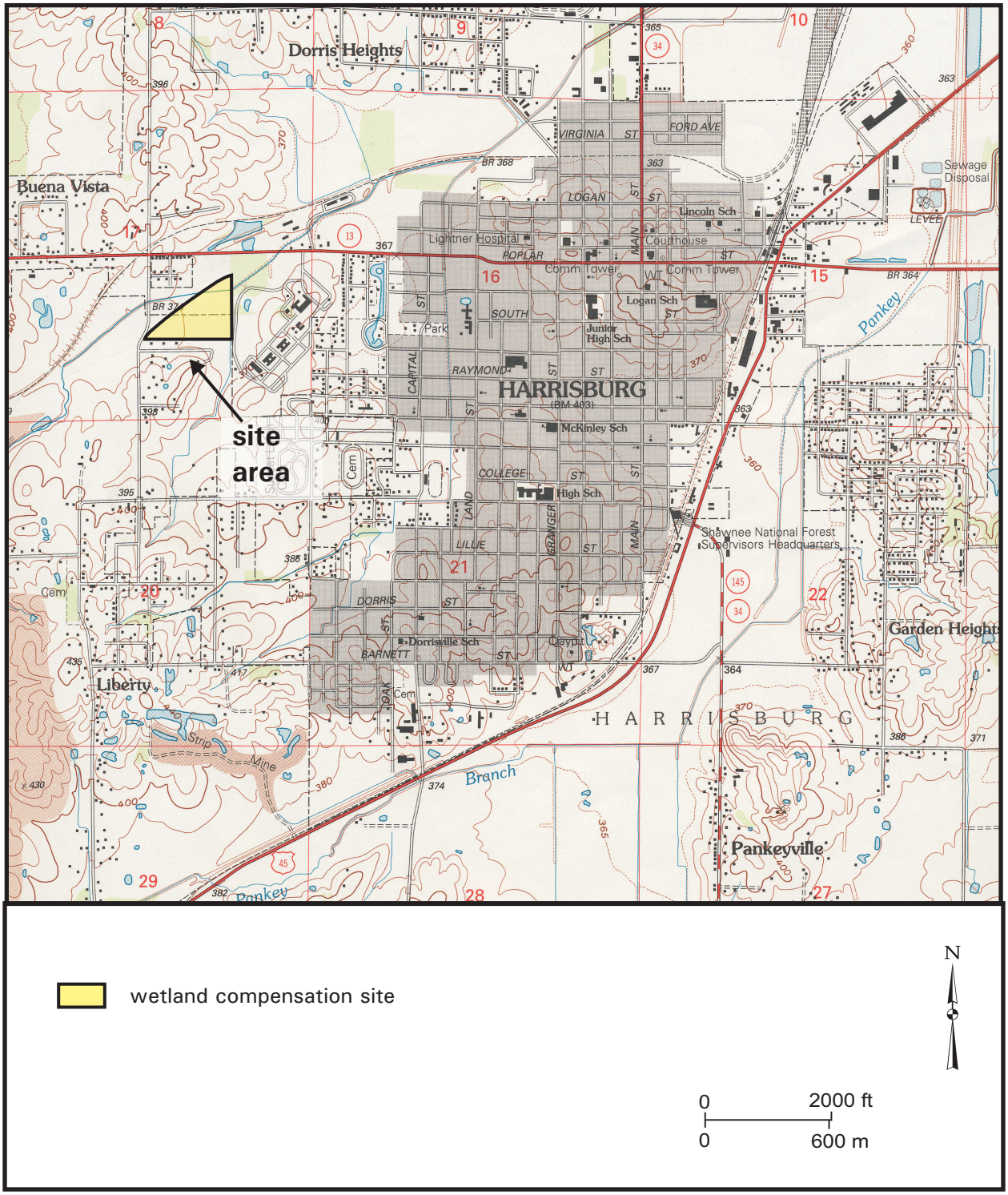
PLANNED FUTURE ACTIVITIES

- Monitoring will continue through 2009 or until no longer required by IDOT.

Harrisburg Potential Wetland Compensation Site
(FAP 332)
Site and Vicinity

from the USGS Topographic Series, Harrisburg, IL 7.5-minute Quadrangle (USGS 1996)

contour interval is 5 feet

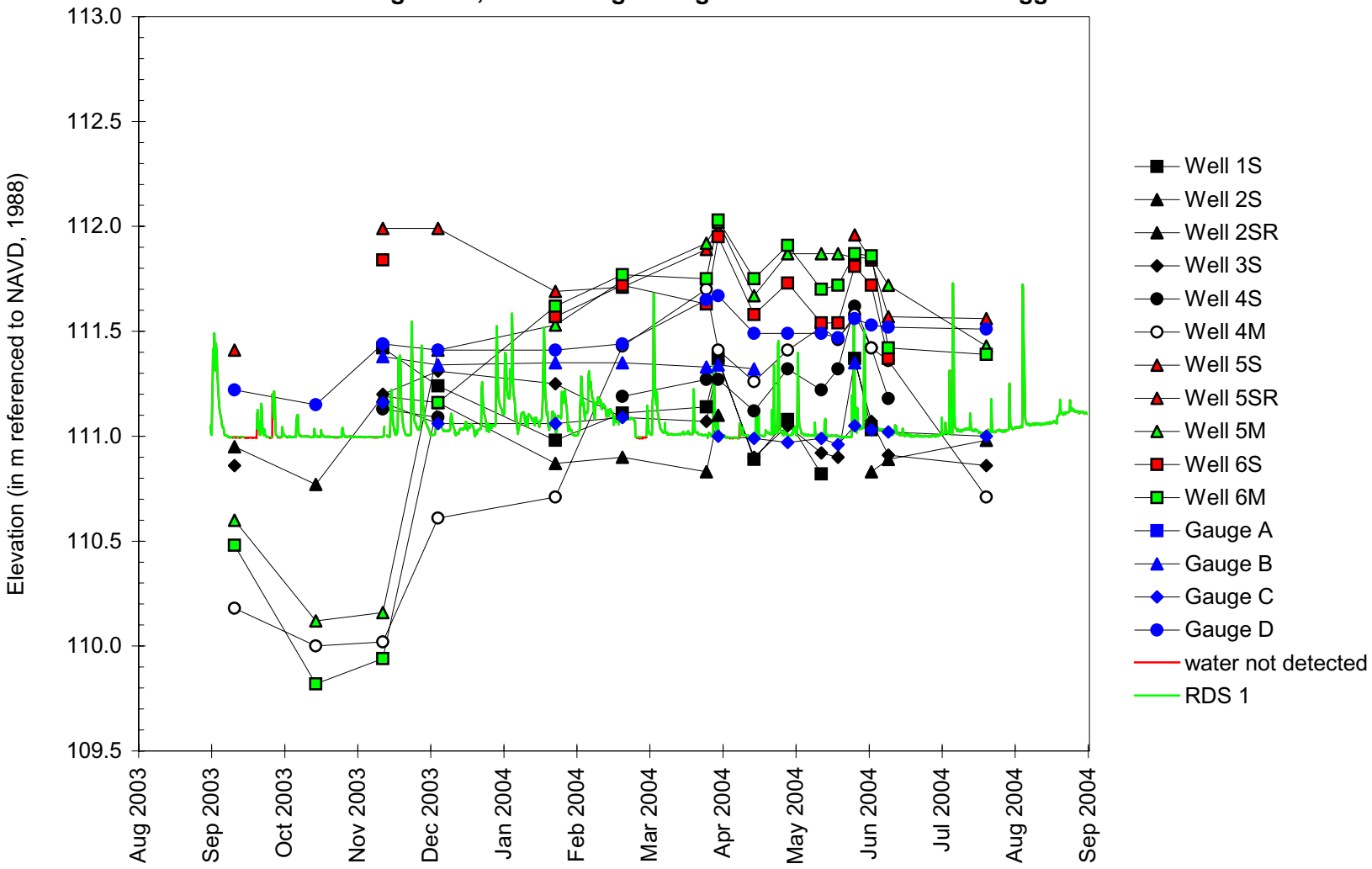


Harrisburg Wetland Compensation Site
(FAP 332)
Estimated Areal Extent of 2004 Wetland Hydrology

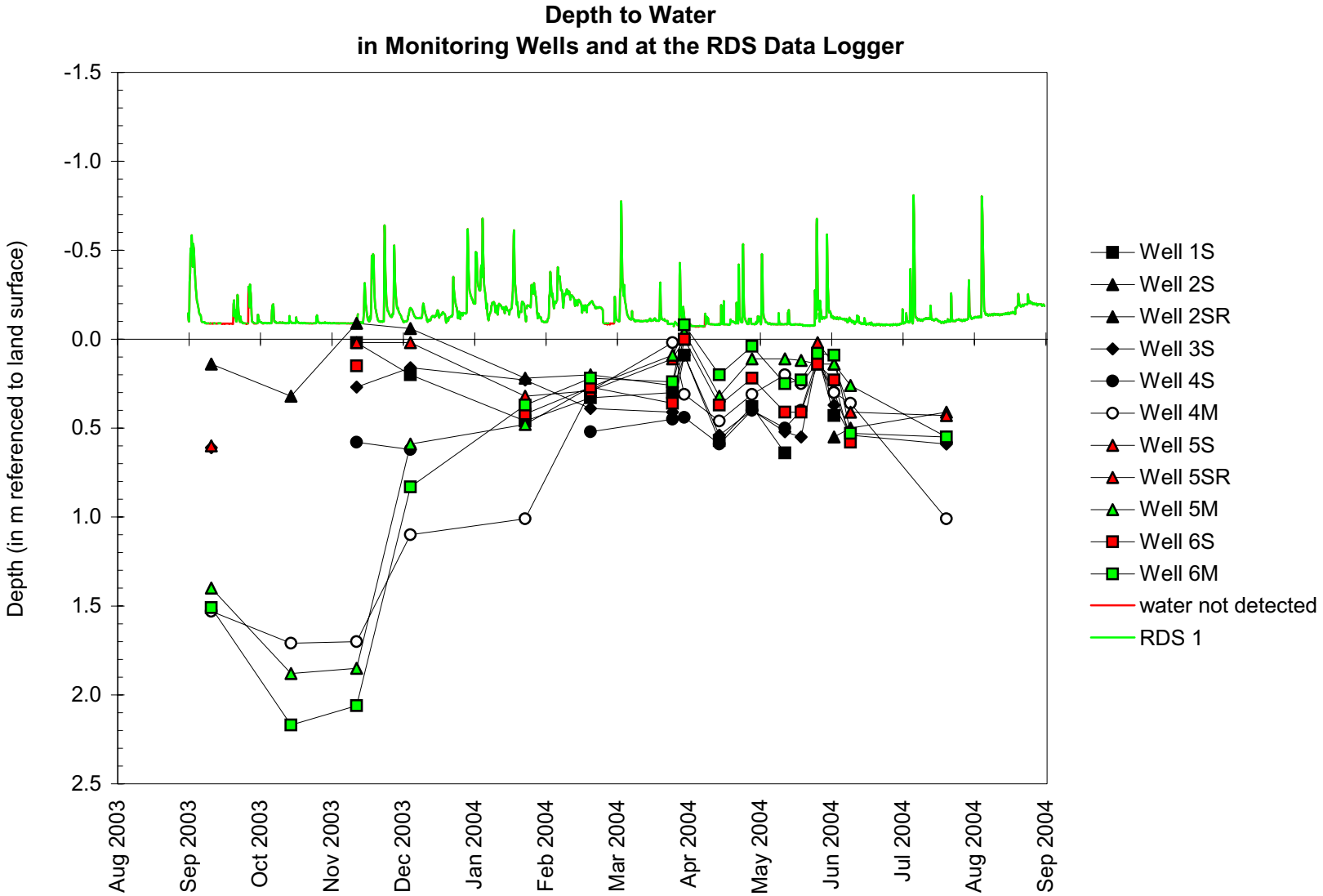
base map generated from IDOT aerial photography rectified to USGS digital orthophotograph
Harrisburg, NW quarter quadrangle (ISGS 2002)

Harrisburg Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

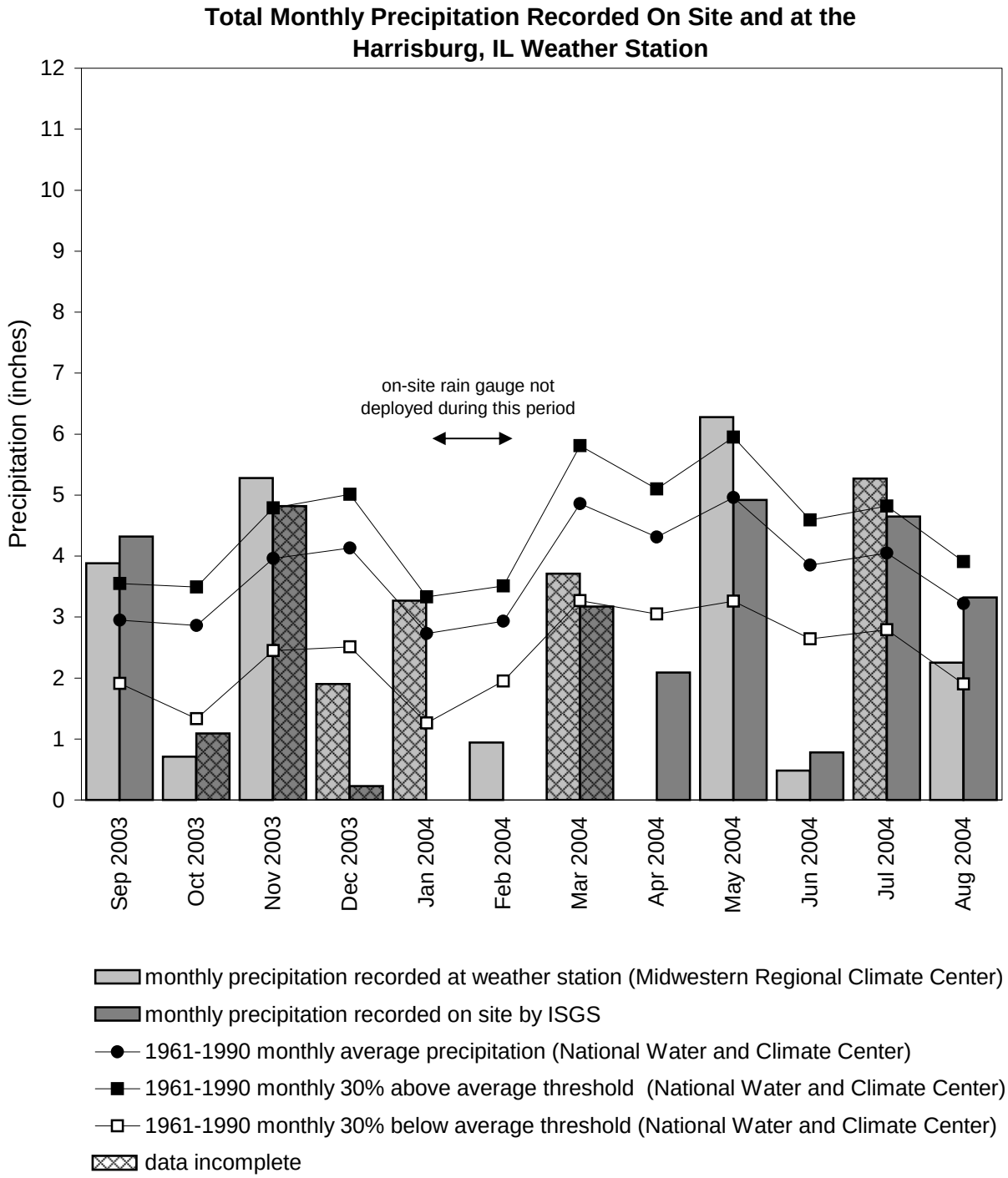
Water-Level Elevations
in Monitoring Wells, on the Stage Gauges and at the RDS Data Logger



Harrisburg Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004



Harrisburg Potential Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

CARBONDALE **ISGS #65**
WETLAND COMPENSATION SITE
FAP 322
Jackson County, near Carbondale, Illinois
Primary Project Manager: Geoffrey E. Pociask
Secondary Project Manager: Gregory A. Shofner

SITE HISTORY

- March 2002: ISGS was tasked by IDOT to monitor wetland hydrology for this compensation site.

- April 2002: ISGS initiated water-level monitoring activities.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that 0.1 ac (0.05 ha) out of a total of 9.9 ac (4.0 ha) satisfied wetland hydrology criteria for greater than 5% of the growing season in 2004, whereas 0.08 ac (0.03 ha) satisfied wetland hydrology for greater than 12.5% of the growing season. These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Carbondale is April 4 and the season lasts 203 days; 5% of the growing season is 10 days and 12.5% of the growing season is 25 days.

- Total precipitation for the reporting period from September 2003 through August 2004 was 87% of normal. Drier than normal conditions prevailed in September, October, and December 2003 and in February, April, June, and August 2004. Precipitation was at or above normal in November 2003 and in January, March, May and July 2004.

- In 2004, monitoring well 5S satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 5% of the growing season. Well 5S also satisfied the wetland hydrology criteria for greater than 12.5% of the growing season.

- The water levels recorded at data loggers RDS1 and Gauge A show that flood events from Piles Fork supply surface water to the created wetland areas. The area in the basin surrounding RDS1 below approximately 123.1 m (403.8 ft) is inundated for greater than 5% of the growing season and therefore satisfies wetland hydrology criteria. A small area below approximately 123.0 m (403.5 ft) was inundated for greater than 12.5% of the growing season.

- Limitations of the wetland hydrology determination are as follows:
  - The wetland hydrology estimate includes the entire IDOT parcel. Therefore, areas planned for wetland preservation and enhancement are included in the wetland hydrology acreage estimate.
  - The area of wetland hydrology was calculated using GIS methods. The wetland-hydrology polygon was drawn from an ISGS topographic map (0.1-meter contour interval) rectified to GPS positions of water-level instruments and point features identifiable from digital orthophotography.

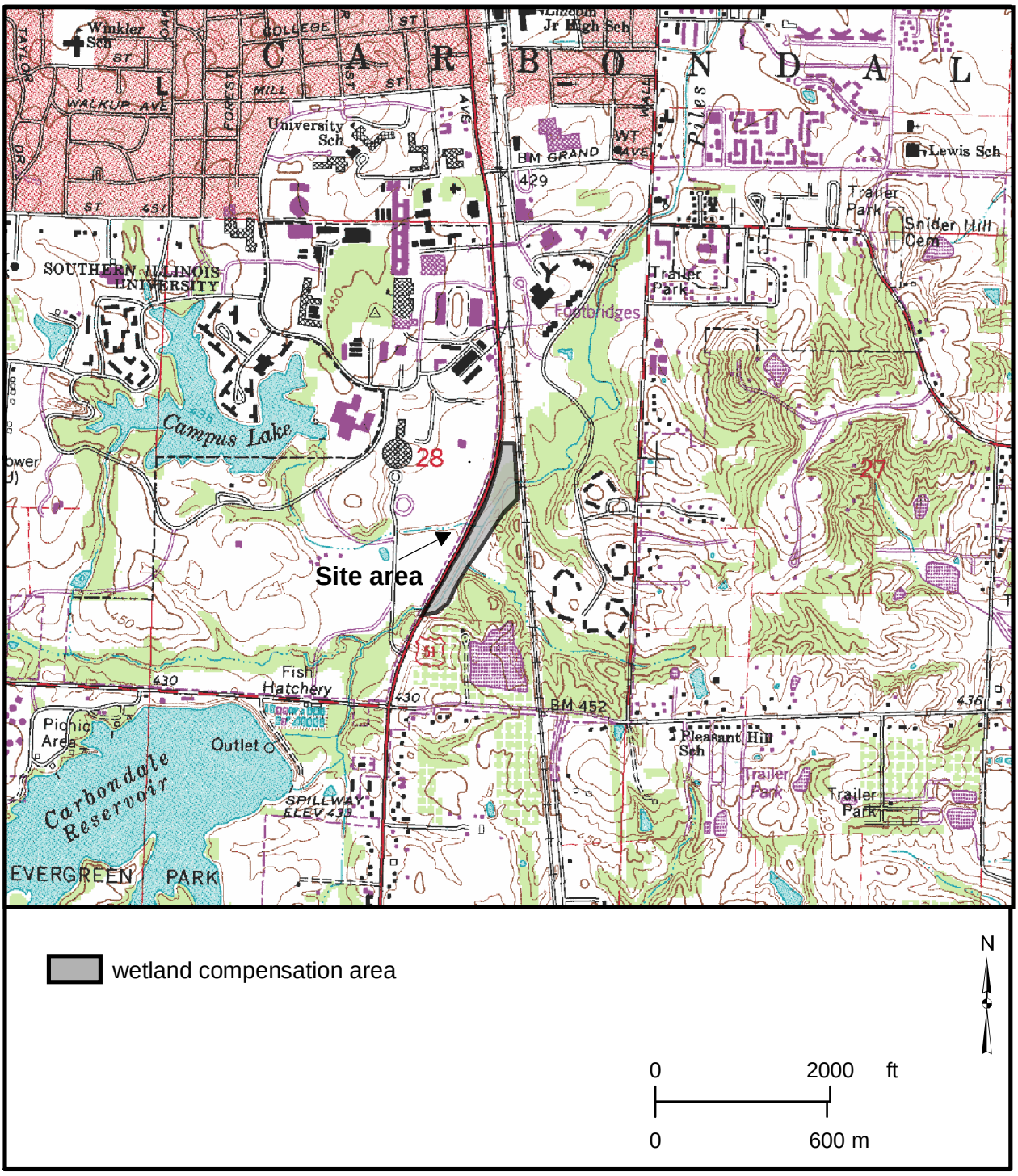
- Instrument locations were determined using GPS in November 2002 and March 2003. The GPS positions of instruments were superimposed on digital orthophotography.

PLANNED FUTURE ACTIVITIES

- Water-level monitoring activities will continue through 2007 or until no longer required by IDOT.

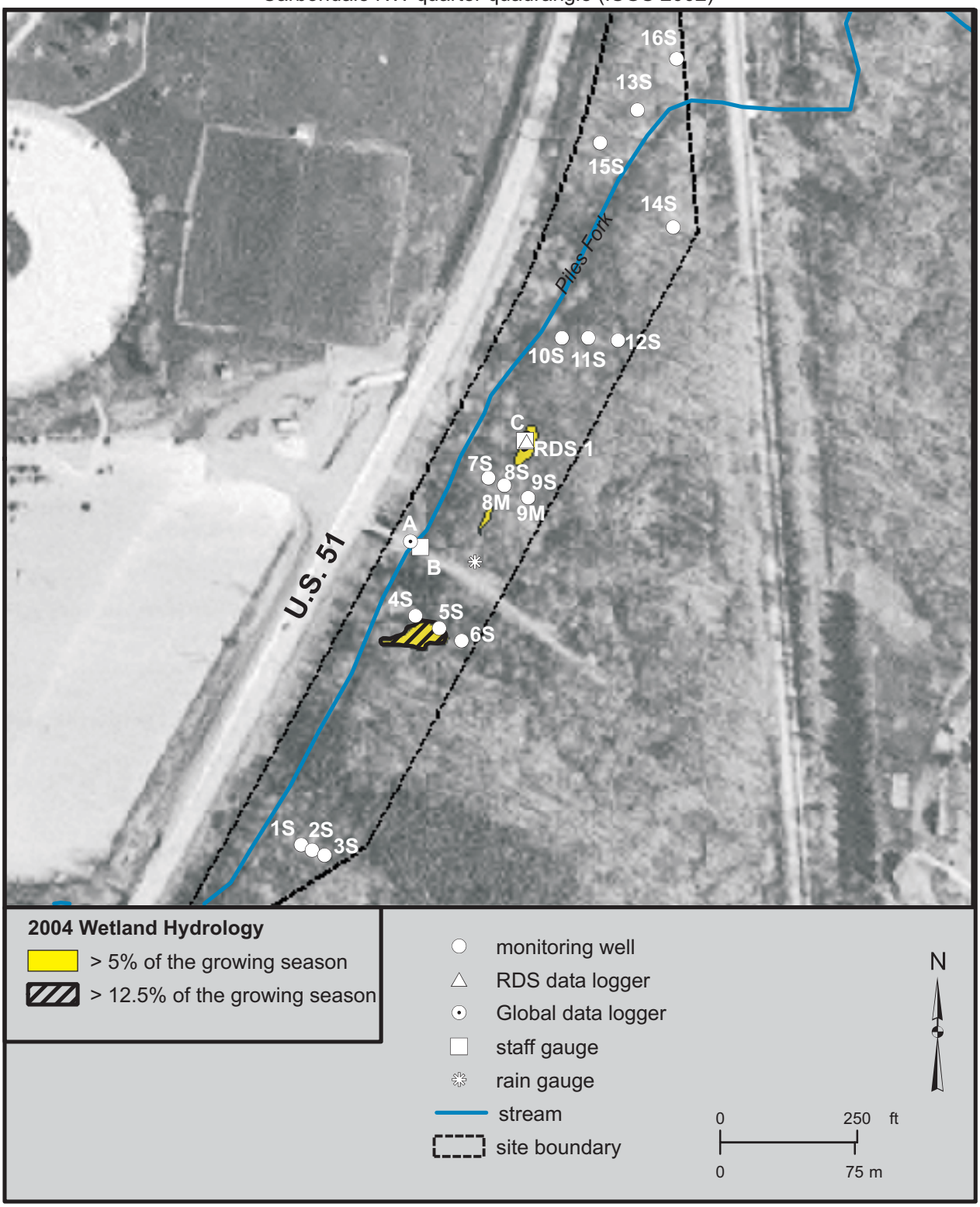
Carbondale Wetland Compensation Site
(FAP 322)
Site and Vicinity

from the USGS Topographic Series, Carbondale, IL 7.5-minute Quadrangle
(USGS 1966; photorevised 1990)
contour interval is 10 feet



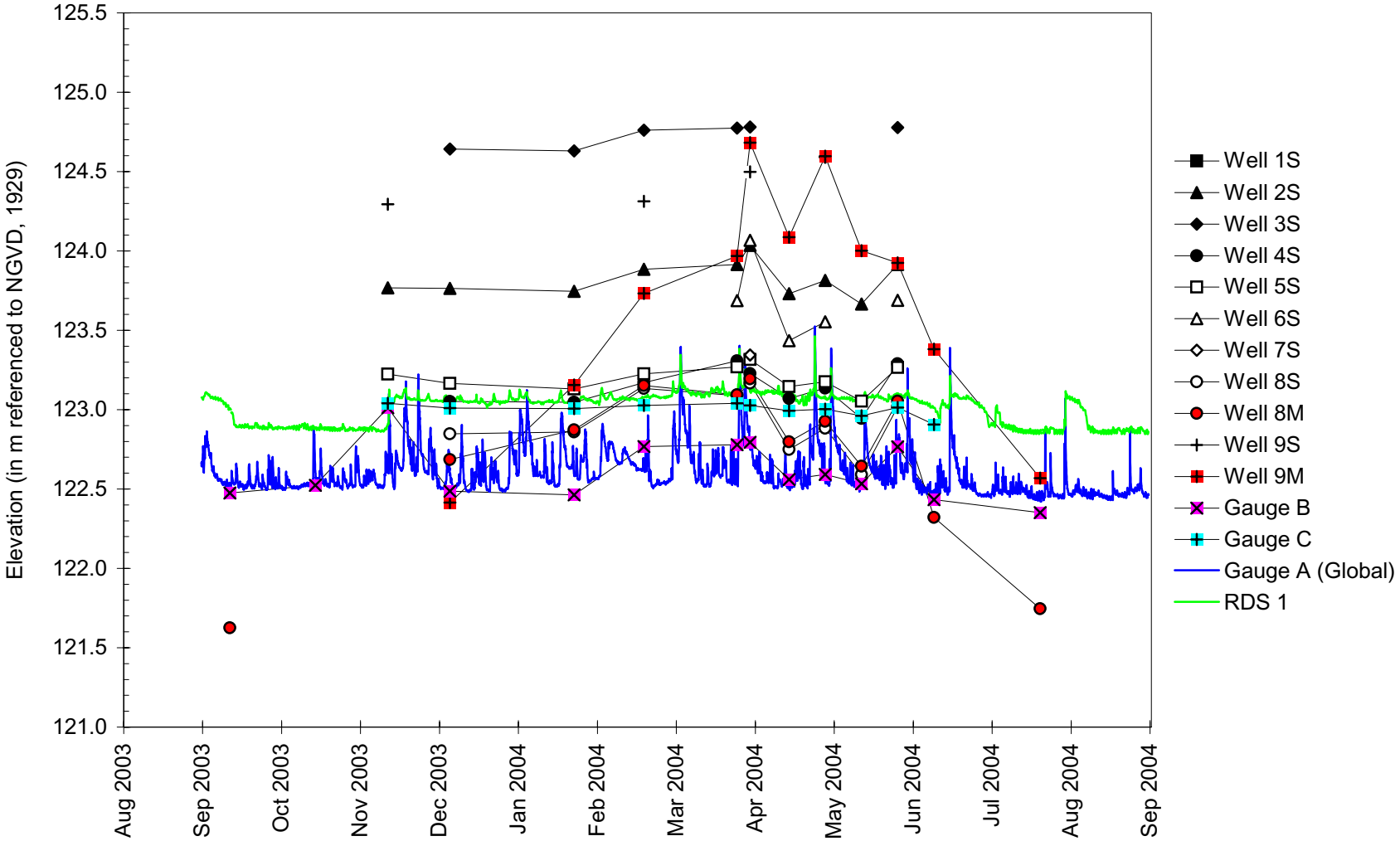
Carbondale Wetland Compensation Site
(FAP 322)
Estimated Areal Extent of 2004 Wetland Hydrology

map based on IDOT mitigation design plan rectified to USGS digital orthophotograph
Carbondale NW quarter quadrangle (ISGS 2002)



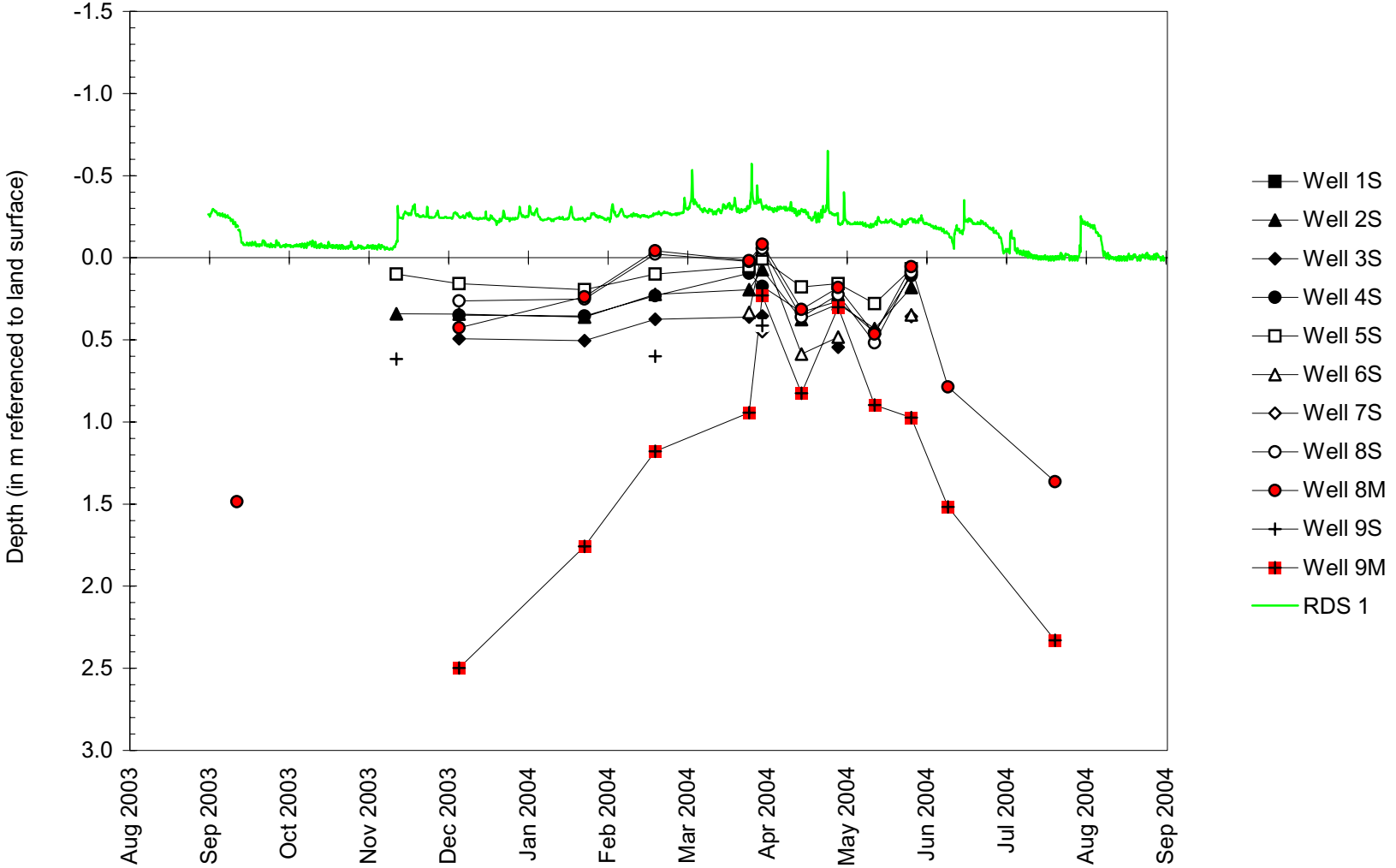
Carbondale Wetland Compensation Site
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Selected Monitoring Wells, on the Stage Gauge, and at the Data Loggers



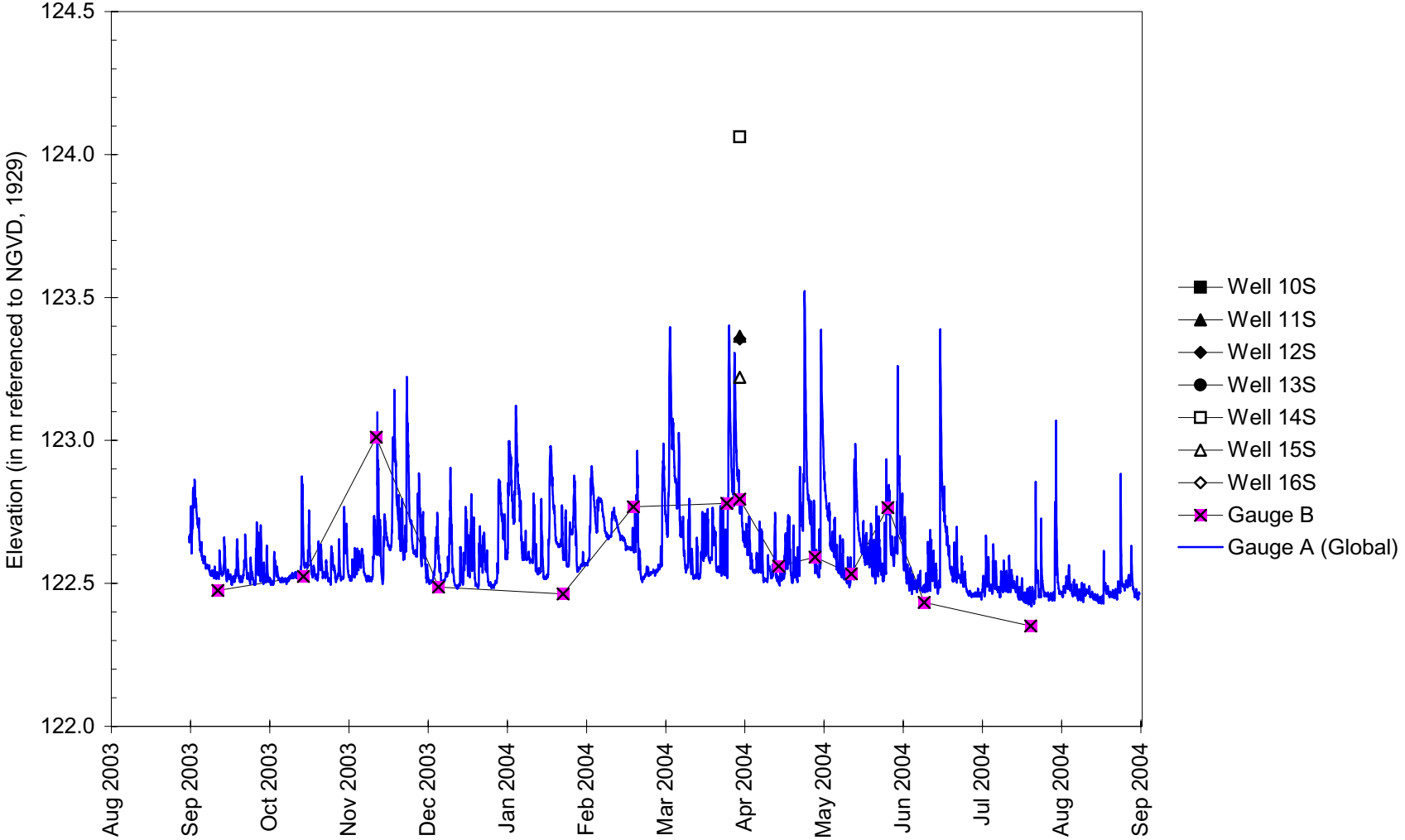
Carbondale Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water
in Selected Monitoring Wells and at the RDS Data Logger

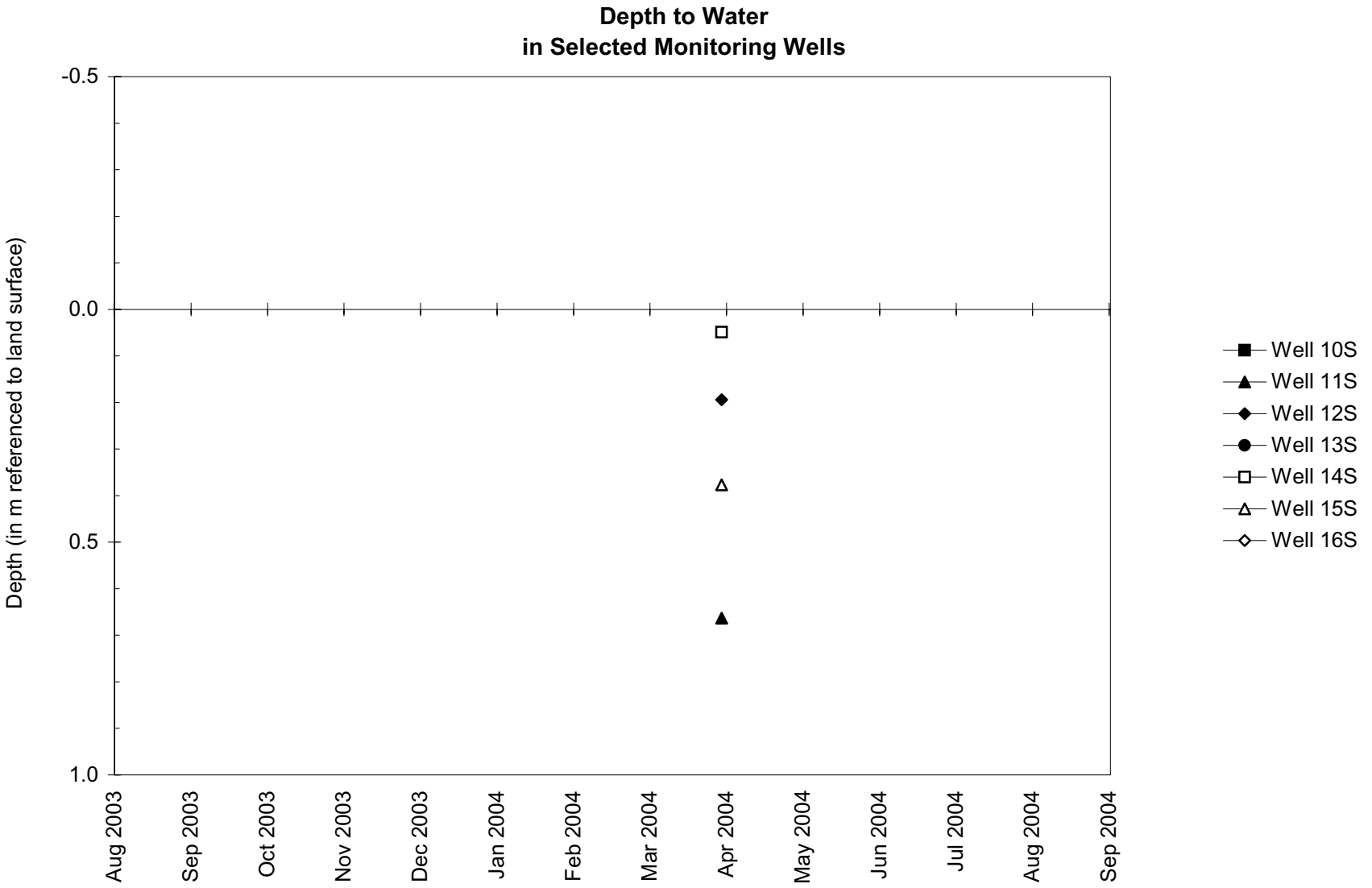


Carbondale Wetland Compensation Site
September 1, 2003 to September 1, 2004

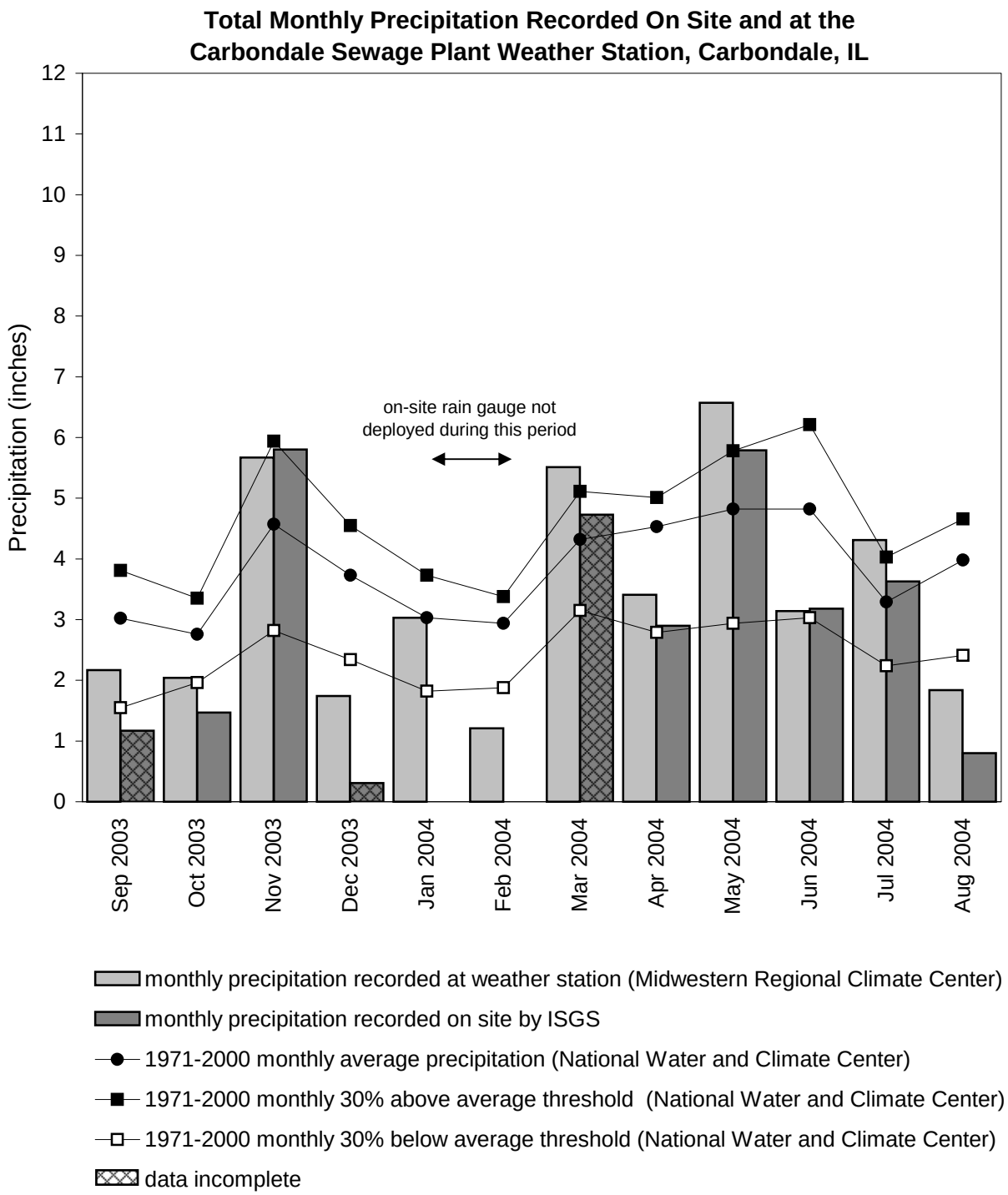
Water-Level Elevations
in Selected Monitoring Wells, on the Stage Gauge, and at the Global Data Logger



Carbondale Wetland Compensation Site
September 1, 2003 to September 1, 2004



Carbondale Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

CENTREVILLE, NEW RIVER CROSSING **ISGS #66**
POTENTIAL WETLAND COMPENSATION SITE
FAP 999
St. Clair County, near Centreville, Illinois
Primary Project Manager: Steven E. Benton
Secondary Project Manager: not assigned

SITE HISTORY

- December 2001: An Initial Site Evaluation was performed.
- March 13, 2002: A Level II hydrogeologic assessment was requested by IDOT.
- July 2002: A monitoring network consisting of 28 monitoring wells in 14 well clusters, and a staff gauge and data logger in the main drainage ditch was installed.
- February 2004: Level II hydrogeologic characterization report submitted to IDOT.
- July 2004: IDOT requested that monitoring of this site be discontinued.

WETLAND HYDROLOGY CALCULATION FOR 2004

The area of the site that satisfied wetland hydrology criteria (U.S. Army Corps of Engineers 1987) for more than 5% of the 2004 growing season was estimated to be 11.5 ac (4.6 ha), which is about 20% of the site. The area that satisfied wetland hydrology criteria for more than 12.5% of the growing season was also estimated to be 11.5 ac (4.6 ha). These estimates are based on the following factors:

- According to the Midwest Climate Center, the median length of the growing season, as measured at the Belleville SIU Research station, is 203 days (April 5 to October 24); 12.5% of the growing season is 25 days.
- Total precipitation during the monitoring period, as recorded at the SIU Belleville, IL Research station, was 49.07 inches, which was 125% of normal. The wettest month during the period was May 2004 (209% of normal), and the driest month was April 2004 (34% of normal). Precipitation was below normal from February 2004 to April 2004, otherwise there were no other extended periods greater than 2 months of either above or below normal precipitation.
- In 2004, water levels measured in wells 1S, 2S, 3S, 5S, and 10S satisfied the wetland hydrology criteria for more than 5% of the growing season. These same wells also satisfied the wetland hydrology criteria for more than 12.5% of the growing season.
- Surface-water data recorded in the main drainage ditch (Global 1) reveal that water was present in the main ditch for more than 5% of the growing season. Water was also present for more than 12.5% of the growing season. Surface-water data recorded at staff gauge B, reveals that areas below an elevation of about 123.4 m were inundated for more than 5% of the growing season. These areas were also inundated for more than 12.5% of the growing season. Visual observations also reveal that water was present in the subsidiary drainage ditch during the months of May and June.

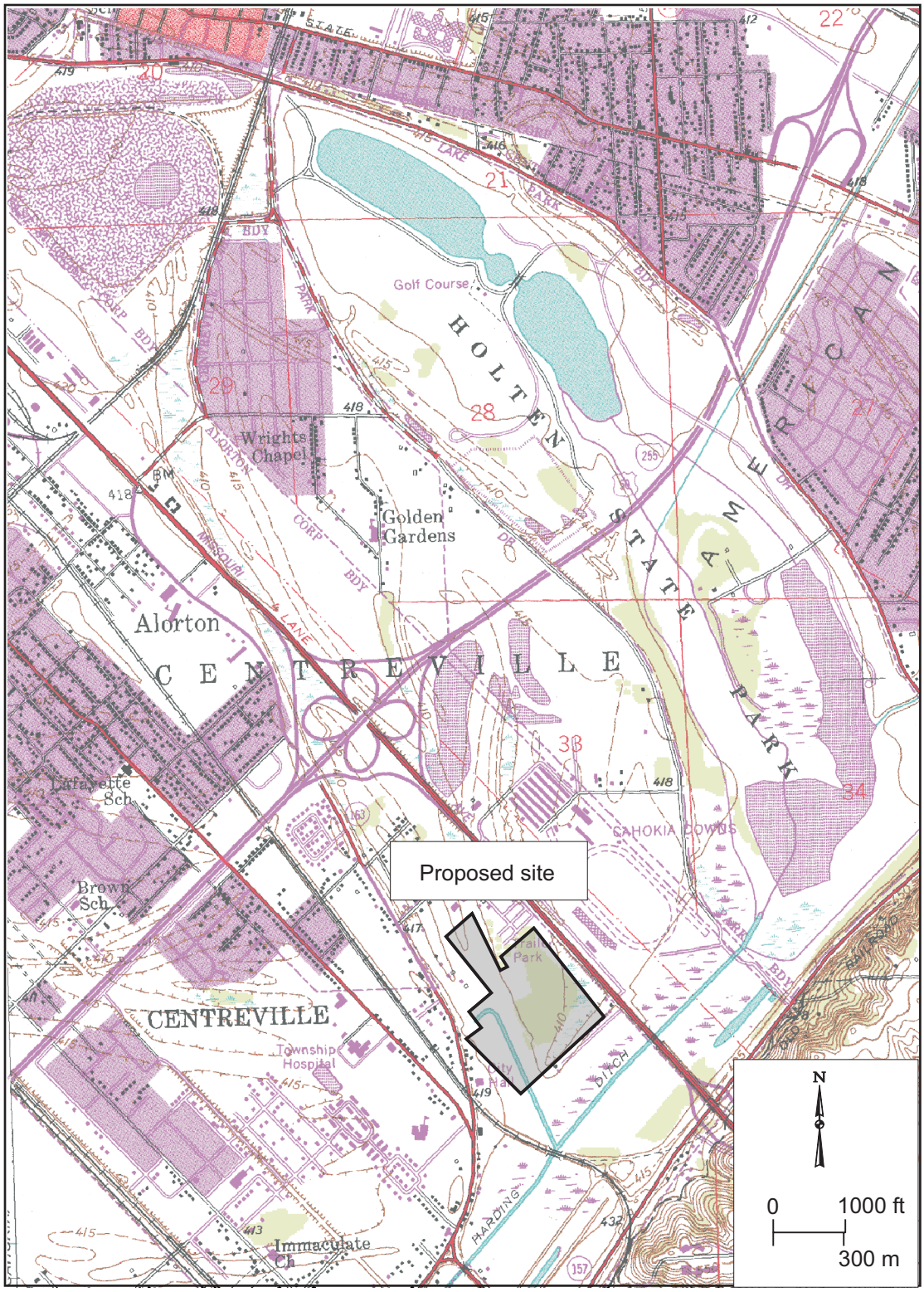
PLANNED FUTURE ACTIVITIES

- Monitoring wells and staff gauges at this site will be removed as soon as possible.

Centreville, New River Crossing Potential Wetland Compensation Site (FAP 999)

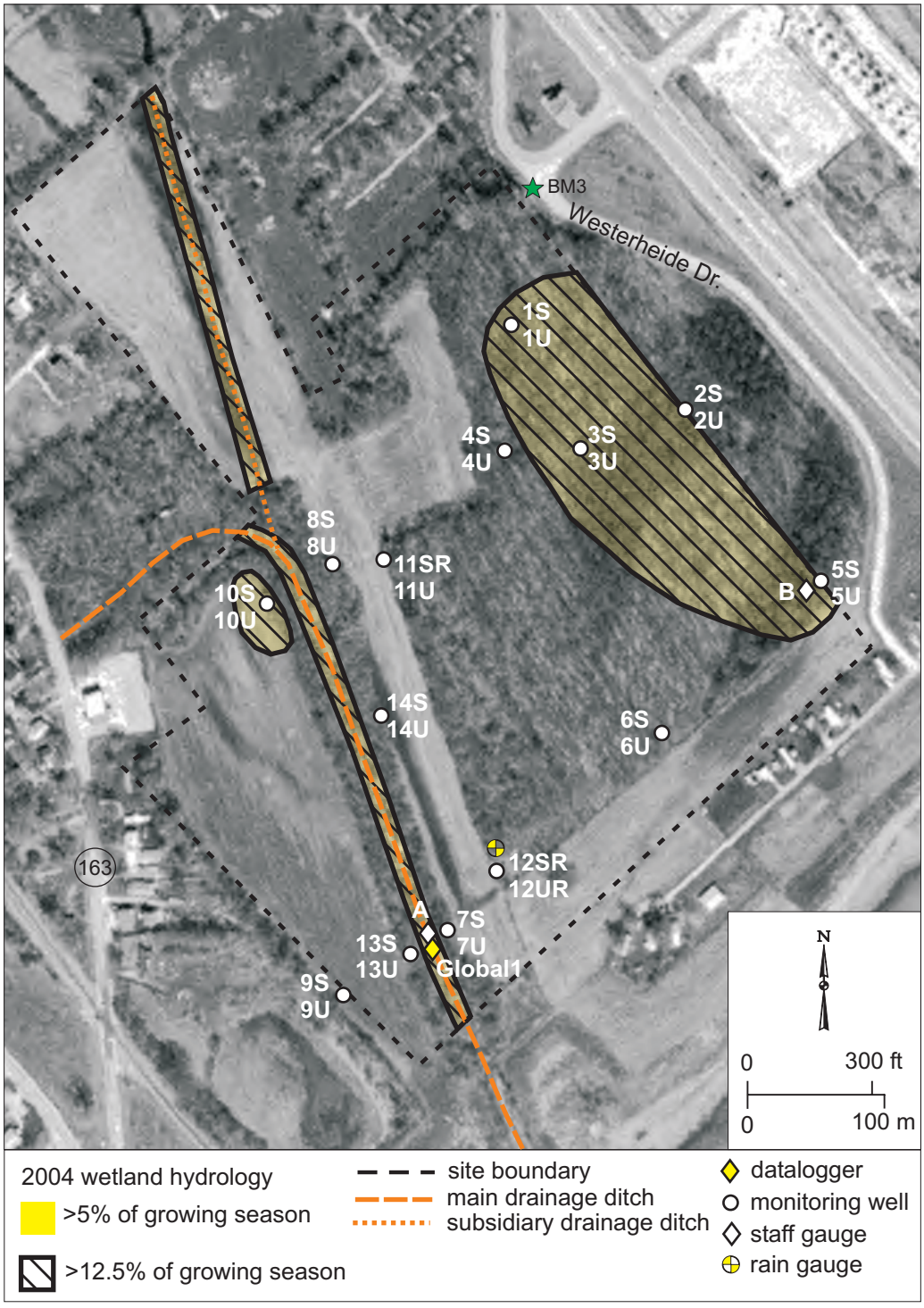
General Study Area And Vicinity

base map from the French Village 7.5-minute Quadrangle (USGS 1998)



Centreville Potential Wetland Banking Site
(New River Crossing, FAP 999)
Extent of 2004 Wetland Hydrology
based on data collected from September 1, 2003 to September 1, 2004

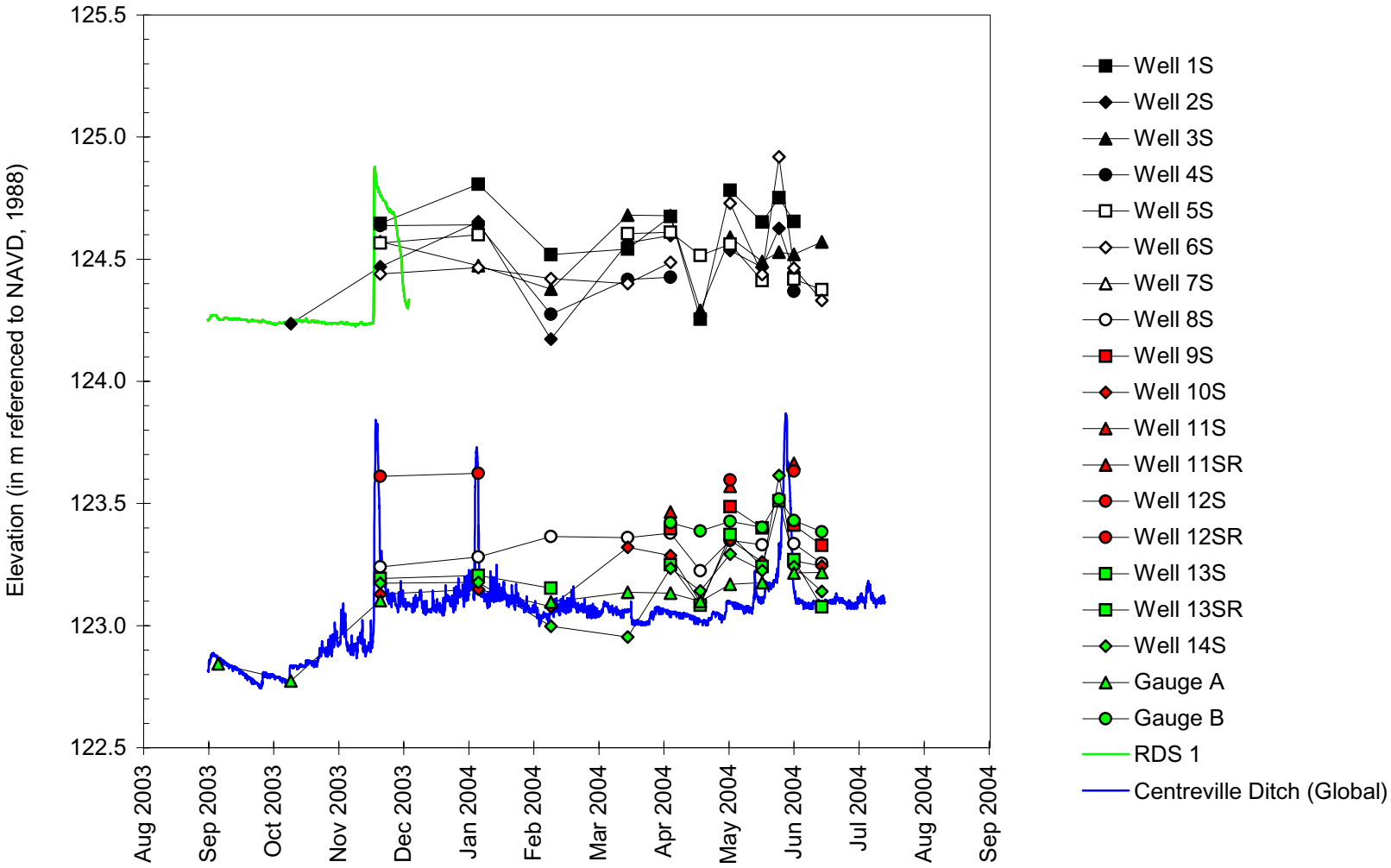
aerial photography from the French Village, NW Digital Orthophoto Quadrangle



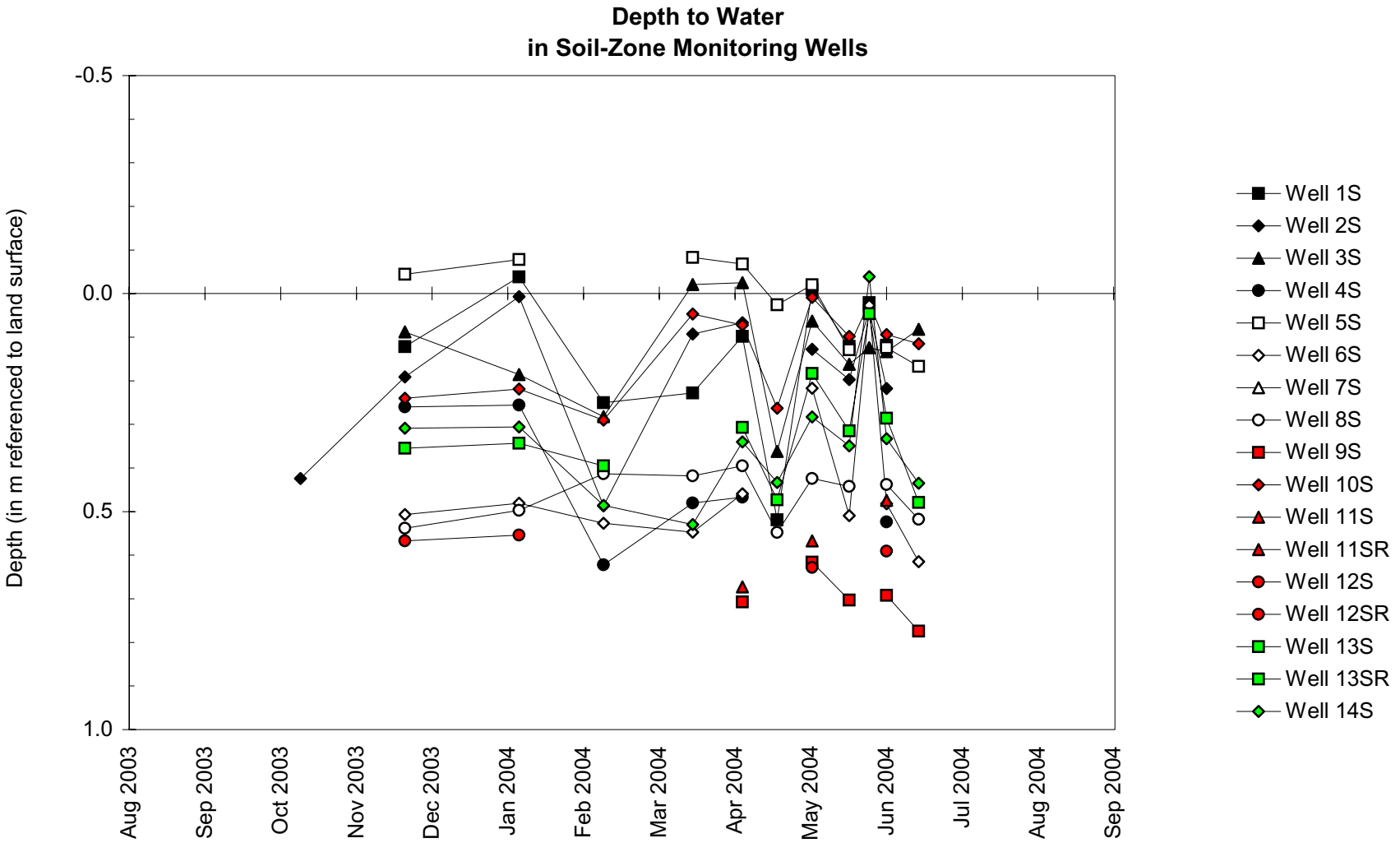
Centreville, New River Crossing Potential Wetland Compensation Site

September 1, 2003 to September 1, 2004

Water-Level Elevations
in Soil-Zone Monitoring Wells, on the Stage Gauge, and at the Data Loggers



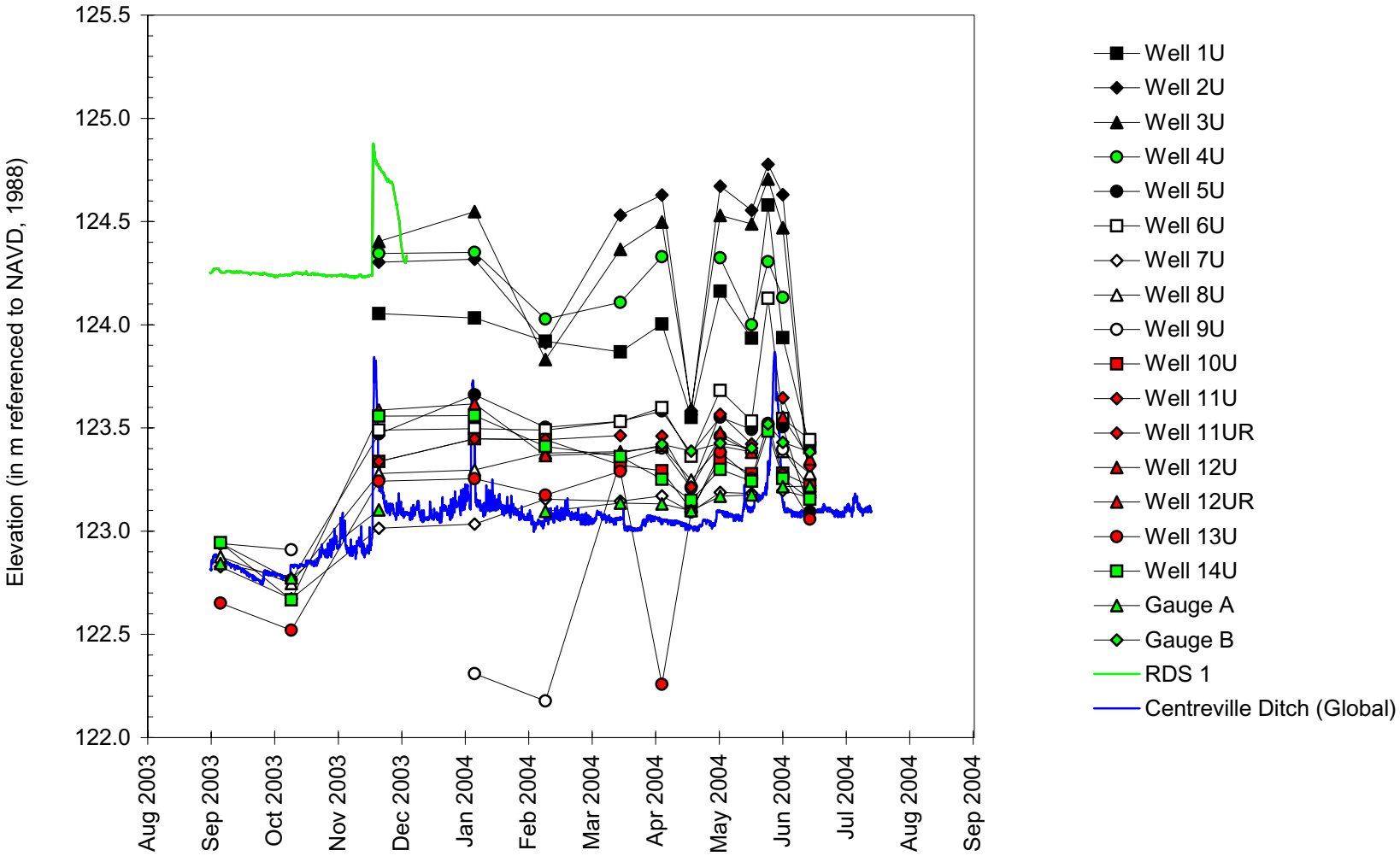
Centreville, New River Crossing Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004



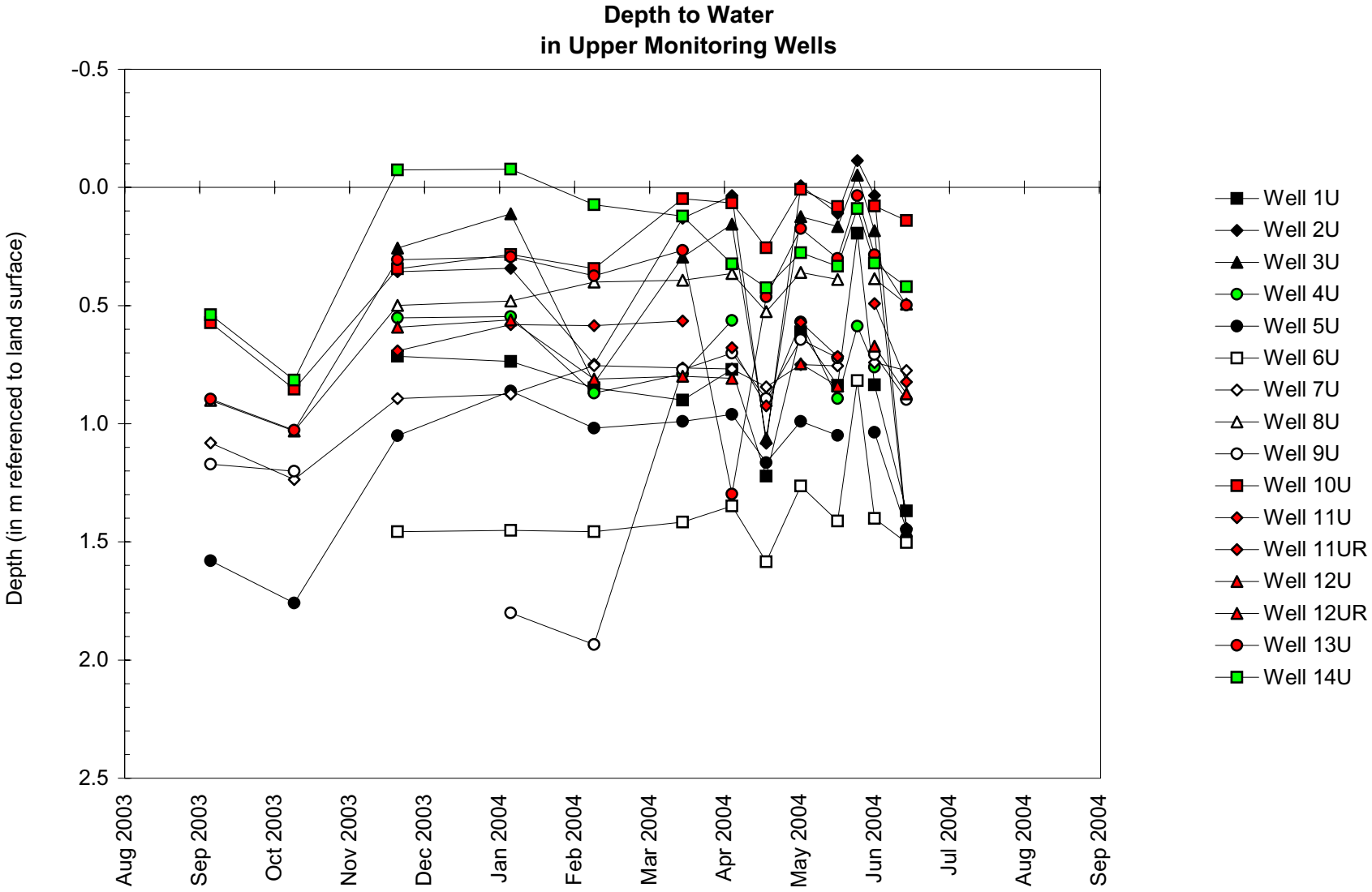
Centreville, New River Crossing Potential Wetland Compensation Site

September 1, 2003 to September 1, 2004

Water-Level Elevations
in Upper Monitoring Wells, on the Stage Gauge, and at the Data Loggers

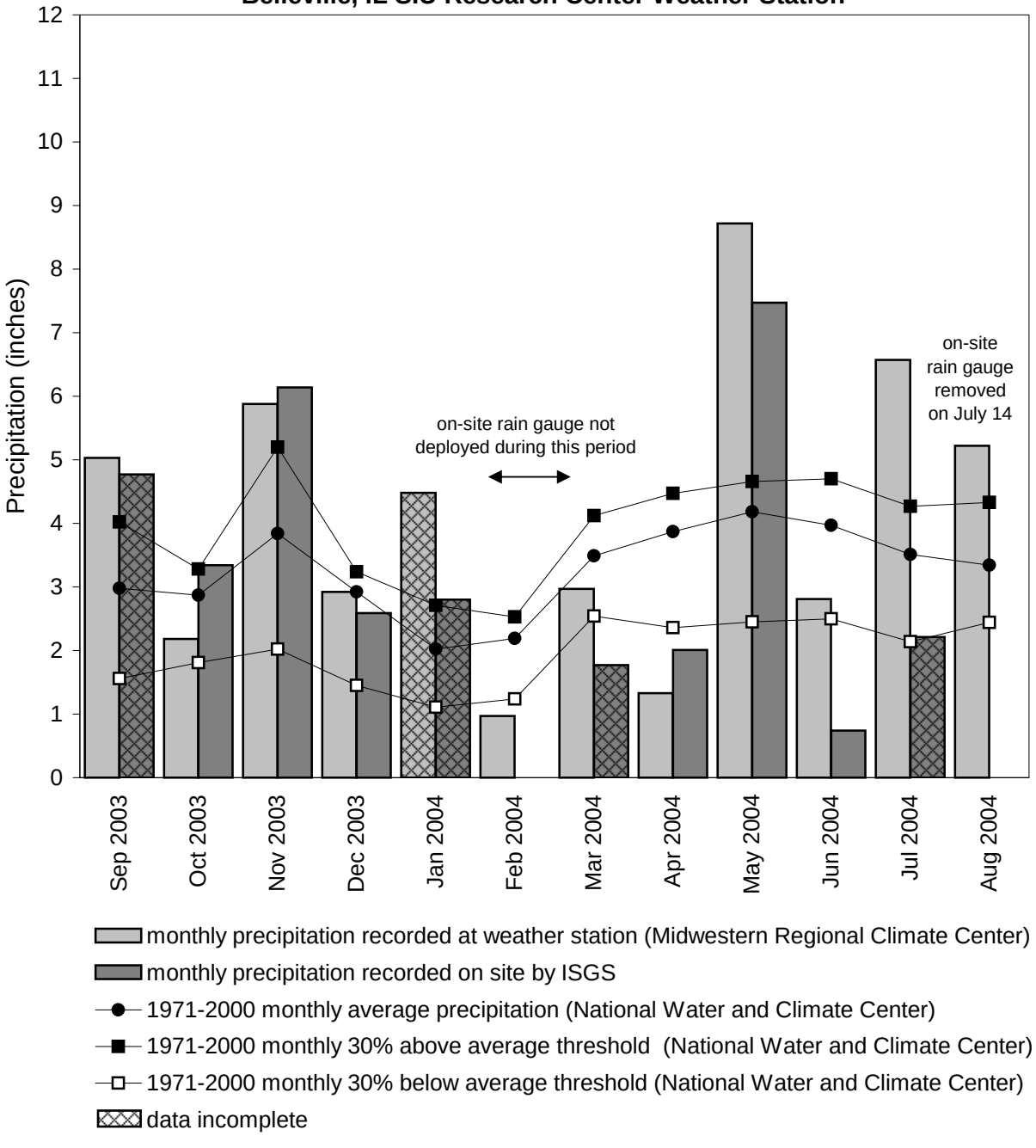


Centreville, New River Crossing Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004



Centreville, New River Crossing
Potential Wetland Compensation Site
September 2003 through August 2004

Total Monthly Precipitation Recorded at the Belleville, IL SIU Research Center Weather Station



Graph last updated October 1, 2004

PYATTS BLACKTOP **ISGS #67**
WETLAND COMPENSATION SITE
FAP 42
Perry County, near Pyatts, Illinois
Primary Project Manager: Geoffrey E. Pociask
Secondary Project Manager: Gregory A. Shofner

SITE HISTORY

- April 2002: ISGS was tasked by IDOT to monitor wetland hydrology for the compensation site.

- May 2002: ISGS initiated monitoring of the site.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area that satisfied wetland hydrology criteria in 2004 was 5.3 ac (2.1 ha) out of 16.4 ac (6.7 ha), whereas 0.3 ac (0.1 ha) satisfied wetland hydrology for greater than 12.5% of the growing season. These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Du Quoin is April 5 and the season lasts 207 days; 5% of the growing season is 10 days and 12.5% of the growing season is 26 days.

- Total precipitation for the reporting period from September 2003 through August 2004 was 87% of normal. Drier that normal conditions prevailed in September, October, and December 2003, and in February, April, and June 2004. Precipitation was at or above normal in November 2003 and in January, March, May, July, and August 2004.

- Wells 1S, 2S, 3S, 4S, 5S, 7S, and 12S satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for 5% of the growing season. Well 4S also satisfied wetland hydrology criteria for 12.5% of the growing season.

- The water levels recorded at Gauge B show that areas below 120.8 m (396.3 ft) were inundated for greater than 5% of the growing season and therefore satisfy wetland hydrology criteria. Furthermore, areas below approximately 120.6 m (395.7 ft) were inundated for greater than 12.5% of the growing season.

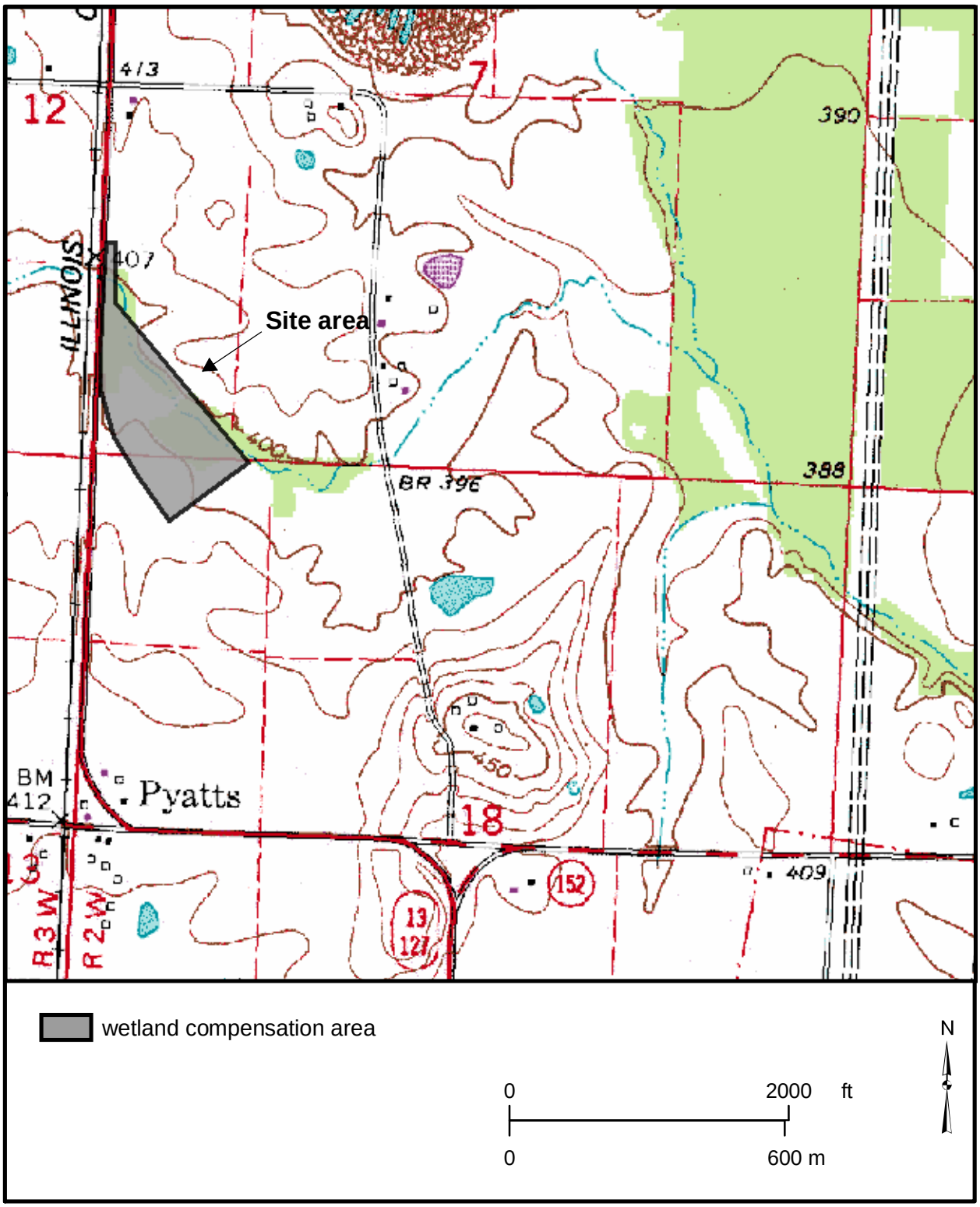
- Limitations of the wetland hydrology determination are as follows:
  - The wetland hydrology estimate includes the entire IDOT parcel. Therefore, areas planned for wetland preservation and enhancement are included in the wetland hydrology acreage estimate.
  - The area of wetland hydrology was calculated using GIS methods. The wetland-hydrology polygon was drawn from an ISGS topographic map (0.1-meter contour interval) rectified to GPS positions of water-level instruments and point features identifiable from digital orthophotography.
  - Instrument locations were determined using GPS in November 2002. The positions of instruments were superimposed on digital orthophotography.

PLANNED FUTURE ACTIVITIES

- Monitoring will continue at the site through 2007 or until no longer required by IDOT.

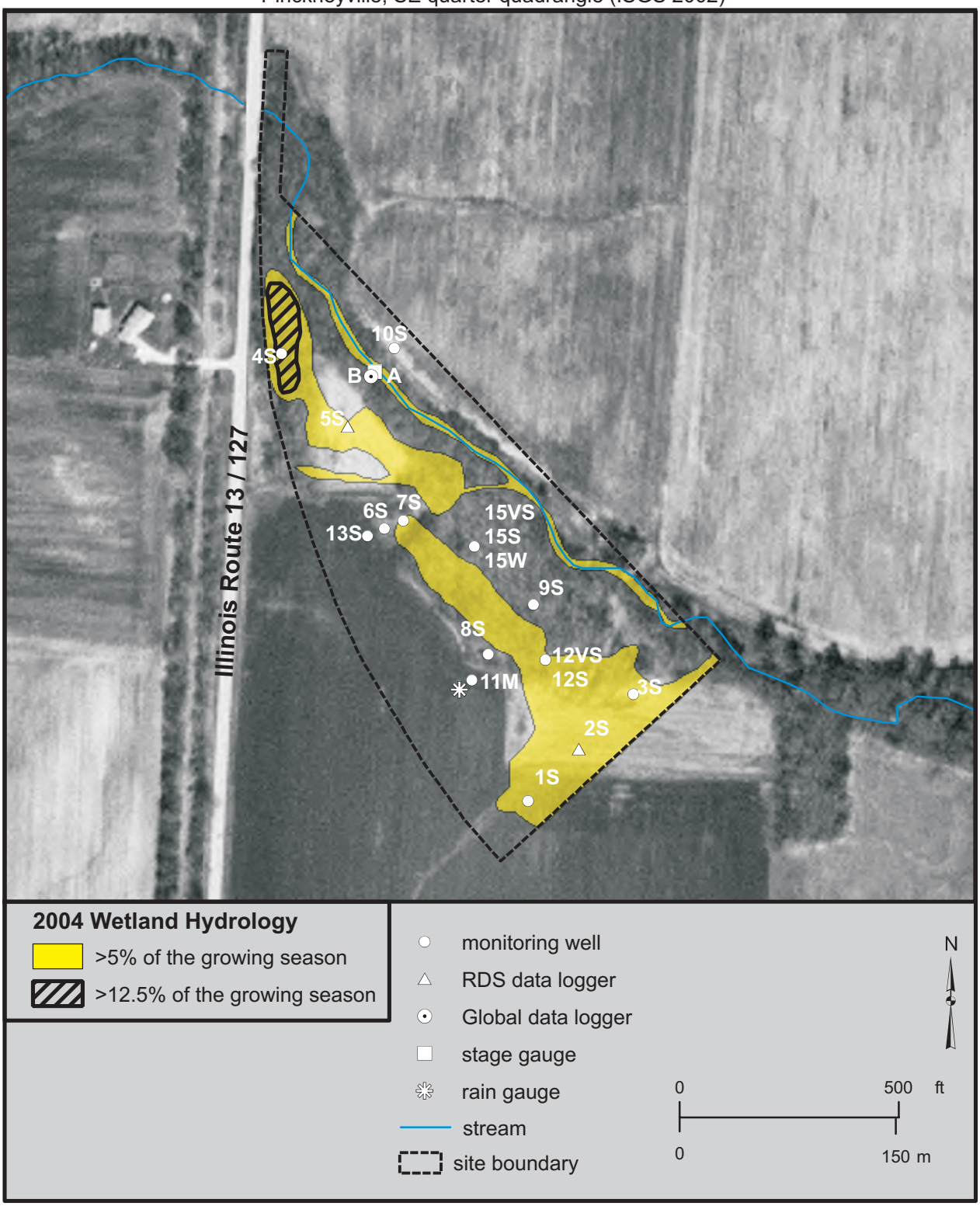
Pyatts Blacktop Wetland Compensation Site
(FAP 42)
Site and Vicinity

from the USGS Topographic Series, Pyatts, IL (USGS 1974; photorevised 1982) 7.5-minute Quadrangle
contour interval is 10 feet



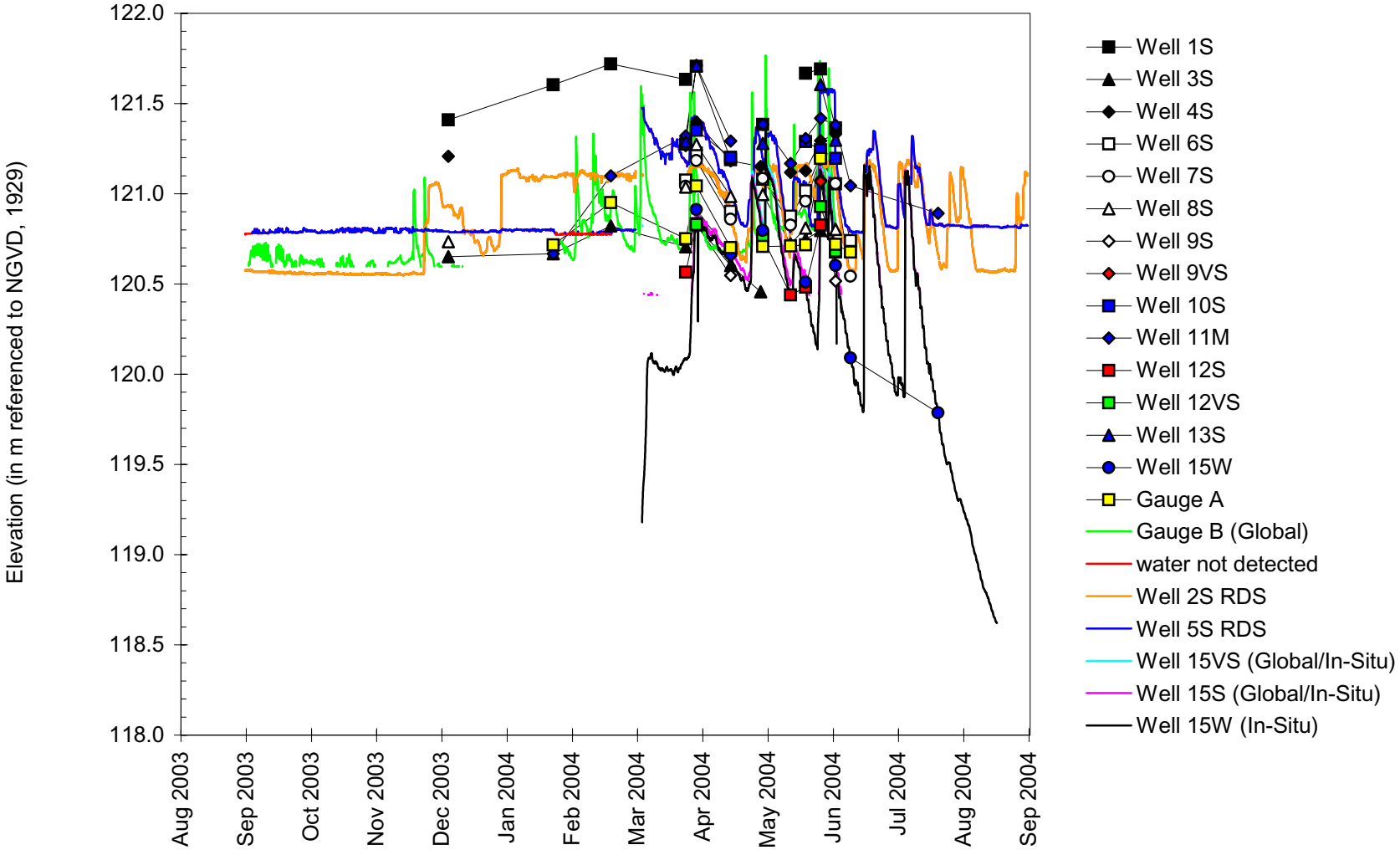
Pyatts Blacktop Wetland Compensation Site
(FAP 42)
Estimated Areal Extent of 2004 Wetland Hydrology

map produced by rectifying IDOT design plans to USGS digital orthophotograph
Pinckneyville, SE quarter quadrangle (ISGS 2002)

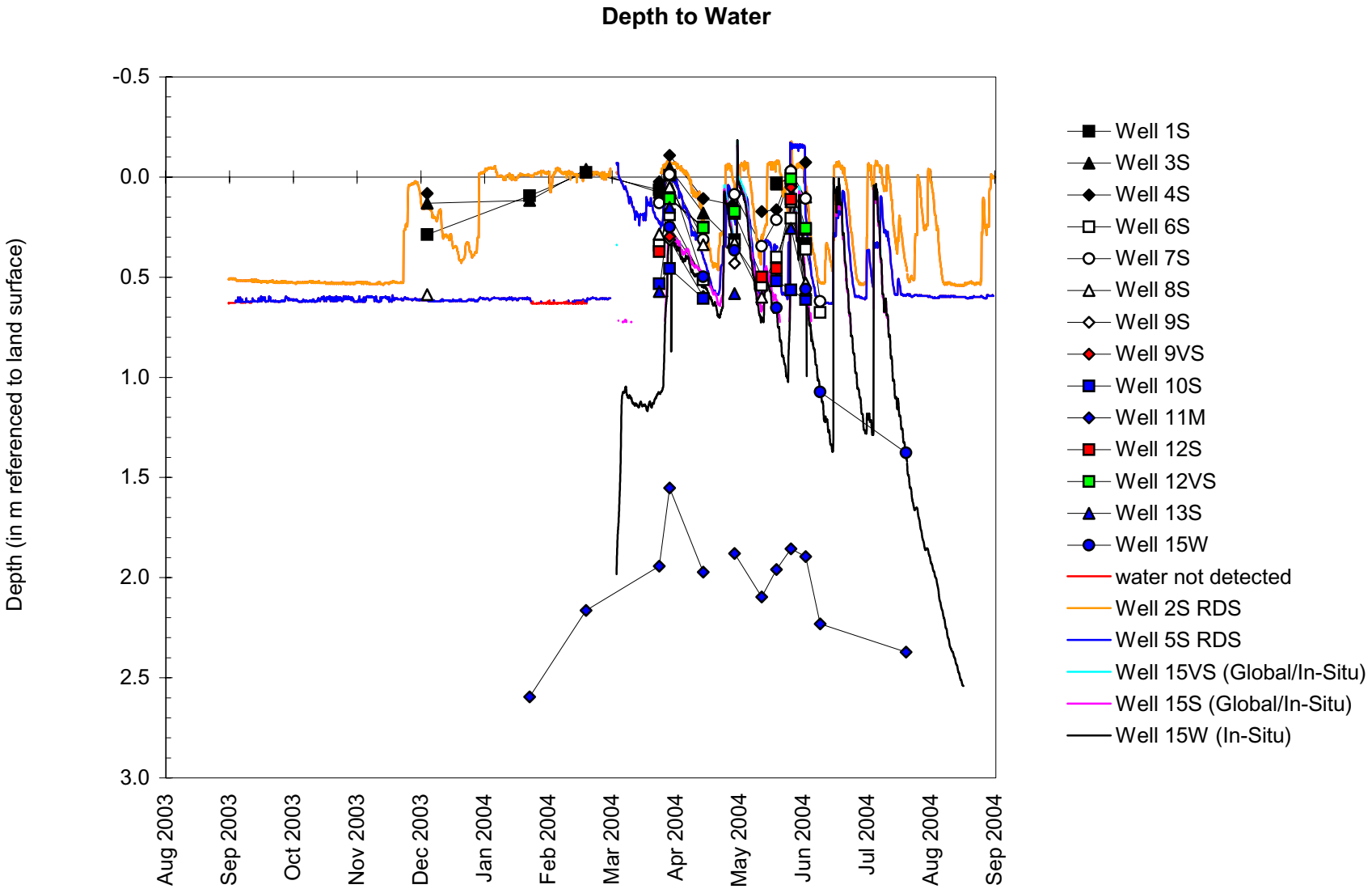


Pyatts Blacktop Wetland Compensation Site
September 1, 2003 to September 1, 2004

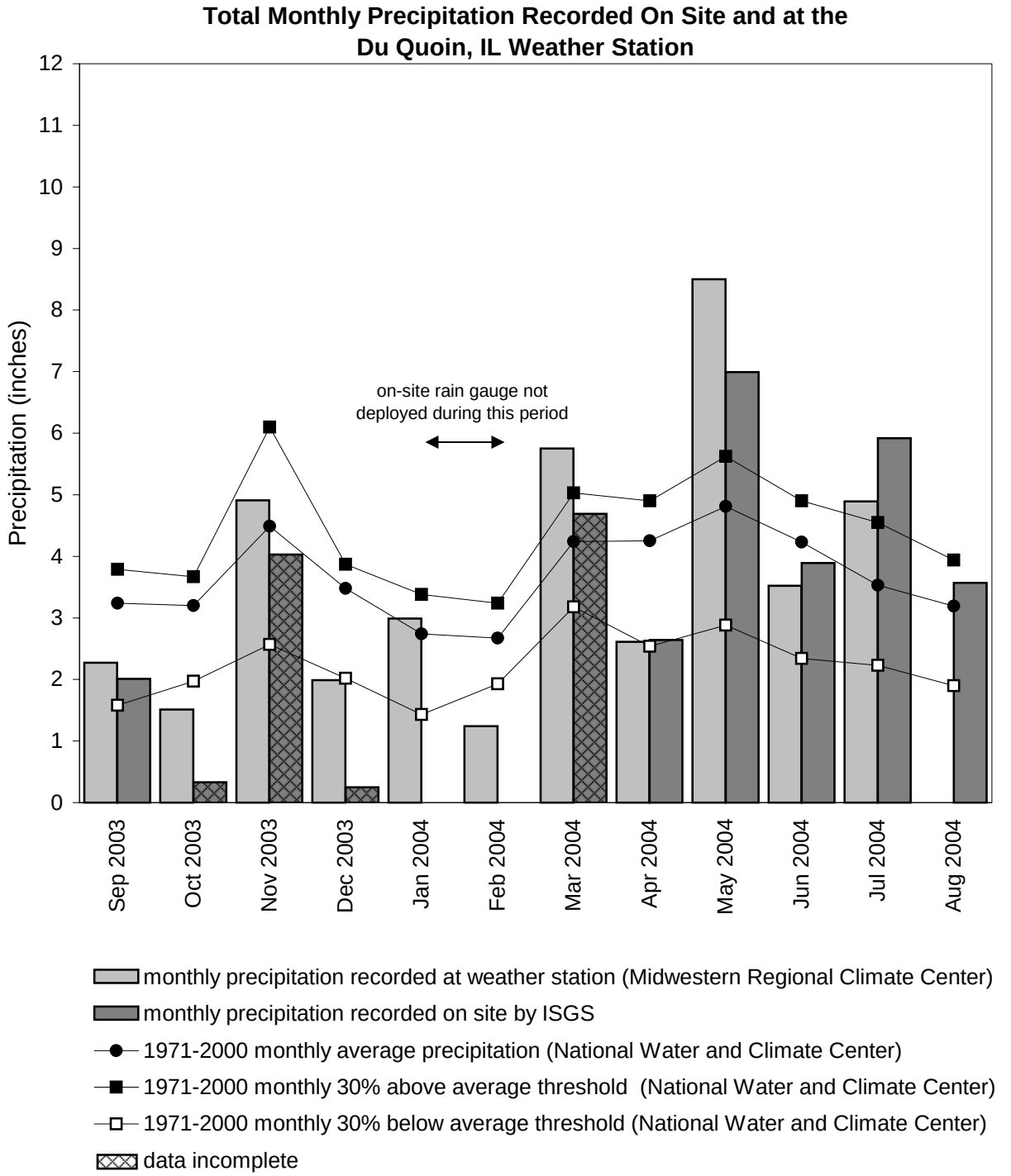
Water-Level Elevations



Pyatts Blacktop Wetland Compensation Site
September 1, 2003 to September 1, 2004



Pyatts Blacktop Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

DE SOTO **ISGS #68**
WETLAND COMPENSATION SITE
FAP 322
Jackson County, near De Soto, Illinois
Primary Project Manager: Geoffrey E. Pociask
Secondary Project Manager: Gregory A. Shofner

SITE HISTORY

- August 2002: ISGS was tasked by IDOT to monitor wetland hydrology for the compensation site.

- November 2002: ISGS initiated monitoring activities at the compensation site.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that 2.9 ac (1.2 ha) out of an excavation of 6.0 ac (2.4 ha) satisfied wetland hydrology criteria for greater than 5% of the growing season in 2004. The same area also satisfied wetland hydrology criteria for greater than 12.5% of the growing season. These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in De Soto is April 4 and the season lasts 203 days; 5% of the growing season is 10 days and 12.5% of the growing season is 25 days.

- Total precipitation for the reporting period from September 2003 through August 2004 was 87% of normal. Drier than normal conditions prevailed in September, October, and December 2003, and in February, April, June, and August 2004. Precipitation exceeded or was near the normal range in November 2003 and in January, March, May, and July 2004.

- In 2004, wells 2S, 3S, 5S, 8S, and 9S satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 5% of the growing season. Wells 2S, 3S, 5S, 8S, and 9S also satisfied the wetland hydrology criteria for greater than 12.5% of the growing season.

- The water levels recorded at Gauges A and B show that areas below approximately 110.5 m (362.5 ft) were inundated for greater than 5% of the growing season and therefore satisfy wetland hydrology criteria. Areas below 110.5 m (362.5 ft) were also inundated for greater than 12.5% of the growing season.

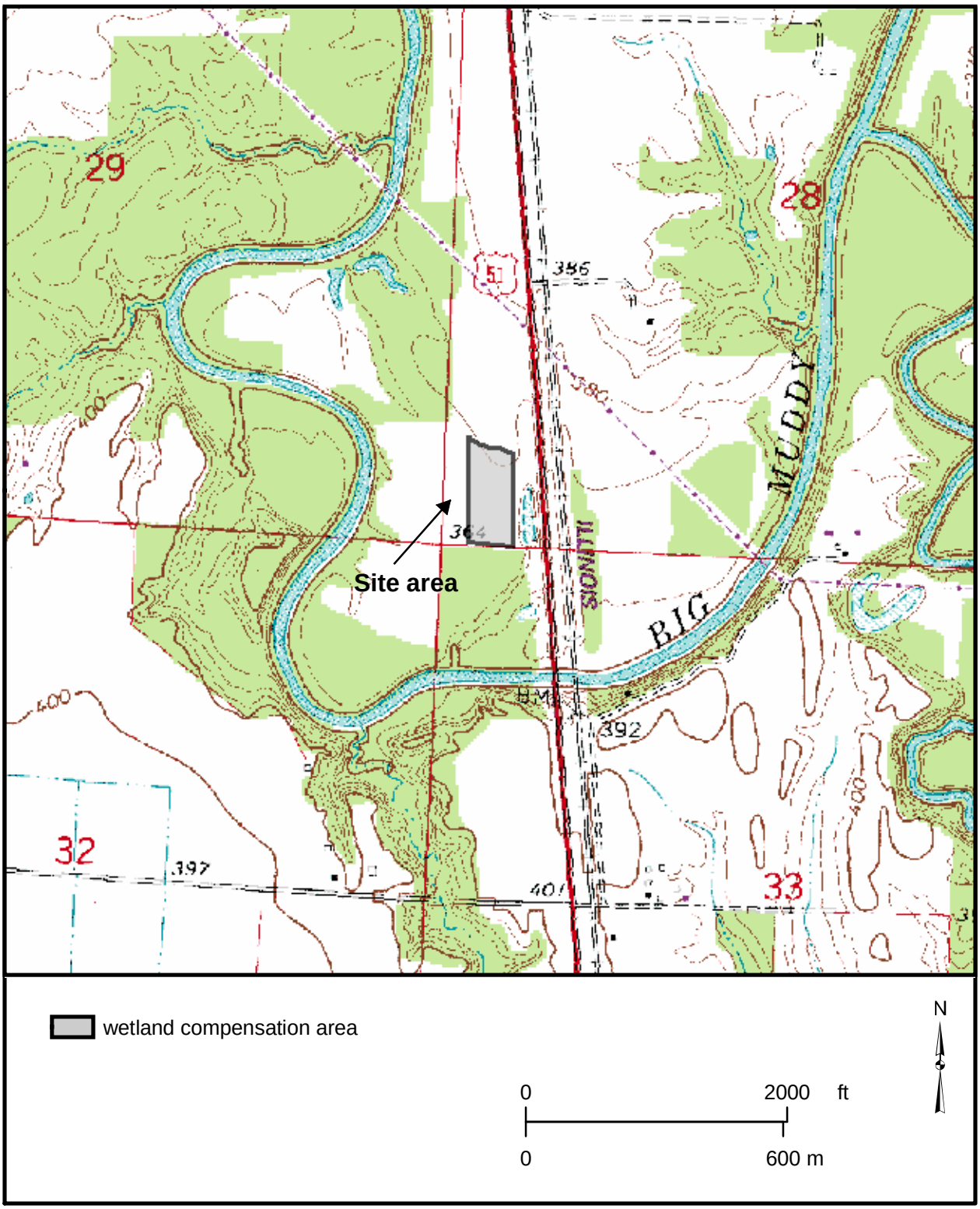
- Limitations of the wetland hydrology determination are as follows:
  - The area of wetland hydrology was calculated using GIS methods. The wetland-hydrology polygon was drawn from an ISGS topographic map (0.1-meter contour interval) rectified to GPS positions of water-level instruments and point features identifiable from a digital orthophotograph.
  - Instrument locations were determined using GPS in November 2002 and March 2003. The GPS positions of instruments were superimposed on digital orthophotography.

PLANNED FUTURE ACTIVITIES

- Monitoring will continue until September 2007 or until no longer required by IDOT.

De Soto Wetland Compensation Site
(FAP 322)
Site and Vicinity

from the USGS Topographic Series, De Soto, IL 7.5-minute Quadrangle (USGS 1968; photorevised 1978)
contour interval is 10 feet

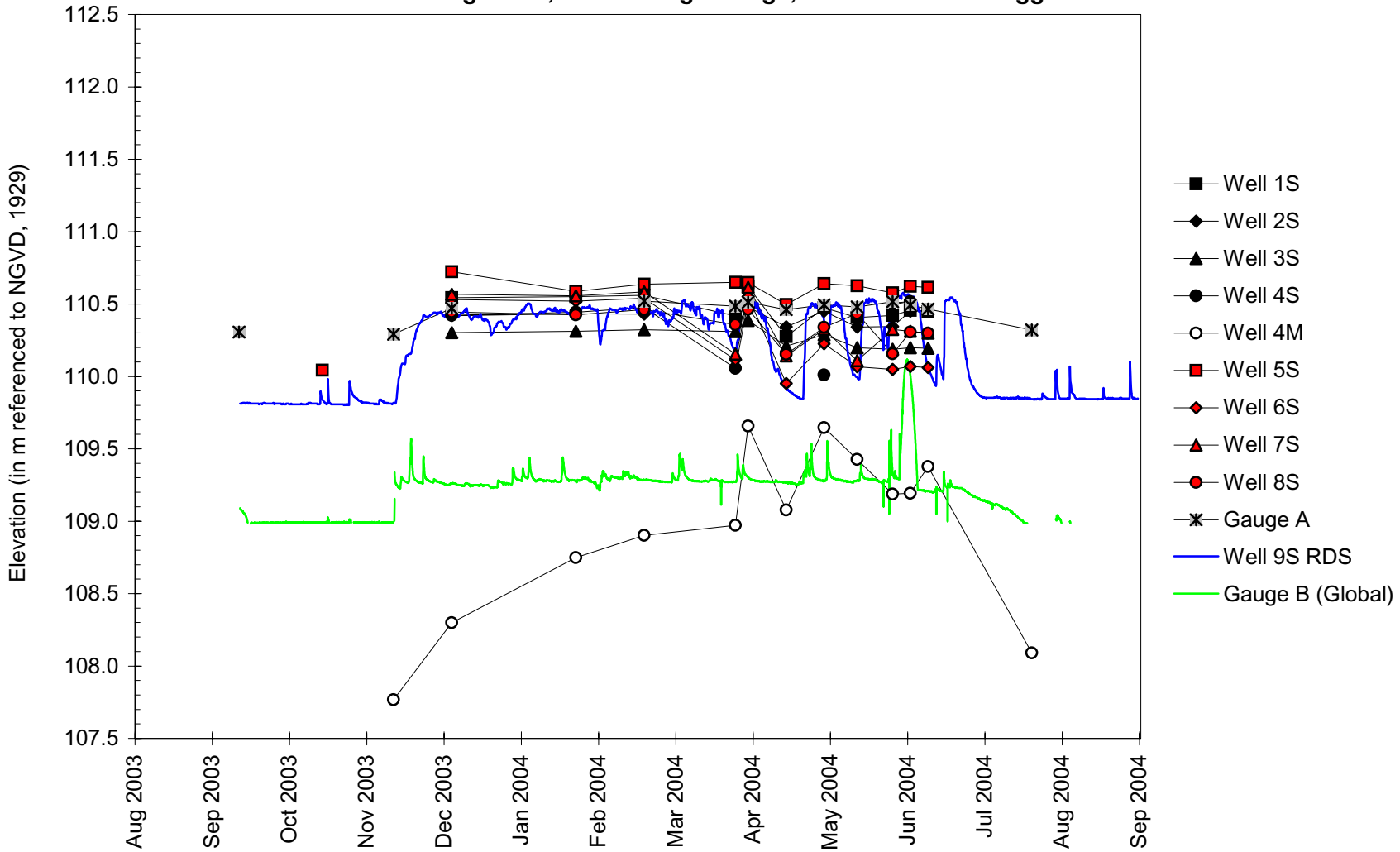


De Soto Wetland Compensation Site
(FAP 322)
Estimated Areal Extent of 2004 Wetland Hydrology

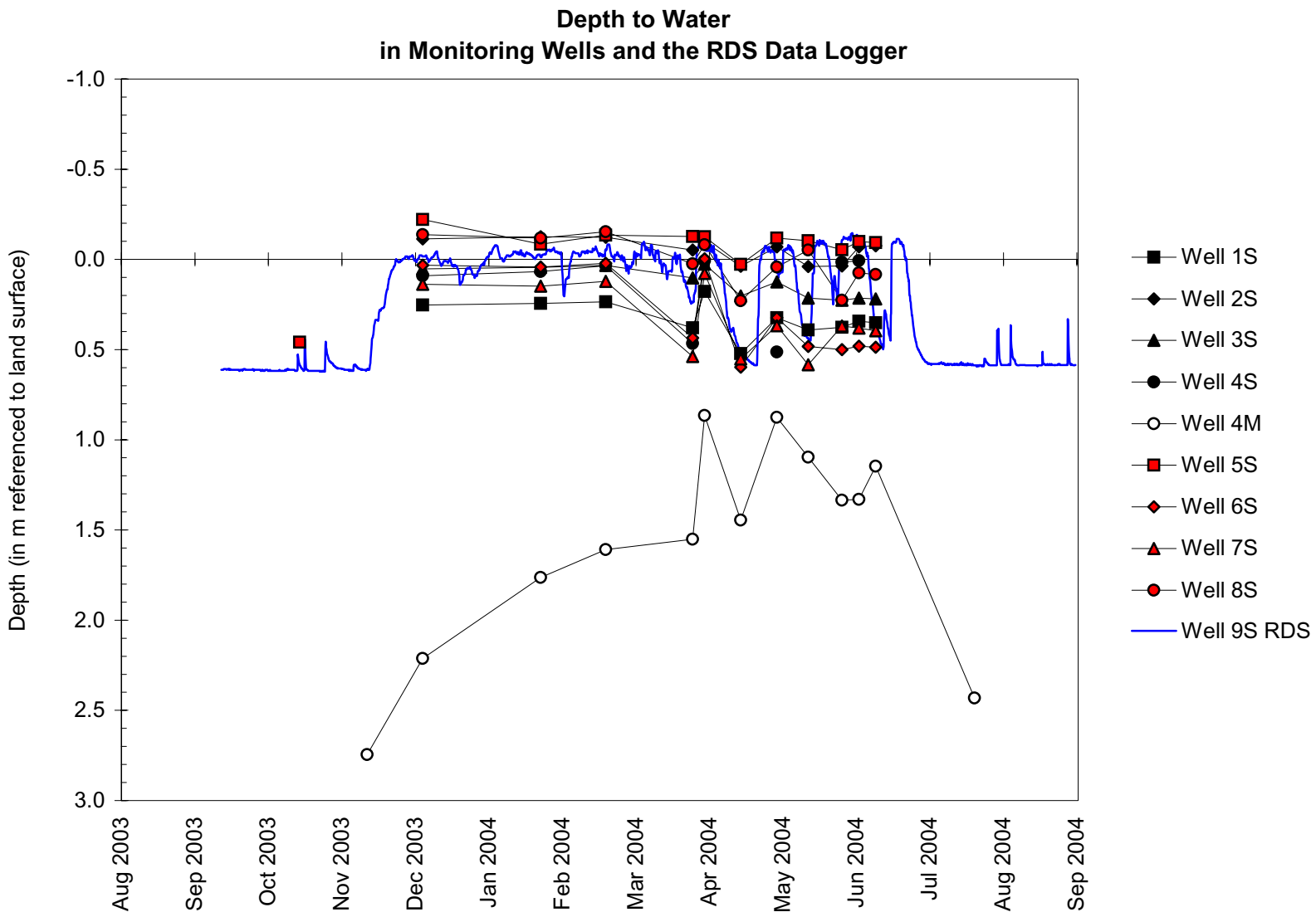
map produced by rectifying IDOT as-built plans and ISGS topography
to USGS digital orthophotograph De Soto, NW quarter quadrangle (ISGS 2003)

De Soto Wetland Compensation Site
September 1, 2003 to September 1, 2004

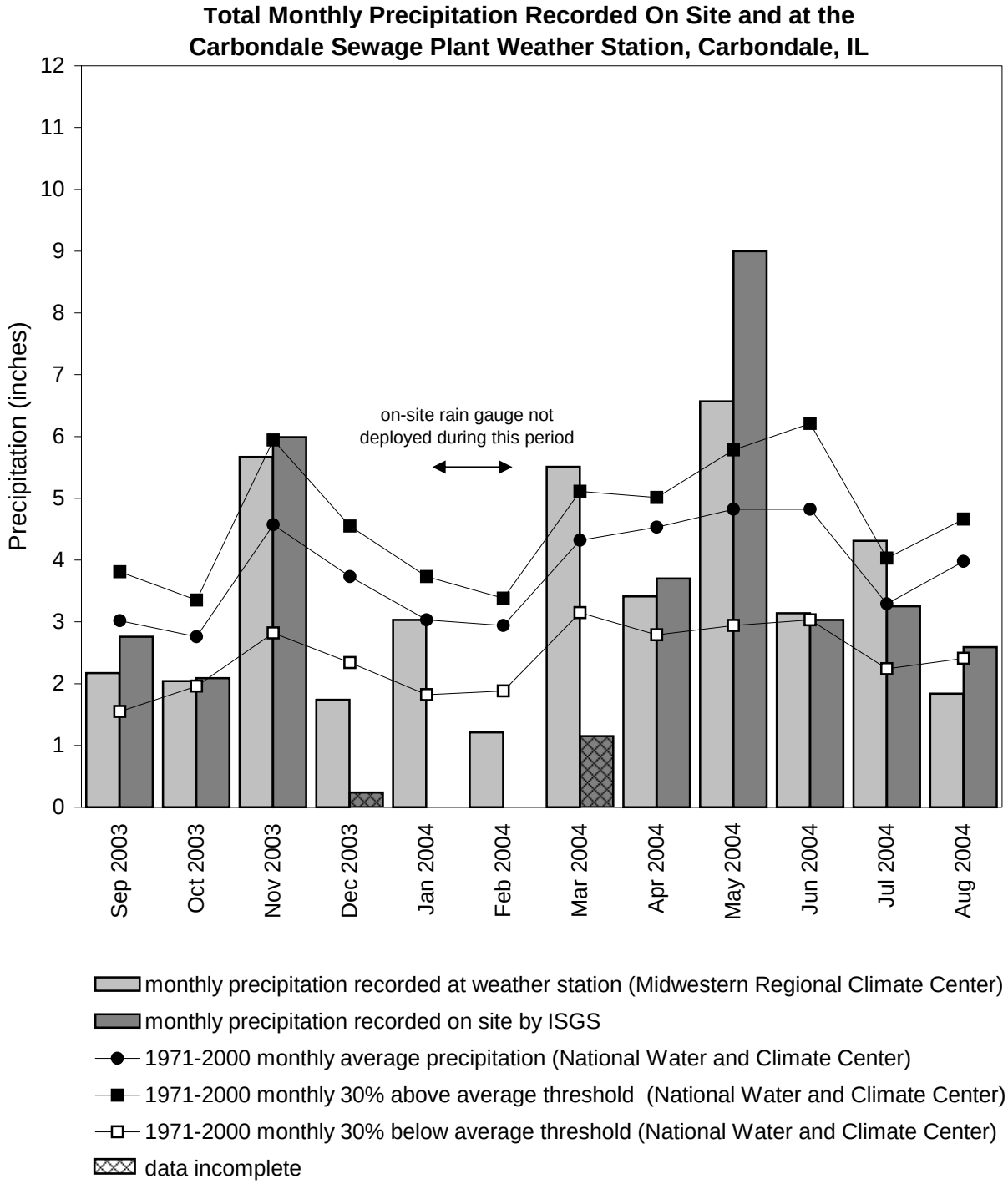
Water-Level Elevations
in Monitoring Wells, on the Stage Gauge, and at the Data Loggers



De Soto Wetland Compensation Site
September 1, 2003 to September 1, 2004



De Soto Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

EDGEWOOD **ISGS #69A**
POTENTIAL WETLAND COMPENSATION SITE
FAP 328
Effingham County, near Edgewood, Illinois
Primary Project Manager: Gregory A. Shofner
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- August 2002: ISGS submitted an Initial Site Evaluation Report to IDOT.
- September 2002: IDOT issued a task order for a Level II hydrogeologic characterization of the site.
- March–April 2003: ISGS data collection was initiated with the installation of monitoring wells, stage gauges, and data loggers.
- December 2003: Monitoring well array was expanded with the installation of additional shallow monitoring wells 9S, 10S, 11S, and 12S.
- March 2004: A topographic survey of the site was performed, along with determination of well and instrument locations using the GPS.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that 0.01 acres (0.00 ha) of the total site area of 12.8 acres (5.2 ha) satisfied wetland hydrology criteria for greater than 5% of the growing season in 2004. The same area of 0.01 acres also satisfied wetland hydrology criteria for greater than 12.5% of the growing season. These estimates are based on the following factors.

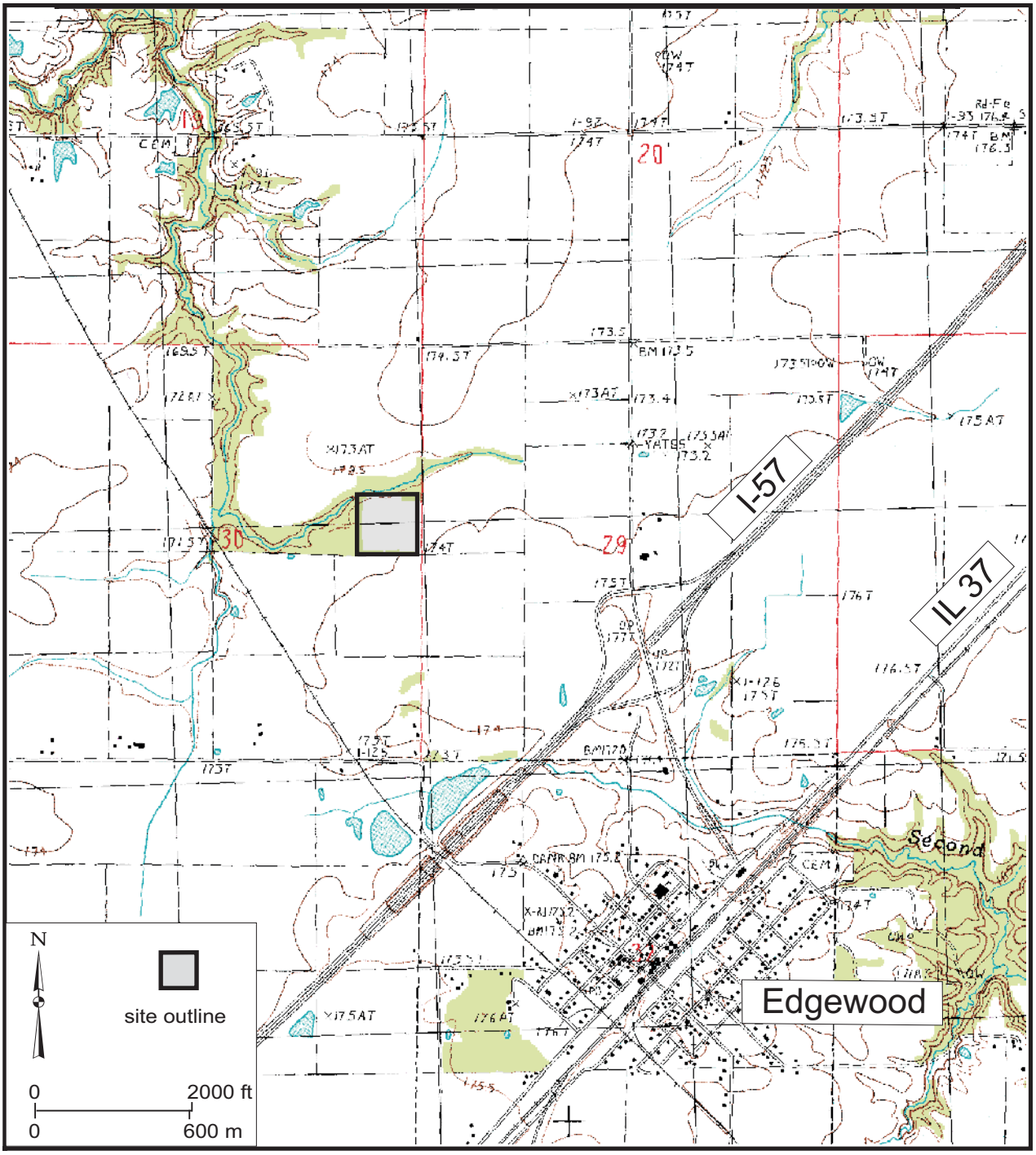
- According to the Midwestern Climate Center, the median date that the growing season begins in nearby Vandalia, Illinois is April 4 and the season lasts 211 days; 12.5% of the growing season is 26 days.
- At the Vandalia weather station, total precipitation from September 2003 through August 2004 was 127% of normal. Although total precipitation exceeded normal for the year, the early growing season was drier than last year. This was primarily due to dry conditions in February, April, and June.
- Well 2VS satisfied wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 5% of the growing season. Well 2VS also satisfied wetland hydrology criteria for greater than 12.5% of the growing season. No other wells satisfied wetland hydrology criteria.
- Crest-gauge data (CG 1) show that the unnamed tributary of Limestone Creek attained a maximum stage of 141.79 m (465.19 ft), which was insufficient to provide water to the site in 2004.
- Wetland hydrology acreage was calculated based on an ISGS topographic survey that was rectified both to GPS data, and to point locations visible on a digital orthophotograph.

PLANNED FUTURE ACTIVITIES

- A Level II hydrogeological characterization report is in preparation.
- Monitoring will continue until no longer required by IDOT.

Edgewood Potential Wetland Compensation Site
(FAP 328)
General Study Area and Vicinity

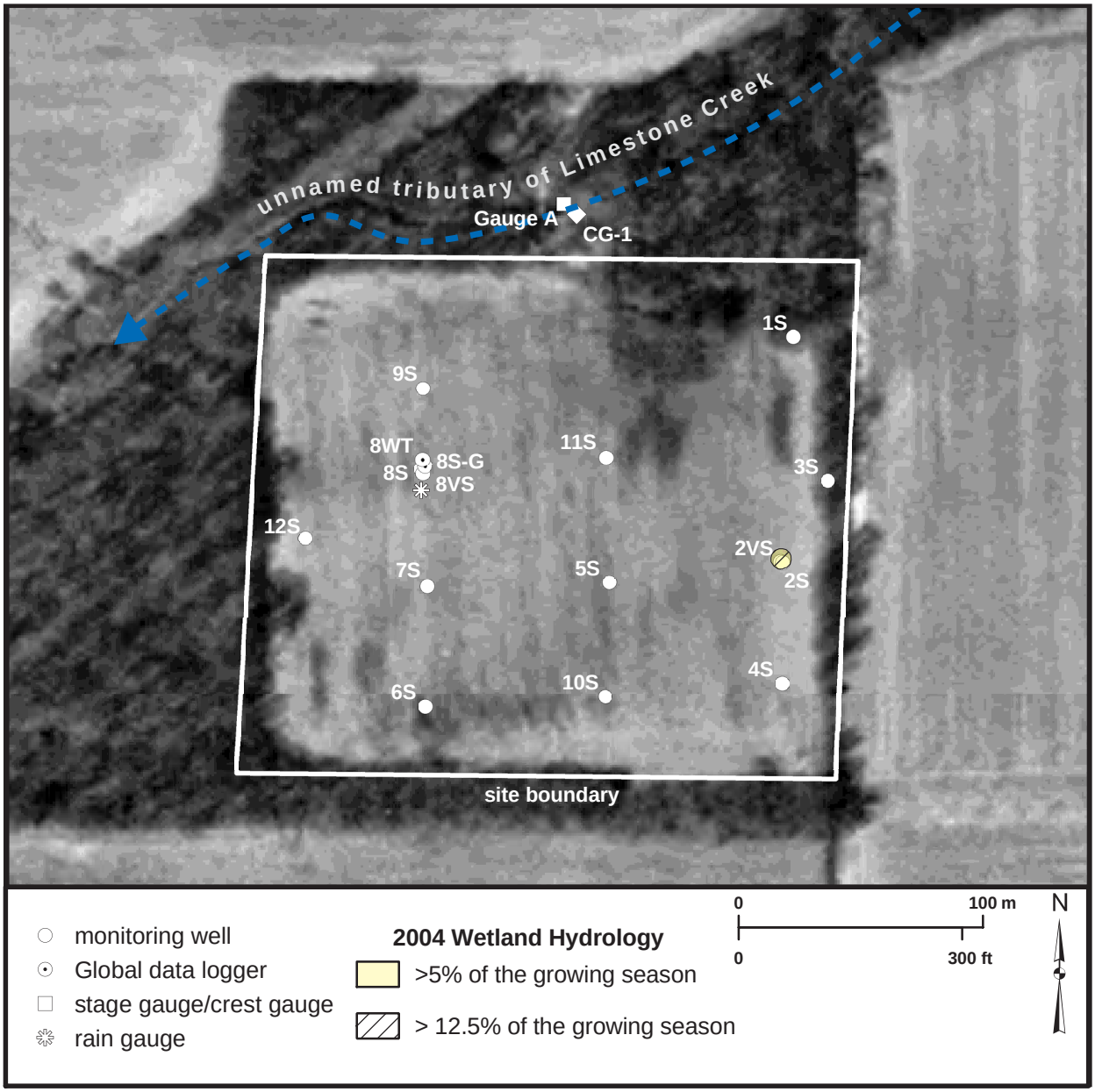
from the USGS Topographic Series, Edgewood, IL 7.5-minute Quadrangle (USGS 1985-provisional)
contour interval is 10 feet



Edgewood Potential Wetland Compensation Site (FAP 328)

Estimated Areal Extent of 2004 Wetland Hydrology

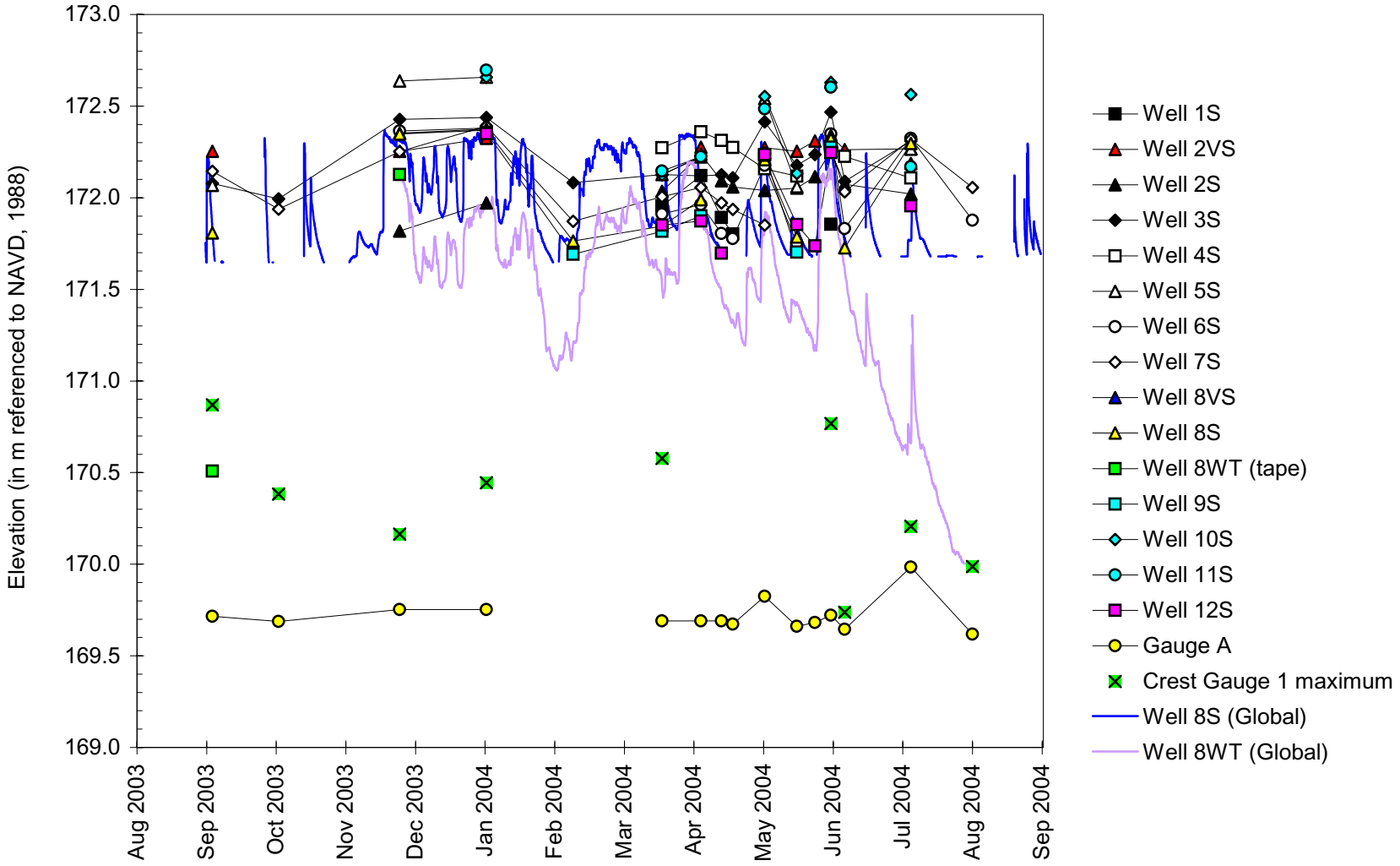
map based on USGS digital orthophotograph, Edgewood NE quarter quadrangle from April 1998 aerial photography (ISGS 2003)



Edgewood Potential Wetland Compensation Site

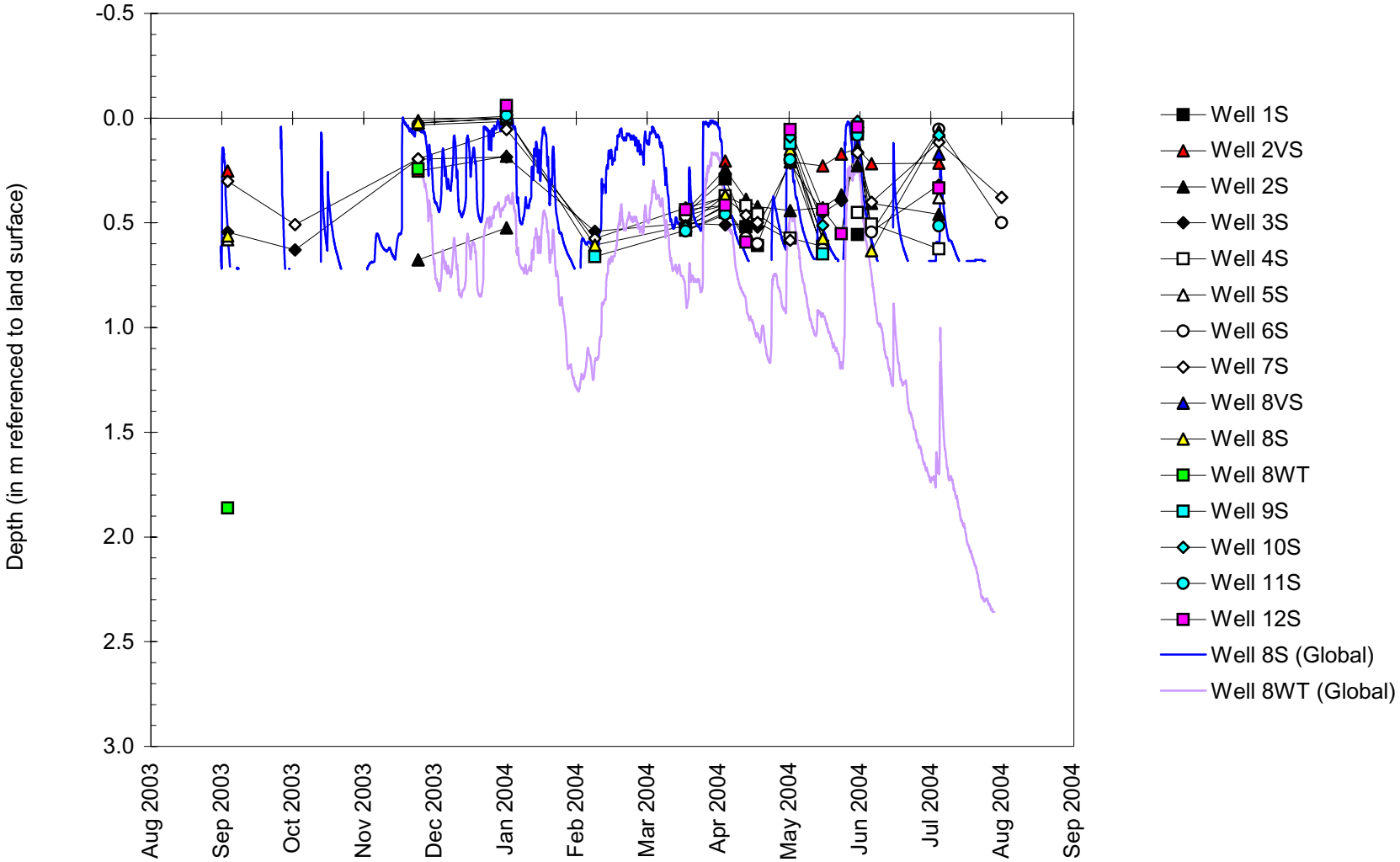
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Monitoring Wells, on the Stage Gauge, and at the Global Data Loggers

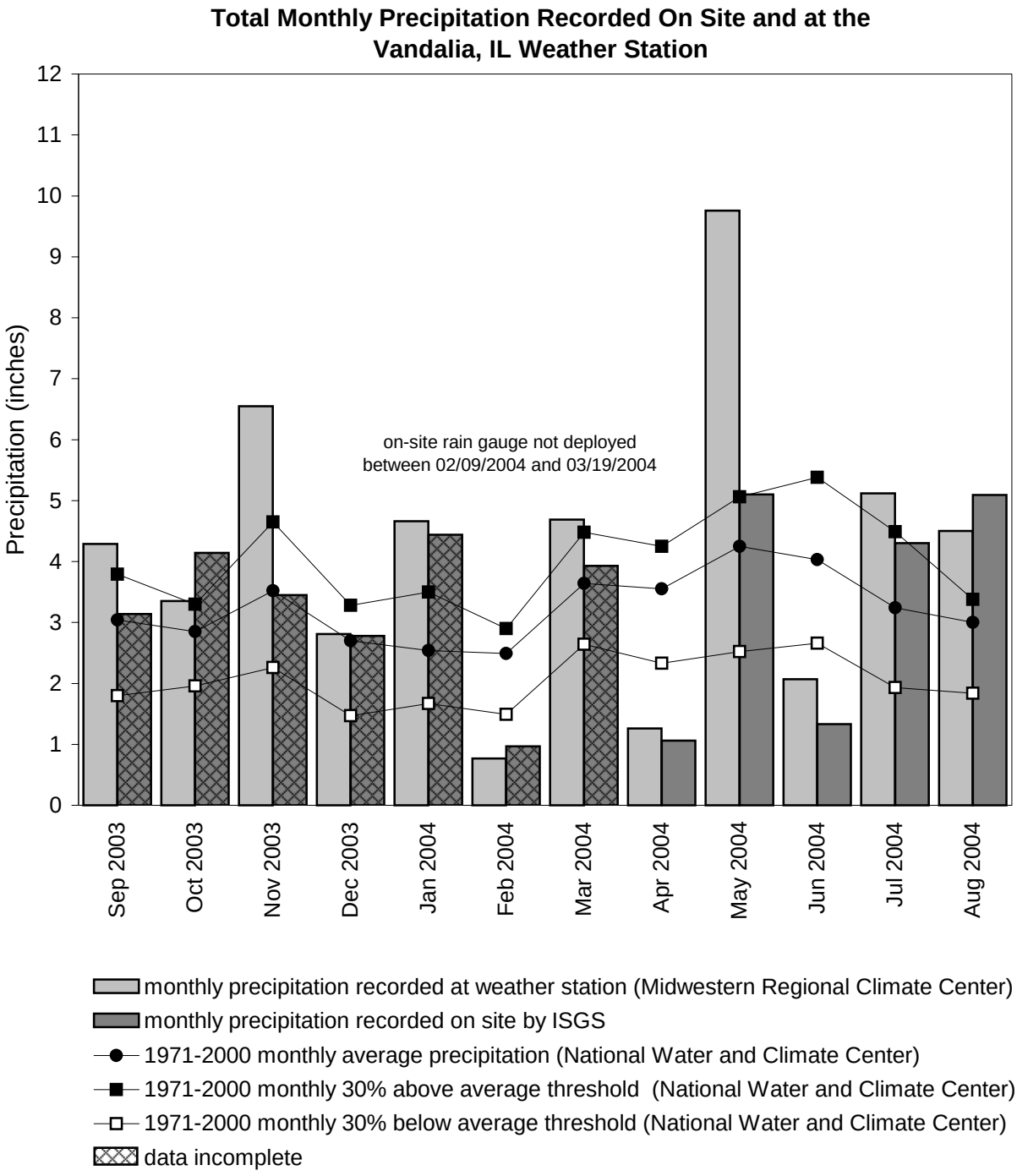


Edgewood Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water
in Monitoring Wells and at the Global Data Loggers



Edgewood Potential Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

LARKINSBURG **ISGS #69B**
POTENTIAL WETLAND COMPENSATION SITE
FAP 328
Clay County, near Edgewood, Illinois
Primary Project Manager: Gregory A. Shofner
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- August 2002: ISGS submitted an Initial Site Evaluation Report to IDOT.
- September 2002: IDOT issued a task order for a Level II hydrogeologic characterization of the site.
- March–April 2003: ISGS data collection was initiated with the installation of monitoring wells, stage gauges, and data loggers.
- December 2003: Monitoring well array was expanded with the installation of additional shallow monitoring wells 12S, 13S, 14S, 15S, and 16S.
- March 2004: A topographic survey of the site was performed, along with determination of well and instrument locations using the GPS.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that 0.33 acres (0.13 ha) of the total site area of 45.3 acres (18.4 ha) satisfied wetland hydrology criteria for greater than 5% of the growing season in 2004. The same area of 0.33 acres also satisfied wetland hydrology criteria for greater than 12.5% of the growing season. These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in nearby Vandalia, Illinois is April 4 and the season lasts 211 days; 12.5% of the growing season is 26 days.
- At the Vandalia weather station, total precipitation from September 2003 through August 2004 was 127% of normal. Although total precipitation exceeded normal for the year, the early growing season was drier than last year. This was primarily due to dry conditions in February, April, and June.
- Wells 2S, 4S, and 4VS satisfied wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 5% of the growing season. Wells 2S, 4S, and 4VS also satisfied wetland hydrology criteria for greater than 12.5% of the growing season. All wells that satisfied wetland hydrology criteria are located at elevations of 1.6 to 1.7 m (5.2 to 5.6 ft) below the average site elevation. In addition, well 2S is located outside of the site boundary.
- Crest-gauge data (CG 1) show that the unnamed tributary of Dismal Creek attained a maximum stage of 139.06 m (456.23 ft), which was insufficient to provide water to a majority of the site in 2004.

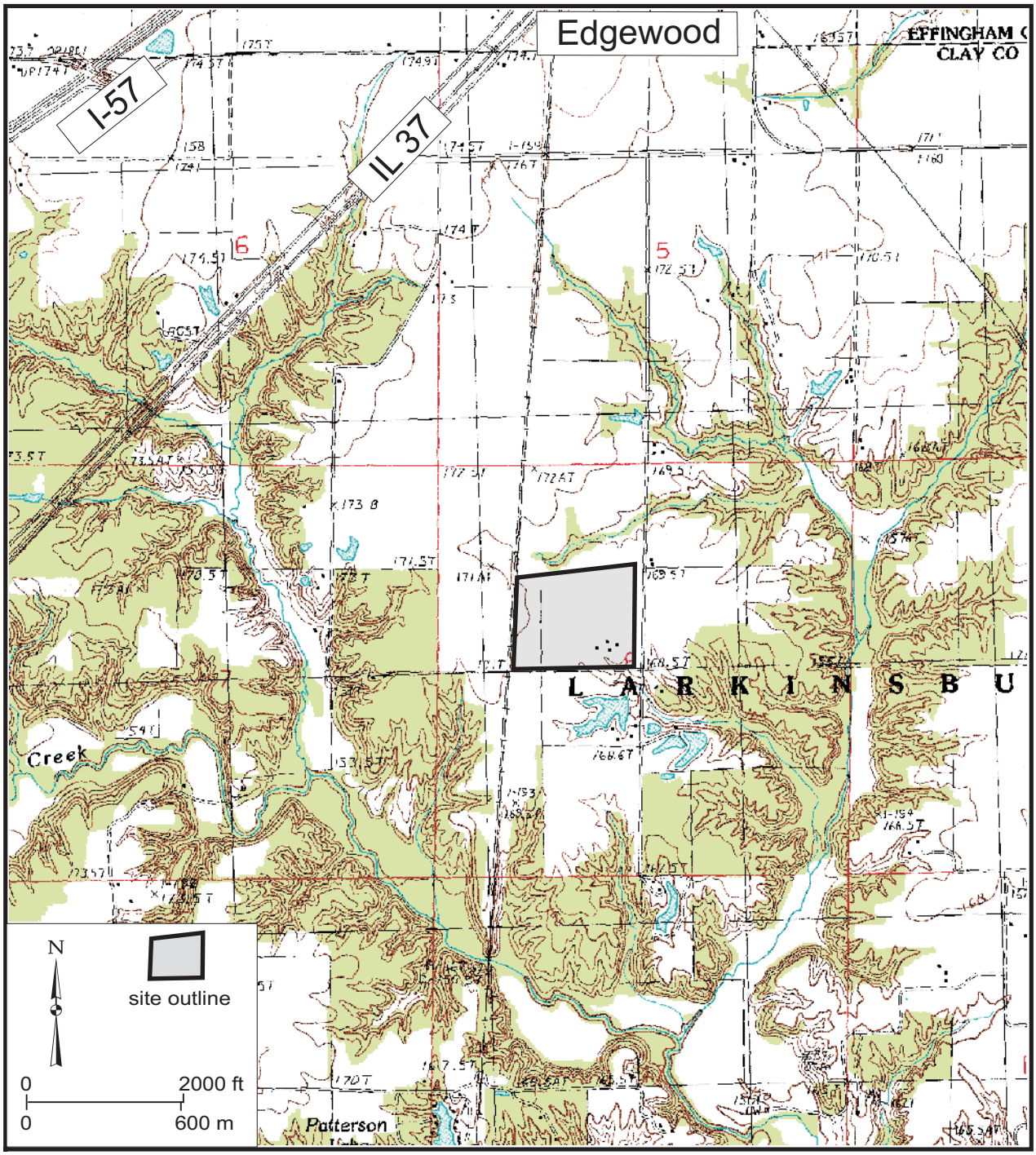
- Wetland hydrology acreage was calculated based on an ISGS topographic survey that was rectified both to GPS data, and to point locations visible on a digital orthophotograph.

PLANNED FUTURE ACTIVITIES

- A Level II hydrogeological characterization report is in preparation.
- Monitoring will continue until no longer required by IDOT.

Larkinsburg Potential Wetland Compensation Site
(FAP 328)
General Study Area and Vicinity

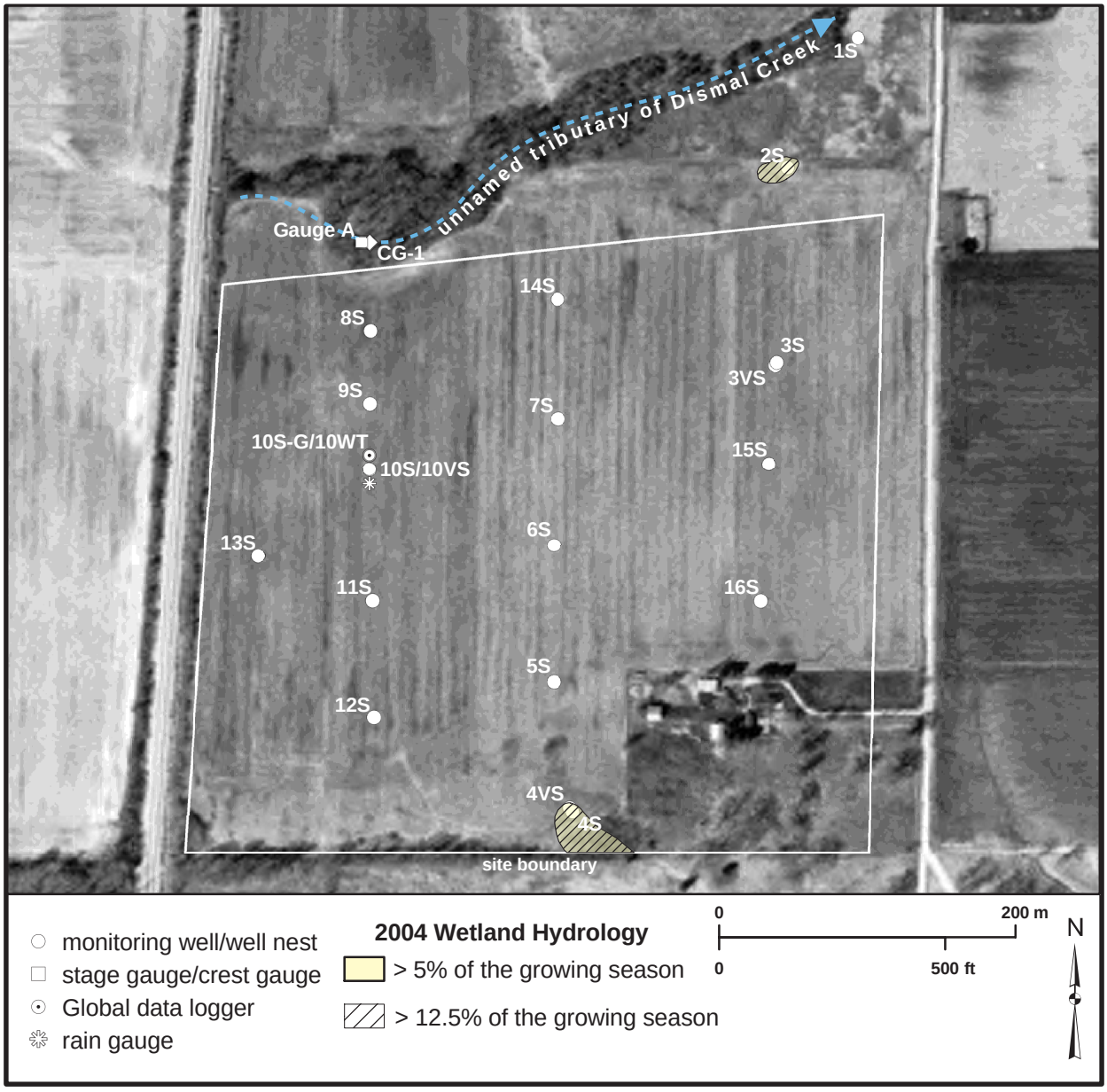
from the USGS Topographic Series, Edgewood, IL 7.5-minute Quadrangle (USGS 1985-provisional)
contour interval is 10 feet



Larkinsburg Potential Wetland Compensation Site (FAP 328)

Estimated Areal Extent of 2004 Wetland Hydrology

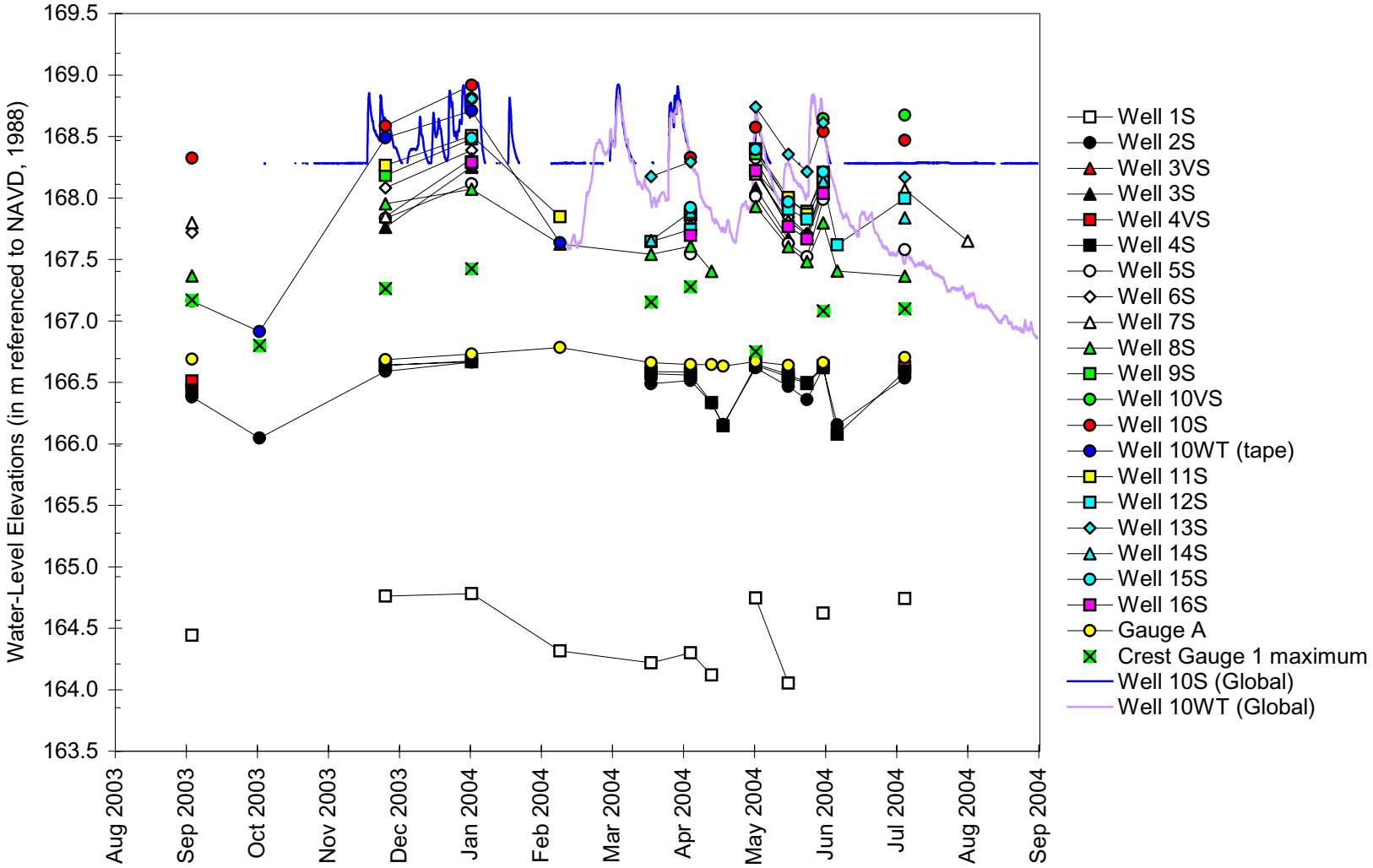
map based on USGS digital orthophotograph, Edgewood SE quarter quadrangle from April 1998 aerial photography (ISGS 2003)



Larkinsburg Potential Wetland Compensation Site

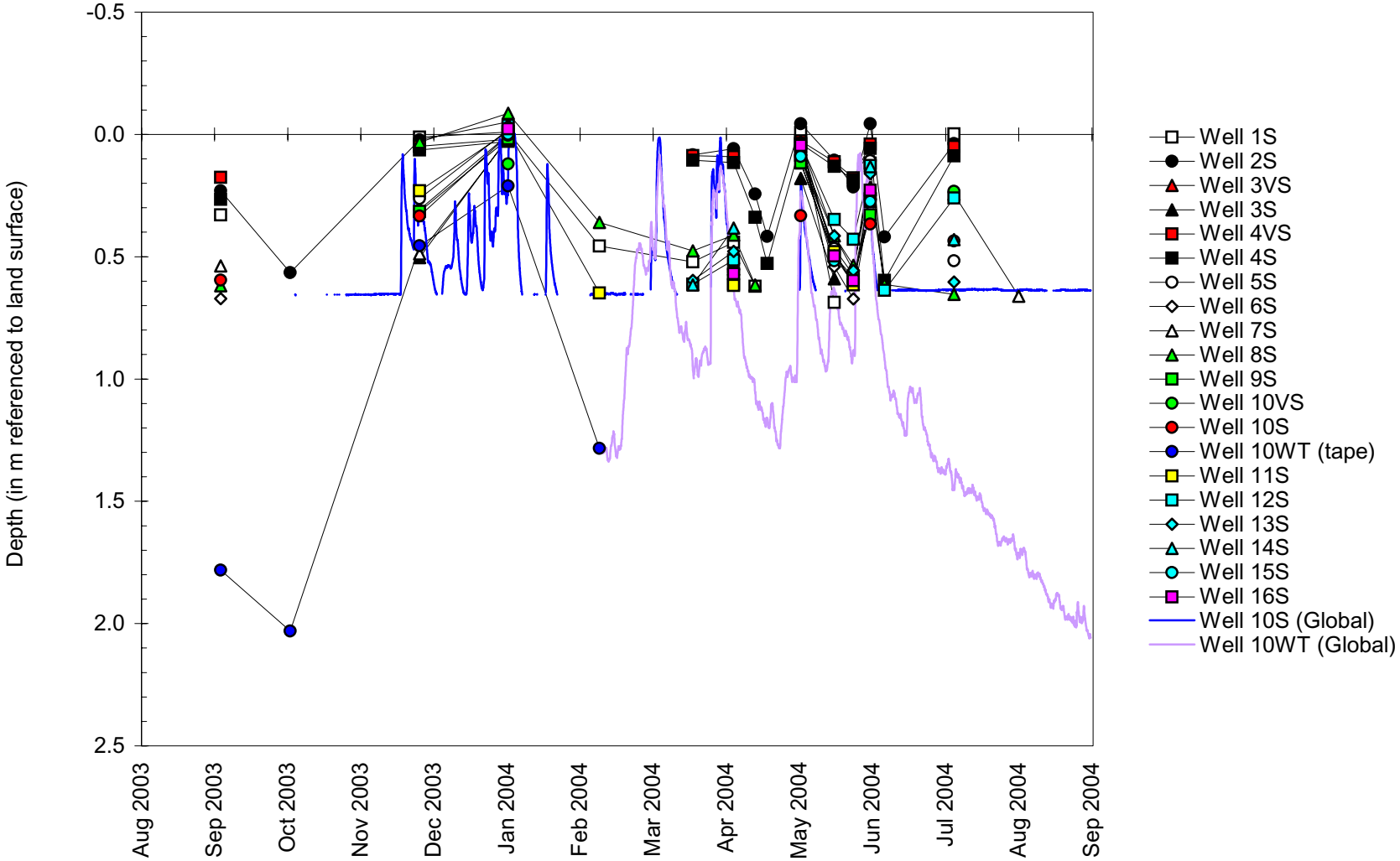
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Monitoring Wells, on the Stage Gauge, and at the Global Data Logger

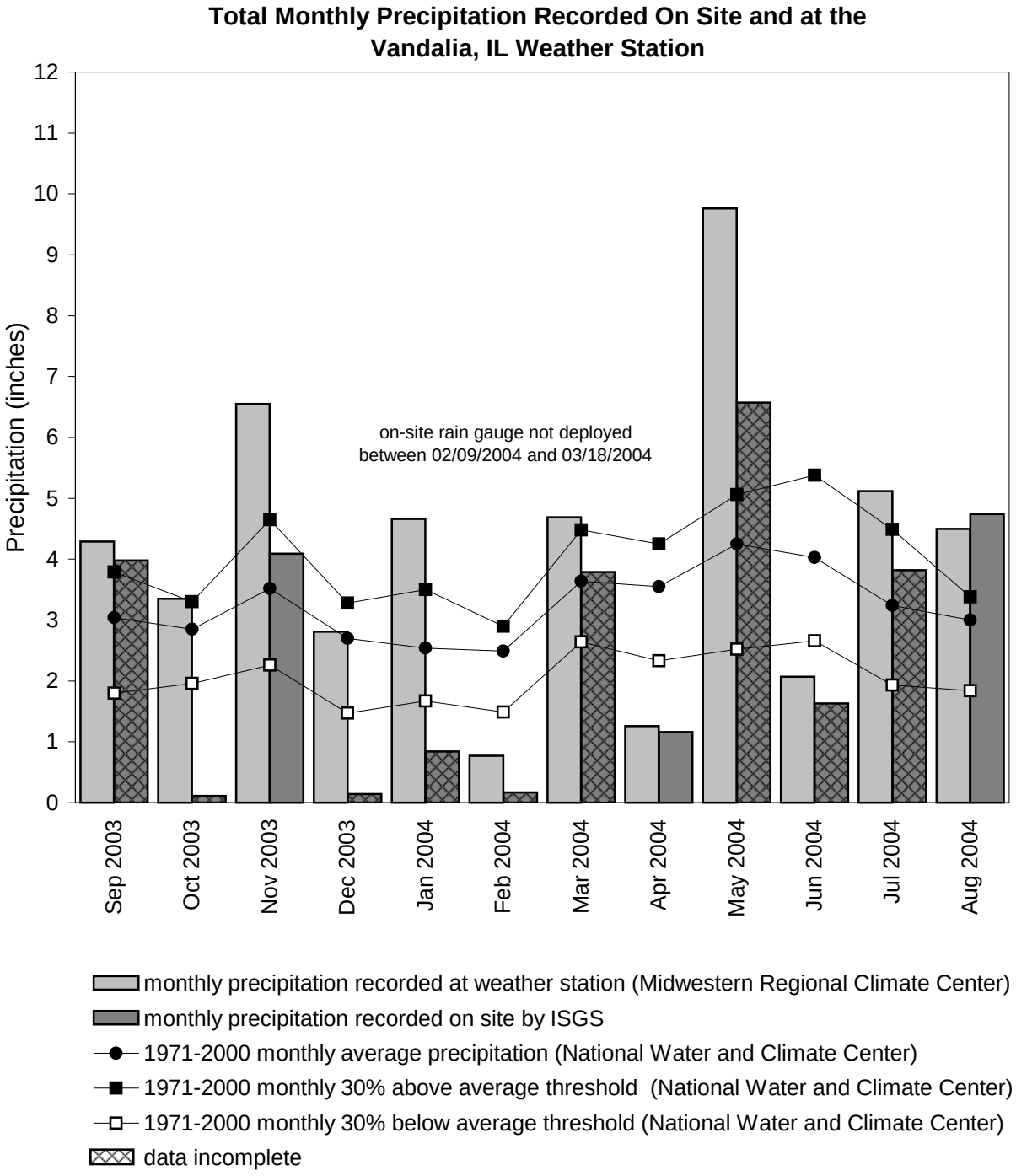


Larkinsburg Potential Wetland Compensation Site
September 1, 2003 to September 1, 2004

Depth to Water
in Monitoring Wells



Larkinsburg Potential Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

FREEPORT BYPASS EAST **ISGS #70**
POTENTIAL WETLAND COMPENSATION SITE 4E
FAP 301
Stephenson County, near Freeport, Illinois
Primary Project Manager: Kelli D. Weaver
Secondary Project Manager: not assigned

SITE HISTORY

- January 2003: ISGS was tasked by IDOT to monitor wetland hydrology at this site.

- March 2003: ISGS installed 9 soil-zone monitoring wells, a staff gauge and an Ecotone data logger. Locations of monitoring wells and the data logger were determined with a GPS unit by ISGS, and a topographic survey of the site was conducted by IDOT during well installation.

- May 2003: ISGS was tasked by IDOT to perform a Level II hydrogeologic assessment of the potential wetland mitigation site.

- April 2004: ISGS installed one deep well, and an additional soil-zone monitoring well to further delineate wetland hydrology and site geology.

- January 2004: IDOT requested monitoring at Sites 8E and 10E be discontinued.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area that satisfied the criteria (U.S. Army Corps of Engineers 1987) for greater than 5% of the growing season was 0.92 ac (0.37 ha). In addition, the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season in 2004 was 0.76 ac (0.31 ha). The site, as defined by a boundary line drawn on an IDOT air photo, is 22.0 ac (8.9 ha) in size. These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Freeport, Illinois, is April 13 and the season lasts 183 days; 5% of the growing season is 9 days, 12.5% of the growing season is 23 days.

- Total precipitation for the monitoring period of September 2003 to August 2004 was 116% of normal. Despite drier than normal conditions for the months of September and October 2003, and January, February and April 2004, the near- to above-normal precipitation in November and December 2003, and March, and May through August 2004, led to wetter than typical conditions during the 2004 growing season.

- Although no other wells satisfied wetland hydrology criteria for greater than 5% of the growing season in 2004, water levels measured in well 1S did satisfy wetland hydrology criteria for greater than 12.5% of the growing season.

- Water levels measured by logger RDS 3S indicated that inundation or saturation occurred to an elevation of 233.68 m (766.67 ft) for a duration longer than 5% of the growing season. Inundation or saturation also occurred to an elevation of 233.67 m (766.63 ft) for a period greater than 12.5% of the growing season. No surface-water flooding from the central ditch

was recorded.

- Limitations of the wetland hydrology determination are as follows:
  - The area of wetland hydrology was measured planimetrically using a digitally produced topographic contour map with 0.30 m (1 ft) intervals provided by IDOT District 2. The acreage polygons generated from the topographic map were then superimposed upon the digital topographic map used for the figure in this report.
  - Positions of instruments determined via GPS were plotted at the same approximate scale as the base map and were overlain on the digital orthophotograph.

PLANNED FUTURE ACTIVITIES

- Additional shallow-water monitoring wells may be added to better delineate wetland hydrology.
- A Level II hydrogeological characterization report is in preparation.
- Monitoring is expected to continue until no longer required by IDOT.

Freeport Bypass East Wetland Compensation Site 4E
(FAP 301)

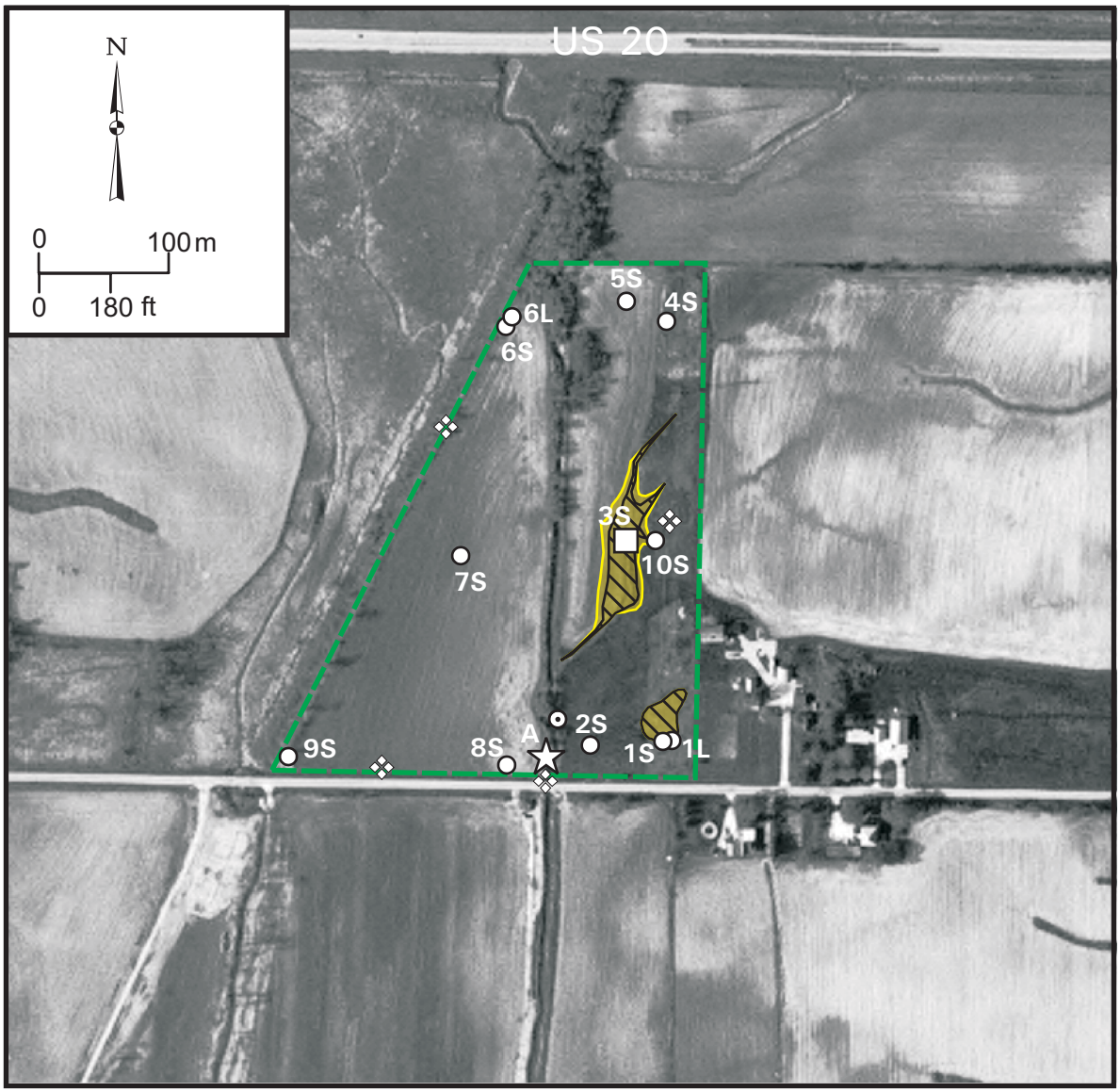
General Study Area and Vicinity

from the USGS Topographic Series, Freeport East, Il 7.5 minute Quadrangle (USGS 1999)
contour interval is 10 feet.

Freeport Bypass East Wetland Compensation Site 4E (FAS 301)

Estimated Areal Extent of 2004 Wetland Hydrology

based on data collected between September 1, 2003 and September 1, 2004
map based on USGS DOQ, Freeport East NW Quadrangle (1998-1999)



- ISGS monitoring well
- RDS data logger
- stage gauge
- ISGS benchmark
- Global pressure transducer

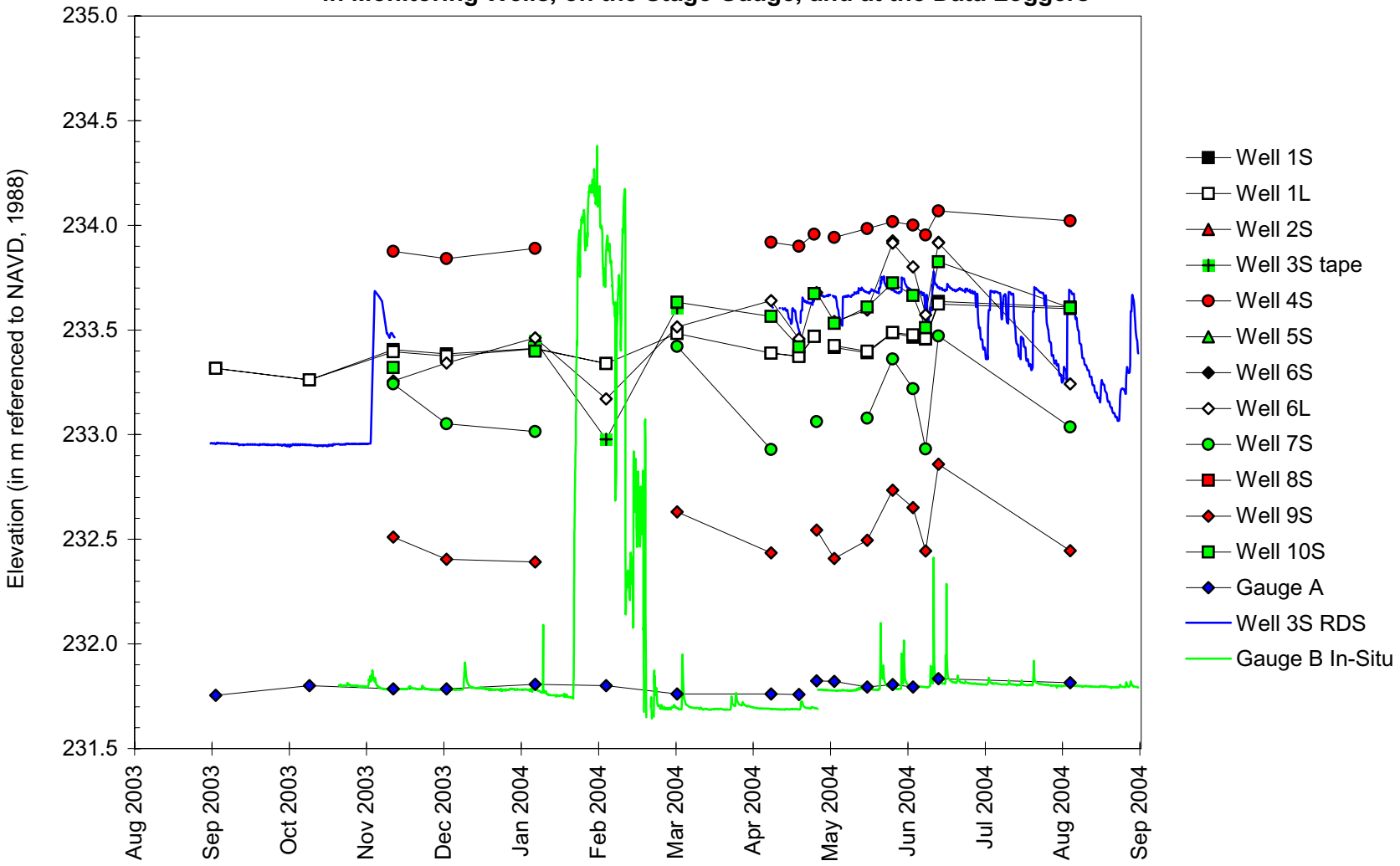
2004 Wetland Hydrology

- > 12.5% of the growing season
- > 5% of the growing season
- estimated areal extent of site boundary

Freeport Bypass East Potential Wetland Compensation Site 4E

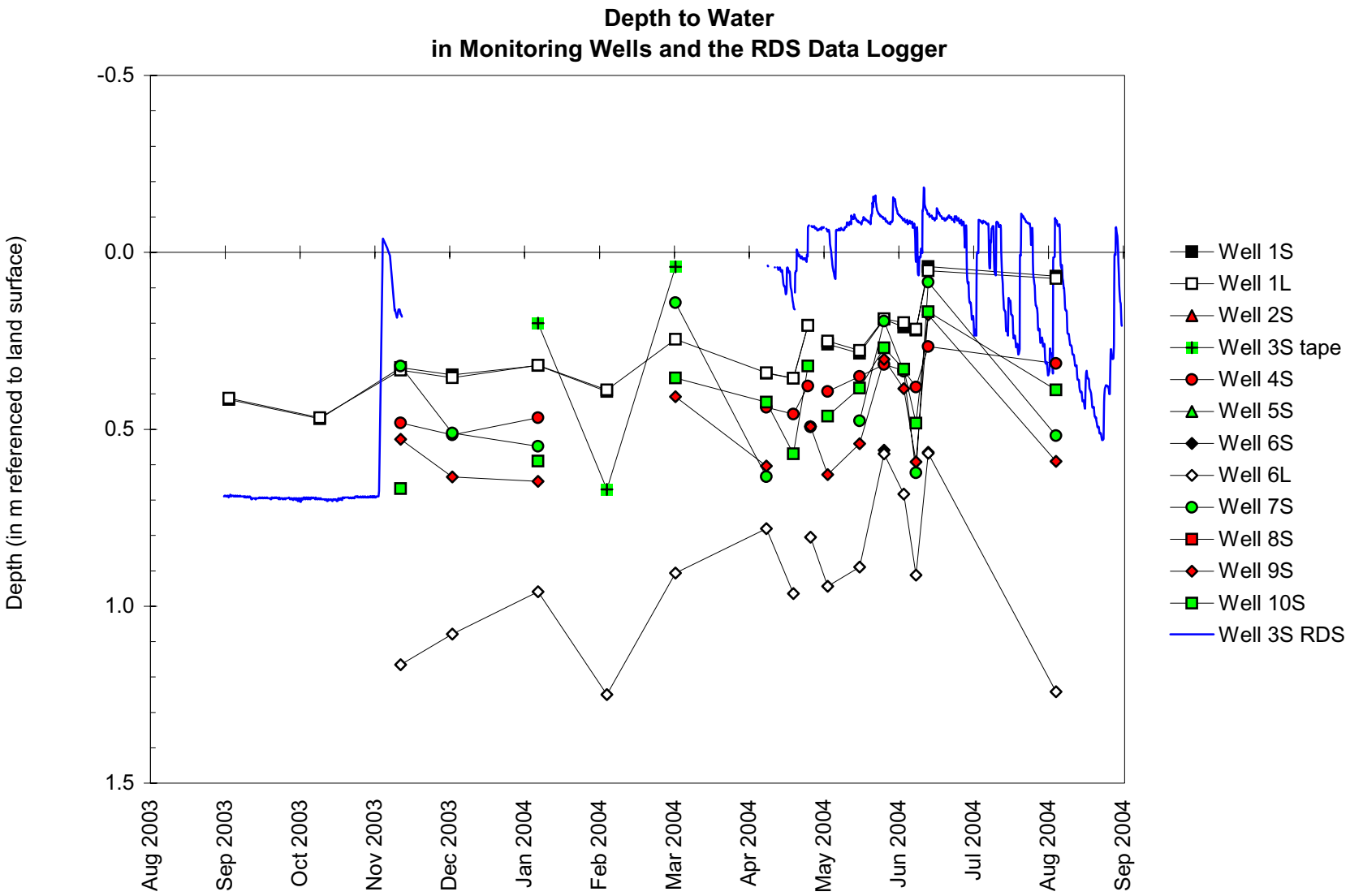
September 1, 2003 to September 1, 2004

Water-Level Elevations
in Monitoring Wells, on the Stage Gauge, and at the Data Loggers



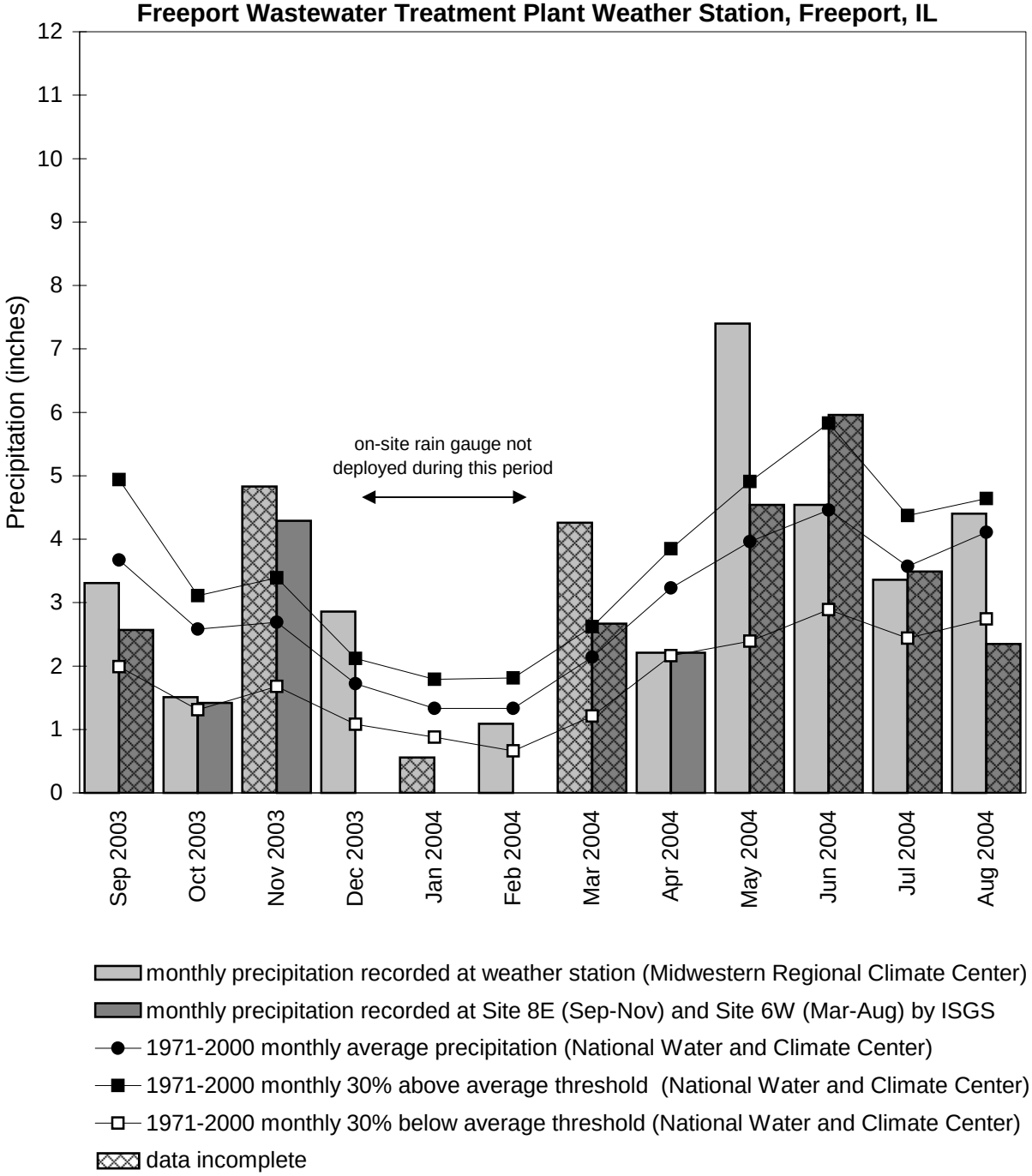
Freeport Bypass East Potential Wetland Compensation Site 4E

September 1, 2003 to September 1, 2004



Freeport Bypass East
Potential Wetland Compensation Site 4E
September 2003 through August 2004

Total Monthly Precipitation Recorded At Site 8E and 6W and at the Freeport Wastewater Treatment Plant Weather Station, Freeport, IL



Graph last updated October 1, 2004

TAMMS **ISGS #71**
WETLAND COMPENSATION SITE
FAS 1907
Union County, near Tamms, Illinois
Primary Project Manager: Geoffrey E. Pociask
Secondary Project Manager: Gregory A. Shofner

SITE HISTORY

- June 2003: ISGS was tasked by IDOT to monitor wetland hydrology for the compensation site.

- November 2003: ISGS initiated monitoring activities at the compensation site.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that 2.5 ac (1.0 ha) out of 15.6 ac (2.4 ha) satisfied wetland hydrology criteria for greater than 5% of the growing season in 2004, whereas 0.6 ha (1.6 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Tamms is March 31 and the season lasts 225 days; 5% of the growing season is 11 days and 12.5% of the growing season is 28 days.

- Total precipitation for the reporting period from September 2003 through August 2004 was 68% of normal. Drier than normal conditions prevailed in October and December 2003, January through April, and June through August 2004. Precipitation exceeded or was near the normal range in September and November 2003 and May 2004.

- In 2004, well 7S satisfied the wetland hydrology criteria of the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual for greater than 5% of the growing season. No wells satisfied wetland hydrology criteria for greater than12.5% of the growing season.

- Surface-water data loggers RDS1 and Gauge D showed that ponding occurred in isolated portions of the site. Data from RDS1 showed that areas of the north portion of the site below 103.1 m (338.3 ft) satisfied wetland hydrology criteria for greater than 5% of the growing season, and areas below 102.9 m (337.6 ft) were inundated for greater than 12.5% of the growing season. Data from Gauge D showed that an area of the southeast portion of the site below 102.3 m (335.6 ft) satisfied wetland hydrology criteria for greater than 5% of the growing season. The same area also satisfied wetland hydrology criteria for greater than 12.5% of the growing season.

- Limitations of the wetland hydrology determination are as follows:
  - The area of wetland hydrology was calculated using GIS methods. The wetland-hydrology polygon was drawn from an ISGS topographic map (0.1-meter contour interval) rectified to GPS positions of water-level instruments and point features identifiable from a digital orthophotograph.
  - Instrument locations were determined using GPS in March 2004. The GPS positions of instruments were superimposed on digital orthophotography.

PLANNED FUTURE ACTIVITIES

- Monitoring is expected to continue through 2008 or until no longer required by IDOT.

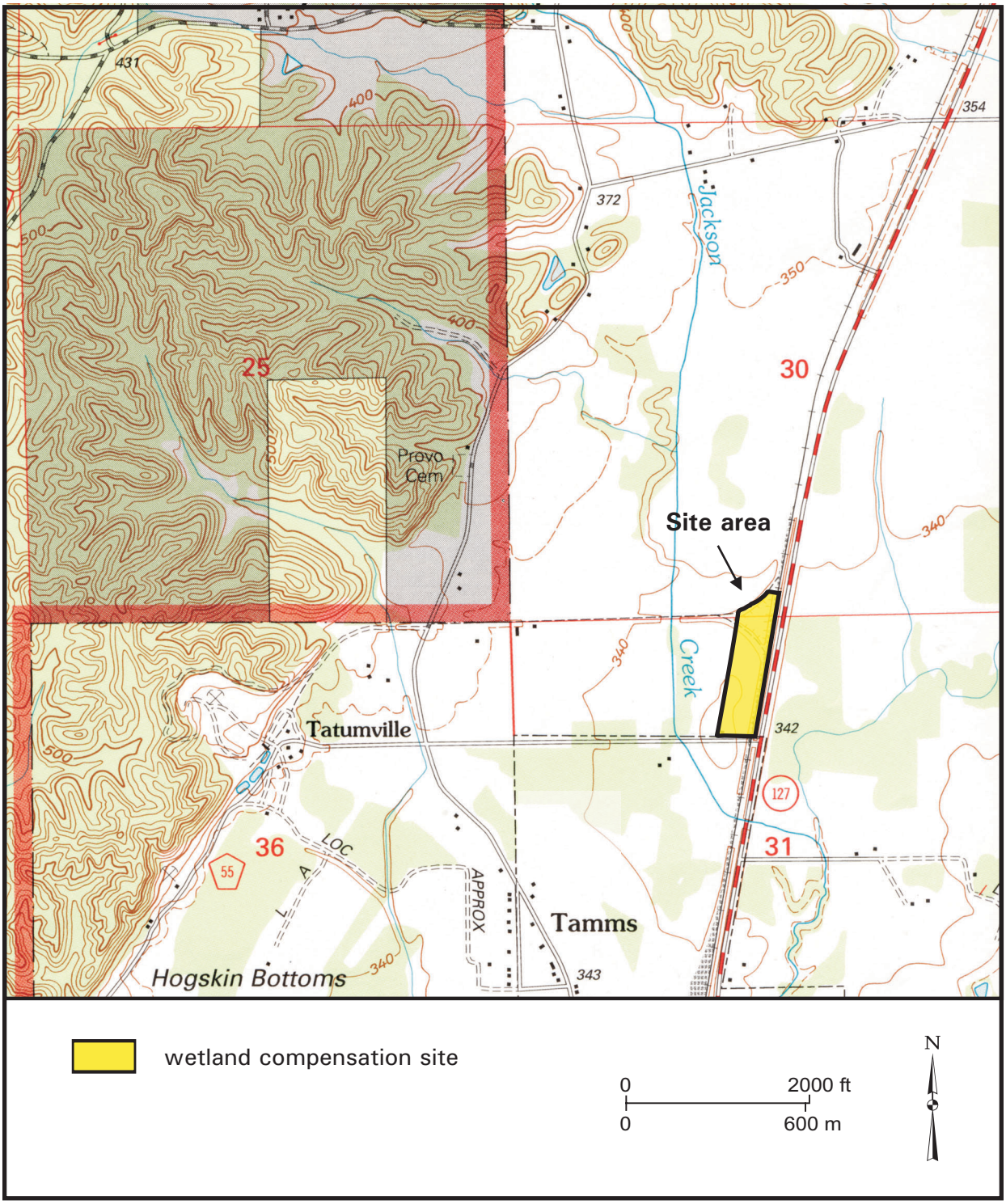
Tamms Wetland Compensation Site

(FAS 1907)

Site and Vicinity

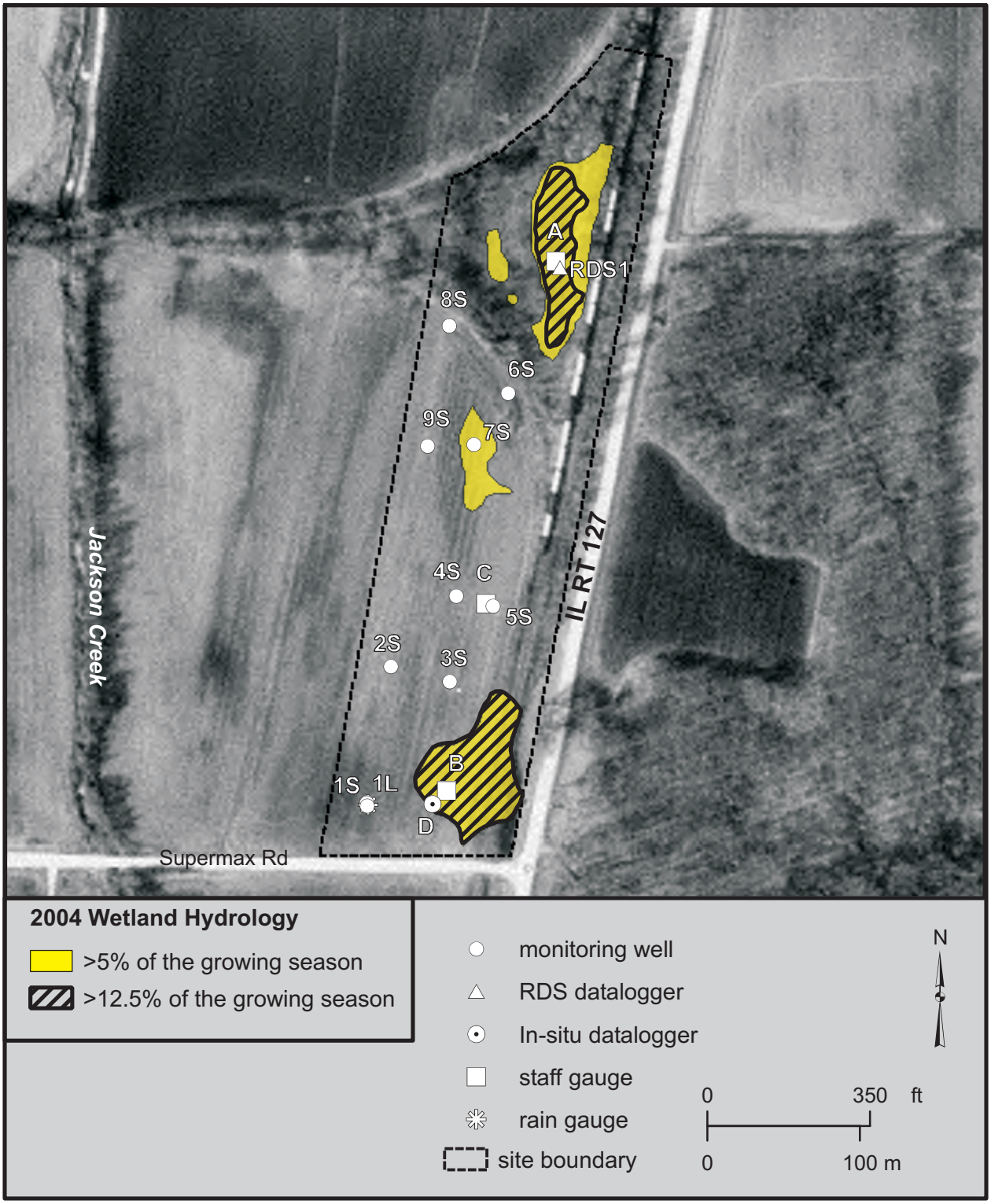
from the USGS Topographic Series, Mill Creek, IL 7.5-minute Quadrangle (USGS 1996).

contour interval is 20 feet



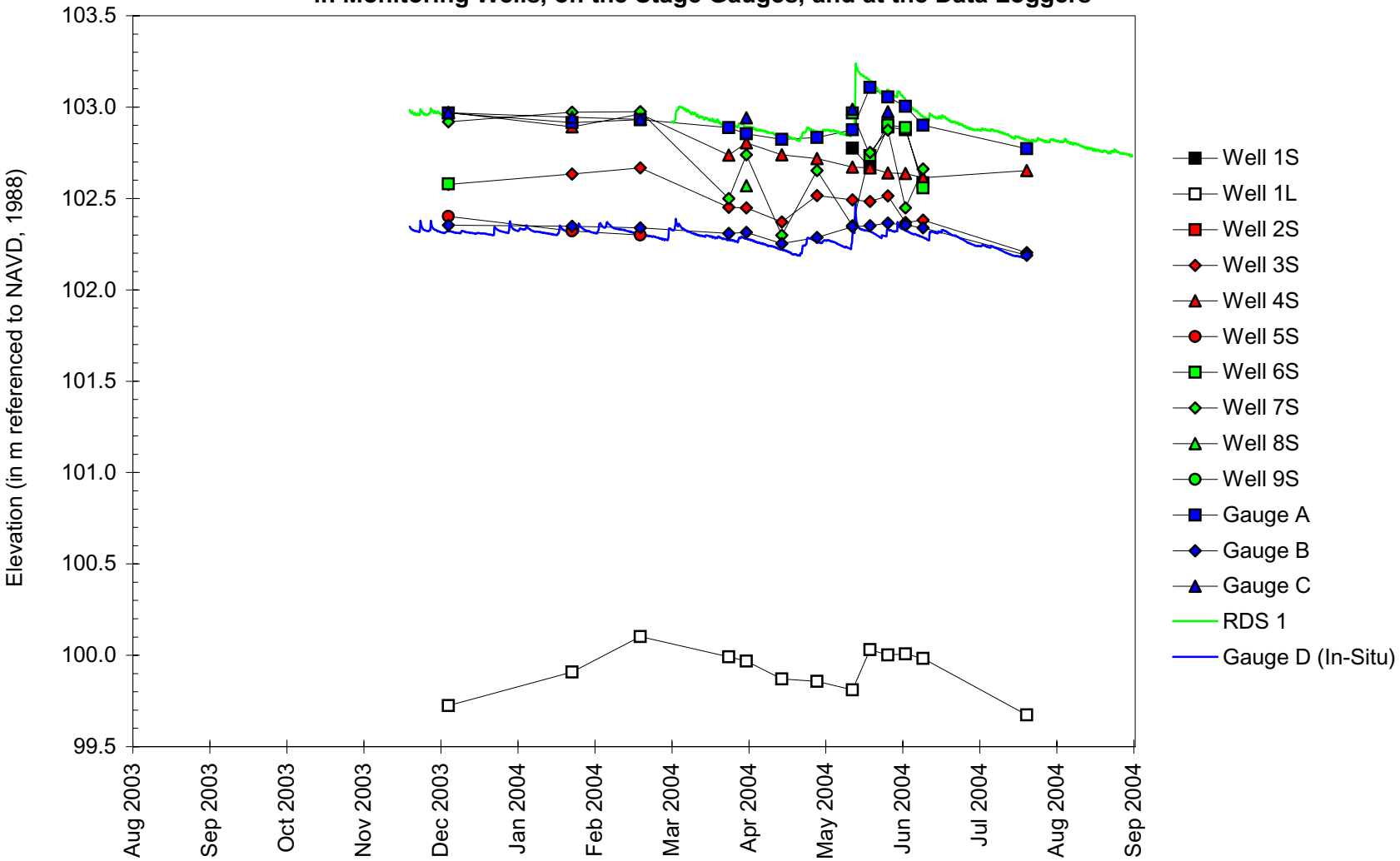
Tamms Wetland Compensation Site
(FAS 1907)
Estimated Areal Extent of 2004 Wetland Hydrology

map based on IDOT design plans and ISGS topography recitfied to USGS ditigal orthophotograph
Mill Creek quarter quadrangle (ISGS 2004).

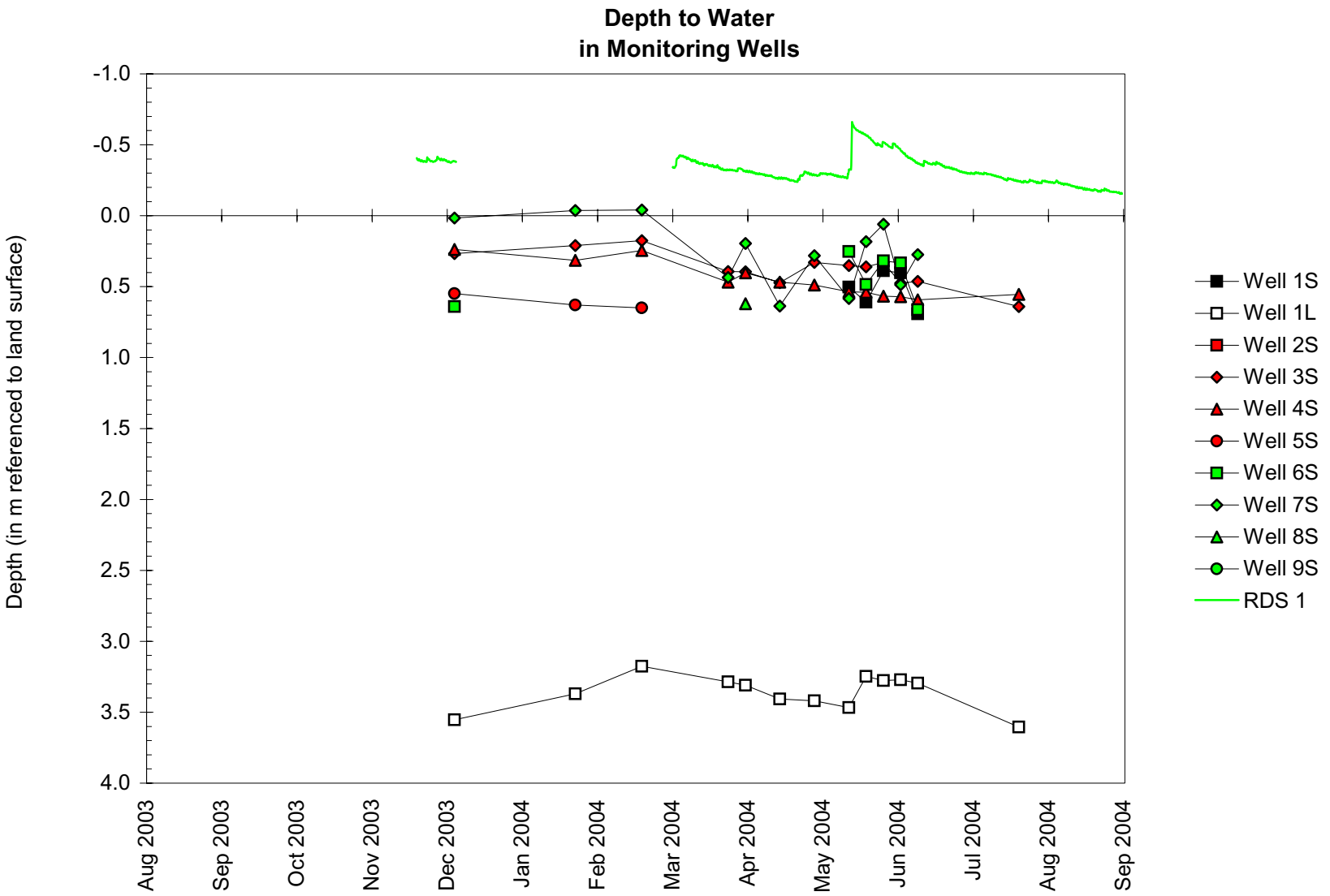


Tamms Wetland Compensation Site
September 1, 2003 to September 1, 2004

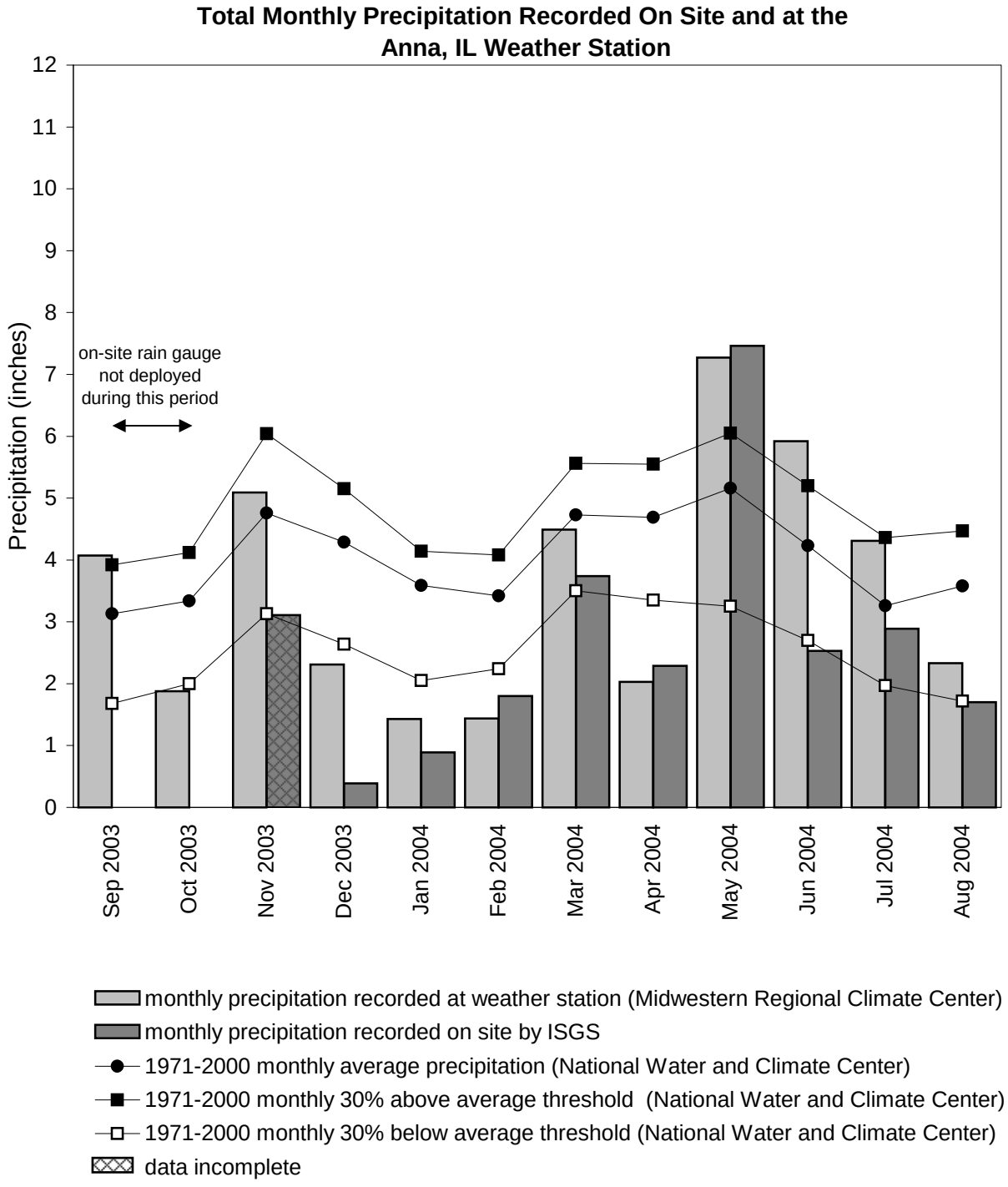
Water-Level Elevations
in Monitoring Wells, on the Stage Gauges, and at the Data Loggers



Tamms Wetland Compensation Site
September 1, 2003 to September 1, 2004



Tamms Wetland Compensation Site
September 2003 through August 2004



Graph last updated October 1, 2004

FREEPORT BYPASS WEST **ISGS #72**
POTENTIAL WETLAND COMPENSATION SITE 6W
FAP 301
Stephenson County, near Freeport, Illinois
Primary Project Manager: Kelli D. Weaver
Secondary Project Manager: not assigned

SITE HISTORY

- Fall 2003: ISGS was tasked by IDOT to monitor wetland hydrology, and to perform a Level II hydrogeologic assessment of the potential wetland mitigation at this site.

- December 2003: ISGS installed 12 soil-zone monitoring wells, one deep monitoring well, a staff gauge, and two surface-water data loggers. Locations of monitoring wells and the data loggers were determined with a GPS unit by ISGS, and a topographic survey of the site was conducted by IDOT during the fall of 2003.

WETLAND HYDROLOGY CALCULATION FOR 2004

We estimate that the total area that satisfied wetland hydrology criteria (U.S. Army Corps of Engineers 1987) for greater than 5% of the growing season was 26.17 ac (10.59 ha). In addition, the area that satisfied wetland hydrology criteria for greater than 12.5% of the growing season in 2004 was 25.9 ac (10.5 ha). The site, as defined by a boundary line drawn on an IDOT air photo, is 27 ac (10.9 ha) in size. These estimates are based on the following factors.

- According to the Midwestern Climate Center, the median date that the growing season begins in Freeport, Illinois, is April 13 and the season lasts 183 days; 5% of the growing season is 9 days, and 12.5% of the growing season is 23 days.

- Total precipitation for the monitoring period of September 2003 to August 2004 was 116% of normal. Despite drier than normal conditions for the months of September and October 2003, and January, February and April 2004, the near- to above-normal precipitation in November and December 2003, and March, and May through August 2004, led to wetter than typical conditions during the 2004 growing season.

- In 2004, water levels measured in all soil-zone wells on the site (1S, 2S, 2VS, 3S, 4S, 5S, 5VS, 6S, 7S, 8S, 8VS, 9S, and 10S) satisfied wetland hydrology criteria for greater than 5% of the growing season. Water levels in all aforementioned wells, except for well 4S, also indicated saturation above or within 30 cm (1 ft) of the ground surface for a period greater than 12.5% of the growing season.

- Data from the data logger at Gauge B indicated that flooding from the Pecatonica River reached an on-site maximum elevation of 231.85 m (760.66 ft), and showed flooding at an elevation of approximately 231.40 m (759.17 ft) for a duration longer than 5% of the growing season. Water levels at Gauge B remained at an elevation of 230.450 m (756.07 ft) for a period greater than 12.5% of the growing season. Analysis of historical flood heights is pending.

- Limitations of the wetland hydrology determination are as follows:
  - The map used to determine the acreage of the site is a digital orthophoto with estimated

site boundaries.

- The area of wetland hydrology was measured planimetrically using a digitally produced topographic contour map with 0.30 m (1 ft) intervals provided by IDOT District 2. The acreage polygon generated from the topographic map was then superimposed upon the digital topographic map used for the figure in this report.

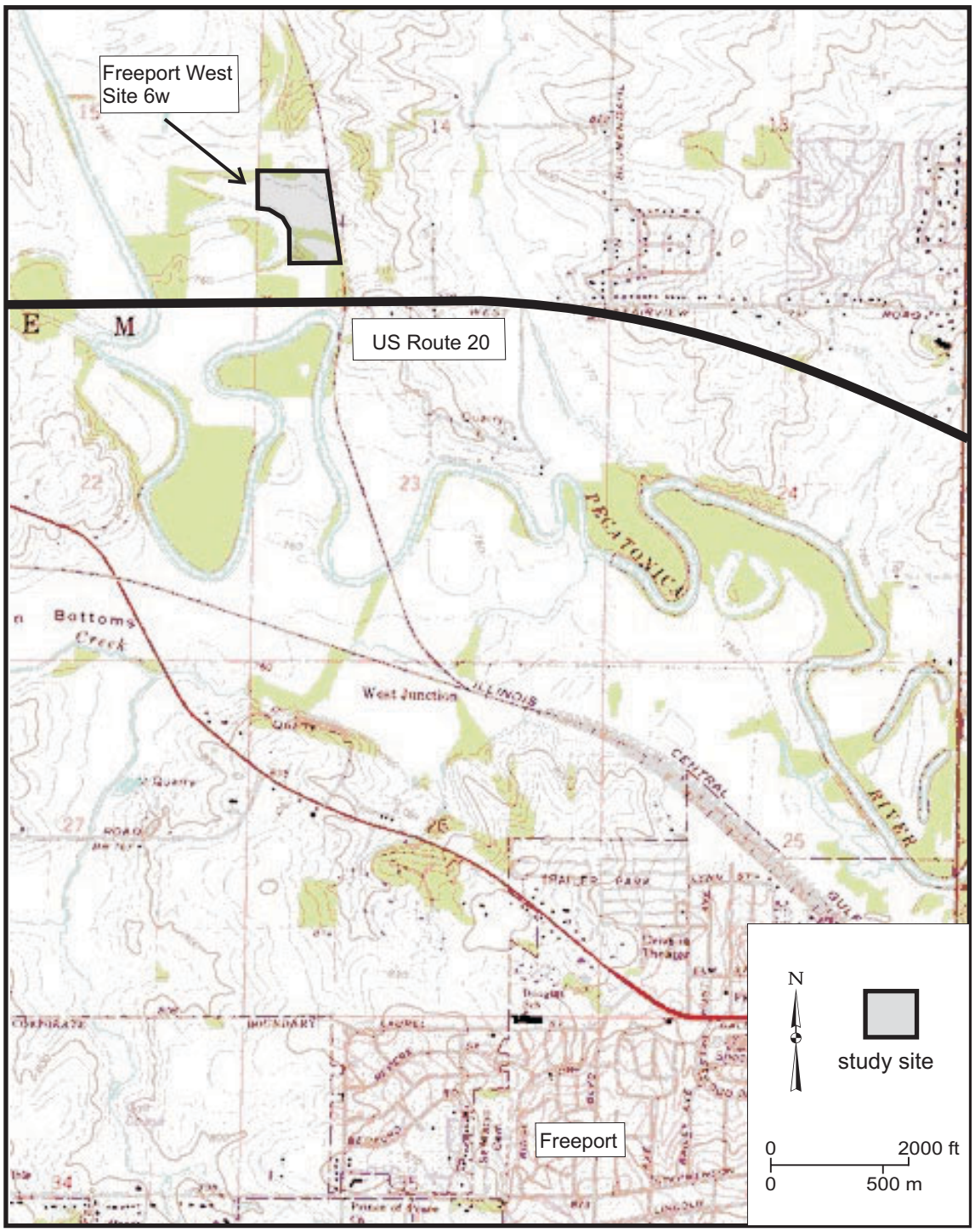
PLANNED FUTURE ACTIVITIES

- Additional shallow-water monitoring wells will be added to better delineate wetland hydrology.
- A Level II hydrogeological characterization report is in preparation.
- Monitoring is expected to continue until no longer required by IDOT.

Freeport Bypass West Wetland Compensation Site 6W (FAS 301)

General Study Area and Vicinity

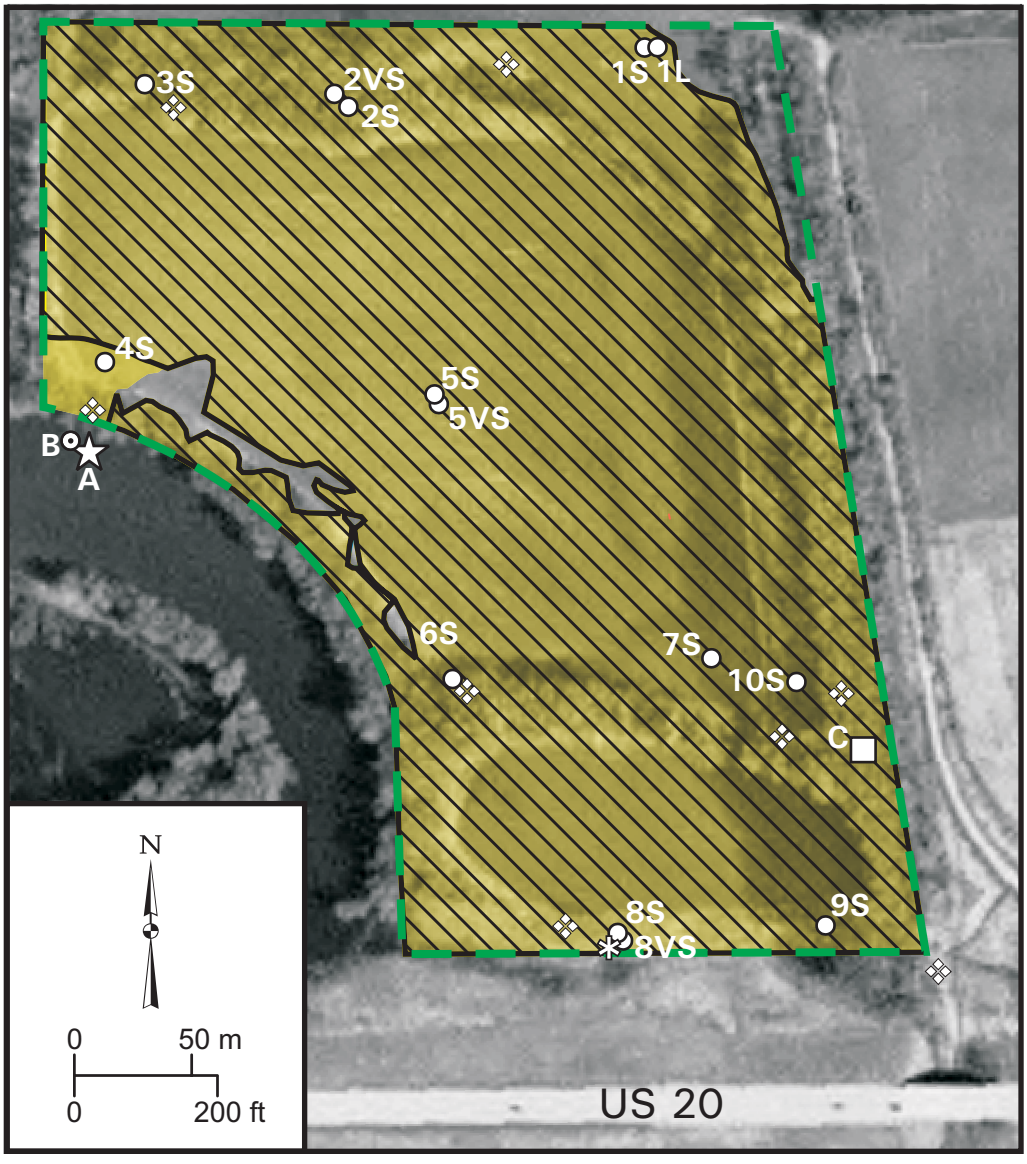
from the USGS Topographic Series, Freeport West, Il 7.5 minute Quadrangle (USGS 1978)
contour interval is 10 feet.



Freeport Bypass West Wetland Compensation Site 6W (FAS 301)

Estimated Areal Extent of 2004 Wetland Hydrology

based on data collected between September 1, 2003 and September 1, 2004
map based on USGS DOQ, Freeport East NW Quadrangle (1998-1999)



- ISGS monitoring well
- Ecotone data logger
- Stage gauge
- Global pressure transducer
- ISGS benchmark

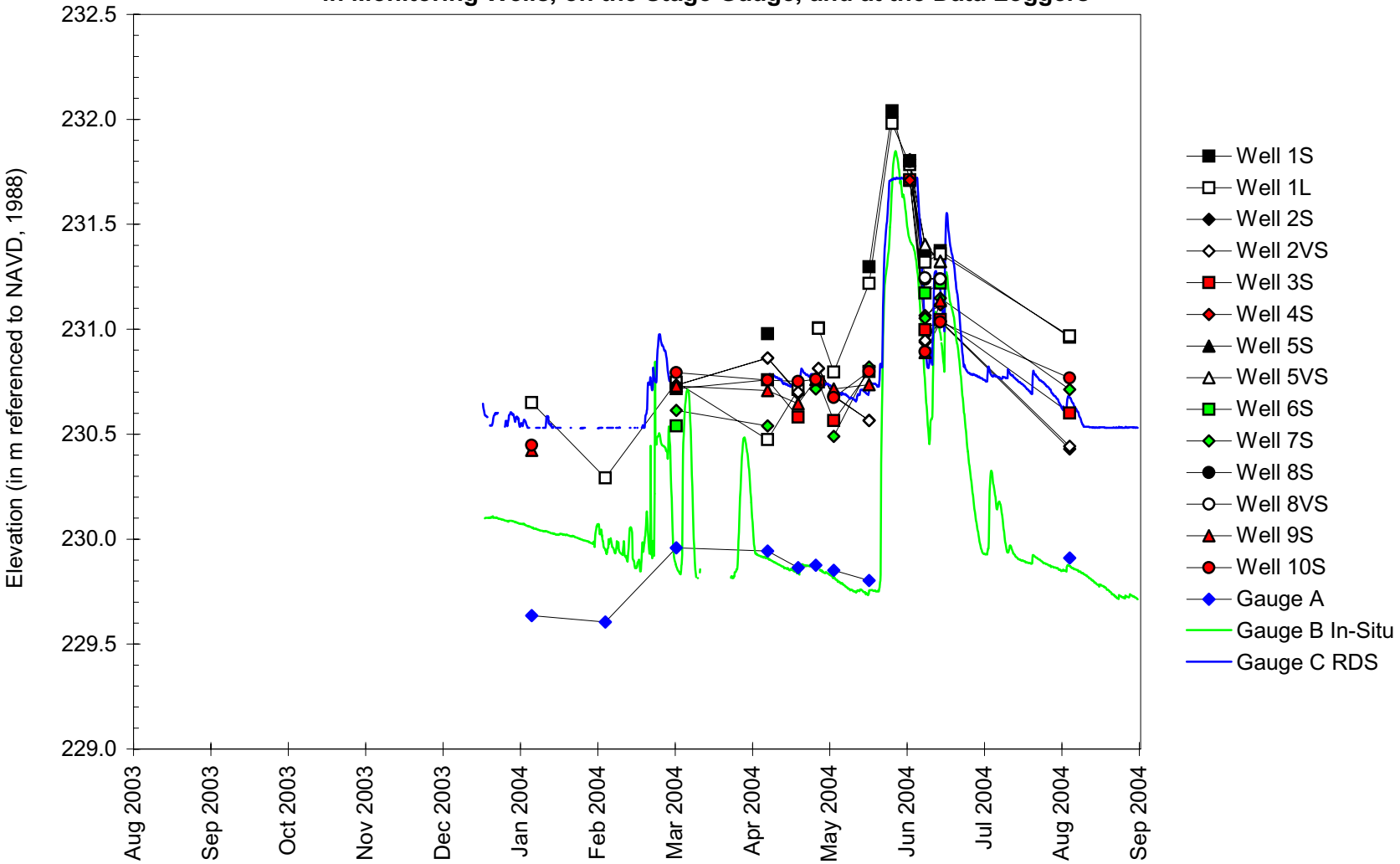
2004 Wetland Hydrology

- > 12.5% of the growing season
- > 5% of the growing season
- estimated areal extent of site boundary

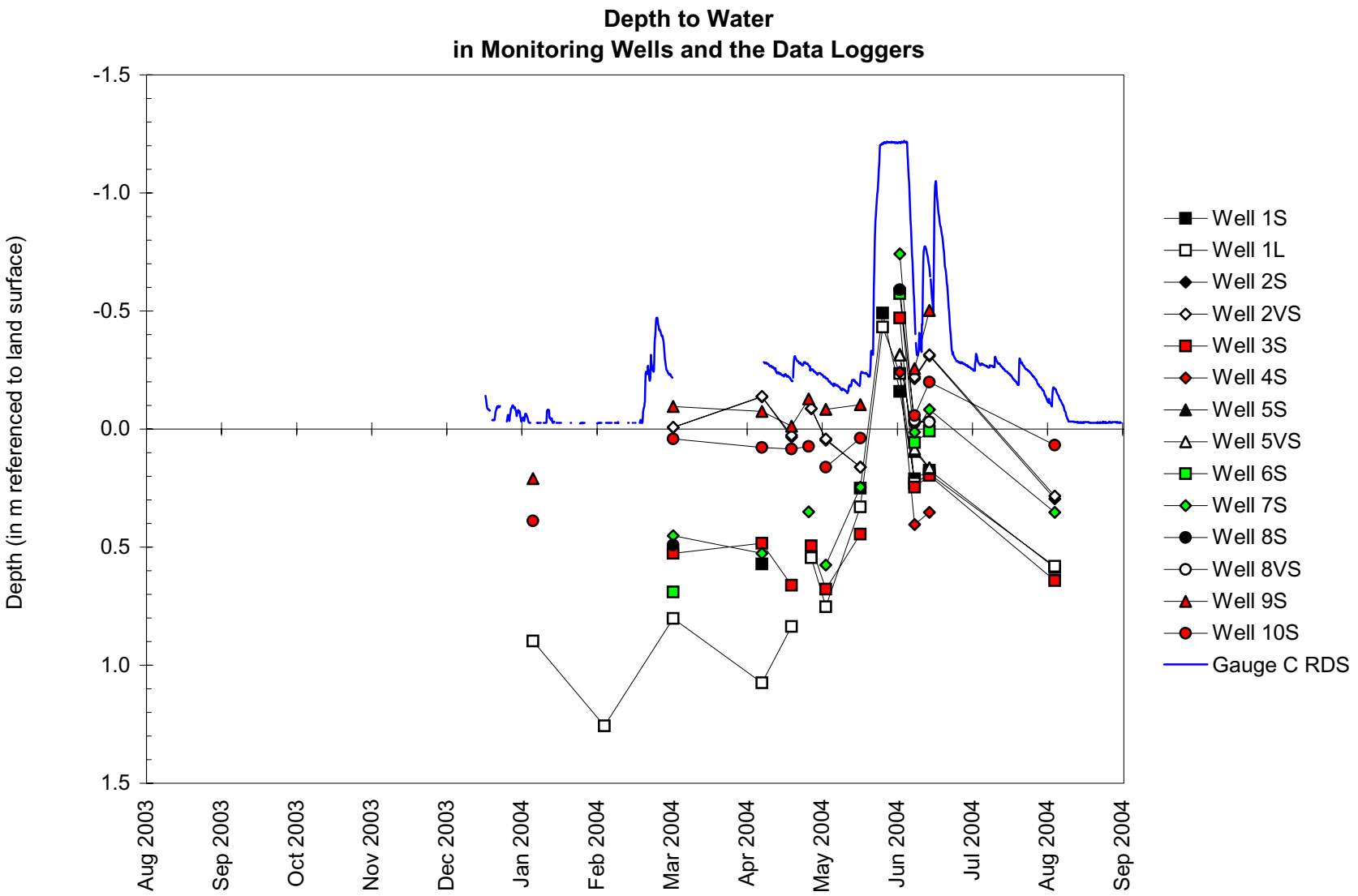
Freeport Bypass West Potential Wetland Compensation Site 6W

September 1, 2003 to September 1, 2004

Water-Level Elevations
in Monitoring Wells, on the Stage Gauge, and at the Data Loggers

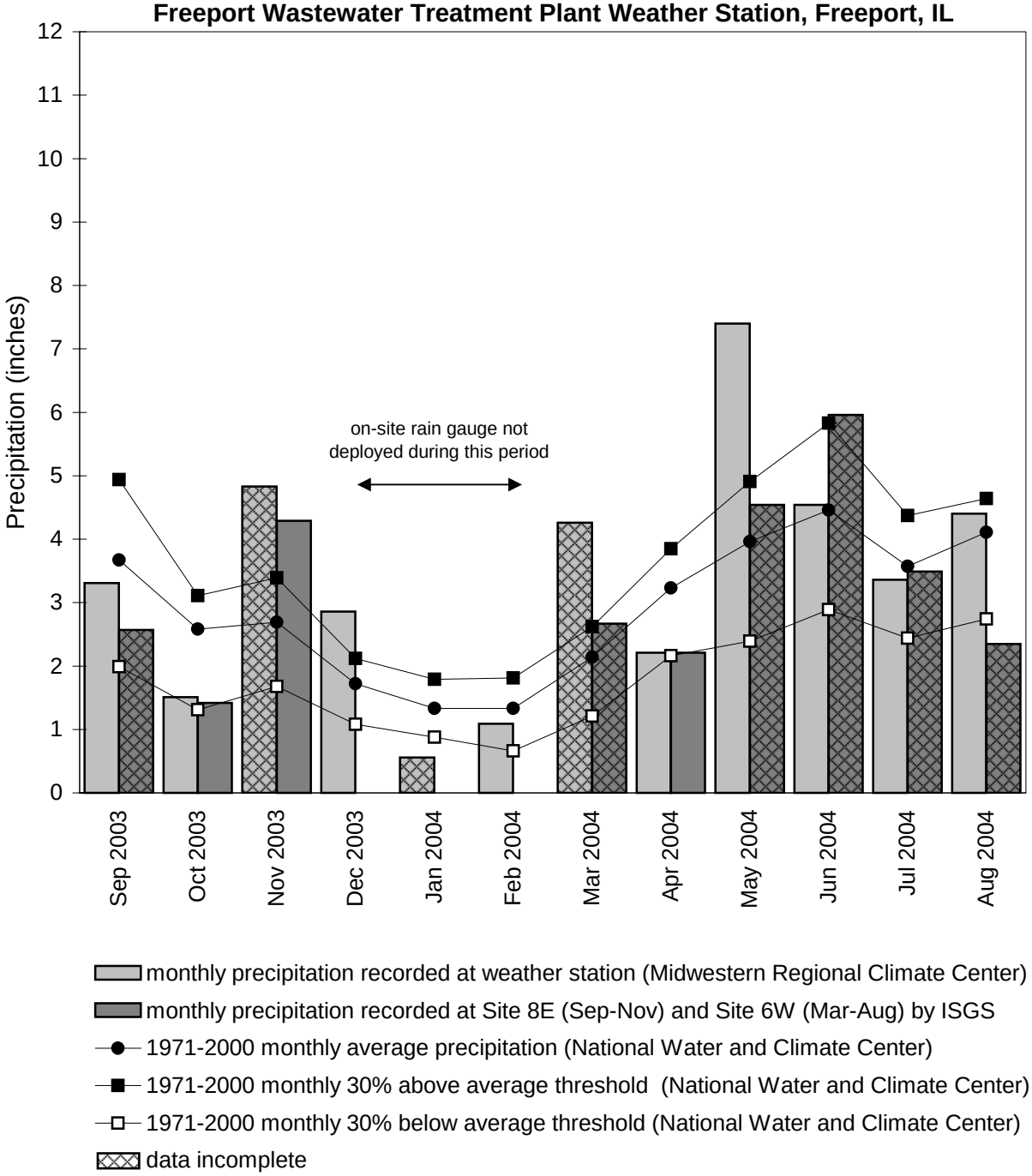


Freeport Bypass West Potential Wetland Compensation Site 6W
September 1, 2003 to September 1, 2004



Freeport Bypass West
Potential Wetland Compensation Site 6W
September 2003 through August 2004

Total Monthly Precipitation Recorded At Site 8E and 6W and at the Freeport Wastewater Treatment Plant Weather Station, Freeport, IL



Graph last updated October 1, 2004