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Annual Report for Active IDOT Wetland Mitigation and Hydrologic Monitoring Sites: September 1, 2014 through August 31, 2015

Geoffrey E. Pociask, Steven E. Benton, Eric T. Plankell, Keith W. Carr, Jessica R. Ackerman, Jessica L. B. Monson, Colleen M. Long, Katharine L. Schleich, and Matthew J. Even

Coles County Wetland Mitigation Site, photo by Matt Even

Wetlands Geology Section
Illinois State Geological Survey
Prairie Research Institute
University of Illinois at Urbana-Champaign

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ILLINOIS STATE GEOLOGICAL SURVEY
PRAIRIE RESEARCH INSTITUTE

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615 East Peabody Drive
Champaign, Illinois 61820-6964
http://www.isgs.illinois.edu/

ILLINOIS STATE GEOLOGICAL SURVEY
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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 sites being monitored for IDOT under grants D7129 (FY15) and D71295 (FY16), including current and potential wetland mitigation sites and banks. 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 and its online updates (Environmental Laboratory 1987), hereafter collectively referred to as the 1987 Manual, as well as areas meeting wetland hydrology criteria as outlined in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region (U.S. Army Corps of Engineers [USACE] 2010), hereafter referred to as the 2010 Midwest Region Supplement. 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 19 wetland mitigation sites are included in this report. Each summary contains a location map, a site map showing field instruments and the extent of area satisfying wetland hydrology criteria, hydrographs from selected wells and surface-water gauges, 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. Also, a summary of areas meeting wetland hydrology criteria for each site is provided in Table 2. Except where noted, all data included in this report are from September 1, 2014, through August 31, 2015, at IDOT's request.

METHODS

The primary purpose of this report is to present the area within each wetland mitigation site that satisfied the wetland hydrology criteria listed in the 1987 Manual and in the 2010 Midwest Region Supplement. Areas satisfying wetland hydrology criteria were delineated using both methods because both are in use at present, and to compare methodologies. However, to be a wetland, an area must also satisfy soil and vegetation criteria. The Illinois Natural History Survey (INHS) will combine the hydrologic data presented in this report with vegetation and soils data that 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 area that satisfied the wetland hydrology criteria shown in this report.

An area must be inundated or saturated for no less than 5% of the growing season to satisfy wetland hydrology criteria using the 1987 Manual, or a minimum of 14 consecutive days when using the 2010 Midwest Region Supplement. These areas will be identified as 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, especially where soil and/or vegetation are slow to respond or data from these components are inconclusive after site construction activities. To assist in proper characterization of wetland mitigation sites, this report shows areas that were inundated or saturated for at least 5% and 12.5% of the growing season, using the 1987 Manual. Areas satisfying wetland hydrology criteria in the 2010 Midwest Region Supplement (14 consecutive days during the growing season) are also shown. 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 Regional Climate Center (MRCC) at the Illinois State Water Survey (ISWS) provides data on the length and beginning and end dates of the growing season (MRCC 2015). In the 1987 Manual, the growing season is defined as the time period between the last occurrence of 28°F (-2.2°C) air temperatures in the spring and the first occurrence of 28°F (-2.2°C) air

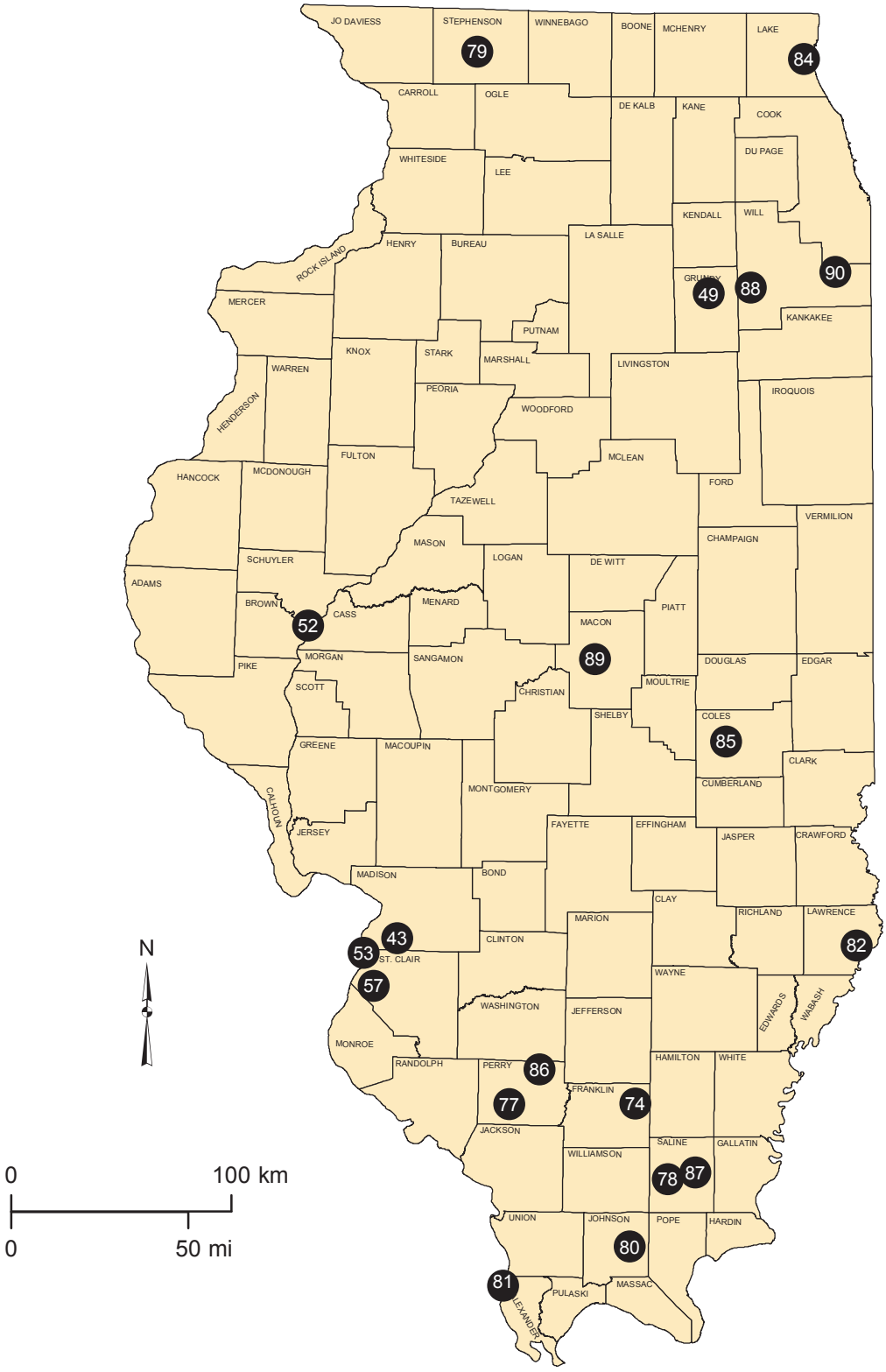

Figure 1 General locations of sites monitored by the ISGS for IDOT between September 1, 2014, and August 31, 2015. Numbers indicate ISGS project numbers listed in Table 1.

Table 1 ISGS project numbers and active IDOT wetland mitigation sites monitored by ISGS between September 1, 2014, and August 31, 2015.

ISGS Number	Site Name	Site Type	Project	FA #	Sequence #	County
43	Eckmann/Bischoff	Wetland Mitigation Site	N/A	FAP 14	27	Madison
49	Morris	Wetland Mitigation Bank	N/A	N/A	1306	Grundy
52	La Grange	Wetland Mitigation Bank	N/A	N/A	9579	Brown
53	Fairmont City	Potential Wetland Mitigation Site	N/A	FAP 14	27	St. Clair
57	Former Tiernan Property	Potential Wetland Mitigation Site	N/A	FAP 14	27	St. Clair
74	Sugar Camp Creek	Wetland and Stream Mitigation Bank	N/A	N/A	9282	Franklin
77	Pyramid Site EC25	Wetland Mitigation Site	Pyatts Blacktop	FAS 864	9778	Perry
78	Harrisburg, Site 2	Wetland Mitigation Site	IL 14	FAP 857	547	Saline
79	Former Weber Property	Wetland Mitigation Site	US 20	FAP 301	10487	Stephenson
80	Max Creek	Wetland Mitigation Site	IL 147	FAS 932	8717A	Johnson
81	East Cape Girardeau	Wetland Mitigation Site	IL 146	FAP 312	633A	Alexander
82	Lawrence County	Wetland Mitigation Bank	N/A	N/A	14912	Lawrence
84	North Chicago	Wetland Mitigation Site	IL 56/47	FAP 326	13406	Lake
85	Coles County	Wetland Mitigation Site	TR 1000N and TR 41	N/A	1273	Coles
86	Swan Road	Wetland Mitigation Site	TR 222	N/A	12315	Perry
87	Harrisburg, Site 3	Wetland Mitigation Site	US 45	FAP 332	N/A	Saline
88	Grant Creek North	Wetland Mitigation Site	I-55	FAI 55	N/A	Will
89	Stevens Creek Bikeway	Wetland Mitigation Site	Stevens Creek Bikeway	N/A	10630	Macon
90	Thorn Creek Headwaters Preserve	Wetland Mitigation Site	I-57/Stuenkel Road	FAI 57	12558	Will

Table 2 Summary of wetland hydrology area estimates for the 2015 growing season for active IDOT wetland mitigation sites monitored by ISGS between September 1, 2014, and August 31, 2015.

ISGS Number	Site Name	Target Compensation Area		>5% of growing season (1987 Manual)		>12.5% of growing season (1987 Manual)		14 days or more (2010 Midwest Region Supplement)	
		ha	ac	ha	ac	ha	ac	ha	ac
43	Eckmann/Bischoff	17.20	42.50	24.28	60.00	23.92	59.10	24.28	60.00
49	Morris	44.11	109.00	104.90	259.22	9.91	24.49	101.18	250.03
52	La Grange	414.40	1,024.00	586.82	1,450.07	585.61	1,447.06	586.40	1,449.02
53	Fairmont City	10.93	27.00	15.19	37.53	13.01	32.14	14.47	35.75
57	Former Tiernan Property	17.04	42.10	18.18	44.93	17.50	43.24	17.75	43.87
74	Sugar Camp Creek	28.00	69.20	29.15	72.03	28.69	70.89	29.15	72.03
77	Pyramid Site EC25	4.57	11.30	5.27	13.02	4.84	11.97	5.29	13.06
78	Harrisburg, Site 2	4.13	10.20	9.31	23.00	8.12	20.07	9.17	22.67
79	Former Weber Property	1.21	3.00	2.56	6.33	1.81	4.47	2.10	5.19
80	Max Creek	0.49	1.20	0.89	2.21	0.68	1.68	0.89	2.21
81	East Cape Girardeau	3.08	7.60	6.11	15.09	5.84	14.44	6.09	15.06
82	Lawrence County	13.62	33.65	12.97	32.06	12.76	31.53	13.48	33.31
84	North Chicago	N/A	N/A	17.84	44.08	17.48	43.20	17.76	43.89
85	Coles County	1.86	4.60	1.20	2.97	1.06	2.63	1.30	3.22
86	Swan Road	0.29	0.73	0.37	0.90	0.30	0.73	0.37	0.90
87	Harrisburg, Site 3	0.69	1.70	0.35	0.87	0.14	0.36	0.29	0.71
88	Grant Creek North	5.99	14.80	31.25	77.23	26.18	64.69	31.25	77.23
89	Stevens Creek Bikeway	6.03	14.89	10.27	25.38	9.11	22.50	9.91	24.49
90	Thorn Creek Headwaters Preserve	12.02	29.70	21.96	54.27	2.63	6.49	14.56	35.98

N/A - Denotes that the target compensation area for the mitigation project is not available.

temperatures in the fall. The median beginning date and length of the growing season are calculated by the MRCC 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. This method is used when determining the areas that satisfy wetland hydrology criteria under the 1987 Manual. The 2010 Midwest Region Supplement provides different methods for determining the growing season. While the above method is allowable, one of the two following site-specific methods is preferred. The first method relies on observations of vegetation growth and development, and defines the start of the growing season as when at least two different species of non-evergreen vascular plants begin to grow (colloquially referred to as “green-up”), as indicated by various features such as emergence of herbaceous plants from the ground, bud burst, emergence or opening of flowers, and others. The second method relies on soil temperatures, with the growing season being the period when soil temperatures at a depth of 30 cm (1 ft) are continuously above 41°F (5°C). Site-specific observations of soil temperatures and vegetation were collected by field staff. The earliest date when either methodology was satisfied was determined to be the beginning of the growing season, and was used when determining areas that satisfy wetland hydrology criteria under the 2010 Midwest Region Supplement. Soil temperatures were collected using analog bimetal thermometers at a depth of 30 cm (12 inches [in.]) during site visits, and some sites were equipped with soil-temperature data loggers for continuous readings. Also, the Illinois State Water Survey operates Illinois Climate Network (ICN) stations throughout the state that measure soil temperatures at 20 cm (8 in.). Those data were obtained from the Water and Atmospheric Resources Monitoring Program (WARM) website and used to supplement on-site readings as needed (WARM 2015).

Wells and surface-water gauges where water levels satisfied wetland hydrology criteria are indicated in the summary text for each site. Interpolation between measuring points and extrapolation were used to locate the boundary of the area that satisfied wetland hydrology criteria. Best professional judgment was used to refine the location of this boundary, using observations of saturation, small-scale topographic features, vegetation, soils, and other site features. The areas that satisfied wetland hydrology criteria were mapped using Esri’s ArcGIS 10.1 geographic information system software. Areas were calculated in acres [ac] in the GIS and converted to hectares [ha] (see Table 2).

The error of each area measurement varies depending on the quality, precision, scale of the topographic map, and the precision in measuring the location of monitoring devices. The base maps used for these determinations are orthorectified aerial imagery from the U.S. Department of Agriculture-Farm Service Agency (USDA-FSA) National Agricultural Imagery Program (NAIP) or base map imagery provided by Esri (2015). For most sites, detailed site topography was collected by IDOT (e.g., GPS or photogrammetry) or by ISGS (e.g., total station or GPS measurements) and was used for mapping wetland hydrology areas. In some cases, digital elevation models produced from LiDAR measurements (ISGS 2015) were also used to guide delineation of wetland hydrology polygons. Monitoring instruments were located using GPS devices or a total station. Given the many potential sources of error, estimates of the amount of error are difficult to calculate and are not included.

Water-level data ordinarily were collected monthly throughout the year, and biweekly during March through May, when the highest water levels generally occur in Illinois. As needed, biweekly readings were begun as early as February and/or extended into June and collected outside of the Spring period during floods or heavy precipitation events. Weekly readings were made at some sites to improve or check accuracy.

In Illinois, 5% of the growing season ranges from about 9 to 11 days, and 12.5% of the growing season ranges from about 23 to 29 days using the methods of the 1987 Manual. Therefore, two consecutive biweekly manual water-level measurements were required to satisfy wetland hydrology

criteria at 5% of the growing season, and three readings were required at 12.5% of the growing season. If fewer readings suggested wetland hydrology, then linear interpolation of the water levels was used to determine total number of days of inundation or saturation. Interpolation between two dates was not used if a water level was not recorded for both dates. Flooding that prevented measurement of any specific instrument was considered sufficient evidence of inundation for that site visit. Manual water-level measurements were often supplemented with various automated data loggers that measured daily or more frequently. These data loggers were used to determine the timing of hydrologic events, such as precipitation or flooding, that occurred between manual measurements. One manual measurement alone was generally considered insufficient to indicate inundation or saturation for a sufficient duration without the identification of a precipitation or flooding event that would have initiated the inundation or saturation. If conflicts occurred between automatic and manually recorded data, best professional judgment was used to solve any conflicts in data, and a specific note was added to the site summary in question. The same methods, including a minimum of two consecutive biweekly manual readings, were used to determine duration of inundation or saturation to satisfy the 14-day requirement of the 2010 Midwest Region Supplement.

Monitoring wells were given an alphanumeric designation based in part on their relative depths. Monitoring wells designated with an ‘S’ or ‘VS’ are shallow and were specifically constructed for measuring wetland hydrology in the soil zone. Monitoring wells designated with a ‘U’ (i.e., upper) have varying depths but are deeper than ‘S’ wells, and may be used to determine wetland hydrology depending on well construction and hydrogeologic setting, as determined by the project manager. Other types of wells, including those designated with ‘M’, ‘L’, or ‘D’ (i.e., middle, lower, and deep), 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 are not listed or discussed in the text of this report.

Graphs for each site show water-level elevations at wells and surface-water instruments, and the depth to water below land surface at each well. The graphs follow the summary text for each site, and there may be multiple charts for each site. Depths are shown as negative values when water levels are above land surface. Elevations are shown relative to the North American Vertical Datum of 1988 (NAVD, 1988) unless otherwise labeled. If no data are shown on the charts for any specific well or gauge, then the well or gauge was either dry, not read, or the data were removed for quality-control purposes (see below).

At most sites, data loggers were used to monitor water levels at regular intervals ranging from daily to hourly. Various types of loggers were used and each type of instrument has different operations and default values. We have removed readings that result when the instrument sensor was dry (i.e., zero or other default values). Other spurious readings that occurred due to data-logger malfunction or natural conditions that caused inaccuracies (e.g., freezing, vegetation growth, or debris accumulation beneath the logger) were removed after interpretation by ISGS scientists. For some sites, stage data from gauges operated by the USGS, USACE, or the U.S. Forest Service (USFS) were obtained from online or other sources (USGS 2015, USACE 2015, USFS 2015) and used to supplement ISGS data in evaluations of hydrologic conditions.

On-site precipitation data were collected by the ISGS using 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. None of the ISGS rain gauges are heated and therefore are not appropriate for recording winter precipitation. However, monthly precipitation data obtained from MRCC climate observation stations are provided to show monthly precipitation throughout the year. The closest weather station with an adequate period of record was used for each site; however, additional stations or data collected by the ISGS at the site may be used to supplement the record if data from the

closest station are missing. Normal (i.e., average) precipitation values and above- and below-normal range threshold values were calculated by the National Water and Climate Center (NWCC 2015). Normals and range threshold values were based on a 30-year period, either 1961-1990 or 1971-2000. Above- and below-normal thresholds were calculated using a 2-parameter gamma distribution over the 30-year period (NWCC 1995). Precipitation is classified as "above 30% threshold", or above the normal range, when there is a 30% chance precipitation will be greater than or equal to the value shown. Precipitation is "below 30% threshold", or below the normal range, when there is a 30% chance that precipitation will be less than or equal to the value shown. Monthly total precipitation is considered to be within the normal range when it is neither above nor below the 30% thresholds. Precipitation also may be described simply as above or below normal, where the above- and below-normal range threshold values are not shown.

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

This material is based upon work supported by the Illinois Department of Transportation under grants D7129 and D71295. Any opinions, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the Illinois Department of Transportation.

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ECKMANN/BISCHOFF **ISGS #43**
WETLAND MITIGATION SITE
FAP 14
Sequence #27
Madison County, near Collinsville, Illinois
Primary Project Manager: Steven E. Benton
Secondary Project Manager: Matthew J. Even

SITE HISTORY

- March 2009: The IDOT tasked ISGS to resume monitoring of the site.

- April 2009: The ISGS installed a monitoring network at the site and resumed data collection.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Eckmann/Bischoff wetland mitigation site is 17.20 ha (42.50 ac). Using the 1987 Manual (Environmental Laboratory 1987), 24.28 ha (60.00 ac) of the total site area of 25.50 ha (63.00 ac) satisfied wetland hydrology criteria for greater than 5% of the growing season and 23.92 ha (59.10 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 24.28 ha (60.00 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Belleville, Illinois, is April 4 and the season lasts 204 days (MRCC 2015); 5% of the growing season is 10 days and 12.5% of the growing season is 26 days, using the 1987 Manual. Using the 2010 Midwest Region Supplement, March 19 was the starting date of the 2015 growing season based on soil temperatures measured on site and at the nearby Fairmont City wetland mitigation site (ISGS #53).

- Total precipitation for the monitoring period, recorded at Belleville, Illinois (MRCC station #110510), was 127% of normal, precipitation in Spring 2015 (March through May) was 136% of normal, and the wettest month was June at 240% of normal.

- In 2015, water levels measured in all soil-zone monitoring wells satisfied wetland hydrology criteria for greater than 5% of the growing season, and water levels measured in all soil-zone monitoring wells except 5S satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. In addition, using the 2010 Midwest Region Supplement, all soil-zone monitoring wells satisfied wetland hydrology criteria for 14 or more consecutive days of the growing season.

- Surface-water elevations measured at the SW1 data logger and gauges A, C, and D revealed that areas of the site at and below an elevation of 124.44 m (408.27 ft) were inundated for greater than 5% of the growing season, and that areas at and below an elevation of 124.32 m (407.87 ft) were inundated for greater than 12.5% of the growing season, using the 1987 Manual. In addition, using the 2010 Midwest Region Supplement, areas of the site at and below an elevation of 124.39 m (408.10 ft) were inundated for 14 or more consecutive days of the growing season.

ADDITIONAL INFORMATION

- Water levels measured by the data loggers in monitoring wells 6S and 8S revealed that the longest periods of saturation started in June, the wettest month during the monitoring period, and extended into July. At well 6S, the period was 29 days from 6/15 to 7/14, and at well 8S, the period was 30 days from 6/8 to 7/8.

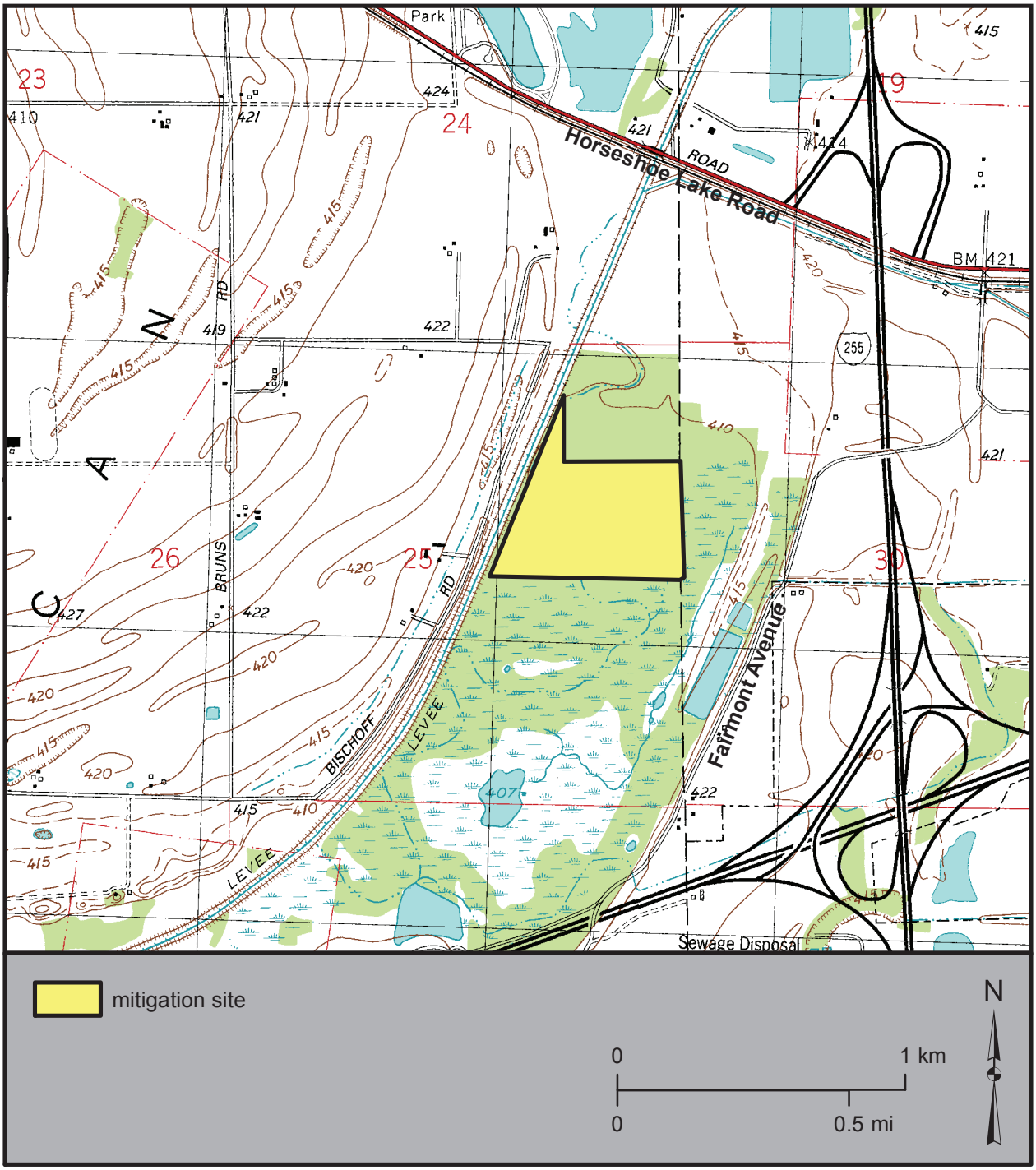
PLANNED FUTURE ACTIVITIES

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

- A logger will be installed near Gauge B in order to determine if the source of surface water at this location is different than the source at SW1, and gauges A, C, and D.

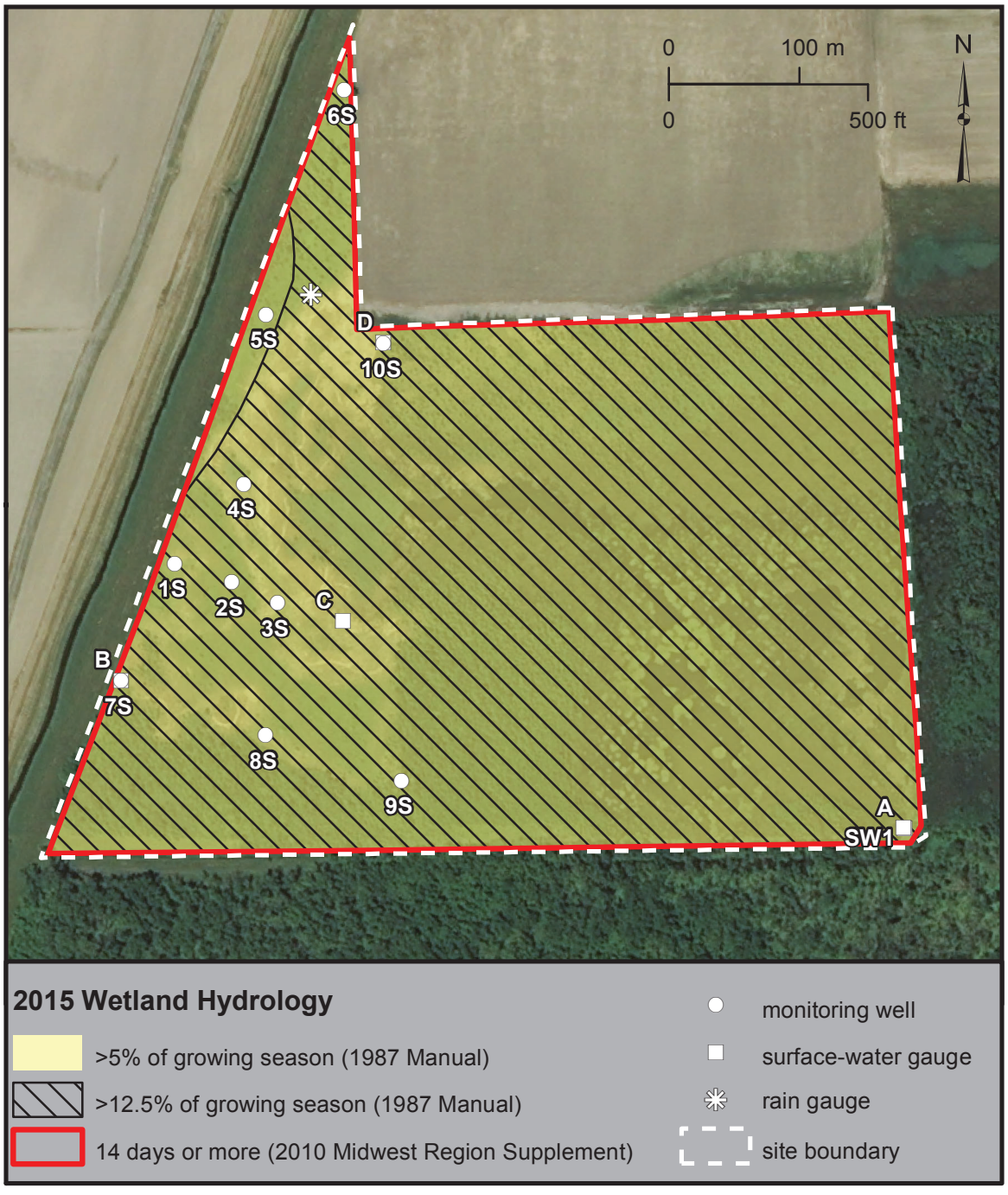
Eckmann/Bischoff Wetland Mitigation Site
(FAP 14)
General Study Area and Vicinity

from the USGS Topographic Series, Monks Mound, IL, 7.5-minute quadrangle (USGS 1954b)



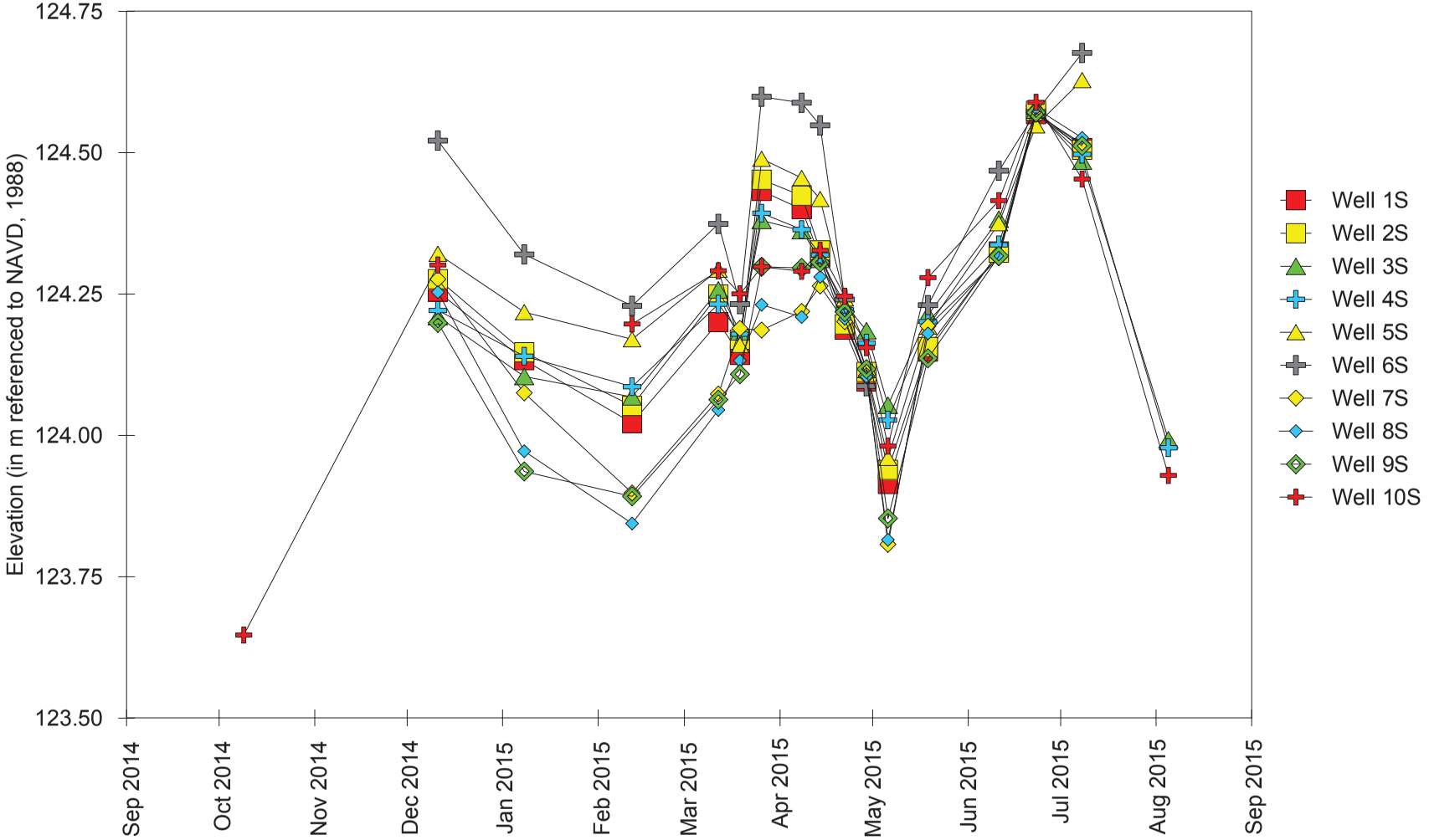
Eckmann/Bischoff Wetland Mitigation Site
(FAP 14)
Estimated Areal Extent of 2015 Wetland Hydrology
September 1, 2014 through August 31, 2015

Map based on 2012 Farm Service Agency
digital orthophotography, Madison County, Illinois (USDA-FSA 2012)



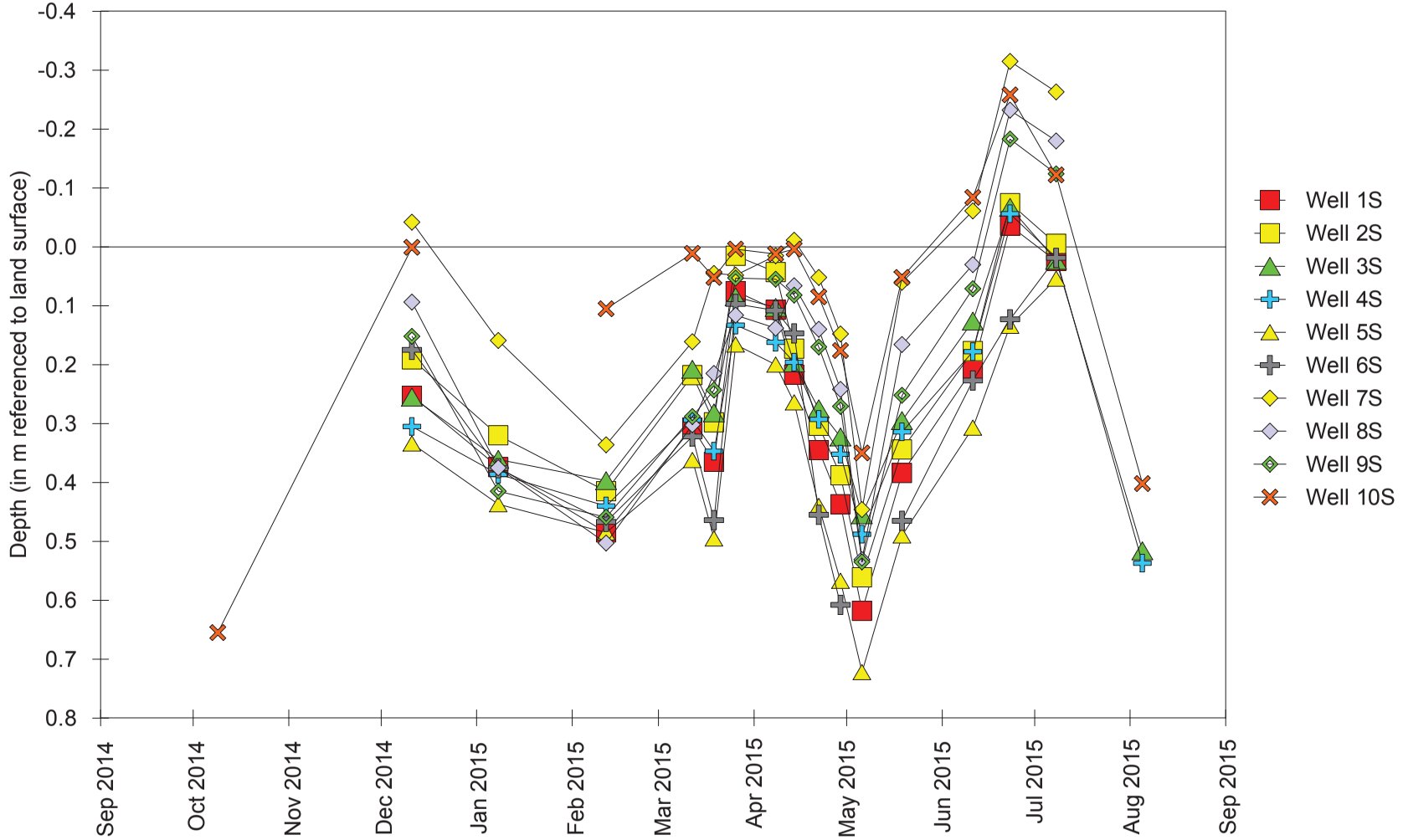
Eckmann/Bischoff Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells



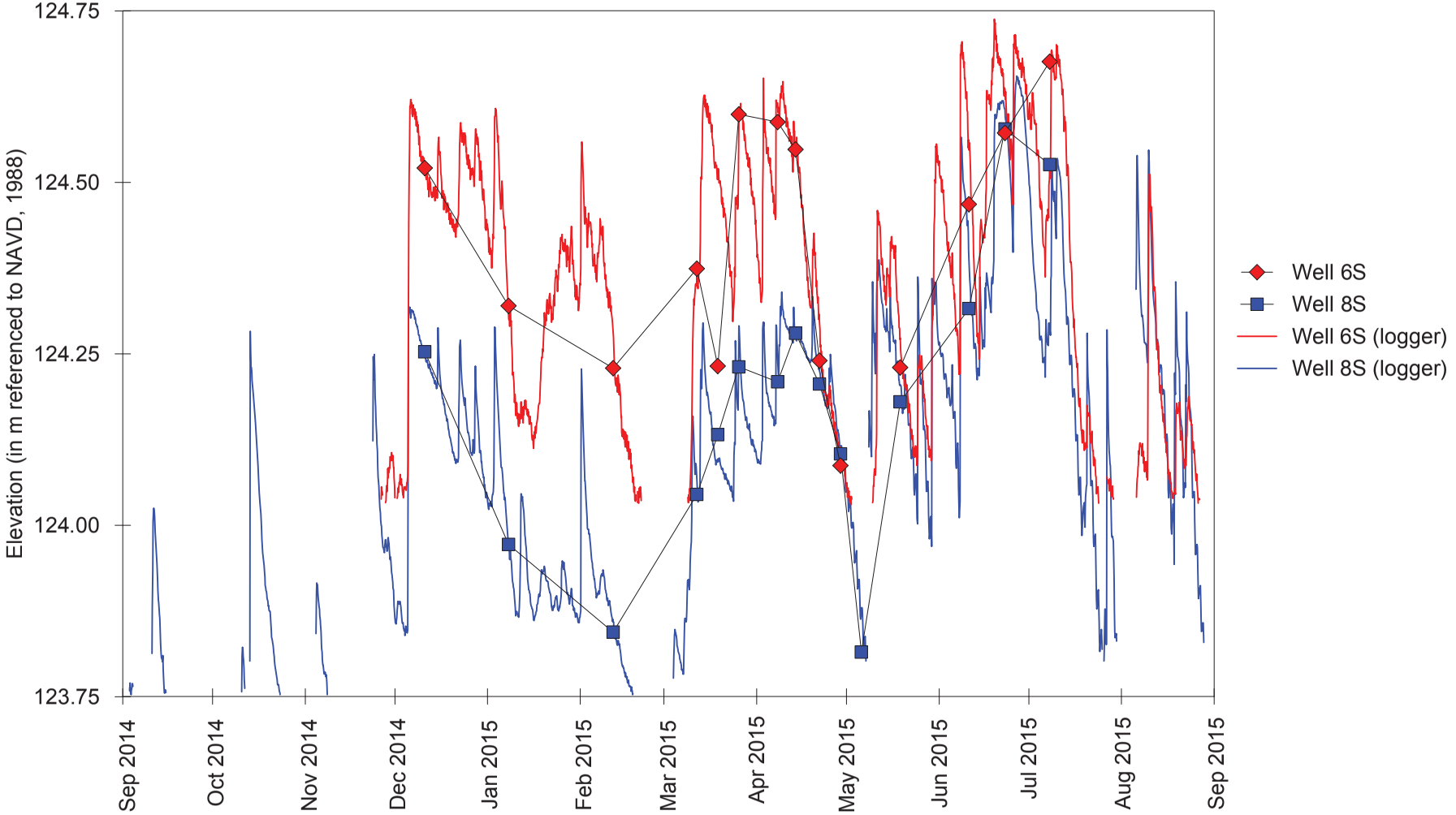
Eckmann/Bischoff Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water in Monitoring Wells

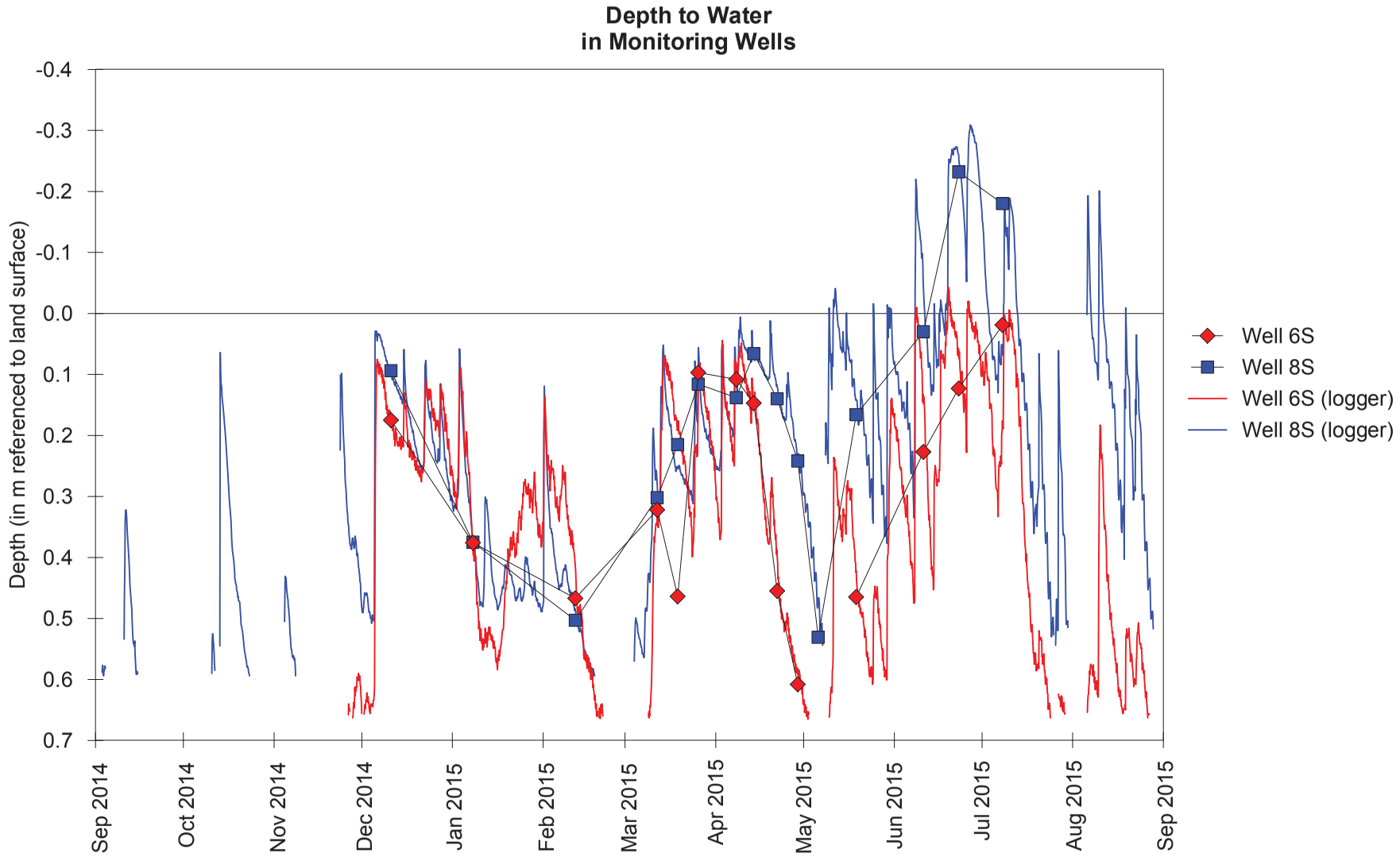


Eckmann/Bischoff Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells

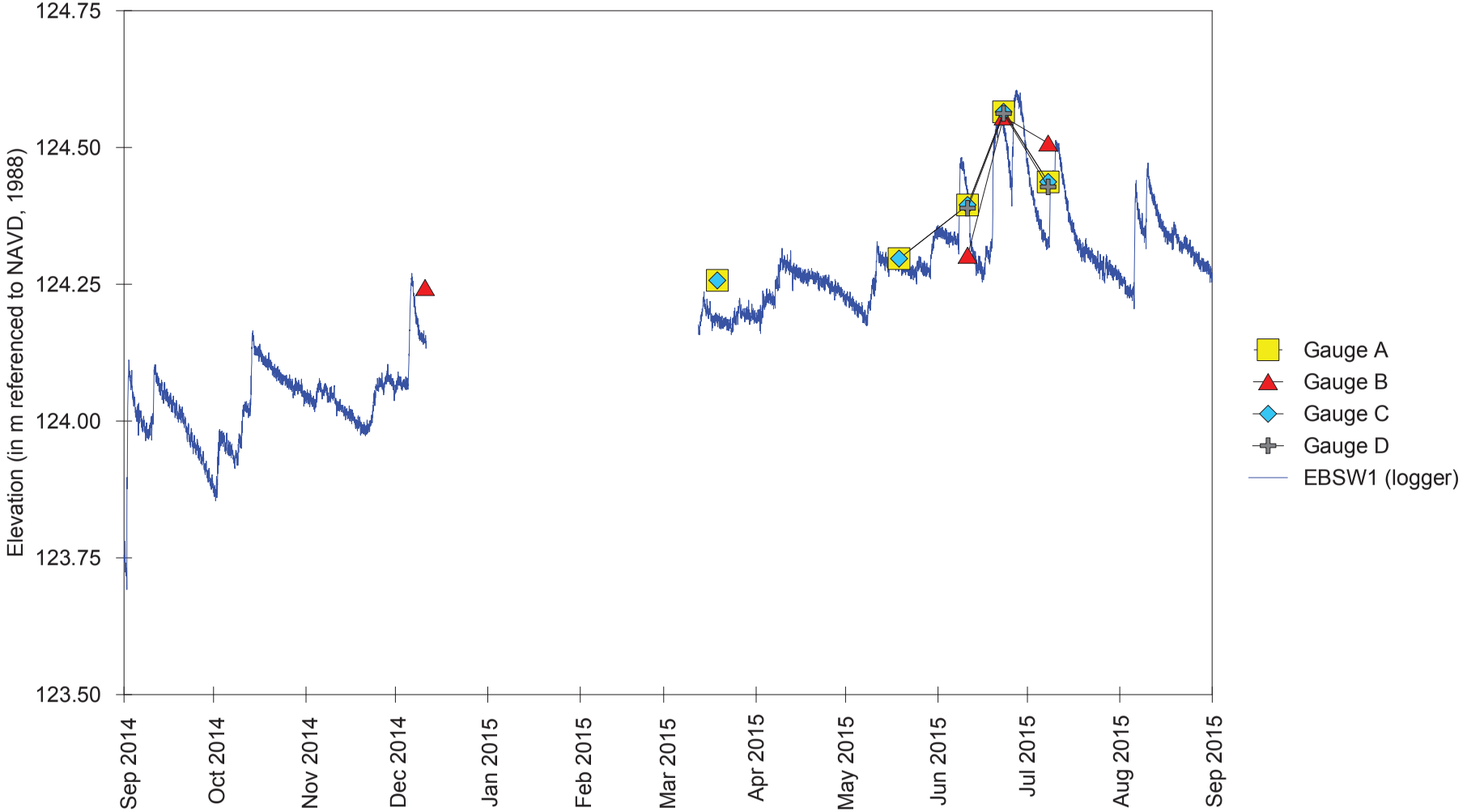


Eckmann/Bischoff Wetland Mitigation Site
September 1, 2014 through August 31, 2015



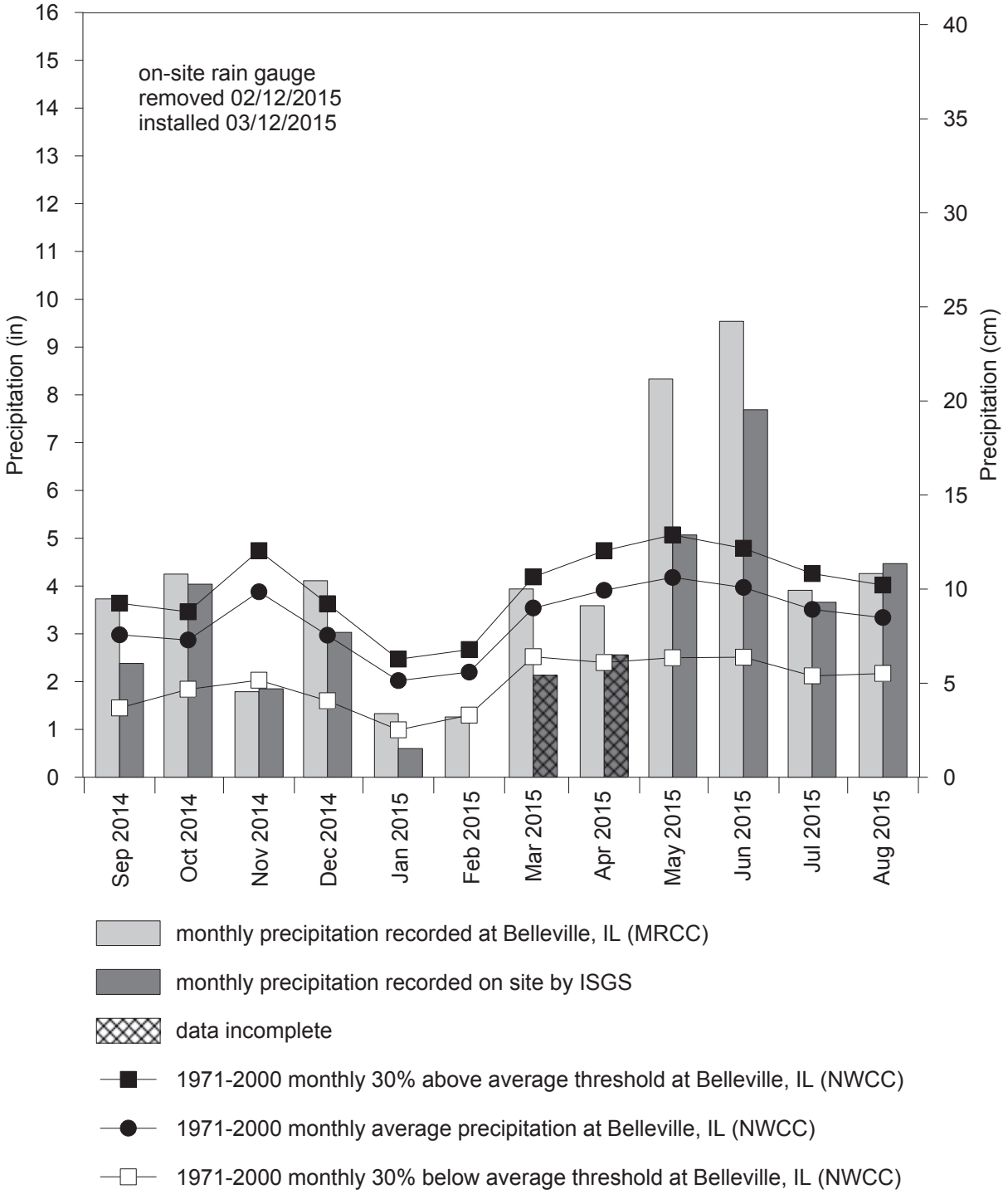
Eckmann/Bischoff Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



Eckmann/Bischoff Wetland Mitigation Site
September 2014 through August 2015

Total Monthly Precipitation Recorded on Site and at Belleville, IL (MRCC station #110510)



MORRIS **ISGS #49**
WETLAND MITIGATION BANK
Sequence #1306
Grundy County, near Morris, Illinois
Primary Project Manager: Eric T. Plankell
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- March 1999: The ISGS was tasked by IDOT to begin monitoring for a potential wetland banking site.

- March 2007: A Level II hydrogeologic characterization report was submitted to IDOT (ISGS Open-File Series 2007–03).

- February 2009: IDOT specified that monitoring of surface-water inundation and floodwater storage functions would be limited to an off-site USACE river gauge and two on-site data loggers.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Morris wetland mitigation bank is 44.11 ha (109.00 ac). Using the 1987 Manual (Environmental Laboratory 1987), 104.90 ha (259.22 ac) of the total site area of 341.56 ha (844.00 ac) satisfied wetland hydrology criteria for greater than 5% of the growing season, and 9.91 ha (24.49 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 101.18 ha (250.03 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in Morris, Illinois, is April 12, and the season lasts 200 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 10 days, and 12.5% of the growing season is 25 days. Using the 2010 Midwest Region Supplement, March 31 was the starting date of the 2015 growing season based on soil temperatures measured at the nearby Grant Creek North wetland mitigation site (ISGS Site #88).

- Total precipitation for the monitoring period at Morris, Illinois (MRCC station #115825), was 119% of normal. During Spring 2015 (March through May), precipitation was 84% of normal. In June 2015, 15.9 inches of precipitation (308% of normal) was recorded and led to flooding along the Illinois River, resulting in sustained inundation of large areas of the site during the 2015 growing season.

- Surface-water levels measured at Gauge SW8 indicated inundation across the site at and below 150.88 m (495.01 ft) for greater than 5% of the growing season, using the 1987 Manual. Surface-water levels measured at Gauge SW8 indicated inundation across the “spider field” at and below 150.65 m (494.26 ft) for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, surface-water levels measured at Gauge SW8 indicated inundation across the site at and below 150.78 m (494.69 ft) for 14 or more consecutive days of the growing season.

- Surface-water levels measured at Gauge SW2 exceeded bank-full elevations three times during the growing season. However, during the June flood event, water levels on the Mazon River inundated Gauge SW2, resulting in an incomplete data record and the

ultimate malfunction of the data logger. Prior to destruction of the gauge, surface-water levels measured at Gauge SW2 indicated inundation at and below 150.41 m (493.47 ft) for greater than 5% of the growing season, but surface-water levels on the Mazon River did not remain above bankfull elevations for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, surface-water levels measured at Gauge SW2 indicated inundation at and below 150.41 m (493.47 ft) for 14 or more consecutive days of the growing season.

- Gauge SW43 stopped working during the 2015 growing season, and no data was recovered from this logger for the June flood.

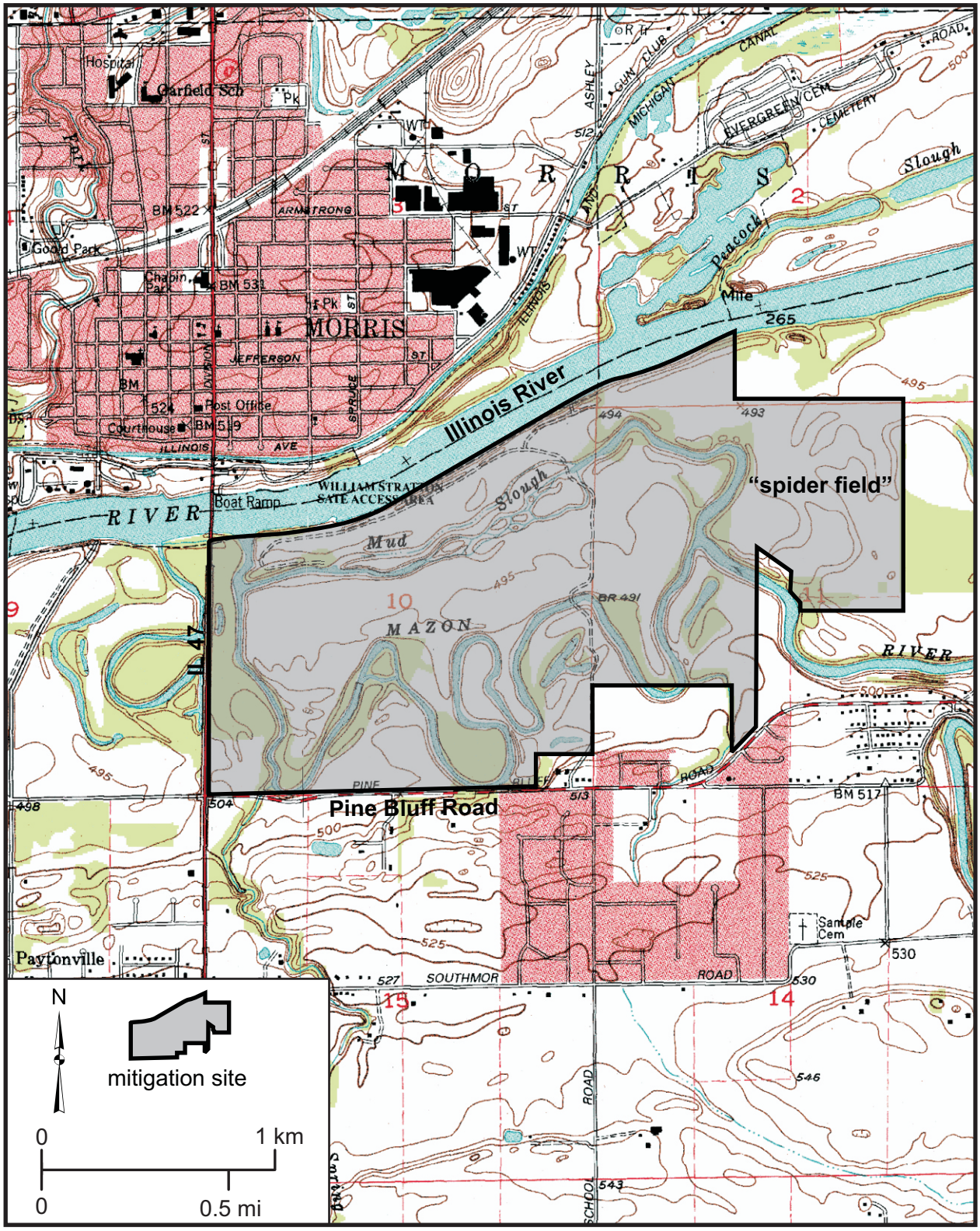
PLANNED FUTURE ACTIVITIES

- Monitoring of surface water via three on-site ISGS data loggers and the off-site USACE river gauge at Morris will continue until no longer required by IDOT. The continued aim will be to watch for significant changes in the on-site wetland hydrology acreage or site functions.

Morris Wetland Mitigation Bank

General Study Area and Vicinity

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

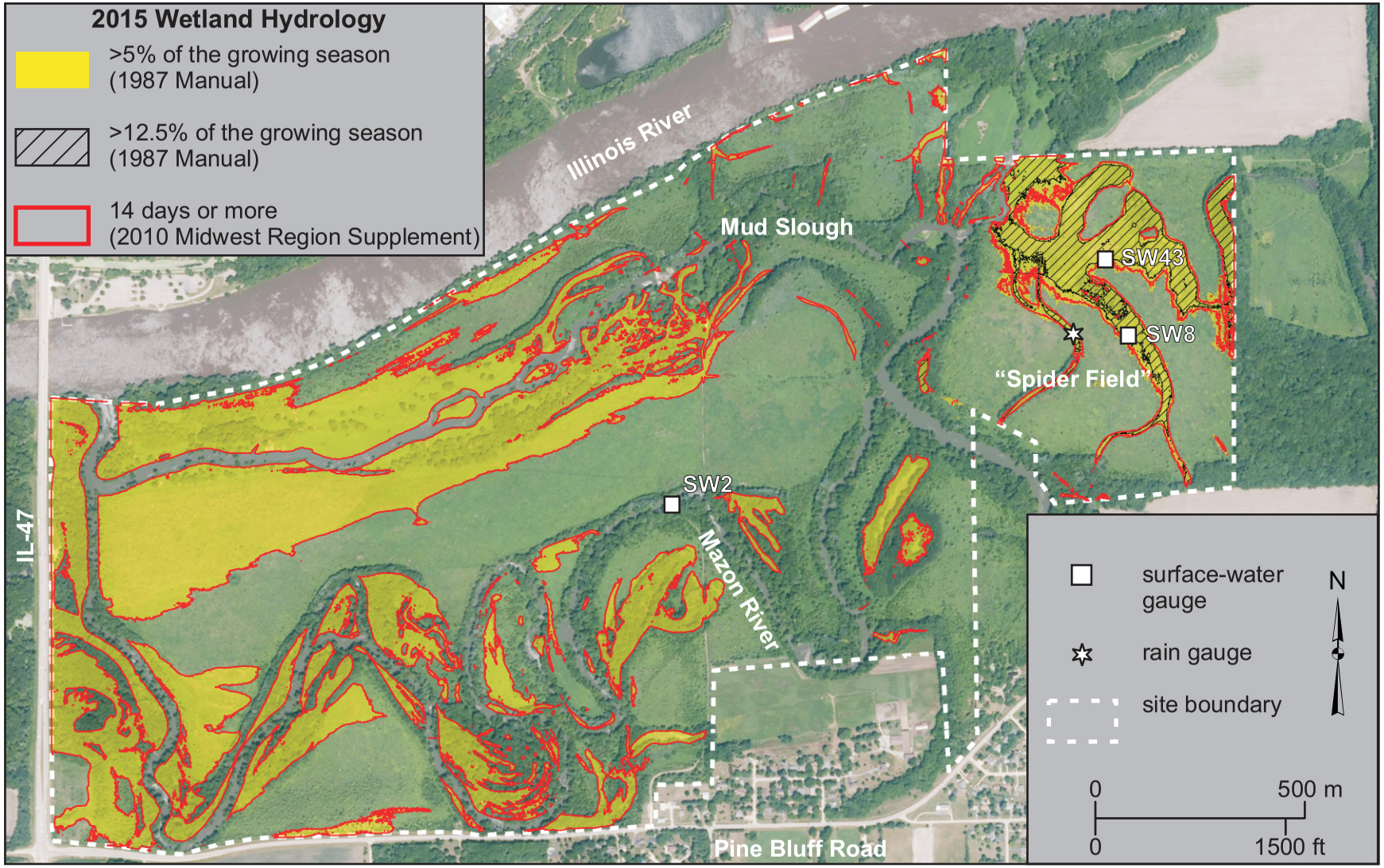


Morris Wetland Mitigation Bank

Estimated Areal Extent of 2015 Wetland Hydrology

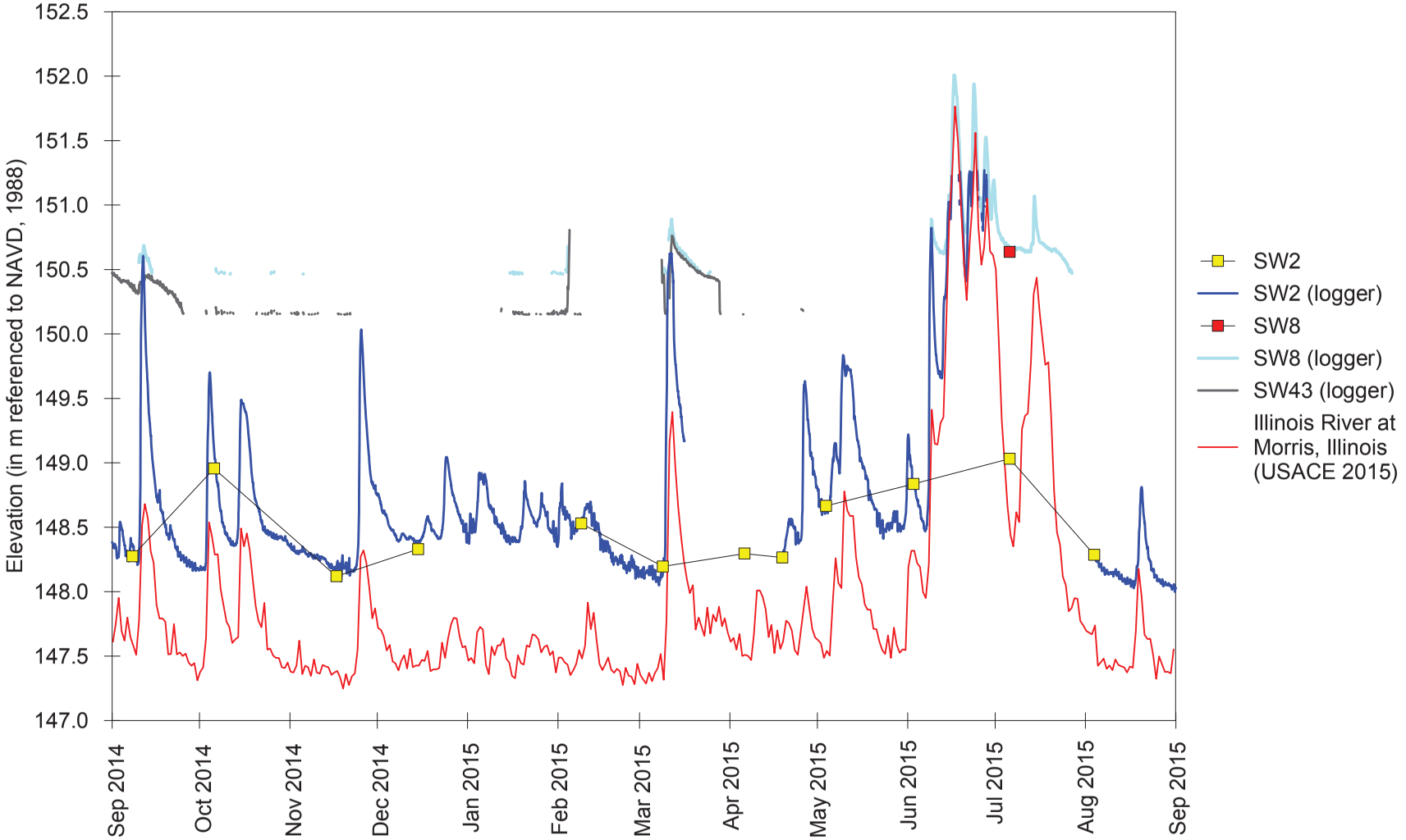
September 1, 2014 through August 31, 2015

Map based on imagery available from Esri (Esri 2015)



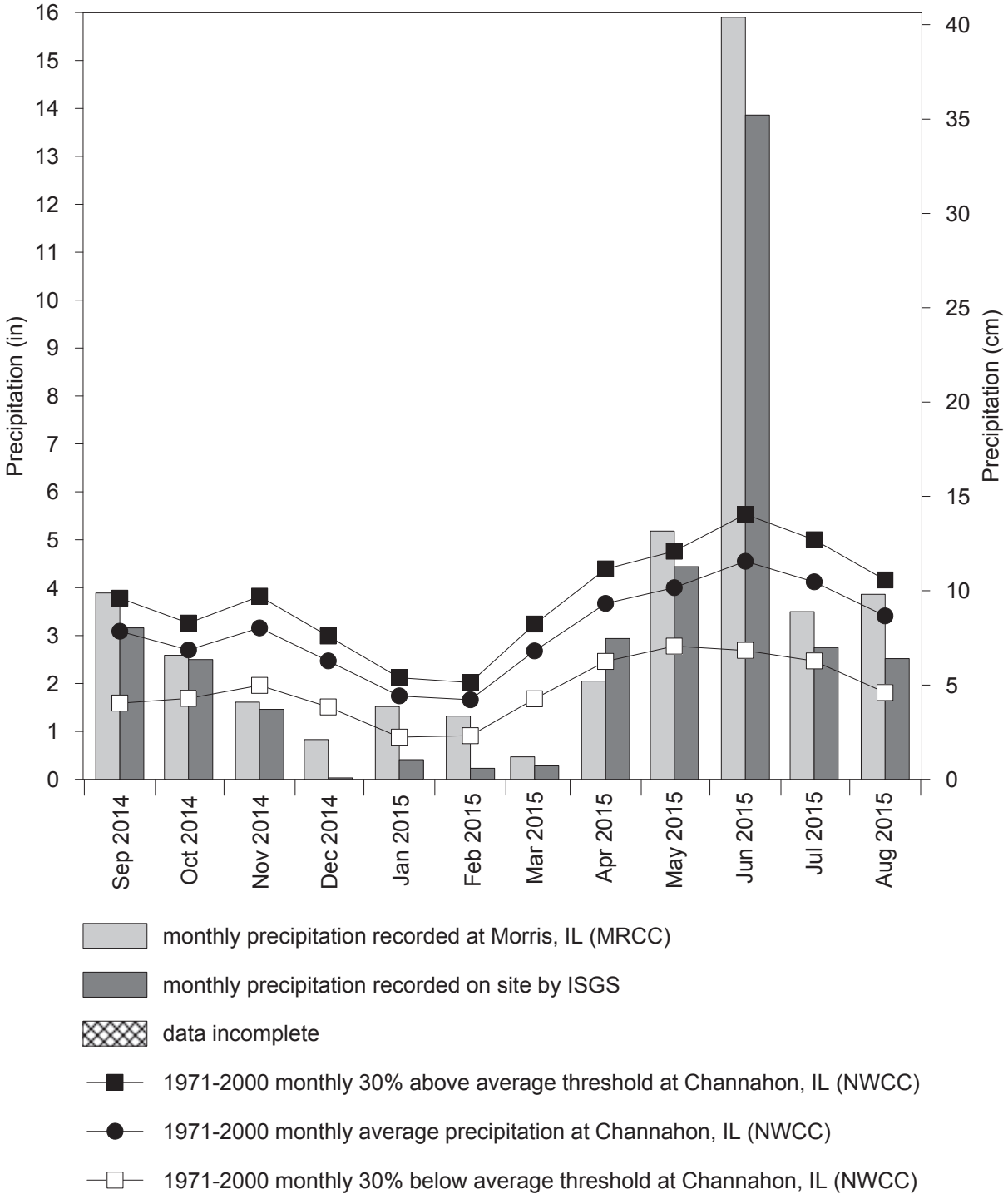
Morris Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



Morris Wetland Mitigation Bank
September 2014 through August 2015

Total Monthly Precipitation Recorded on Site and at Morris, IL (MRCC station #115825)



LA GRANGE **ISGS #52**
WETLAND MITIGATION BANK
Sequence #9579
Brown County, near La Grange, Illinois
Primary Project Manager: Geoffrey E. Pociask
Secondary Project Manager: Keith W. Carr

SITE HISTORY

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

- January 2003: The ISGS submitted a wetland banking instrument to IDOT.

- January 2005: A Level II hydrogeologic characterization report was submitted to IDOT (ISGS Open-File Series 2005–02).

- Fall 2005 and 2006: Extensive earthworks were undertaken by IDOT, including filling and plugging of several ditches, reshaping of the east levee, constructing a raised access road, and excavating a large basin in the north-central area of the site.

- Summer 2011: Further earthworks were undertaken at the site. The former basin of Amelia Barker Lake was widened and the fill was utilized for road construction.

- Fall 2011: Trees were planted in portions of Fields 12, 13, 14, and 15 and in areas surrounding Amelia Barker Lake.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the La Grange wetland mitigation bank is 414.40 ha (1,024.00 ac). Using the 1987 Manual (Environmental Laboratory 1987), 586.82 ha (1,450.07 ac) of the total site area of 665.72 ha (1,645.00 ac) satisfied wetland hydrology criteria for greater than 5% of the growing season and 585.61 ha (1,447.06 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 586.40 ha (1,449.02 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Rushville, Illinois, is April 5, and the season lasts 212 days (MRCC 2015); 5% of the growing season is 11 days, and 12.5% of the growing season is 27 days, using the 1987 Manual. Using the 2010 Midwest Region Supplement, March 15 was the starting date of the 2015 growing season based on soil temperatures measured on site.

- Total precipitation for the monitoring period at Rushville, Illinois (MRCC station #117551), was 131% of normal. During Spring 2015 (March through May), precipitation was 86% of normal. Precipitation during June was particularly excessive with rainfall 351% of normal.

- In 2015, water levels at all soil-zone monitoring wells satisfied wetland hydrology criteria for greater than 5% and for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, all soil-zone monitoring wells satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season.

- Data from the river gauge at the La Grange Lock and Dam (USACE 2015) and on-site dataloggers indicated that the Illinois River flooded portions of the site three times during the growing season in 2015 including a record flood that peaked on July 2.

- Data from Gauge SW19 indicated that areas at and below 135.78 m (445.47 ft) and 135.51 m (444.59 ft) were inundated for greater than 5% and for greater than 12.5% of the growing season, respectively, using the 1987 Manual. Data from Gauge SW19 also indicated that areas at and below 135.65 m (445.05 ft) were inundated for 14 or more consecutive days during the growing season, using the 2010 Midwest Regional Supplement. Gauge SW17 was inundated from June into August 2015 and all wetland hydrology criteria were met at this location.

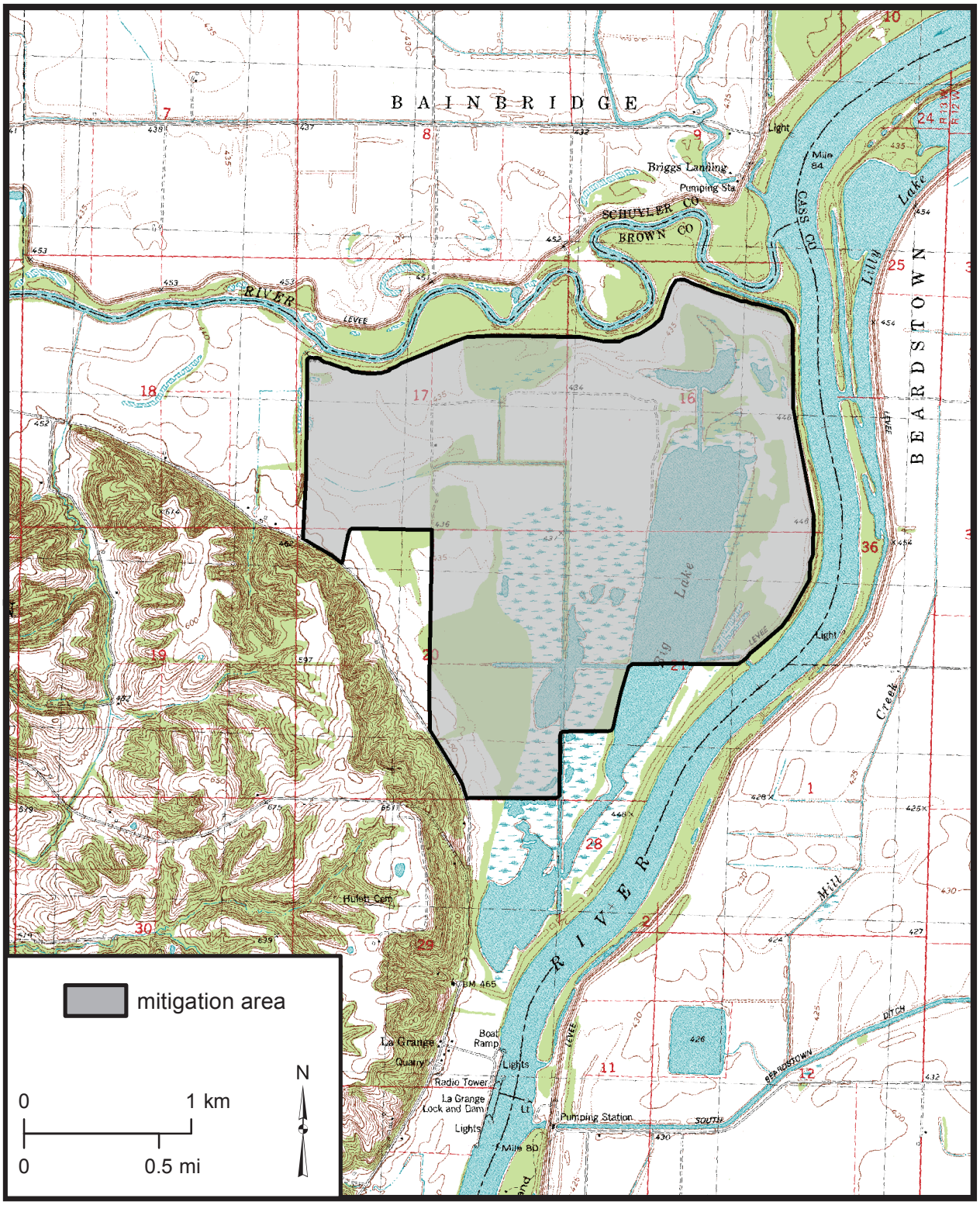
PLANNED FUTURE ACTIVITIES

- The ISGS will monitor hydrology at this site until no longer required by IDOT.

La Grange Wetland Mitigation Bank

General Study Area and Vicinity

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



La Grange Wetland Mitigation Bank

Management Areas

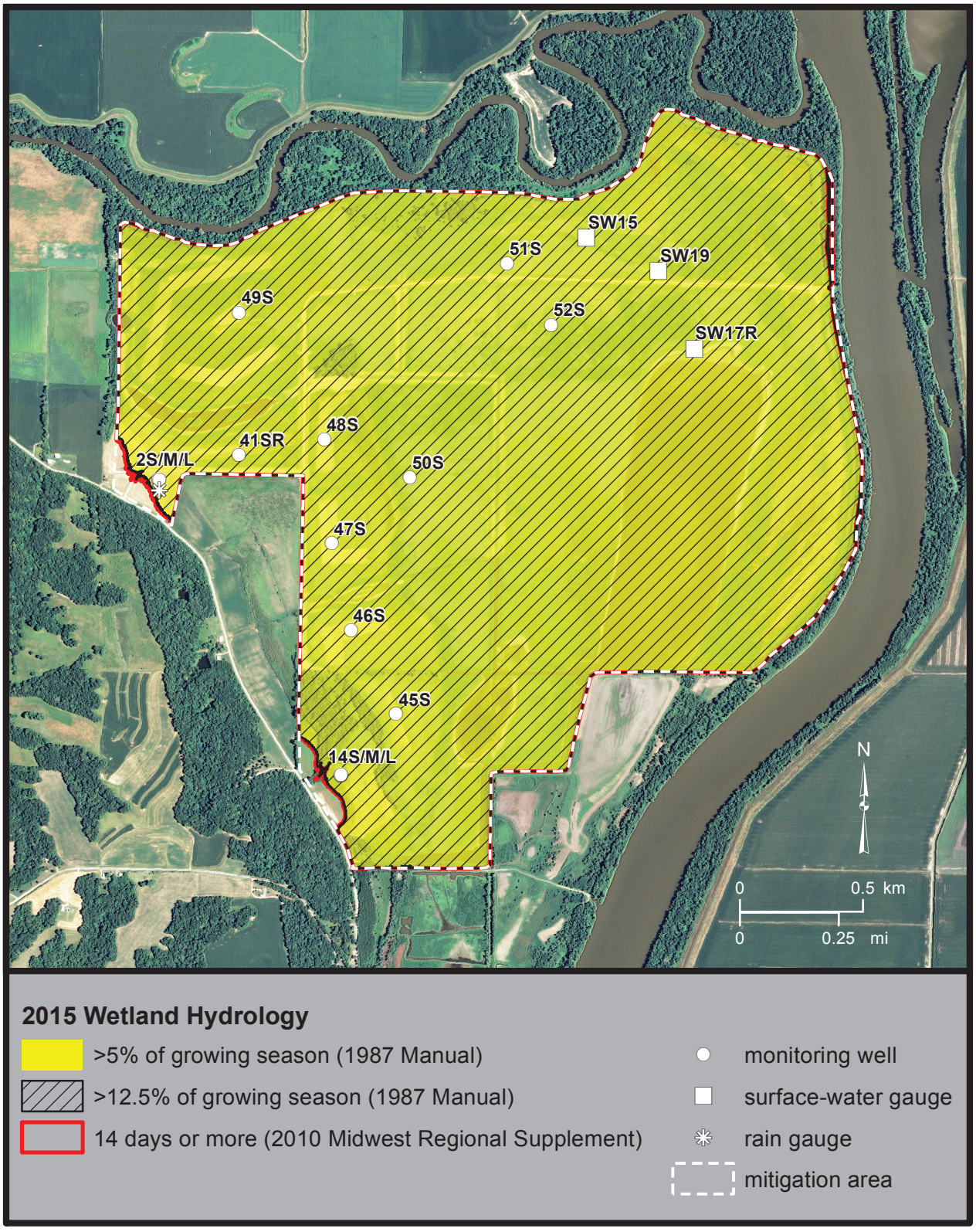
Map based on 2012 Farm Service Agency digital orthophotography, Brown County, Illinois (USDA-FSA 2012)

La Grange Wetland Mitigation Bank

Estimated Areal Extent of 2015 Wetland Hydrology

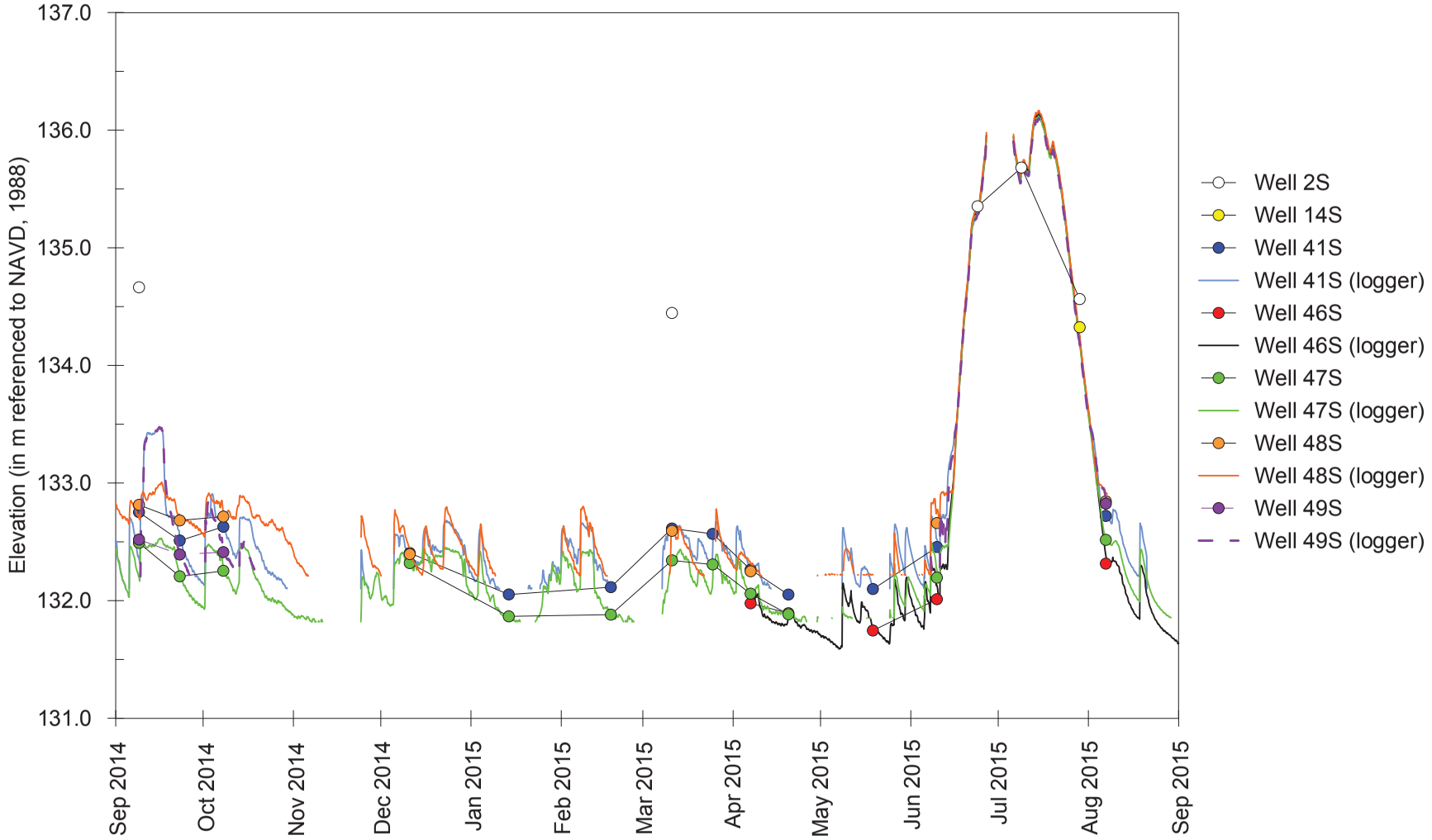
September 1, 2014 through August 31, 2015

Map based on 2012 Farm Service Agency digital orthophotography, Brown County, Illinois (USDA-FSA 2012)



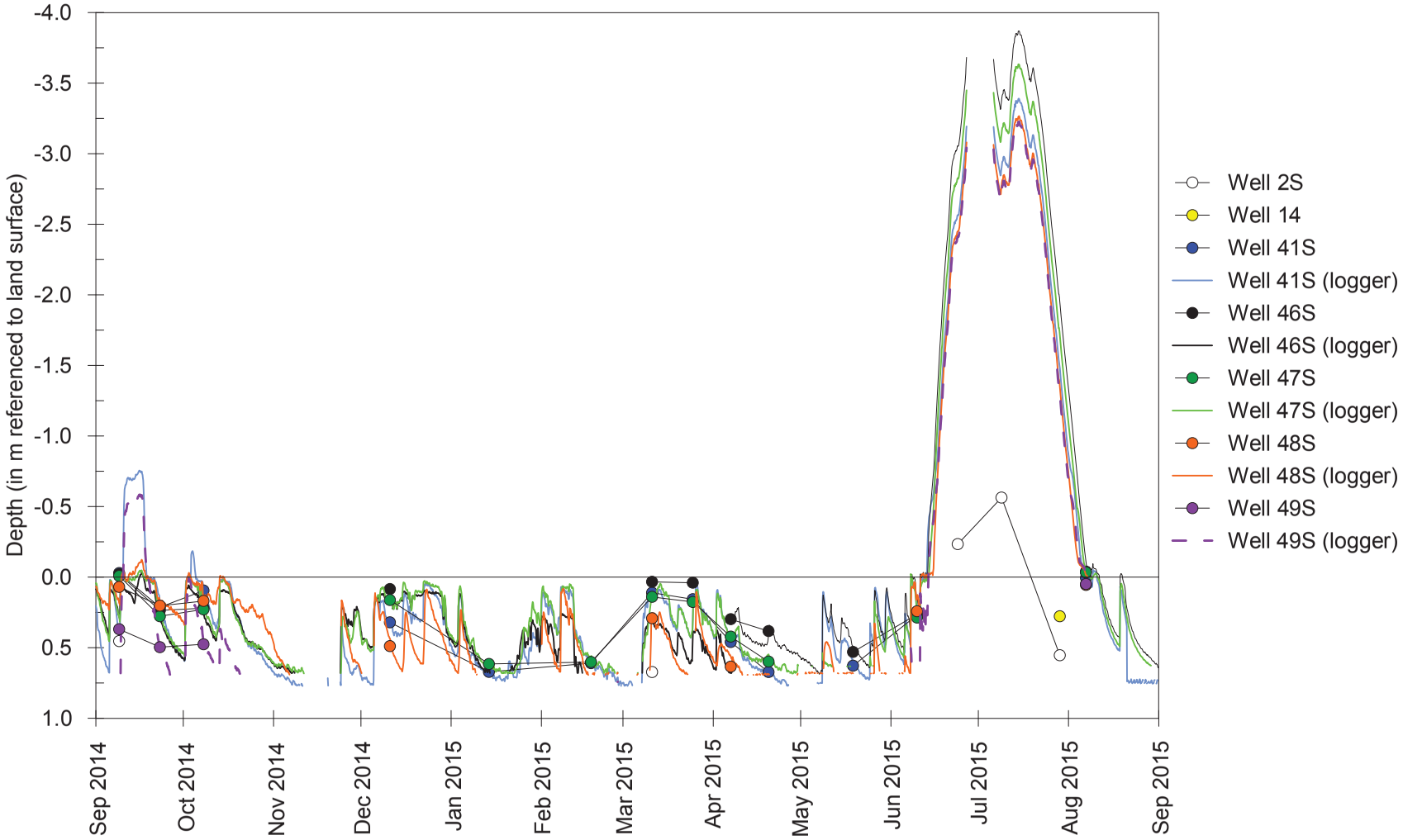
La Grange Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations in Shallow Monitoring Wells



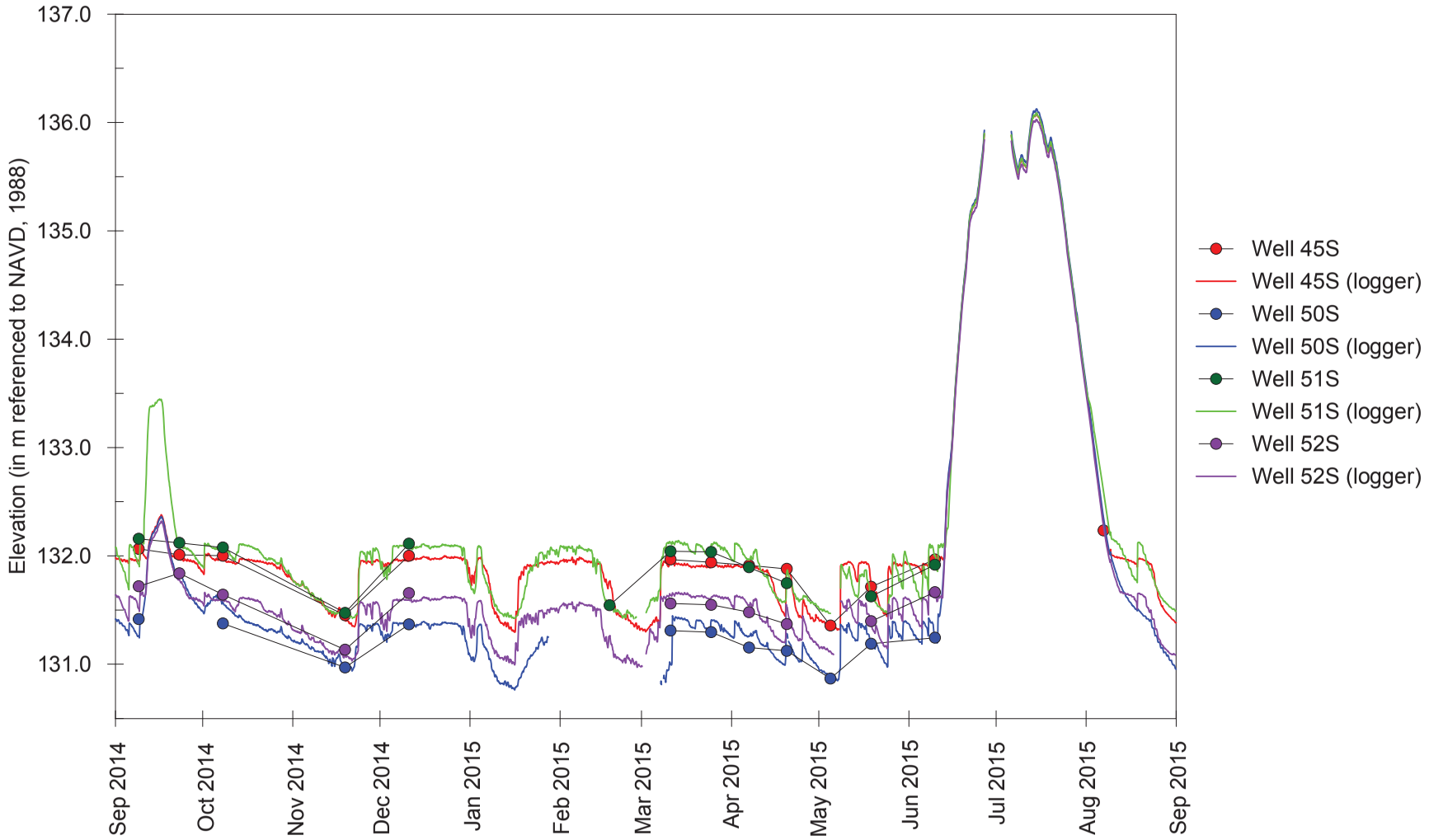
La Grange Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow Monitoring Wells



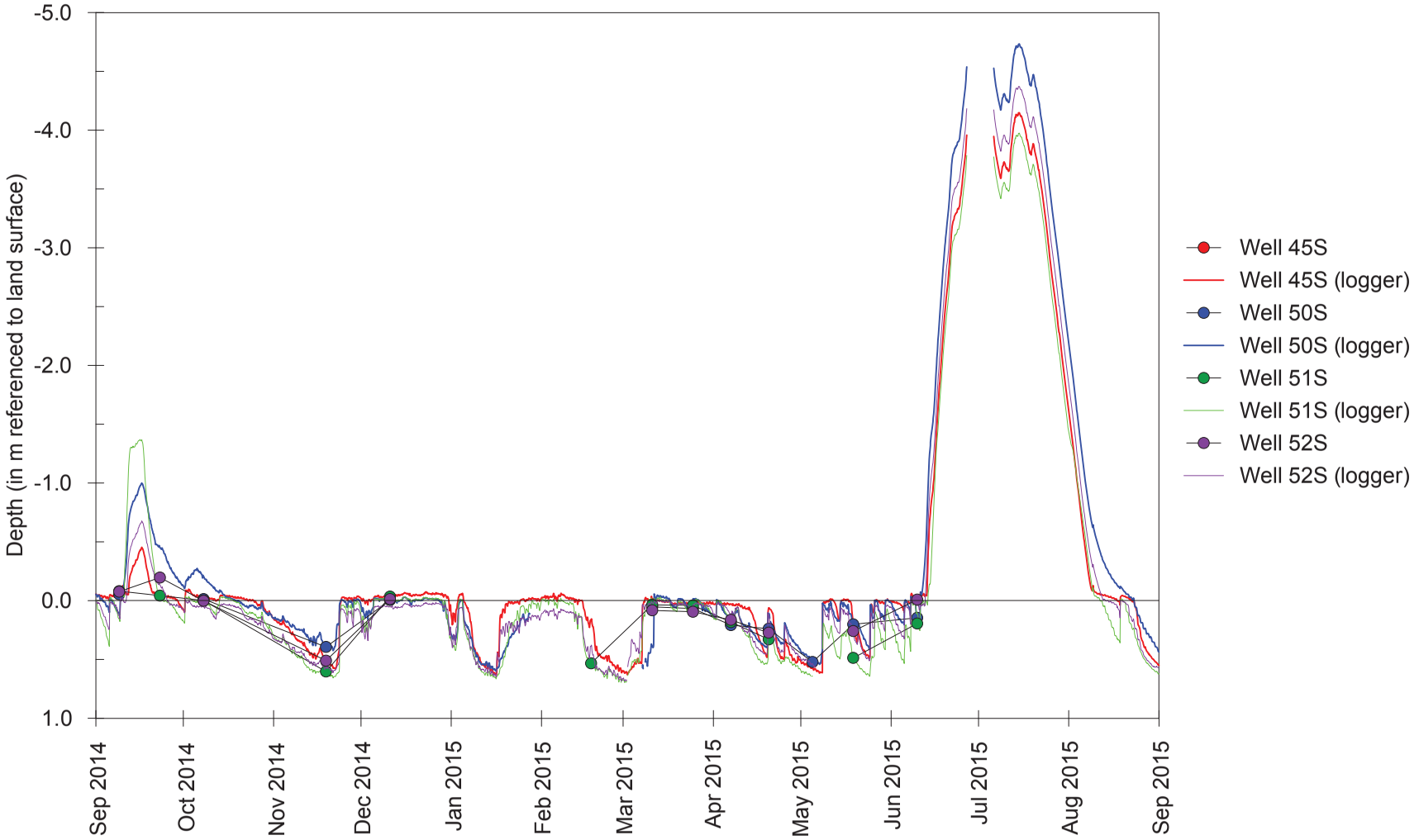
La Grange Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations in Shallow Monitoring Wells



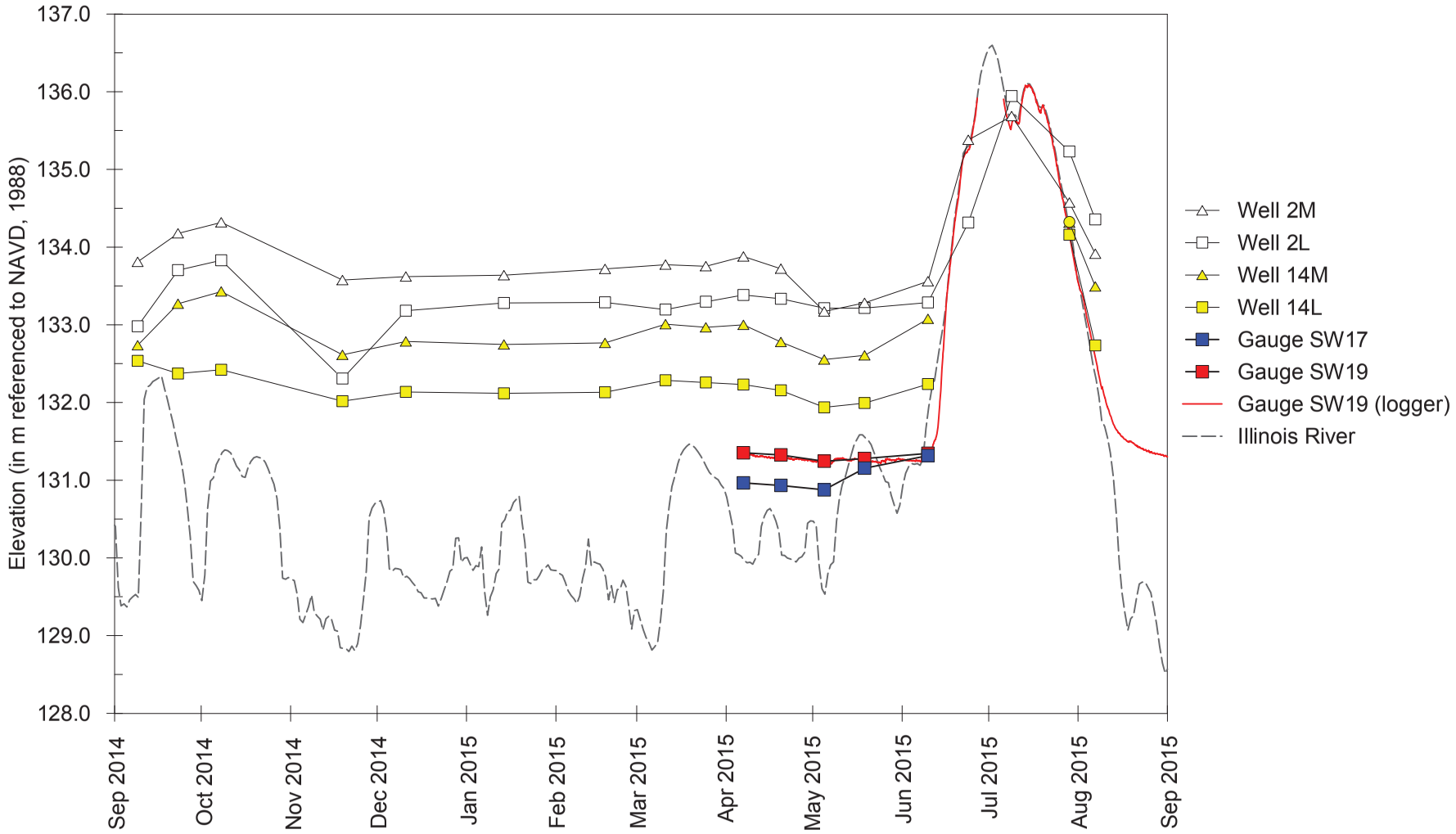
La Grange Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow Monitoring Wells



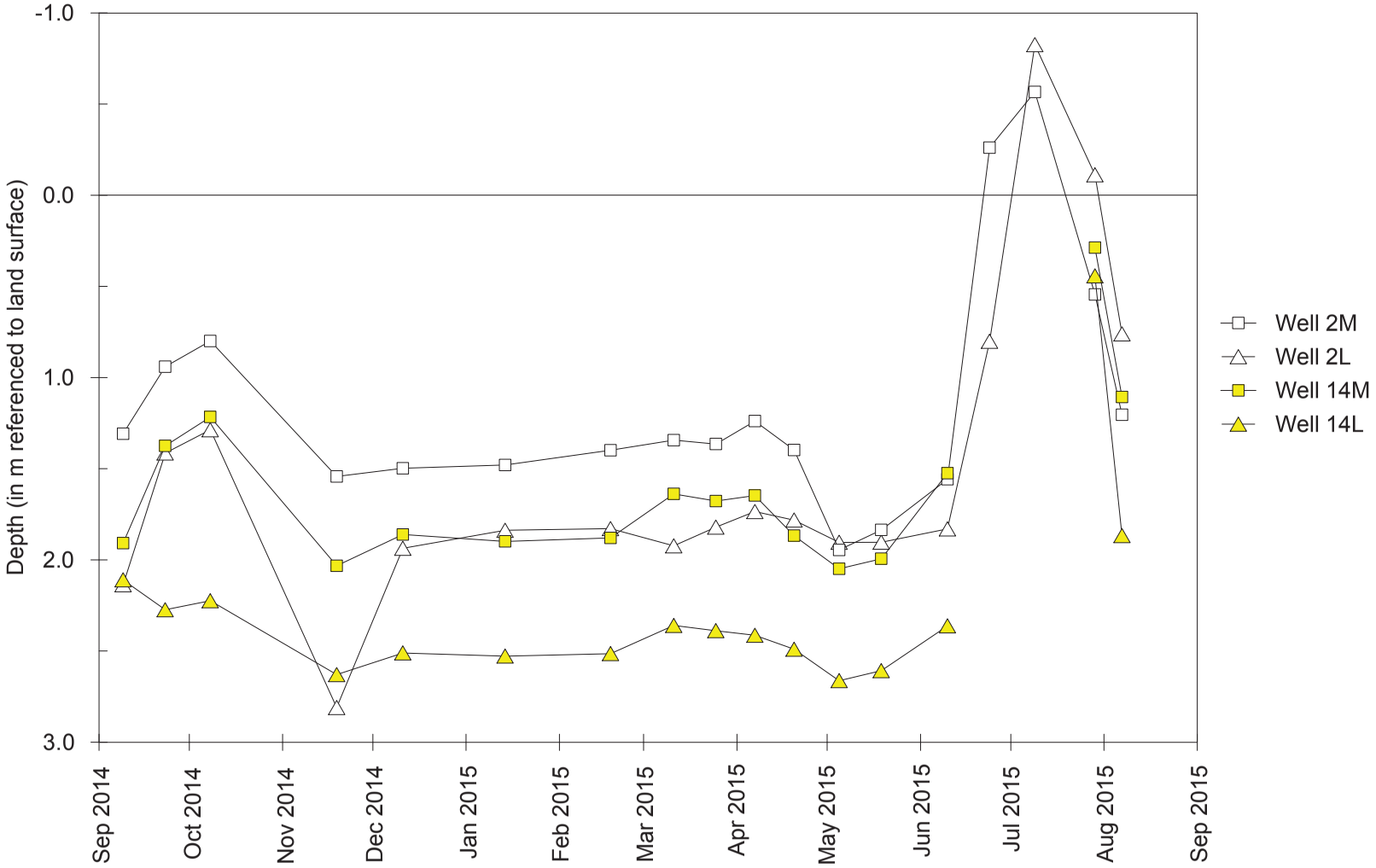
La Grange Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations
in Deeper Wells and at Surface-Water Gauges

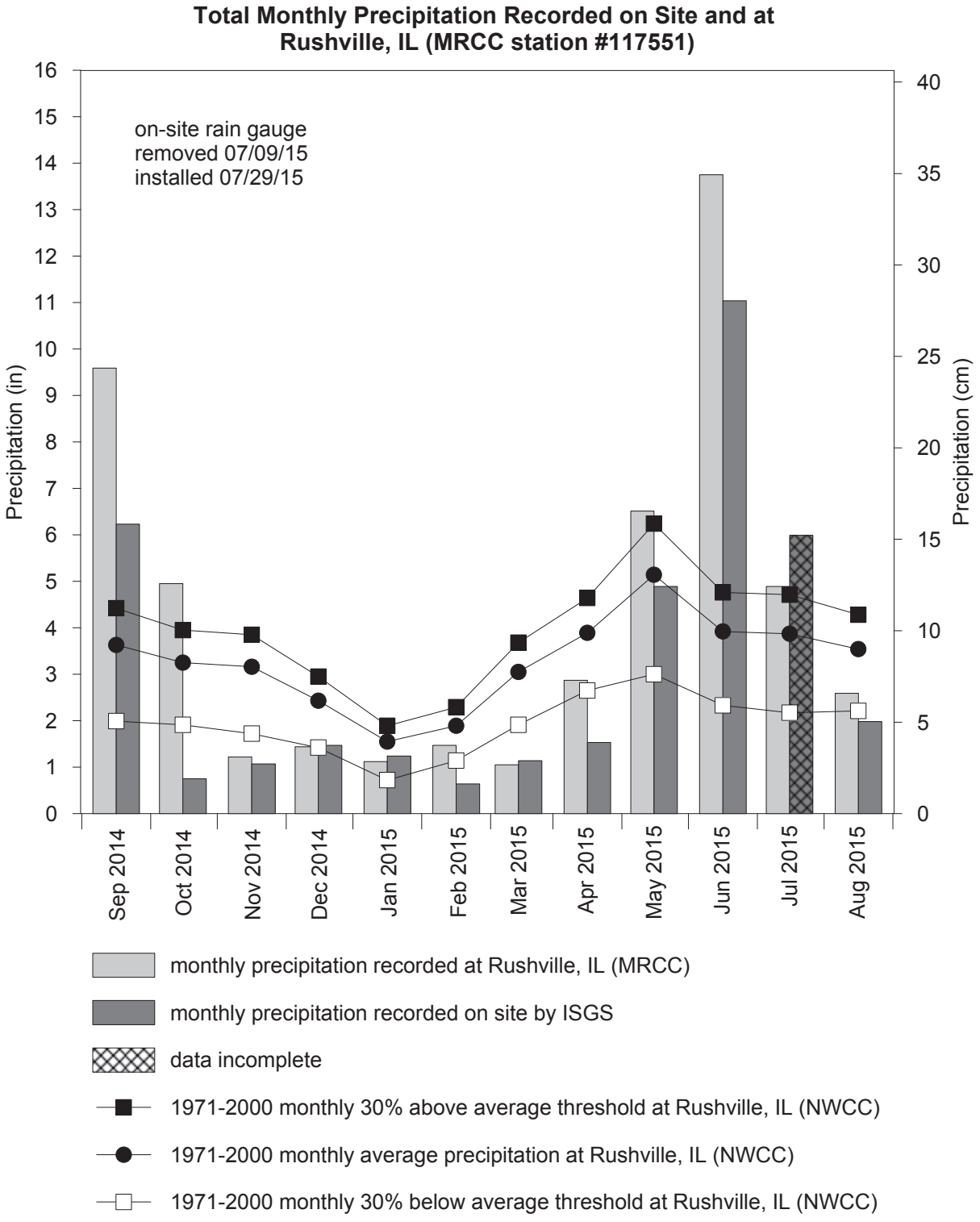


La Grange Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Depth to Water
in Deeper Monitoring Wells



La Grange Wetland Mitigation Bank
September 2014 through August 2015



FAIRMONT CITY **ISGS #53**
POTENTIAL WETLAND MITIGATION SITE
FAP 14
Sequence #27
St. Clair County, near Fairmont City, Illinois
Primary Project Manager: Steven E. Benton
Secondary Project Manager: Matthew J. Even

SITE HISTORY

- August 1999: The ISGS conducted an initial site evaluation.
- September 2000: The ISGS began monitoring groundwater and surface-water levels.
- March 2003: A Level II hydrogeologic characterization report was submitted to IDOT (ISGS Open-File Series 2003–04).
- August 2014: Ownership of the site was transferred from IDOT to Fairmont City, Illinois.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Fairmont City wetland mitigation site is 10.93 ha (27.00 ac). Using the 1987 Manual (Environmental Laboratory 1987), 15.19 ha (37.53 ac) of the total site area of 32.38 ha (80.00 ac) satisfied wetland hydrology criteria for greater than 5% of the growing season and 13.01 ha (32.14 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 14.47 ha (35.75 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Belleville, Illinois, is April 4 and the season lasts 204 days (MRCC 2015); 5% of the growing season is 10 days and 12.5% of the growing season is 26 days, using the 1987 Manual. Using the 2010 Midwest Region Supplement, March 19 was the starting date of the 2015 growing season based on soil temperatures measured at the site.
- Total precipitation for the monitoring period, recorded at Belleville, Illinois (MRCC station #110510), was 127% of normal, precipitation in Spring 2015 (March through May) was 136% of normal, and the wettest month was June at 240% of normal.
- In 2015, water levels measured in all of the soil-zone monitoring wells satisfied wetland hydrology criteria for greater than 5% of the growing season, and water levels measured in all soil-zone monitoring wells, except 6S, 6VS, 7S, and 28S, satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, water levels measured in all of the soil-zone monitoring wells, except wells 6S, 6VS, and 28S, satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season.
- Surface-water elevations measured at SW Pond and Gauge AR2 revealed that areas at and below 122.40 m (401.58 ft) were inundated for greater than 5% of the growing season, and areas at and below 122.35 m (401.41 ft) were inundated for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, areas at and below 122.36 m (401.44 ft) were inundated for 14 or more consecutive days during the growing season.

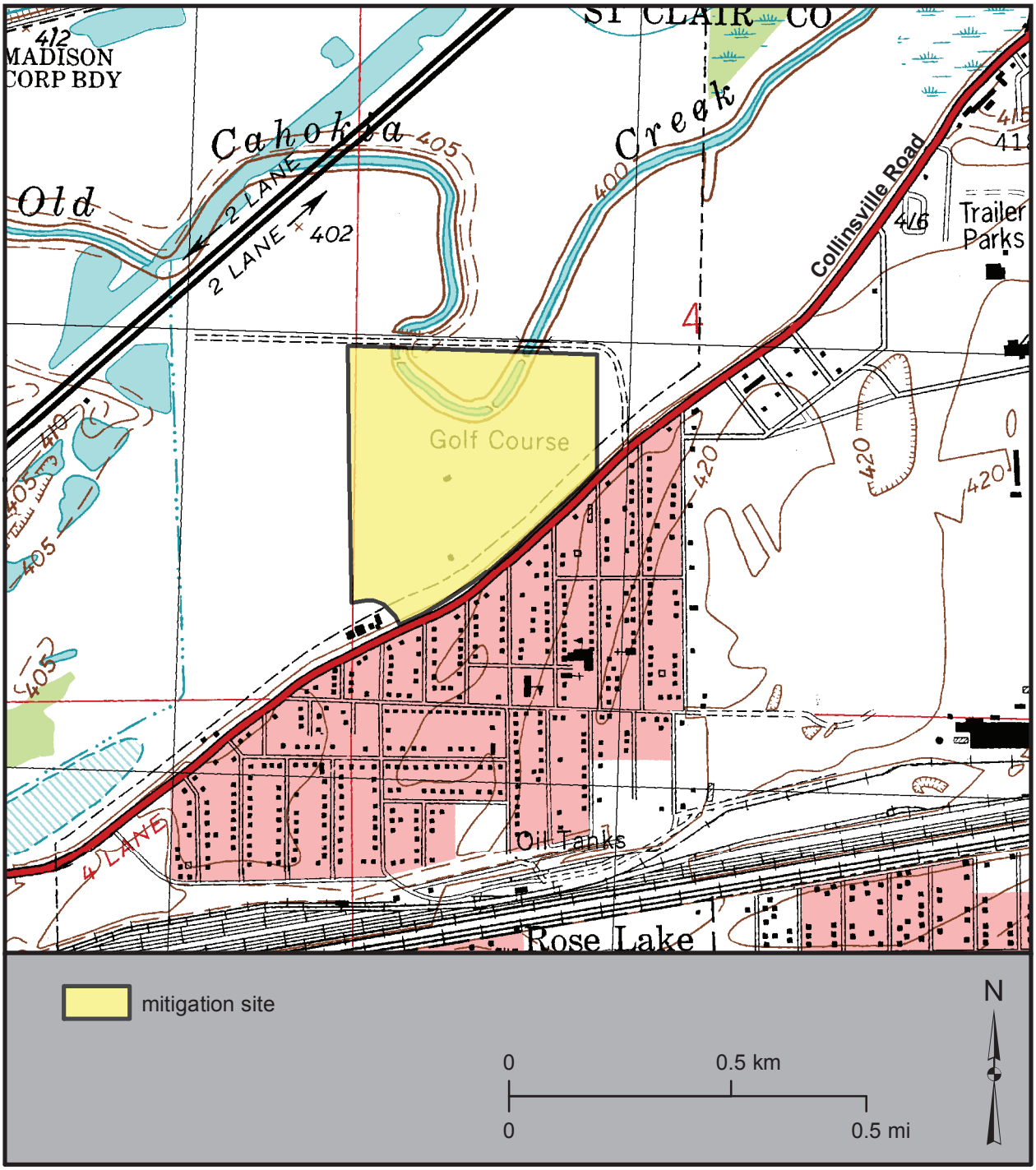
- Surface-water elevations measured in Old Cahokia Creek (Gauge E) revealed that areas at and below 122.21 m (400.95 ft) were inundated for greater than 5% of the growing season, and areas at and below 122.14 m (400.72 ft) were inundated for greater than 12.5% of the growing season using the 1987 Manual. Using the 2010 Midwest Region Supplement, areas at and below 122.20 m (400.92 ft) were inundated for 14 or more consecutive days during the growing season.

- Surface-water elevations measured at Gauge G revealed that areas at and below 122.49 m (401.87 ft) were inundated for greater than 5% of the growing season, and areas at and below 122.45 m (401.74 ft) were inundated for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, areas at and below 122.48 m (401.84 ft) were inundated for 14 or more consecutive days during the growing season.

PLANNED FUTURE ACTIVITIES

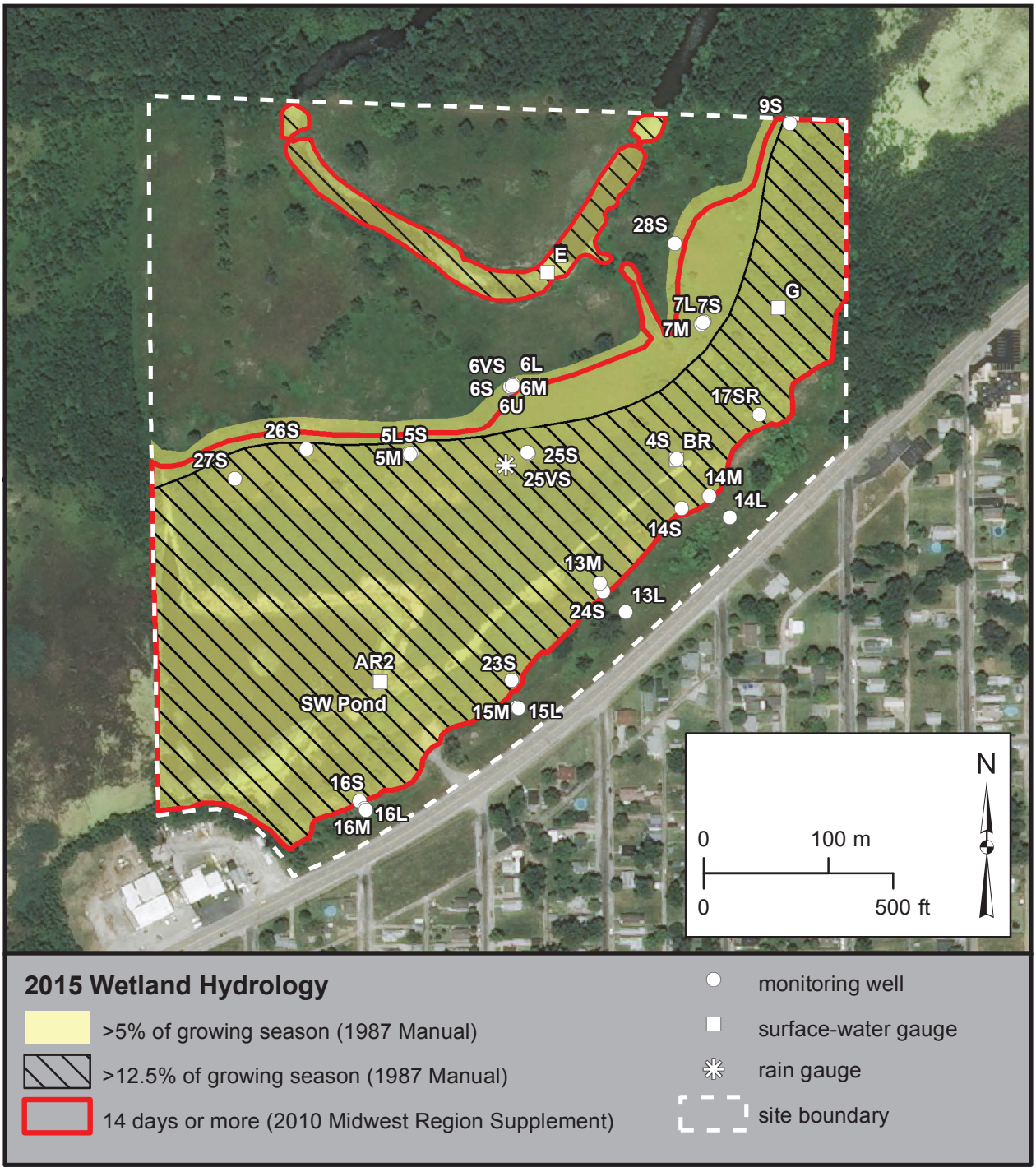
- Monitoring will continue until no longer required by IDOT.

Fairmont City Potential Wetland Mitigation Site
(FAP 14)
General Study Area and Vicinity
from the USGS Topographic Series, Monks Mound, IL, 7.5-minute quadrangle (USGS 1954b)



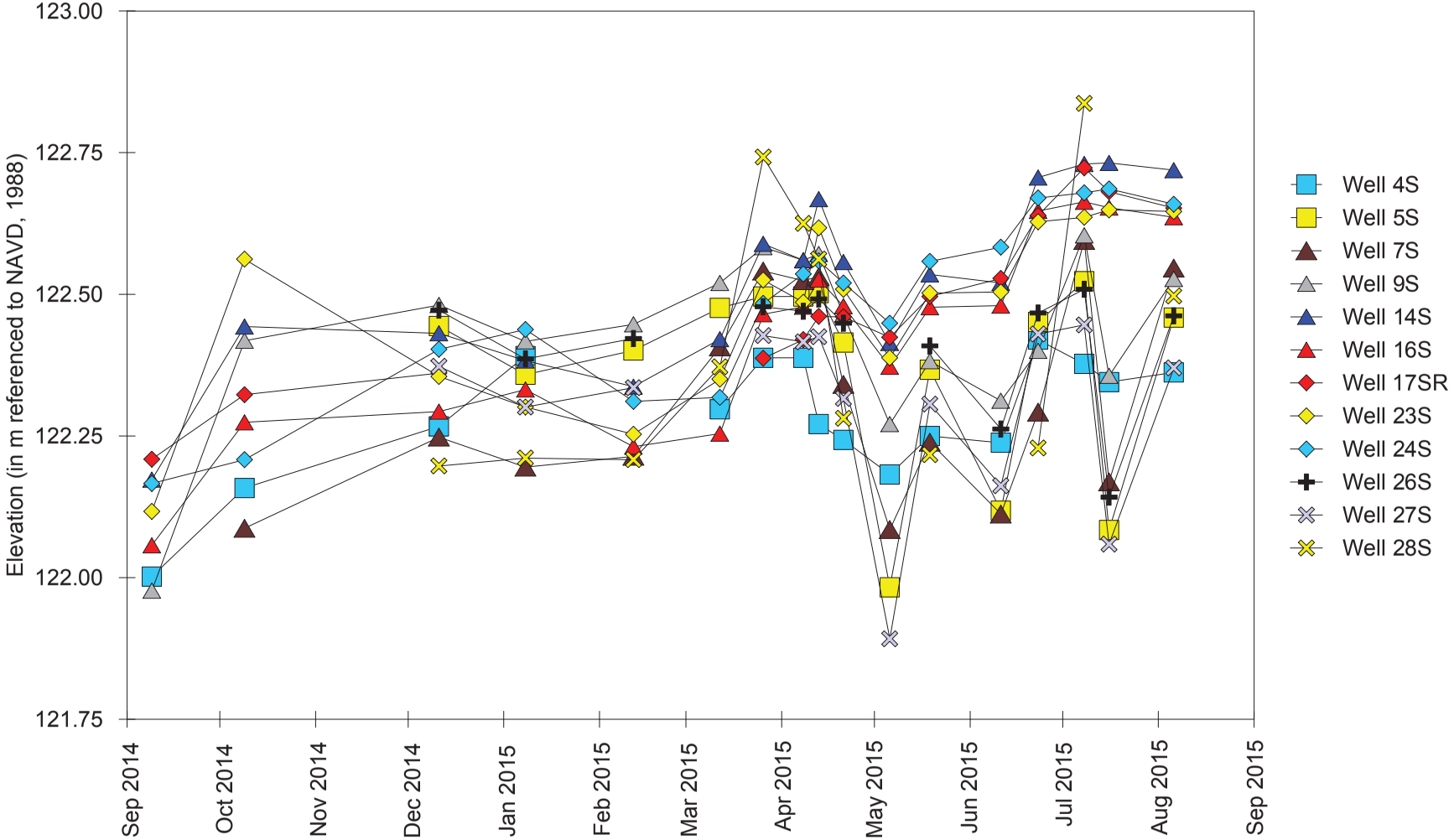
Fairmont City Potential Wetland Mitigation Site
(FAP 14)
Estimated Areal Extent of 2015 Wetland Hydrology
September 1, 2014 through August 31, 2015

Map based on 2012 Farm Service Agency digital orthophotography, St. Clair County, Illinois (USDA-FSA 2012)



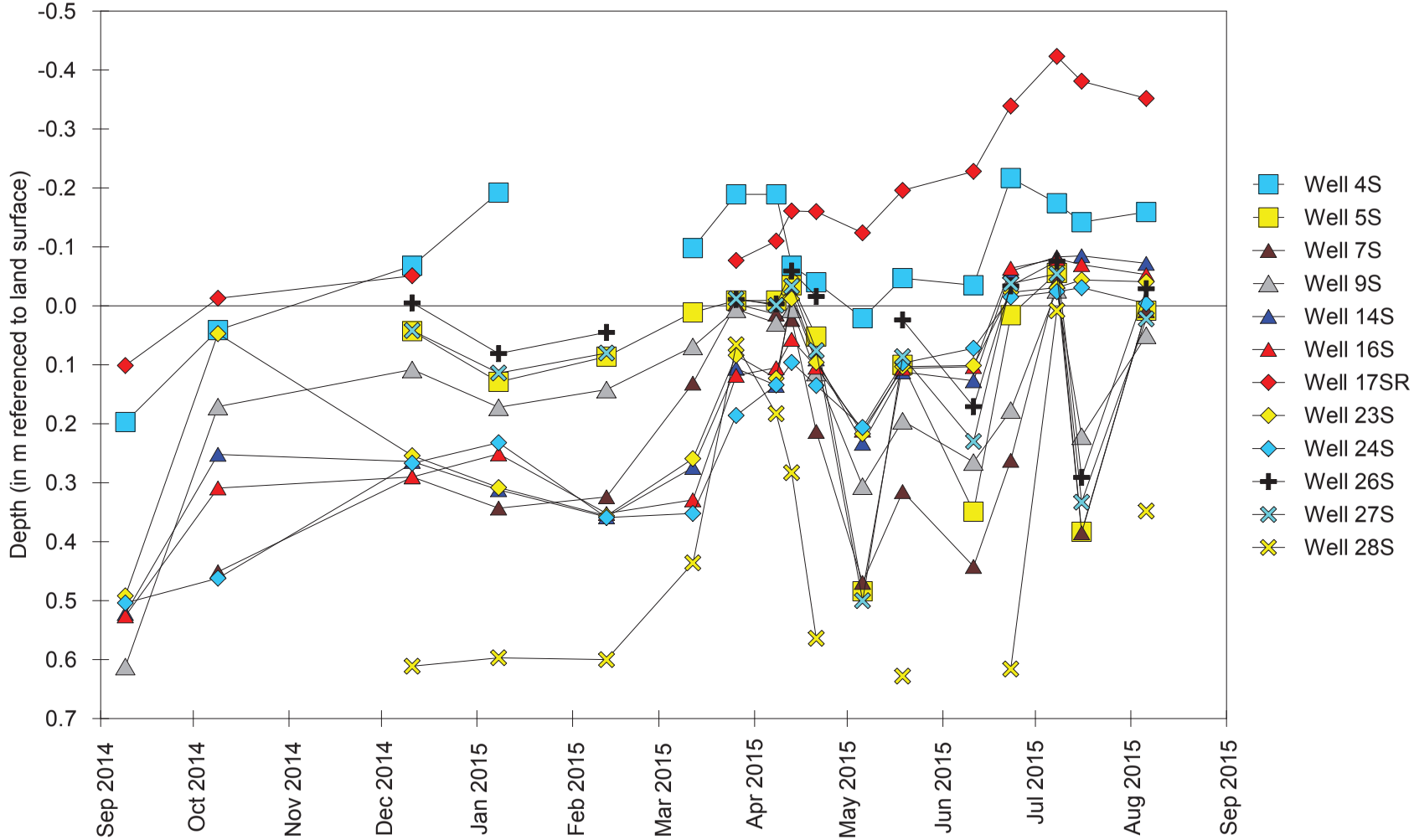
Fairmont City Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Shallow Monitoring Wells



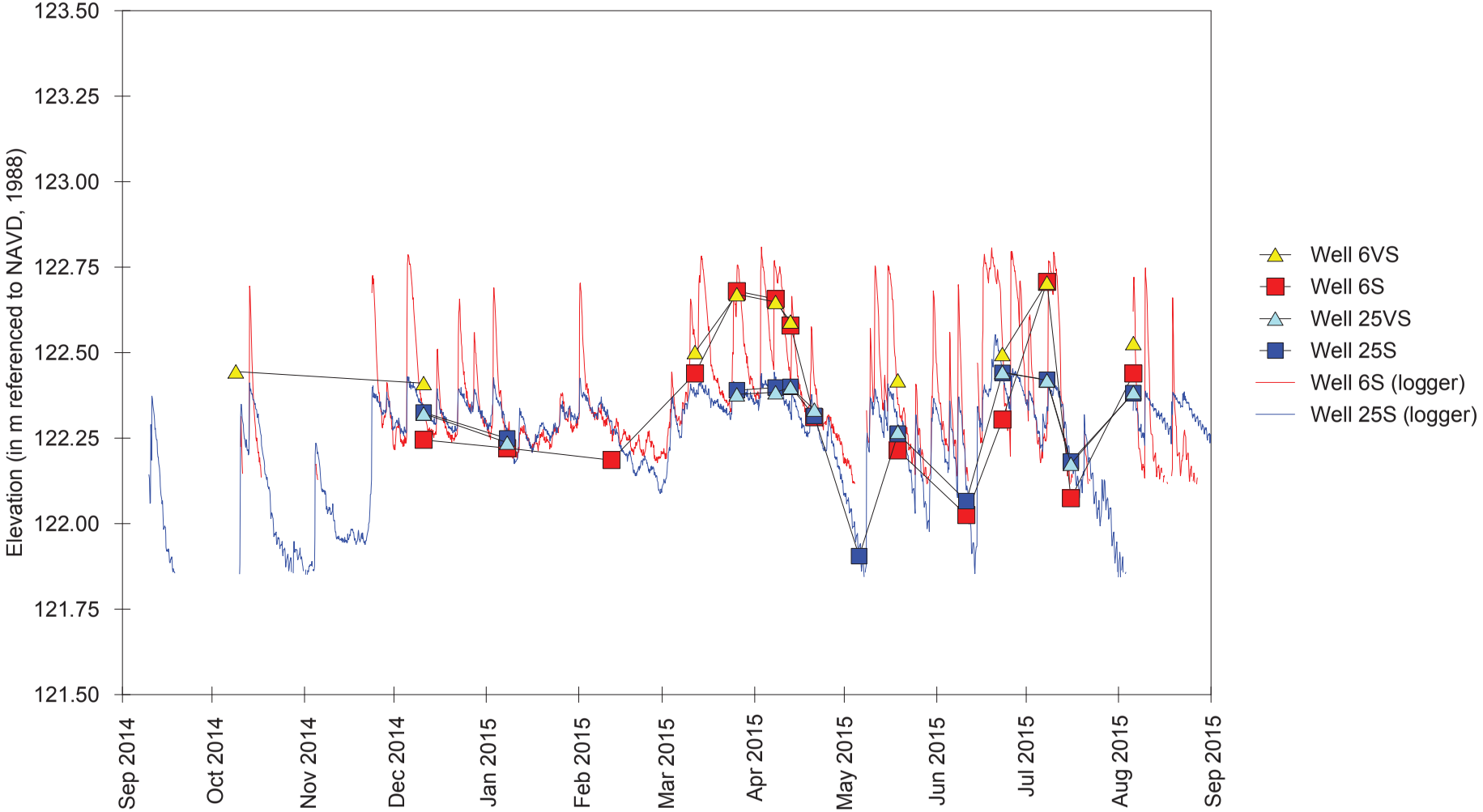
Fairmont City Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow Monitoring Wells



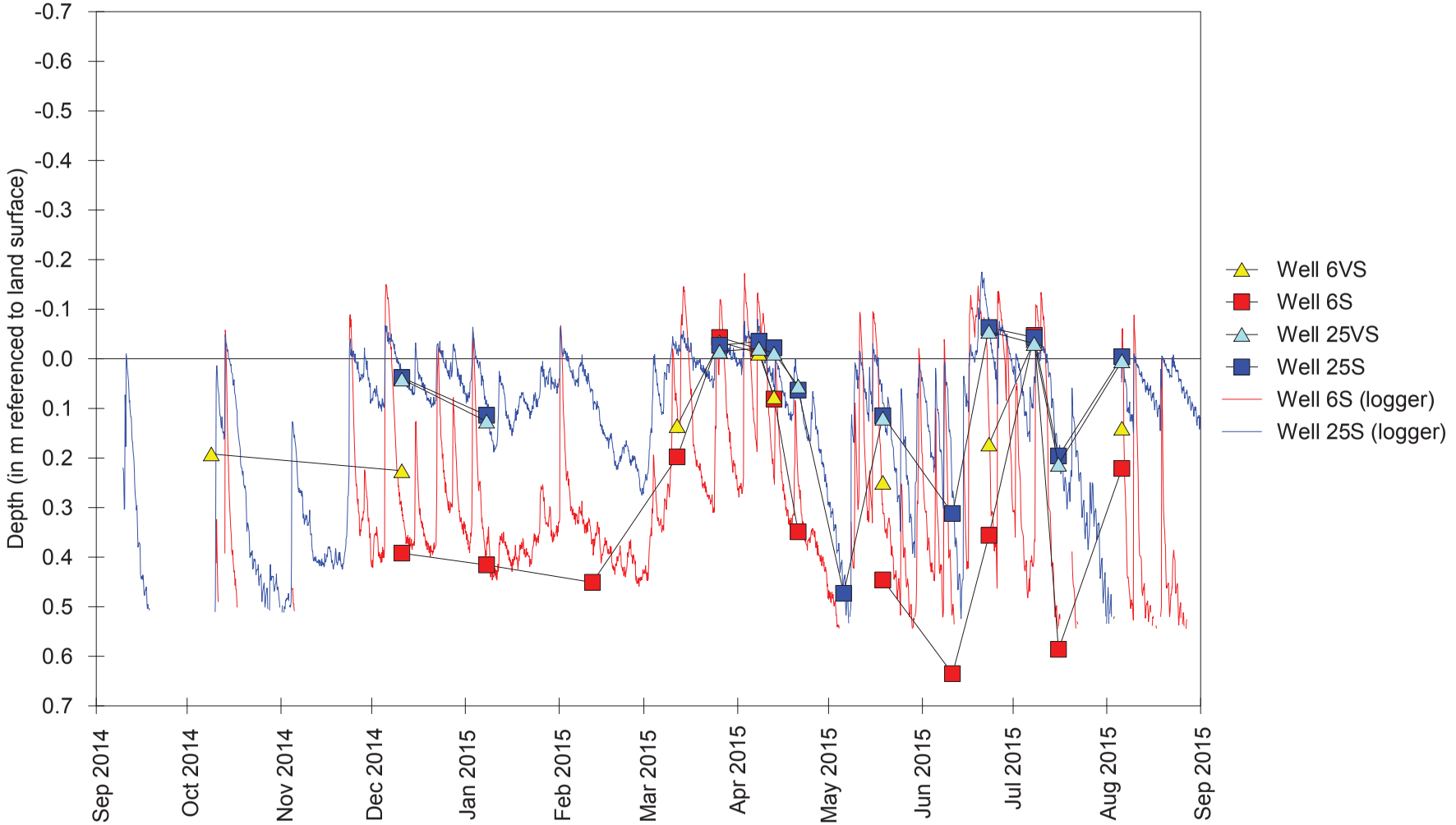
Fairmont City Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Shallow Monitoring Wells



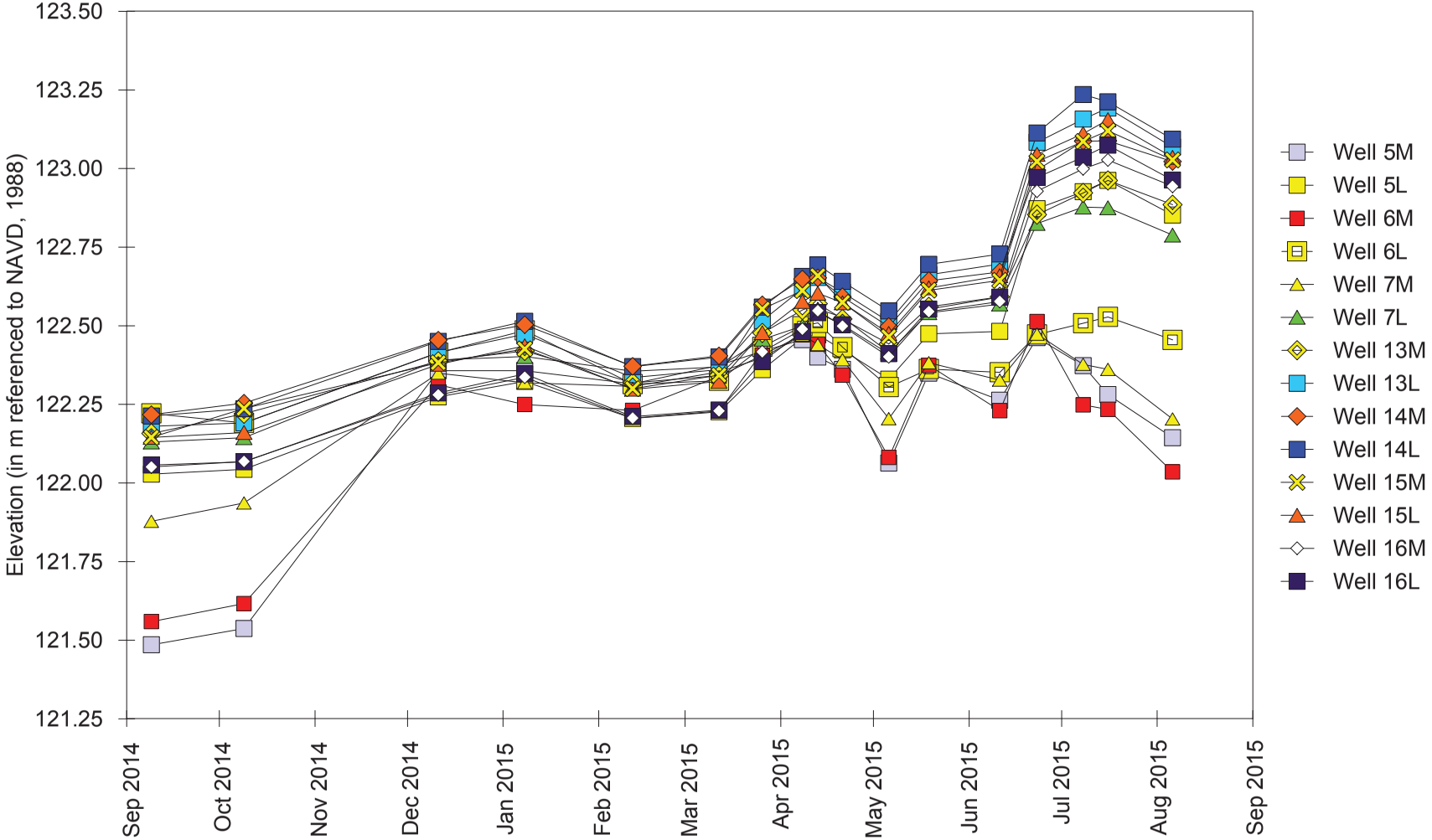
Fairmont City Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow Monitoring Wells



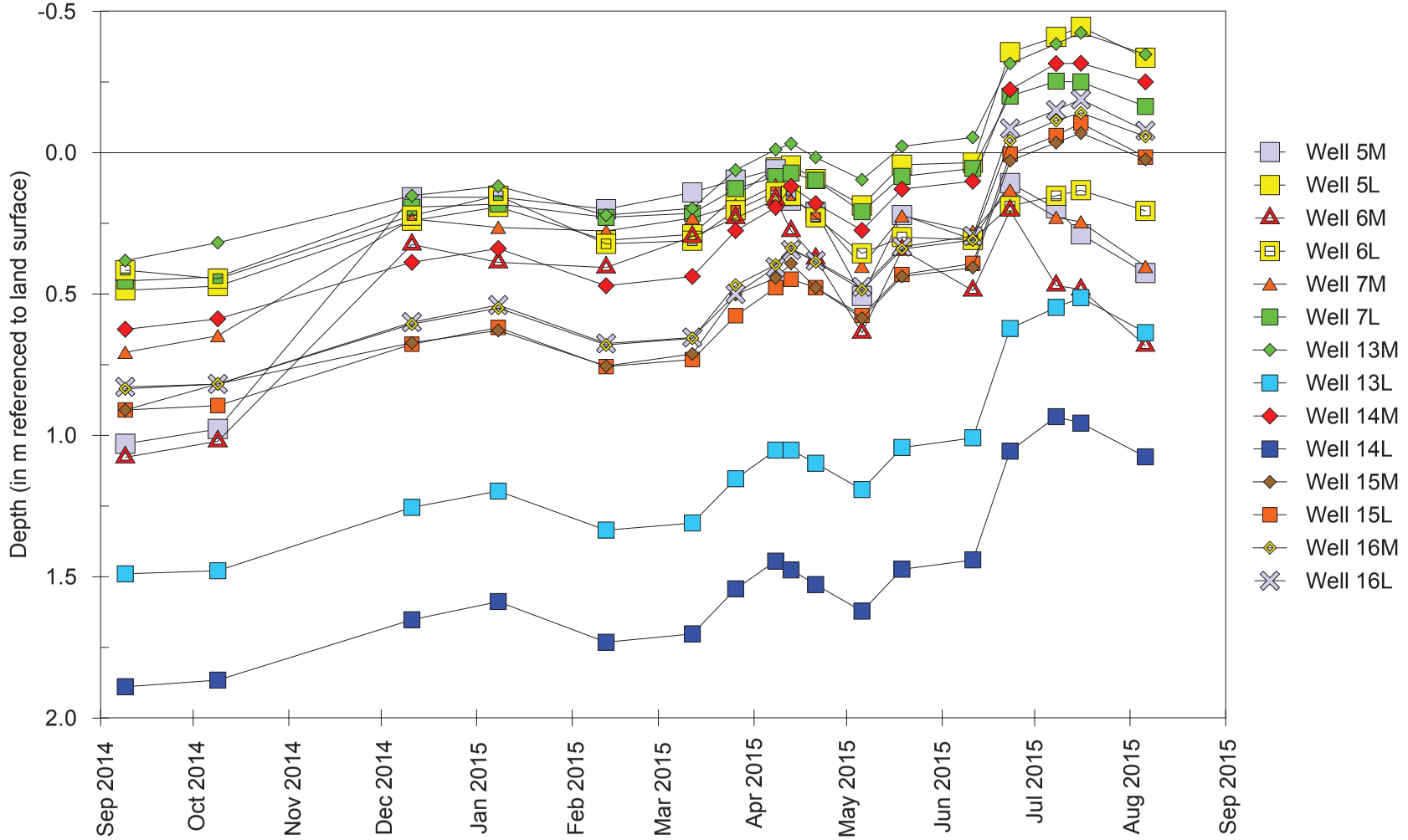
Fairmont City Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Deeper Monitoring Wells



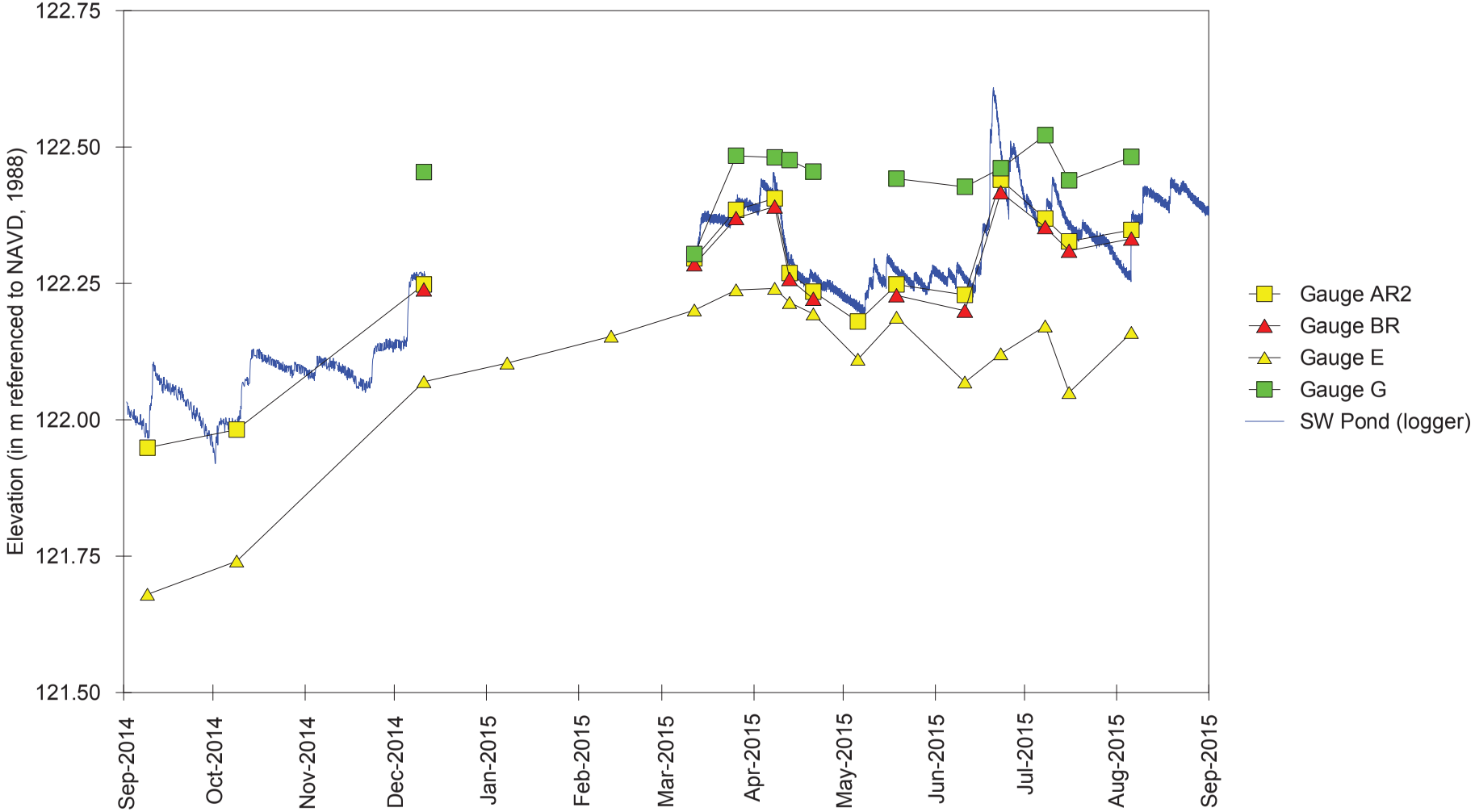
Fairmont City Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Deeper Monitoring Wells

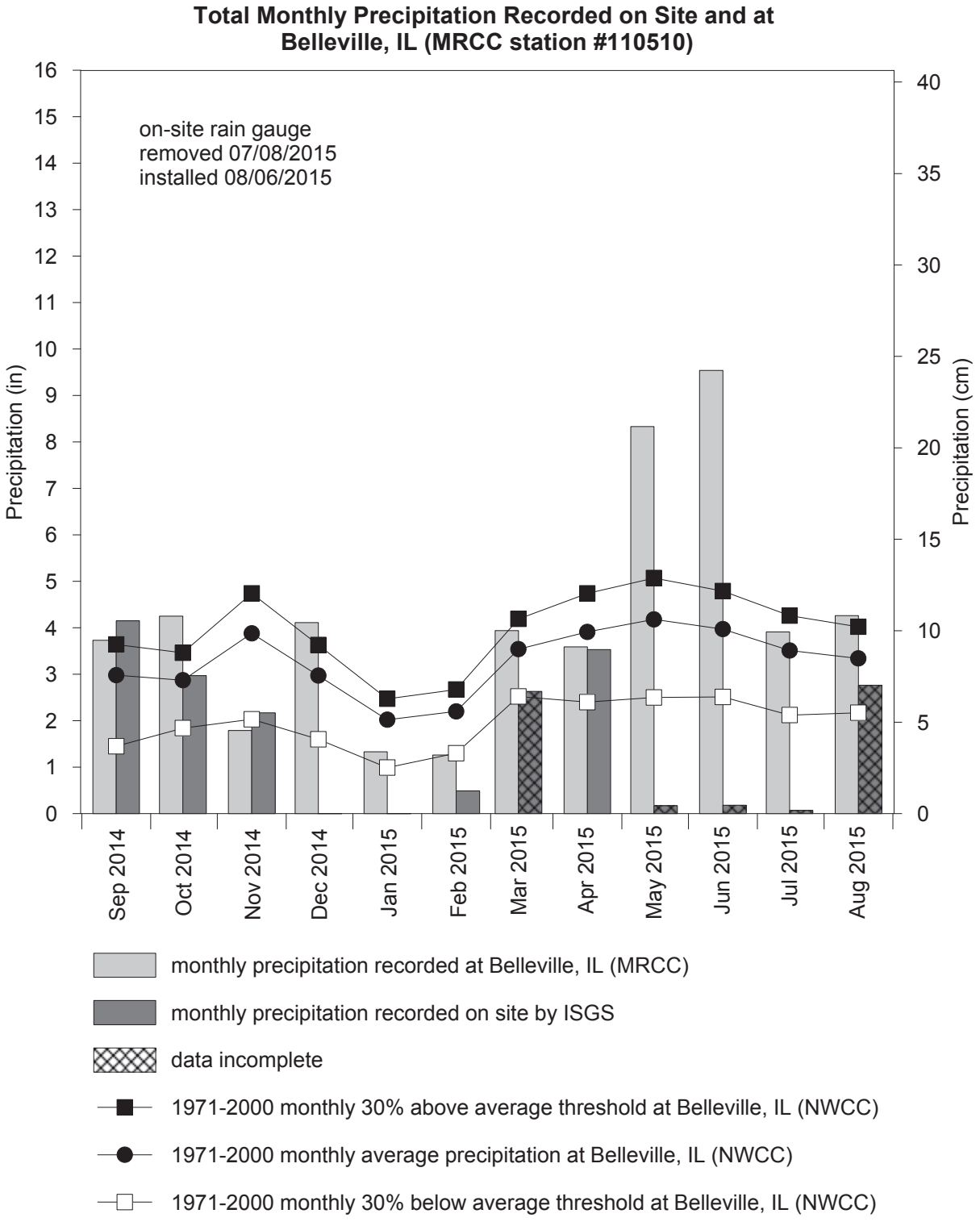


Fairmont City Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



Fairmont City Potential Wetland Mitigation Site
September 2014 through August 2015



FORMER TIERNAN PROPERTY **ISGS #57**
POTENTIAL WETLAND MITIGATION SITE
FAP 14
Sequence #27
St. Clair County, near Cahokia, Illinois
Primary Project Manager: Steven E. Benton
Secondary Project Manager: Matthew J. Even

SITE HISTORY

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

- July 2005: A Level II hydrogeologic characterization report was submitted to IDOT (ISGS Open-File Series 2005–11).

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Former Tiernan Property wetland mitigation site is 17.04 ha (42.10 ac). Using the 1987 Manual (Environmental Laboratory 1987), 18.18 ha (44.93 ac), out of a total site area of 26.43 ha (65.30 ac), satisfied wetland hydrology criteria for greater than 5% of the 2015 growing season and 17.50 ha (43.24 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 17.75 ha (43.87 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Belleville, Illinois, is April 4 and the season lasts 204 days (MRCC 2015); 5% of the growing season is 10 days and 12.5% of the growing season is 26 days, using the 1987 Manual. Using the 2010 Midwest Region Supplement, March 19 was the starting date of the 2015 growing season based on soil temperatures measured on site and at the Belleville SIU Research Station.

- Total precipitation for the monitoring period, recorded at Belleville, Illinois (MRCC station #110510), was 127% of normal. Precipitation in Spring 2015 (March through May) was 136% of normal. The wettest month was June at 240% of normal.

- In 2015, water levels measured in all of the soil-zone monitoring wells except 6S, 7S, 11SR, 23VS, and 23S satisfied wetland hydrology criteria for greater than 5% of the growing season, and water levels measured in all of the soil-zone monitoring wells except 1S, 6S, 7S, 11SR, 23S, 23VS, and 33S satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, water levels measured in all of the soil-zone monitoring wells except 1S, 6S, 7S, 11SR, 23S, and 23VS satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season.

- Data from Gauge G, in the southern portion of the site, shows that areas at and below an elevation of 121.34 m (398.10 ft) were inundated long enough to satisfy wetland hydrology criteria for greater than 5% of the growing season, and areas at and below 121.33 m (398.06 ft) were inundated long enough to satisfy wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, areas at and below an elevation of 121.34 m (398.10 ft) were inundated long

enough to satisfy wetland hydrology criteria for 14 or more consecutive days during the growing season.

- Data from Gauge H, in the northern portion of the site, revealed that areas at and below an elevation of 121.61 m (398.98 ft) were inundated long enough to satisfy wetland hydrology criteria for greater than 5% of the growing season, and areas at and below 121.59 m (398.92 ft) were inundated long enough to satisfy wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, areas at and below an elevation of 121.61 m (398.98 ft) were inundated long enough to satisfy wetland hydrology criteria for 14 or more consecutive days during the growing season.

ADDITIONAL INFORMATION

- Inundation in the southern portion of the site corresponds with periods of elevated stage on the Mississippi River and back-flooding of Blue Waters Ditch. Comparison of surface-water elevations measured at Gauge G, and at the Mississippi River gauge at St. Louis, Missouri indicates that this occurs when the river rises above an elevation between 121.0 m (396.98 ft) and 122.0 m (400.26 ft). In 2015, this occurred from about mid-May to the end of July. At the site, the hydrograph of Gauge G shows that water level fluctuates rapidly, often over a period of less than 1 day, which likely reflects the pumpage of Blue Waters Ditch.

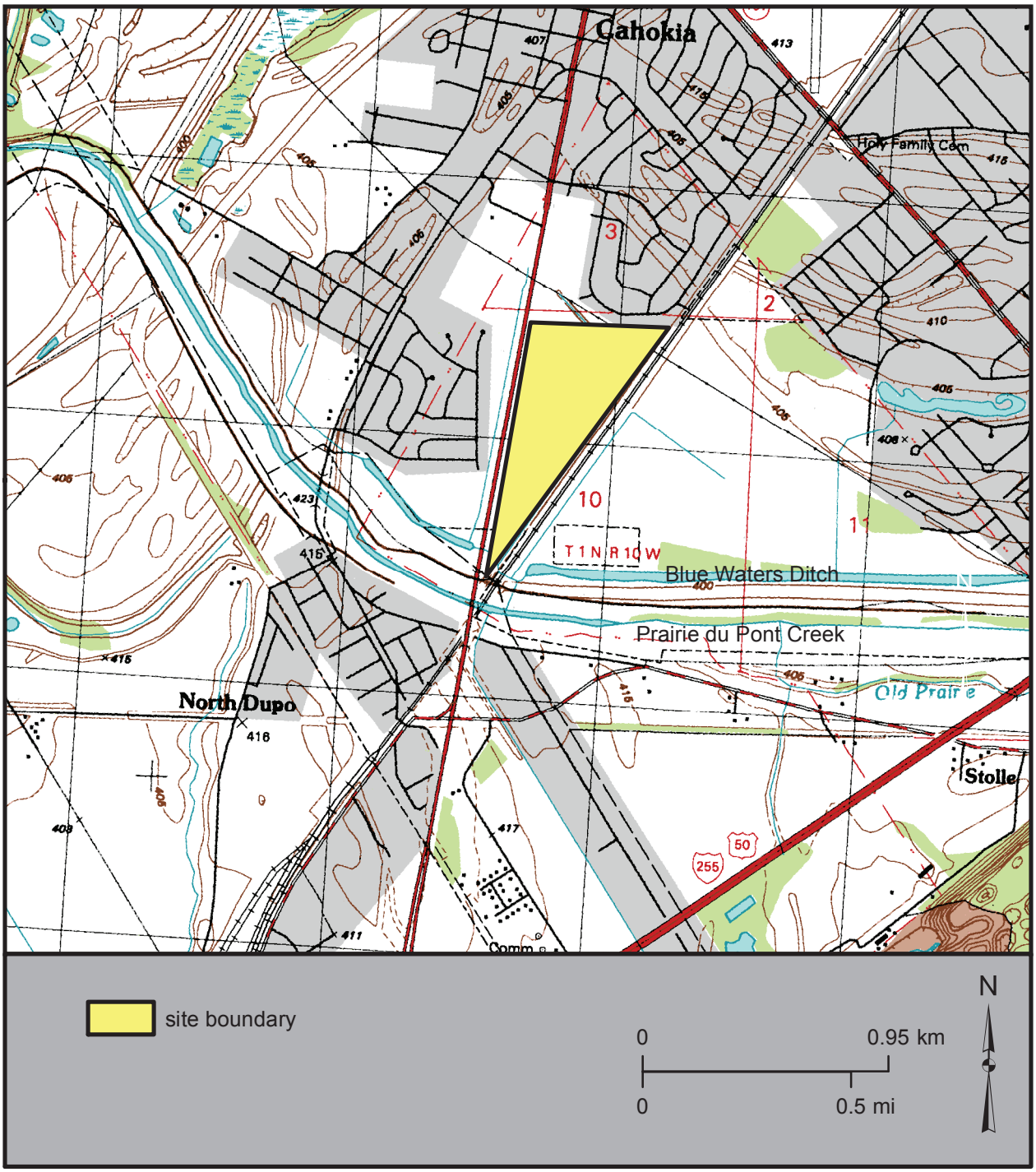
PLANNED FUTURE ACTIVITIES

- Monitoring will continue until no longer required by IDOT.

Former Tiernan Property, Potential Wetland Mitigation Site (FAP 14)

General Study Area and Vicinity

from the USGS Topographic Series, Cahokia, IL, 7.5-minute quadrangle (USGS 1954a)

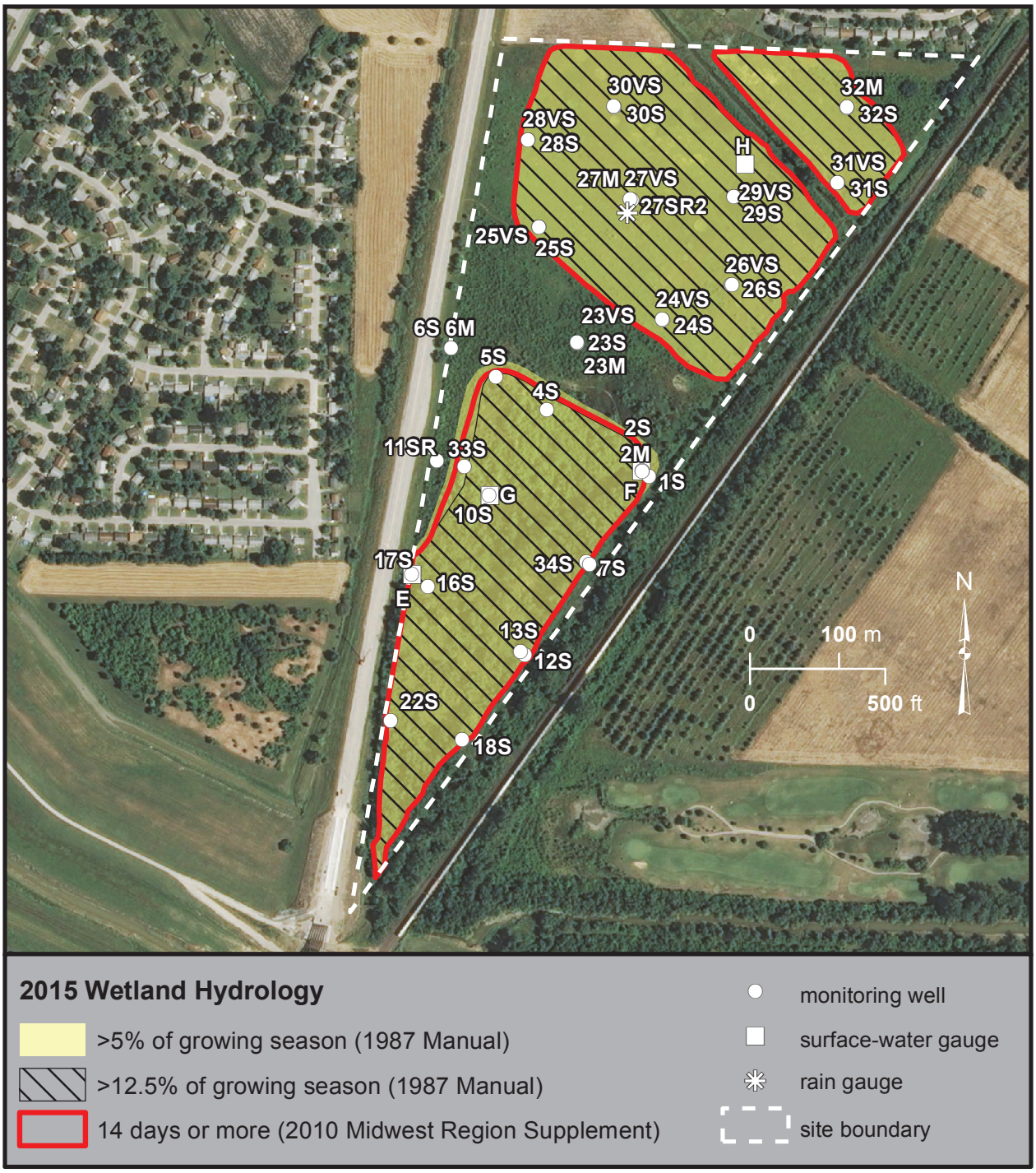


Former Tiernan Property, Potential Wetland Mitigation Site (FAP 14)

Estimated Areal Extent of 2015 Wetland Hydrology

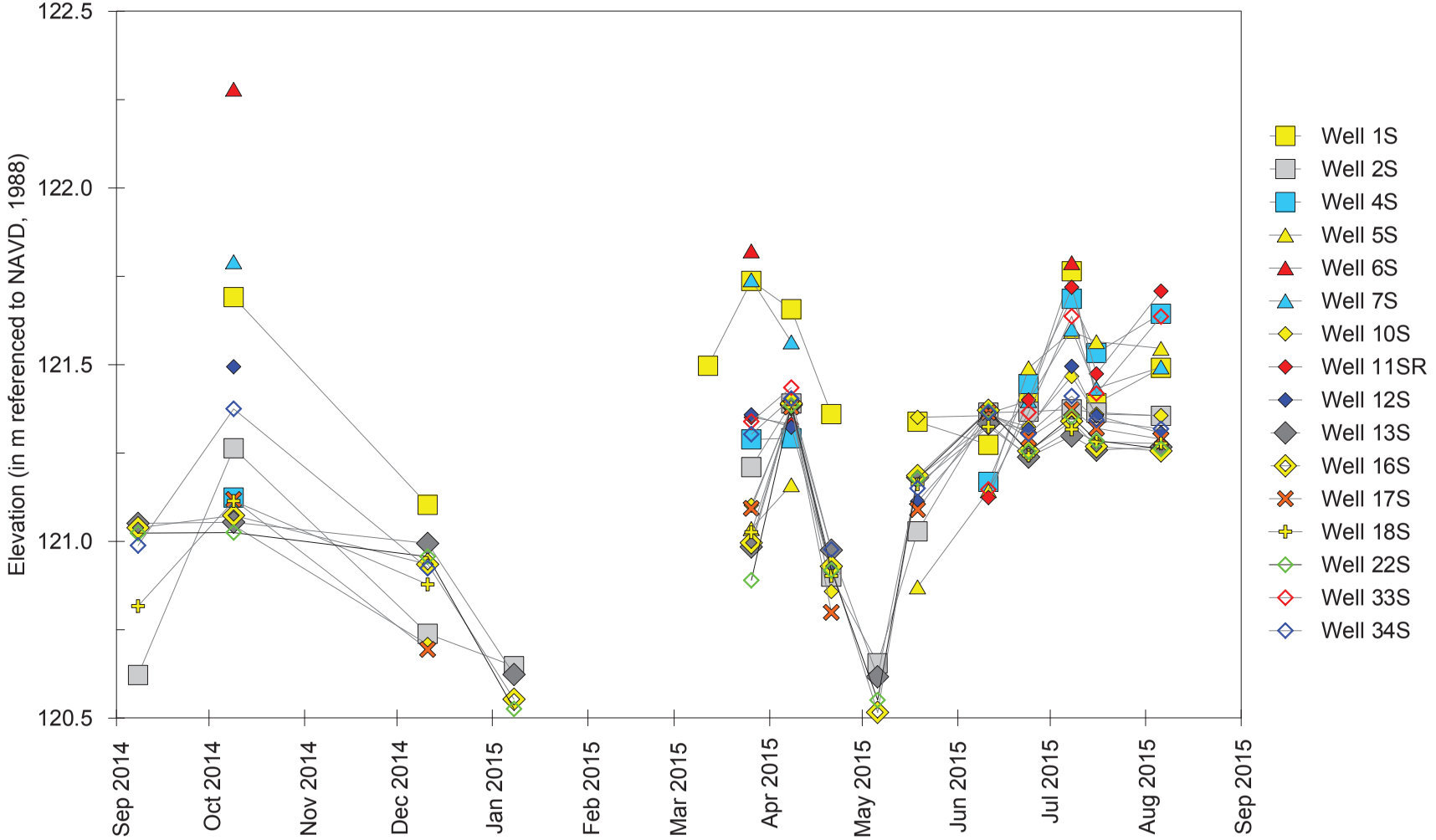
September 1, 2014 through August 31, 2015

Map based on 2012 Farm Service Agency digital orthophotography, St. Clair County, Illinois (USDA-FSA 2012)



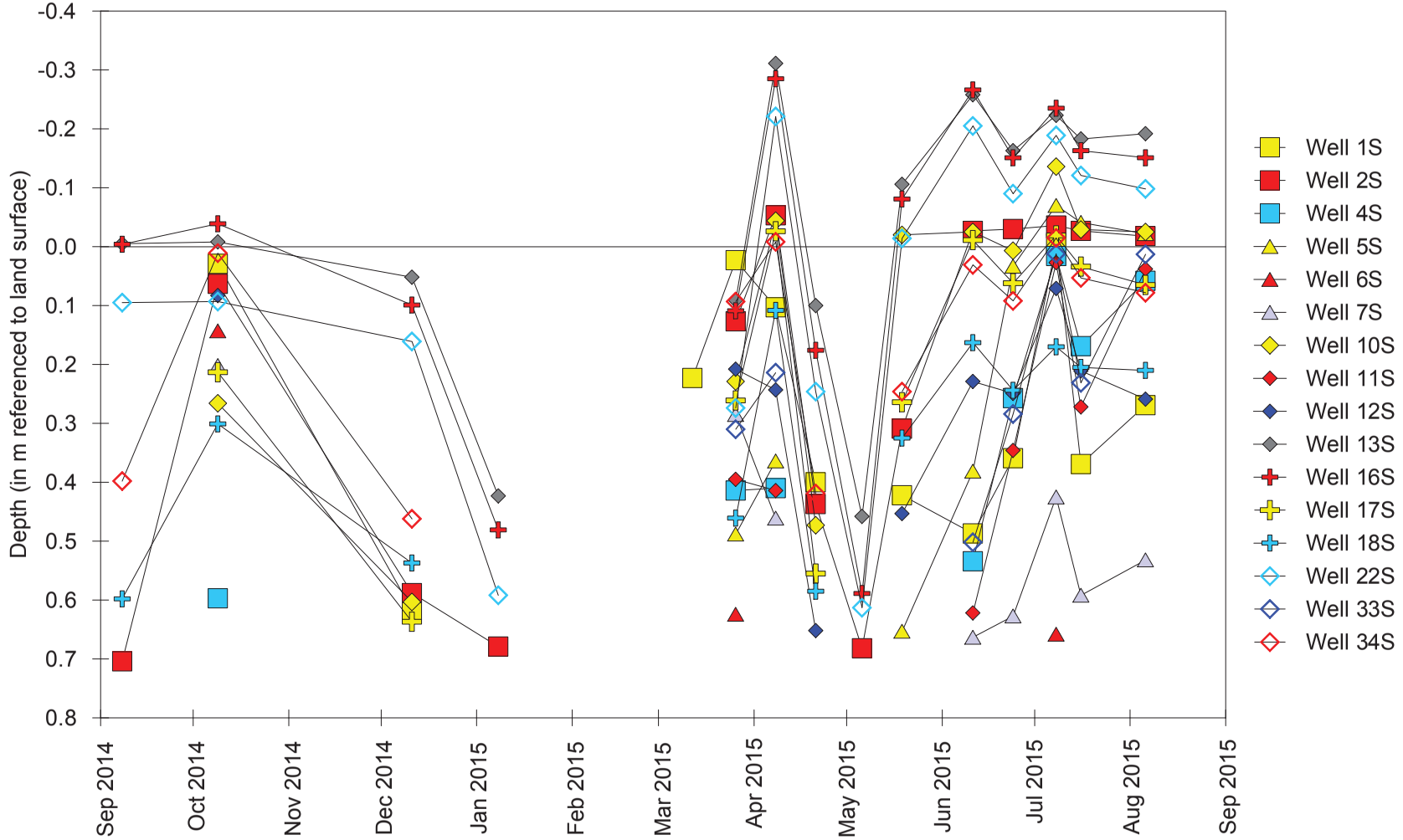
Former Tiernan Property Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Shallow Monitoring Wells



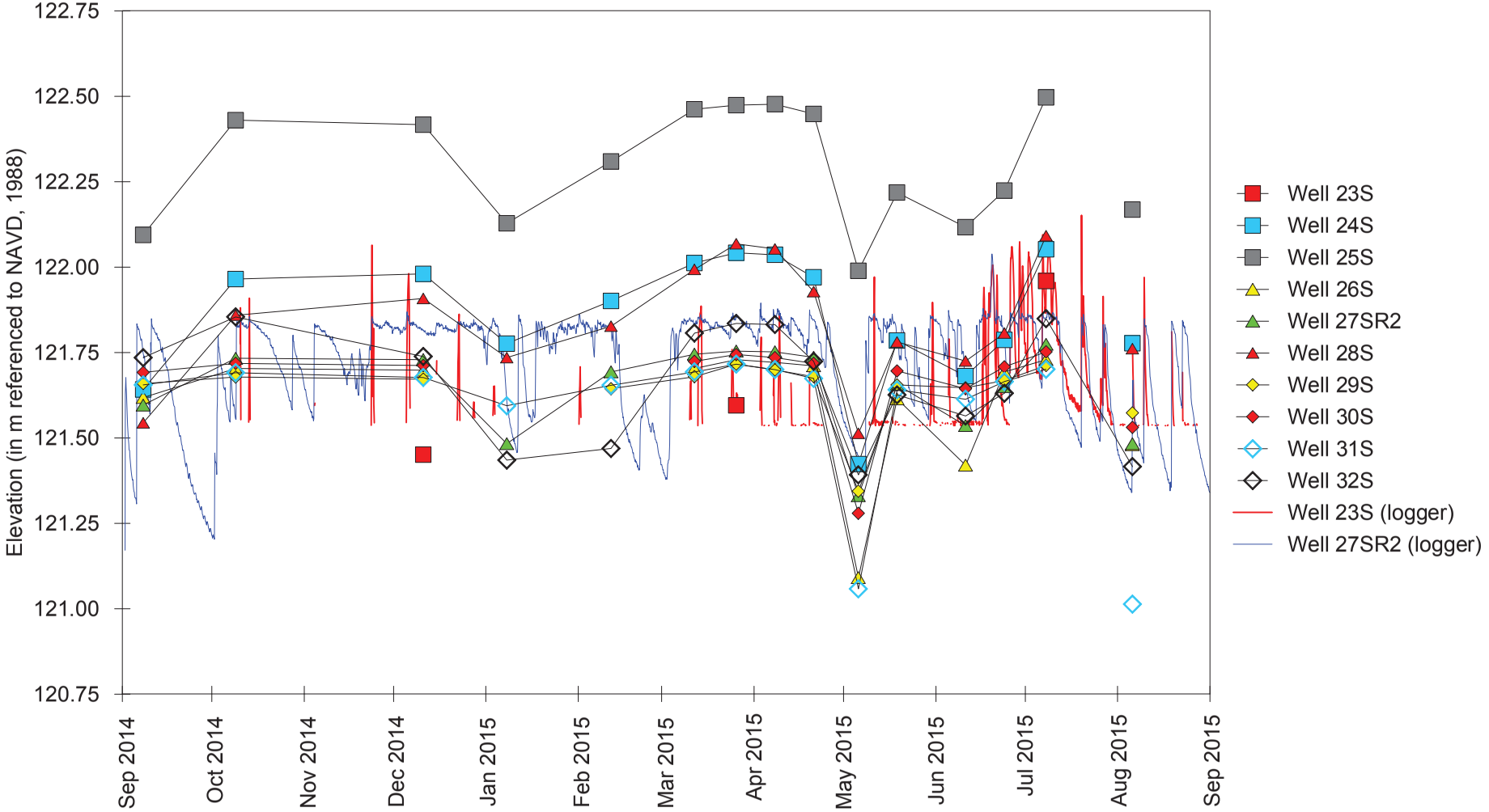
Former Tiernan Property Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow Monitoring Wells



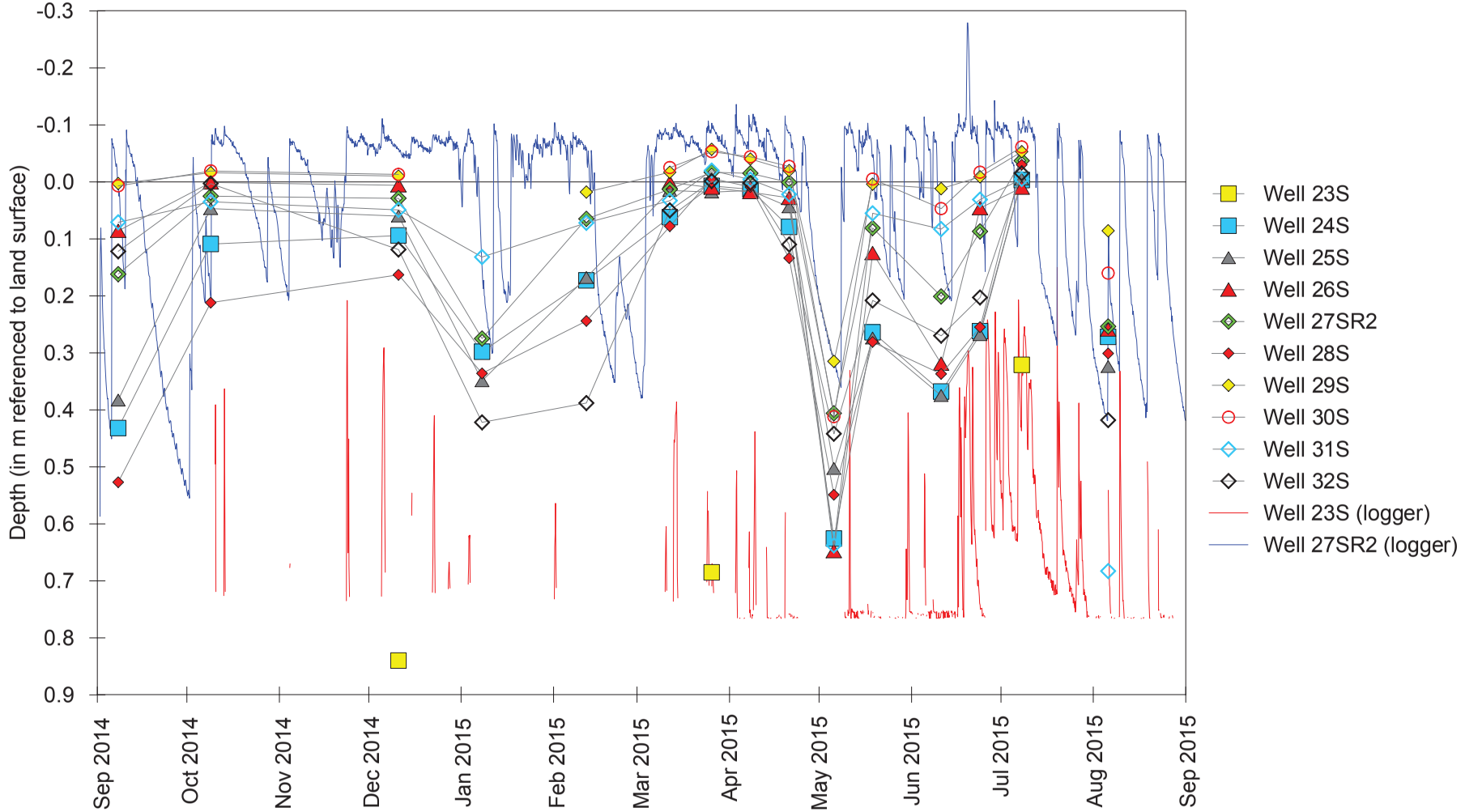
Former Tiernan Property Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Shallow Monitoring Wells



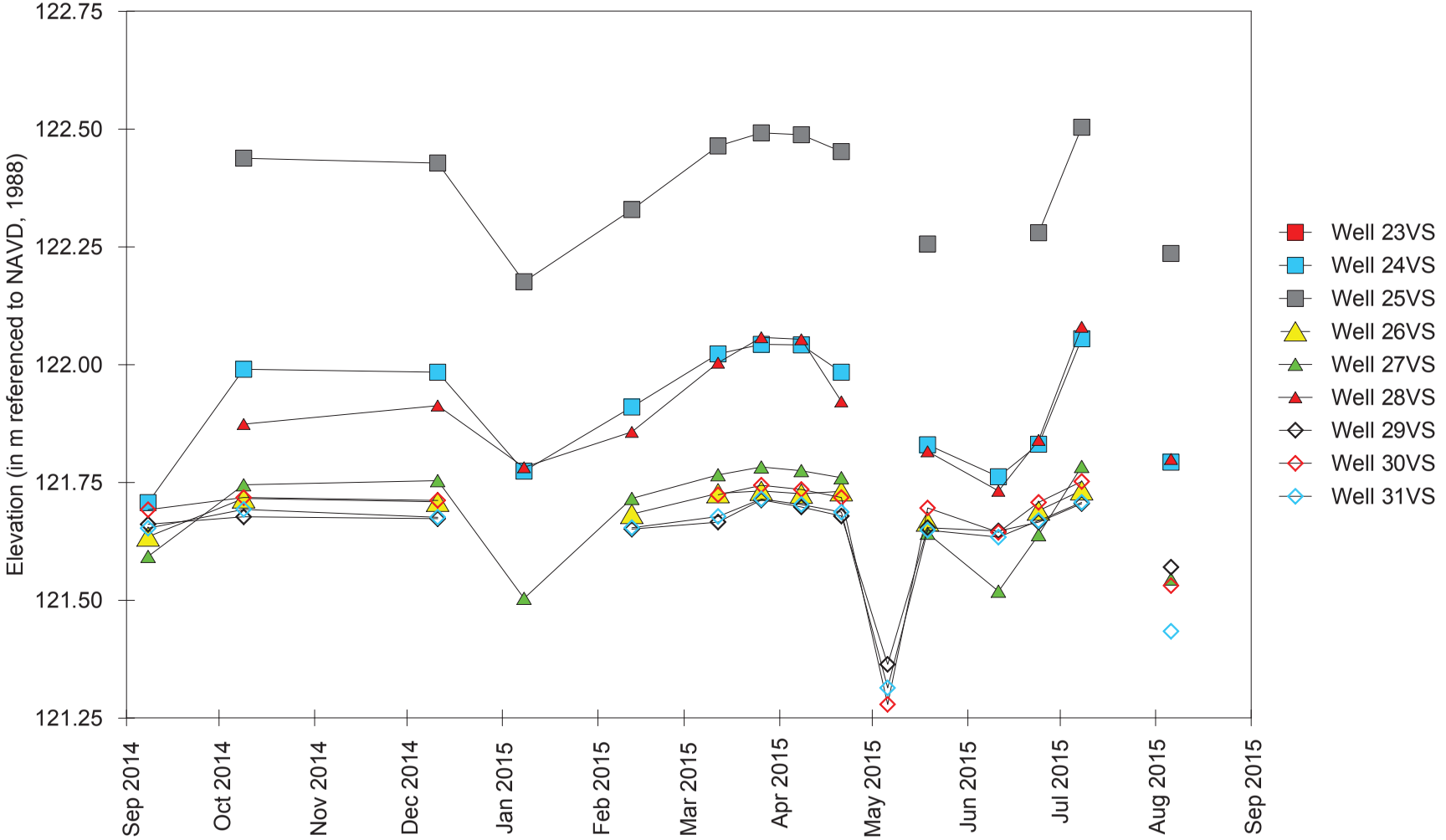
Former Tiernan Property Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow Monitoring Wells



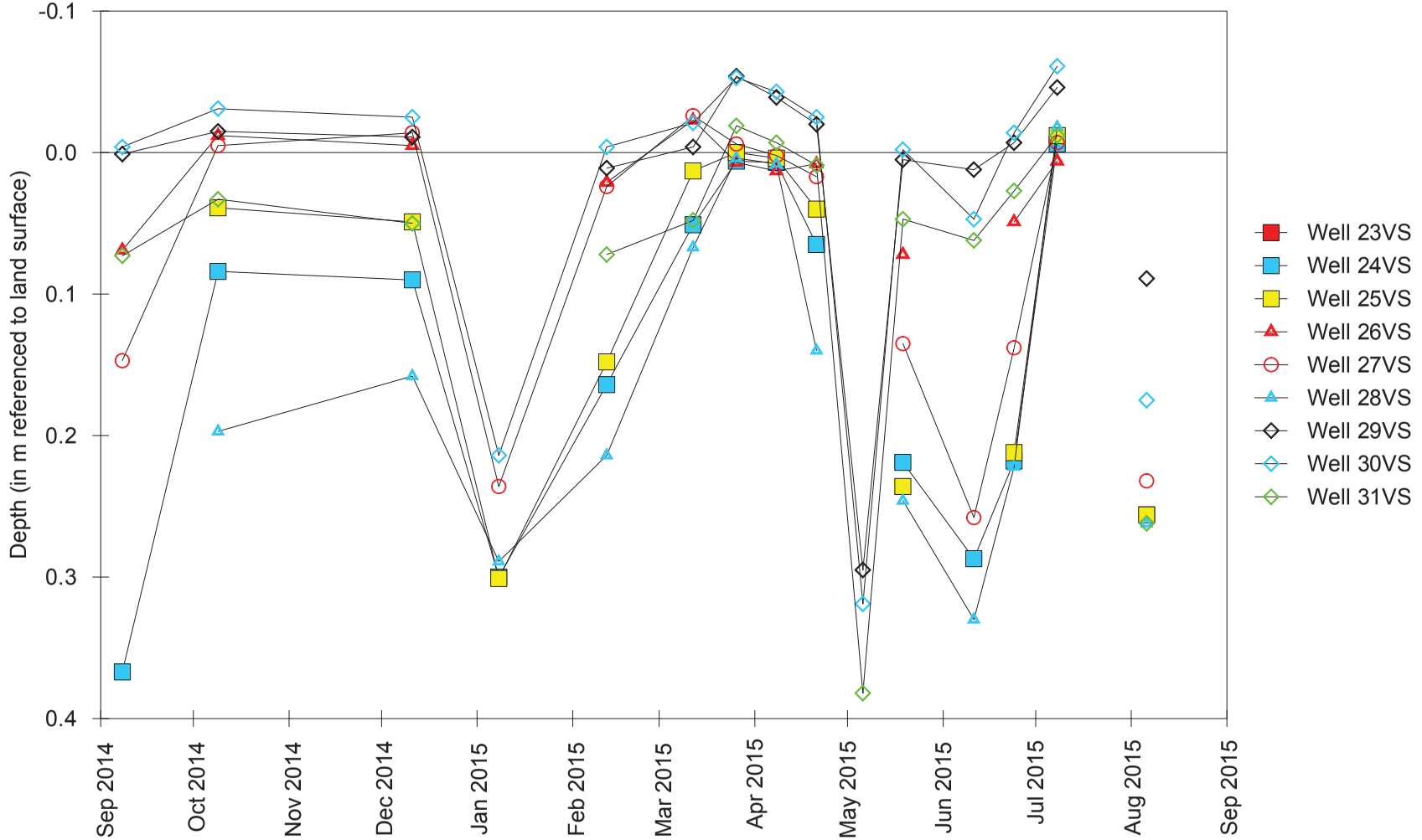
Former Tiernan Property Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Very Shallow Monitoring Wells



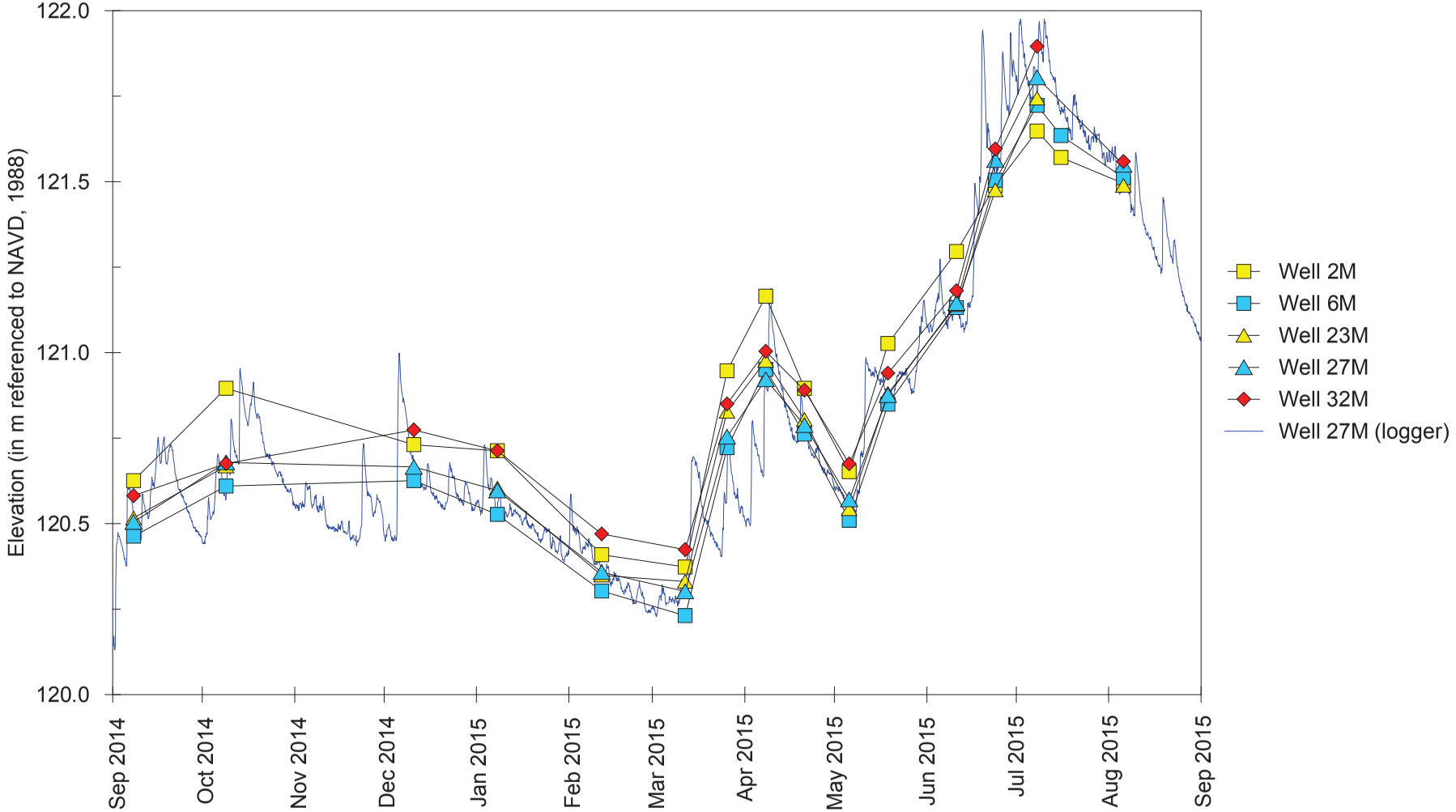
Former Tiernan Property Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Very Shallow Monitoring Wells



Former Tiernan Property Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

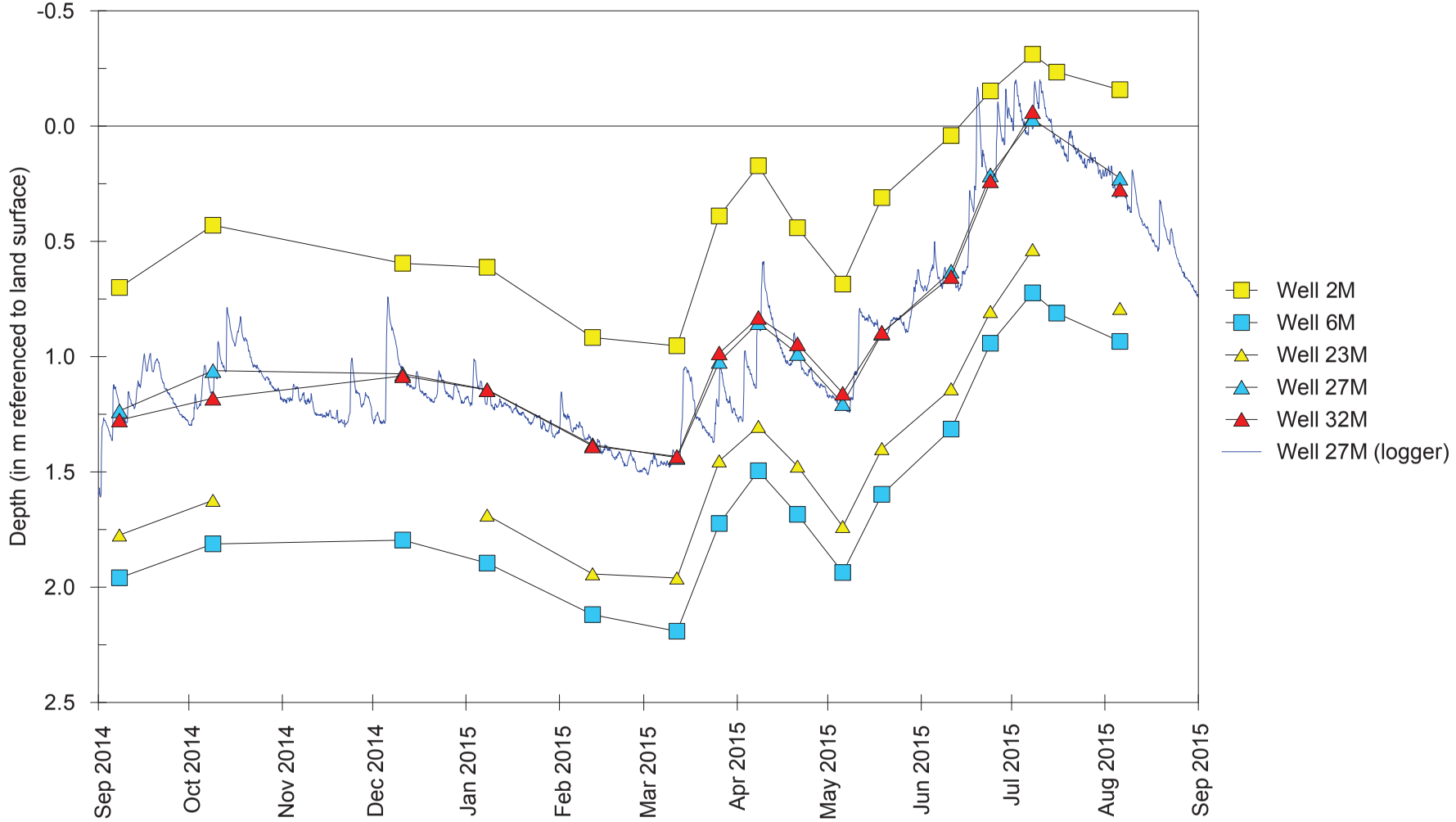
Water-Level Elevations in Deeper Monitoring Wells



09

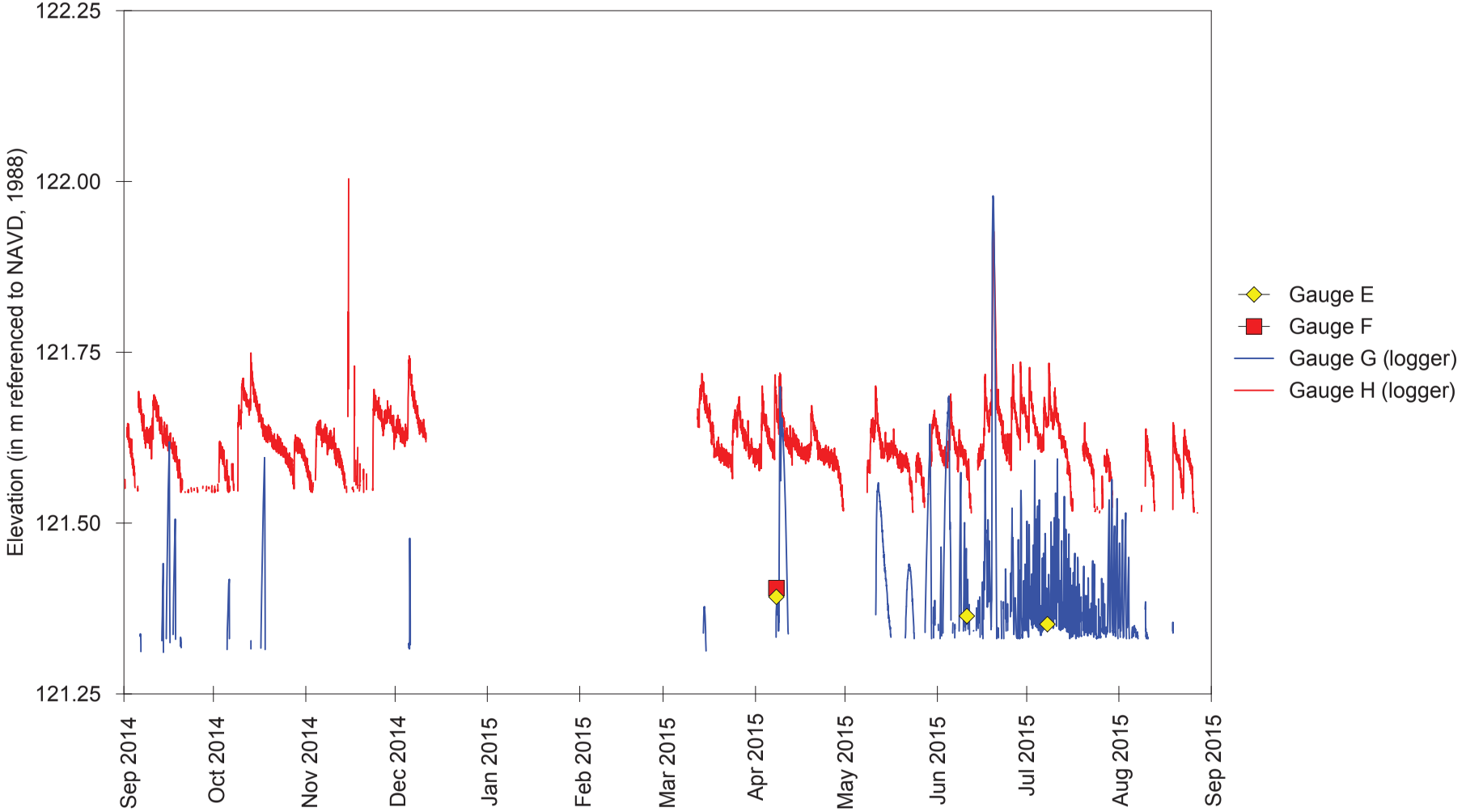
Former Tiernan Property Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Deeper Monitoring Wells

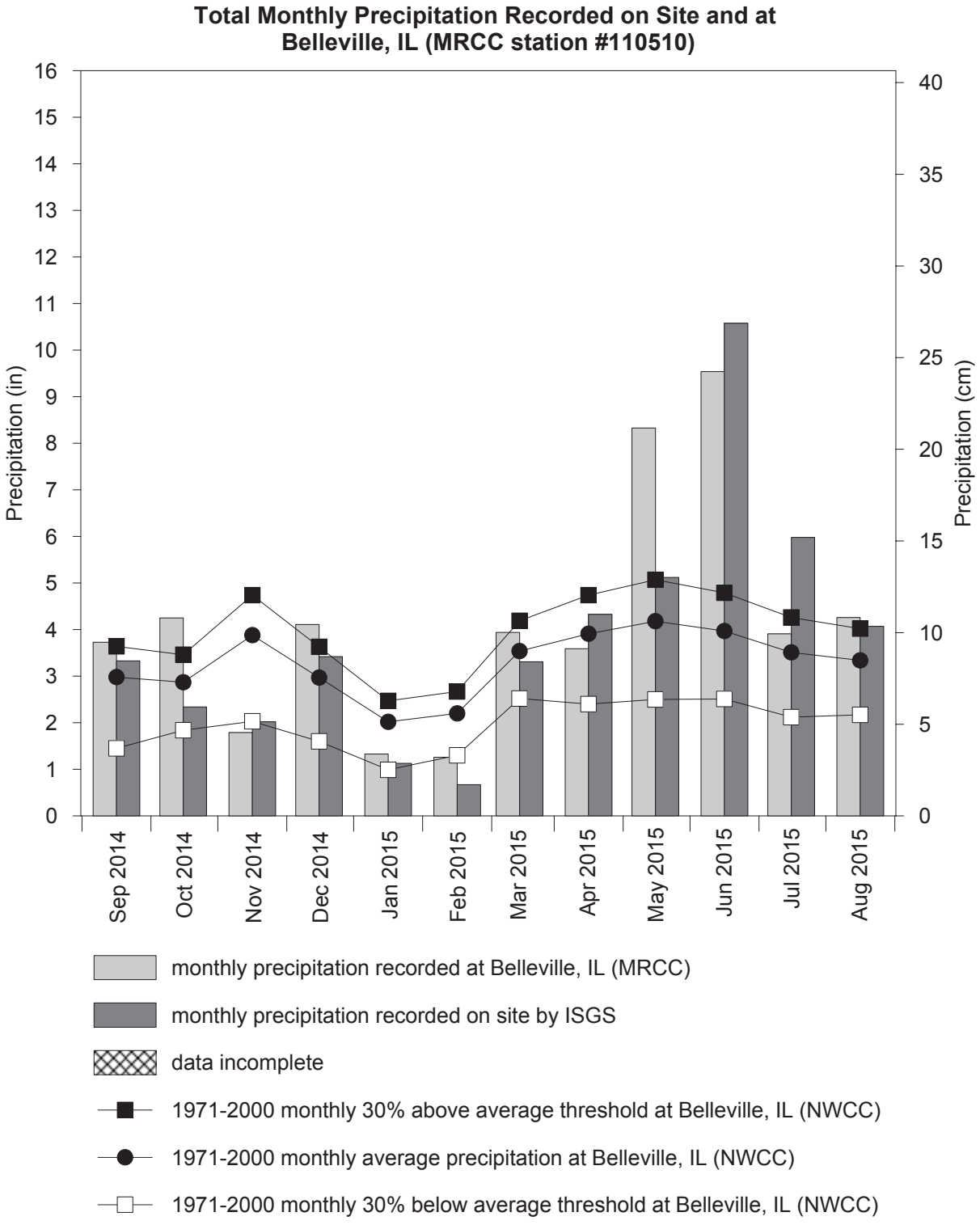


Former Tiernan Property Potential Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



Former Tiernan Property Potential Wetland Mitigation Site
September 2014 through August 2015



SUGAR CAMP CREEK **ISGS #74**
WETLAND AND STREAM MITIGATION BANK
Sequence #9282
Franklin County, Northern Township, Illinois
Primary Project Manager: Geoffrey E. Pociask
Secondary Project Manager: Jessica L. B. Monson

SITE HISTORY

- December 2004: The ISGS submitted an initial site evaluation report to IDOT.
- March 2007: The ISGS submitted the Level II hydrogeologic characterization report to IDOT (ISGS Open-File Series 2007–02).
- June 2009: A wetland and stream mitigation banking instrument was approved by the Interagency Review Team.
- August 2011: The IDOT tasked ISGS to monitor Phase 1 of the Sugar Camp Creek Wetland and Stream Mitigation Bank for performance standards.
- Summer 2013: Trees were planted in Phase 2.

WETLAND HYDROLOGY CALCULATION FOR 2015

The total target compensation area, including Phase 1 and Phase 2 of the Sugar Camp Creek wetland mitigation bank, is 28.00 ha (69.20 ac). Using the 1987 Manual (Environmental Laboratory 1987), 29.15 ha (72.03 ac) of the total bank area of 42.57 ha (105.20 ac) satisfied wetland hydrology criteria for greater than 5% of the growing season in 2015, and 28.69 ha (70.89 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 29.15 ha (72.03 ac) of the wetland bank satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. The areas that satisfied wetland hydrology criteria within each phase of the mitigation bank can be found in the 'Additional Information' section below. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Du Quoin, Illinois, is March 30, and the season lasts 217 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 11 days and 12.5% of the growing season is 27 days. Using the 2010 Midwest Region Supplement, March 11 was the starting date of the 2015 growing season based on soil temperatures measured on site and at the nearby Harrisburg, Site 3, wetland mitigation site (ISGS #87).
- Total precipitation for the monitoring period at nearby Du Quoin, Illinois (MRCC #112483), was 126% of normal, and Spring 2015 (March through May) precipitation was 120% of normal. Precipitation during June 2015 was particularly excessive with rainfall 243% of normal.
- In 2015, all wells satisfied wetland hydrology criteria for greater than 5% of the growing season, and all wells except 37S and 62S satisfied wetland hydrology criteria for greater than 12.5% of the growing season using the 1987 Manual. Furthermore, using the 2010 Midwest Region Supplement, all wells satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season.

- Data from Gauge A in Sugar Camp Creek indicated that eight floods inundated portions of the site during the 2015 growing season, but the duration of inundation from each of these floods was not sufficient to satisfy wetland hydrology criteria.

- In the Phase 1 area, data from gauges L and P indicated that areas at and below 124.05 m (406.99 ft) and 124.01 m (406.86 ft), respectively, were inundated for greater than 5% of the growing season and areas at and below 124.04 m (406.96 ft) and 123.99 m (406.79 ft) were inundated for greater than 12.5% of the growing season, using the 1987 Manual. Also, data from gauges L and P indicated that areas at and below 124.05 m (406.99 ft) and 123.99 m (406.79 ft), respectively, were inundated for 14 or more consecutive days during the growing season, using the 2010 Midwest Region Supplement. In the Phase 2 area, data from gauges M, N and O indicated that areas at and below 123.66 m (405.71 ft), 123.96 m (406.69 ft), and 124.02 m (406.89 ft) respectively, were inundated for greater than 5% of the growing season and areas at and below 123.65 m (405.68 ft), 123.93 m (406.59 ft), and 124.01 m (406.86 ft) respectively, were inundated for greater than 12.5% of the growing season, using the 1987 Manual. Also, data from gauges M, N, and O indicated that areas at and below 123.66 m (405.71 ft), 123.94 m (406.63 ft), and 124.01 m (406.86 ft) respectively, were inundated for 14 or more consecutive days during the growing season, using the 2010 Midwest Region Supplement.

ADDITIONAL INFORMATION

- Phase 1 of the wetland mitigation bank is in year 3 and Phase 2 is in year 2 of post-construction monitoring. Therefore, we present wetland hydrology acreage separately for each phase in this section. Using the 1987 Manual (Environmental Laboratory 1987), 14.25 ha (35.20 ac) of Phase 1 and 14.90 ha (36.83 ac) of Phase 2 satisfied wetland hydrology criteria for greater than 5% of the growing season, and 14.05 ha (34.73 ac) of Phase 1 and 14.63 ha (36.16 ac) of Phase 2 satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement, 14.25 ha (35.20 ac) of Phase 1 and 14.90 ha (36.83 ac) of Phase 2 satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season.

- Elevated water levels remain in the south portion of Phase 1 and in Sugar Camp Creek due to beaver dams.

- Development of a coal mine immediately to the east of the site has progressed during 2015. It appears that mining activities could restrict site access from the east via Hen Lane. If east access is restricted then the Phase 1 area may be inaccessible during higher flows in Sugar Camp Creek.

PLANNED FUTURE ACTIVITIES

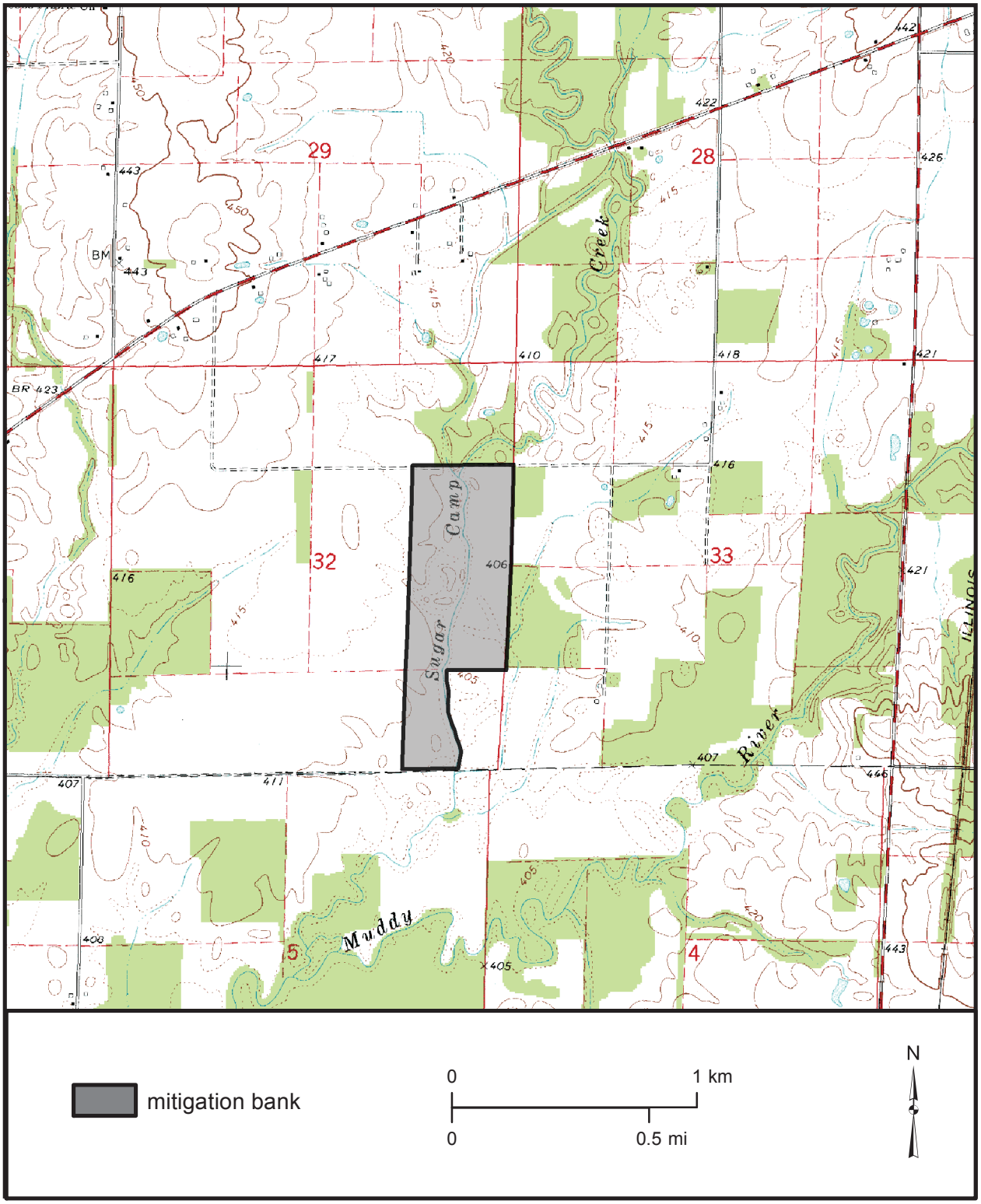
- Tasking for post-construction monitoring of Phase 2 is expected.

- Monitoring will continue until no longer required by IDOT.

Sugar Camp Creek Wetland and Stream Mitigation Bank

General Study Area and Vicinity

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

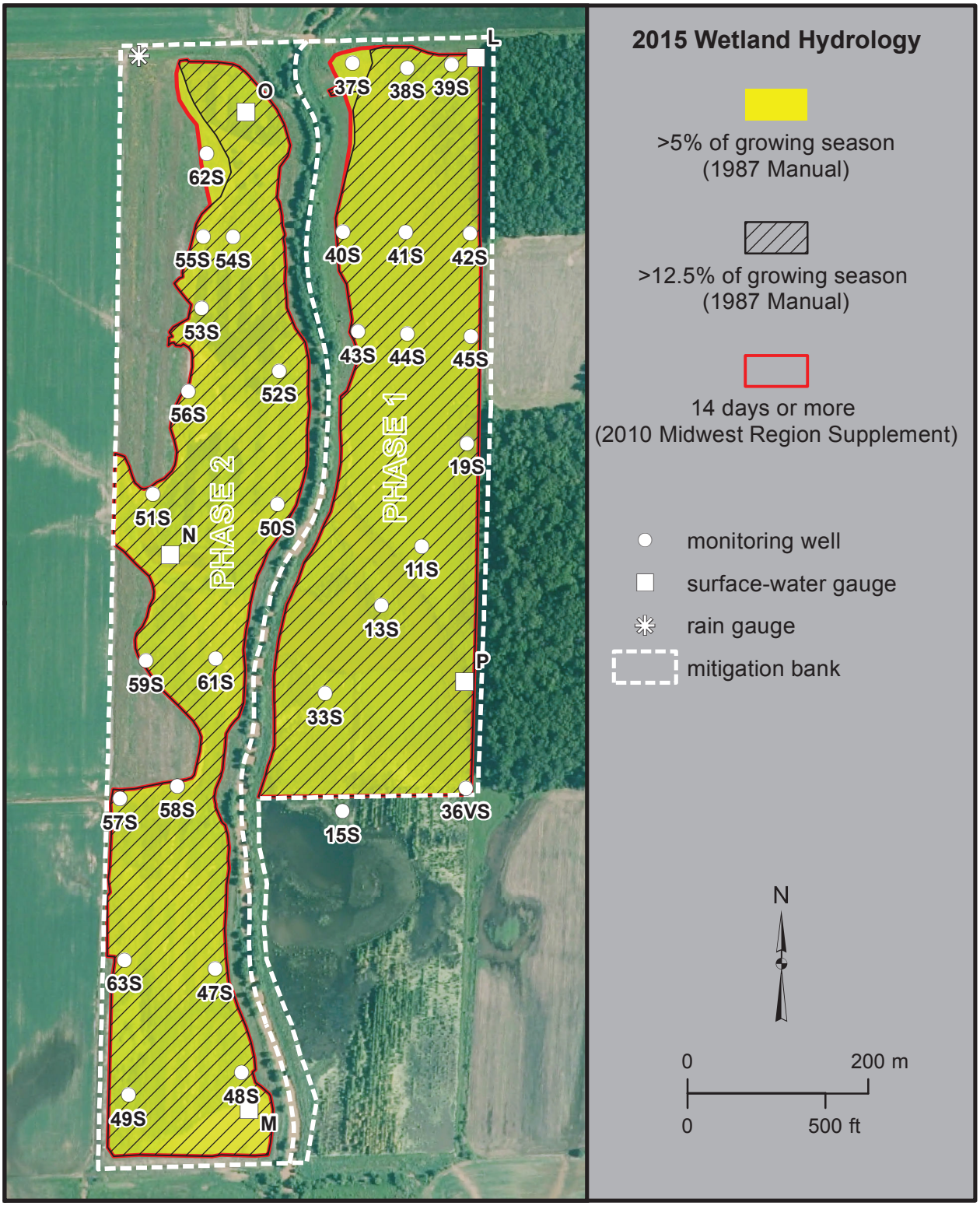


Sugar Camp Creek Wetland and Stream Mitigation Bank

Estimated Areal Extent of 2015 Wetland Hydrology

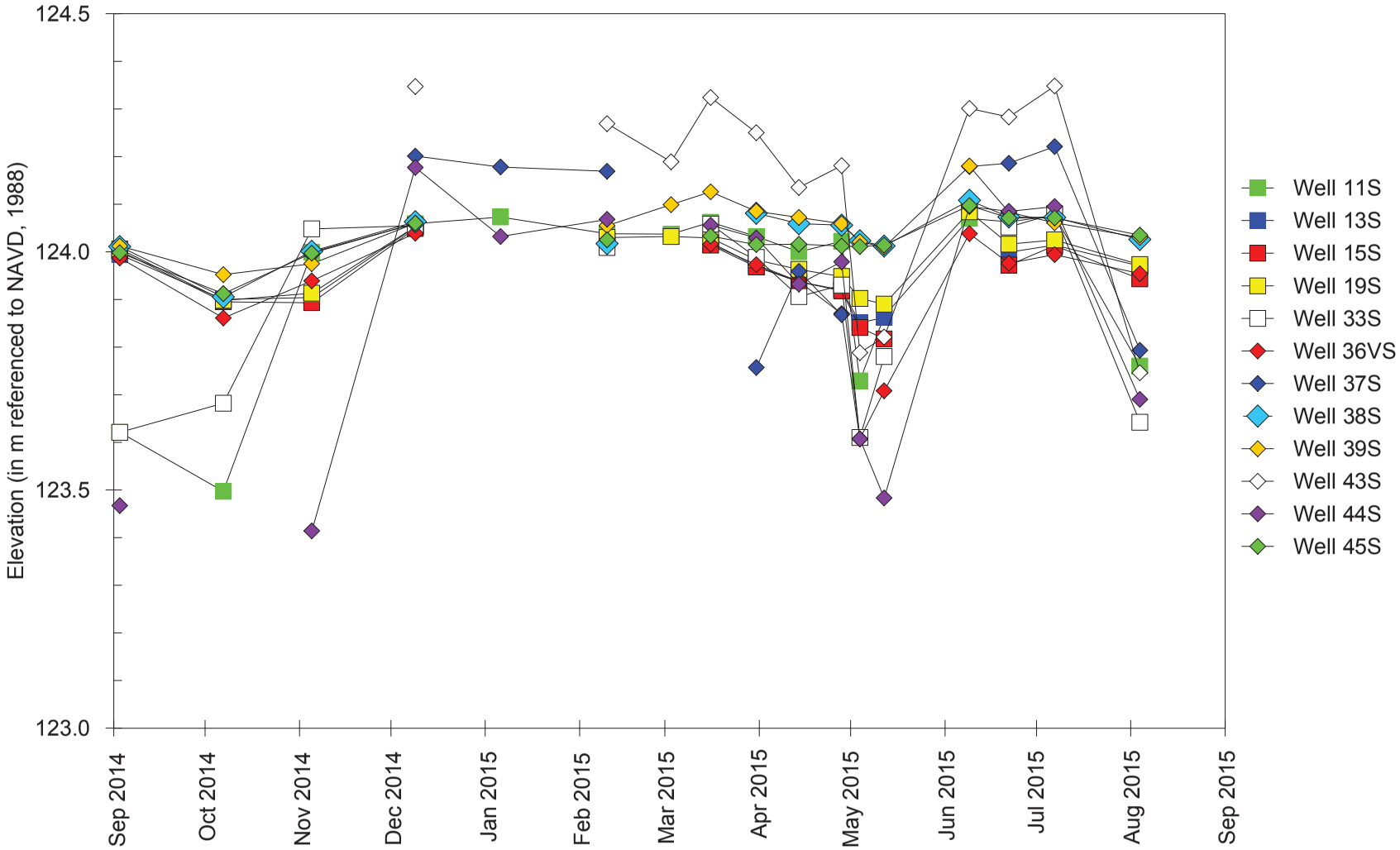
September 1, 2014 through August 31, 2015

Map based on 2012 Farm Service Agency digital orthophotography, Franklin County, Illinois (USDA-FSA 2012)



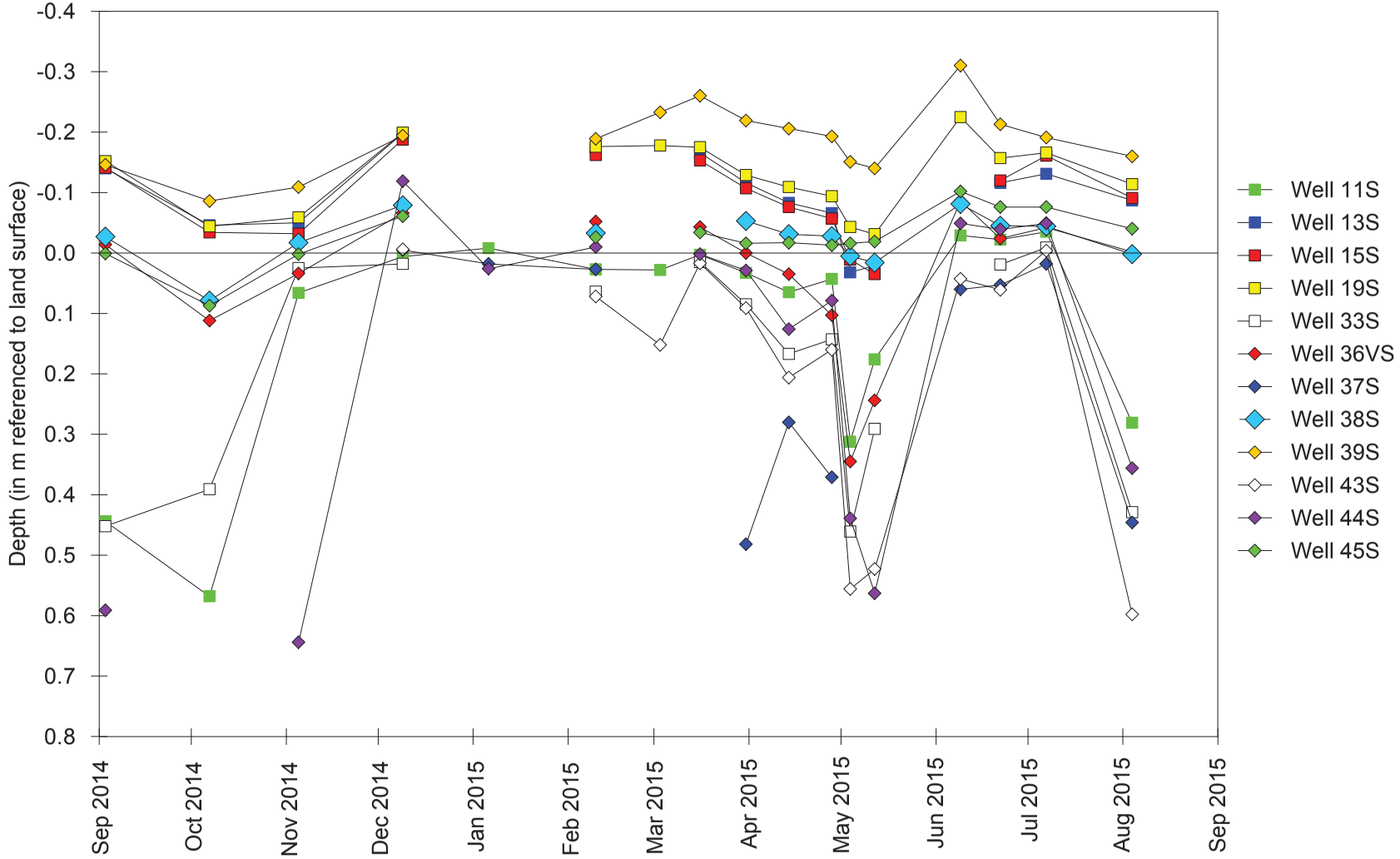
Sugar Camp Creek Wetland and Stream Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells in Phase I



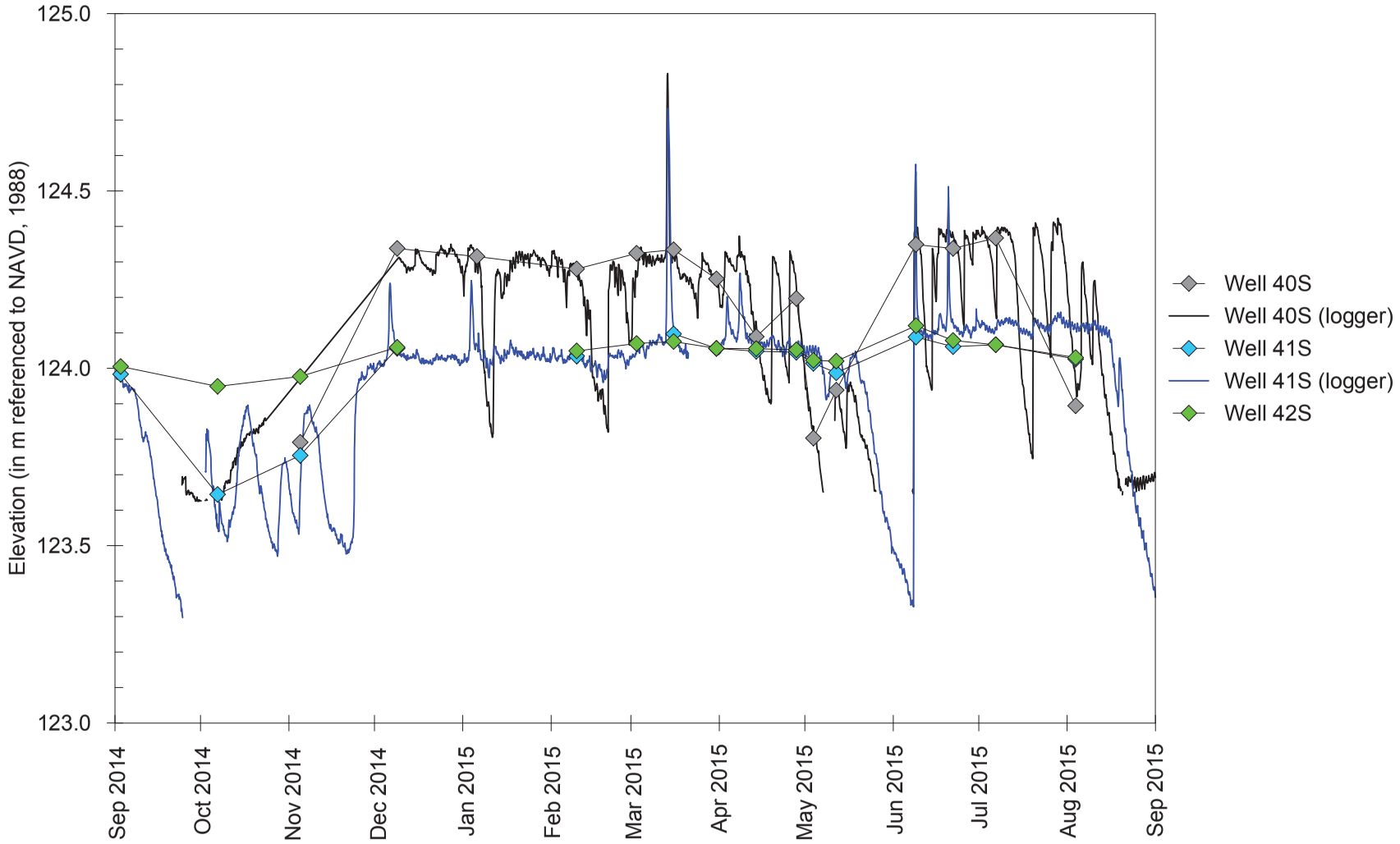
Sugar Camp Creek Wetland and Stream Mitigation Bank
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells in Phase I



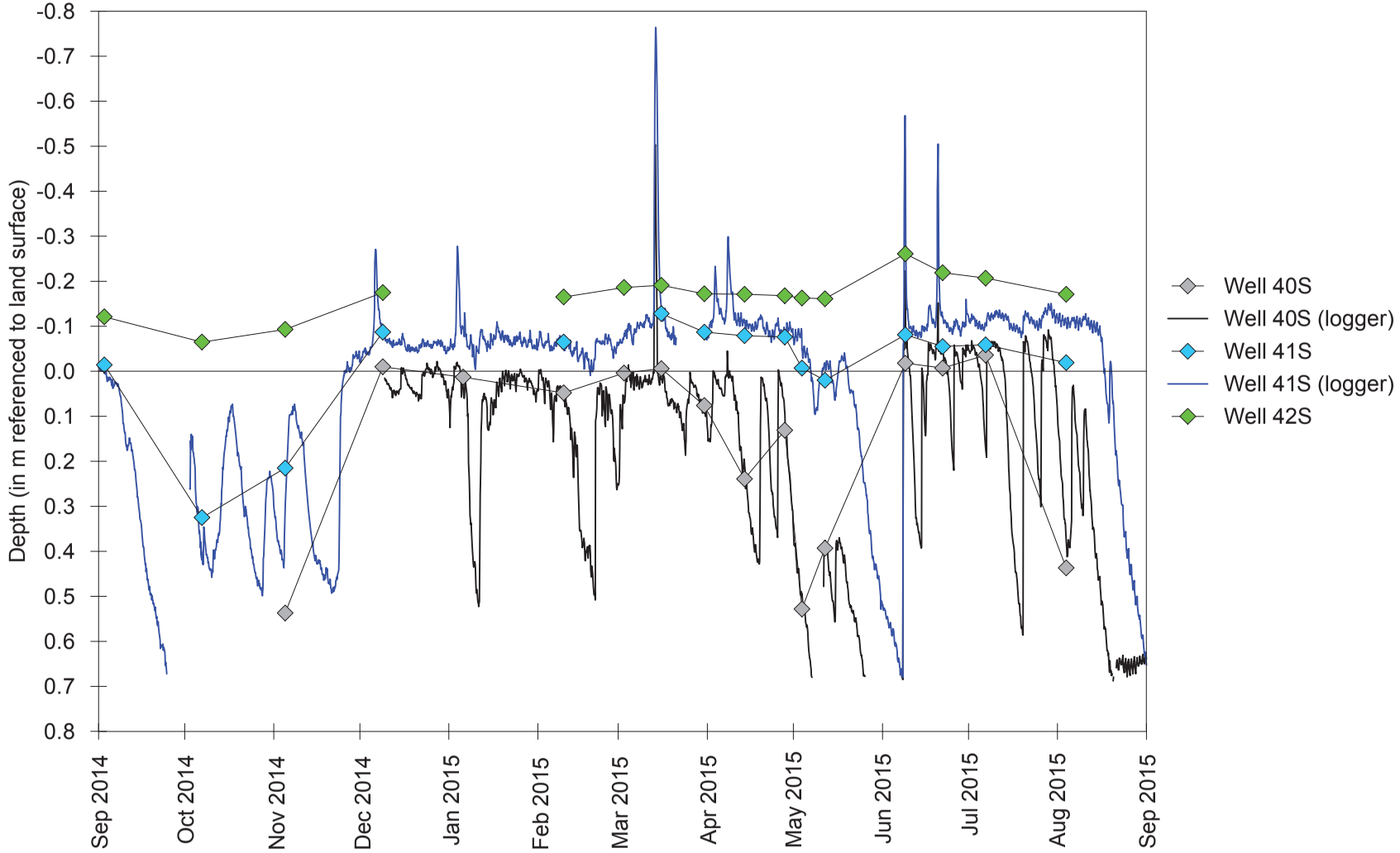
Sugar Camp Creek Wetland and Stream Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells in Phase I



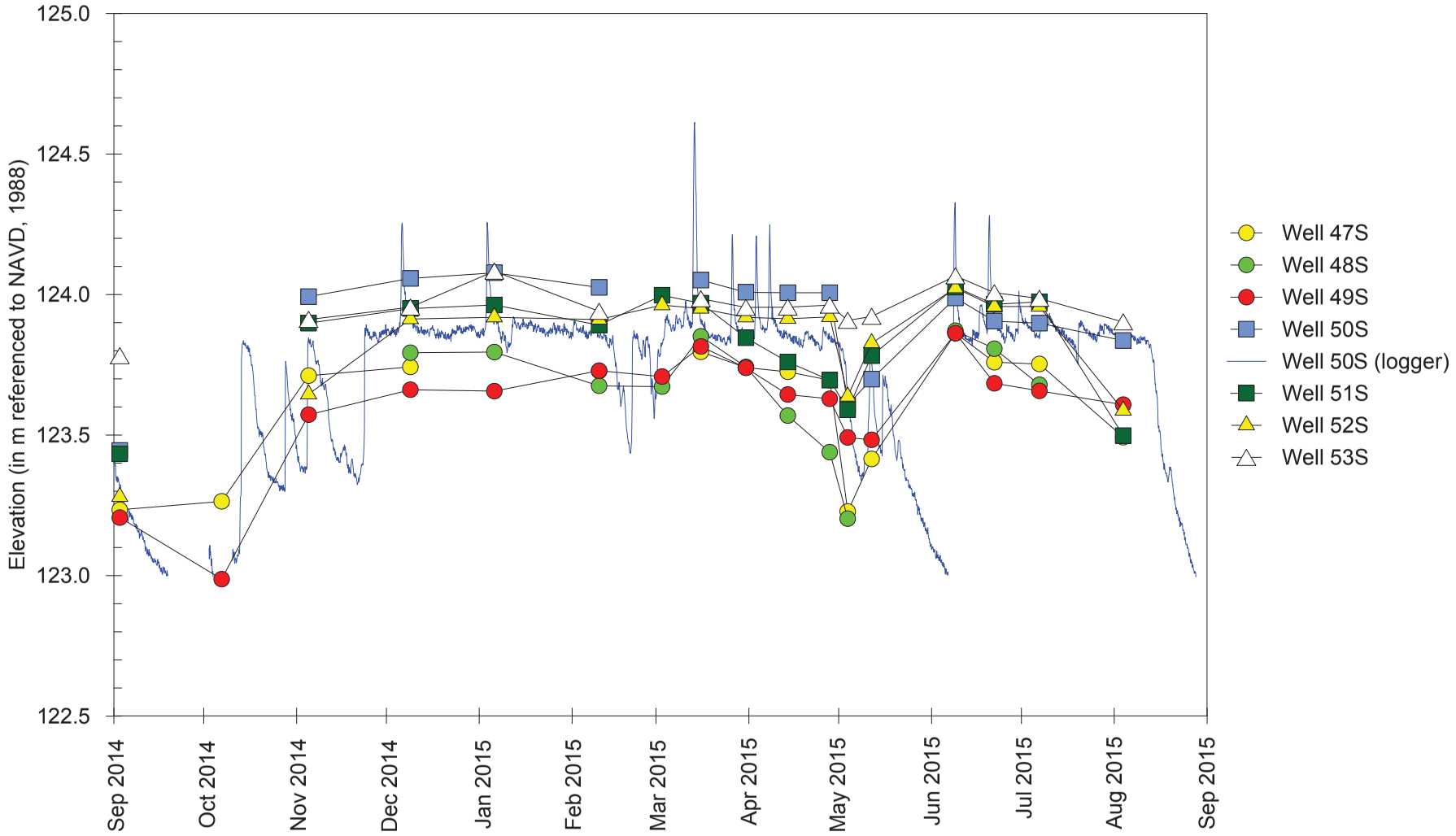
Sugar Camp Creek Wetland and Stream Mitigation Bank
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells in Phase I



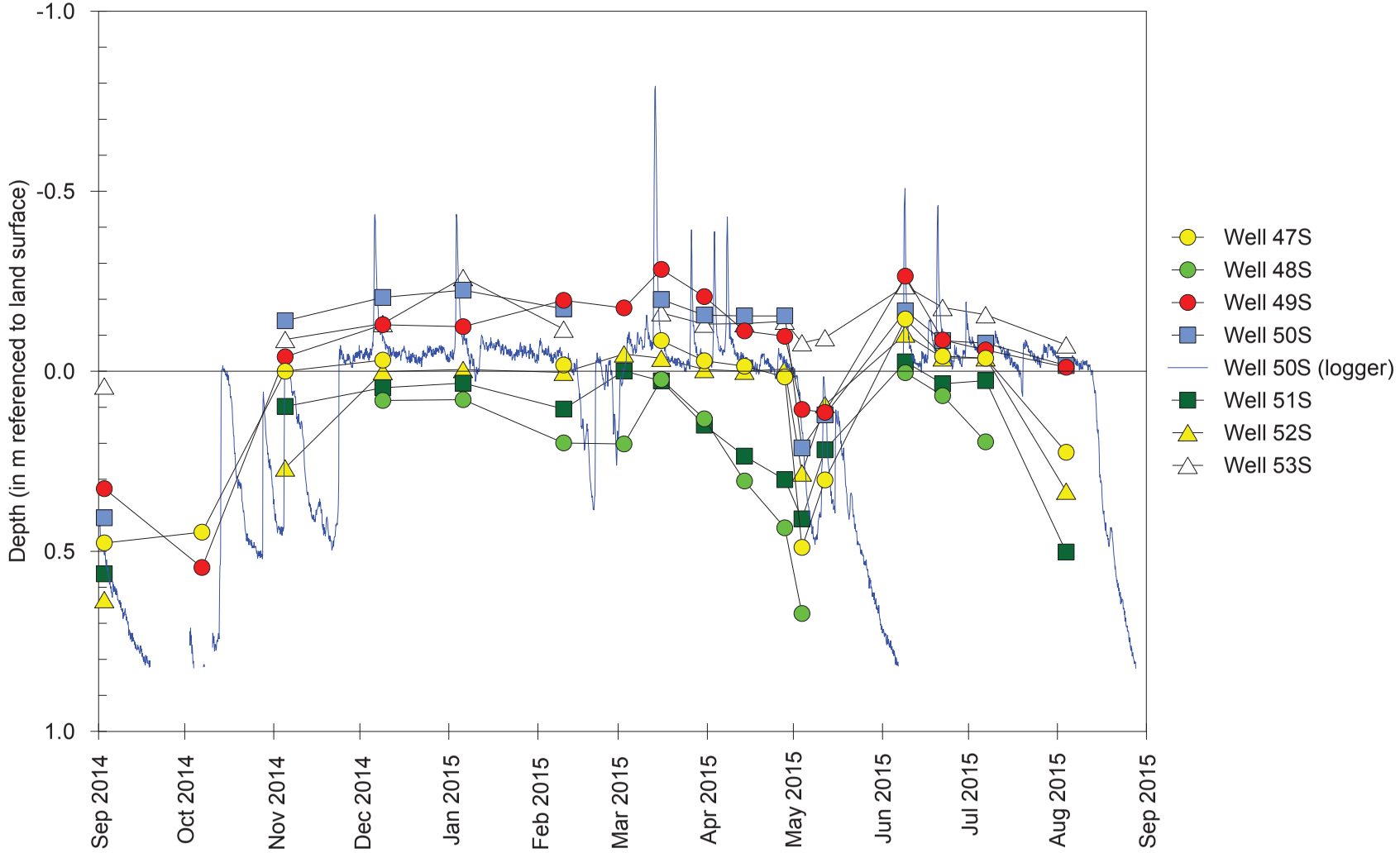
Sugar Camp Creek Wetland and Stream Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells in Phase II



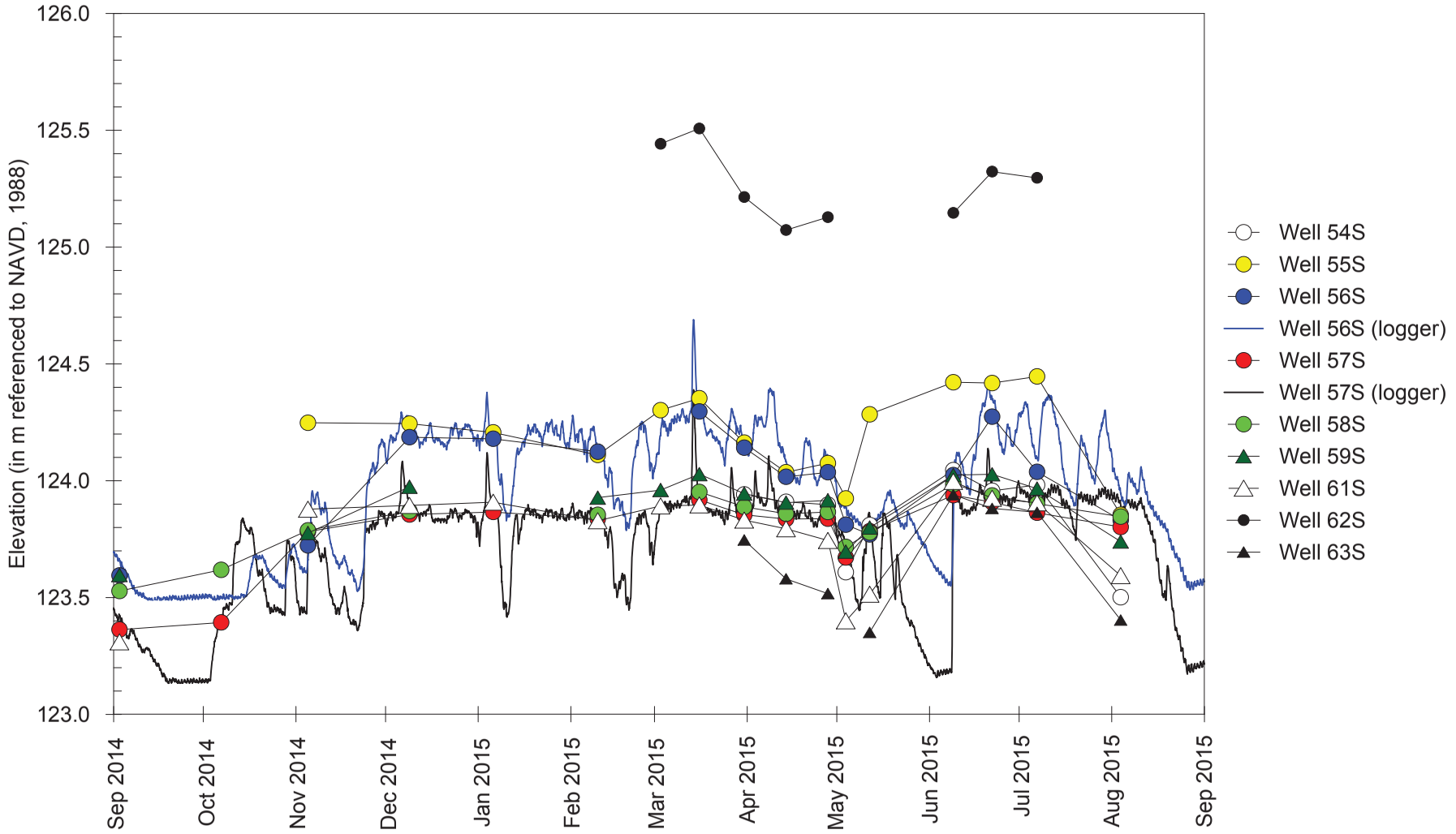
Sugar Camp Creek Wetland and Stream Mitigation Bank
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells in Phase II



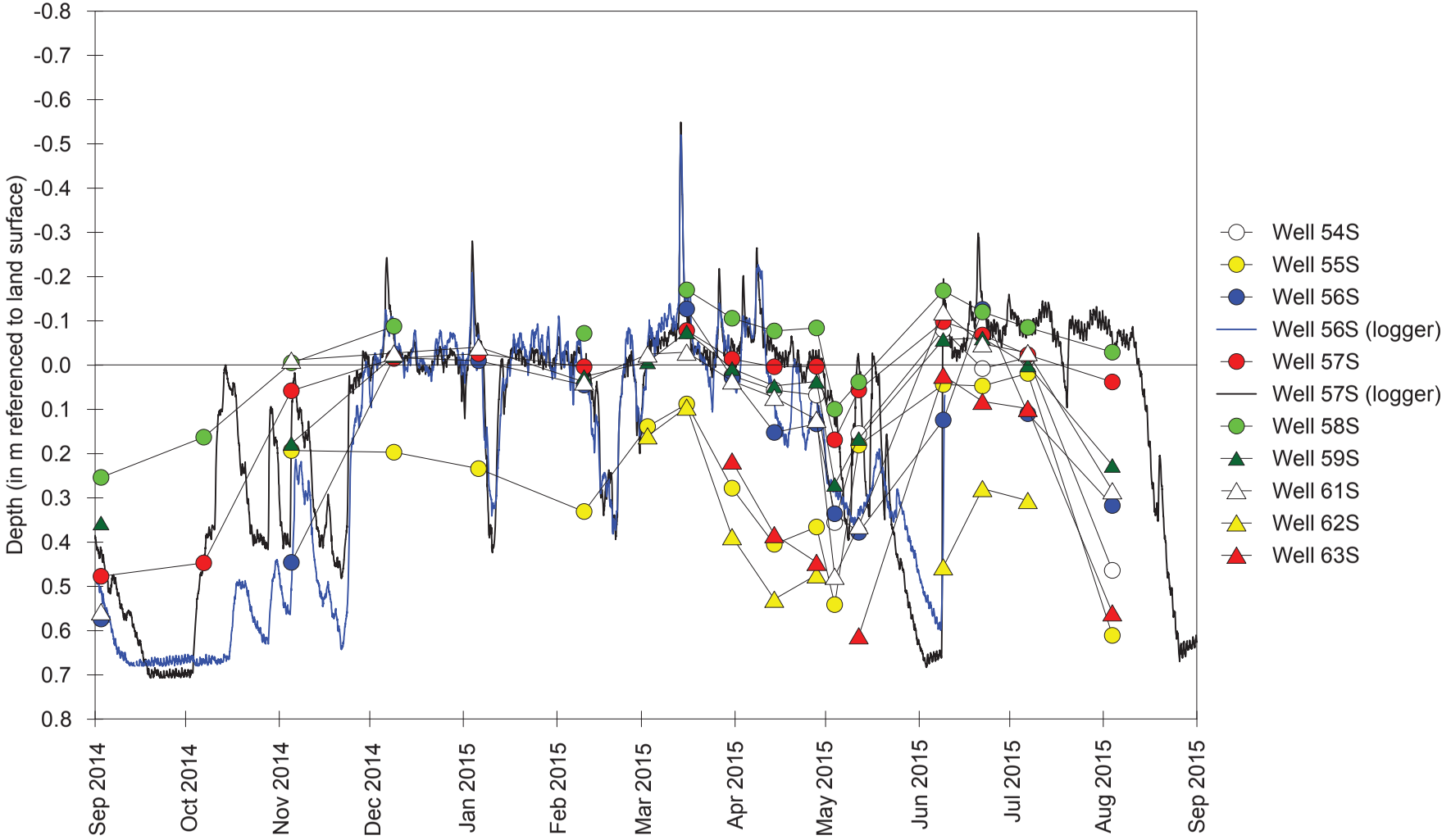
Sugar Camp Creek Wetland and Stream Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells in Phase II



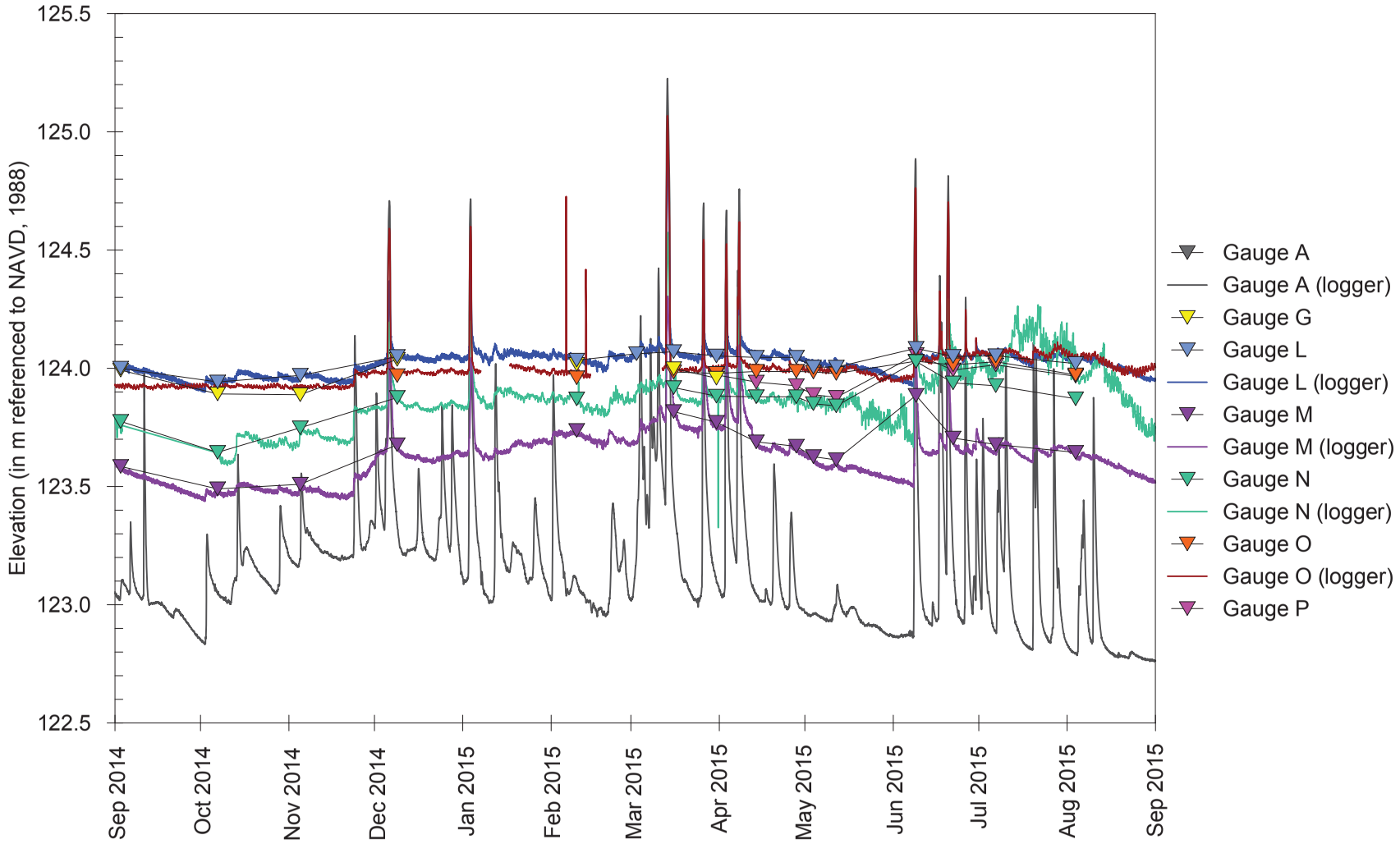
Sugar Camp Creek Wetland and Stream Mitigation Bank
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells in Phase II

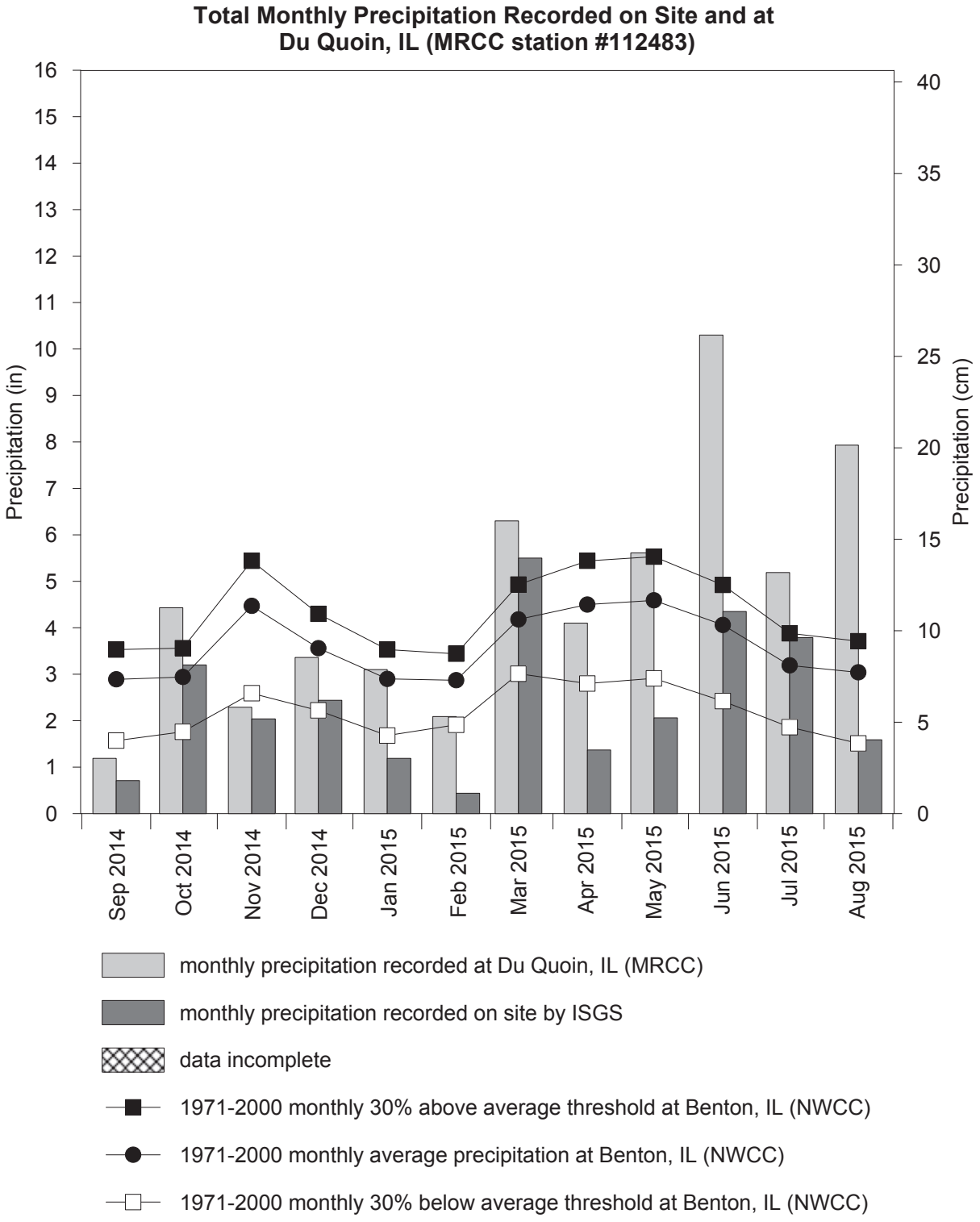


Sugar Camp Creek Wetland and Stream Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



Sugar Camp Creek Wetland and Stream Mitigation Bank
September 2014 through August 2015



PYRAMID SITE EC25 **ISGS #77**
WETLAND MITIGATION SITE
Pyatts Blacktop
FAS 864
Sequence #9778
Perry County, near Pinckneyville, Illinois
Primary Project Manager: Eric T. Plankell
Secondary Project Manager: Jessica L. B. Monson

SITE HISTORY

- June 2007: The ISGS was tasked by IDOT to monitor wetland hydrology.

- April 2008: The ISGS began on-site monitoring.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Pyramid Site EC25 wetland mitigation site is 4.57 ha (11.30 ac). Using the 1987 Manual (Environmental Laboratory 1987), 5.27 ha (13.02 ac) of the total site area of 5.30 ha (13.10 ac) satisfied wetland hydrology criteria for greater than 5% of the growing season and 4.84 ha (11.97 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 5.29 ha (13.06 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Du Quoin, Illinois, is March 30, and the season lasts 217 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 11 days, and 12.5% of the growing season is 27 days. Using the 2010 Midwest Region Supplement, March 12 was the starting date of the 2015 growing season based on soil temperatures measured on site.

- Total precipitation for the monitoring period at Du Quoin, Illinois (MRCC station #112483), was 126% of normal. During Spring 2015 (March through May), precipitation was 120% of normal.

- In 2015, water levels measured in all monitoring wells except well 5SR satisfied wetland hydrology criteria for greater than 5% of the growing season, using the 1987 Manual. Additionally, wells 1VS, 4S, 7S, 7VS, 8VS, 9VS, 11S, 12VS, 14VS, and 15VS satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, all monitoring wells except well 5SR satisfied wetland hydrology criteria for 14 or more consecutive days of the growing season.

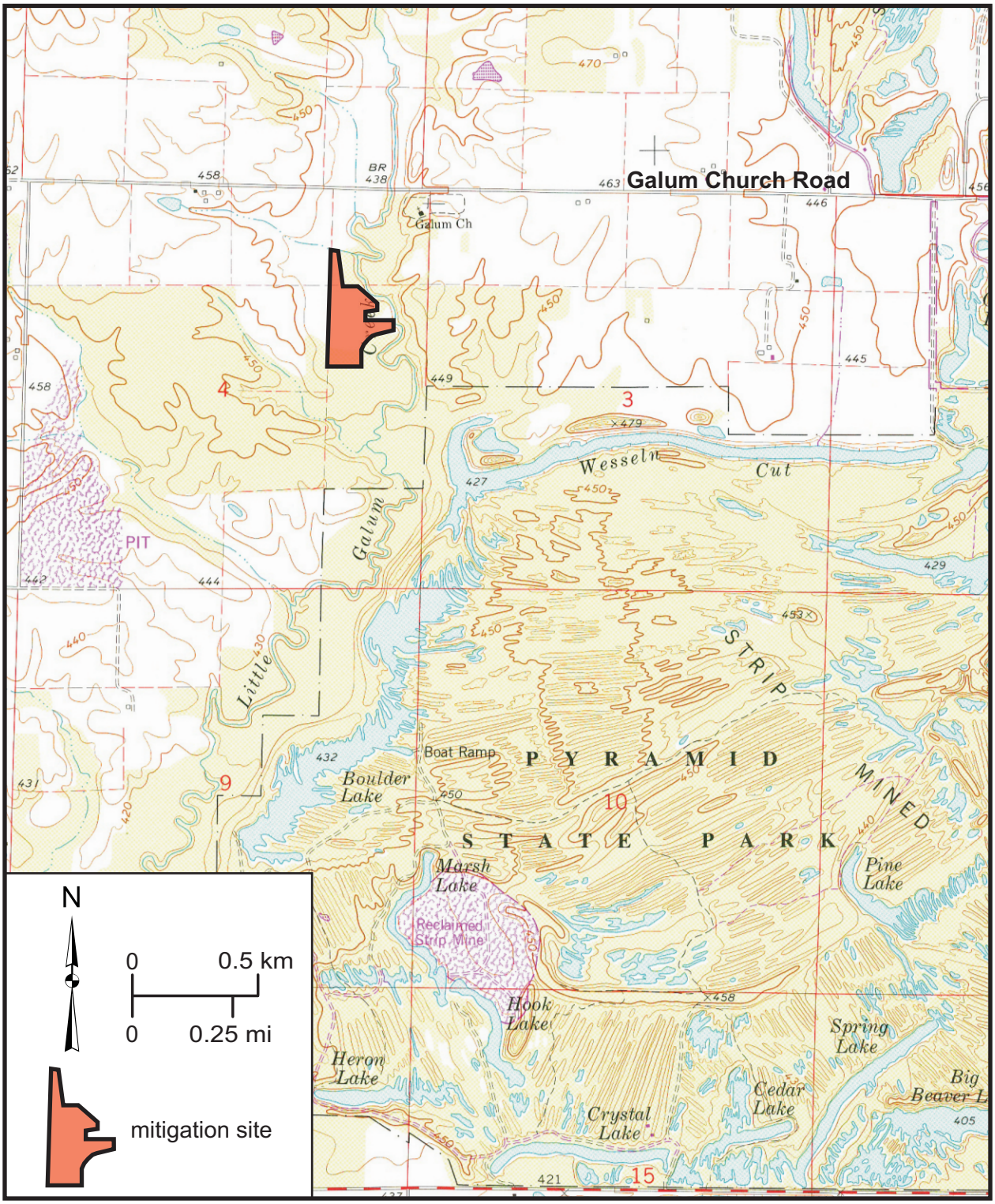
- Surface-water levels measured at Gauge BR indicated inundation at and below 131.58 m (431.69 ft) for greater than 5% and greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, surface-water levels measured at Gauge BR indicated inundation at and below 131.58 m (431.69 ft) for 14 or more consecutive days of the growing season.

PLANNED FUTURE ACTIVITIES

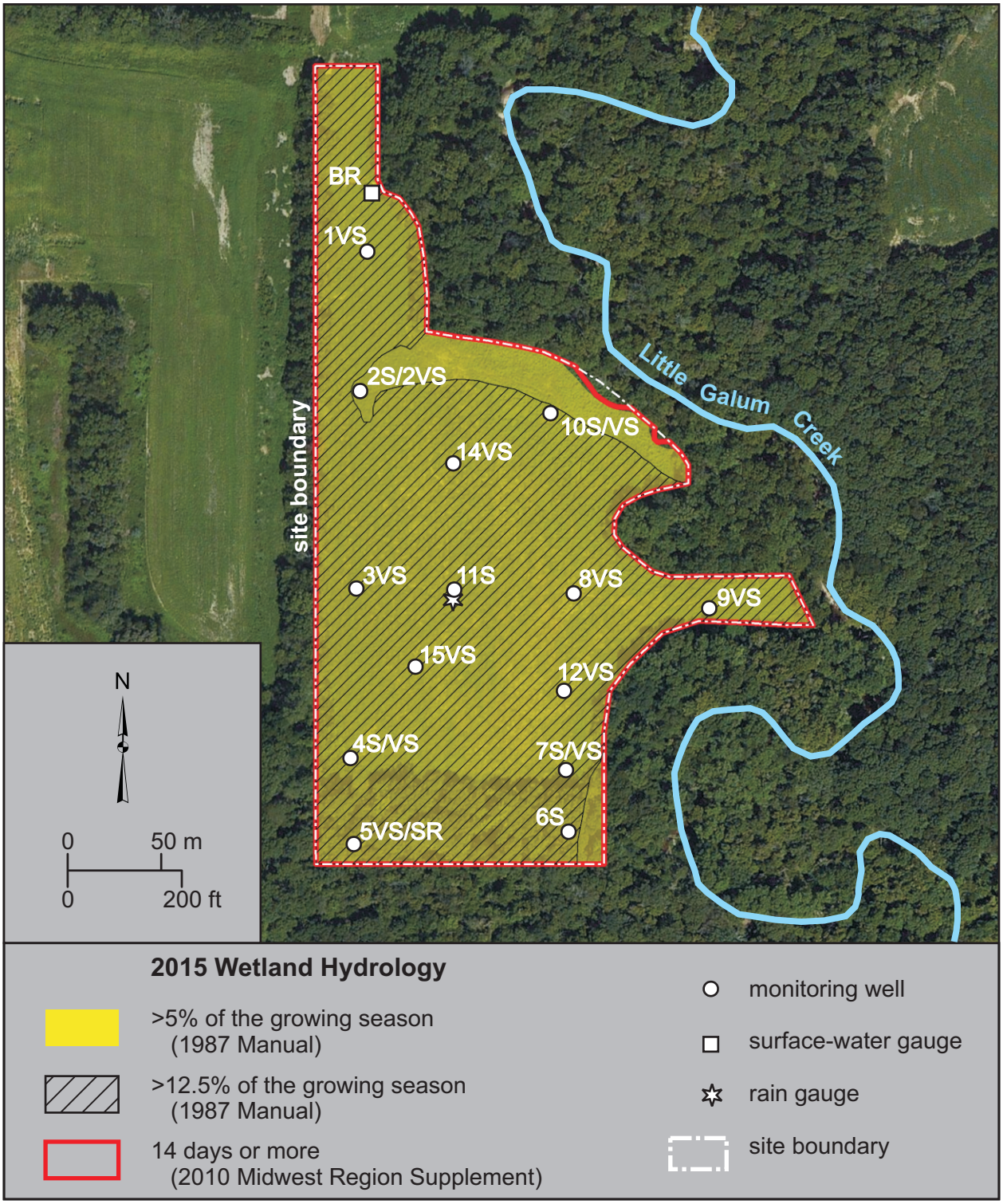
- Monitoring will continue at the site until no longer required by IDOT.

Pyramid Site EC25 Wetland Mitigation Site
(Pyatts Blacktop, FAS 864)
General Study Area and Vicinity

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

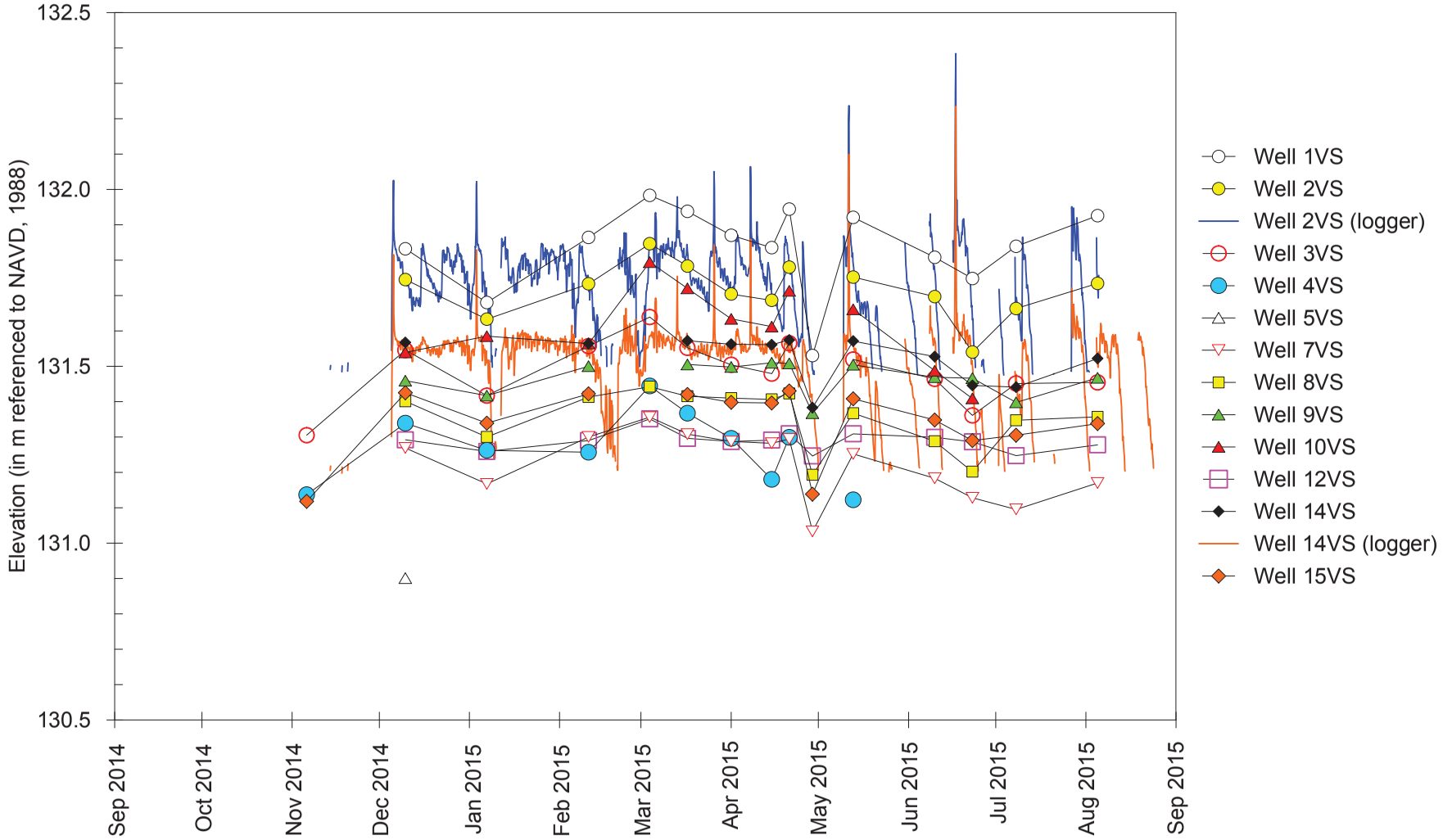


Pyramid Site EC25 Wetland Mitigation Site
(Pyatts Blacktop, FAS 864)
Estimated Areal Extent of 2015 Wetland Hydrology
September 1, 2014 through August 31, 2015
Map based on imagery available from Esri (Esri 2015)



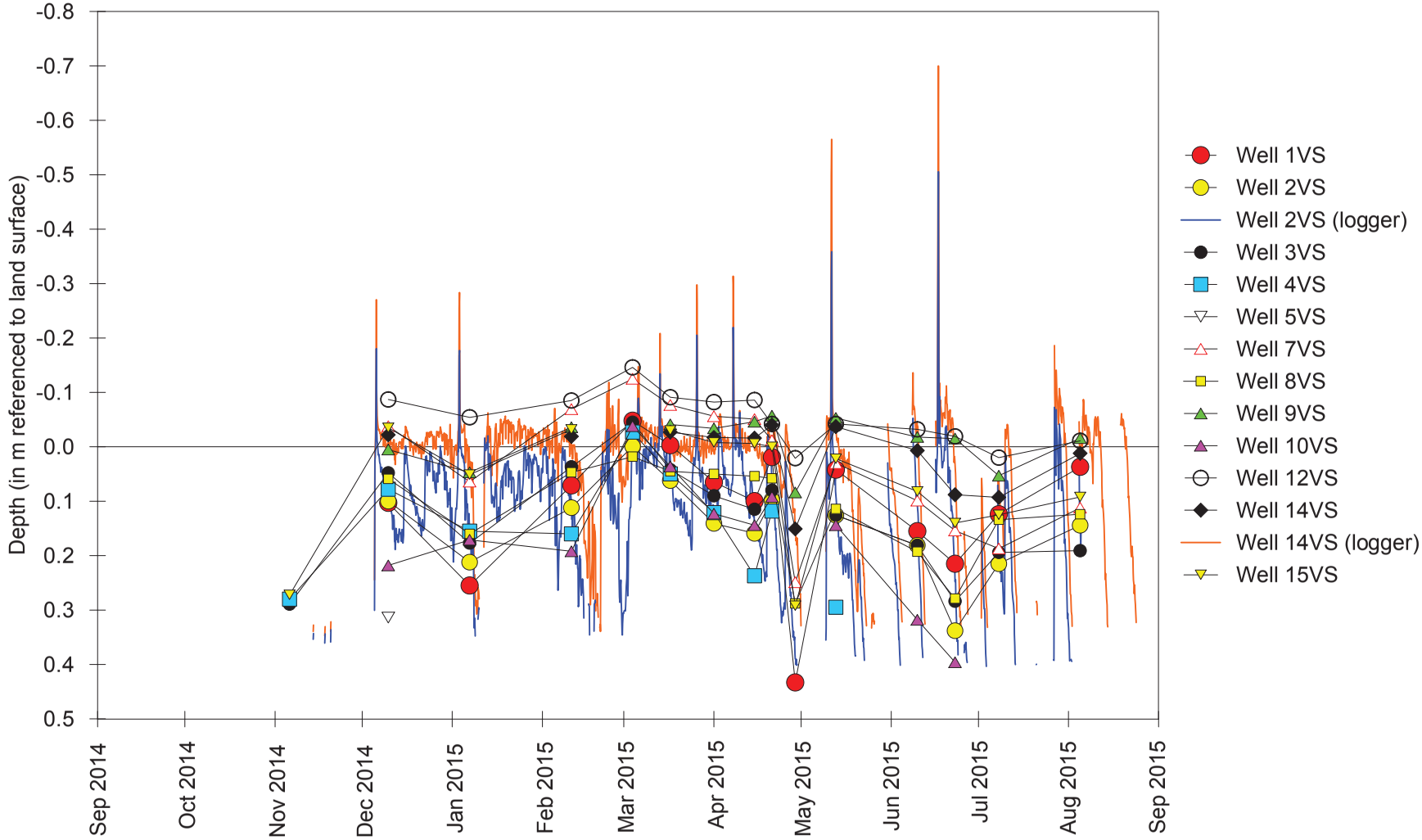
Pyramid Site EC25 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Very Shallow (VS) Monitoring Wells



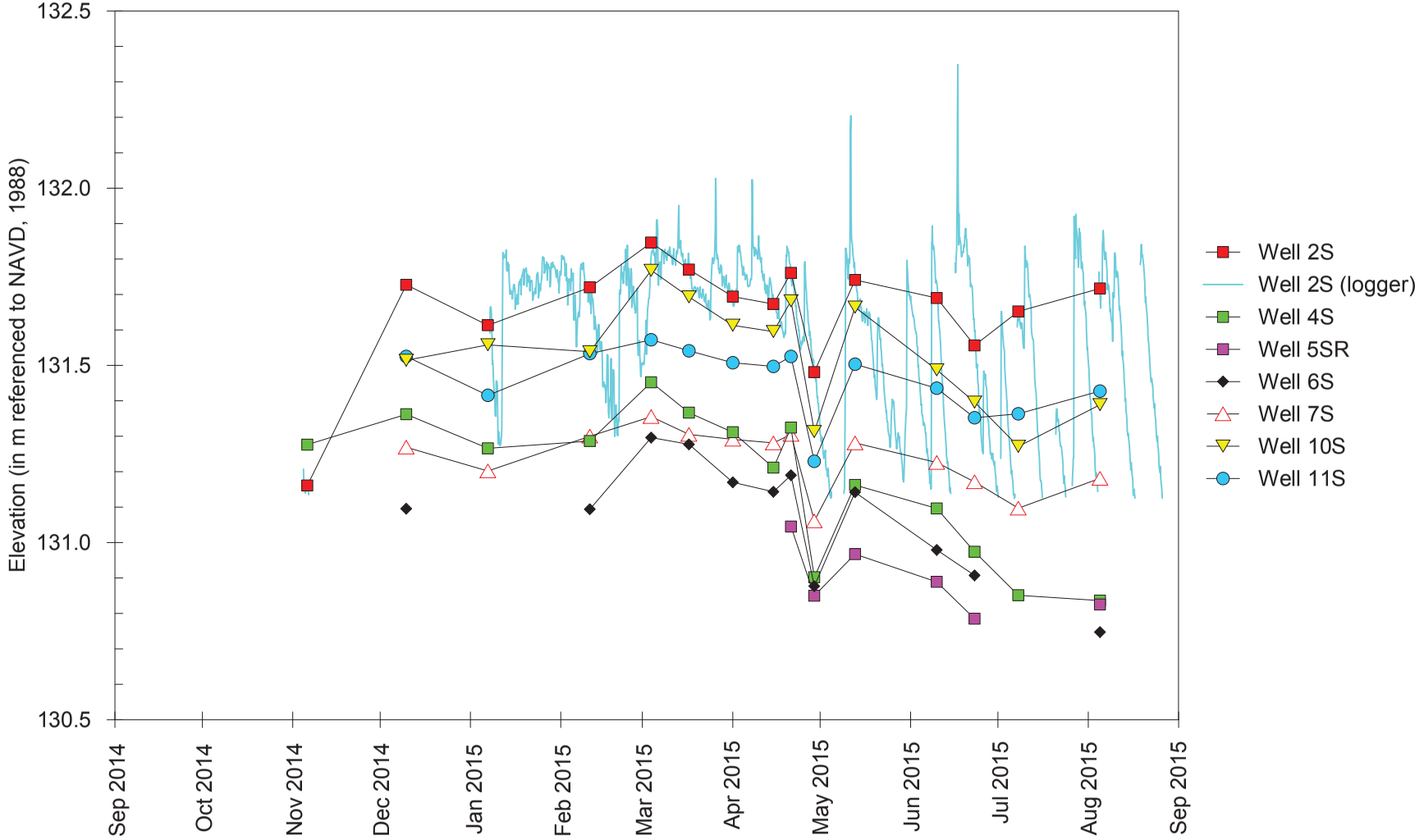
Pyramid Site EC25 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Very Shallow (VS) Monitoring Wells



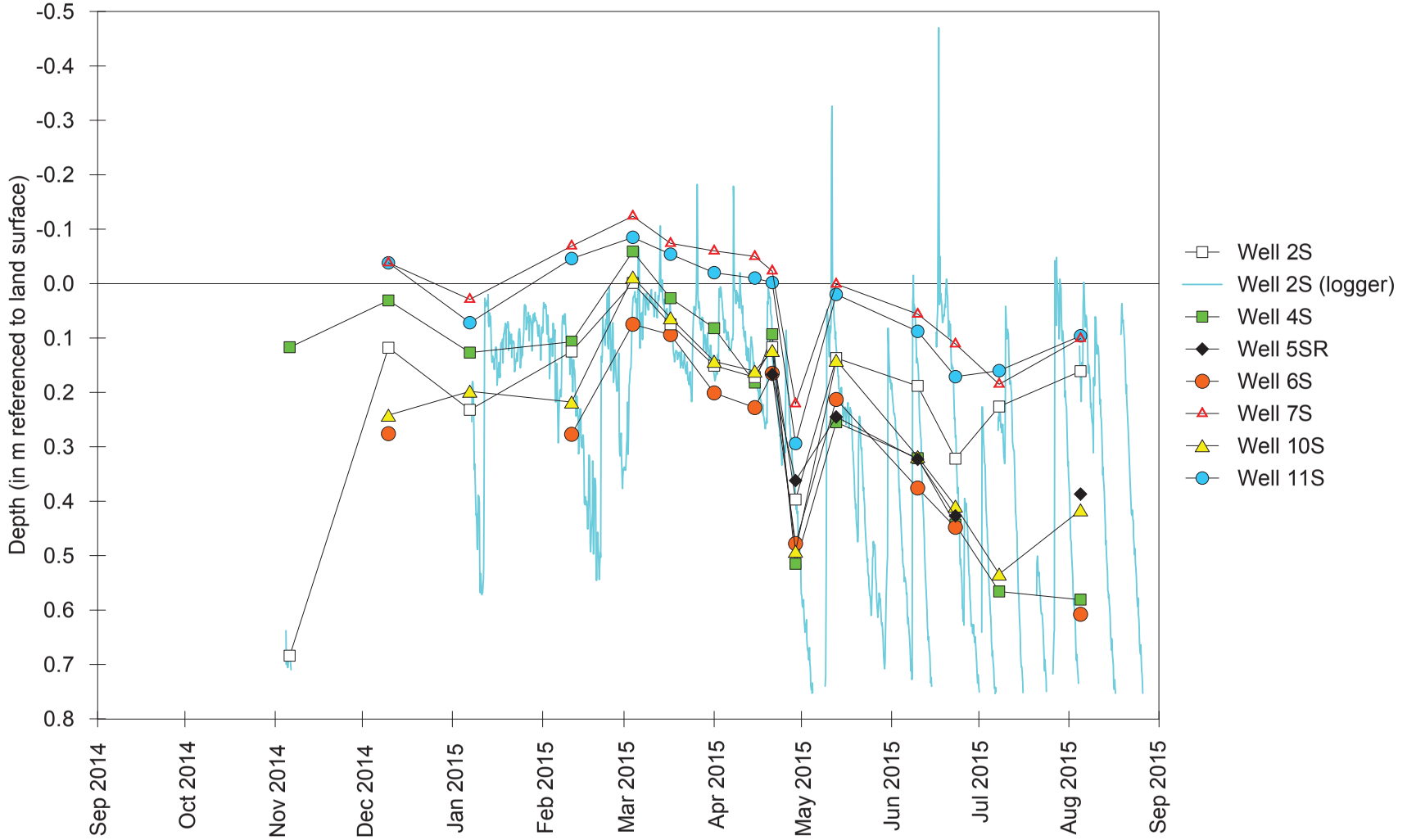
Pyramid Site EC25 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Shallow (S) Monitoring Wells



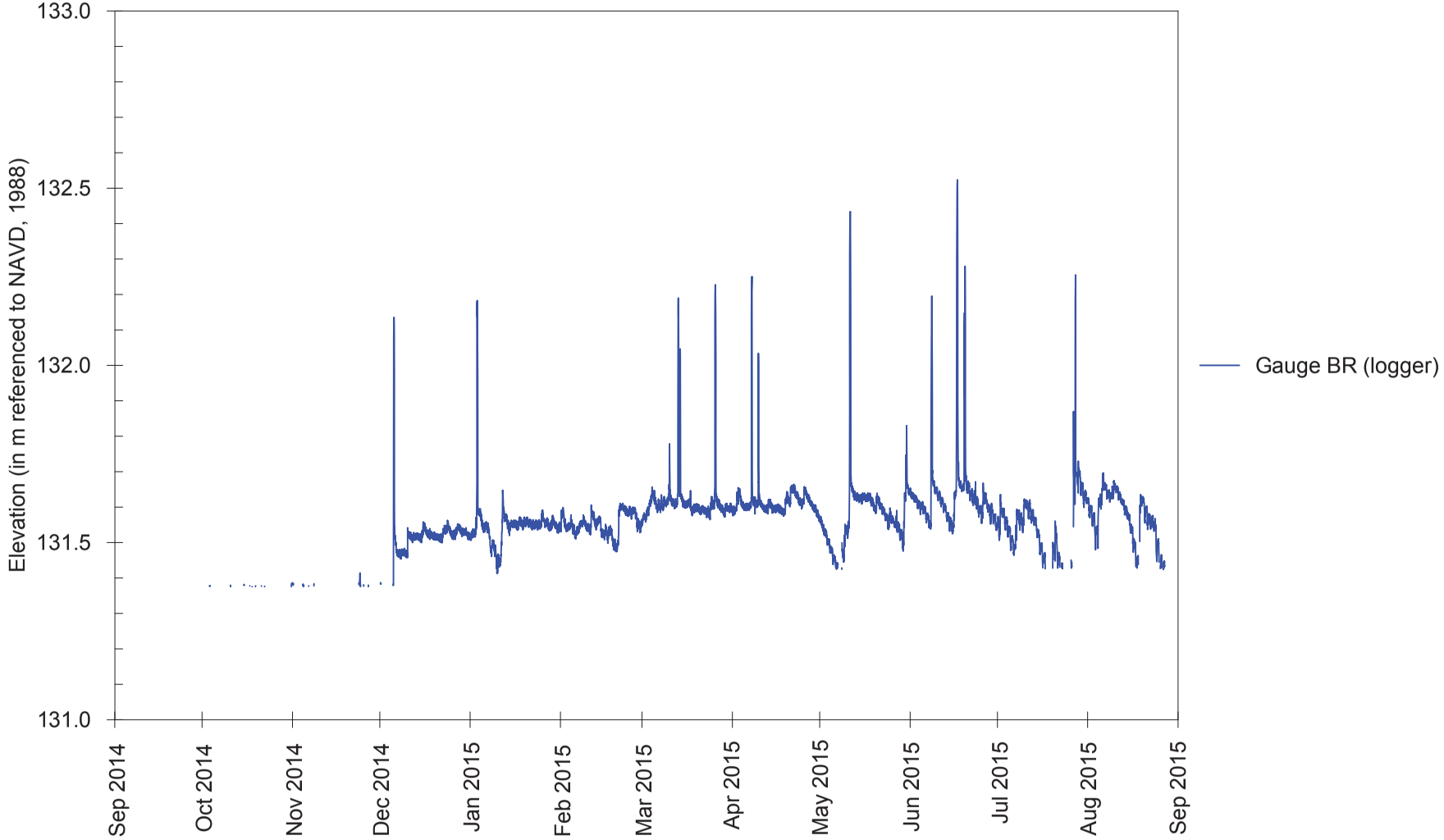
Pyramid Site EC25 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow (S) Monitoring Wells



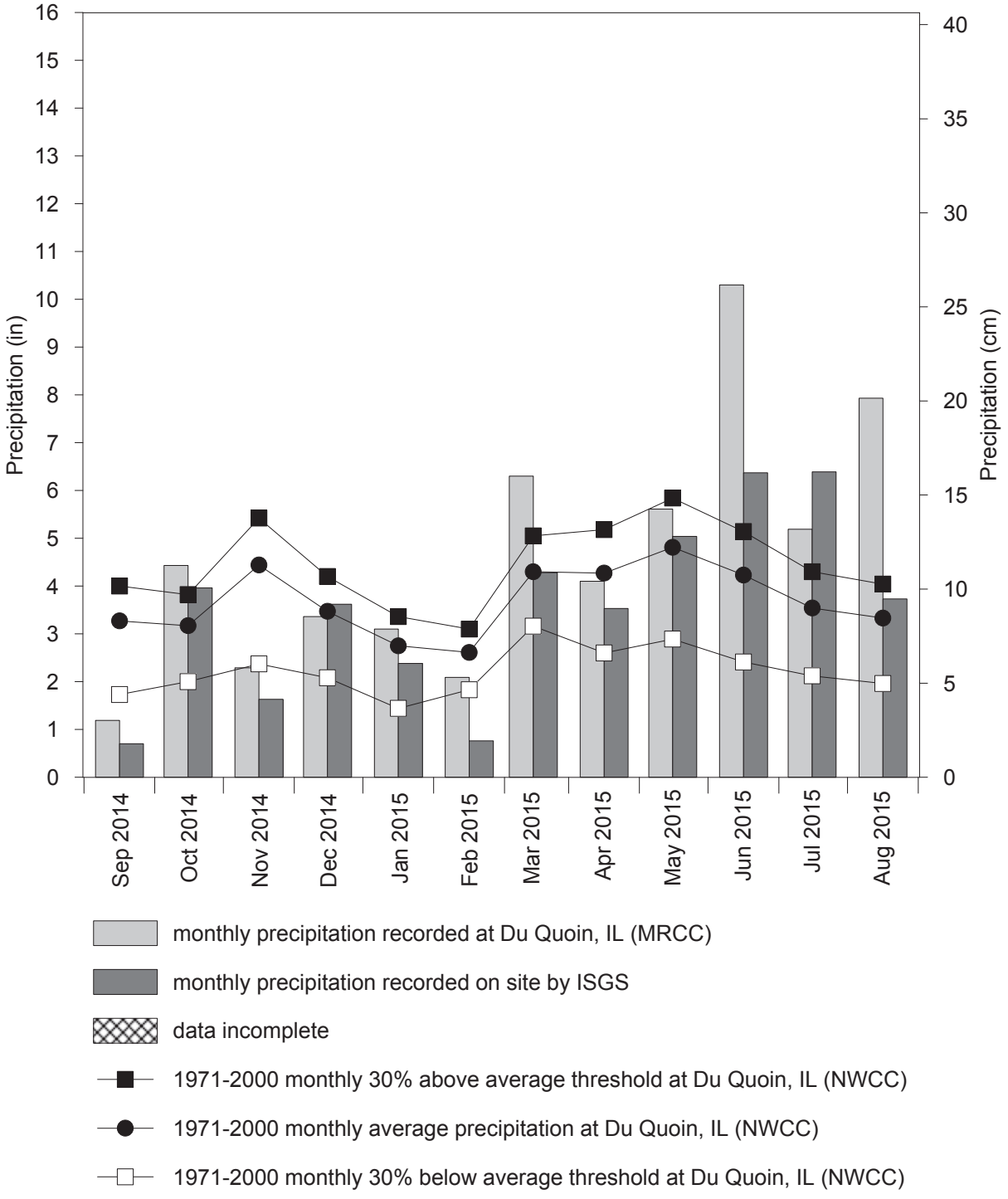
Pyramid Site EC25 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at the Surface-Water Gauge



Pyramid Site EC25 Wetland Mitigation Site
September 2014 through August 2015

Total Monthly Precipitation Recorded on Site and at Du Quoin, IL (MRCC station #112483)



HARRISBURG, SITE 2 **ISGS #78**
WETLAND MITIGATION SITE
IL 14
FAP 857
Sequence #547
Saline County, near Harrisburg, Illinois
Primary Project Manager: Geoffrey E. Pociask
Secondary Project Manager: Jessica L. B. Monson

SITE HISTORY

- October 2007: Construction began at the wetland mitigation site.

- March 2008: The ISGS was tasked by IDOT to monitor the site for performance standards as outlined in the wetland mitigation plan, and post-construction water-level monitoring was initiated.

- May 2008: Construction at the wetland mitigation site was completed.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Harrisburg, Site 2 wetland mitigation site is 4.13 ha (10.20 ac). Using the 1987 Manual (Environmental Laboratory 1987), 9.31 ha (23.00 ac) out of a total site area of approximately 14.16 ha (35.00 ac) satisfied wetland hydrology criteria for greater than 5% of the growing season, whereas 8.12 ha (20.07 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 9.17 ha (22.67 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Du Quoin, Illinois, is March 30 and the season lasts 217 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 11 days and 12.5% of the growing season is 27 days. Using the 2010 Midwest Region Supplement, March 11 was the starting date of the 2015 growing season based on soil temperatures measured on site and at the Harrisburg, Site 3 wetland mitigation site (ISGS #87).

- Total precipitation for the monitoring period at Du Quoin, Illinois (MRCC #112483), was 126% of normal, and Spring 2015 (March through May) precipitation was 120% of normal. Precipitation during June 2015 was particularly excessive with rainfall 243% of normal.

- In 2015, all wells except 17VSR satisfied wetland hydrology criteria for greater than 5% of the growing season and all wells except 16VS and 17VSR satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Furthermore, all wells except 17VSR satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season, using the 2010 Midwest Region Supplement.

- Gauges B, E, and H showed that areas at and below 112.50 m (369.09 ft), 114.74 m (376.44 ft), and 113.10 m (371.06 ft), respectively, were inundated for greater than 5% of the growing season, and areas at and below 112.45 m (368.93 ft), 114.73 m (376.41 ft), and 113.10 m (371.06 ft), respectively, were inundated for greater than 12.5% of the growing season, using the 1987 Manual. These gauges also showed that areas at and

below 112.49 m (369.06 ft), 114.74 m (376.44 ft), and 113.10 m (371.06 ft), respectively, were inundated for 14 or more days during the growing season, using the 2010 Midwest Region Supplement.

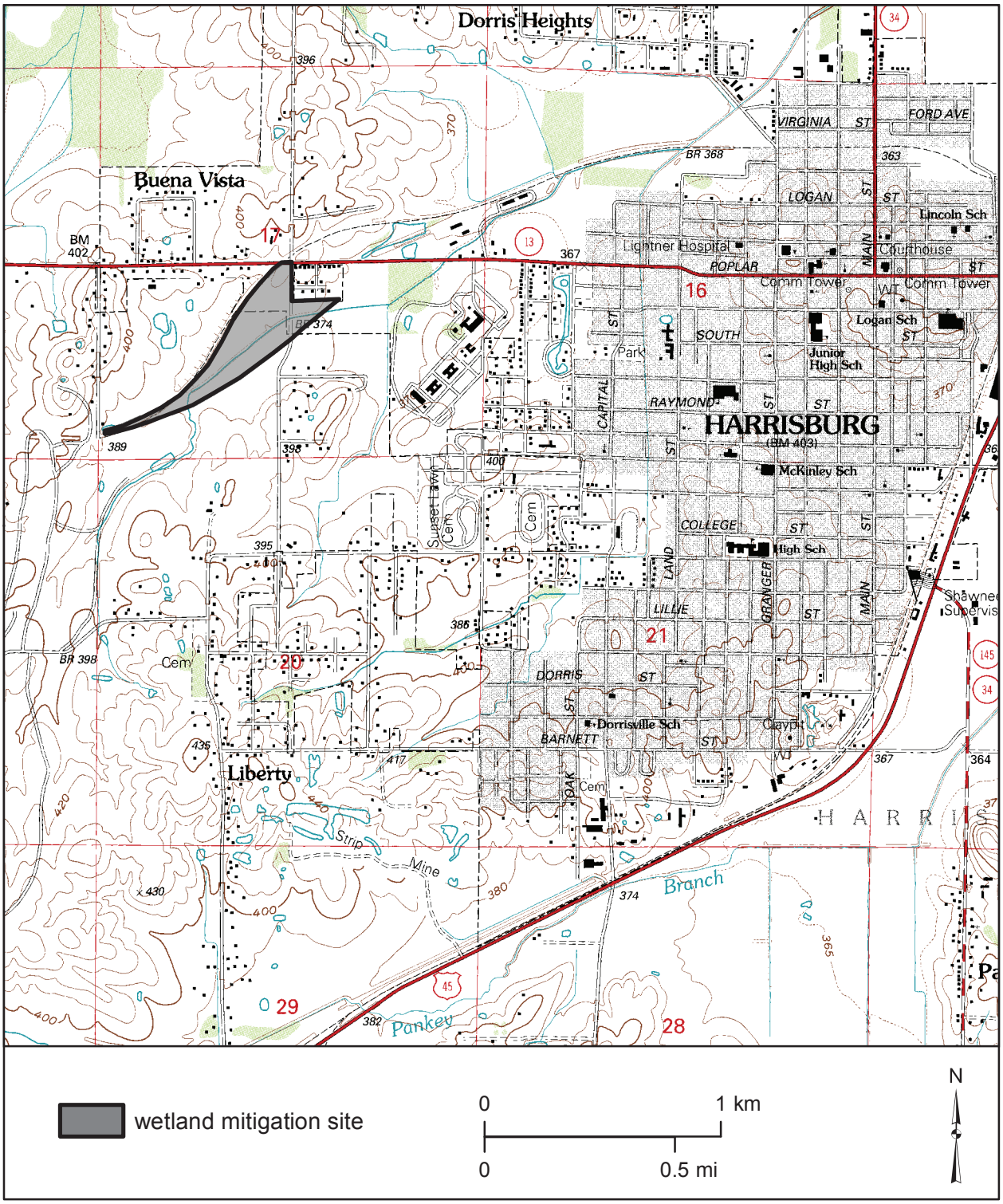
PLANNED FUTURE ACTIVITIES

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

Harrisburg, Site 2 Wetland Mitigation Site
(IL 14, FAP 857)

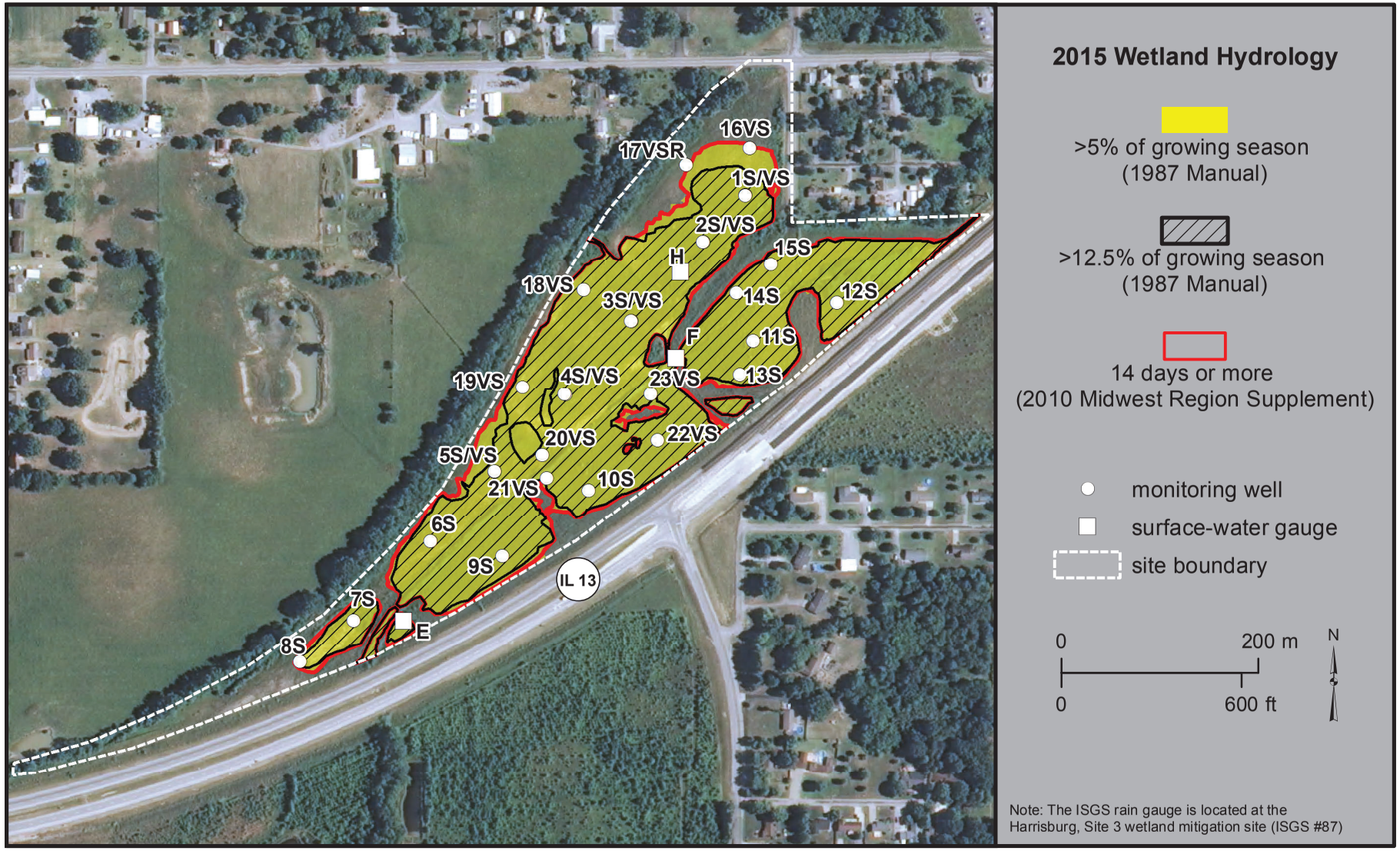
General Study Area and Vicinity

from the USGS Topographic Series, Harrisburg, IL, 7.5-minute Quadrangle (USGS 1961)
contour interval is 5 feet



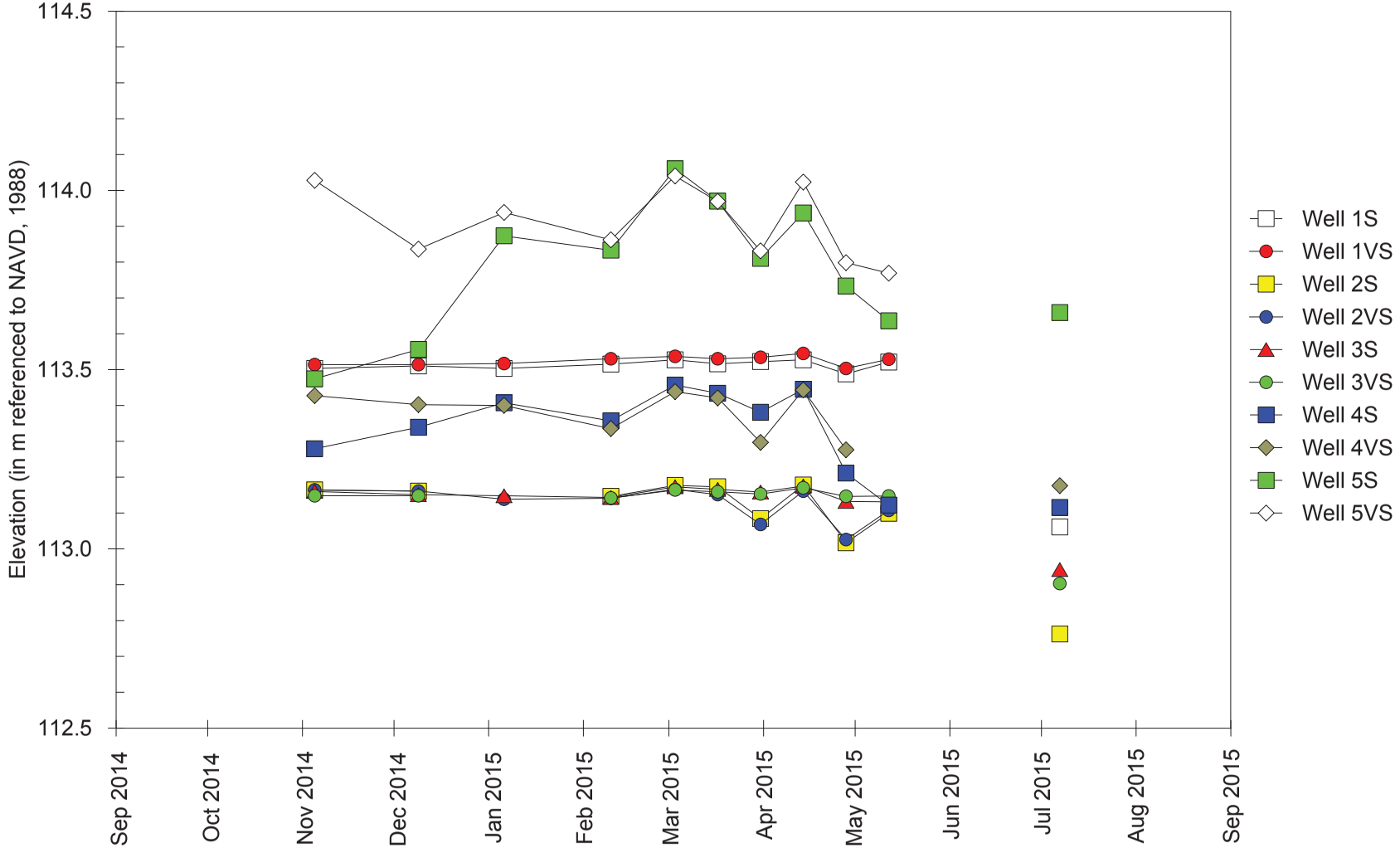
Harrisburg, Site 2 Wetland Mitigation Site
(IL 14, FAP 857)
Estimated Areal Extent of 2015 Wetland Hydrology
September 1, 2014 though August 31, 2015

Map based on 2012 Farm Service Agency digital orthophotography, Saline County, Illinois (USDA-FSA 2012)



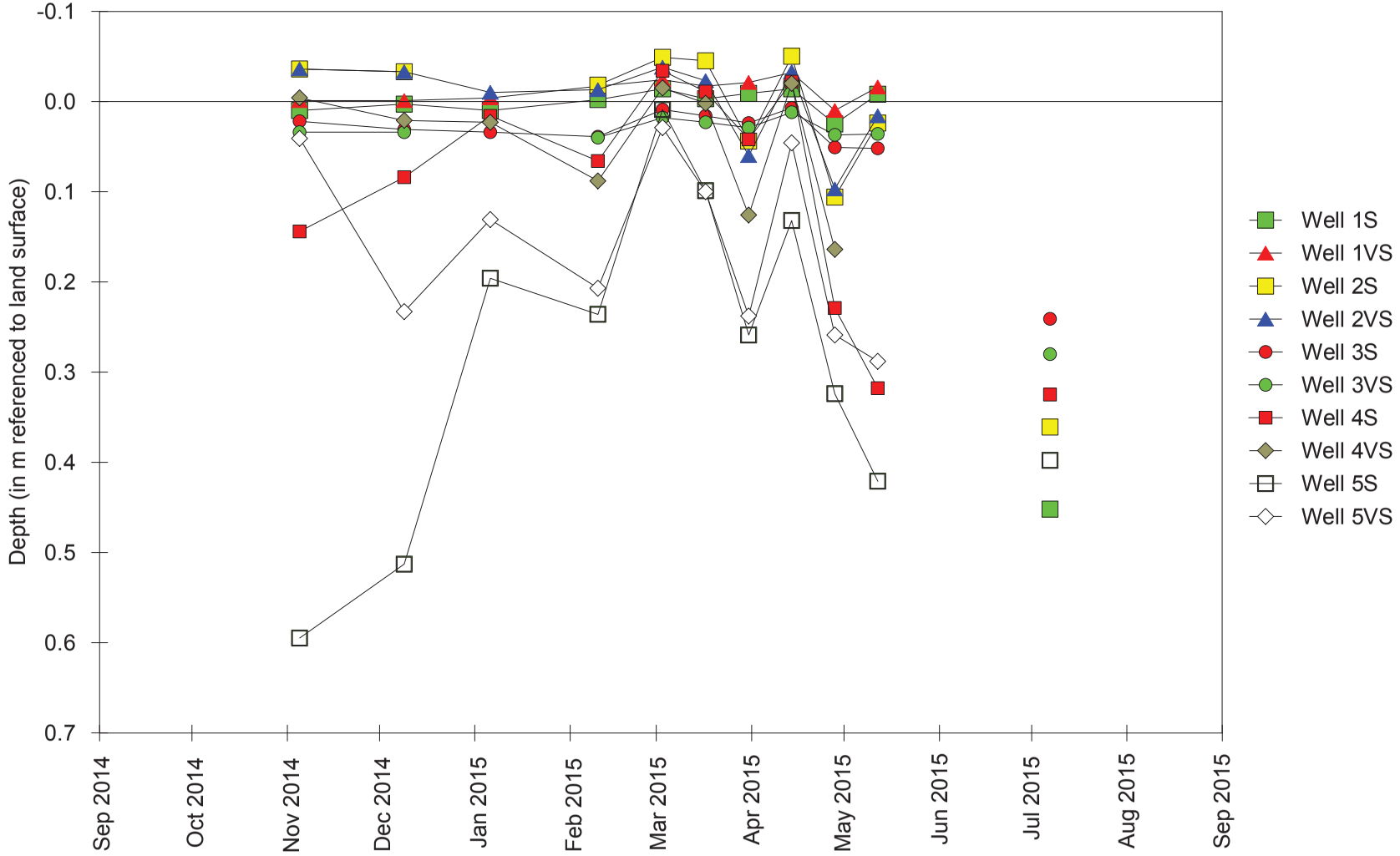
Harrisburg, Site 2 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations
in Monitoring Wells (North)



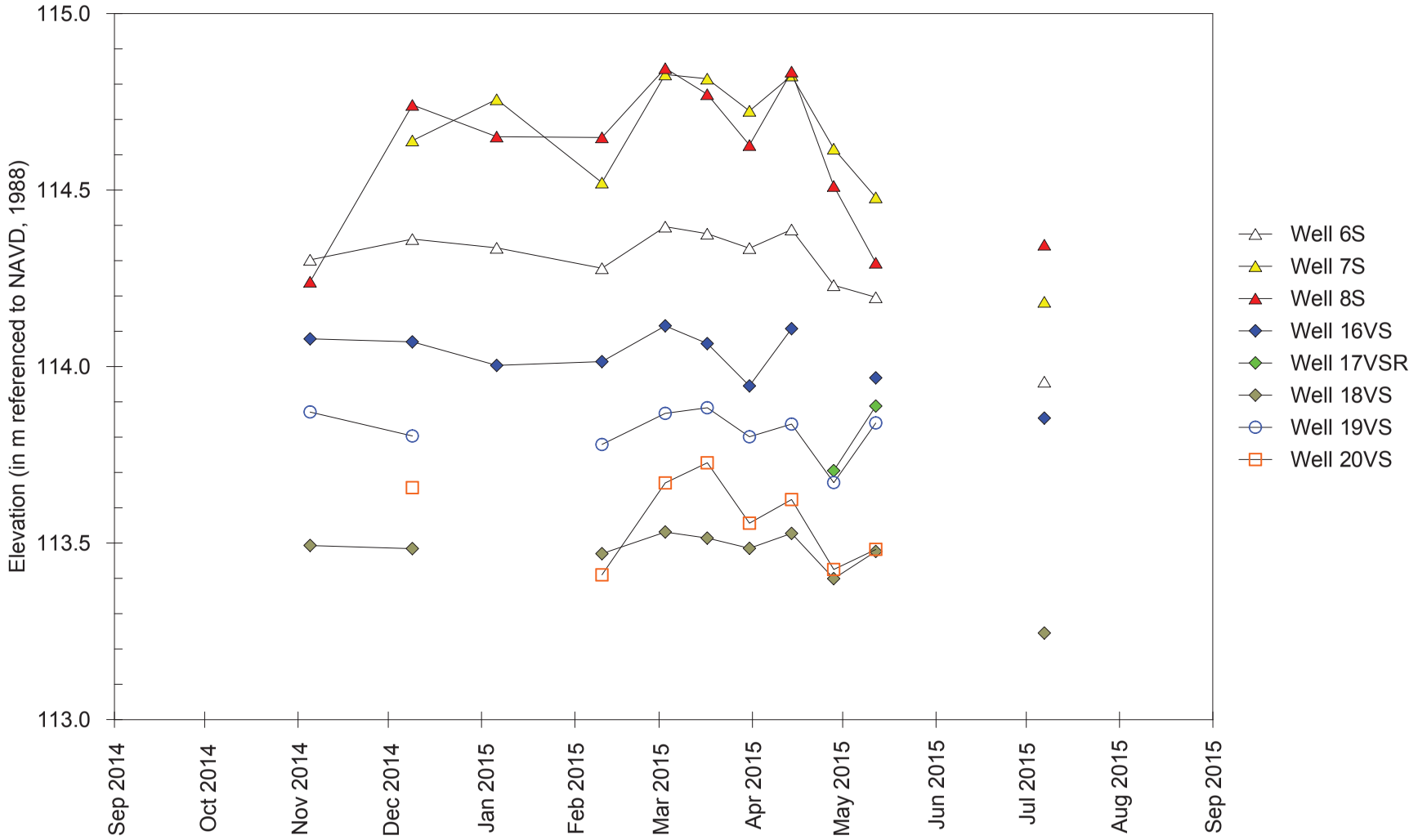
Harrisburg, Site 2 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells (North)



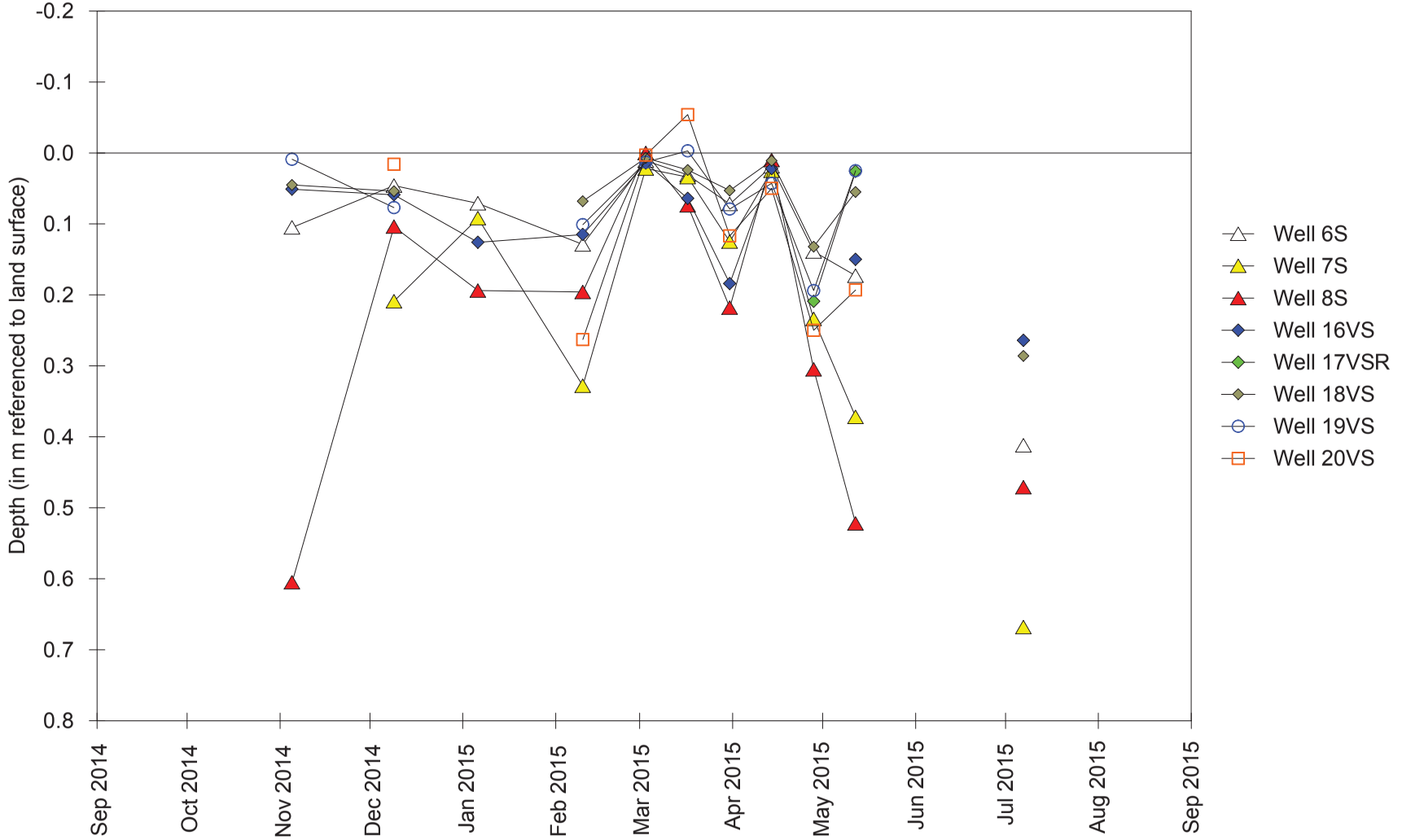
Harrisburg, Site 2 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells (North)



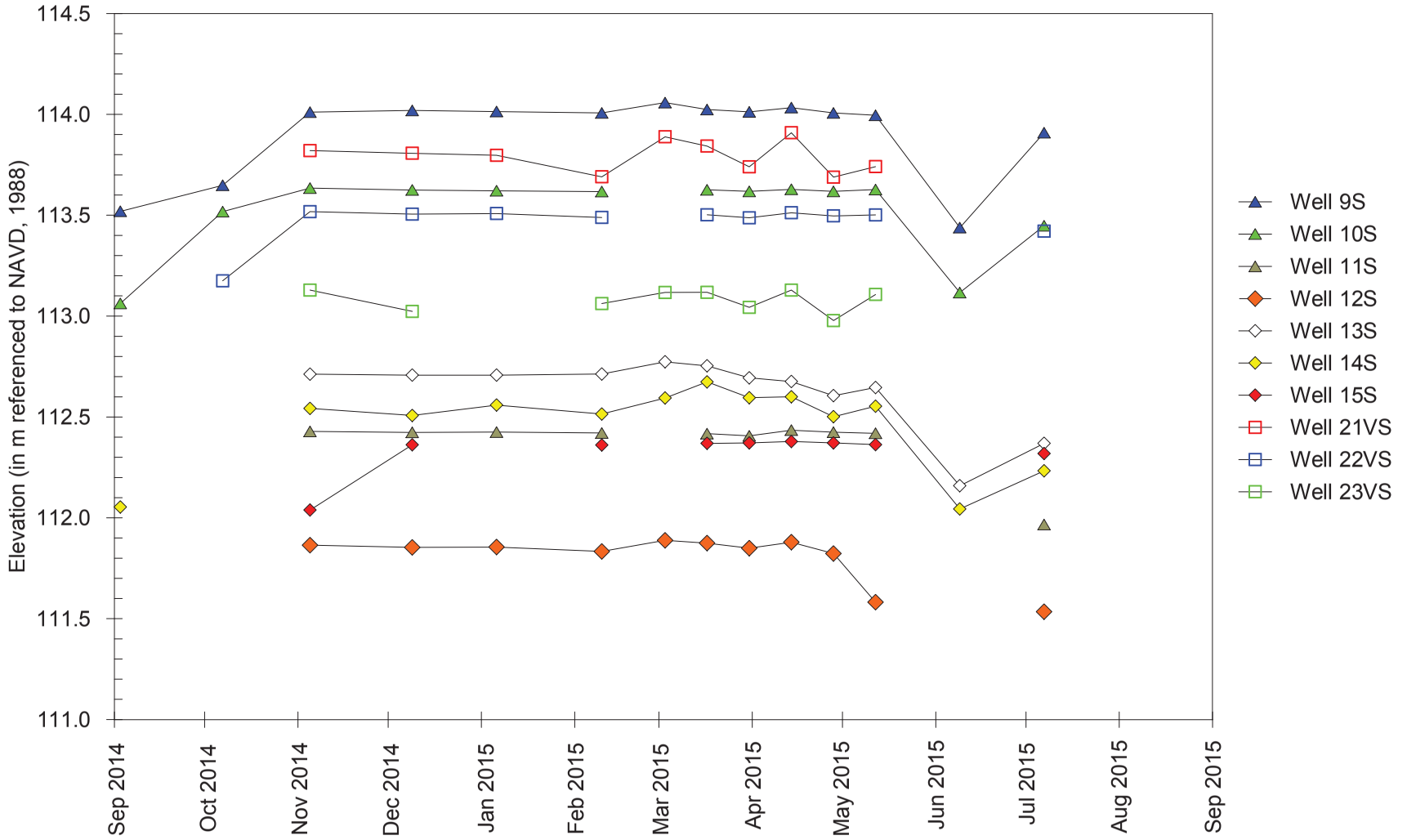
Harrisburg, Site 2 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells (North)



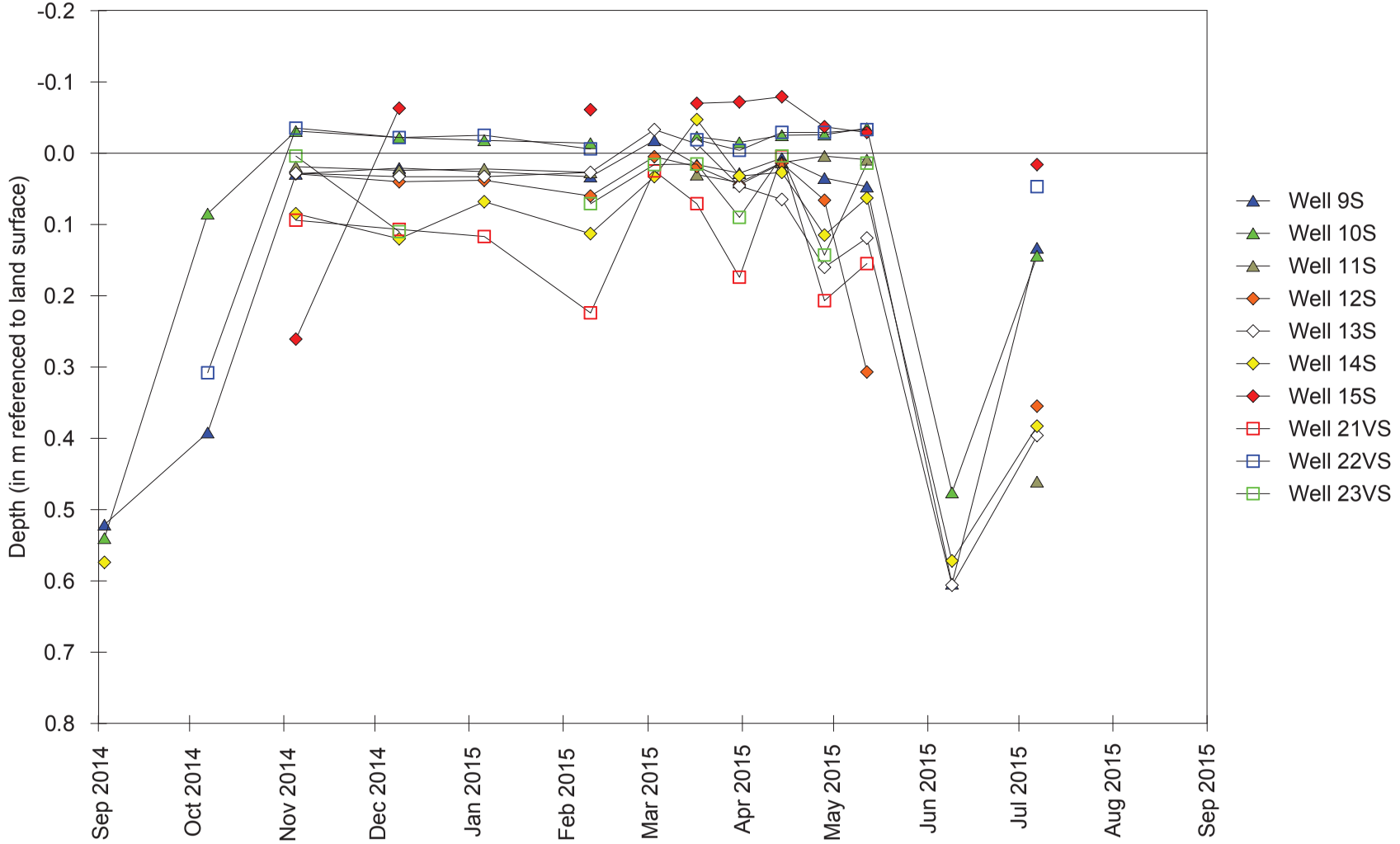
Harrisburg, Site 2 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells (South)



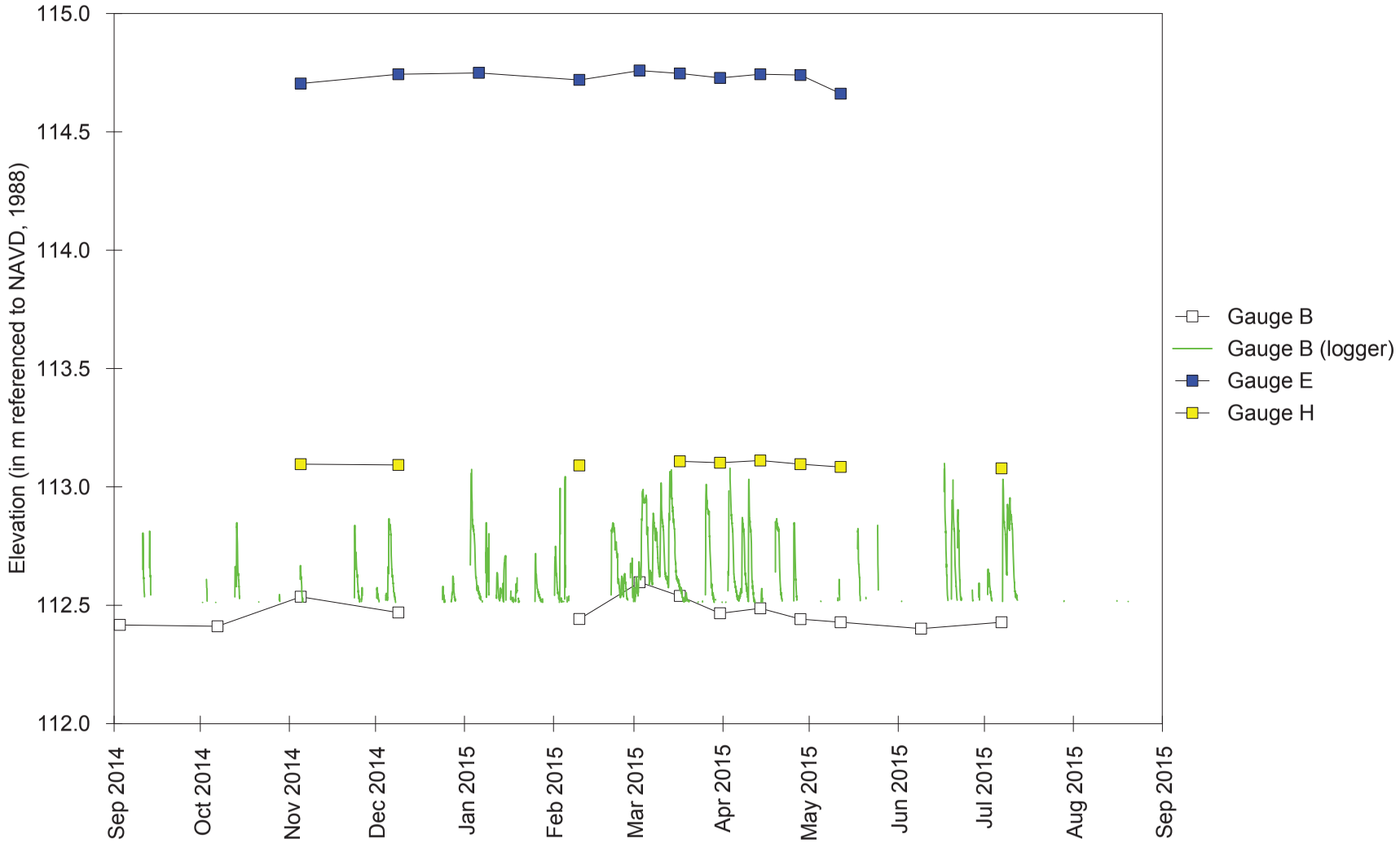
Harrisburg, Site 2 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells (South)

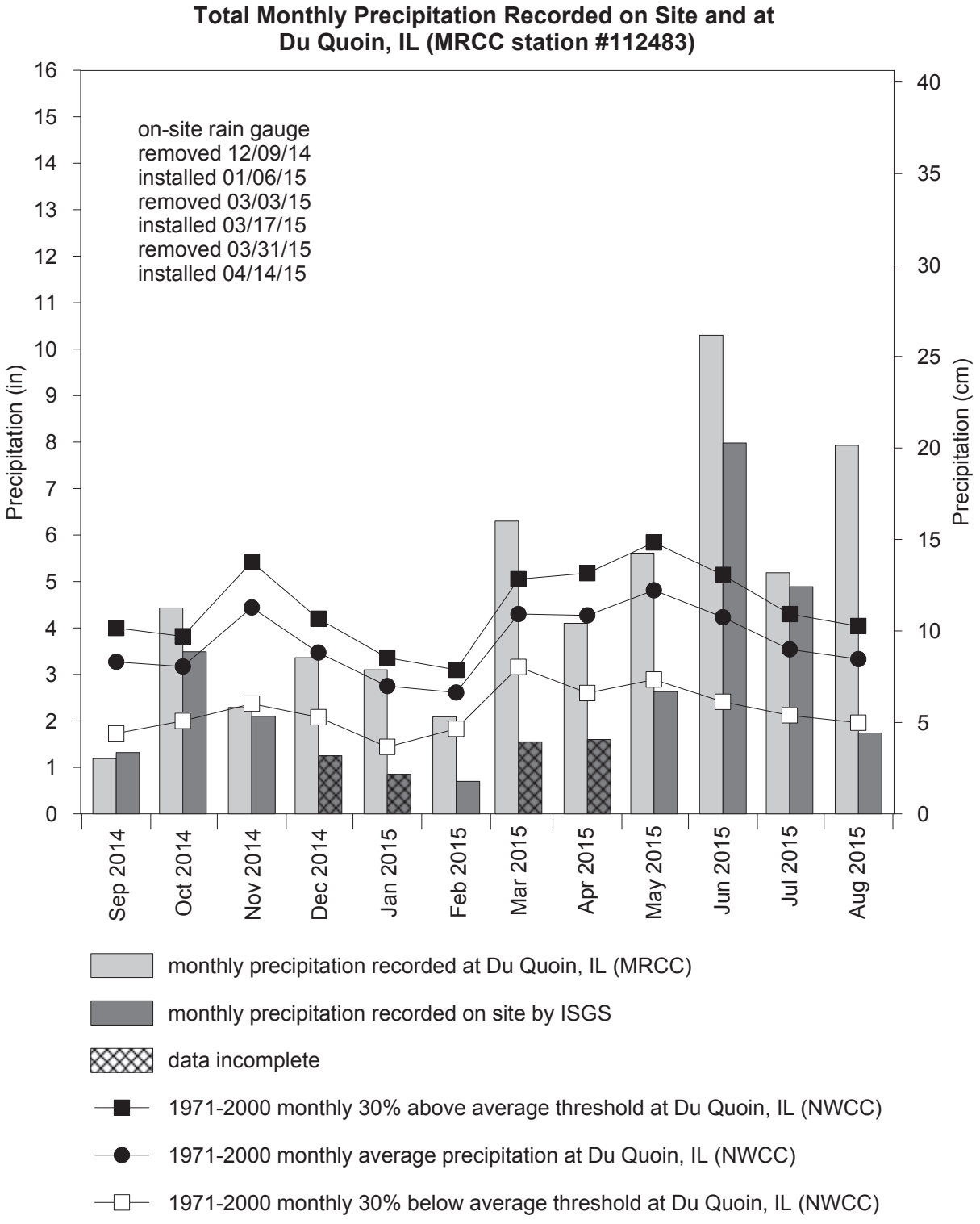


Harrisburg, Site 2 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



Harrisburg Site 2 Wetland Mitigation Site
September 2014 through August 2015



FORMER WEBER PROPERTY **ISGS #79**
WETLAND MITIGATION SITE
US 20
FAP 301
Sequence #10487
Stephenson County, near Freeport, Illinois
Primary Project Manager: Eric T. Plankell
Secondary Project Manager: Katharine L. Schleich

SITE HISTORY

- September 2010: IDOT District 2 requested that ISGS prepare conceptual plans for wetland creation, and plans were provided by ISGS.

- November 2010: Wetland construction was completed, and ISGS was tasked by IDOT to monitor wetland hydrology.

- May 2011: ISGS installed a post-construction monitoring network.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Former Weber Property wetland mitigation site is 1.21 ha (3.00 ac). Using the 1987 Manual (Environmental Laboratory 1987), 2.56 ha (6.33 ac) of the total site area of 5.79 ha (14.30 ac) satisfied wetland hydrology criteria for greater than 5% of the 2015 growing season and 1.81 ha (4.47 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 2.10 ha (5.19 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in Freeport, Illinois, is April 11, and the season lasts 192 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 10 days, and 12.5% of the growing season is 24 days. Using the 2010 Midwest Region Supplement, March 31 was the starting date of the 2015 growing season based on soil temperatures measured on site and at the Freeport, Illinois, ICN station (WARM 2015).

- Total precipitation for the monitoring period at Freeport, Illinois, (MRCC station #113262) was 98% of normal. During Spring 2015 (March through May), precipitation was 102% of normal. In June, precipitation was 187% of normal, contributing to flooding on the Pecatonica River.

- Data from Gauge D indicated two floods (one in March and one in June) on the Pecatonica River inundated portions of the site during the 2015 growing season. While inundation from the June flood contributed to the maximum extent of wetland hydrology during the 2015 growing season, the duration of the flood alone was not long enough to satisfy wetland hydrology criteria.

- In 2015, water levels measured in monitoring wells 2S, 7S, 8S, and 9S satisfied wetland hydrology criteria for greater than 5% of the growing season, and water levels measured in monitoring wells 7S and 8S satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, water levels measured in monitoring wells 7S, 8S, and 9S satisfied wetland hydrology criteria for 14 or more consecutive days of the growing season.

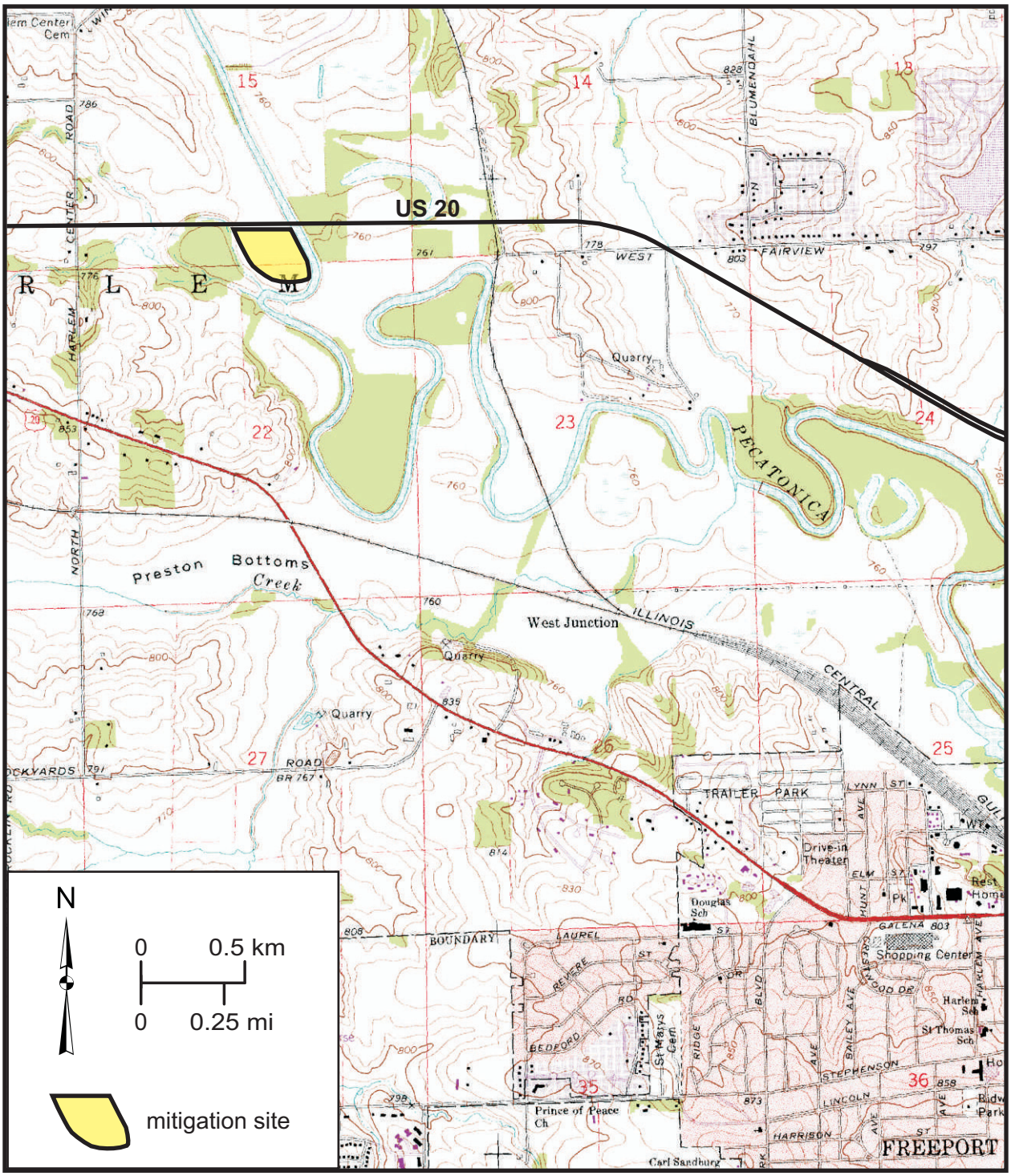
- Surface-water levels measured at gauges A, E, and F indicated inundation at or below 230.69 m, 230.79 m, and 231.07 m (756.86 ft, 757.19 ft, and 758.10 ft), respectively, for greater than 5% of the growing season, and gauges A and E indicated inundation at or below 230.45 m and 230.55 m (756.07 ft and 756.40 ft), respectively, for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, surface-water levels measured at gauges A and E indicated inundation at or below 230.63 m and 230.74 m (756.66 ft and 757.02 ft), respectively, for 14 or more consecutive days of the growing season.

PLANNED FUTURE ACTIVITIES

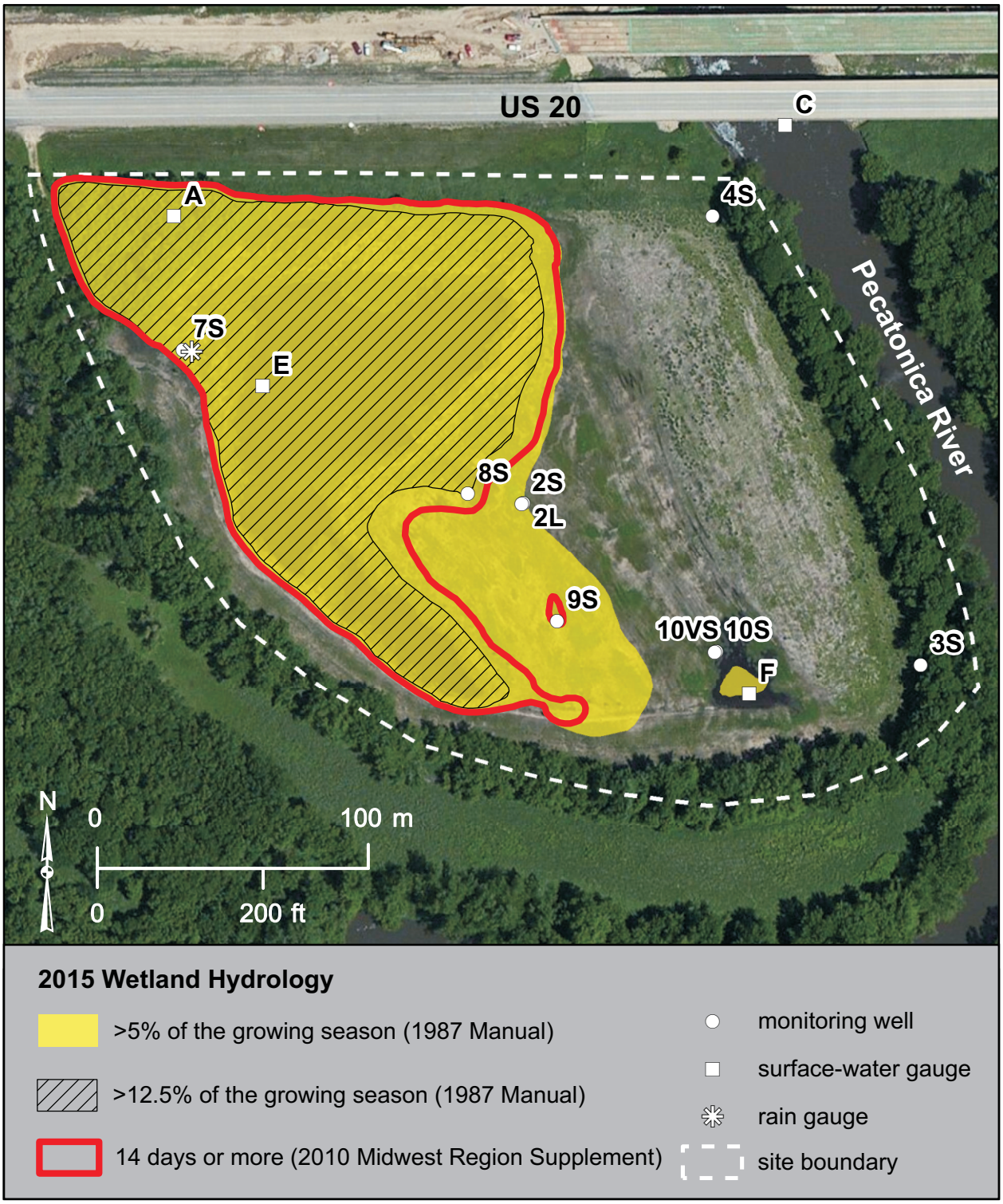
- Monitoring will continue until no longer required by IDOT.

Former Weber Property Wetland Mitigation Site
(US 20, FAP 301)
General Study Area and Vicinity

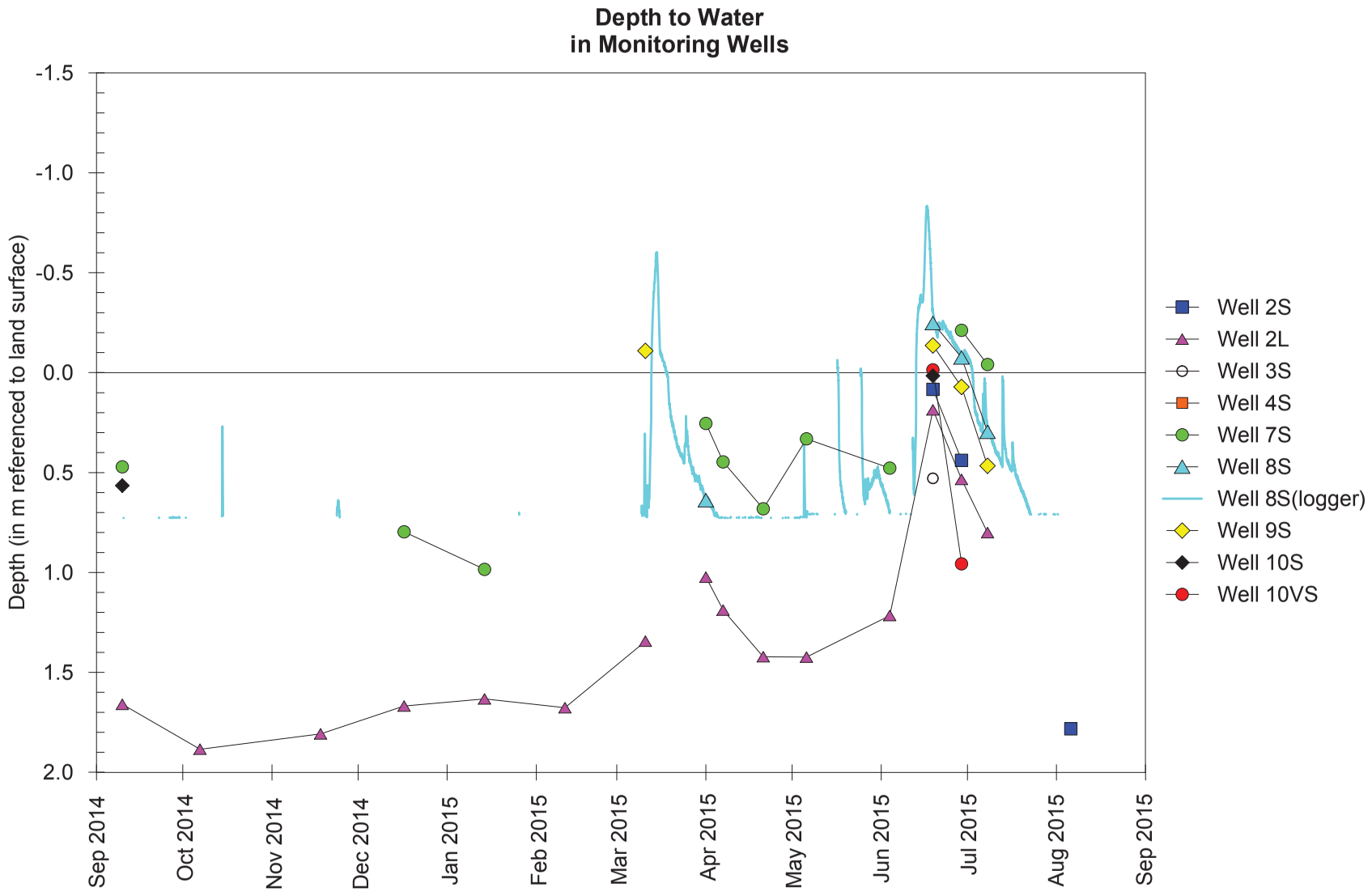
from the USGS Topographic Series, Freeport West, IL, 7.5-minute Quadrangle (USGS 1971)
contour interval is 10 feet



Former Weber Property Wetland Mitigation Site
(US 20, FAP 301)
Estimated Areal Extent of 2015 Wetland Hydrology
September 1, 2014 through August 31, 2015
Map based on imagery available from Esri (Esri 2015)

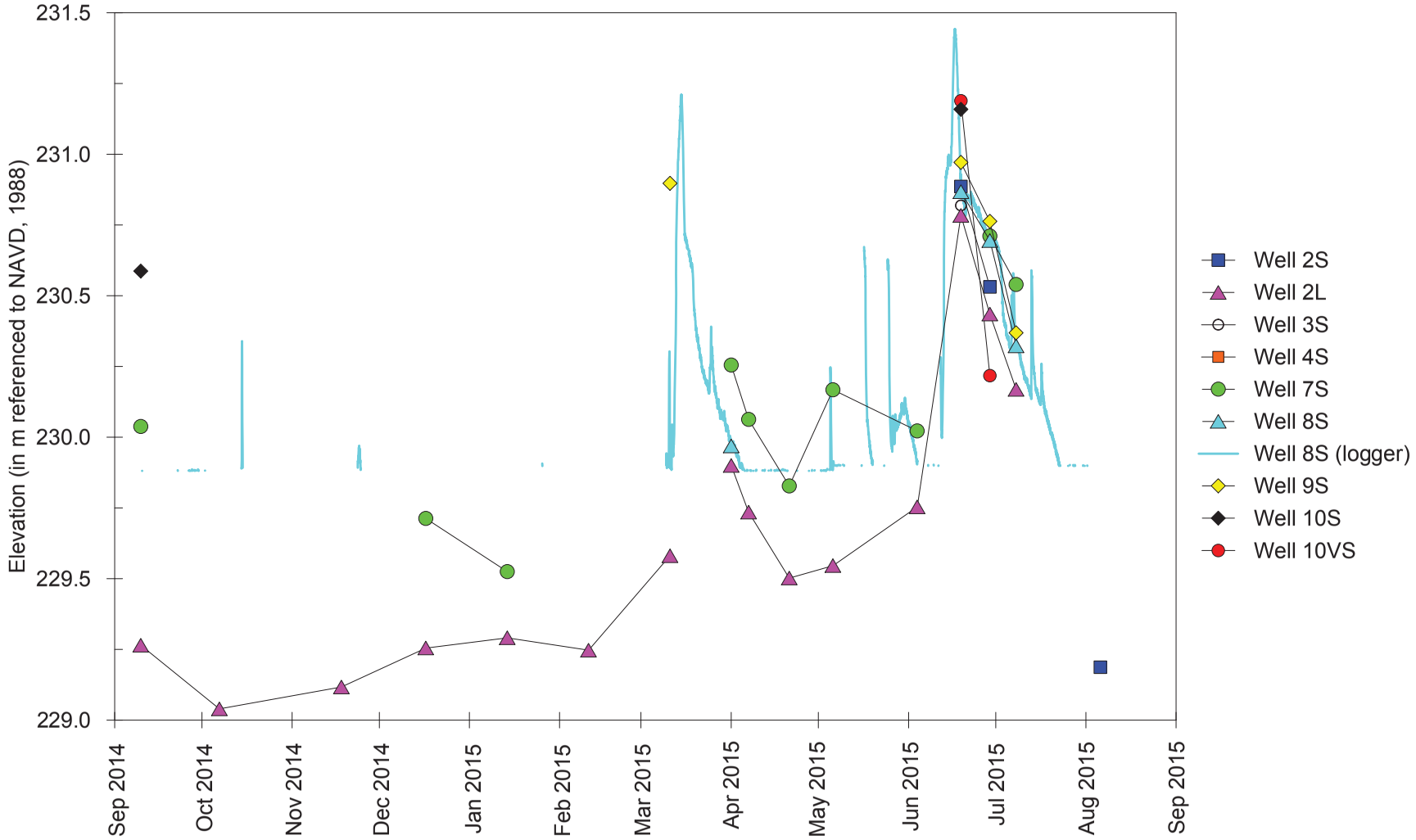


Former Weber Property Wetland Mitigation Site
September 1, 2014 through August 31, 2015



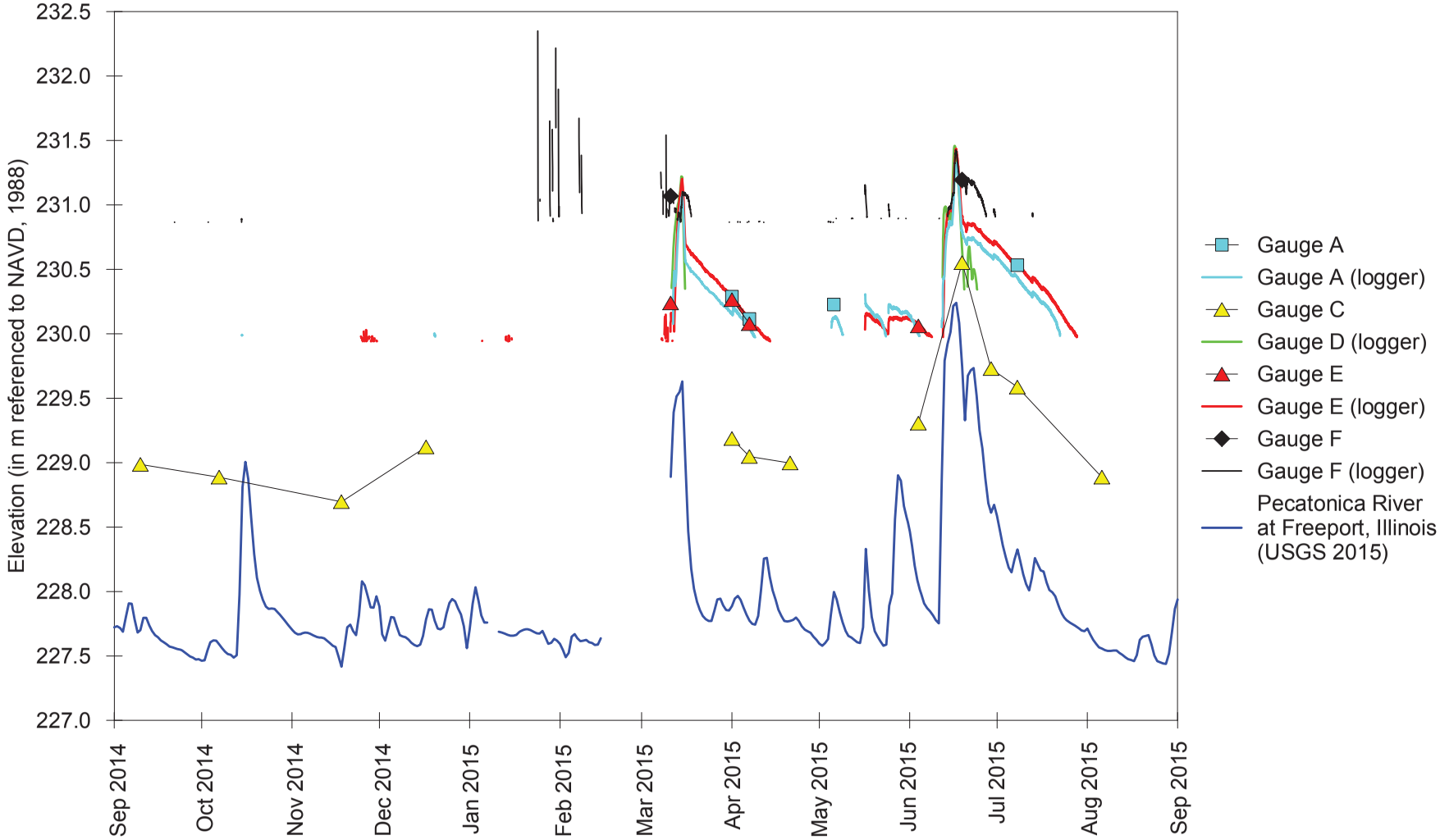
Former Weber Property Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells



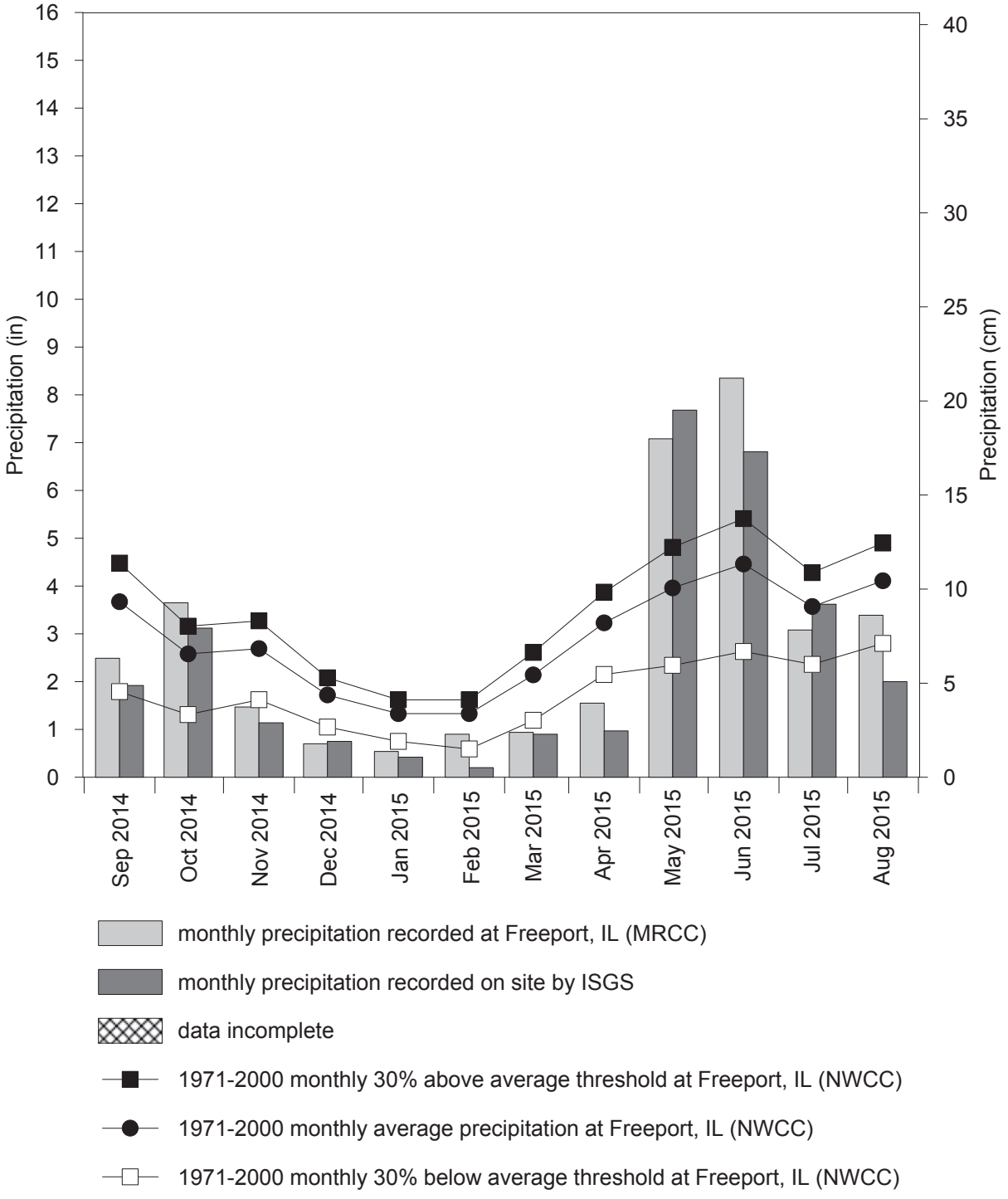
Former Weber Property Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



Former Weber Property Wetland Mitigation Site
September 2014 through August 2015

Total Monthly Precipitation Recorded on Site and at Freeport, IL (MRCC station #113262)



MAX CREEK **ISGS #80**
WETLAND MITIGATION SITE
IL 147
FAS 932
Sequence #8717A
Johnson County, near Simpson, Illinois
Primary Project Manager: Geoffrey E. Pociask
Secondary Project Manager: Jessica L. B. Monson

SITE HISTORY

- July 2008: An Initial Site Evaluation was submitted to IDOT.
- December 2008: Water-level monitoring was initiated.
- August 2009: Construction at the wetland mitigation site began.
- Spring 2011: The ISGS was notified by IDOT to begin post-construction monitoring.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Max Creek wetland mitigation site is 0.49 ha (1.20 ac). Using the 1987 Manual (Environmental Laboratory 1987), 0.89 ha (2.21 ac) out of a total site area of approximately 1.21 ha (3.00 ac) satisfied wetland hydrology criteria for greater than 5% of the growing season and 0.68 ha (1.68 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 0.89 ha (2.21 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Anna, Illinois, is April 2, and the season lasts 215 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 11 days and 12.5% of the growing season is 27 days. Using the 2010 Midwest Region Supplement, March 11 was the starting date of the 2015 growing season based on soil temperatures measured on site and at the nearby Harrisburg, Site 3 wetland mitigation site (ISGS #87).
- Total precipitation for the monitoring period at Cape Girardeau, Missouri (MRCC station #231289), was 119% of normal. During Spring 2015 (March through May), precipitation was 135% of normal. Precipitation during June 2015 was particularly excessive with 279% of normal rainfall.
- In 2015, all soil-zone wells except 2VS satisfied wetland hydrology criteria for greater than 5% of the growing season and all wells except 1VS and 2VS satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, all wells except 2VS satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season.
- Water-level data from Gauge A indicated that Max Creek flooded the site four times during the 2015 growing season. However, these floods did not persist long enough to satisfy wetland hydrology criteria.

- Data from Gauge E showed that areas at and below 115.78 m (379.86 ft) were inundated for greater than 5% and areas at and below 115.76 m (379.79 ft) were inundated for greater than 12.5% of the growing season, using the 1987 Manual. Gauge E also showed that areas at and below 115.76 m (379.79 ft) were inundated for 14 or more consecutive days during the growing season, using the 2010 Midwest Region Supplement.

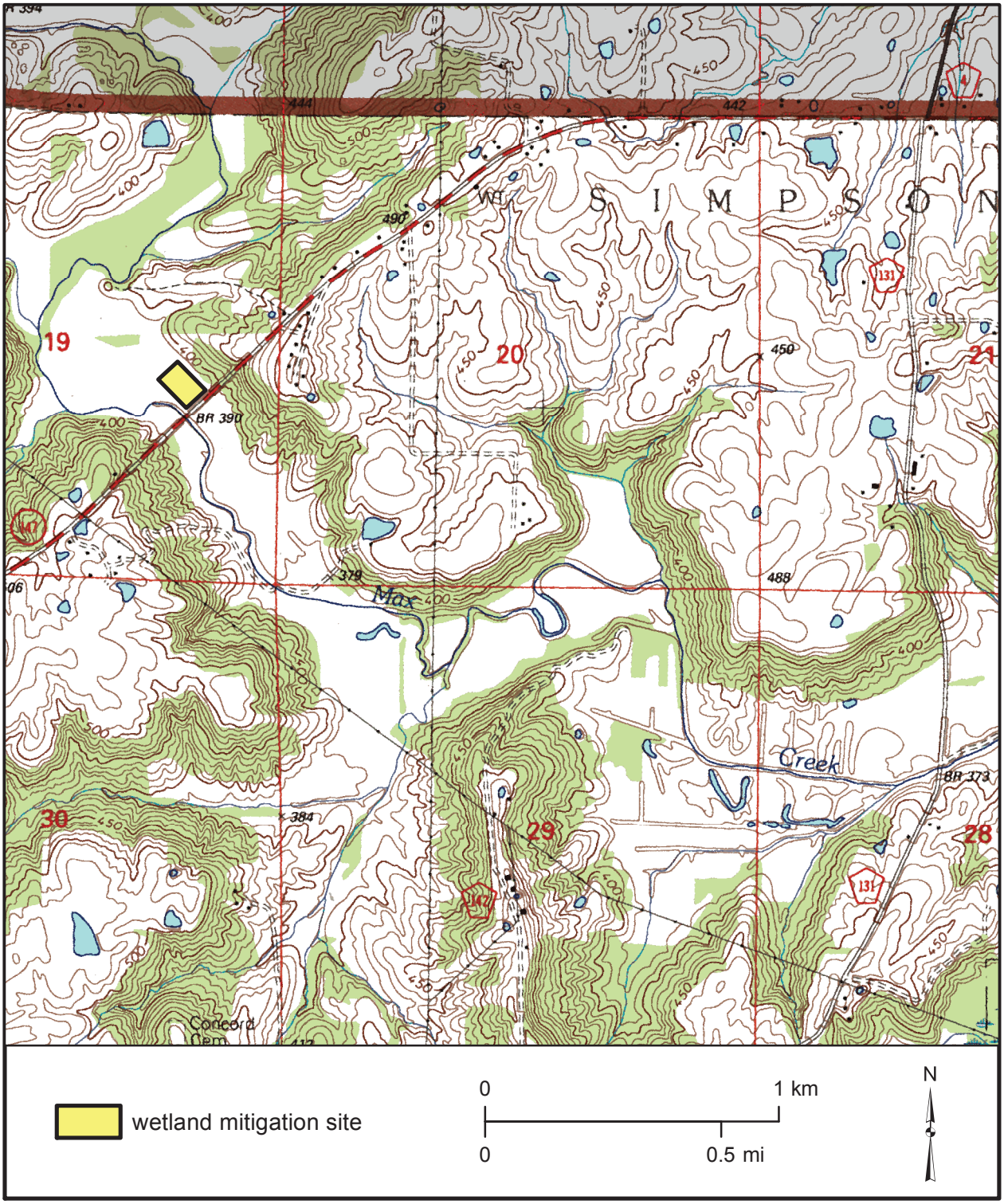
PLANNED FUTURE ACTIVITIES

- Water-level monitoring is expected to continue through 2016 or until no longer required by IDOT.

Max Creek Wetland Mitigation Site
(IL 147, FAS 932)

General Study Area and Vicinity

from the USGS Topographic Series, Bloomfield, IL 7.5-minute Quadrangle (USGS 1966)
contour interval is 10 feet

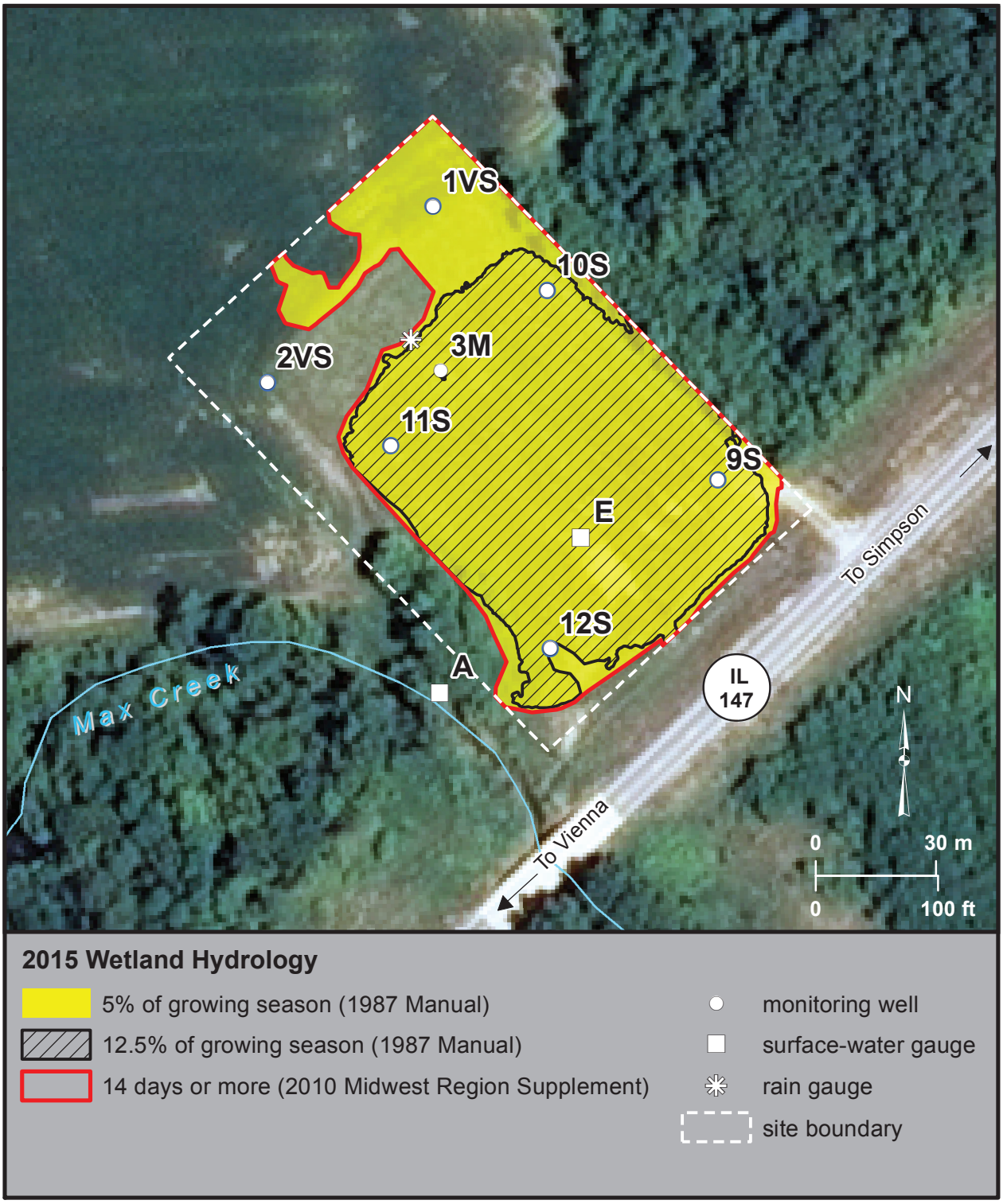


Max Creek Wetland Mitigation Site
(IL 147, FAS 932)

Estimated Areal Extent of 2015 Wetland Hydrology

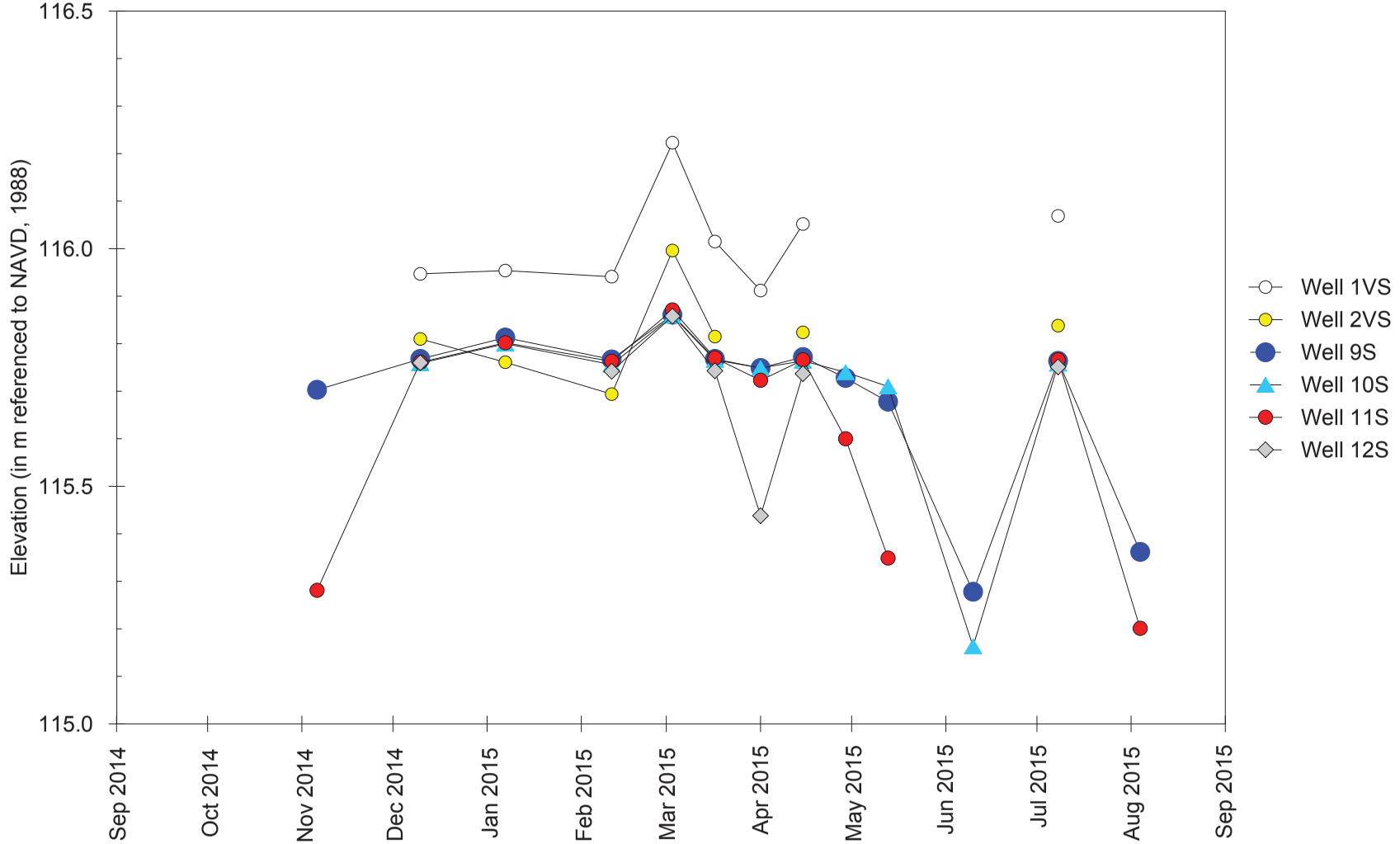
September 1, 2014 through August 31, 2015

Map based on 2012 Farm Service Agency digital orthophotography, Johnson County, Illinois (USDA-FSA 2012)

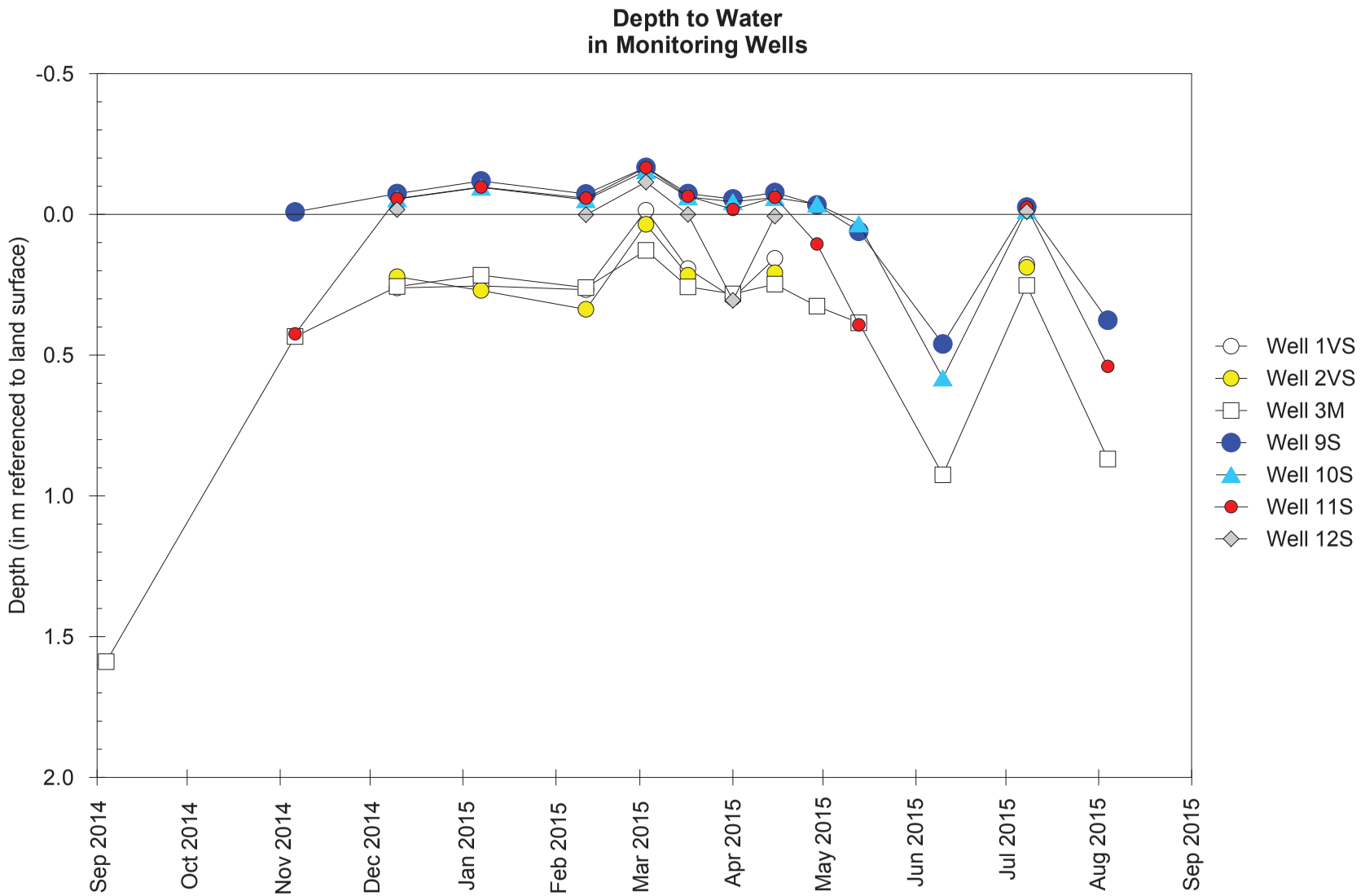


Max Creek Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells

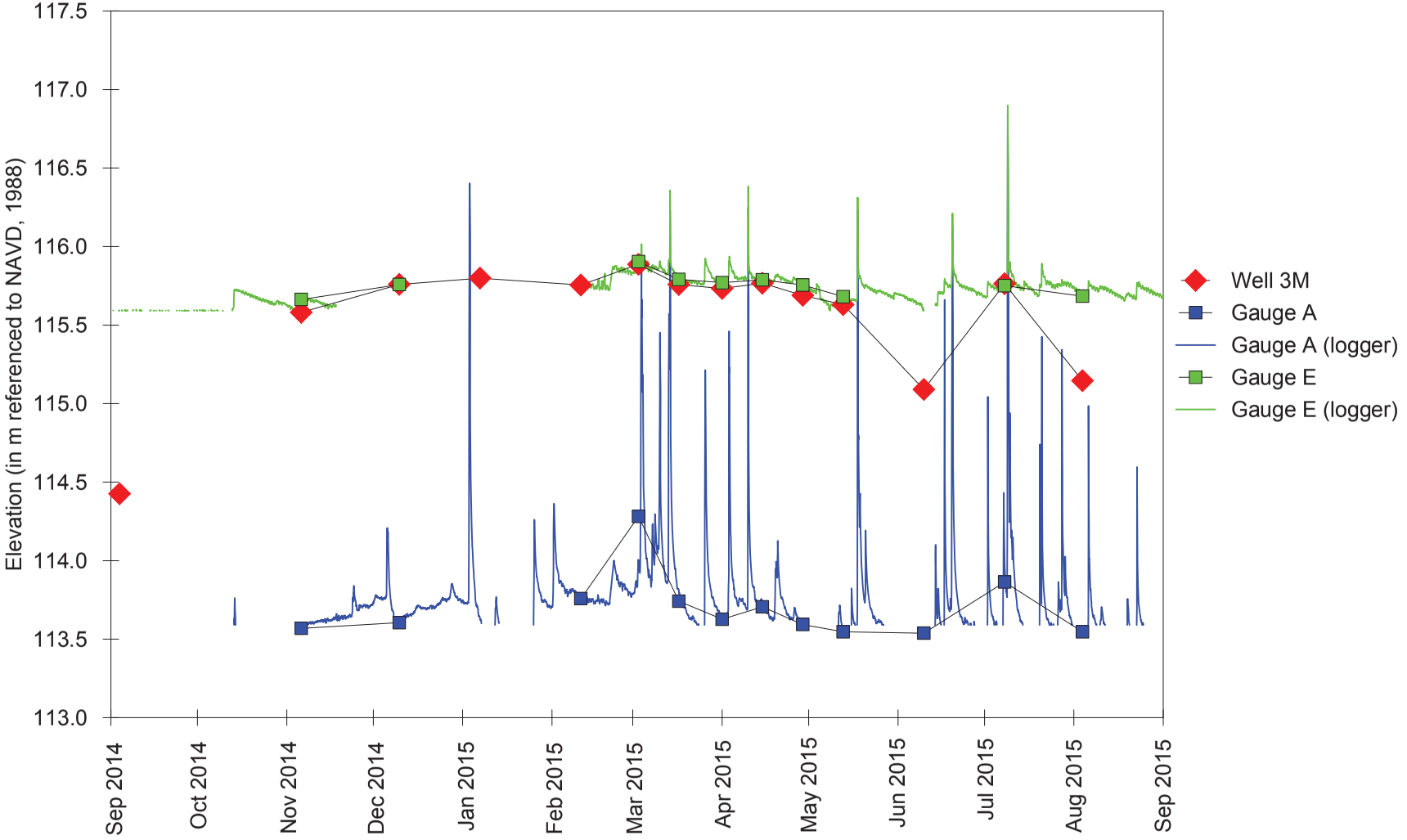


Max Creek Wetland Mitigation Site
September 1, 2014 through August 31, 2015



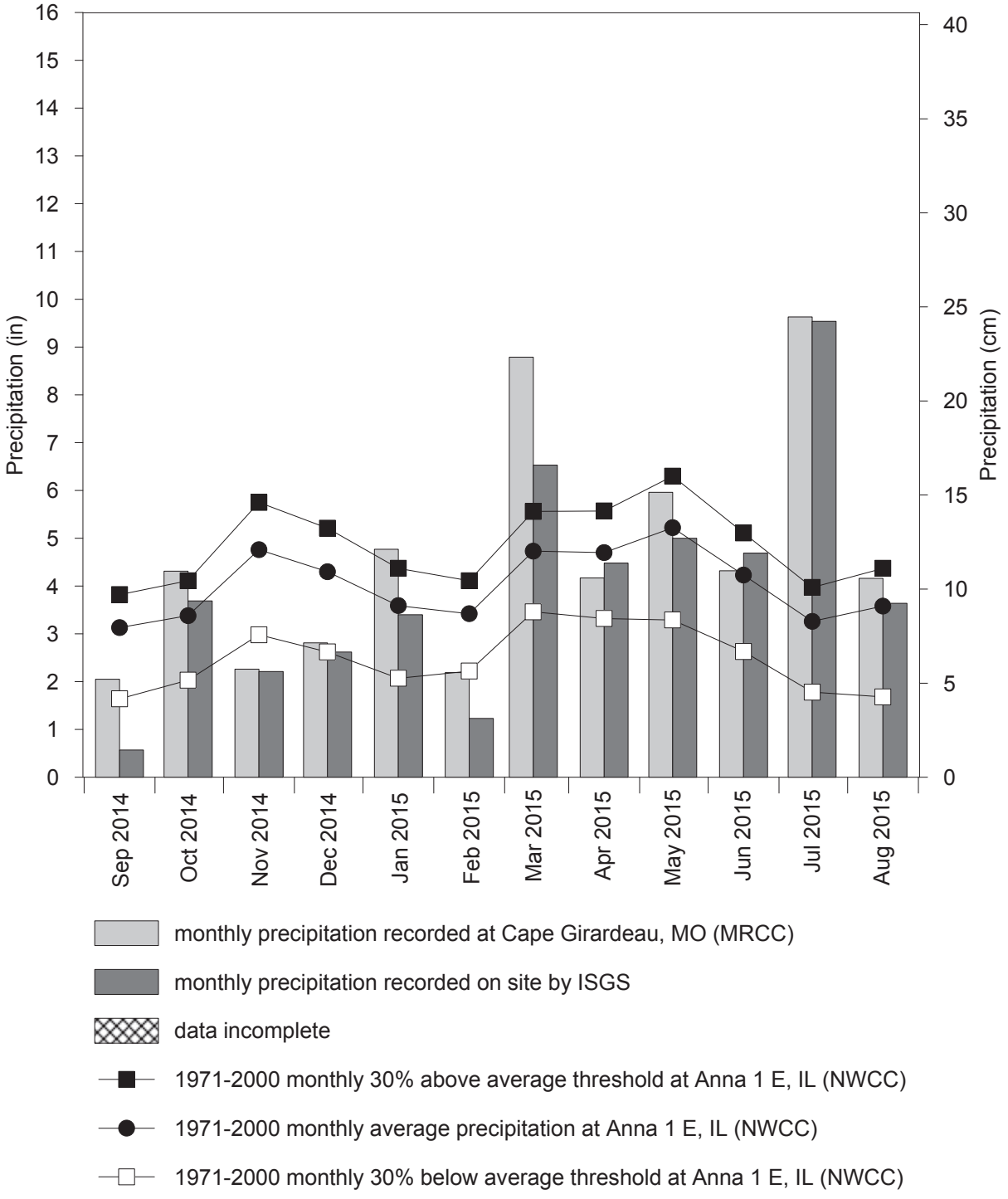
Max Creek Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Well 3M and at Surface-Water Gauges



Max Creek Wetland Mitigation Site
September 2014 through August 2015

Total Monthly Precipitation Recorded on Site and at Cape Girardeau, MO (MRCC station #231289)



EAST CAPE GIRARDEAU **ISGS #81**
WETLAND MITIGATION SITE
IL 146
FAP 312
Sequence #633A
Alexander County, near East Cape Girardeau, Illinois
Primary Project Manager: Jessica L. B. Monson
Secondary Project Manager: Eric T. Plankell

SITE HISTORY

- Fall 2009: Wetland construction began.

- March 2010: ISGS submitted a Level II hydrogeologic characterization report to IDOT (ISGS Open-File Series 2010-3).

- August 2011: IDOT reported the site had been graded and drainage control structures were completed. ISGS was tasked by IDOT to monitor the site for performance criteria outlined in the wetland compensation plan, and post-construction water-level monitoring was initiated.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the East Cape Girardeau wetland mitigation site is 3.08 ha (7.60 ac). Using the 1987 Manual (Environmental Laboratory 1987), 6.11 ha (15.09 ac) of the total site area of 6.20 ha (15.20 ac) satisfied wetland hydrology criteria for greater than 5% of the 2015 growing season and 5.84 ha (14.44 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010) to the 1987 Manual, 6.09 ha (15.06 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Cape Girardeau, Missouri, is March 21, and the season lasts 228 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 11 days, and 12.5% of the growing season is 28 days. Using the 2010 Midwest Region Supplement, March 12 was the starting date of the 2015 growing season based on soil temperatures measured on site.

- Total precipitation for the monitoring period at Cape Girardeau, Missouri (MRCC station #231289), was 119% of normal. During Spring 2015 (March through May), precipitation was 135% of normal. March precipitation was 192% of normal and July precipitation was 279% of normal.

- In 2015, water levels measured in all monitoring wells satisfied wetland hydrology criteria for greater than 5% and 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, water levels measured in all monitoring wells satisfied wetland hydrology criteria for 14 or more consecutive days of the growing season.

- Surface-water levels measured at Gauge B indicated inundation at or below 101.69 m (333.63 ft) for greater than 5% of the growing season, and inundation at or below 101.36 m (332.55 ft) for greater than 12.5% of the growing season, using the 1987 Manual. Surface-water levels measured at Gauge E indicated inundation at or below 101.70 m (333.66 ft) for

greater than 5% of the growing season, and inundation at or below 101.38 m (332.61 ft) for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, surface-water levels measured at gauges B and E indicated inundation at or below 101.64 m and 101.65 m (333.46 ft and 333.50 ft), respectively, for 14 or more consecutive days of the growing season.

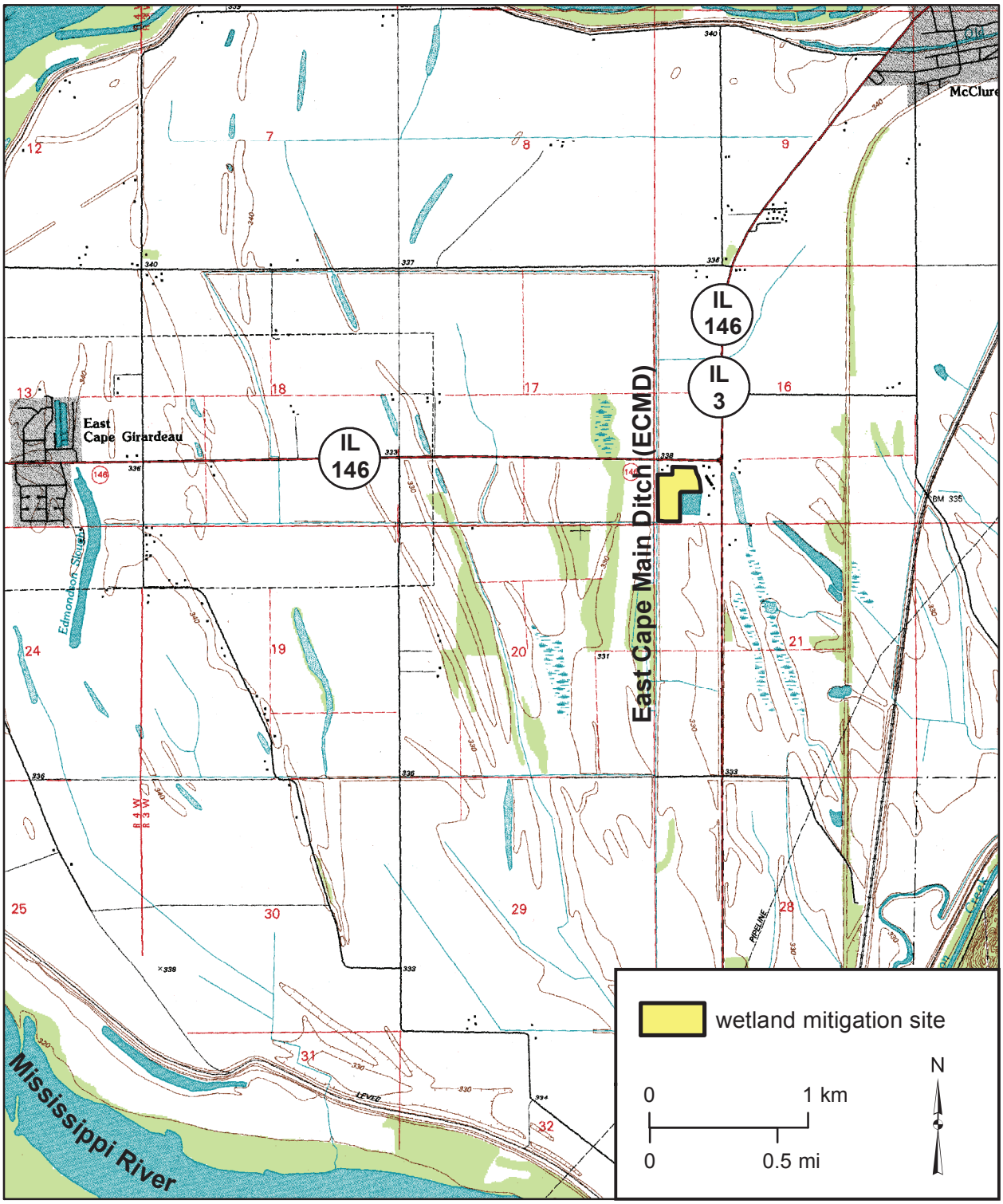
PLANNED FUTURE ACTIVITIES

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

East Cape Girardeau Wetland Mitigation Site
(IL 146, FAP 312)

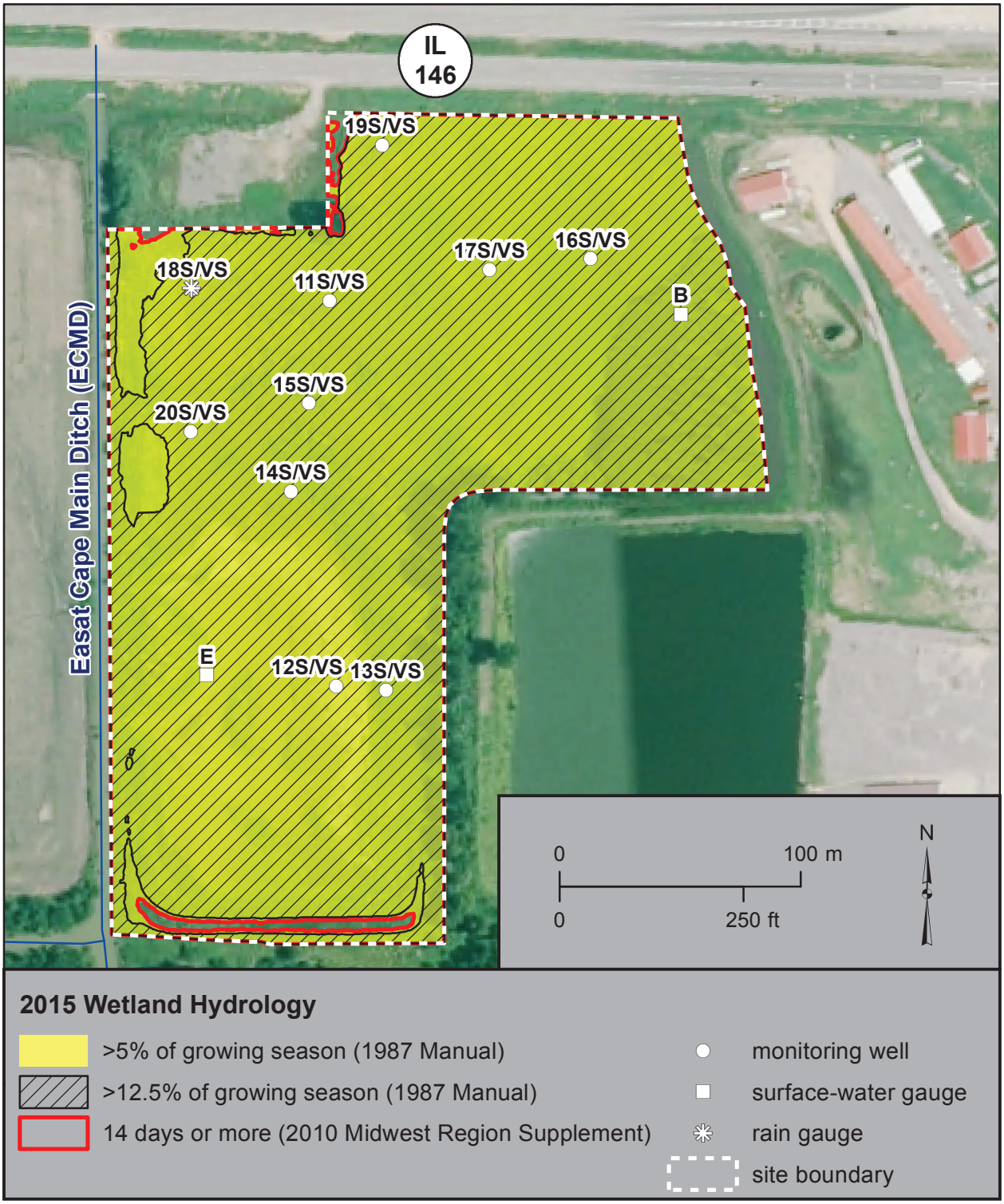
General Study Area and Vicinity

from the USGS Topographic Series, McClure, IL-MO, 7.5-minute Quadrangle (USGS 1993c)
contour interval is 20 feet, with supplementary contour interval of 10 feet



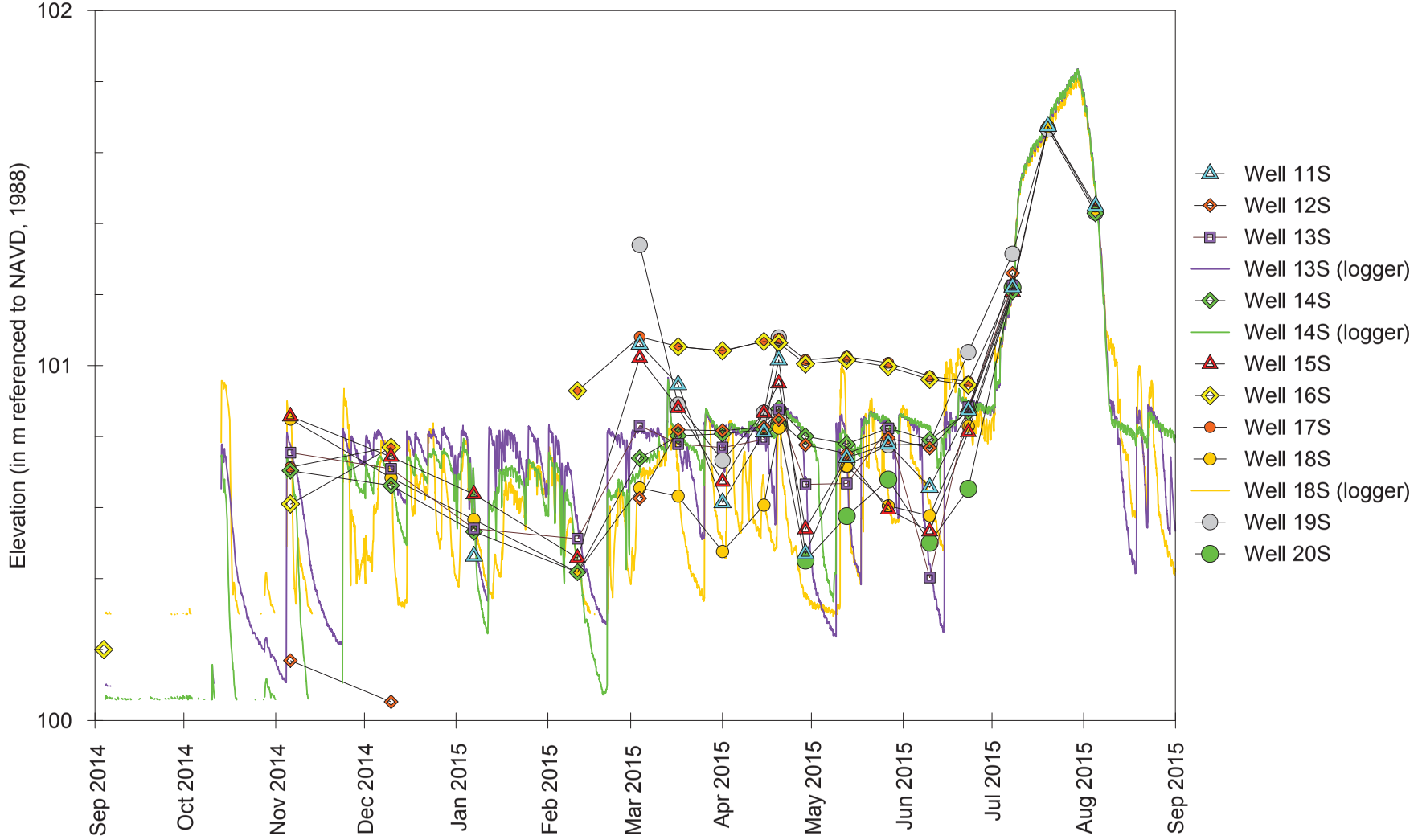
East Cape Girardeau Wetland Mitigation Site
(IL 146, FAP 312)
Estimated Areal Extent of 2015 Wetland Hydrology
September 1, 2014 through August 31, 2015

Map based on 2014 Farm Service Agency digital orthophotography, Alexander County, Illinois
(USDA-FSA 2014)



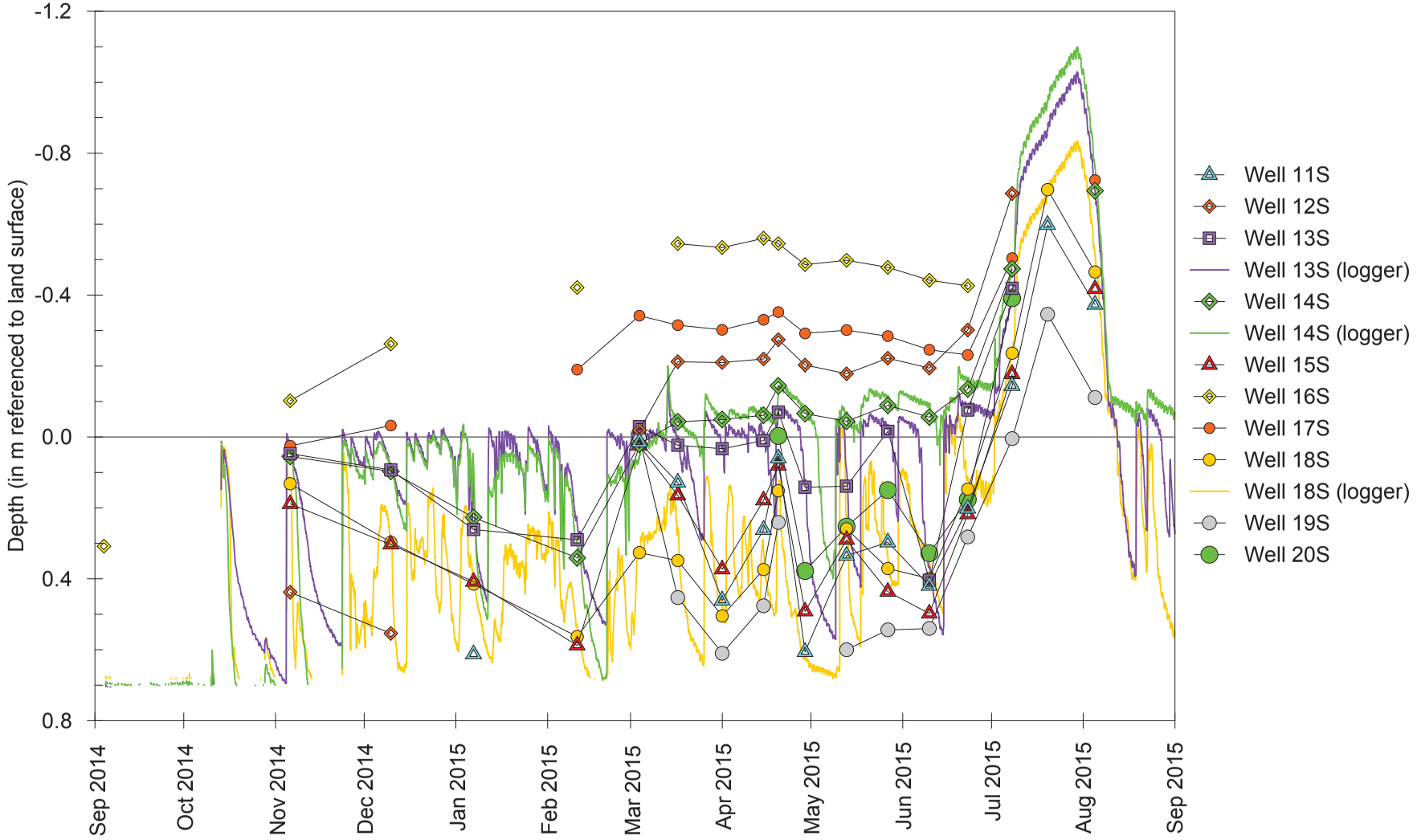
East Cape Girardeau Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations
in Shallow (S) Monitoring Wells



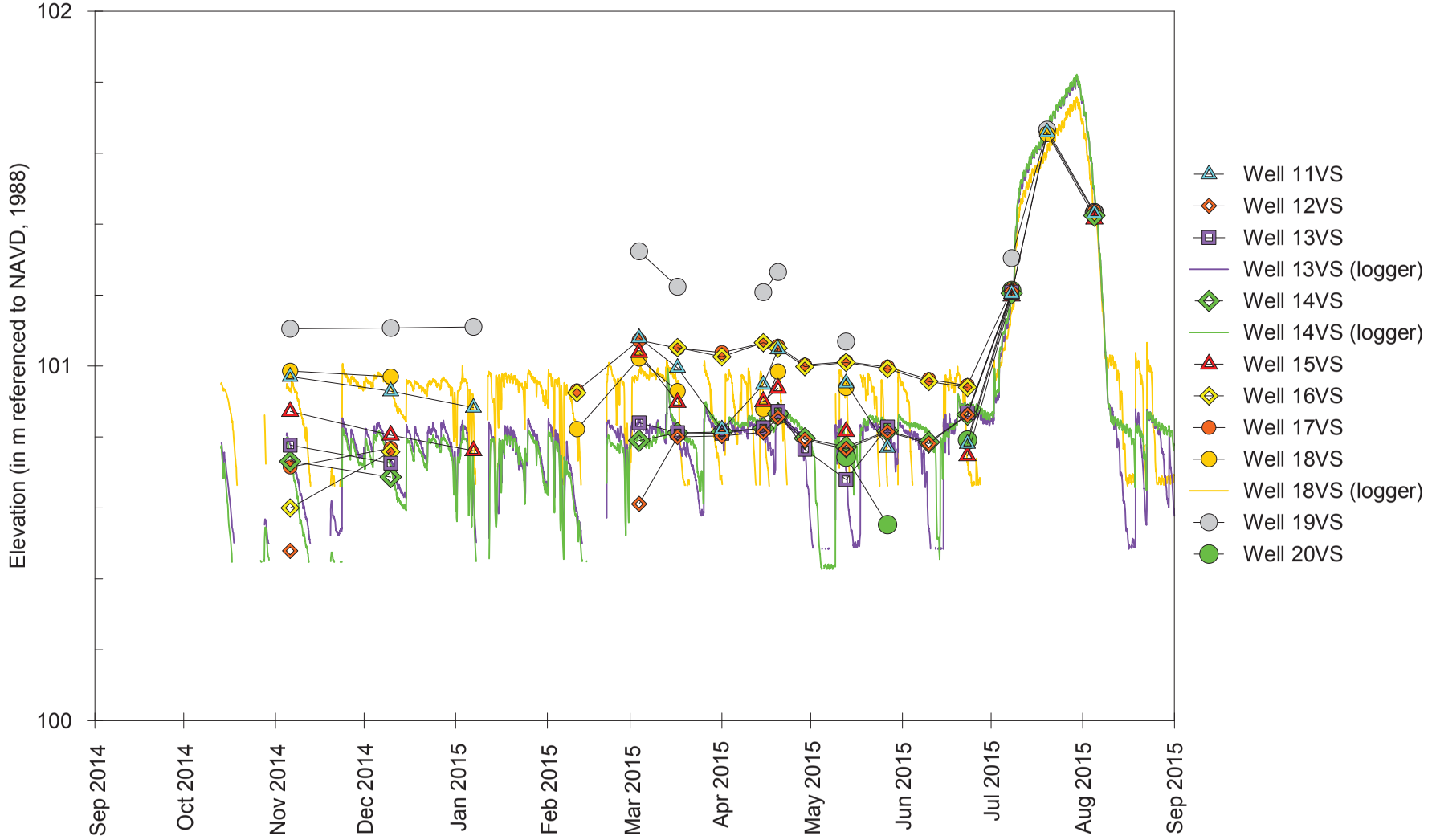
East Cape Girardeau Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow (S) Monitoring Wells



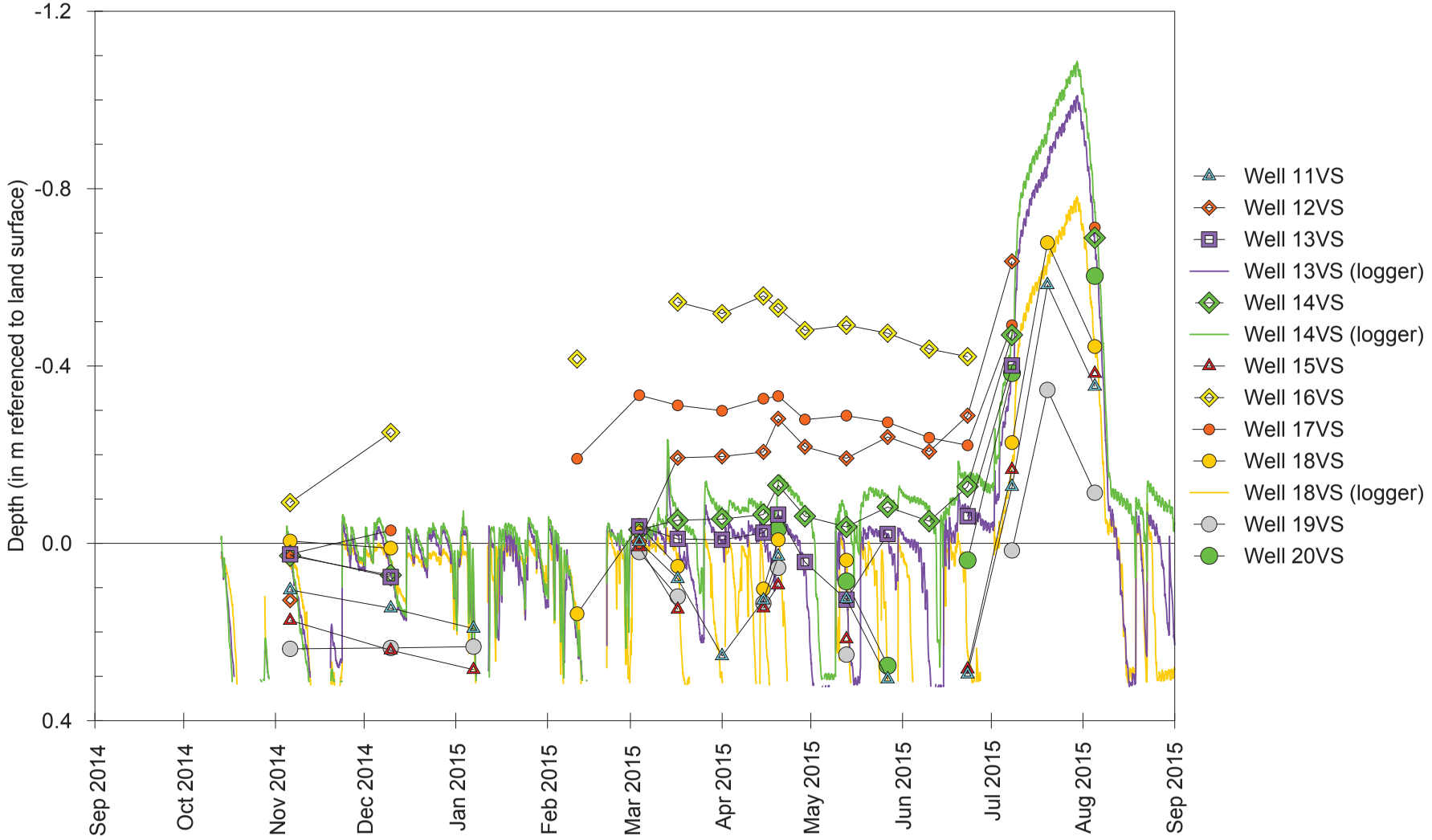
East Cape Girardeau Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations
in Very Shallow (VS) Monitoring Wells



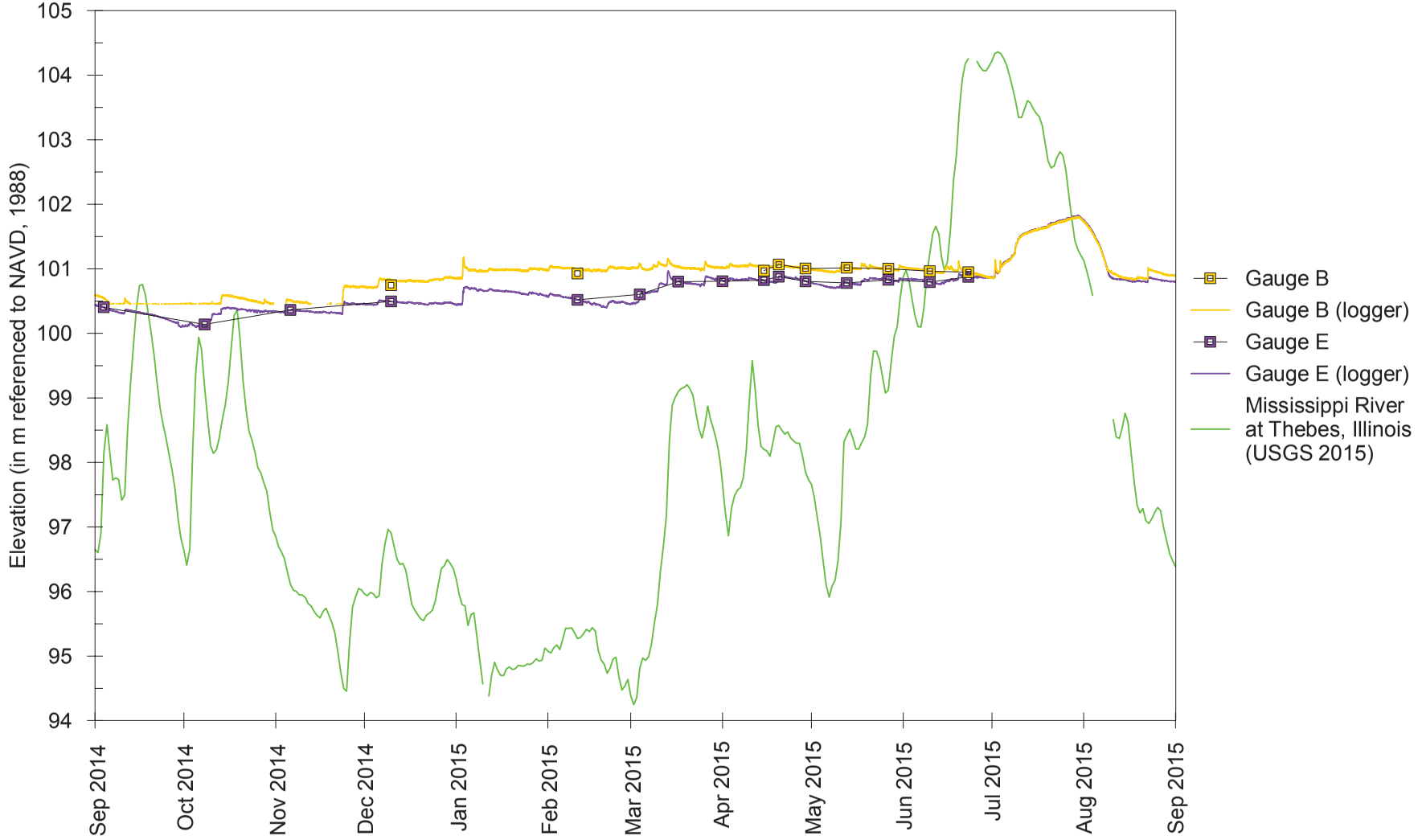
East Cape Girardeau Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Very Shallow (VS) Monitoring Wells



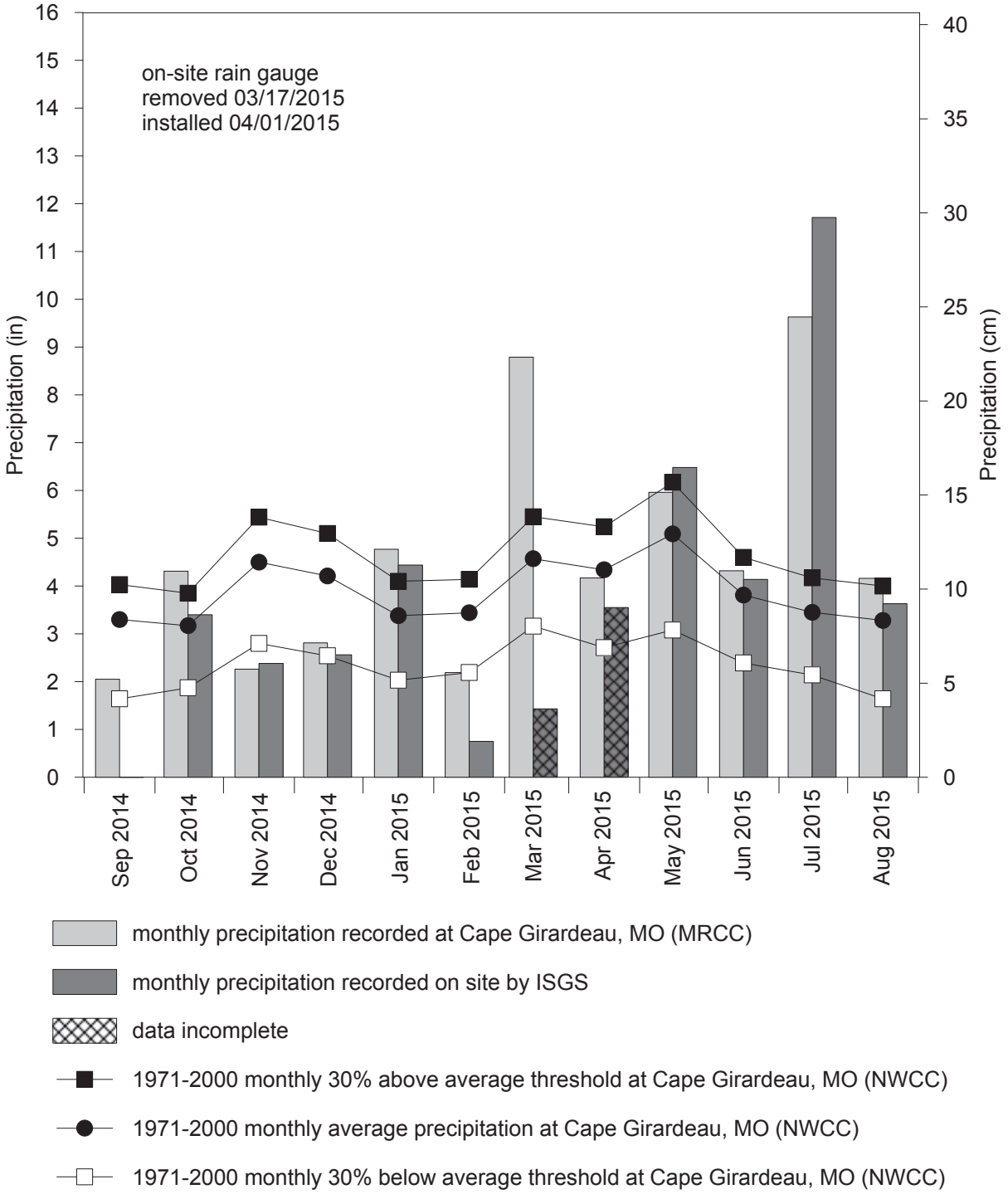
East Cape Girardeau Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



East Cape Girardeau Wetland Mitigation Site
September 2014 through August 2015

Total Monthly Precipitation Recorded on Site and at Cape Girardeau, MO (MRCC station #231289)



LAWRENCE COUNTY **ISGS #82**
WETLAND MITIGATION BANK
Sequence #14912
Lawrence County, near Lawrenceville, Illinois
Primary Project Manager: Steven E. Benton
Secondary Project Manager: Jessica L. B. Monson

SITE HISTORY

- June 2009: An Initial Site Evaluation report was submitted to IDOT on June 18, 2009.
- May 2010: The ISGS submitted a draft mitigation banking instrument to IDOT.
- December 2011: A Level II hydrologic characterization report (ISGS Open-File Series 2011-4) was submitted to IDOT.
- April 2013: The wetland banking instrument for the Lawrence County Wetland Mitigation Bank was approved.
- November 2013: Construction of the wetland bank was completed.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Lawrence County Wetland Mitigation Bank is 13.62 ha (33.65 ac). Using the 1987 Manual (Environmental Laboratory 1987), 12.97 ha (32.06 ac), of a total site area of 25.71 ha (63.52 ac), satisfied wetland hydrology criteria for greater than 5% of the 2015 growing season, and 12.76 ha (31.53 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 13.48 ha (33.31 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins at Lawrenceville, Illinois is March 30, and the season lasts 221 days (MRCC 2015); 5% of the growing season is 11 days, and 12.5% of the growing season is 28 days, using the 1987 Manual. Using the 2010 Midwest Region Supplement, March 9 was the starting date of the 2015 growing season based on soil temperatures measured on site.
- Total precipitation for the monitoring period, recorded at Lawrenceville International Airport (MRCC station #13809), was 101% of normal, precipitation in Spring 2015 (March through May) was 108% of normal, and the wettest month was June 2015 at 211% of normal.
- In 2015, water levels measured in soil-zone monitoring wells 1S, 3S, 4S, 6S, 7S, 9S, 13S, 15S, 20S, 24S, and 28S satisfied wetland hydrology criteria for greater than 5% of the growing season, and monitoring wells 1S, 3S, 4S, 6S, 7S, 9S, 13S, 15S, 24S, and 28S satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, water levels measured in soil-zone monitoring wells 1S, 3S, 4S, 6S, 7S, 9S, 13S, 15S, 20S, 24S, 26S, 27S and 28S satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season.

- Surface-water levels measured west of Beaver Pond Ditch reveal that inundation occurred in two areas, north of well 24S (gauges F and H) and south of well 24S (Gauge G). North of wells 24S, areas at and below 124.57 m (408.69 ft) were inundated for more than 5% of the growing season, and areas at and below 124.52 m (408.53 ft) were inundated for more than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, areas at and below 124.54 m (408.60 ft) were inundated for 14 or more consecutive days during the growing season. South of well 24S, areas at and below 124.68 m (409.06 ft) were inundated for more than 5% of the growing season, and areas at and below 124.66 m (408.99 ft) were inundated for more than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, areas at and below 124.68 m (409.06 ft) were inundated for 14 or more consecutive days during the growing season.

- Surface-water levels measured east of Beaver Pond Ditch show that inundation occurred at Gauge D several times during the growing season, but none of the periods were of sufficient duration to satisfy wetland hydrology criteria. At Gauge E, portions of the site at and below an elevation of 124.27 m (407.71 ft) were inundated for more than 5% and 12.5% of the growing season, using the 1987 Manual, and for more than 14 consecutive days using the 2010 Midwest Region Supplement.

ADDITIONAL INFORMATION

- Monitoring wells 19S, 21S, 22S, 23S and Gauge D were installed in order to monitor saturation and inundation along the eastern boundary of the site. The longest period of saturation at well 19S was 7 days (3/14-3/21). The longest period of inundation at Gauge D occurred at this time and totaled 8 days (3/12-3/19). Surface-water elevation during this period was high enough (124.95 m [409.94 ft]) to extend to the boundary of the site, but only for 4 days (3/14-3/18). Saturation at well 19S occurred later in the growing season, but only for 2 days or less. Surface water was also detected at Gauge D later in the growing season, but the elevation was not high enough to extend to the boundary of the site. During the growing season, water was detected in well 21S three times (3/30, 4/13, 7/6), in well 22S once (4/13), but not in well 23S. The depth to groundwater each time was greater than 30.5 cm (12.0 in.) below ground surface.

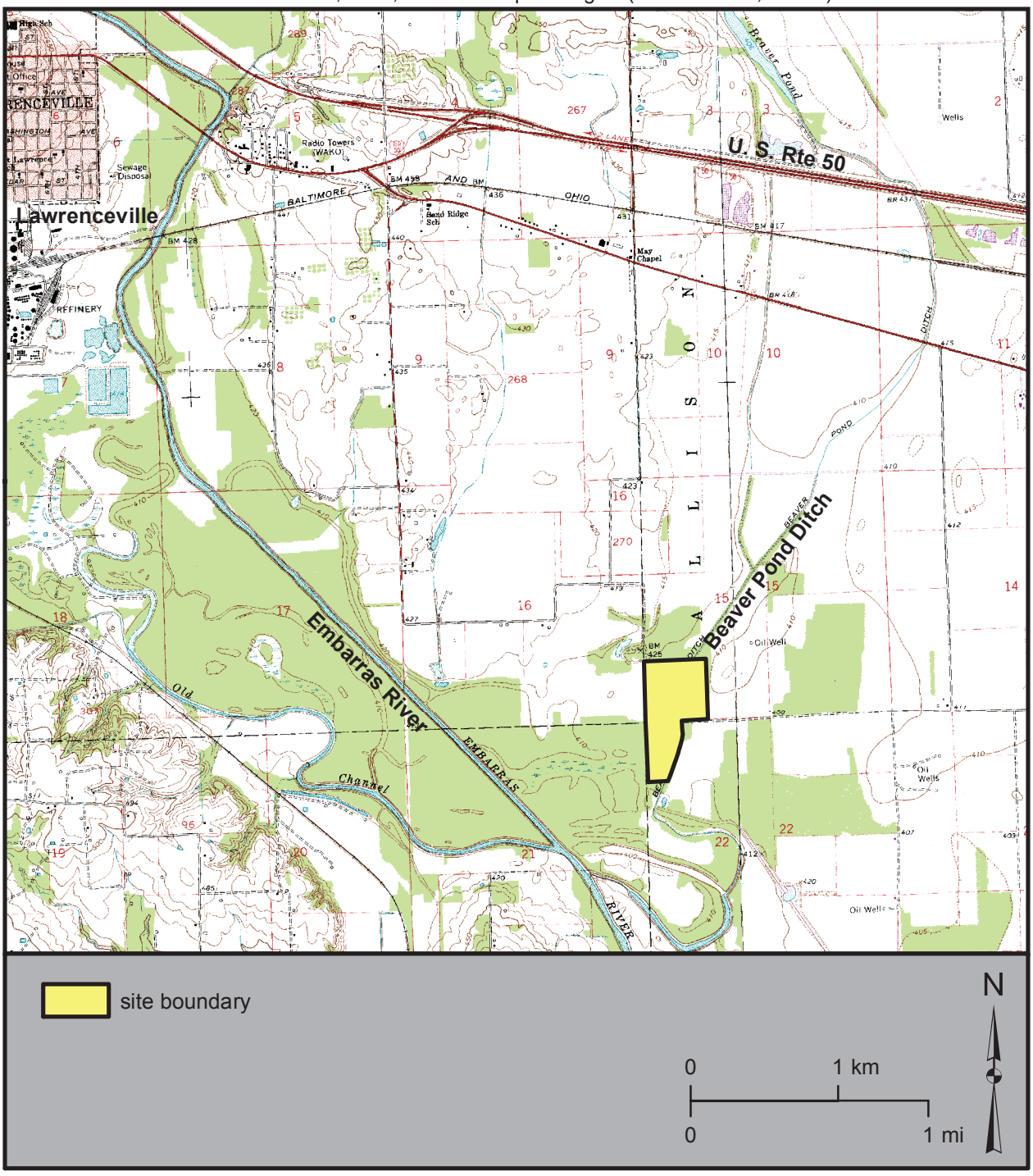
PLANNED FUTURE ACTIVITIES

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

Lawrence County Wetland Mitigation Bank

General Study Area and Vicinity

from the USGS Topographic Series, Lawrenceville, IL,
and Vincennes, IN-IL, 7.5-minute quadrangles (USGS 1965a, 1965b)

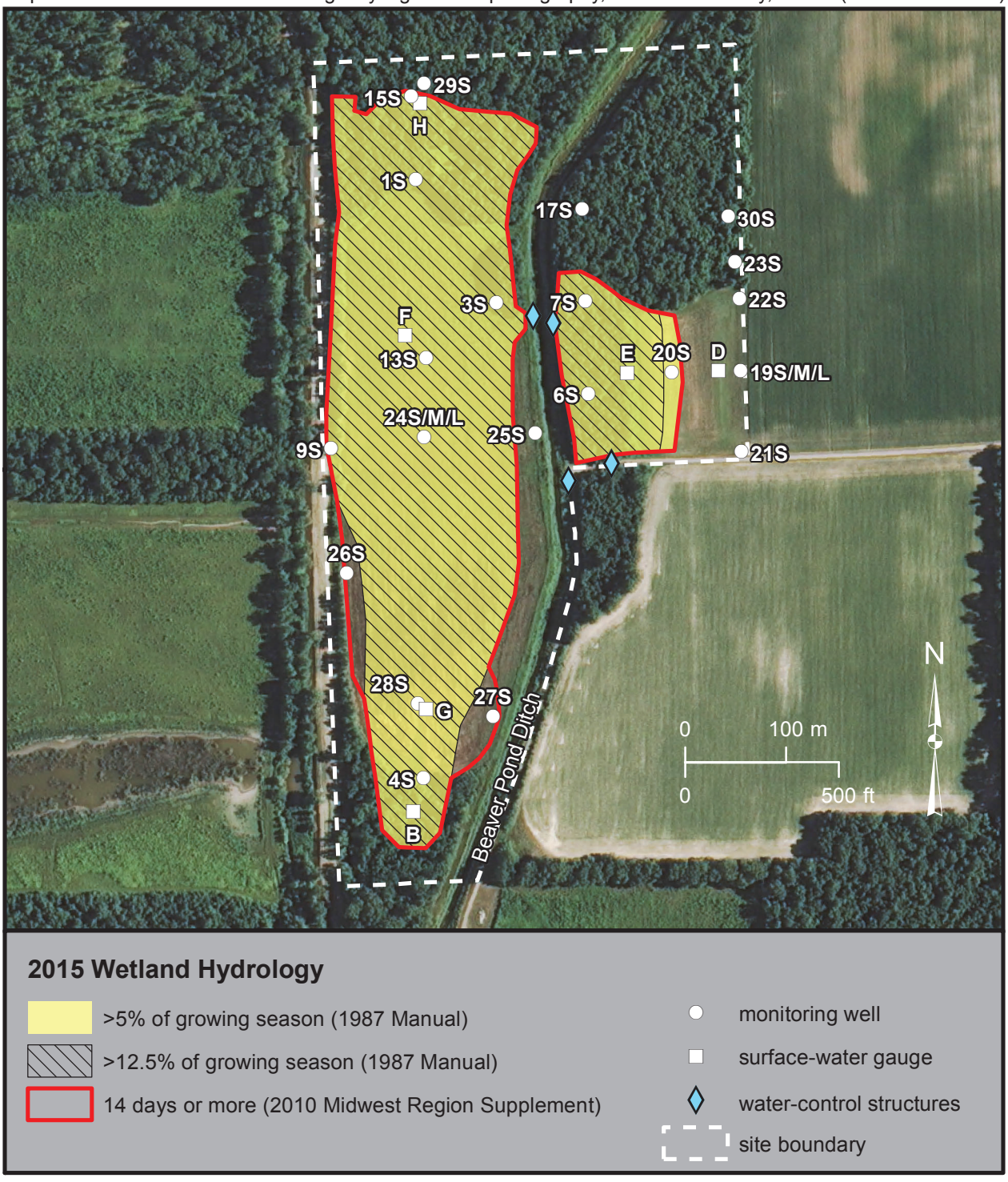


Lawrence County Wetland Mitigation Bank

Estimated Areal Extent of 2015 Wetland Hydrology

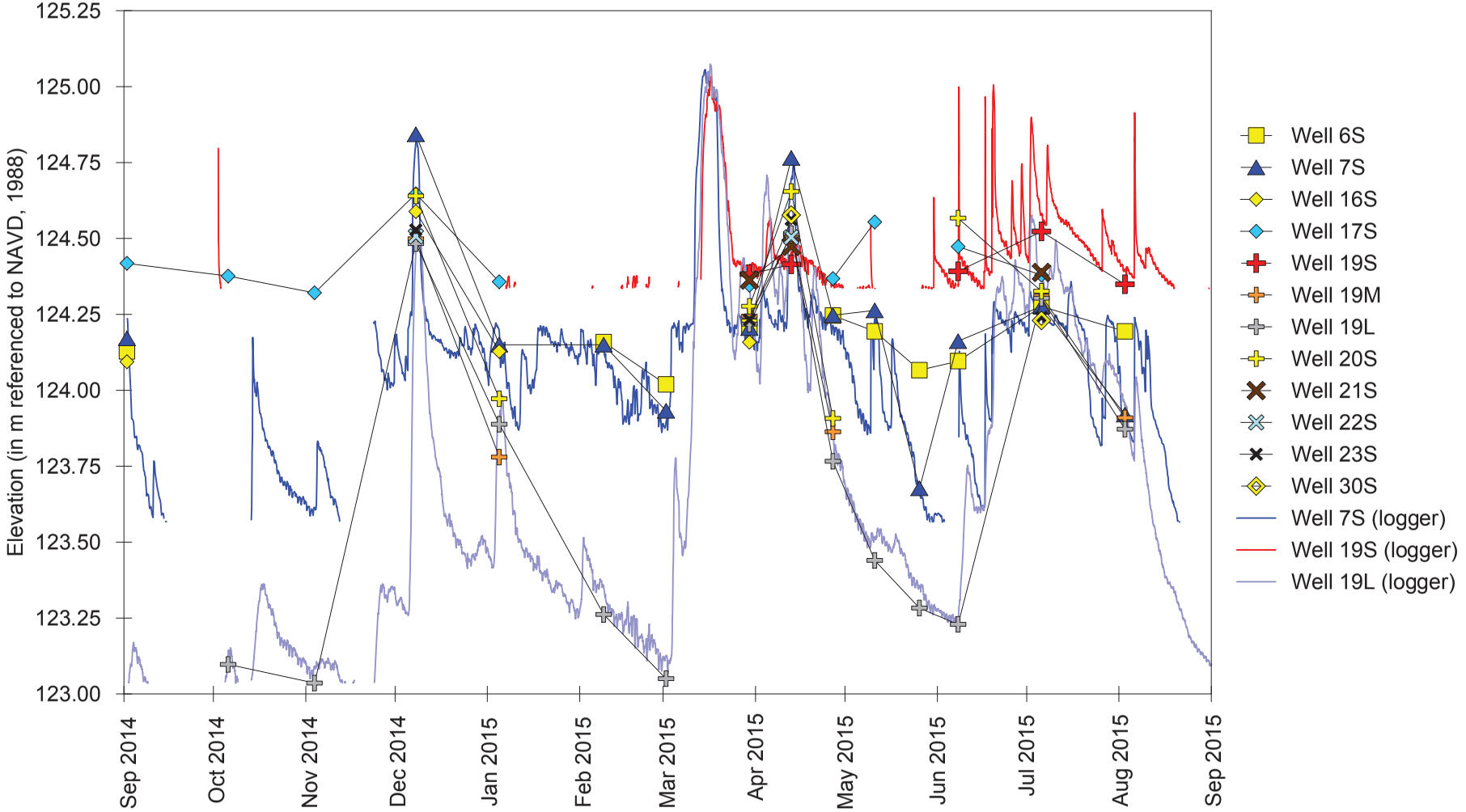
September 1, 2014 through August 31, 2015

Map based on 2012 Farm Service Agency digital orthophotography, Lawrence County, Illinois (USDA-FSA 2012)



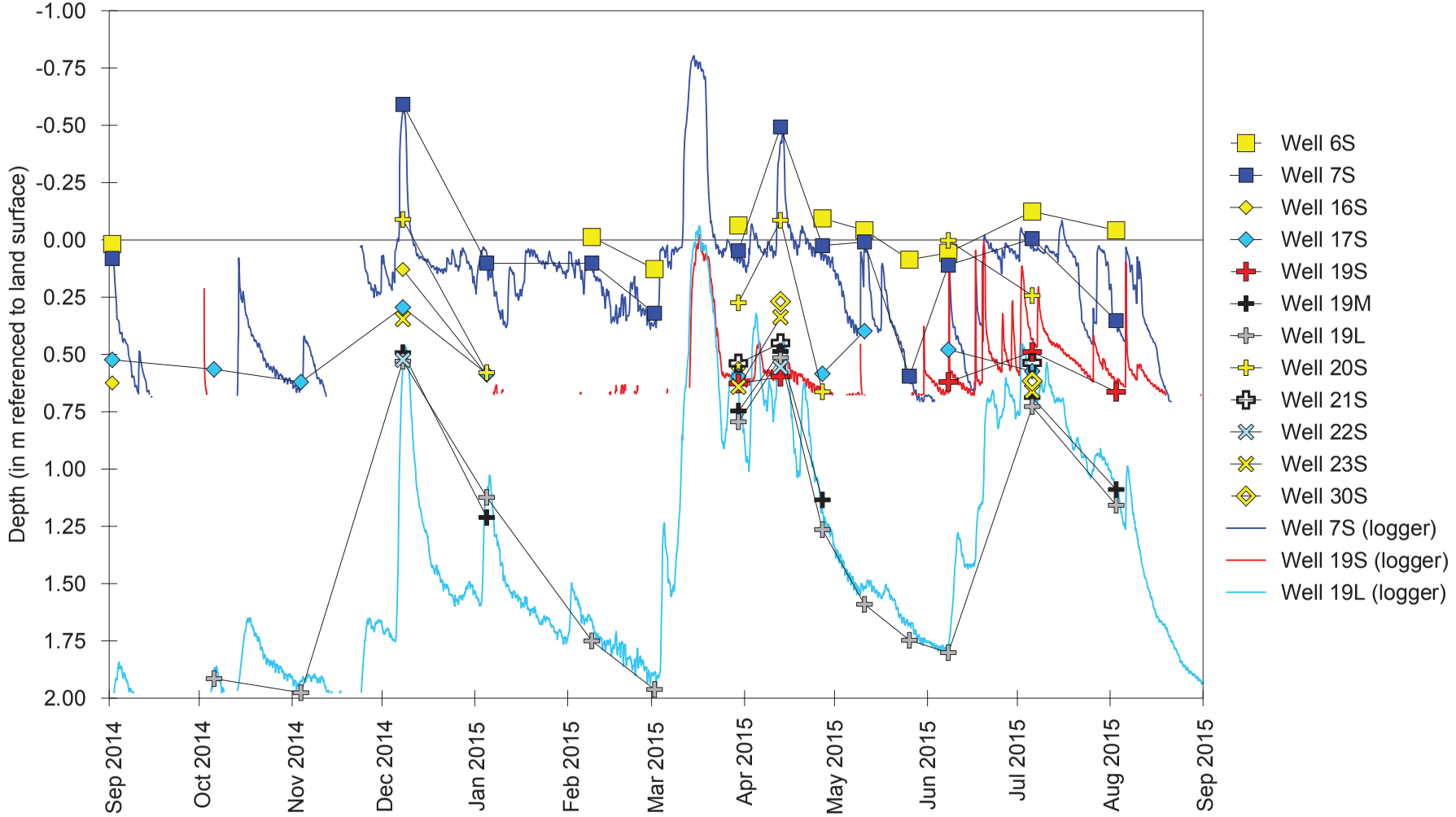
Lawrence County Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations
in Monitoring Wells East of Beaver Pond Ditch



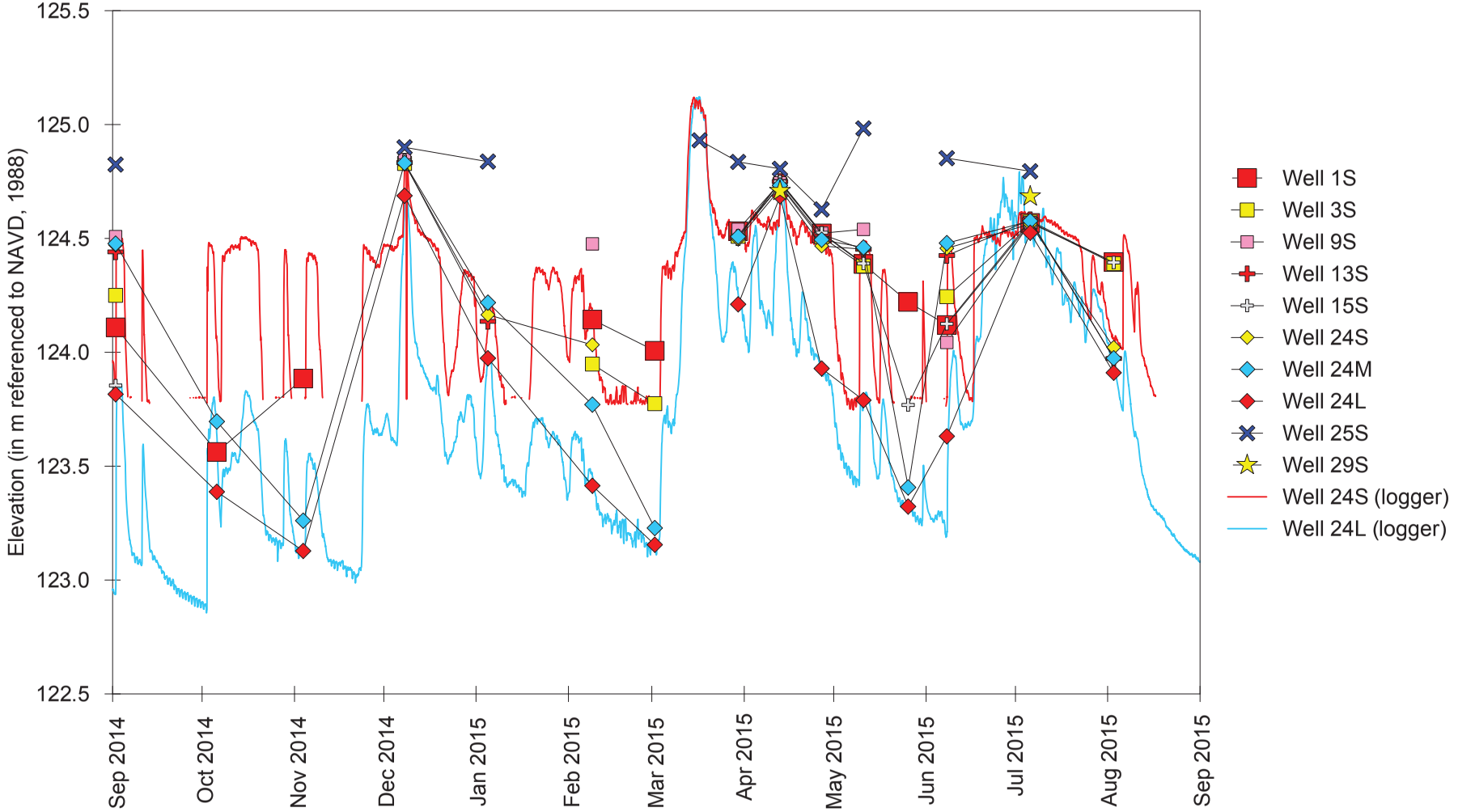
Lawrence County Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells East of Beaver Pond Ditch



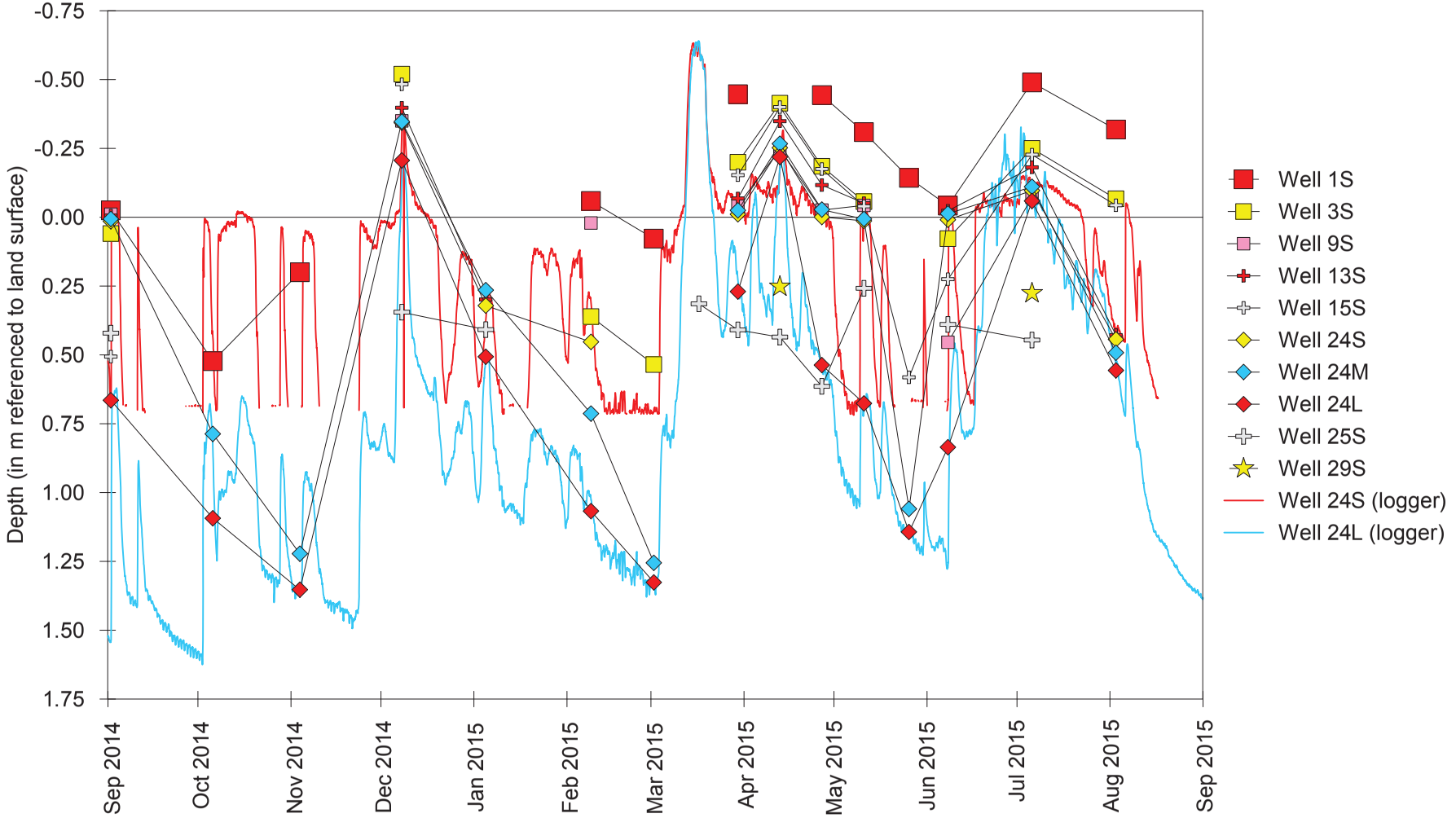
Lawrence County Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations
in Monitoring Wells West of Beaver Pond Ditch



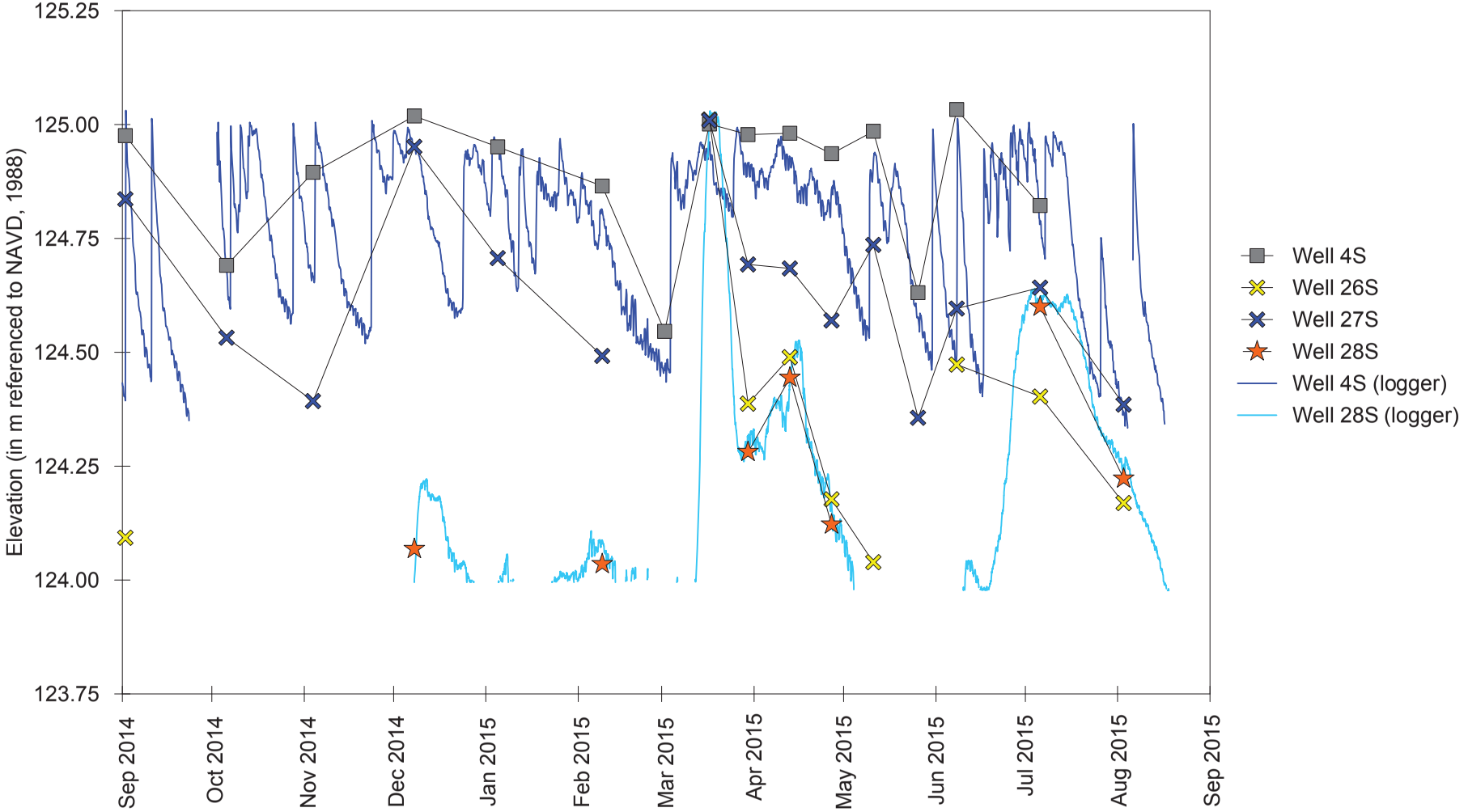
Lawrence County Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells West of Beaver Pond Ditch



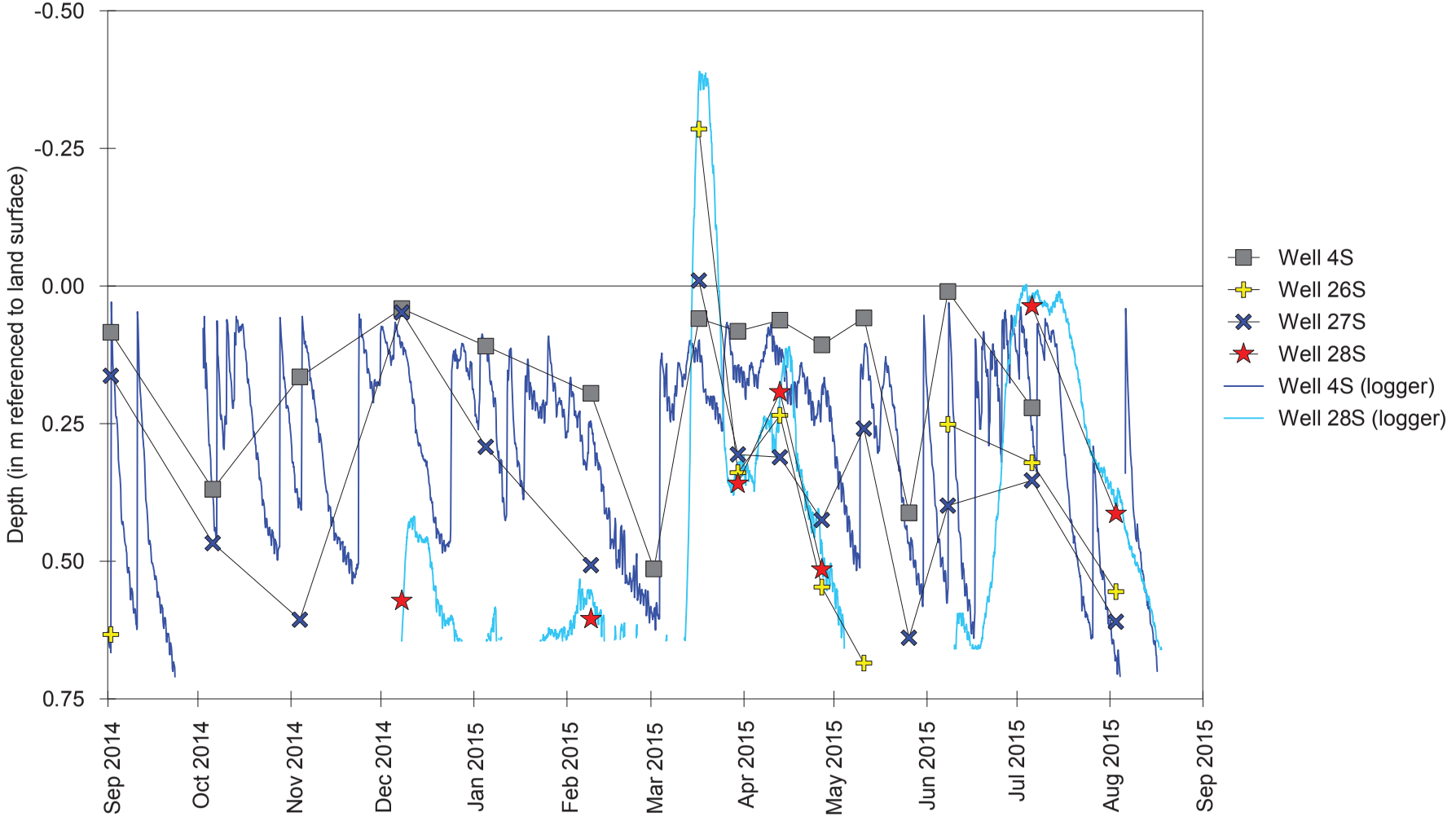
Lawrence County Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations
in Monitoring Wells West of Beaver Pond Ditch



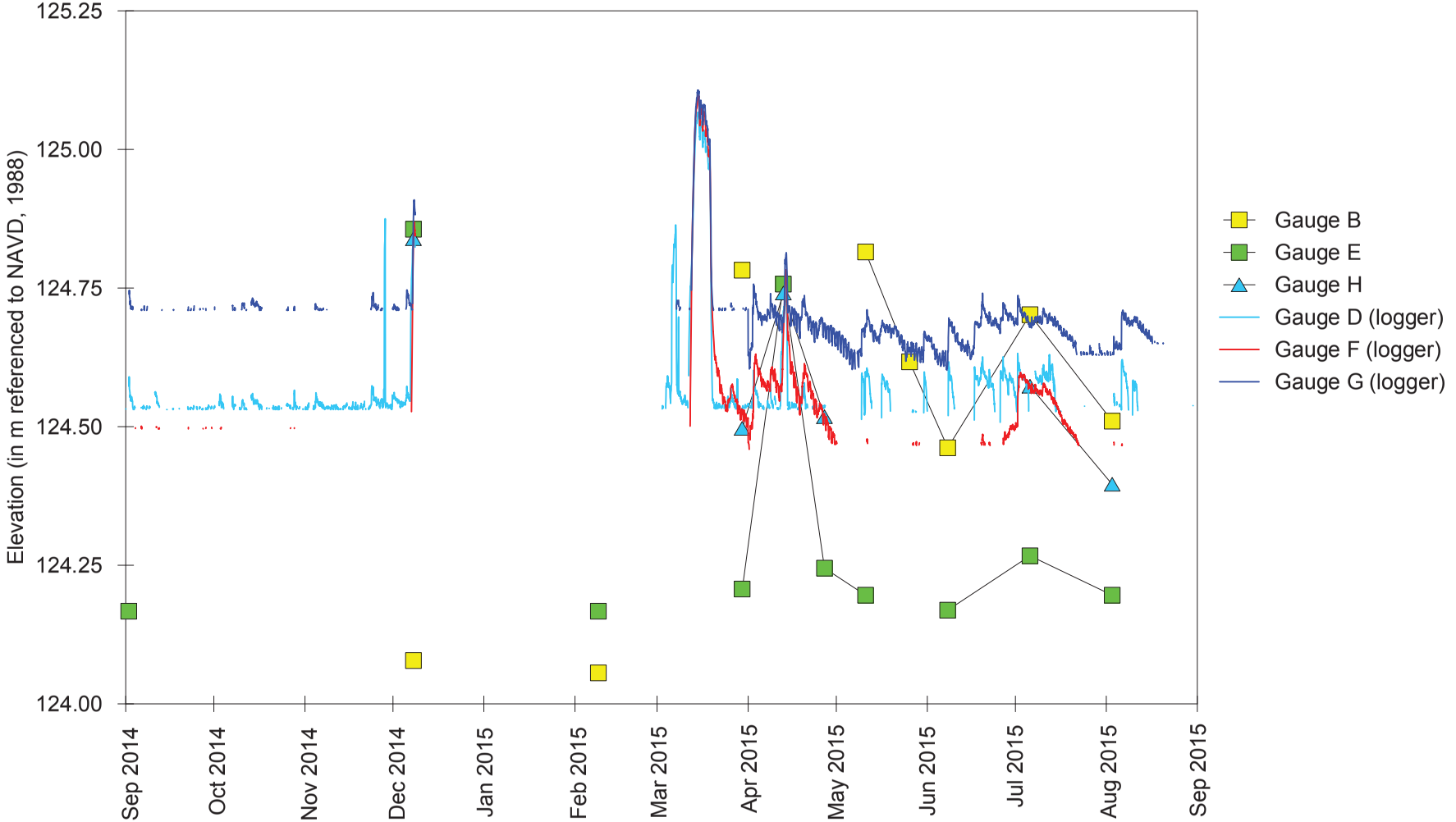
Lawrence County Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells West of Beaver Pond Ditch

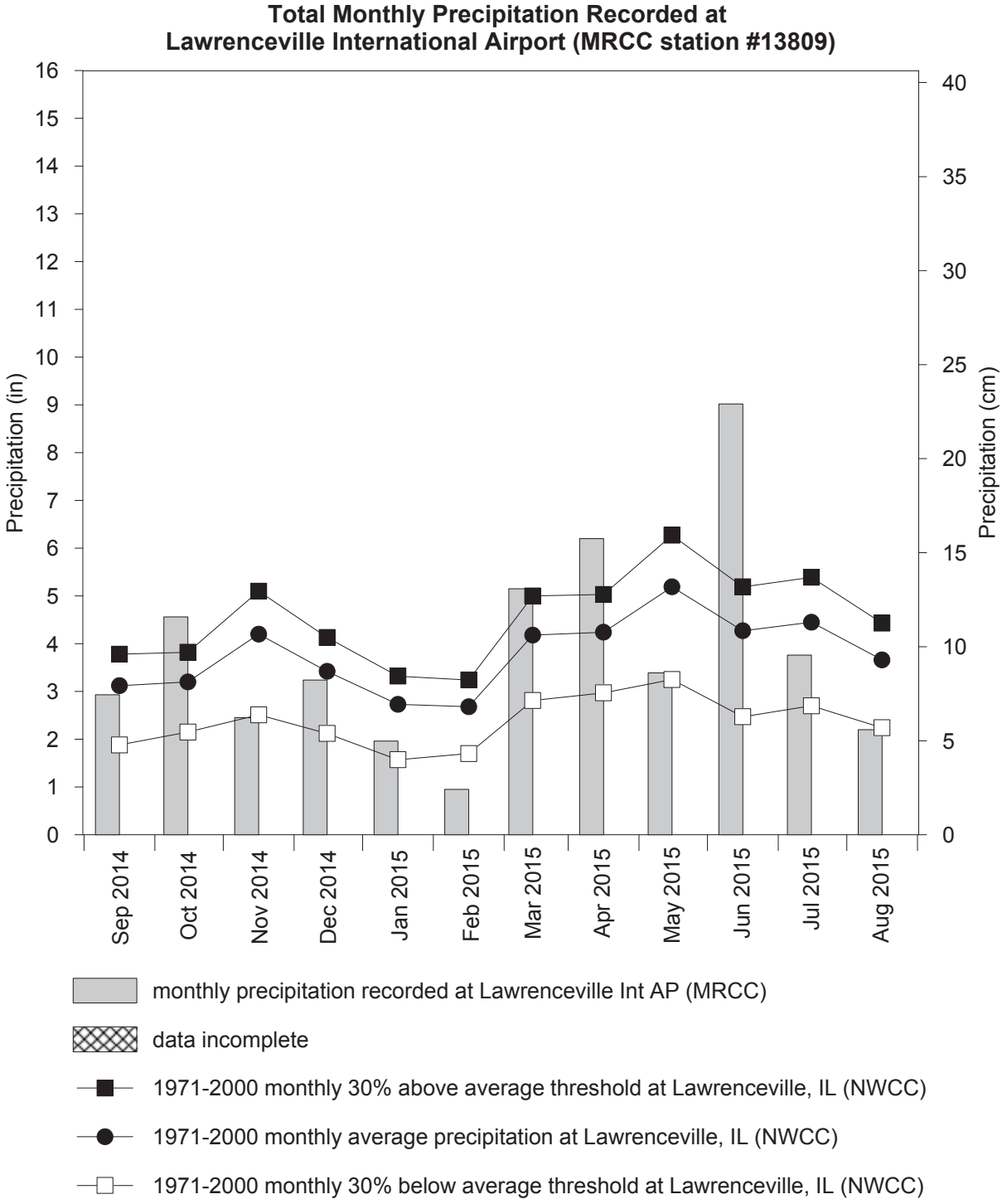


Lawrence County Wetland Mitigation Bank
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



Lawrence County Wetland Mitigation Bank
September 2014 through August 2015



NORTH CHICAGO **ISGS #84**
WETLAND MITIGATION SITE
IL 56/IL 47
FAP 326
Sequence #13406
Lake County, North Chicago, Illinois
Primary Project Manager: Colleen M. Long
Secondary Project Manager: Keith W. Carr

SITE HISTORY

- 1995-2002: Previous site studies occurred during this period; monitoring was suspended by IDOT in Spring 2002.

- Spring 2009: The IDOT tasked ISGS to resume targeted monitoring. Eight monitoring wells were installed in the northernmost part of the site to document restoration potential associated with tile removal in that area.

- Spring and Summer 2010: Drain tiles and invasive vegetation were removed.

- August 2011: The ISGS added 14 soil-zone monitoring wells and one surface-water gauge to monitor various wetlands throughout the site.

- April 2014: The ISGS added 12 soil-zone monitoring wells to expand monitoring of wetlands on the site. Additional tasking from IDOT requested that continued monitoring include wetland acreages rather than the spot-determinations of wetland hydrology status reported in previous years.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the North Chicago wetland mitigation site has not been transmitted to ISGS. Using the 1987 Manual (Environmental Laboratory 1987), 17.84 ha (44.08 ac), of a total site area of 65.10 ha (160.87 ac), satisfied wetland hydrology criteria for greater than 5% of the 2015 growing season, and 17.48 ha (43.20 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 17.76 ha (43.89 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Glencoe, Illinois, is April 9, and the season lasts 199 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 10 days, and 12.5% of the growing season is 25 days. Using the 2010 Midwest Region Supplement, April 1 was the starting date of the 2015 growing season based on soil-temperature measurements on site.

- Total precipitation for the monitoring period at Chicago Waukegan Regional Airport, Illinois (MRCC station #14880), was 86% of normal. During Spring 2015 (March through May), precipitation was 92% of normal, leading to typical on-site moisture conditions in the early part of the growing season.

- In 2015, water levels measured in all wells except 09-04VS satisfied wetland hydrology criteria for greater than 5% of the growing season, and water levels measured in all wells except 09-03VS, 09-04VS, 14-07VS, 15-20VS, and 15-21VS satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, water levels measured in all wells except 09-04VS and 15-21VS satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. Wells 15-19VS, 15-20VS, and 15-21VS were not installed until April 23, 2015, and therefore had limited data available for making wetland hydrology determinations for this growing season; it is likely that wetland hydrology criteria for all of the three thresholds was met before April 23 in these wells.

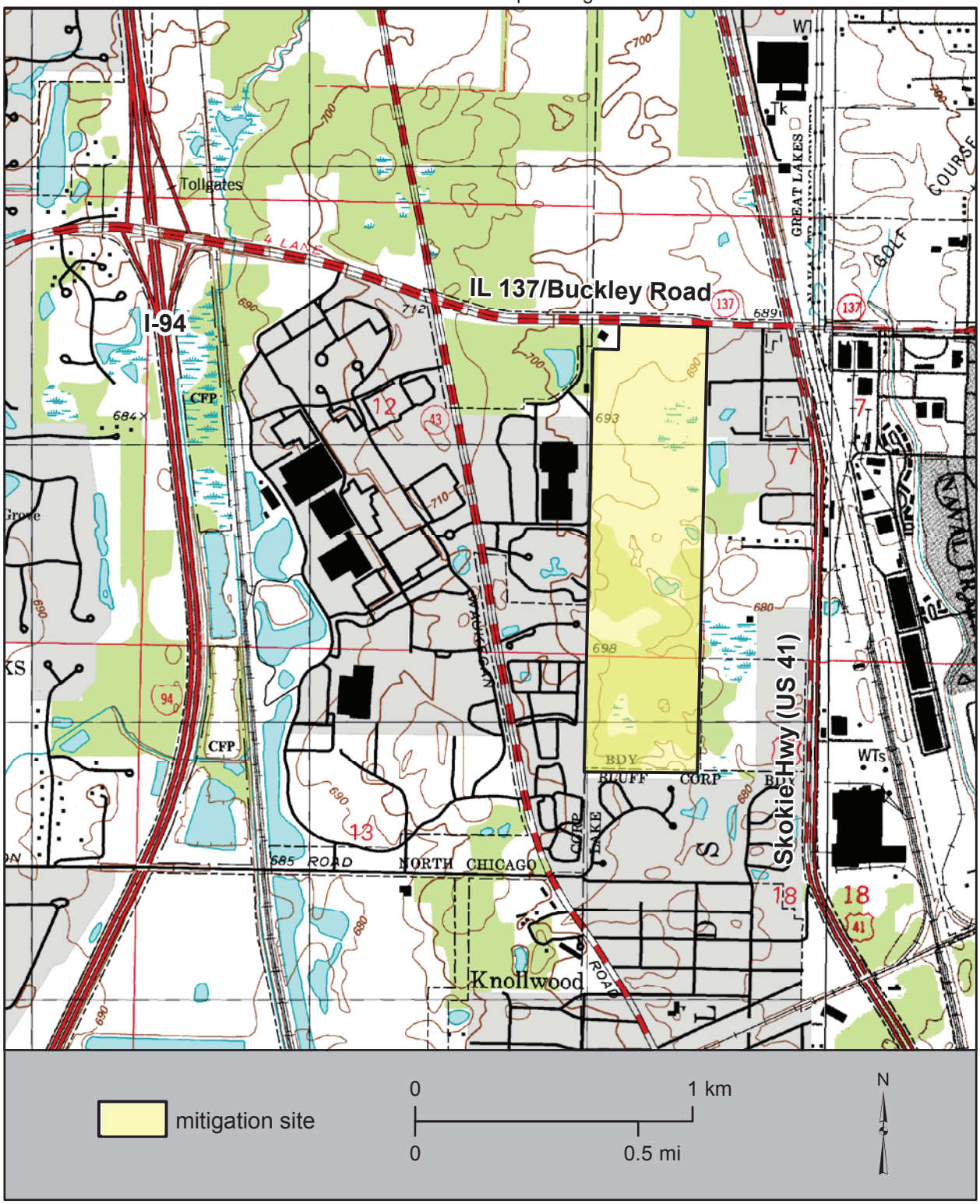
- Surface-water levels measured at Gauge A indicated inundation at and below 209.70 m (687.99 ft) for more than 5% of the growing season, and inundation at and below 209.67 m (687.89 ft) for more than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, surface-water levels measured at Gauge A indicated inundation at and below 209.70 m (687.99 ft) for 14 or more consecutive days during the growing season.

PLANNED FUTURE ACTIVITIES

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

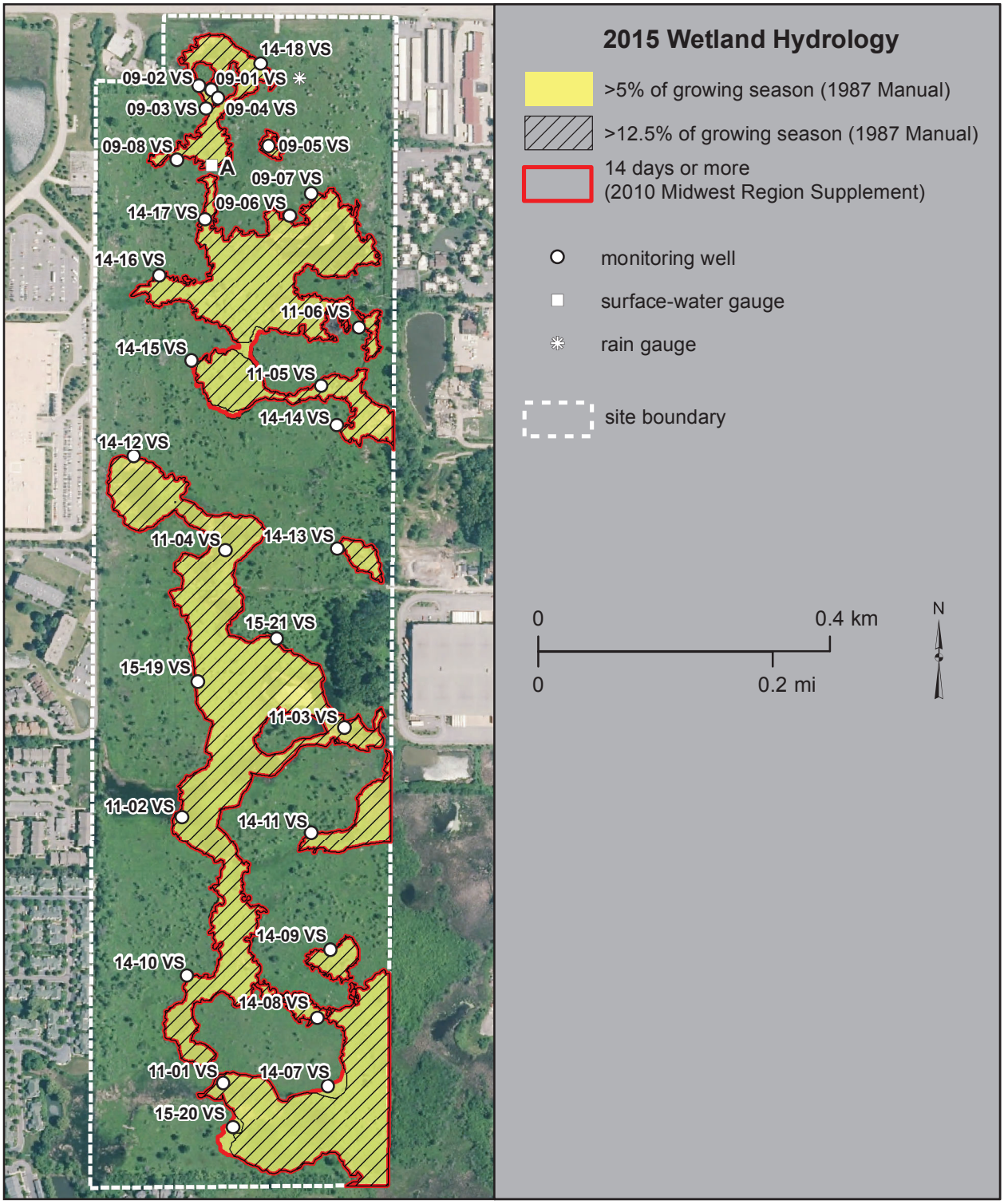
North Chicago Wetland Mitigation Site
(IL 56/IL47, FAP 326)
General Study Area and Vicinity

from the USGS Topographic Series, Libertyville and Waukegan, IL (USGS 1993b and 1998)
7.5-minute quadrangles



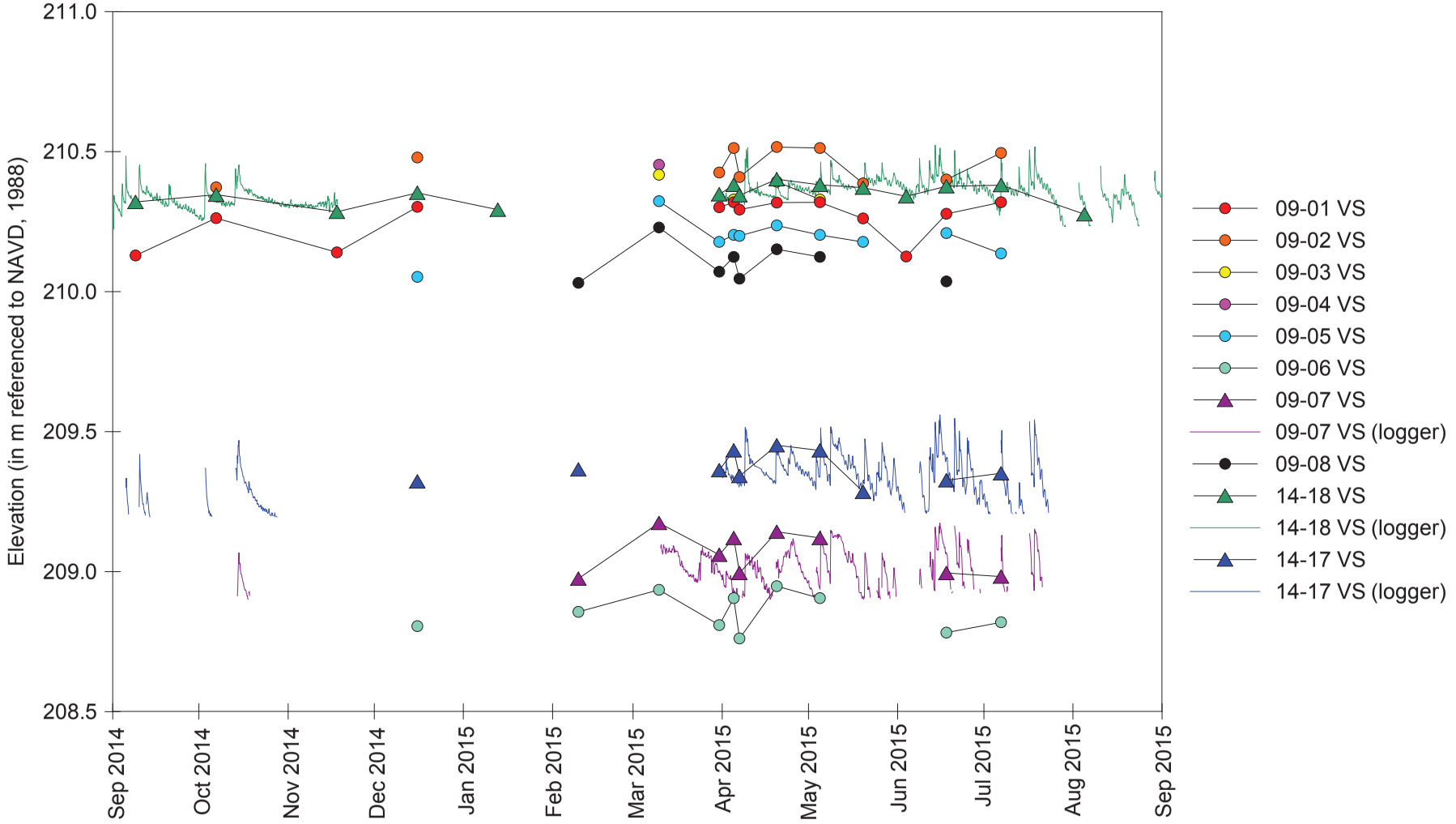
North Chicago Wetland Mitigation Site
(IL 56/IL47, FAP 326)
Estimated Areal Extent of 2015 Wetland Hydrology
September 1, 2014 through August 31, 2015

Map based on 2014 Farm Service Agency digital orthophotography, Lake County, Illinois (USDA-FSA 2014)



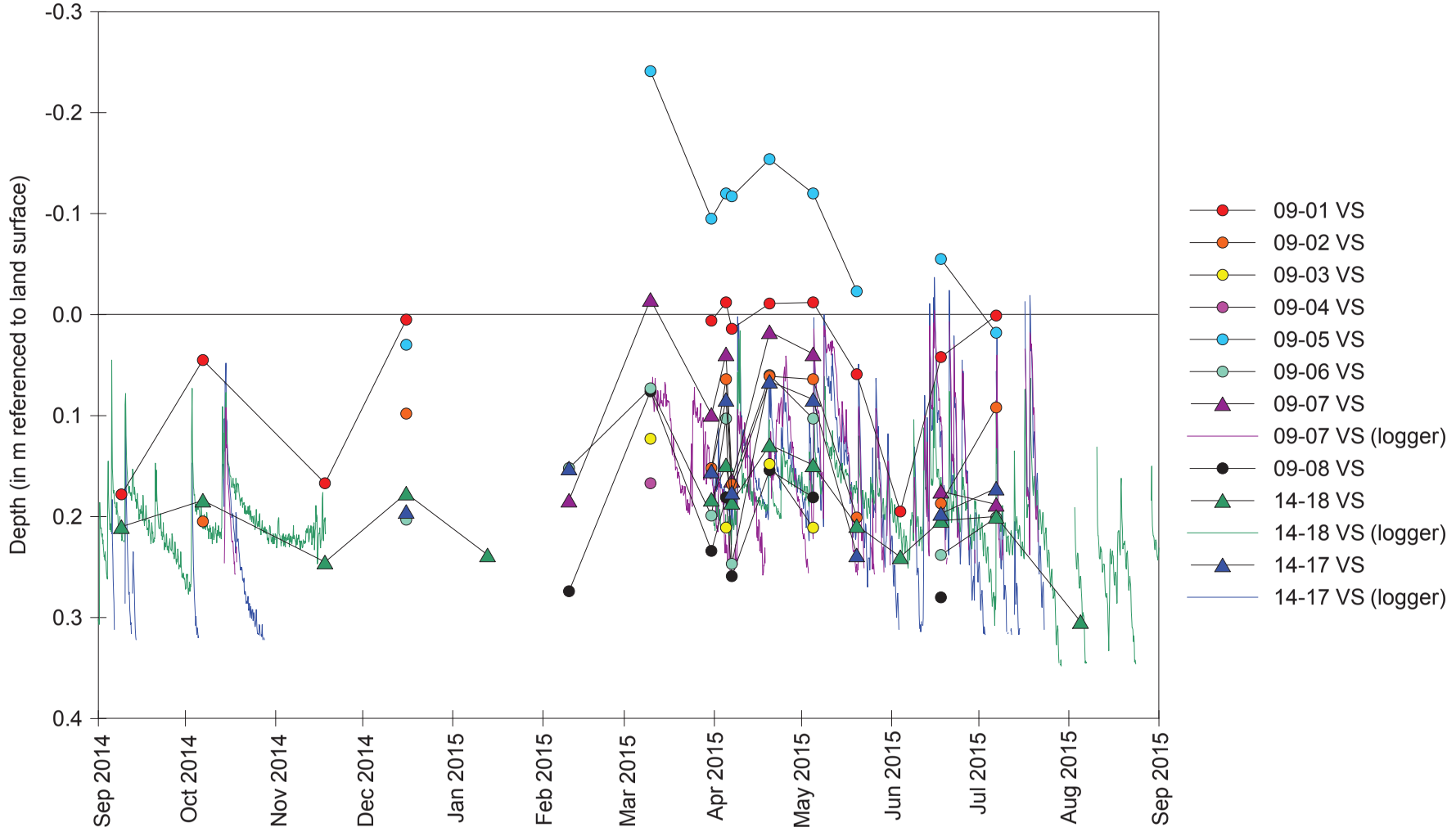
North Chicago Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells - North



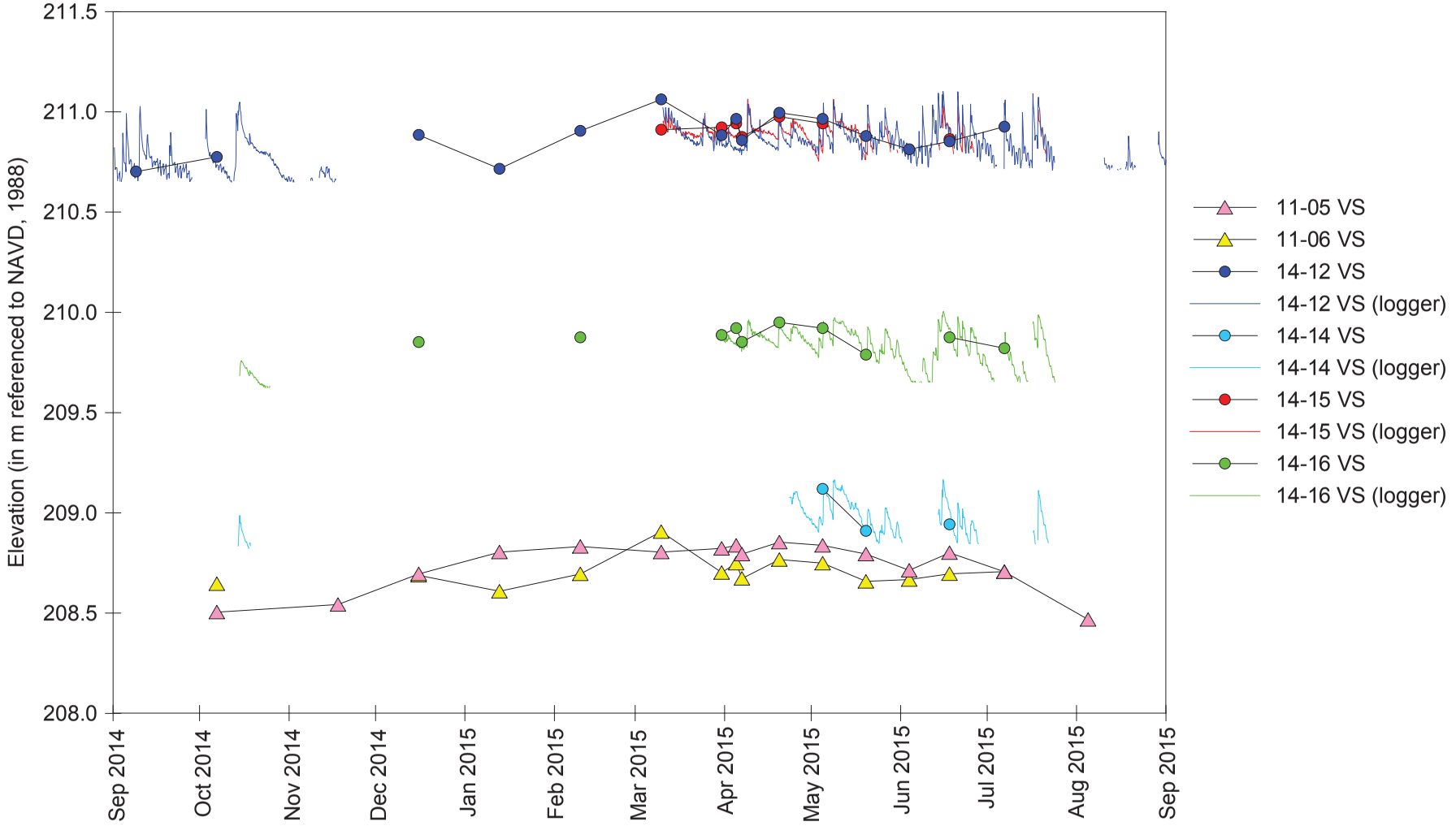
North Chicago Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells - North



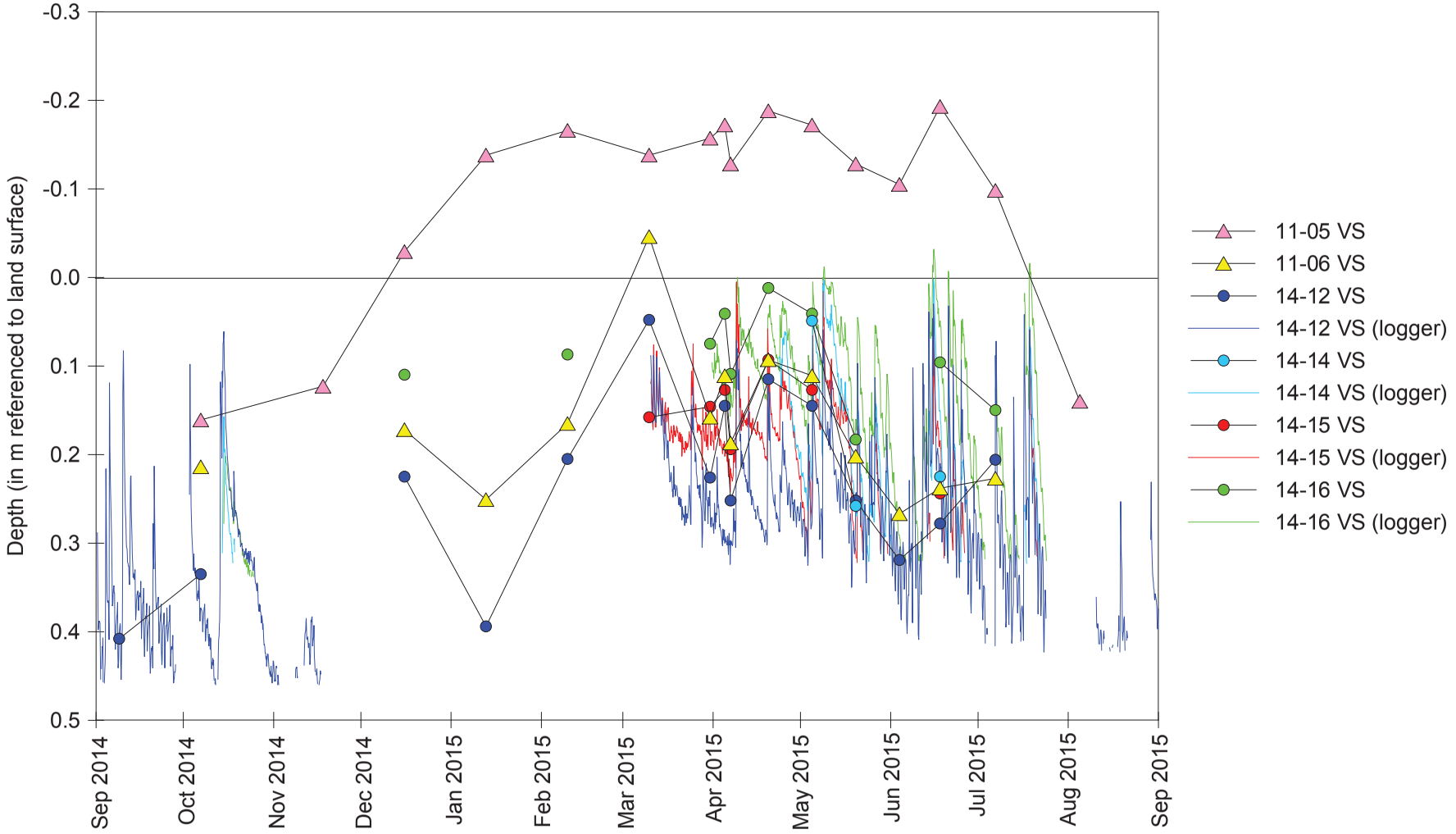
North Chicago Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells - Mid-North



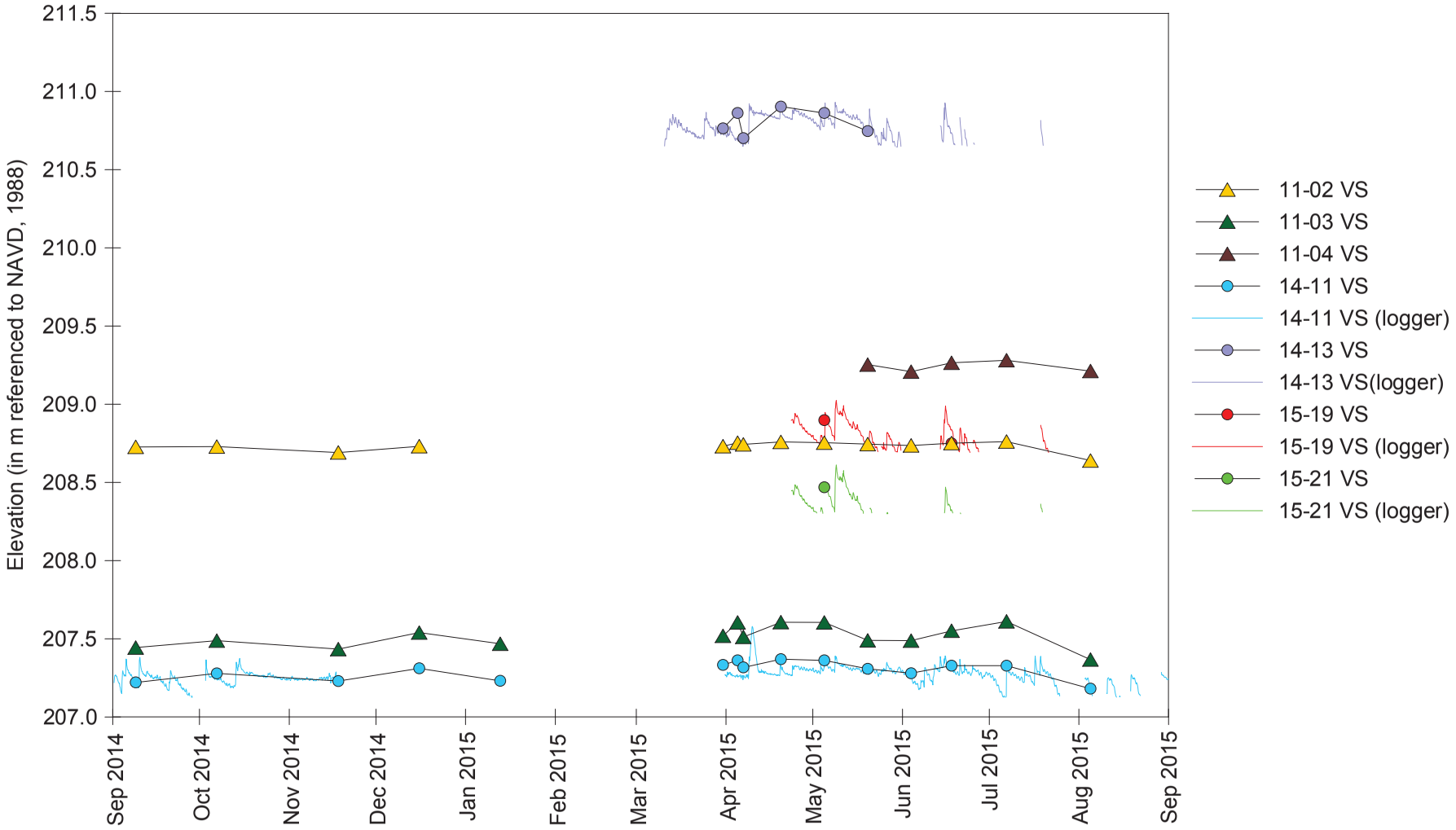
North Chicago Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells - Mid-North



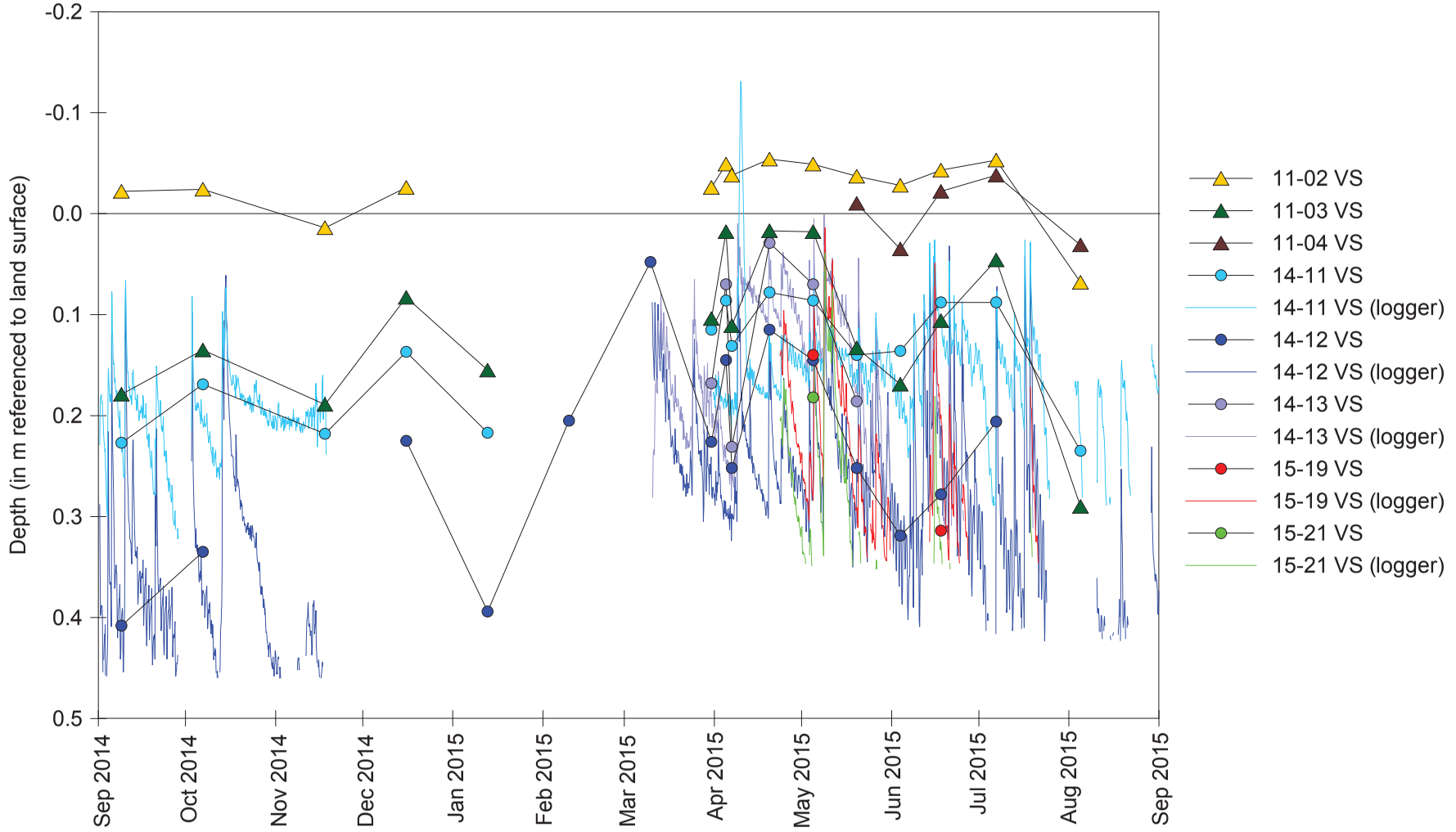
North Chicago Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells - Mid-South



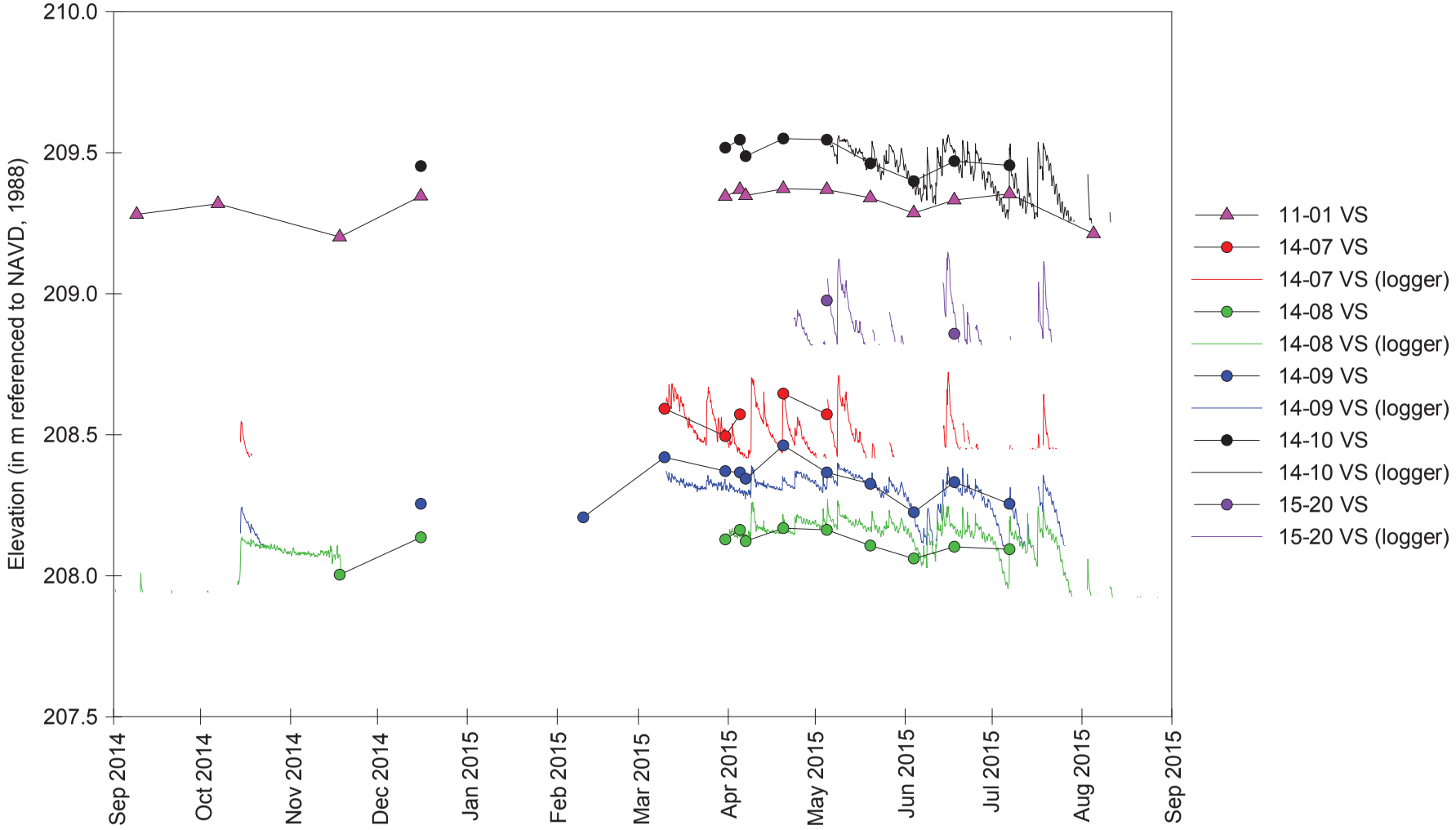
North Chicago Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells - Mid-South



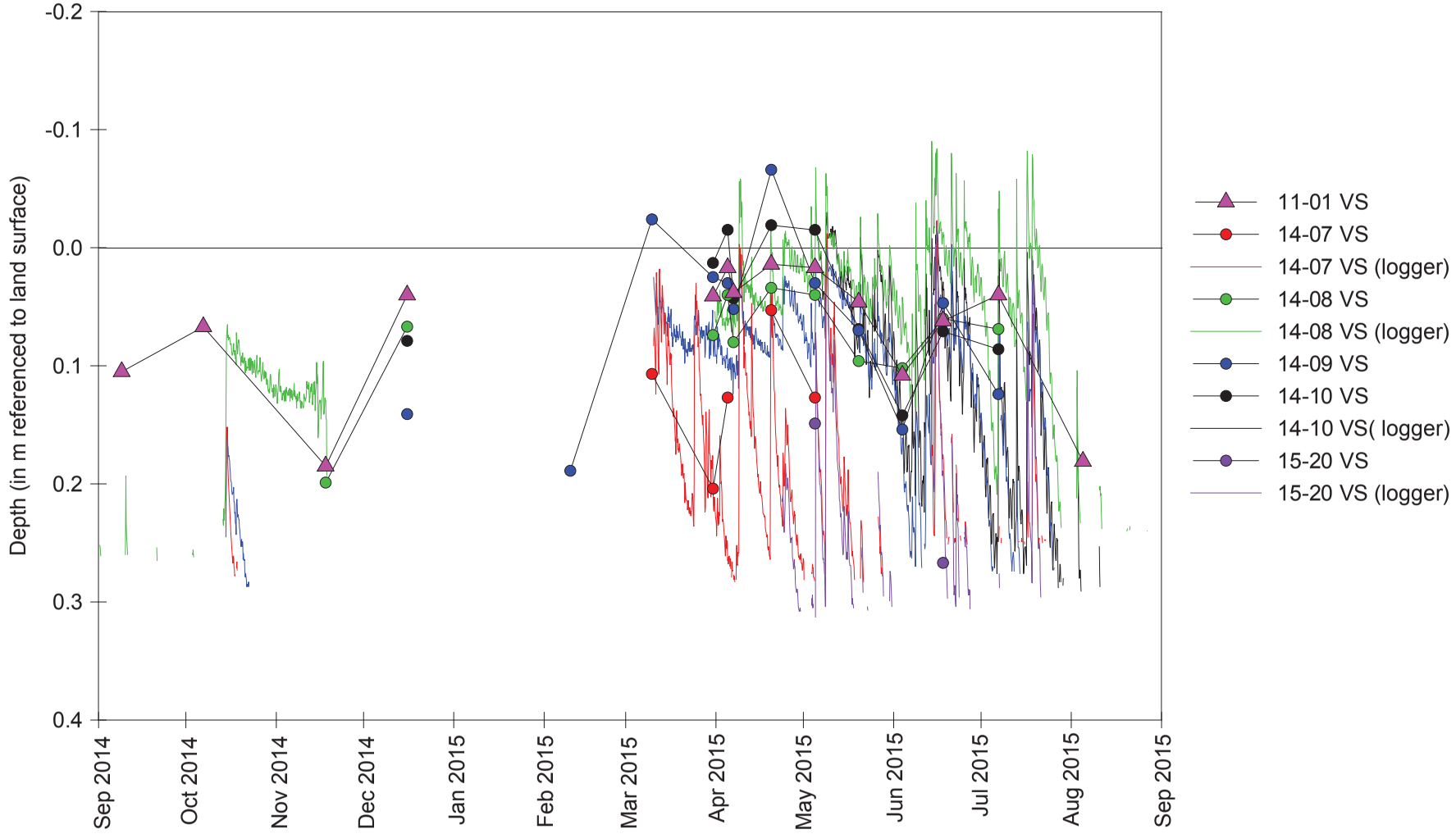
North Chicago Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells - South



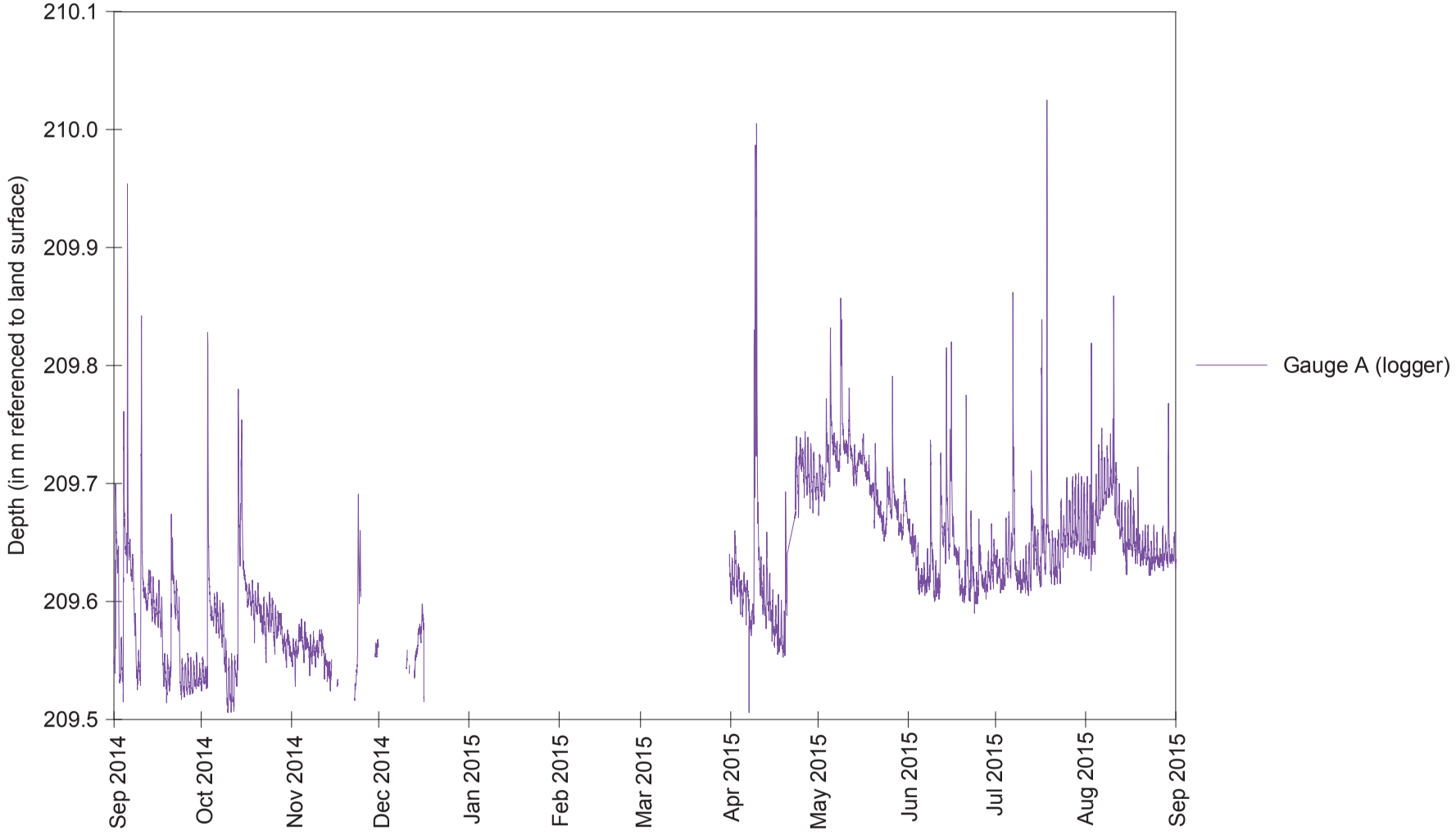
North Chicago Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells - South



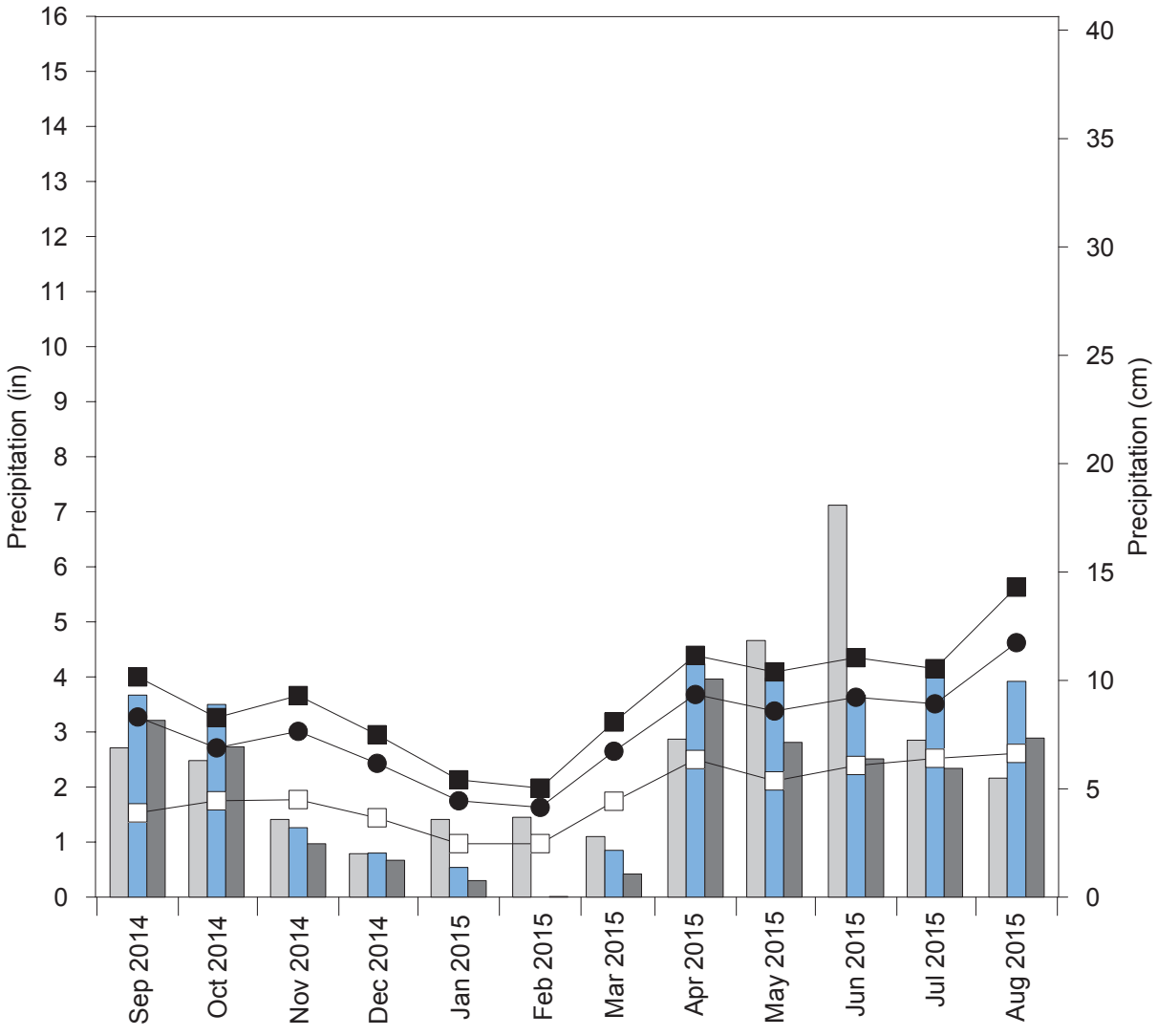
North Chicago Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at Gauge A



North Chicago Wetland Mitigation Site
September 2014 through August 2015

Total Monthly Precipitation Recorded on Site and at Chicago, IL (MRCC station #111549) and Waukegan, IL (MRCC station #14880)



monthly precipitation recorded at Chicago O'Hare Airport, IL (MRCC)

monthly precipitation recorded at Chicago Waukegan Regional Airport, IL (MRCC)

monthly precipitation recorded on site by ISGS

data incomplete

1971-2000 monthly 30% above average threshold at Chicago O'Hare Airport, IL (NWCC)

1971-2000 monthly average precipitation at Chicago O'Hare Airport, IL (NWCC)

1971-2000 monthly 30% below average threshold at Chicago O'Hare Airport, IL (NWCC)

COLES COUNTY **ISGS #85**
WETLAND MITIGATION SITE
TR 1000N and TR 41
Sequence #1273
Coles County, near Mattoon, Illinois
Primary Project Manager: Eric T. Plankell
Secondary Project Manager: Matthew J. Even

SITE HISTORY

- March 2008: Wetland construction was completed.
- August 2010: The ISGS was tasked by IDOT to monitor the site for performance criteria outlined in the wetland compensation plan.
- March 2011: The ISGS installed a monitoring network.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Coles County wetland mitigation site is 1.86 ha (4.60 ac). Using the 1987 Manual (Environmental Laboratory 1987), 1.20 ha (2.97 ac) of the total site area of 2.06 ha (5.10 ac) satisfied wetland hydrology criteria for greater than 5% of the 2015 growing season, and 1.06 ha (2.63 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 1.30 ha (3.22 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Mattoon, Illinois, is April 6, and the season lasts 211 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 11 days, and 12.5% of the growing season is 26 days. Using the 2010 Midwest Region Supplement, March 14 was the starting date of the 2015 growing season based on soil temperatures measured on site.
- Total precipitation for the monitoring period at Mattoon, Illinois (MRCC station #115430), was 105% of normal. During Spring 2015 (March through May), precipitation was 97% of normal.
- In 2015, water levels measured in monitoring wells 2S, 4S, and 5S satisfied wetland hydrology criteria for greater than 5% of the growing season, and well 5S satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, water levels measured in monitoring wells 1VS, 2S, 3S, 4S, 5S, and 6S satisfied wetland hydrology criteria for 14 or more consecutive days of the growing season.
- Surface-water levels measured at Gauge A indicated inundation at and below 207.05 m (679.30 ft) for greater than 5% of the growing season, and inundation at and below 207.04 m (679.27 ft) for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, surface-water levels measured at Gauge A indicated inundation at and below 207.05 m (679.30 ft) for 14 or more consecutive days of the growing season.

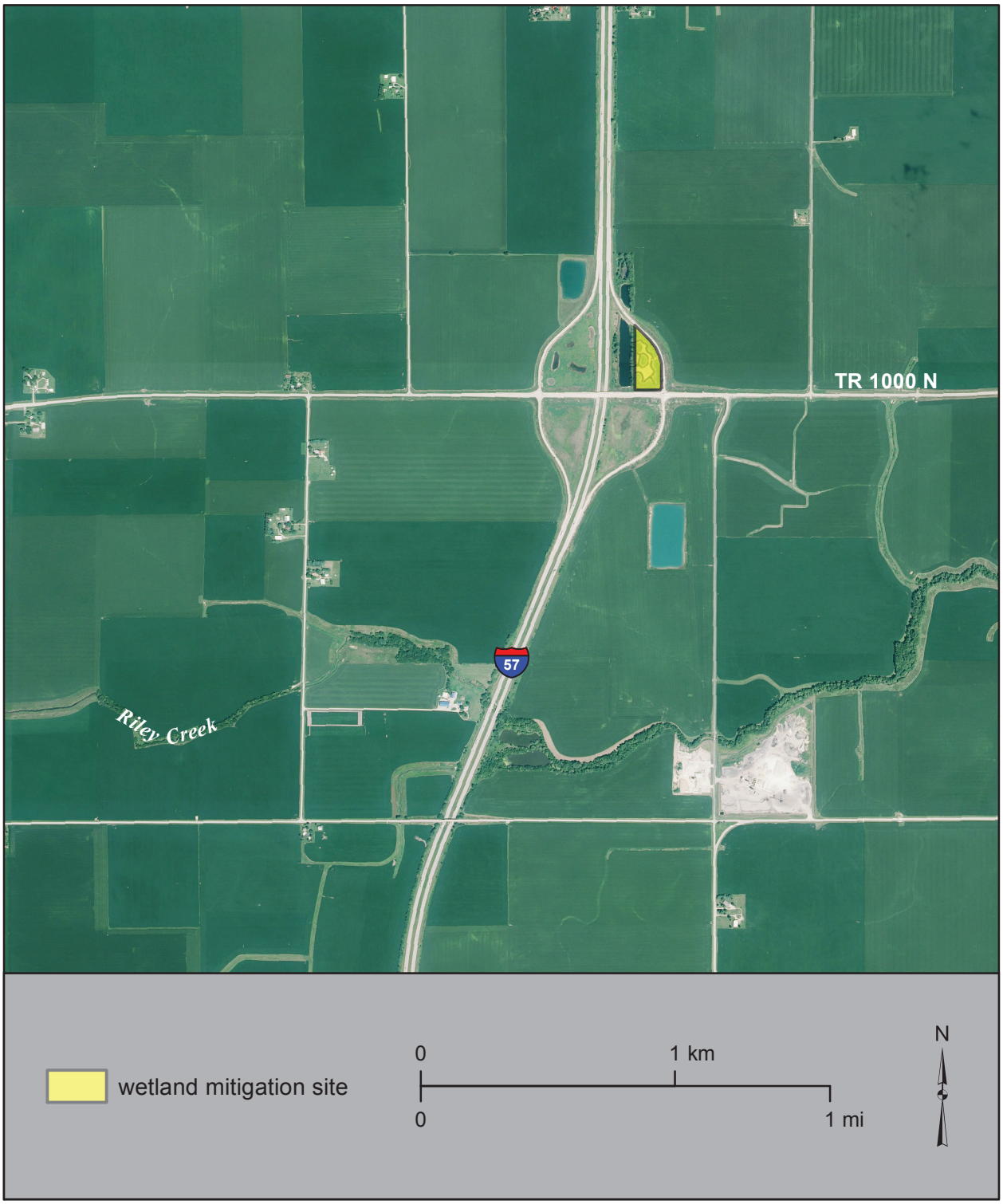
PLANNED FUTURE ACTIVITIES

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

Coles County Wetland Mitigation Site
(TR 1000N and TR 41)

General Study Area and Vicinity

Map based on 2014 Farm Service Agency digital orthophotography, Coles County, Illinois (USDA-FSA 2014)

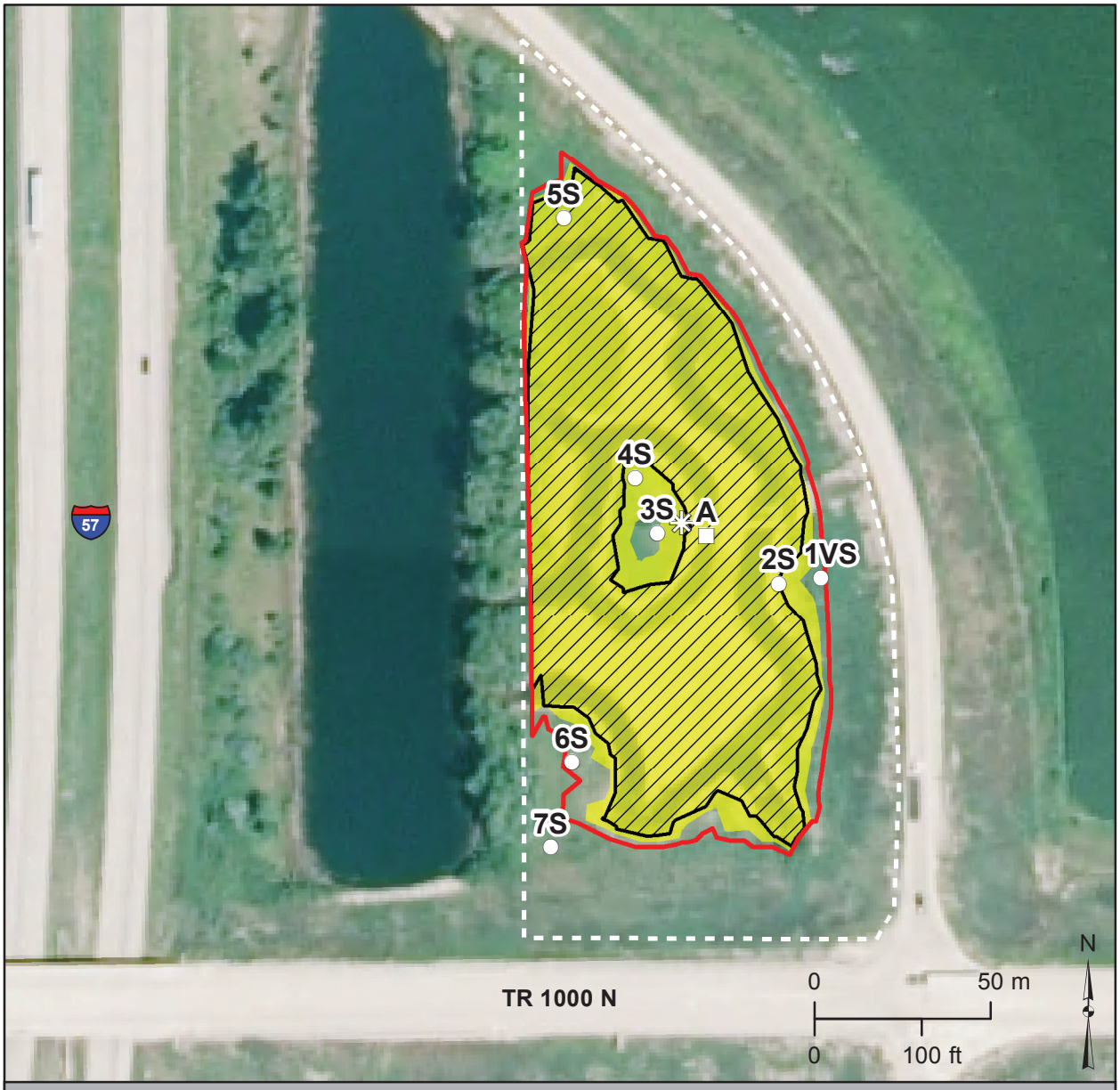


Coles County Wetland Mitigation Site
(TR 1000N and TR 41)

Estimated Areal Extent of 2015 Wetland Hydrology

September 1, 2014 through August 31, 2015

Map based on 2014 Farm Service Agency digital orthophotography, Coles County, Illinois (USDA-FSA 2014)

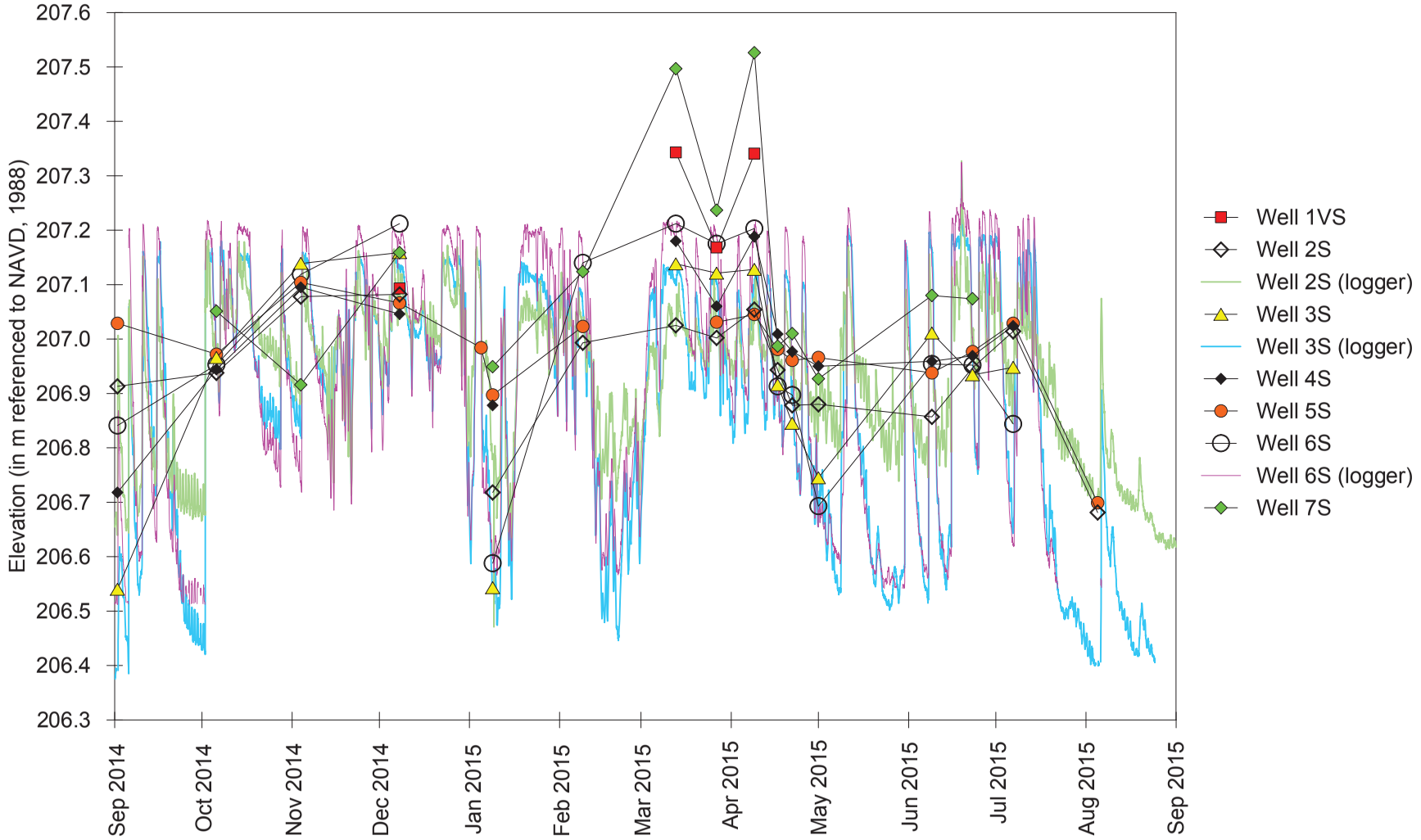


2015 Wetland Hydrology

- >5% of growing season (1987 Manual)
- >12.5% of growing season (1987 Manual)
- 14 days or more (2010 Midwest Region Supplement)
- monitoring well
- surface-water gauge
- rain gauge
- site boundary

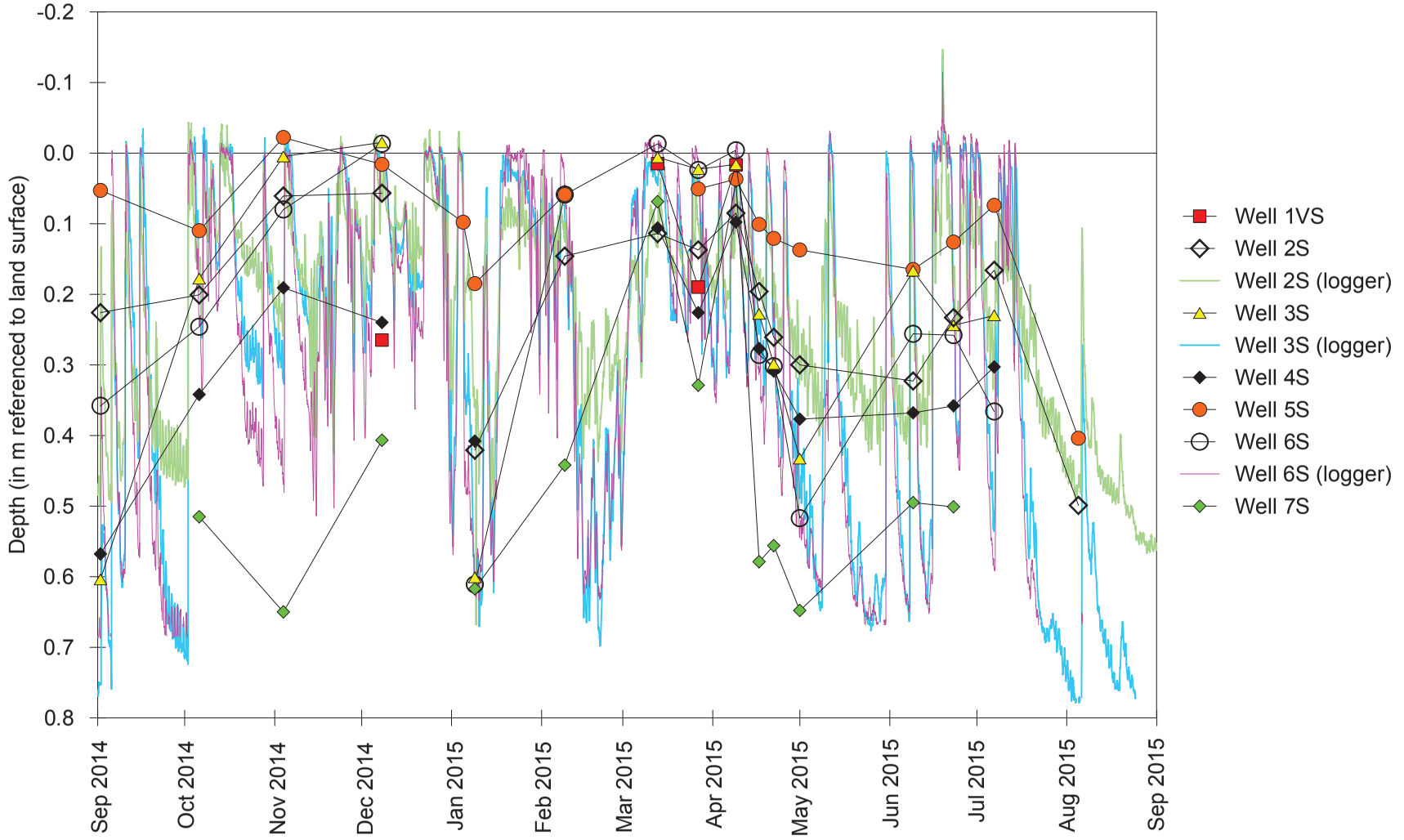
Coles County Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells



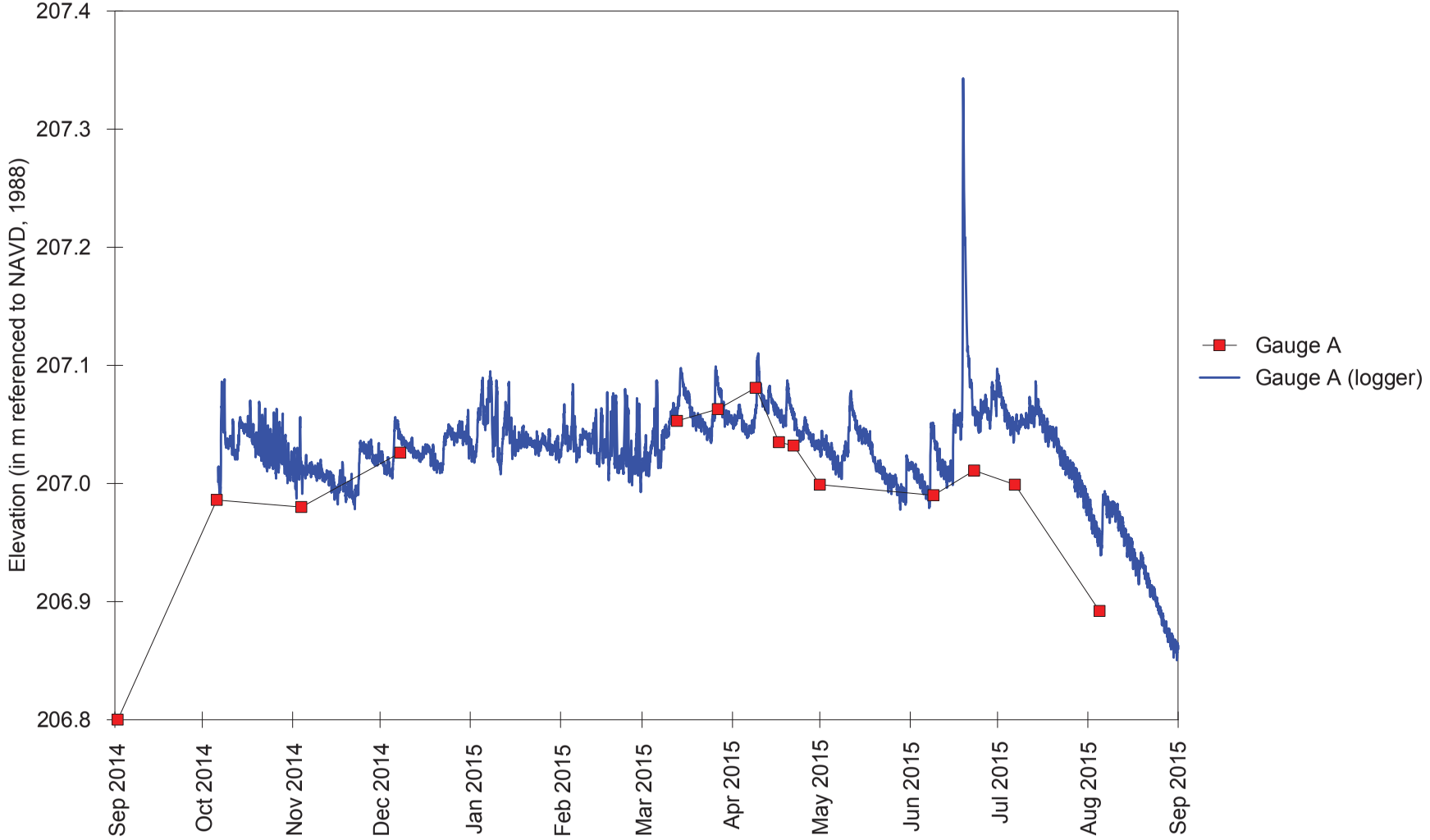
Coles County Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells

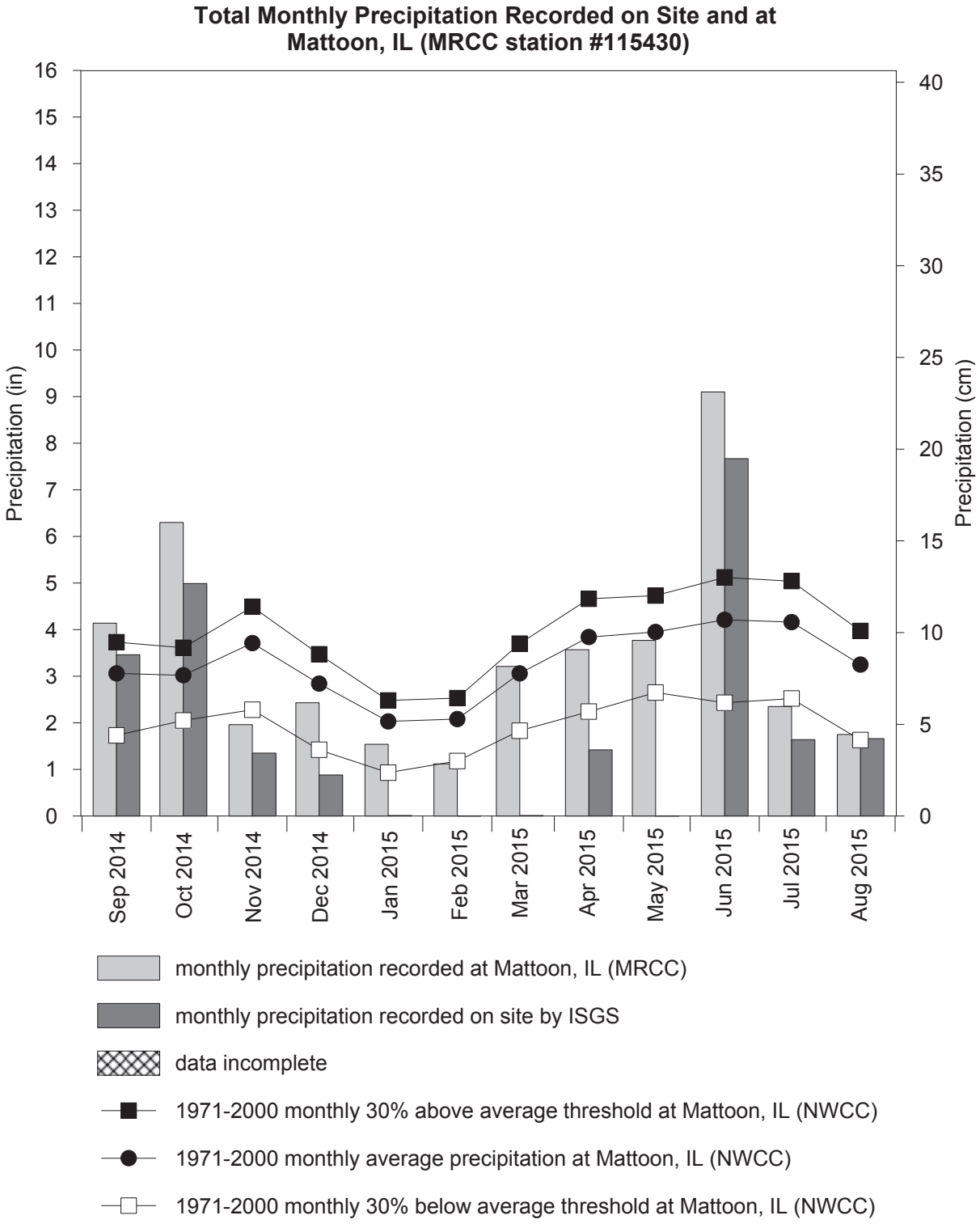


Coles County Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at the Surface-Water Gauge



Coles County Wetland Mitigation Site
September 2014 through August 2015



SWAN ROAD **ISGS #86**
WETLAND MITIGATION SITE
TR 222
Sequence #12315
Perry County, near Tamaroa, Illinois
Primary Project Manager: Jessica L. B. Monson
Secondary Project Manager: Eric T. Plankell

SITE HISTORY

- April 2011: ISGS was tasked to monitor wetland hydrology at the site.
- May 2011: Water-level monitoring was initiated.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Swan Road wetland mitigation site is 0.29 ha (0.73 ac). Using the 1987 Manual (Environmental Laboratory 1987), 0.37 ha (0.90 ac) of the total site area of 0.43 ha (1.06 ac) satisfied wetland hydrology criteria for greater than 5% of the 2015 growing season while 0.30 ha (0.73 ac) of the total site satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 0.37 ha (0.90 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Du Quoin, Illinois, is March 30, and lasts 217 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 11 days, and 12.5% of the growing season is 27 days. According to the 2010 Midwest Region Supplement, March 12 was the starting date of the 2015 growing season based on soil temperatures measured on site and at the nearby Pyramid Site EC25 wetland mitigation site (ISGS #77).
- Total precipitation for the monitoring period at Du Quoin, Illinois (MRCC #112483), was 127% of normal, and Spring 2015 (March through May) precipitation was 120% of normal. June precipitation was 244% of normal.
- In 2015, monitoring wells 1S, 2S, 3S, 4S, 6S, and 7S satisfied wetland hydrology for greater than 5% of the growing season, and monitoring wells 1S, 3S, 4S and 7S satisfied wetland hydrology for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, water levels measured in monitoring wells 1S, 2S, 3S, 4S, 6S, and 7S satisfied wetland hydrology for 14 or more consecutive days during the growing season.
- Surface-water levels at Gauge A indicated inundation at or below 139.80 m (458.66 ft) for greater than 5% of the growing season, and inundation at or below 139.76 m (458.53 ft) for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, surface-water levels measured at Gauge A also indicated inundation at or below 139.79 m (458.63 ft), for 14 or more consecutive days of the growing season.

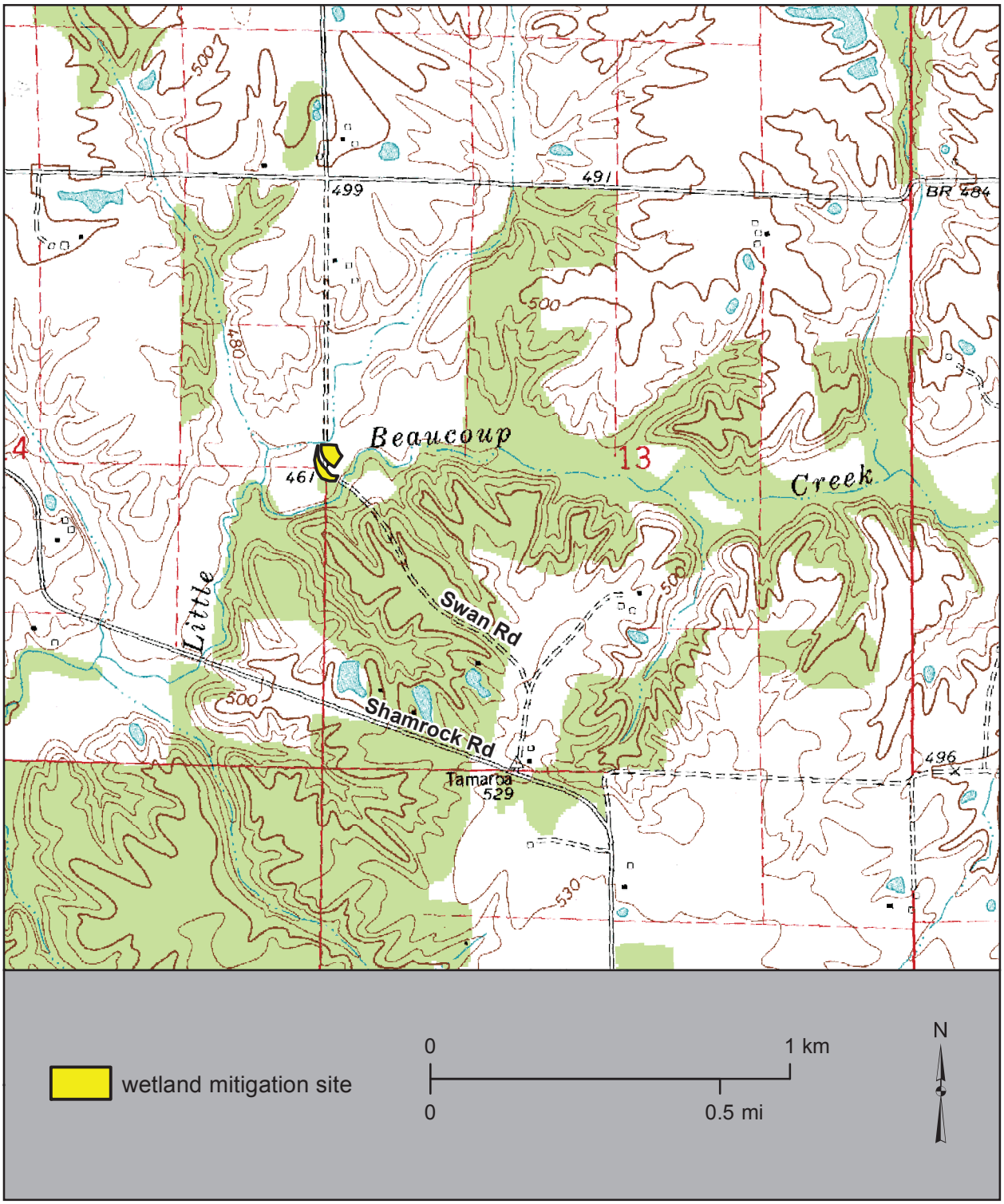
PLANNED FUTURE ACTIVITIES

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

Swan Road Wetland Mitigation Site
(TR222, Swan Road)

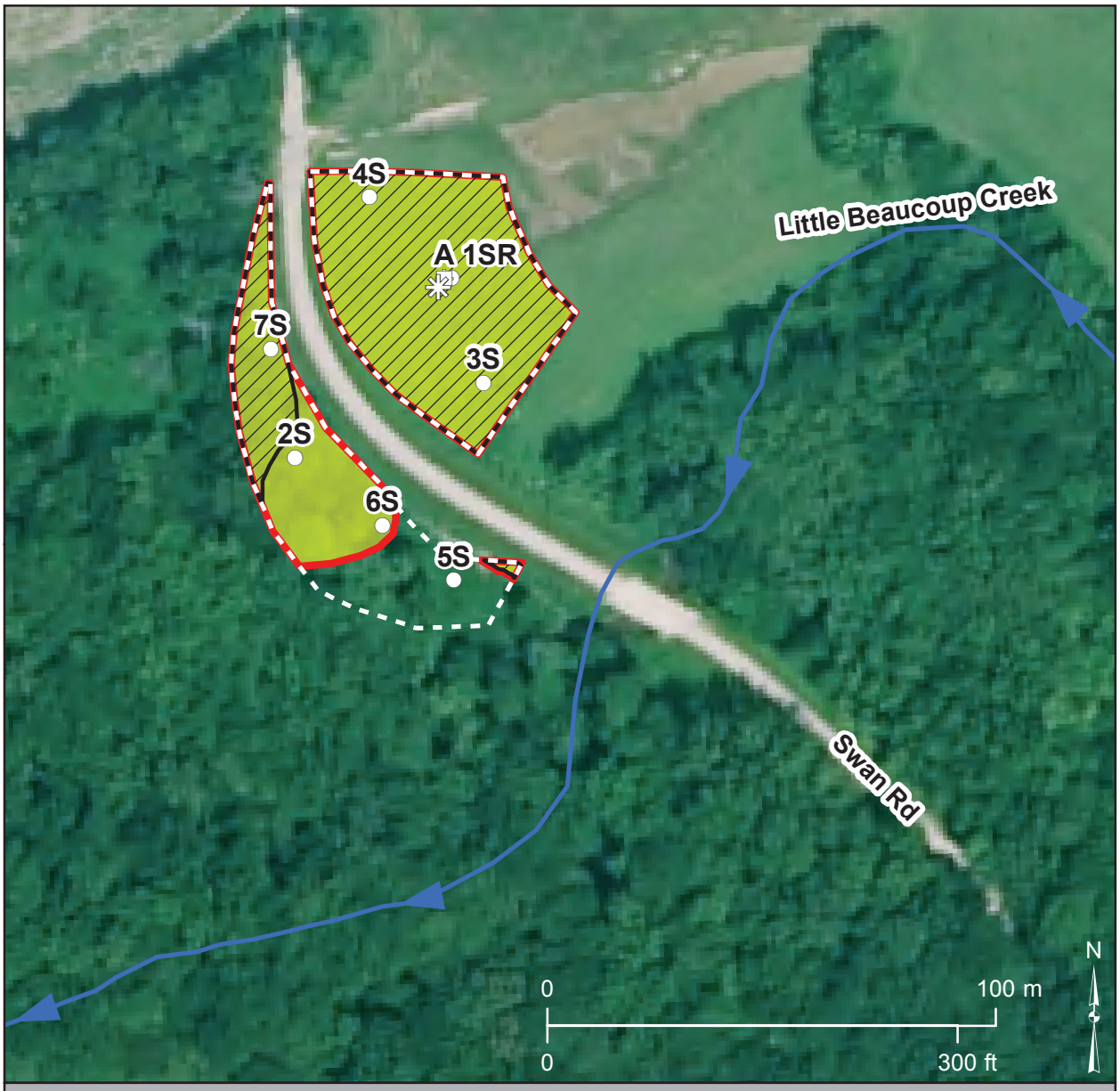
General Study Area and Vicinity

from the USGS Topographic Series, Tamaroa, IL, 7.5-minute Quadrangle (USGS 1975)
contour interval is 10 feet



Swan Road Wetland Mitigation Site
(TR222, Swan Road)
Estimated Areal Extent of 2015 Wetland Hydrology
September 1, 2014 through August 31, 2015

Map based on 2014 Farm Service Agency digital orthophotography, Perry County, Illinois
(USDA-FSA 2014)

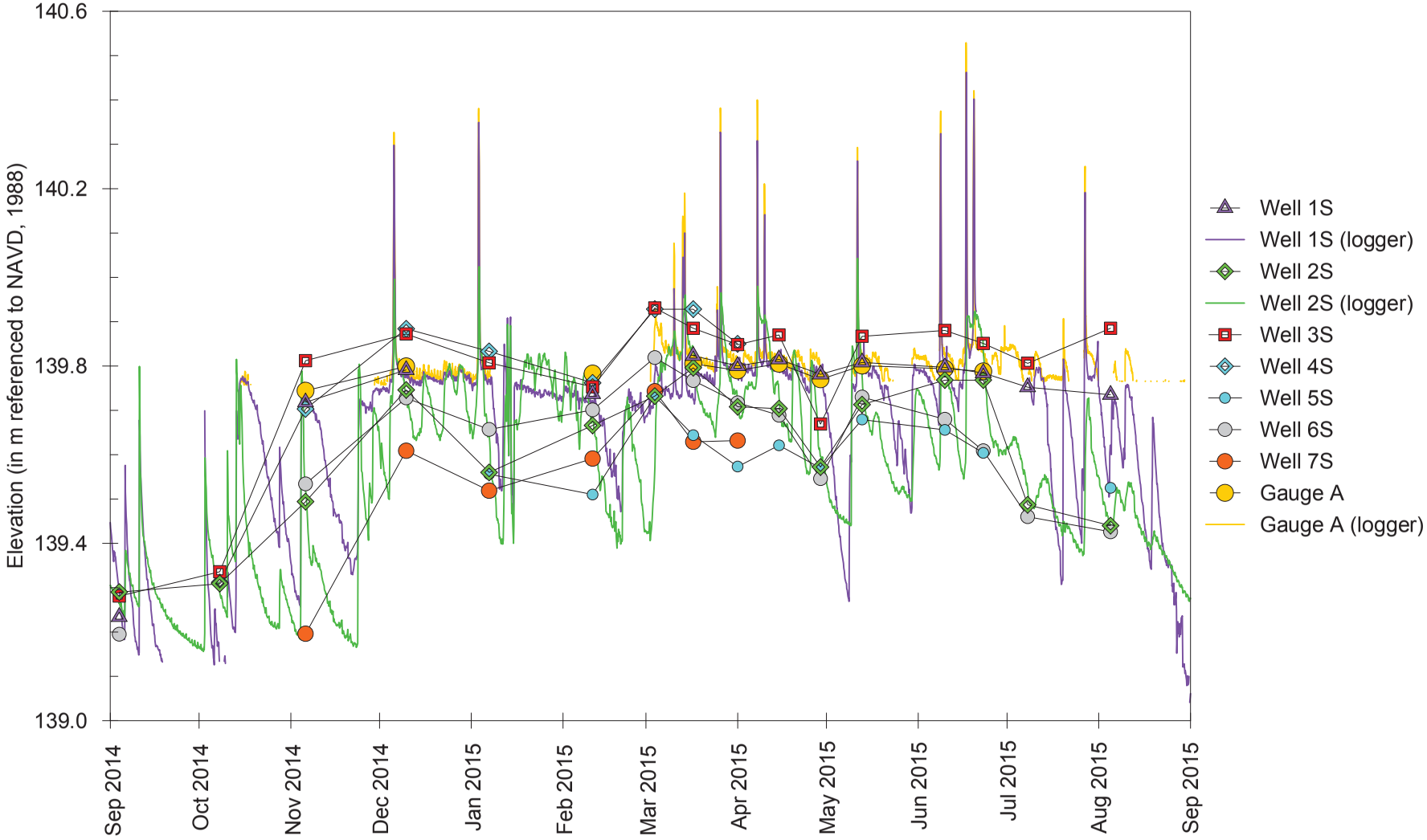


2015 Wetland Hydrology

- >5% of growing season (1987 Manual)
- >12.5% of growing season (1987 Manual)
- 14 days or more (2010 Midwest Region Supplement)
- monitoring well
- surface-water gauge
- rain gauge
- site boundary

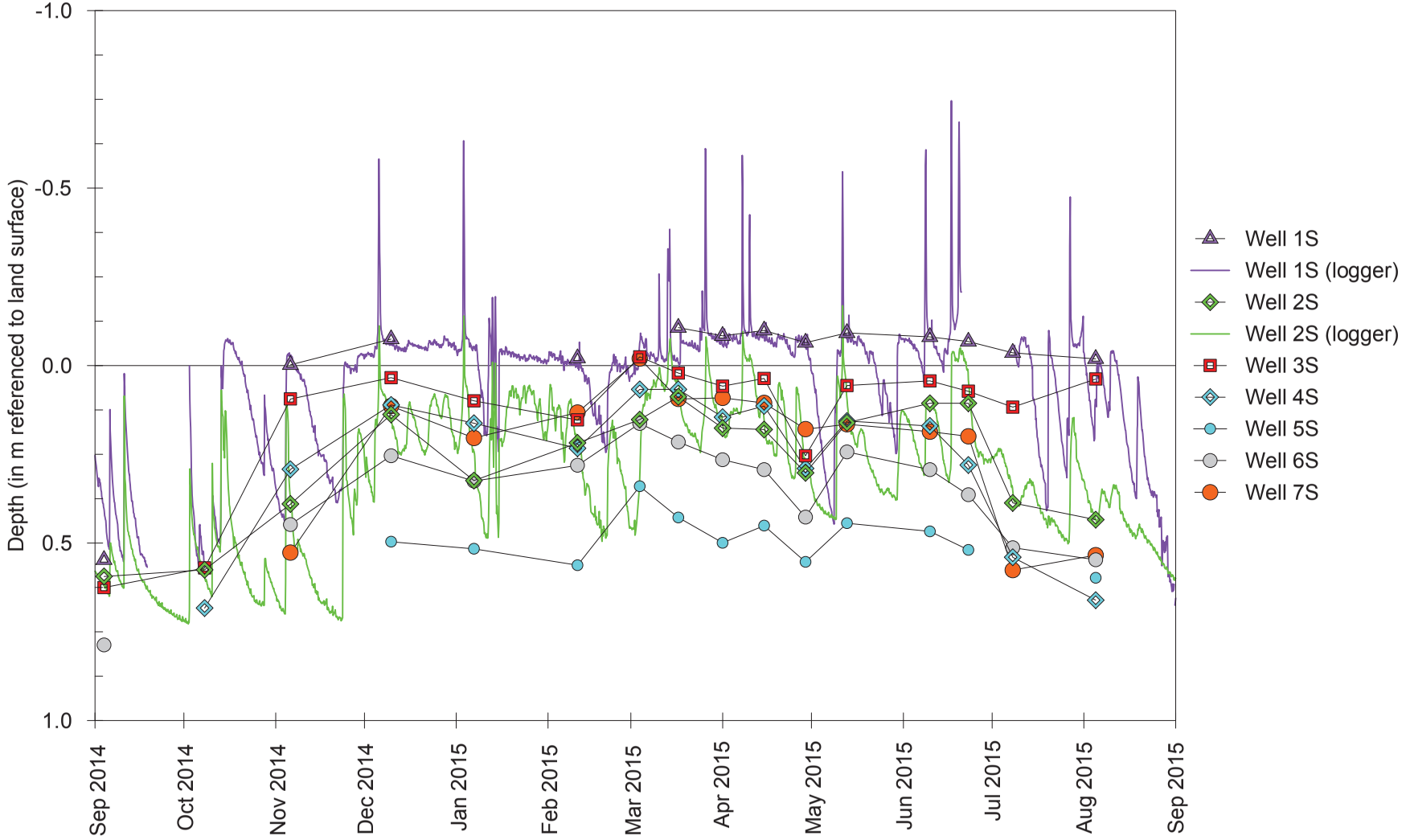
Swan Road Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations
in Shallow Monitoring Wells and at the Surface-Water Gauge



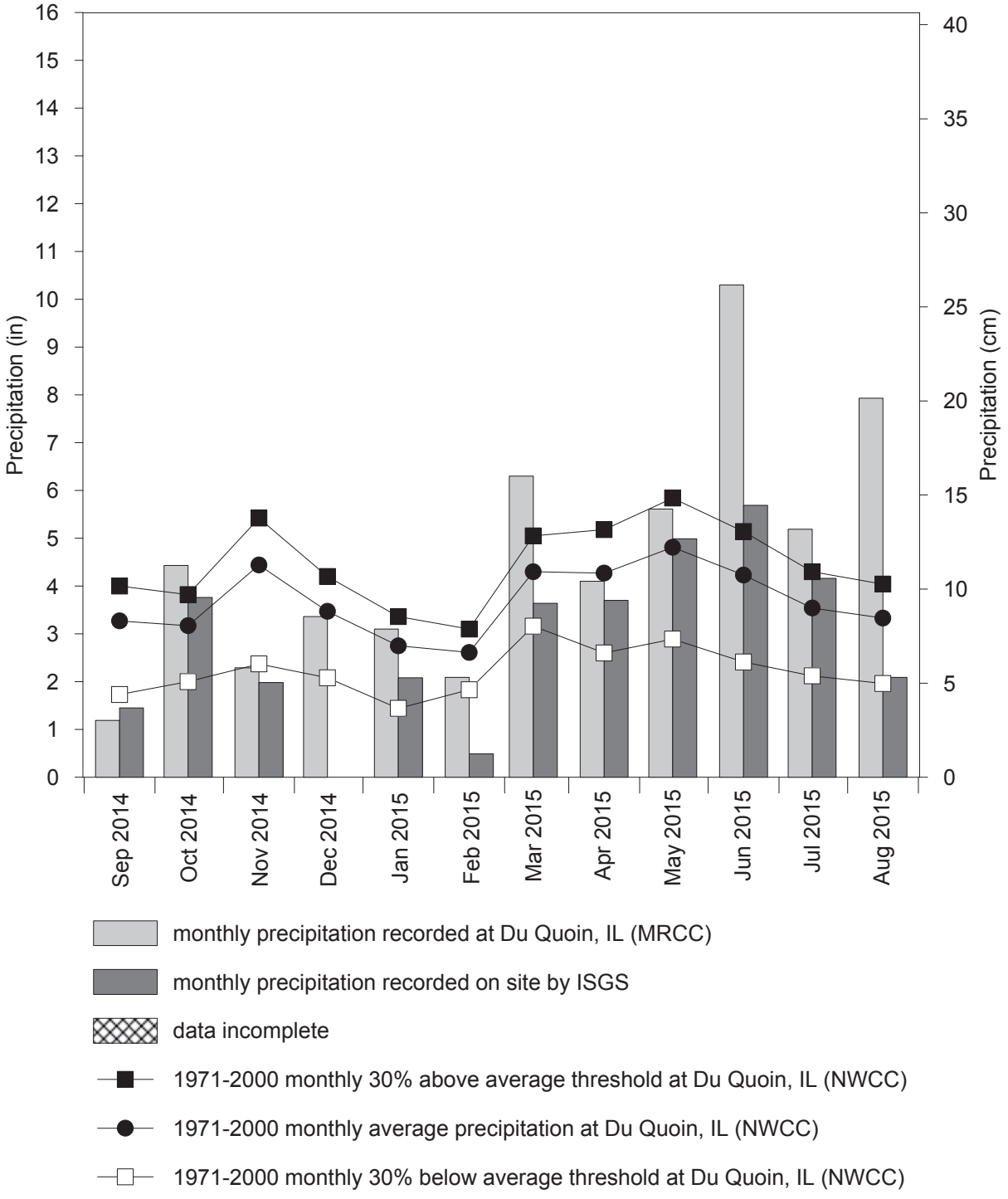
Swan Road Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow Monitoring Wells



Swan Road Wetland Mitigation Site
September 2014 through August 2015

Total Monthly Precipitation Recorded on Site and at Du Quoin, IL (MRCC station #112483)



HARRISBURG, SITE 3 **ISGS #87**
WETLAND MITIGATION SITE
US 45
FAP 332
Saline County, near Harrisburg, Illinois
Primary Project Manager: Jessica L. B. Monson
Secondary Project Manager: Geoffrey E. Pociask

SITE HISTORY

- August 2011: The ISGS was tasked by IDOT to monitor the site for performance standards as outlined in the wetland compensation plan.

- February 2012: Post-construction water-level monitoring was initiated.

- April 2013: Trees were planted at the mitigation site.

- December 2014: Trees were replanted at the mitigation site.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Harrisburg, Site 3 wetland mitigation site is 0.69 ha (1.70 ac). Using the 1987 Manual (Environmental Laboratory 1987), 0.35 ha (0.87 ac) of the 0.81-ha (2.00-ac) mitigation site satisfied wetland hydrology criteria for greater than 5% of the growing season, and 0.14 ha (0.36 ac) of the site satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 0.29 ha (0.71 ac) of the site satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in nearby Du Quoin, Illinois, is March 30, and the season lasts 217 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 11 days and 12.5% of the growing season is 27 days. Using the 2010 Midwest Region Supplement, March 11 was the starting date of the 2015 growing season based on soil temperatures measured on site.

- Total precipitation for the monitoring period at Du Quoin, Illinois (MRCC #112483), was 127% of normal, and Spring 2015 (March through May) precipitation was 120% of normal. June precipitation was 244% of normal.

- Data from Gauge B indicated that four floods inundated portions of the site during the 2015 growing season, but the duration of inundation from each of these floods was not sufficient to satisfy wetland hydrology criteria.

- In 2015, wells 2S, 4S, 6S, and 7S satisfied wetland hydrology criteria for greater than 5% of the growing season, and wells 2S, 6S, and 7S satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement wells 2S, 4S, 6S, and 7S satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season.

ADDITIONAL INFORMATION

- For the entire duration of Spring 2015, boards were missing from the stop-log structure at the box culvert toward the northeast part of the site, potentially allowing floods to draw down more rapidly.

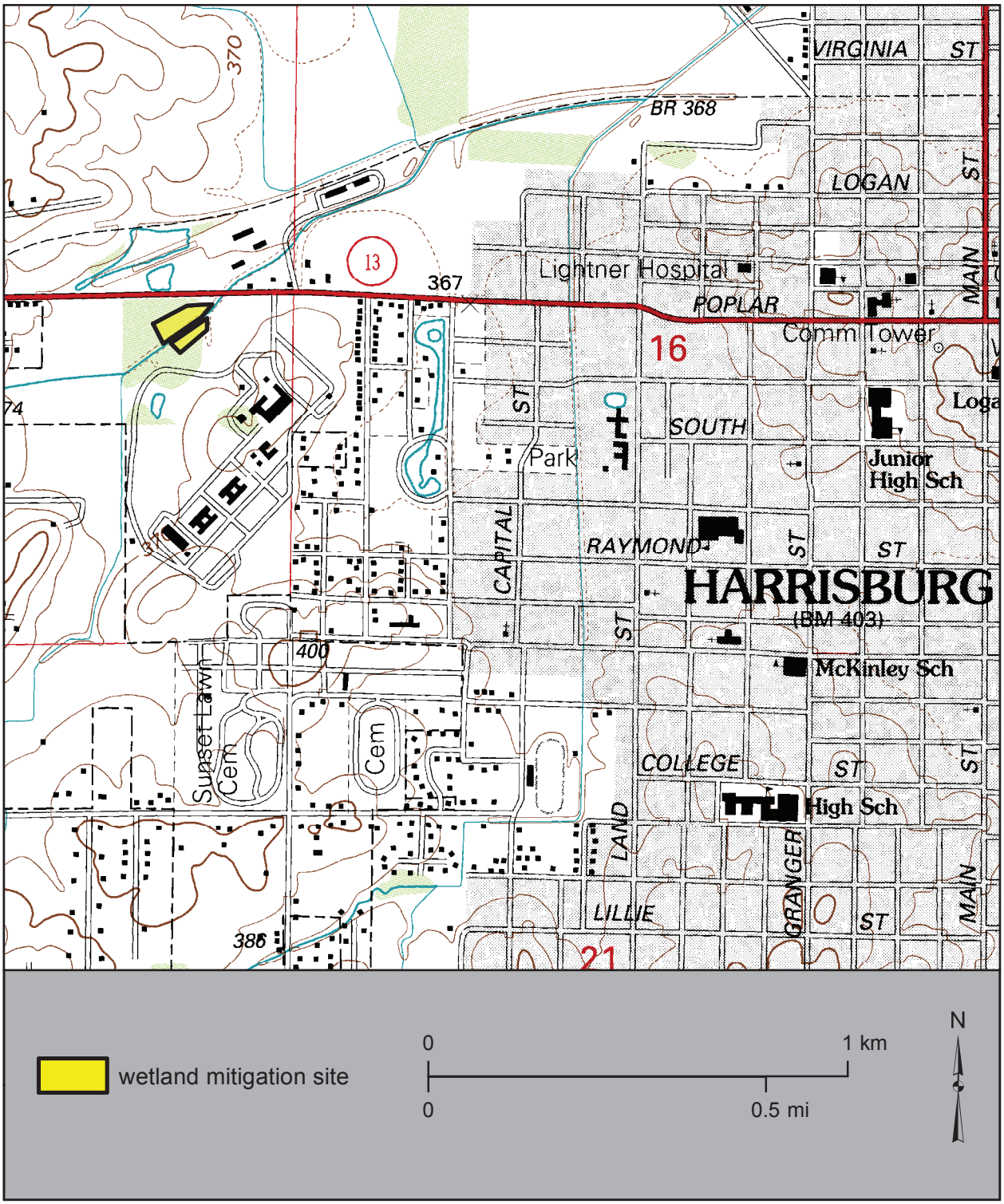
PLANNED FUTURE ACTIVITIES

- Water-level monitoring is expected to continue through 2020 or until no longer required by IDOT.

Harrisburg, Site 3 Wetland Mitigation Site
(US 45, FAP 332)

General Study Area and Vicinity

from the USGS Topographic Series, Harrisburg, IL, 7.5-minute Quadrangle (USGS 1961)
contour interval is 5 feet

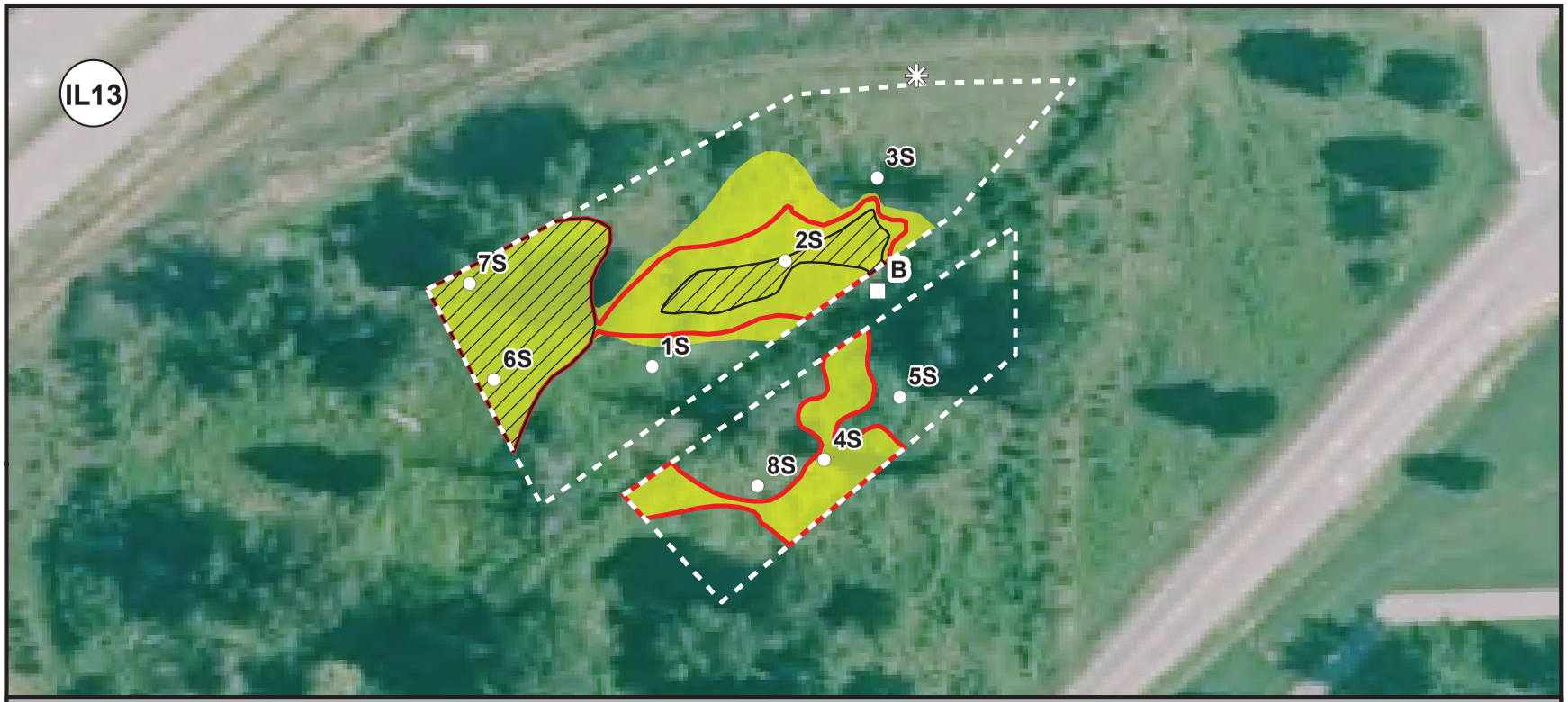


Harrisburg, Site 3 Wetland Mitigation Site
(US 45, FAP 332)

Estimated Areal Extent of 2015 Wetland Hydrology

September 1, 2014 though August 31, 2015

Map based on 2014 Farm Service Agency digital orthophotography, Saline County, Illinois (USDA-FSA 2014)



2015 Wetland Hydrology

- >5% of growing season (1987 Manual)
- >12.5% of growing season (1987 Manual)
- 14 days or more (2010 Midwest Region Supplement)
- monitoring well
- surface-water gauge
- rain gauge
- mitigation area

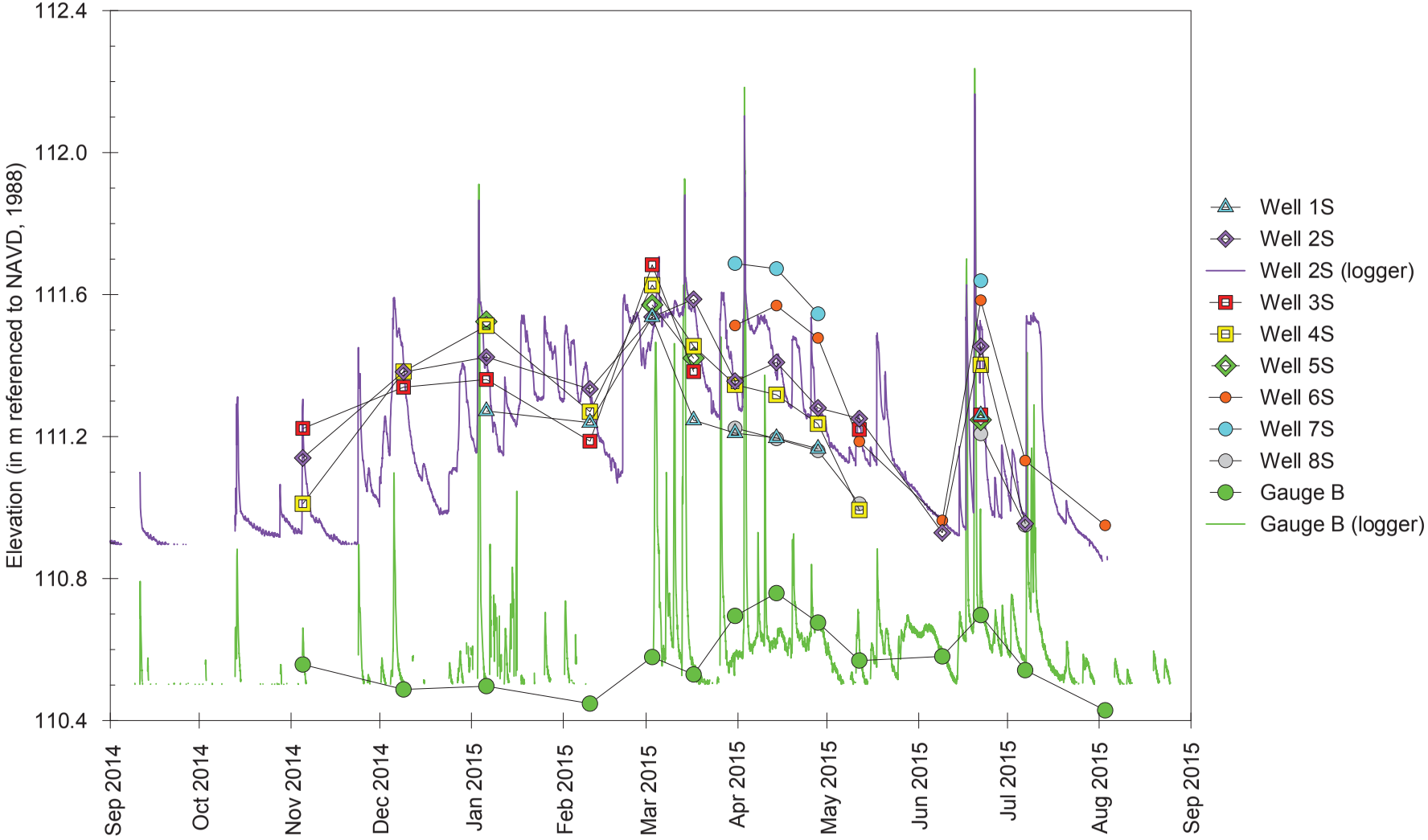
0 50 m

0 200 ft

N

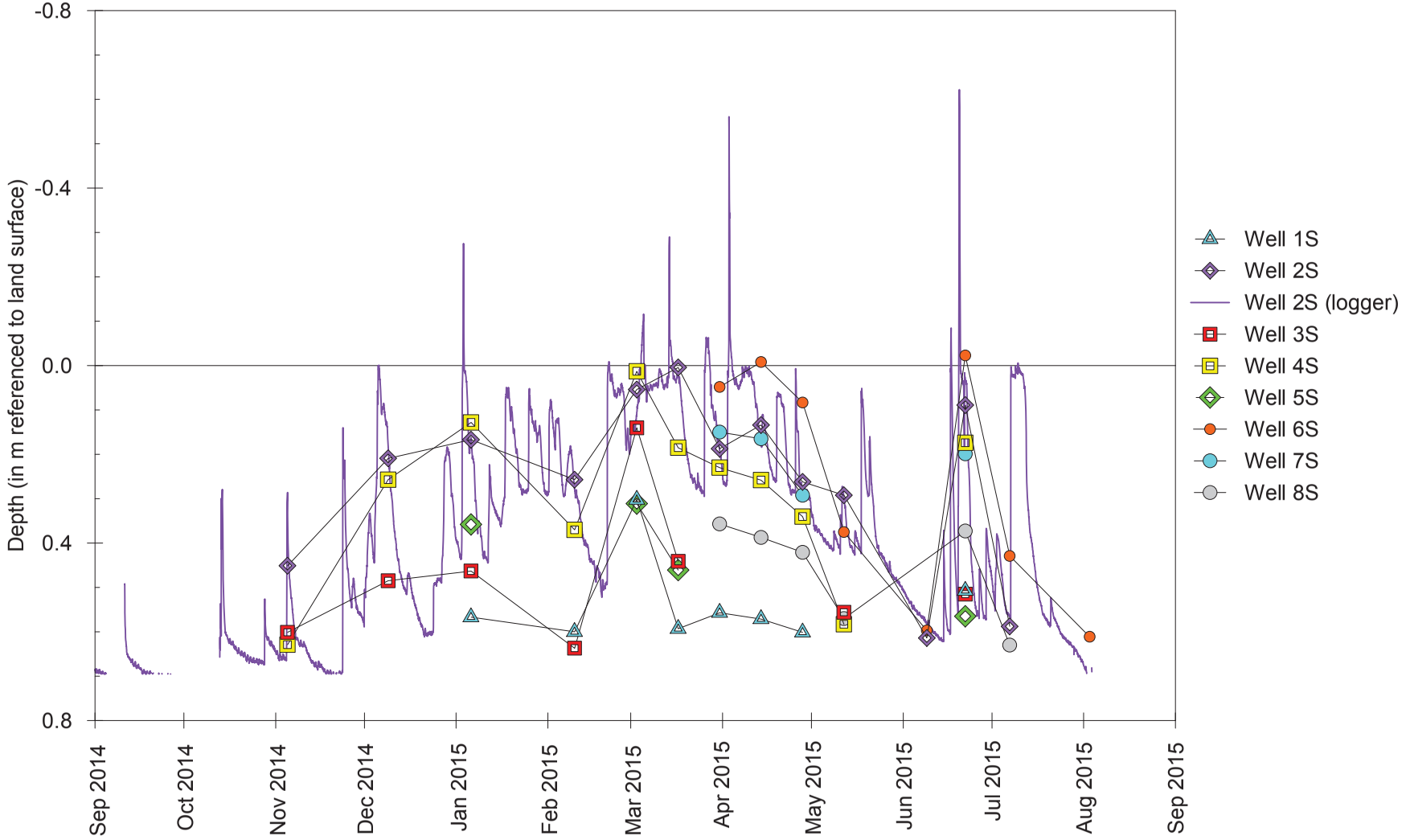
Harrisburg, Site 3 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells



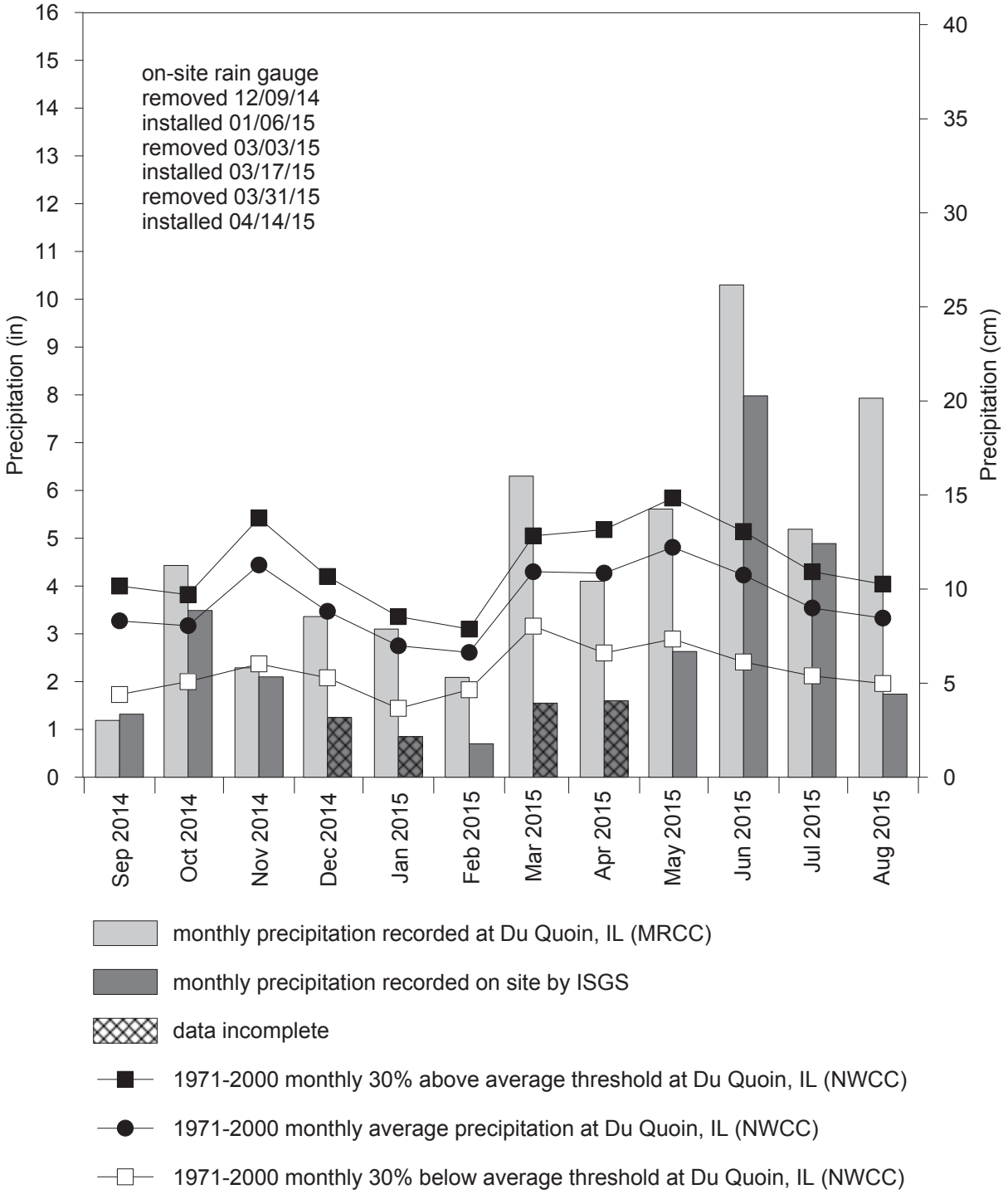
Harrisburg, Site 3 Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells



Harrisburg Site 3 Wetland Mitigation Site
September 2014 through August 2015

Total Monthly Precipitation Recorded on Site and at Du Quoin, IL (MRCC station #112483)



GRANT CREEK NORTH **ISGS #88**
WETLAND MITIGATION SITE
I-55
FAI 55
Will County, near Wilmington, Illinois
Primary Project Manager: Jessica R. Ackerman
Secondary Project Manager: Eric T. Plankell

SITE HISTORY

- February 2012: ISGS was tasked by IDOT to monitor wetland hydrology.
- April 2012: ISGS installed a monitoring network.
- September 2012: Huddleston-McBride Land Drainage Company installed gate valves at strategic positions along active drainage tiles underlying the site.
- Winter 2015: Initial native plug and seed planting completed.
- May 2015: Initial herbiciding of the upland mesic habitat (east/northeast on site) completed to remove birdsfoot trefoil.

WETLAND HYDROLOGY CALCULATION FOR 2015

- The target compensation area for the Grant Creek North wetland mitigation site is 5.99 ha (14.80 ac). Using the 1987 Manual (Environmental Laboratory 1987), 31.25 ha (77.23 ac) of the total site area of 62.73 ha (155.00 ac) satisfied wetland hydrology criteria for greater than 5% of the 2015 growing season, and 26.18 ha (64.69 ac) of the site satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 31.25 ha (77.23 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:
- The median date that the growing season begins in nearby Joliet, Illinois, is April 5, and the season lasts 213 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 11 days, and 12.5% of the growing season is 27 days. Using the 2010 Midwest Region Supplement, March 31 was the starting date of the 2015 growing season based on soil temperatures measured on-site.
- Total precipitation for the monitoring period at Joliet, Illinois, (MRCC station #114530) was 94% of normal. During Spring 2015 (March through May), precipitation was 91% of normal. June was a particularly wet month; 11.44 inches were recorded on site, 15.90 inches were recorded at Morris, IL, and 7.73 inches were recorded in Joliet, IL.
- In 2015, water levels measured in monitoring wells 1S, 2VSR, 3VS, 5VS, 8S, 10S, 12S, 13S, 15S, 16VS, 17VS, 18S, 19VS, 20VS, 21VS, 22VS, 23VSR, and 24VSR satisfied wetland hydrology criteria for greater than 5% of the growing season, and wells 1S, 2VSR, 3VS, 5VS, 8S, 10S, 12S, 13S, 15S, 16VS, 17VS, 18S, 19VS, 20VS, 21VS, 23VSR, and 24VSR satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, all wells stated to have satisfied wetland

hydrology criteria for greater than 5% of the growing season also satisfied wetland hydrology criteria for 14 or more consecutive days of the growing season.

- Surface-water levels measured at gauges A, B, and C indicated inundation at or below 159.85 m, 159.50 m, and 159.82 m (524.44 ft, 523.29 ft, and 524.34 ft), respectively, for greater than 5% of the growing season, and inundation at or below 159.81 m, 159.48 m, and 159.78 m (524.31 ft, 523.23 ft, and 524.21 ft), respectively, for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, surface-water levels measured at gauges A, B, and C indicated inundation at or below 159.85 m, 159.49 m, and 159.81 m (524.44 ft, 523.26 ft, and 524.31 ft), respectively, for 14 or more consecutive days of the growing season.

ADDITIONAL INFORMATION

- Gate valves were installed at strategic positions along existing tile drains on-site in September 2012. Four additional gate valves were installed in September 2014 on the property immediately west of the site, which are connected to tiles on-site, to encourage water to remain on the western portion of the site. All gate valves were kept in the closed position through the entire 2014-2015 reporting period.

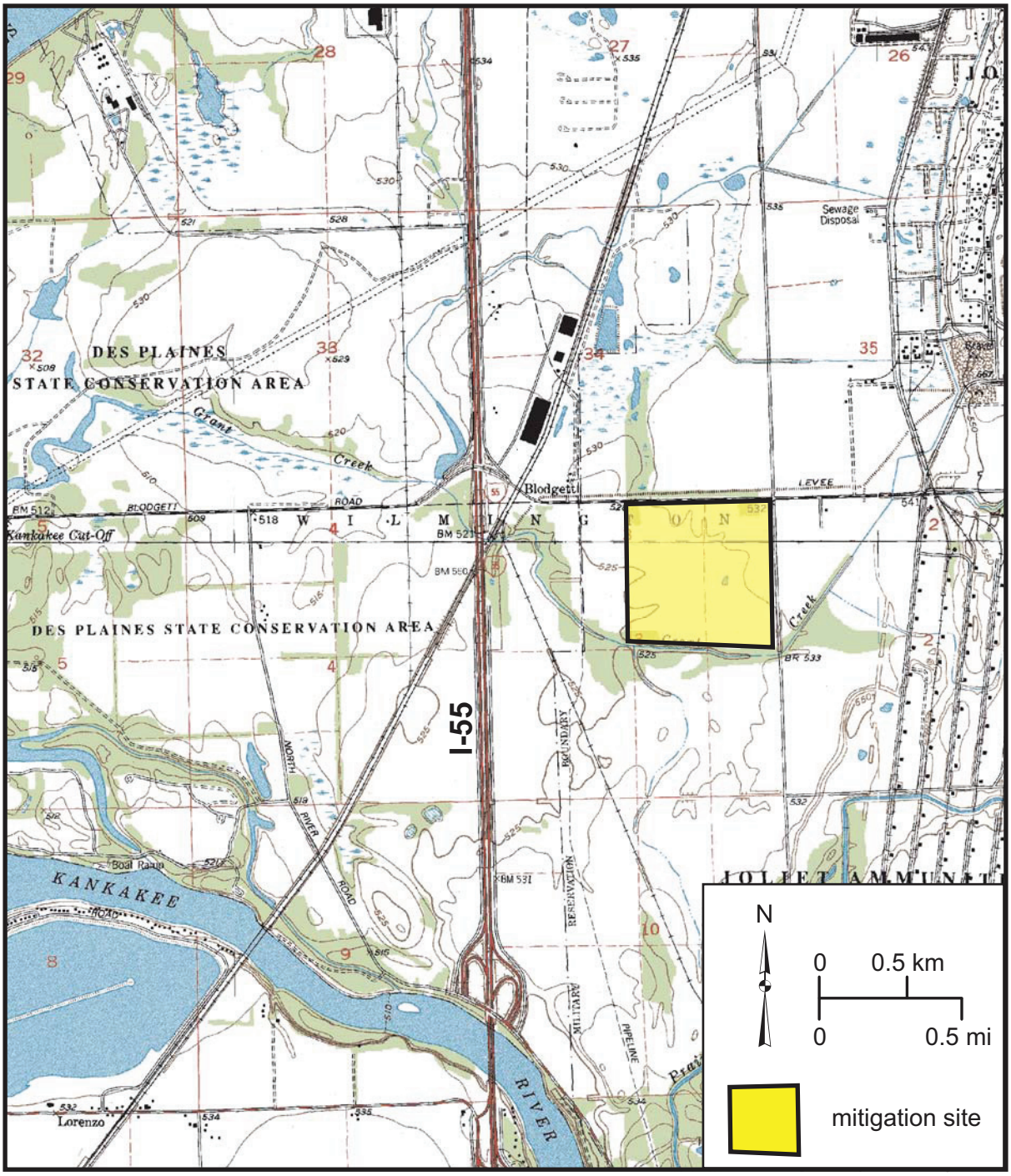
- Tree removal occurred on site in February and March 2014. Herbiciding and planting on-site is an on-going process.

PLANNED FUTURE ACTIVITIES

- Monitoring will continue until no longer required by IDOT.

Grant Creek North Wetland Mitigation Site
(I-55, FAI 55)
General Study Area and Vicinity

from the USGS Topographic Series, Channahon, IL, and Wilmington, IL, 7.5-minute Quadrangles (USGS 1993a, 1993e). Contour intervals are 10 feet and 5 feet, respectively.

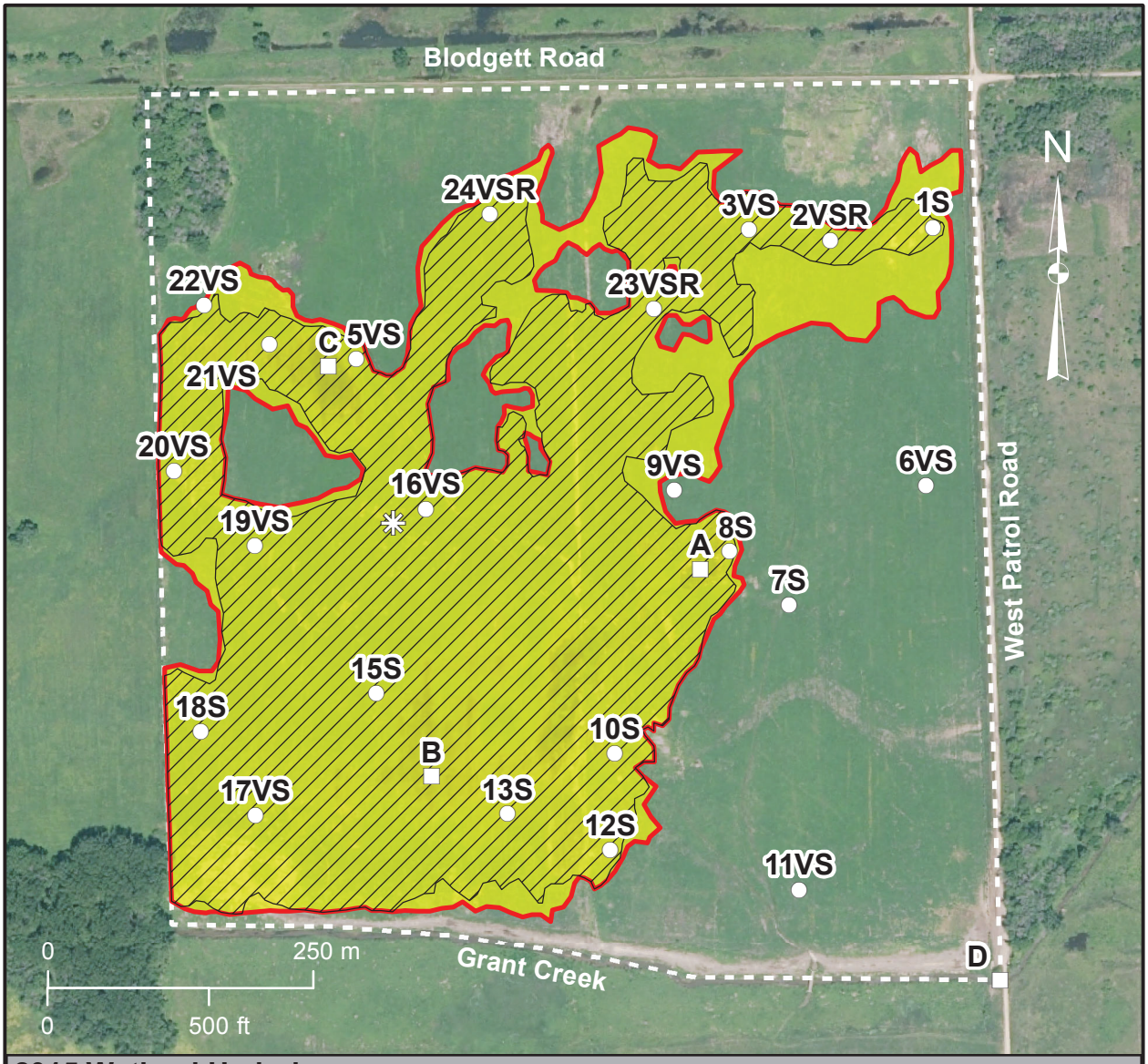


Grant Creek North Wetland Mitigation Site
(I-55, FAI 55)

Estimated Areal Extent of 2015 Wetland Hydrology

September 1, 2014 through August 31, 2015

Map based on 2014 Farm Service Agency digital orthophotography, Will County, Illinois (USDA-FSA 2014)

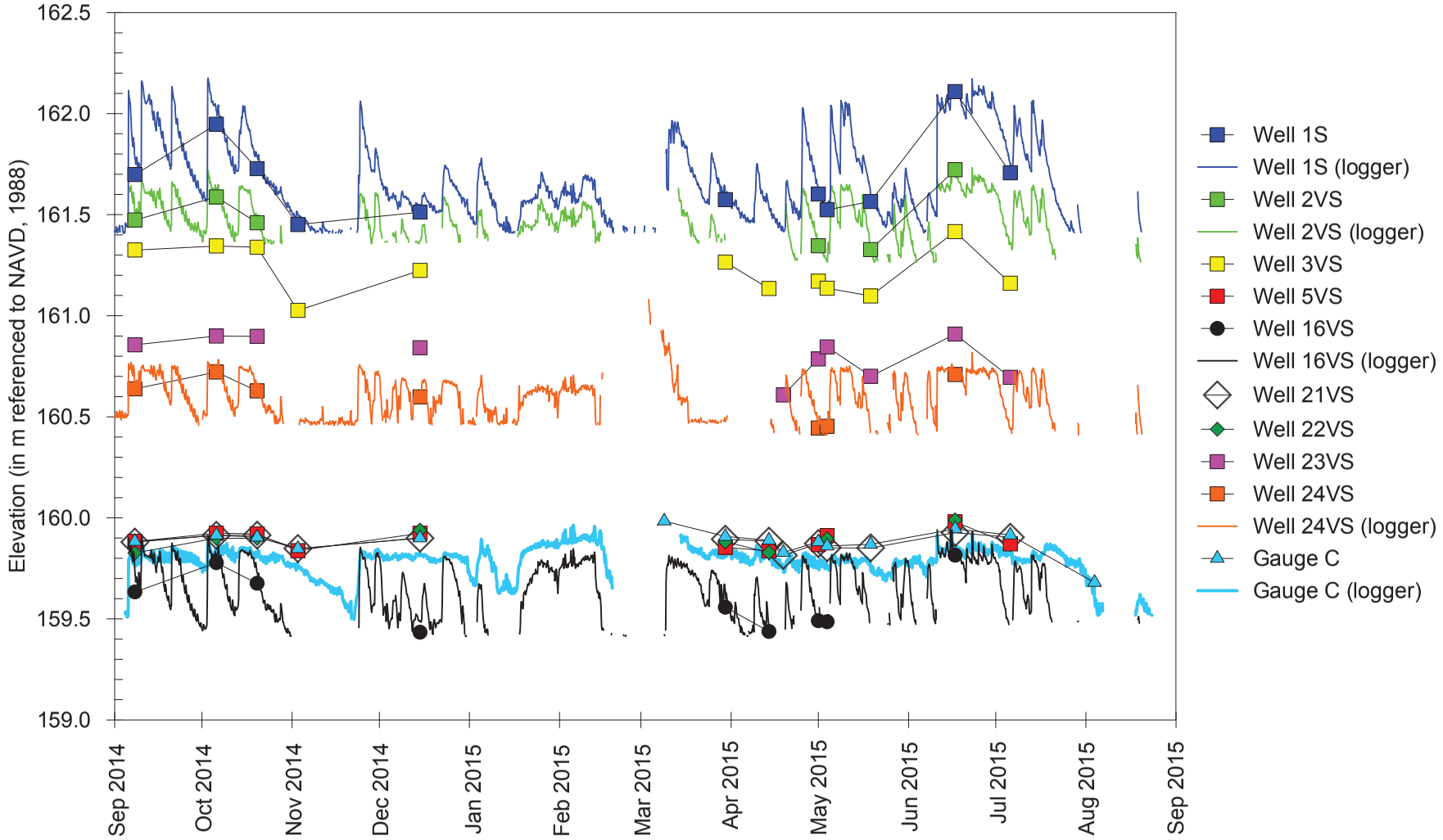


2015 Wetland Hydrology

- >5% of growing season (1987 Manual)
- >12.5% of growing season (1987 Manual)
- 14 days or more (2010 Midwest Region Supplement)
- monitoring well
- surface-water gauge
- rain gauge
- site boundary

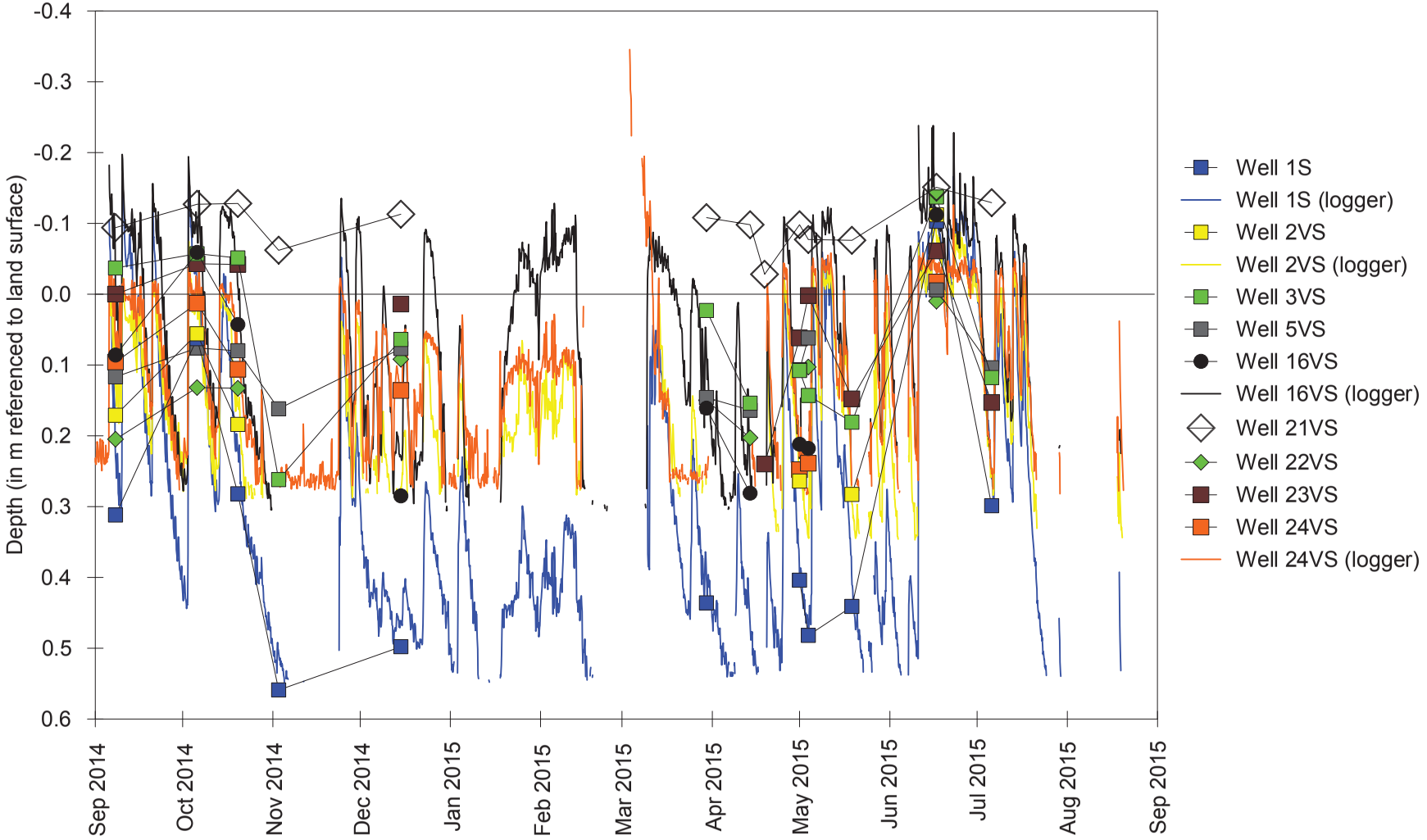
Grant Creek North Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations
in Monitoring Wells and at a Surface-Water Gauge in the North Half of the Site



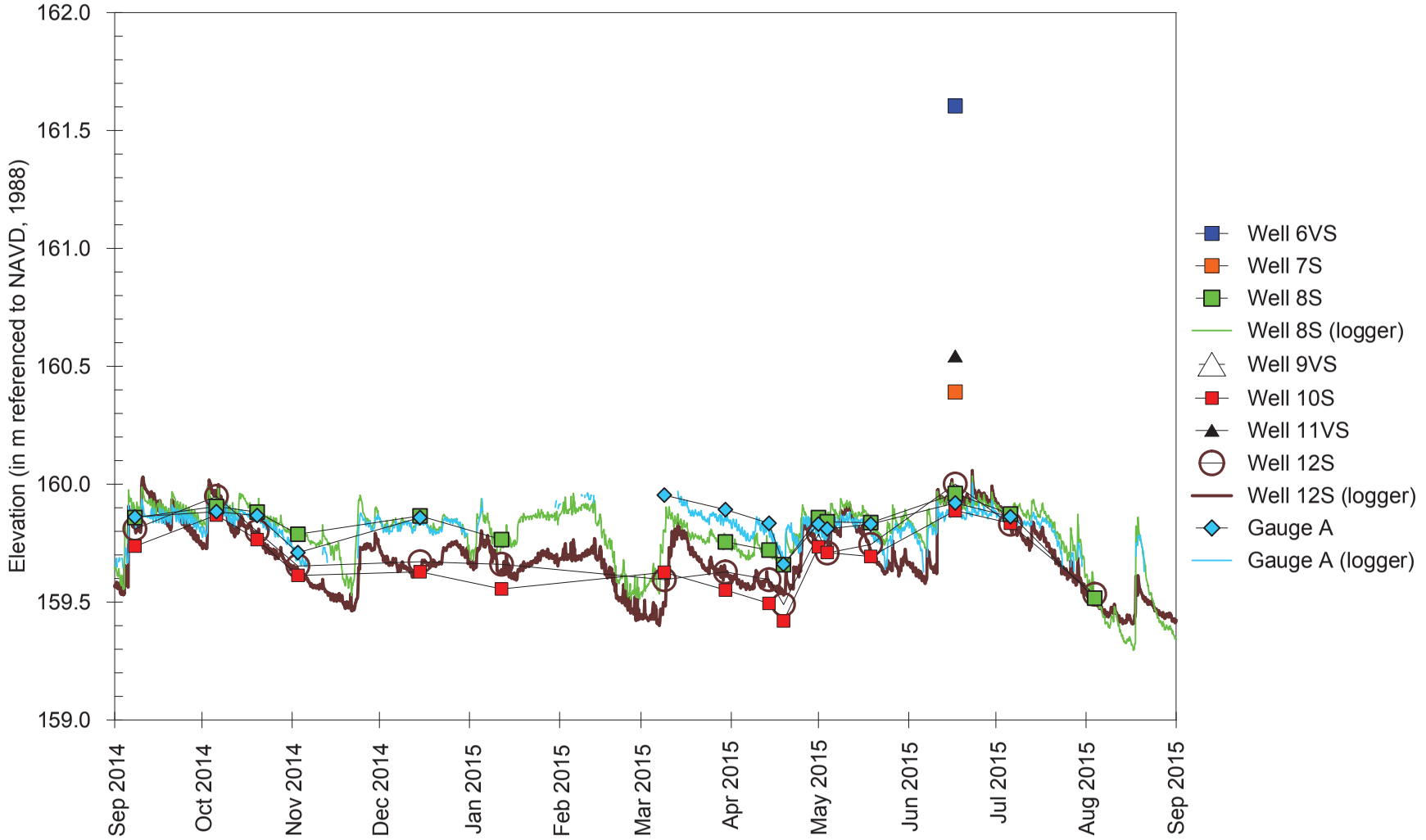
Grant Creek North Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells in the North Half of the Site



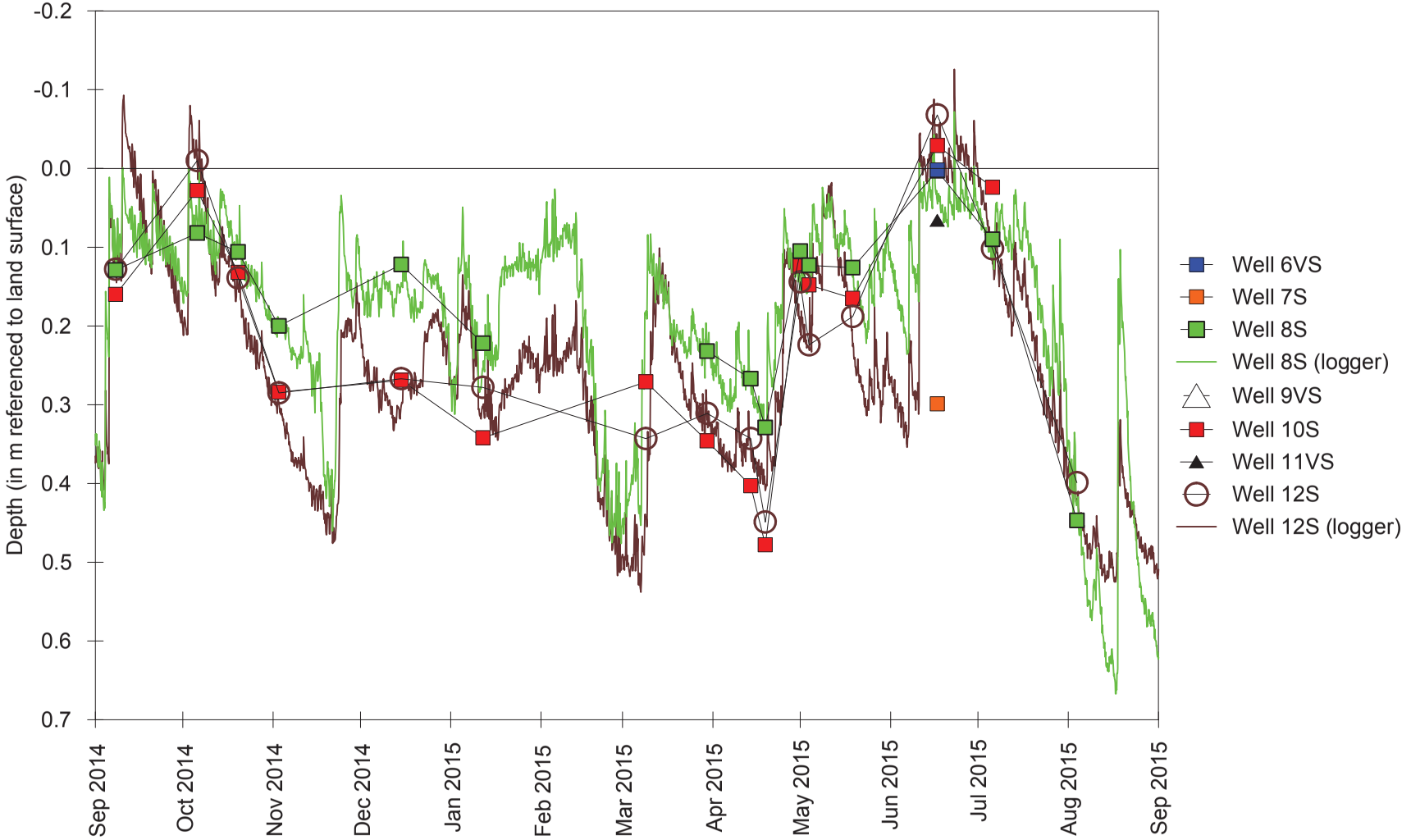
Grant Creek North Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations
in Monitoring Wells and at a Surface-Water Gauge in the Southeastern Quadrant of the Site



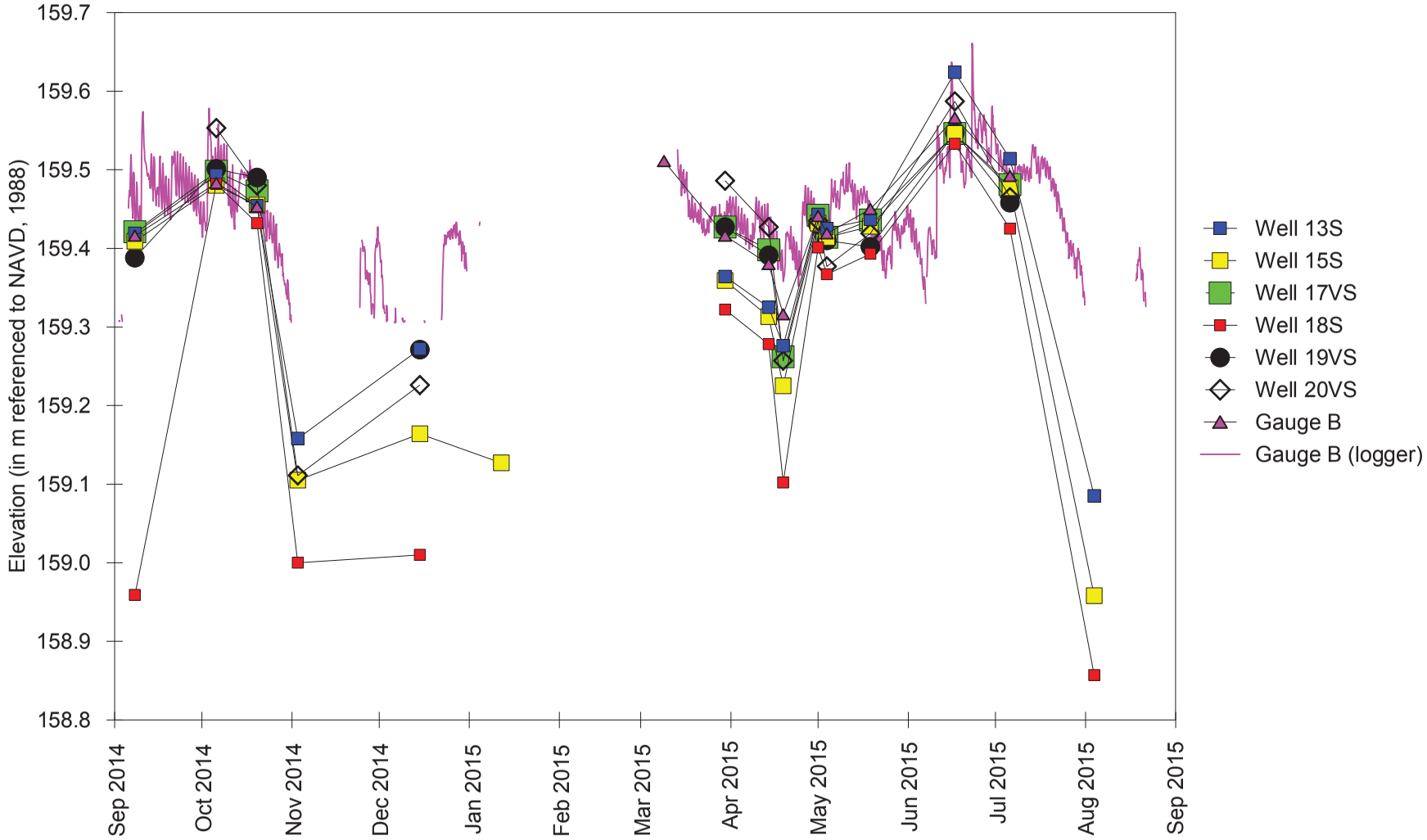
Grant Creek North Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells in the Southeastern Quadrant of the Site



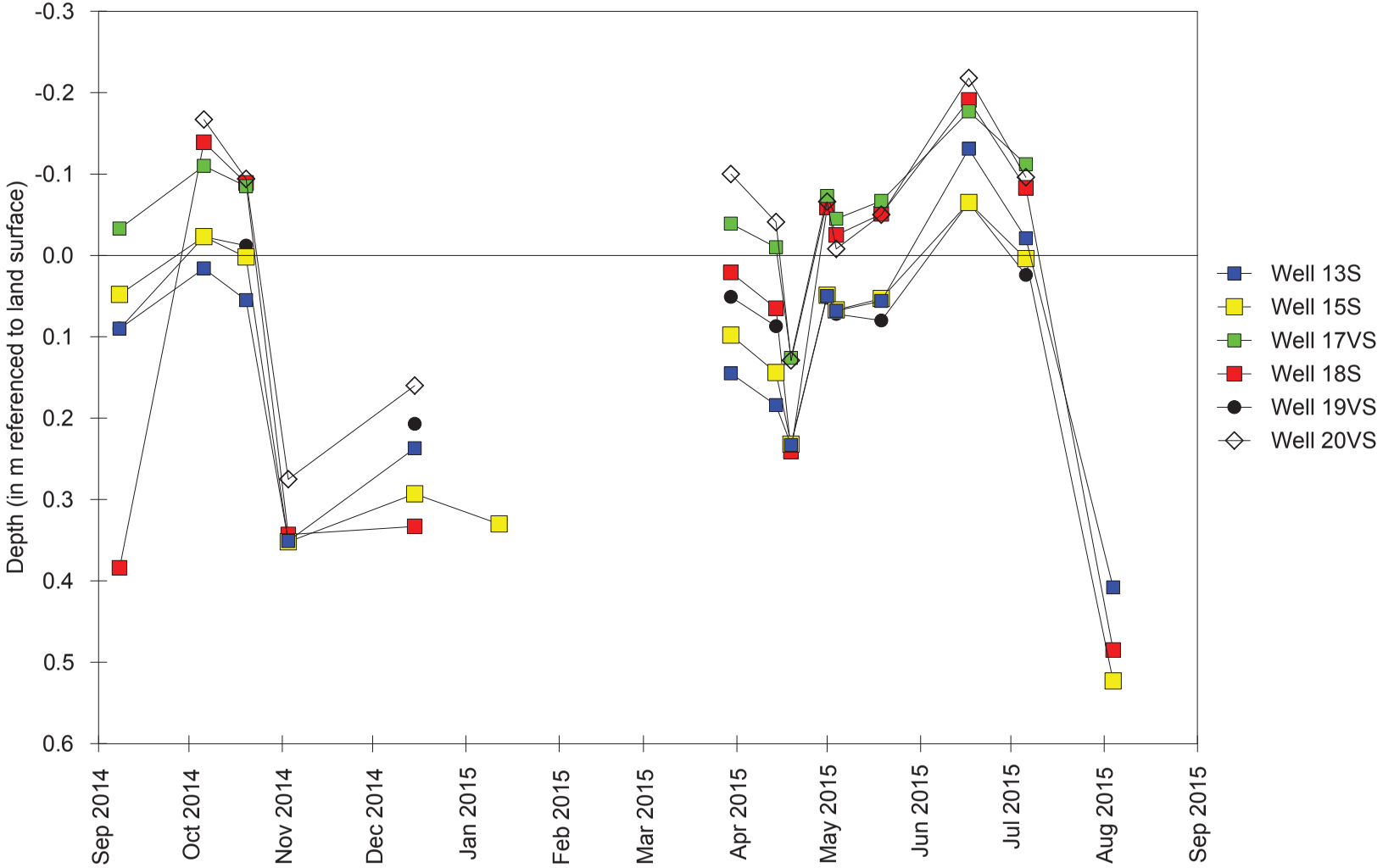
Grant Creek North Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations
in Monitoring Wells and at a Surface-Water Gauge in the Southwestern Quadrant of the Site



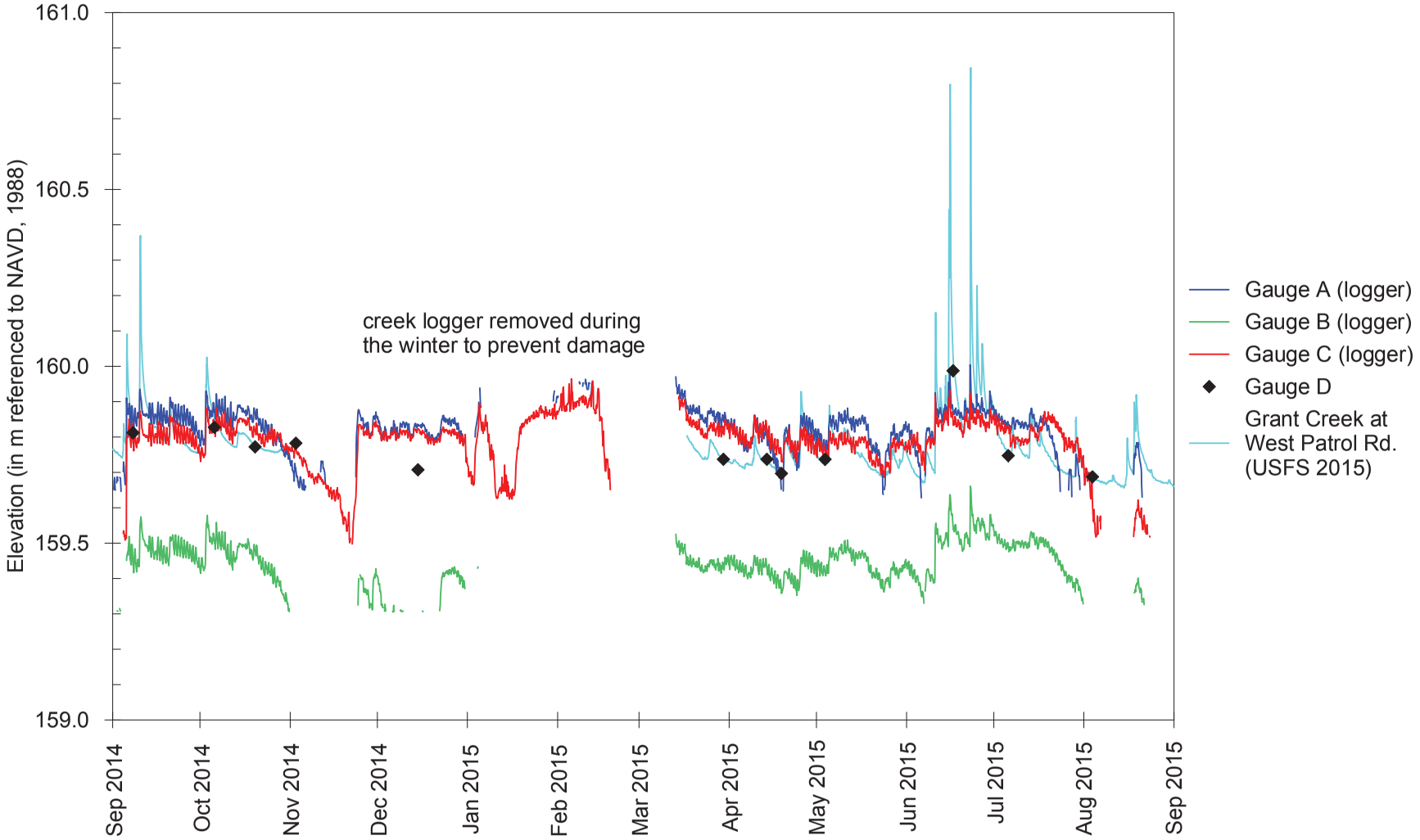
Grant Creek North Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Monitoring Wells in the Southwestern Quadrant of the Site



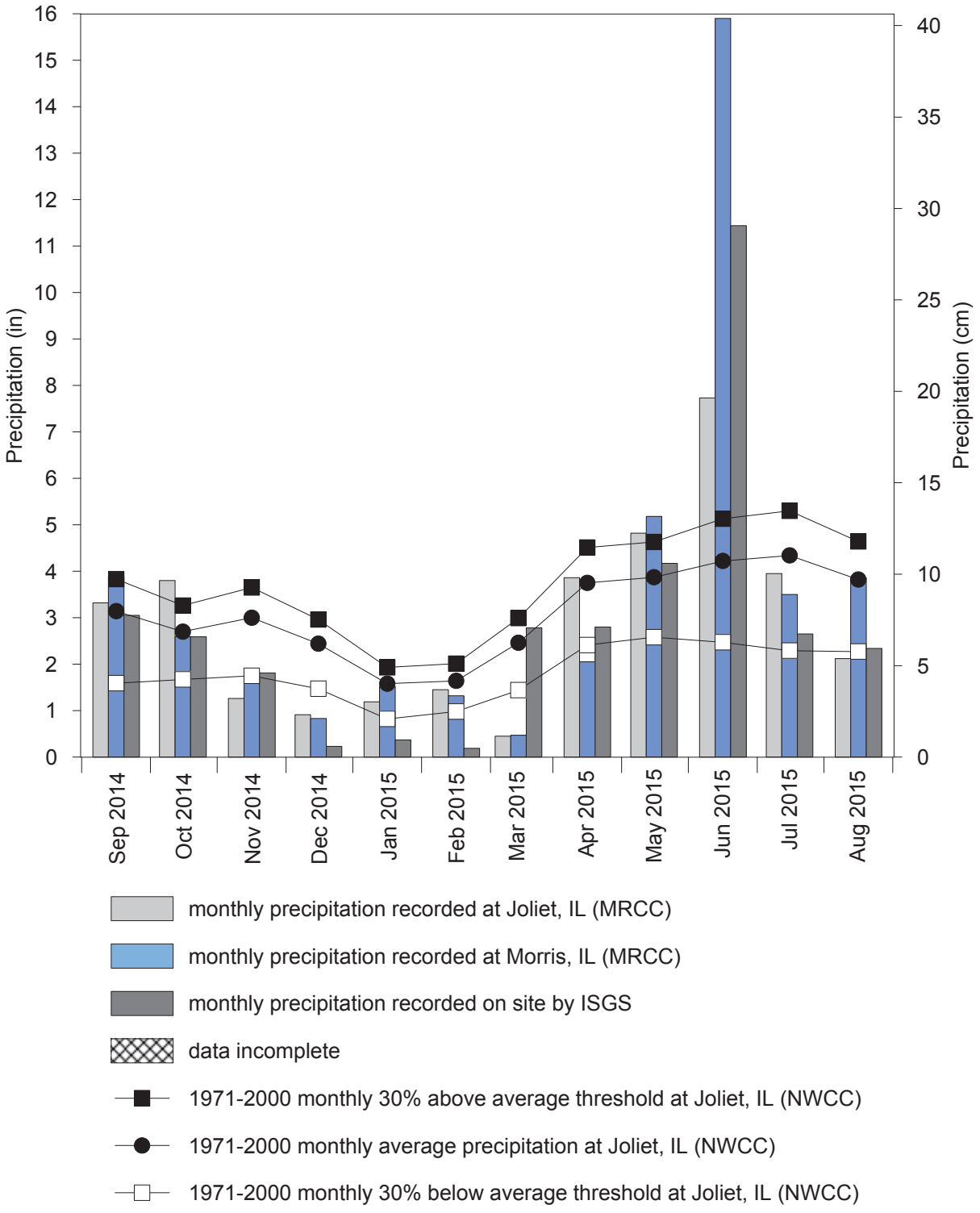
Grant Creek North Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



Grant Creek North Wetland Mitigation Site
September 2014 through August 2015

Total Monthly Precipitation Recorded on Site and at Joliet, IL (MRCC station #114530) and at Morris, IL (MRCC station #115825)



STEVENS CREEK BIKEWAY **ISGS #89**
WETLAND MITIGATION SITE
Stevens Creek Bikeway
Sequence #10630
Macon County, Decatur, Illinois
Primary Project Manager: Steven E. Benton
Secondary Project Manager: Matthew J. Even

SITE HISTORY

- September 2012: The ISGS was tasked by IDOT to monitor wetland hydrology.

- December 2012: A monitoring network was installed on the site.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Stevens Creek Bikeway wetland mitigation site is 6.03 ha (14.89 ac). Using the 1987 Manual (Environmental Laboratory 1987), 10.27 ha (25.38 ac) of the total site area of 18.67 ha (46.10 ac) satisfied wetland hydrology criteria for greater than 5% of the 2015 growing season, and 9.11 ha (22.50 ac) satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 9.91 ha (24.49 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in Decatur, Illinois, is April 5, and the season lasts 205 days (MRCC 2015); 5% of the growing season is 10 days, and 12.5% of the growing season is 26 days, using the 1987 Manual. Using the 2010 Midwest Region Supplement, March 14 was the starting date of the 2015 growing season based on soil temperatures measured at the nearby Decatur, Illinois, ICN station (WARM 2015).

- Total precipitation for the monitoring period, recorded at Decatur, Illinois (MRCC station #112193), was 97% of normal, precipitation in Spring 2015 (March through May) was only 87% of normal, but May and June were above normal at 141% and 147%, respectively.

- In 2015, water levels measured in all soil-zone monitoring wells except 9S, 10S, 14S, and 26S satisfied wetland hydrology criteria for greater than 5% of the growing season, and all soil-zone monitoring wells except 9S, 10S, 14S, 19S, 24S, 25S, 26S, 28S, and 29S satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, water levels in all soil-zone monitoring wells except 9S, 10S, 14S, 19S, 26S, 28S, and 29S satisfied wetland hydrology criteria for 14 or more consecutive days of the growing season.

- Surface-water levels measured at gauges A and C indicated inundation in areas at and below 184.23 m (604.43 ft) and 184.18 m (604.27 ft), respectively, for greater than 5% of the growing season, and areas at and below 184.18 m (604.27 ft) and 184.11 m (604.04 ft), respectively, for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, surface-water levels measured at gauges A and C indicated inundation at and below 184.20 m (604.33 ft) and 184.15 m (604.17 ft), respectively, for 14 or more consecutive days of the growing season.

ADDITIONAL INFORMATION

- A portion of the site was graded to create closely-spaced parallel ridges and swales. Data collected during this monitoring period from pairs of wells installed in adjacent ridges and swales (4S/27S, 20S/28S, and 25S/29S) reveal that all of the ridge wells (27S, 28S, and 29S) satisfied at least one of the criteria for jurisdictional wetland hydrology. This appeared to occur when surface water was present in the adjacent swale at the time saturation occurred in the ridge well.

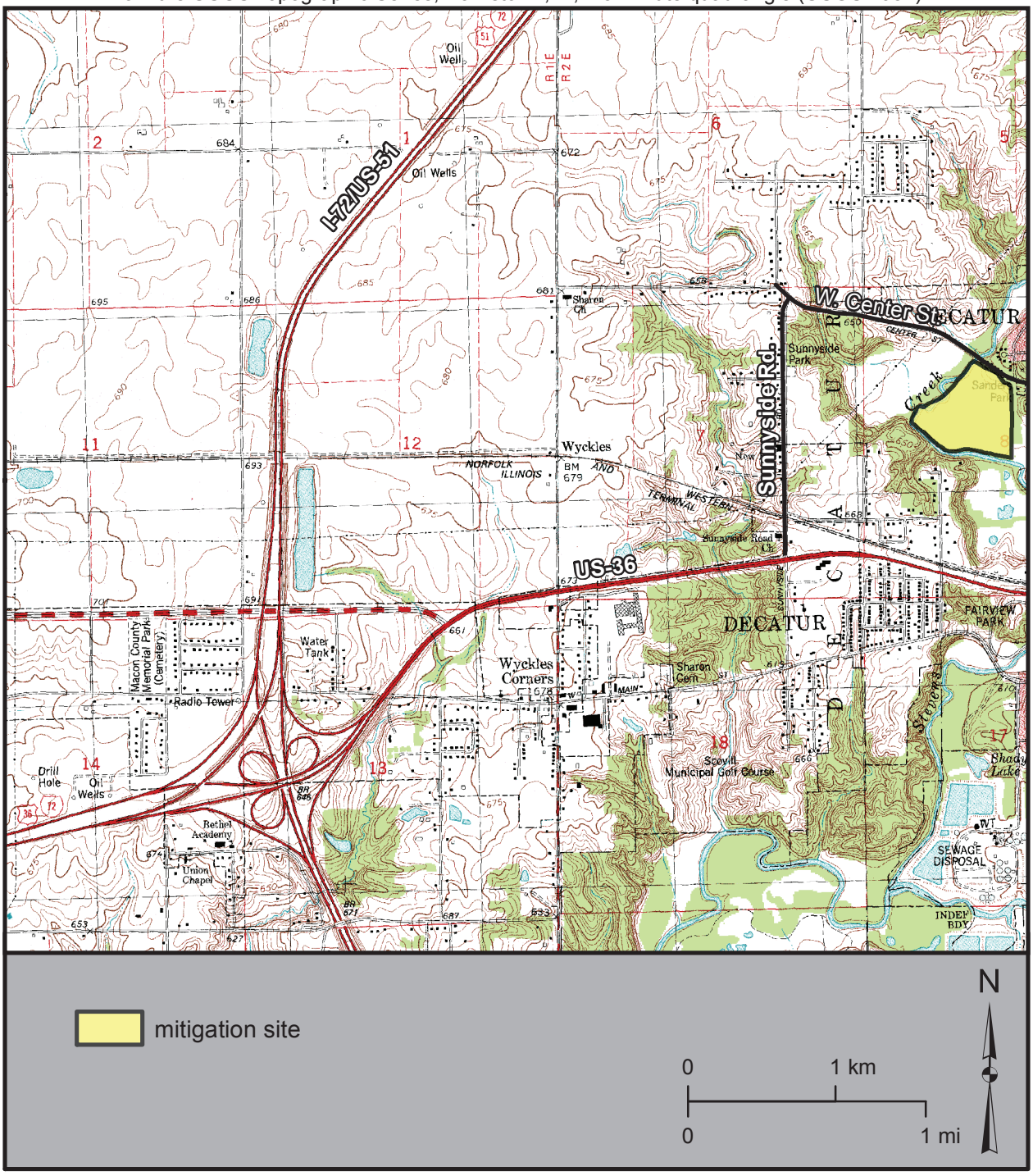
PLANNED FUTURE ACTIVITIES

- Monitoring will continue until no longer required by IDOT.

Stevens Creek Bikeway Wetland Mitigation Site

General Study Area and Vicinity

from the USGS Topographic Series, Harristown, IL, 7.5-minute quadrangle (USGS 1982)

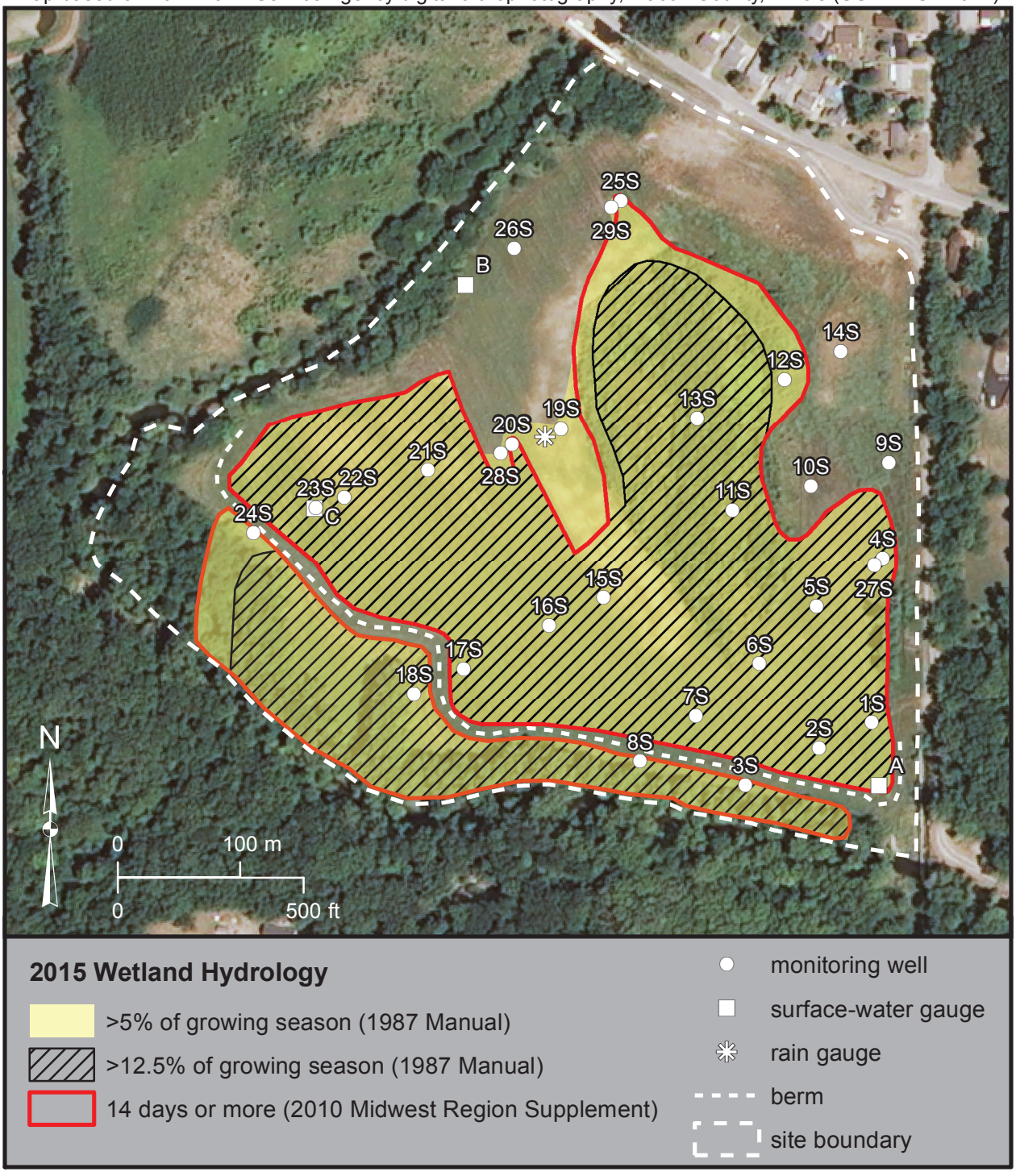


Stevens Creek Bikeway Wetland Mitigation Site

Estimated Areal Extent of 2015 Wetland Hydrology

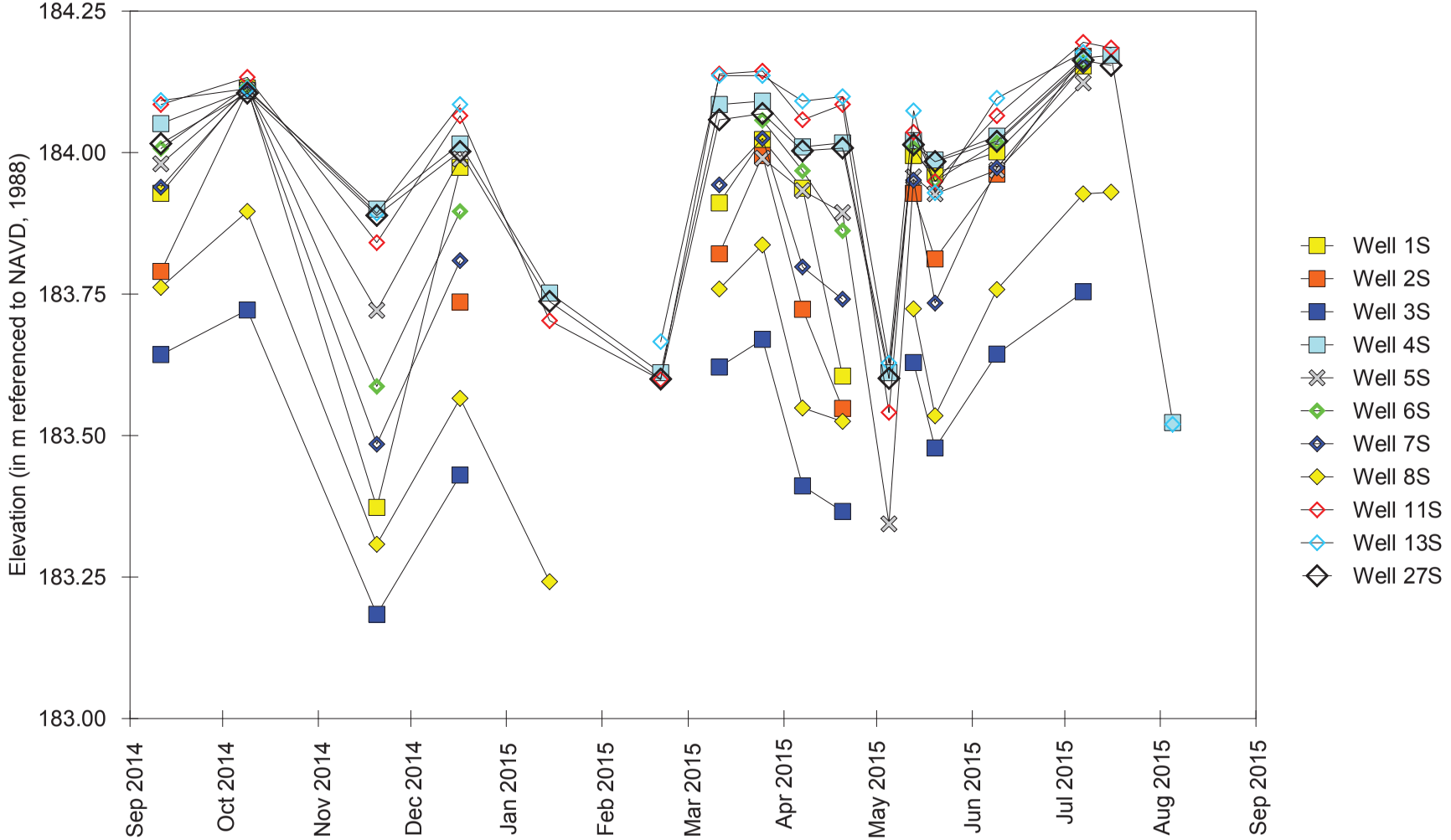
September 1, 2014 through August 31, 2015

Map based on 2012 Farm Service Agency digital orthophotography, Macon County, Illinois (USDA-FSA 2012)



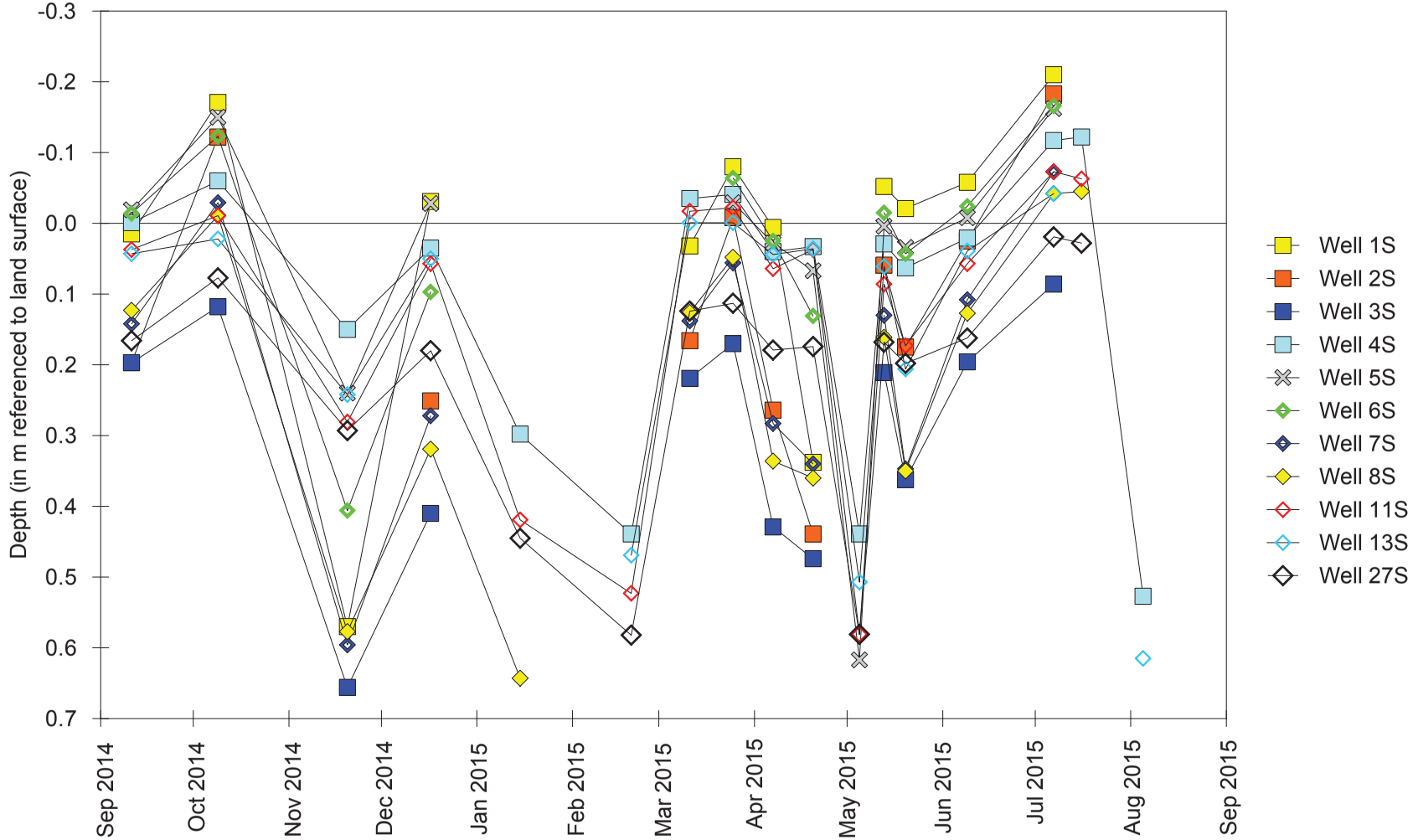
Stevens Creek Bikeway Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Shallow Monitoring Wells



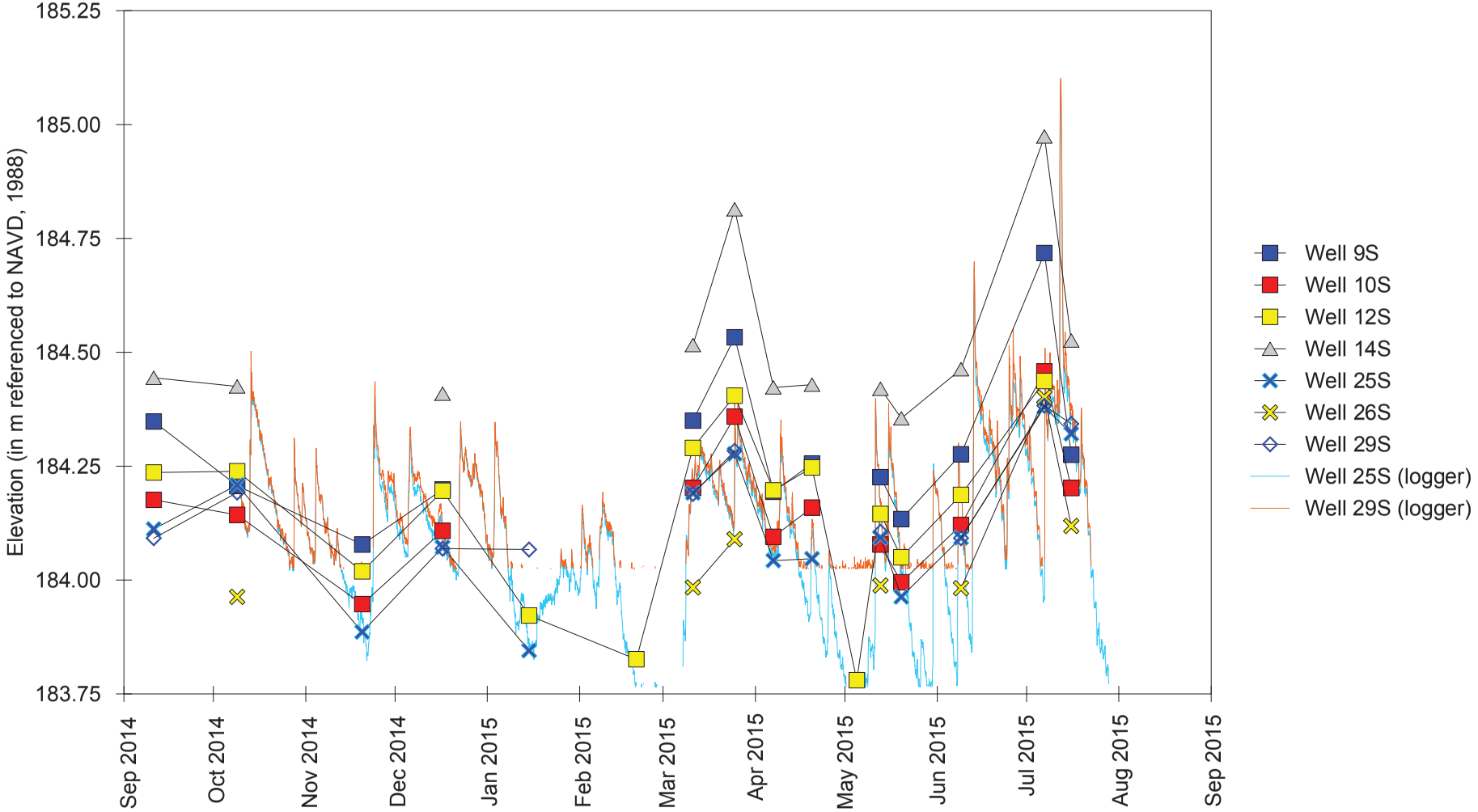
Stevens Creek Bikeway Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow Monitoring Wells



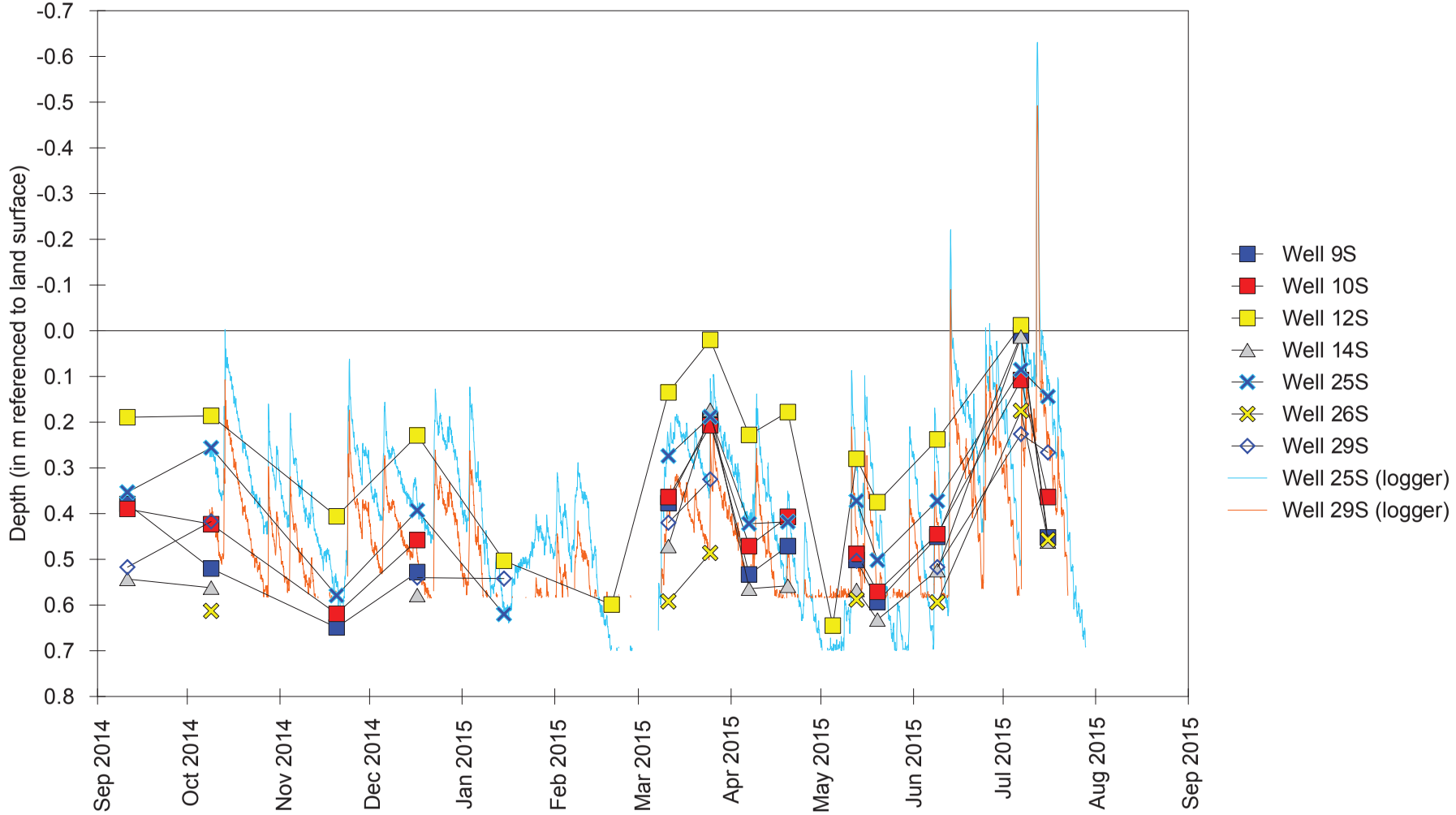
Stevens Creek Bikeway Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Shallow Monitoring Wells



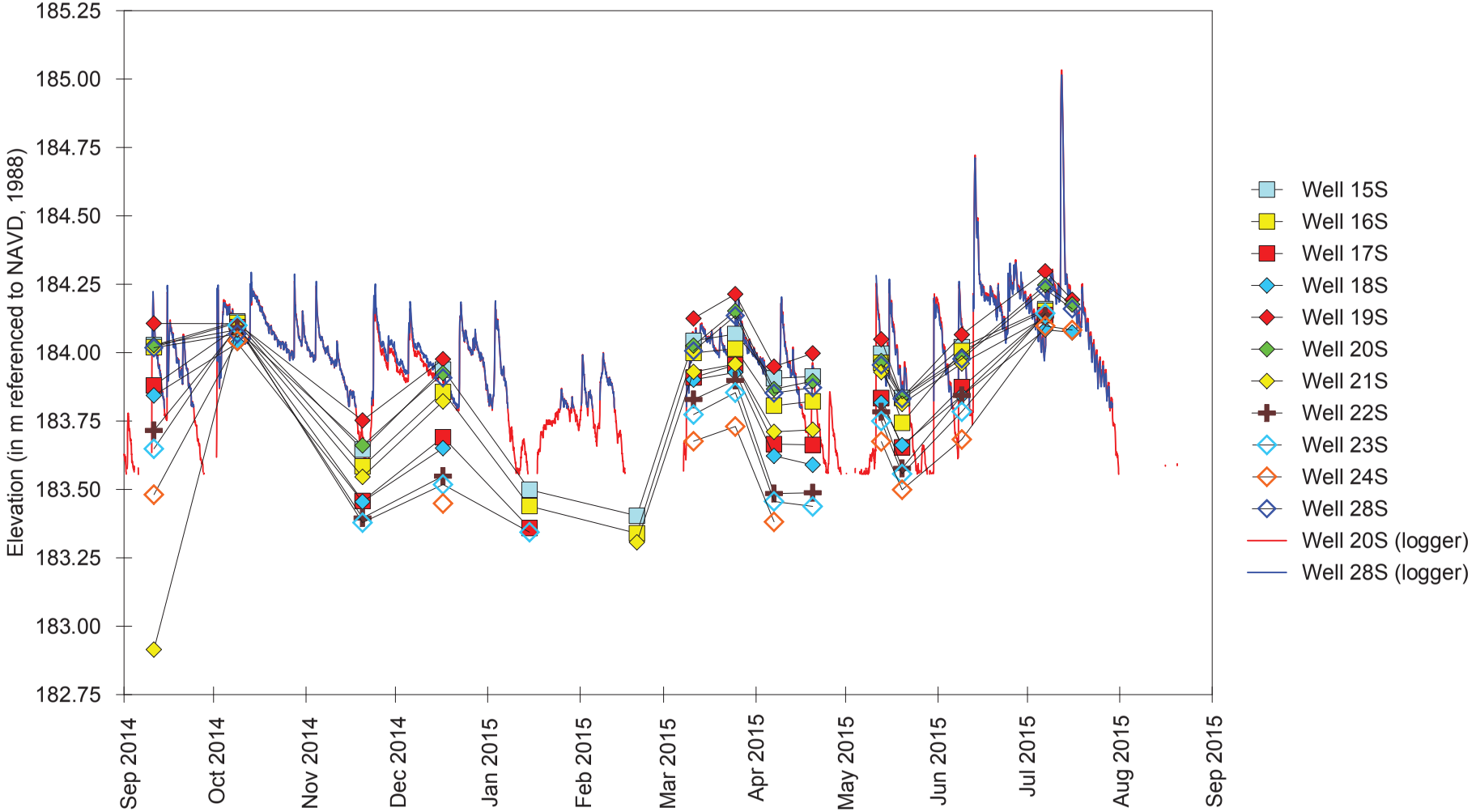
Stevens Creek Bikeway Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow Monitoring Wells



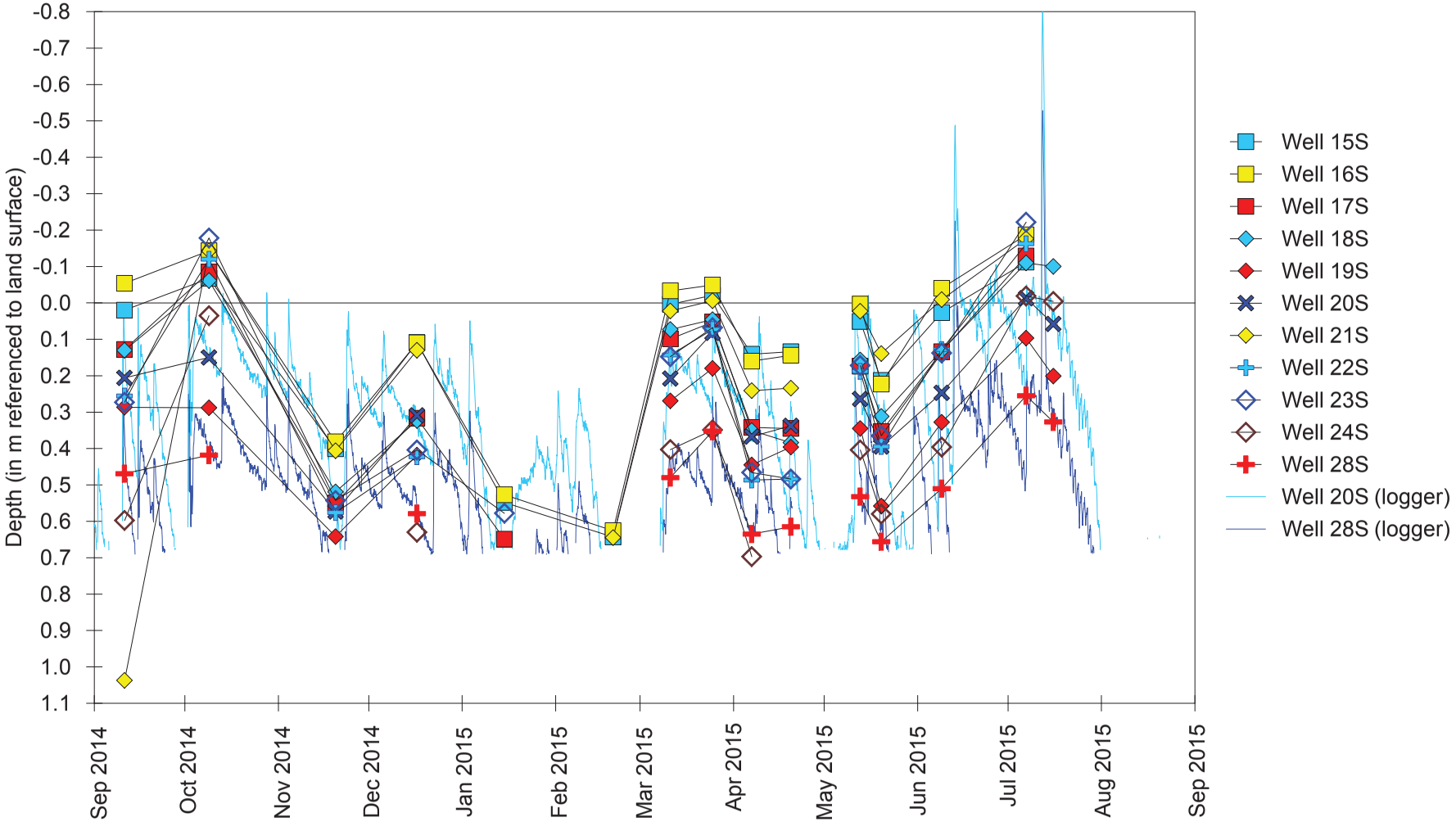
Stevens Creek Bikeway Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Shallow Monitoring Wells



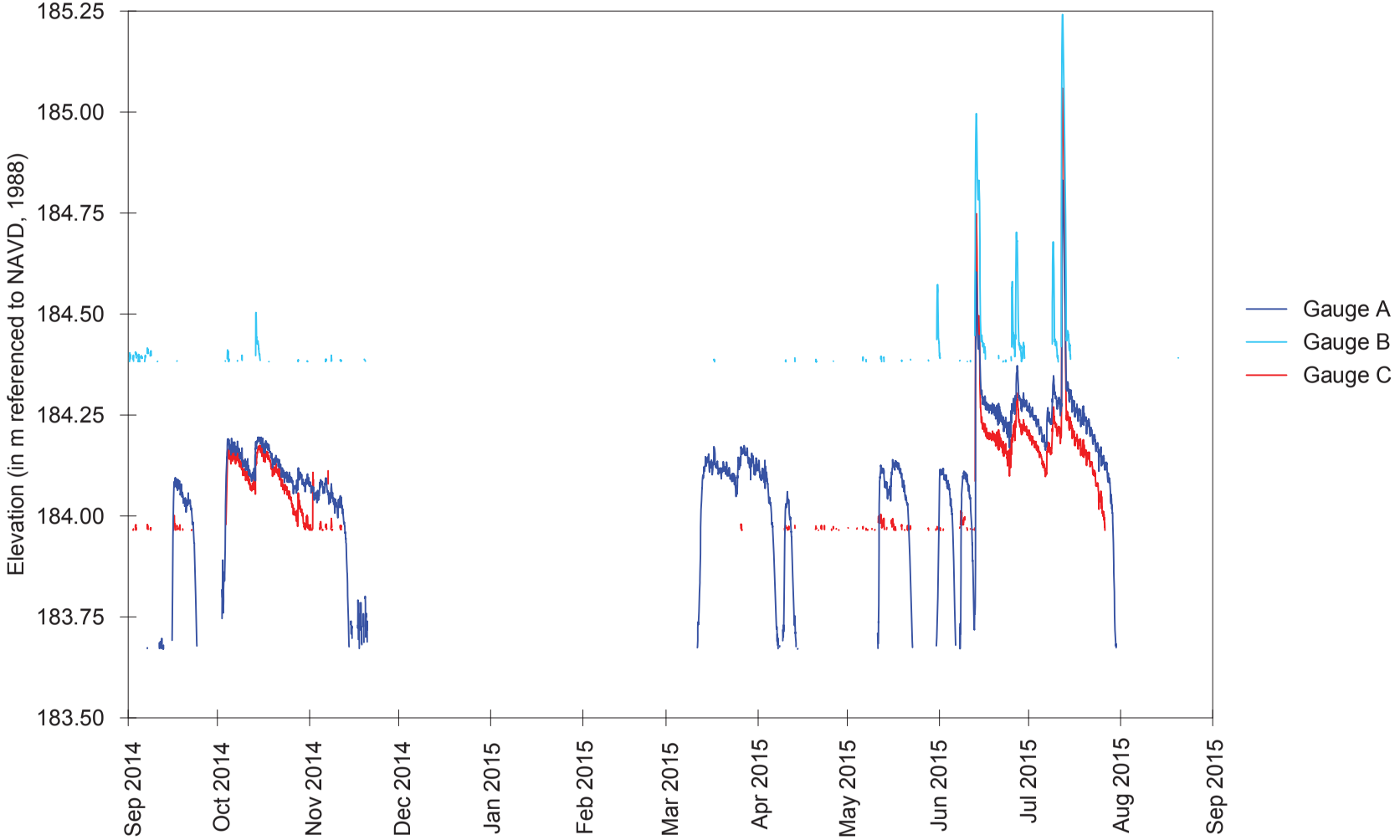
Stevens Creek Bikeway Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Depth to Water
in Shallow Monitoring Wells

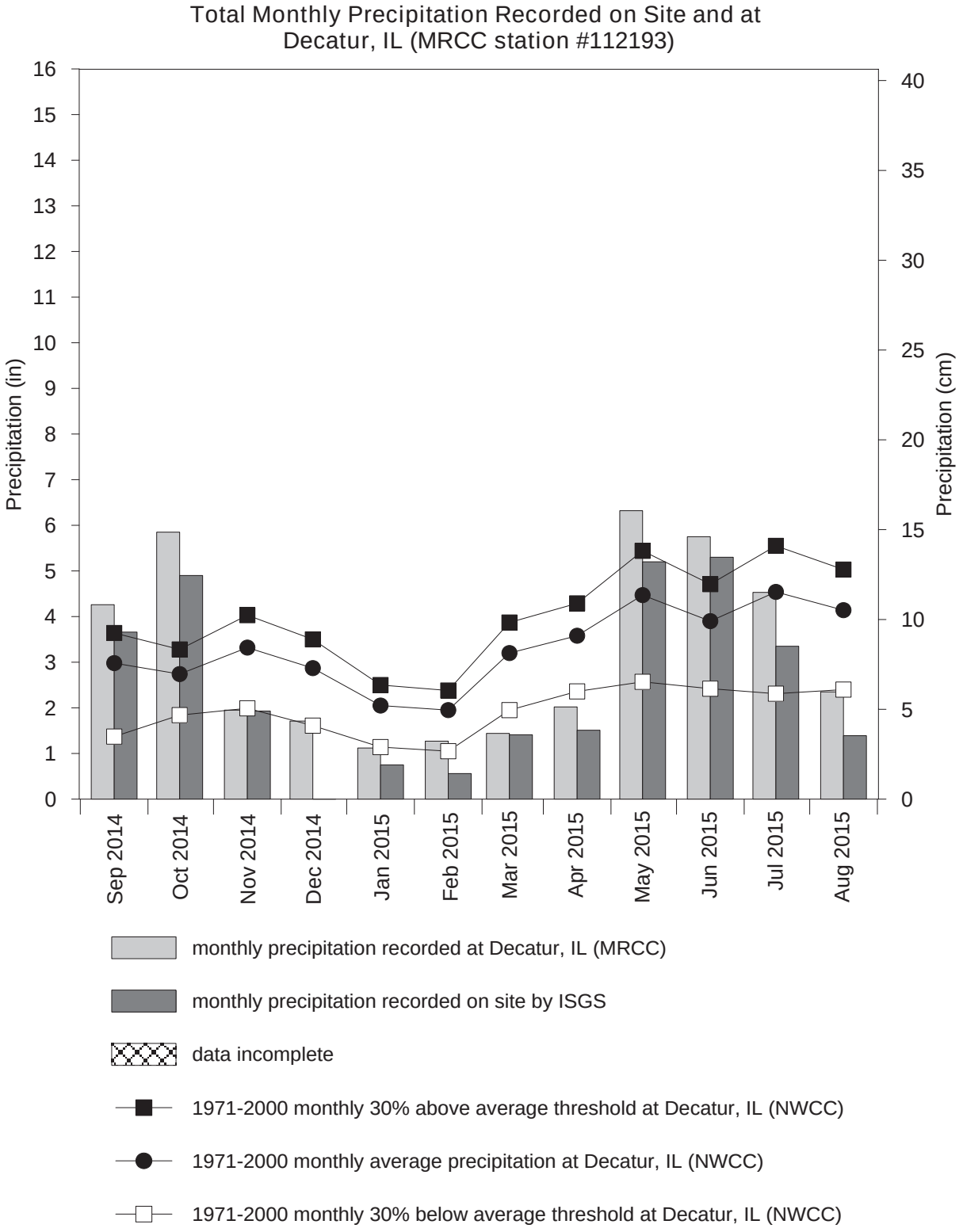


Stevens Creek Bikeway Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



Steven's Creek Bikeway Wetland Mitigation Site
September 2014 through August 2015



THORN CREEK HEADWATERS PRESERVE **ISGS #90**
WETLAND MITIGATION SITE
I-57/Stuenkel Road
Sequence #12558
FAI 57
Will County, near University Park, Illinois
Primary Project Manager: Geoffrey E. Pociask
Secondary Project Manager: Katharine L. Schleich

SITE HISTORY

- September 2012: The ISGS was tasked by IDOT to monitor wetland hydrology.
- March 2013: The ISGS installed a monitoring network at the site.
- Winter 2013-14: Drainage tile were broken and the site was broadcast seeded.
- April 2014: Additional wells were installed to monitor post-construction hydrology.

WETLAND HYDROLOGY CALCULATION FOR 2015

The target compensation area for the Thorn Creek Headwaters Preserve wetland mitigation site is 12.02 ha (29.70 ac). Using the 1987 Manual (Environmental Laboratory 1987), 21.96 ha (54.27 ac) of the total site area of 37.54 ha (92.77 ac) satisfied wetland hydrology criteria for greater than 5% of the 2015 growing season, and 2.63 ha (6.49 ac) of the site satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Using the 2010 Midwest Region Supplement (USACE 2010), 14.56 ha (35.98 ac) satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- The median date that the growing season begins in Park Forest, Illinois, is April 8, and the season lasts 209 days (MRCC 2015). Using the 1987 Manual, 5% of the growing season is 10 days, and 12.5% of the growing season is 26 days. Using the 2010 Midwest Region Supplement, April 1 was the starting date of the 2015 growing season based on soil temperatures measured on site.
- Total precipitation for the monitoring period at Park Forest, Illinois (MRCC station #116616), was 101% of normal, and Spring 2015 (March through May) precipitation was 85% of normal. Above average rainfall in June (181% of normal) resulted in peak hydrology during that time period.
- In 2015, water levels measured in all wells except 12S, 17S, 26S, 27S, 28S, and 29S satisfied wetland hydrology criteria for greater than 5% of the growing season, and water levels in wells 6S, 15S, 19S, 22S, and 30S satisfied wetland hydrology criteria for greater than 12.5% of the growing season, using the 1987 Manual. Using the 2010 Midwest Region Supplement, wells 1S, 3S, 5S, 6S, 11S, 13S, 15S, 16S, 18S, 19S, 20S, 21S, 22S, 23S, 25S, and 30S satisfied wetland hydrology criteria for 14 or more consecutive days of the growing season.
- Surface-water levels measured at Gauge B indicated inundation at and below 236.73 m (776.67 ft) for greater than 5% of the growing season, but water levels did not persist for greater than 12.5% of the growing season, using the 1987 Manual. Furthermore, surface-water levels at Gauge B indicated inundation at and below 236.73 m (776.67 ft) for 14 days or more, using the 2010 Midwest Region Supplement. Surface-water levels measured at Gauge C did

not persist for greater than 5% of the growing season using the 1987 Manual or for 14 days or more using the 2010 Midwest Region Supplement.

ADDITIONAL INFORMATION

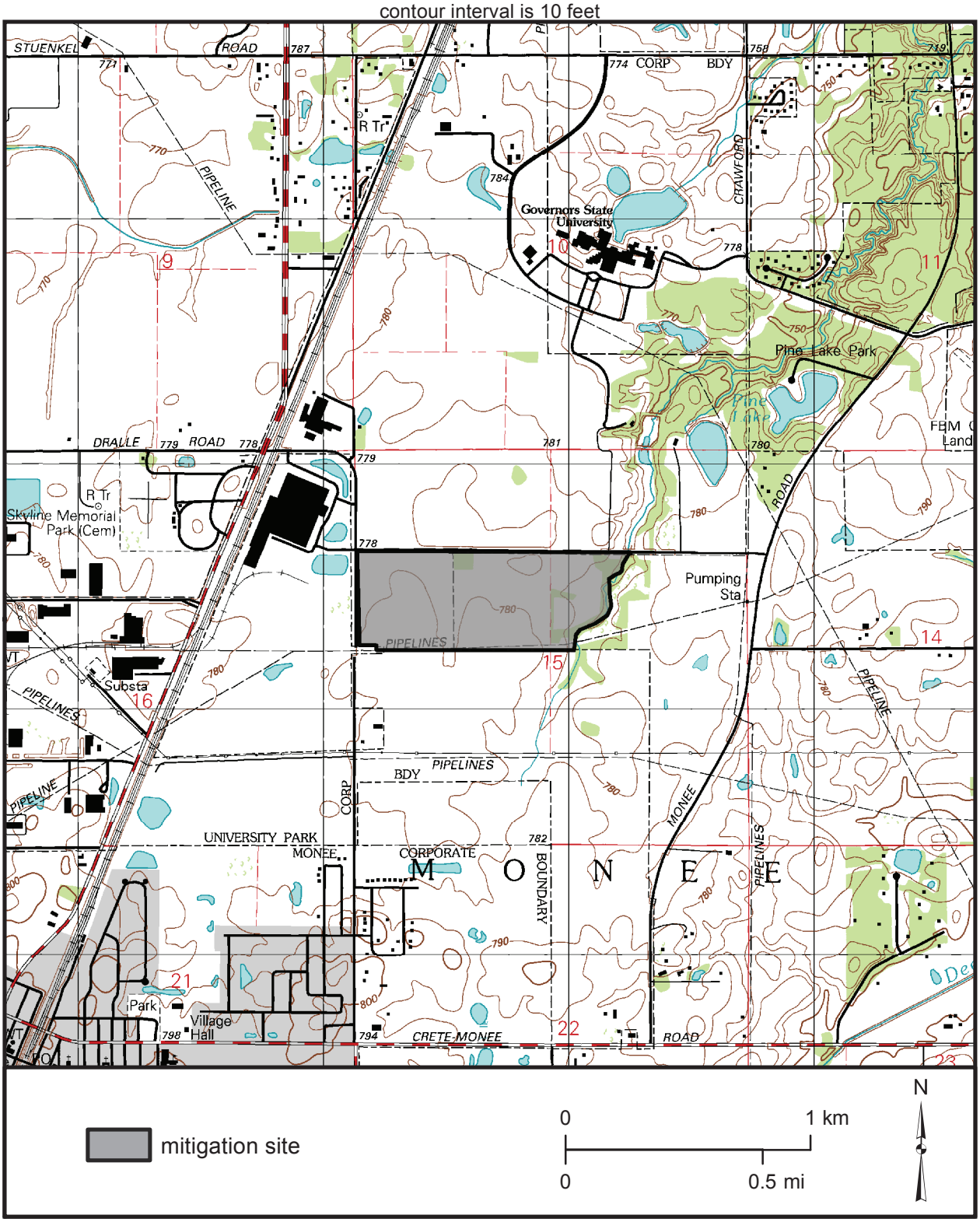
- Surface water currently drains from the western portion of the site through a storm sewer located along the west margin of the site (between wells 1S and 30S) and a small swale that has been partially blocked (between wells 30S and 3S). Blocking these outlets would prolong and expand ponding in the western portion of the site if necessary to achieve wetland restoration goals. However, appropriate threshold elevations should be determined before outlets are blocked.

PLANNED FUTURE ACTIVITIES

- Additional wells will be installed during Fall 2015 or Winter 2015-16. Monitoring will continue until no longer required by IDOT.

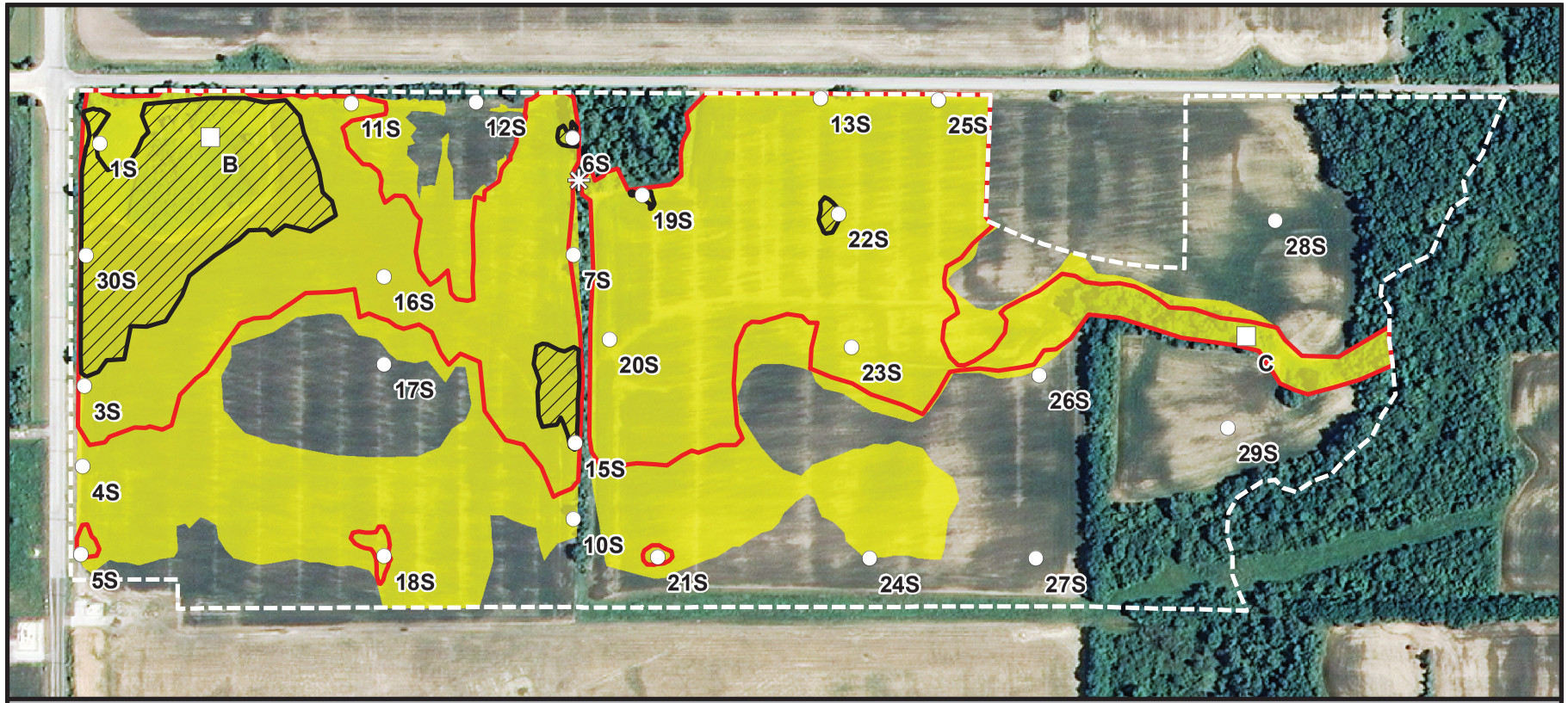
Thorn Creek Headwaters Preserve Wetland Mitigation Site
(I-57 at Stuenkel Road, FAI 57)
General Study Area and Vicinity

from the USGS Topographic Series, Steger, IL, 7.5-minute Quadrangle (USGS 1990)
contour interval is 10 feet



Thorn Creek Headwaters Preserve Wetland Mitigation Site
(I-57 at Stuenkel Road, FAI 57)
Estimated Areal Extent of 2015 Wetland Hydrology
September 1, 2014 through August 31, 2015

Map based on 2012 Farm Service Agency digital orthophotography, Will County, Illinois (USDA-FSA 2012)



2015 Wetland Hydrology

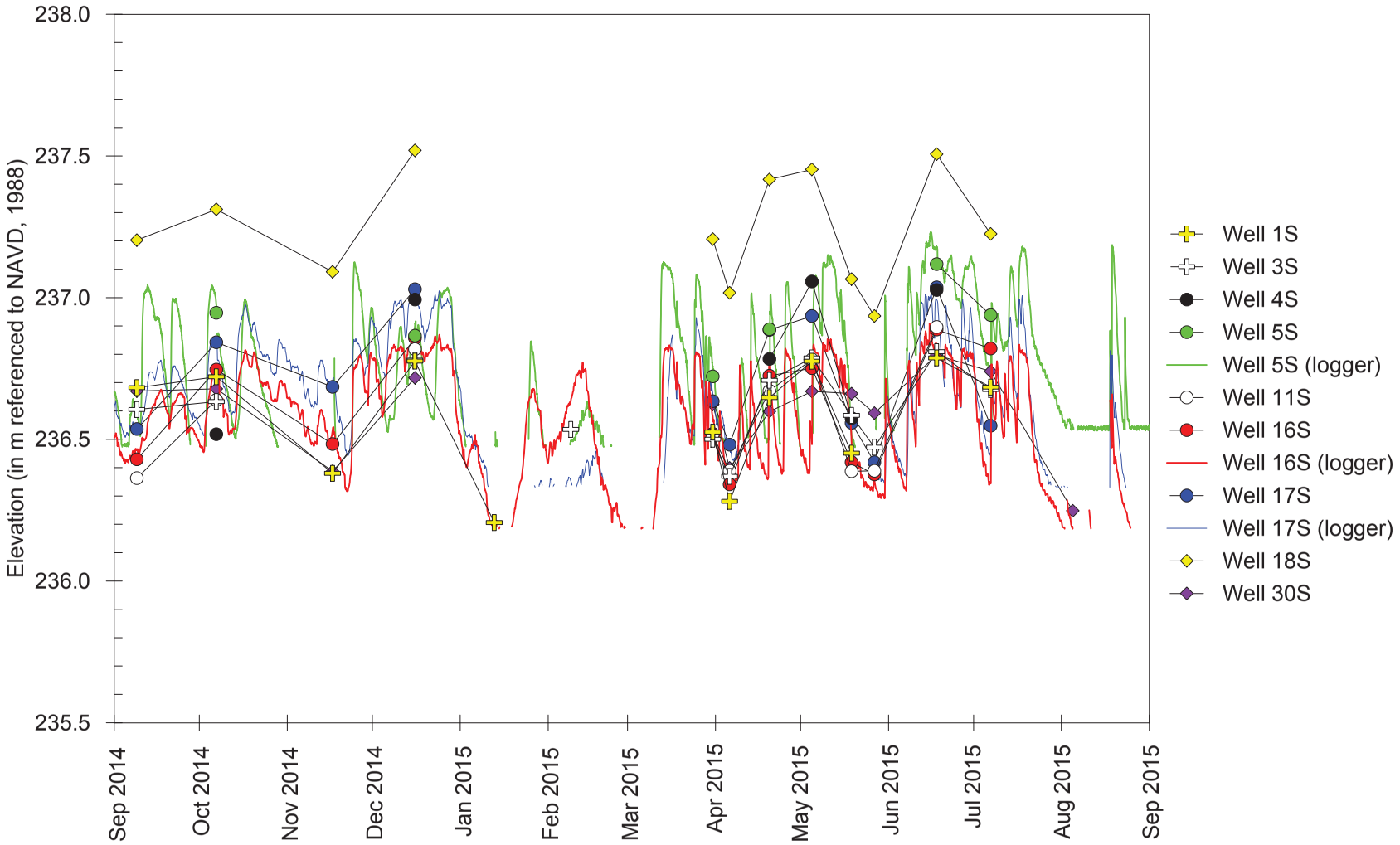
- >5% of growing season (1987 Manual)
- >12.5% of growing season (1987 Manual)
- 14 days or more (2010 Midwest Region Supplement)
- monitoring well
- surface-water gauge
- rain gauge
- mitigation site

0 100 m
0 300 ft

N

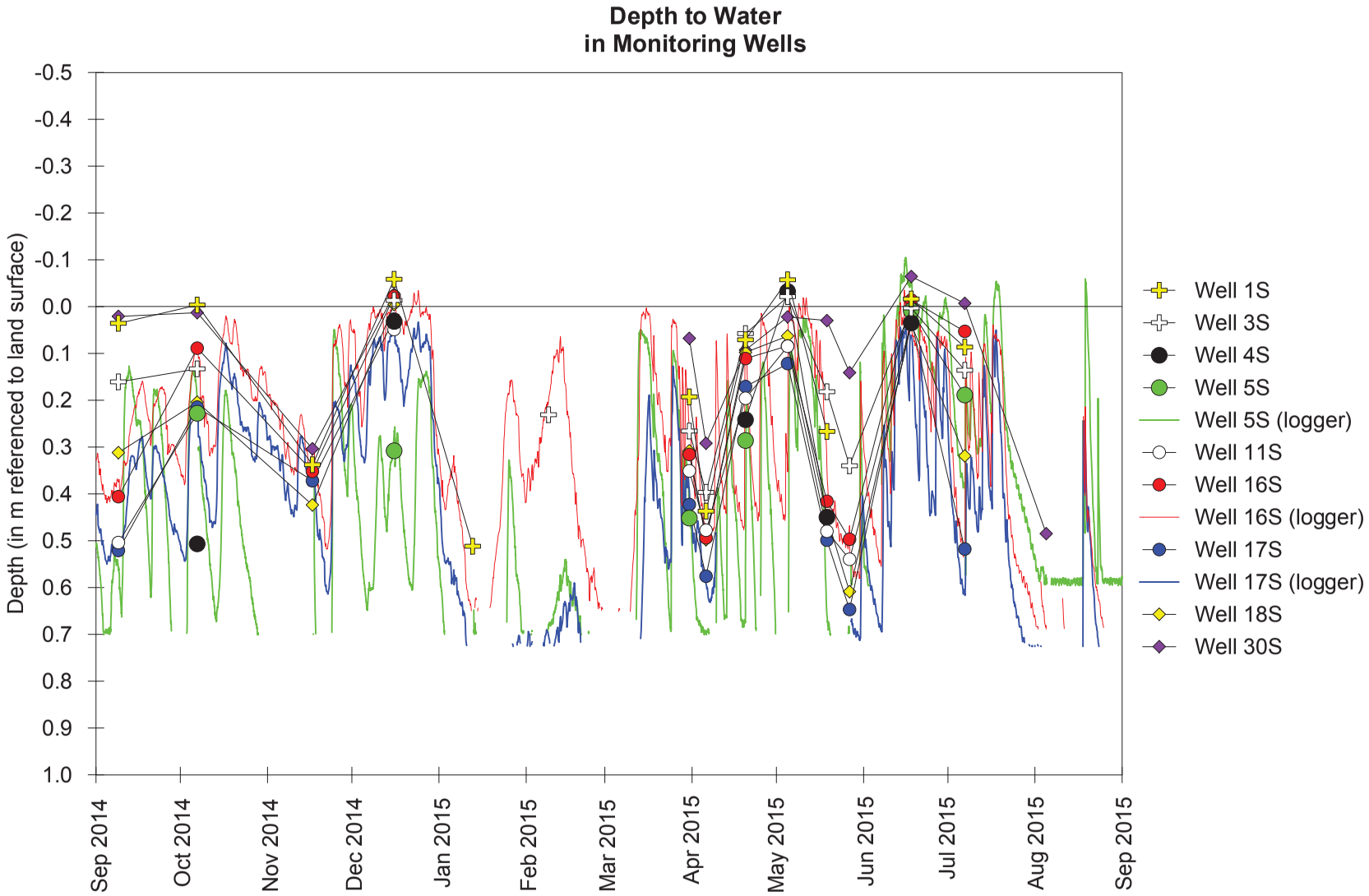
Thorn Creek Headwaters Preserve Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells



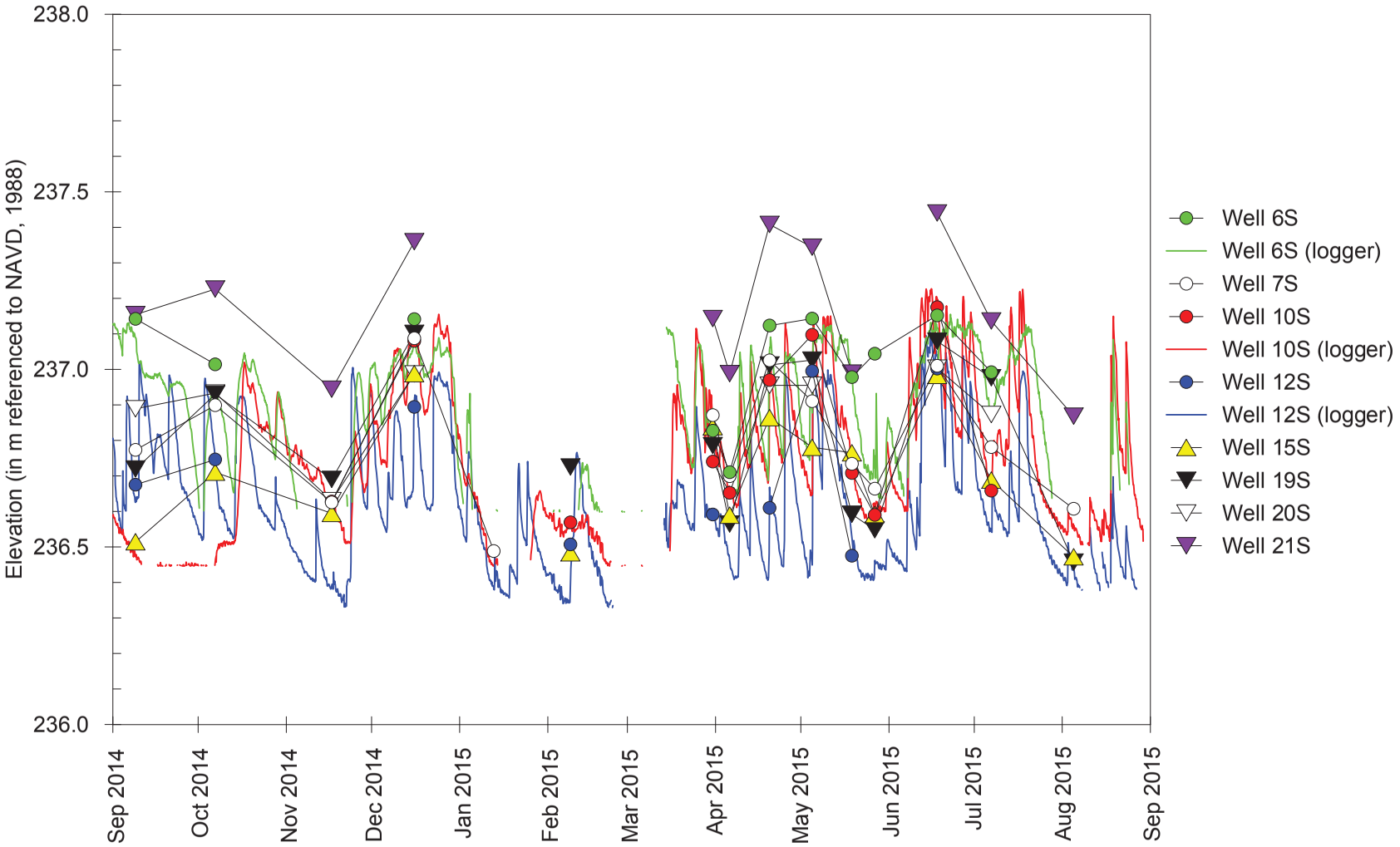
Thorn Creek Headwaters Preserve Wetland Mitigation Site

September 1, 2014 through August 31, 2015

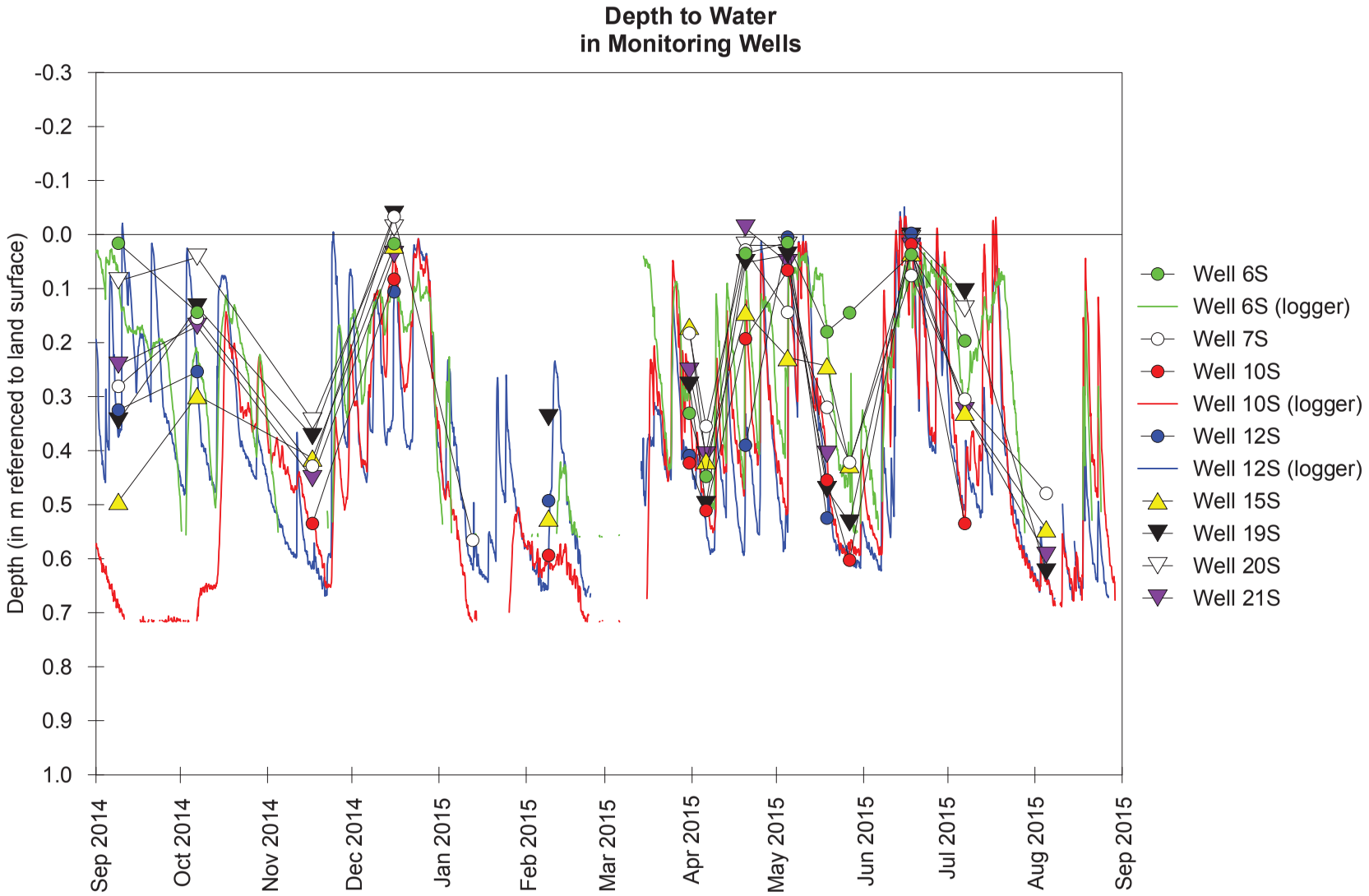


Thorn Creek Headwaters Preserve Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells

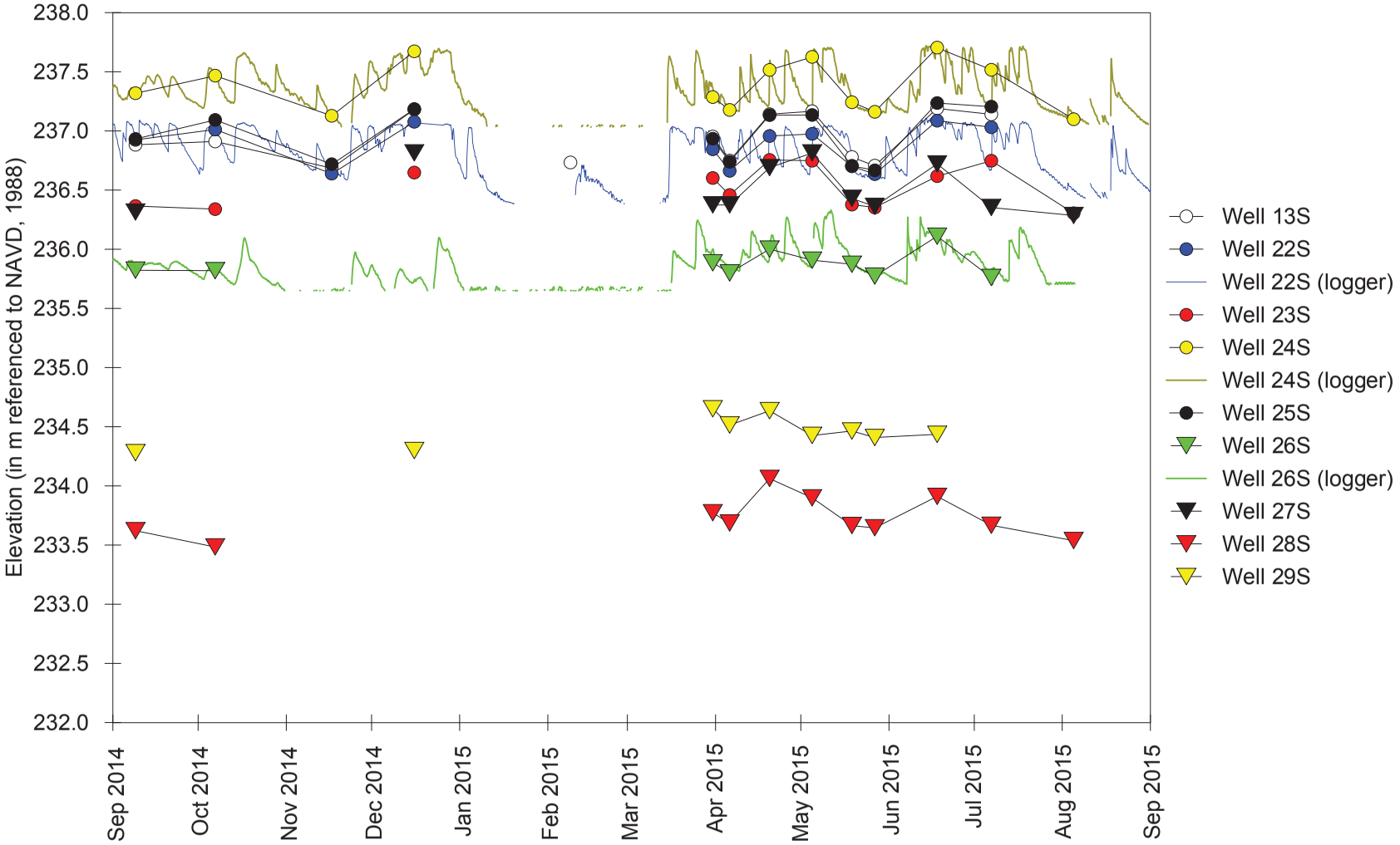


Thorn Creek Headwaters Preserve Wetland Mitigation Site
September 1, 2014 through August 31, 2015

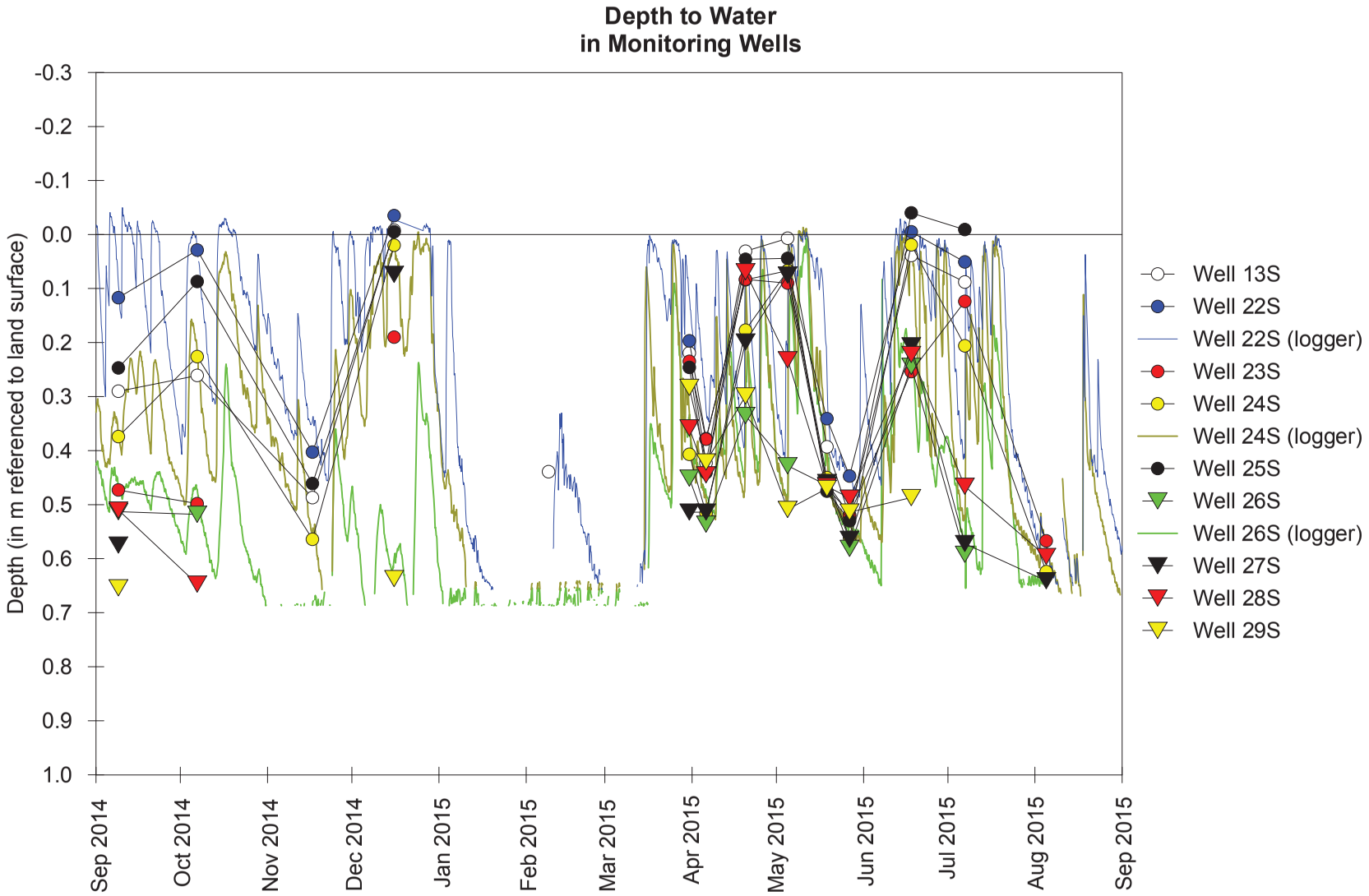


Thorn Creek Headwaters Preserve Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations in Monitoring Wells

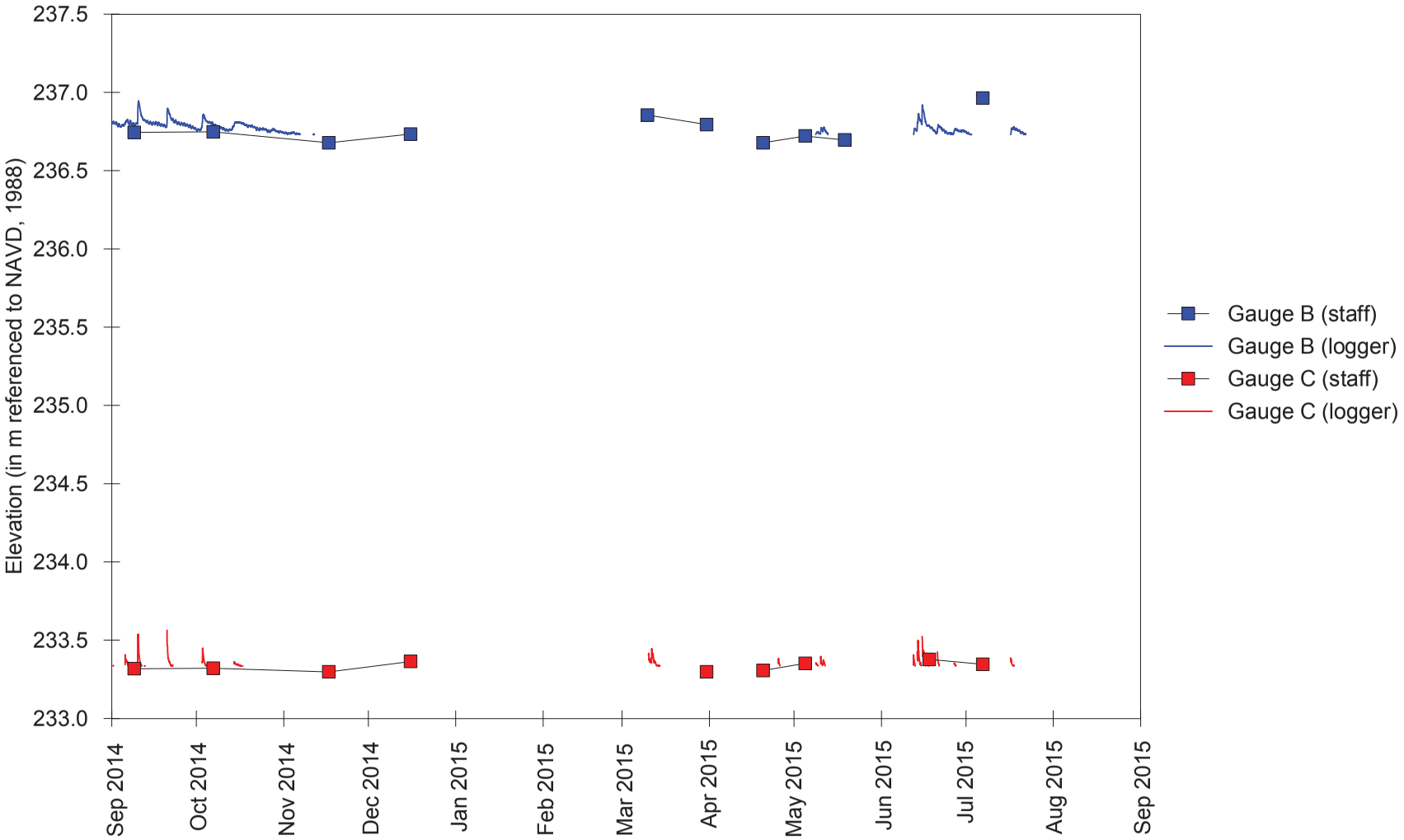


Thorn Creek Headwaters Preserve Wetland Mitigation Site
September 1, 2014 through August 31, 2015



Thorn Creek Headwaters Preserve Wetland Mitigation Site
September 1, 2014 through August 31, 2015

Water-Level Elevations at Surface-Water Gauges



Thorn Creek Wetland Mitigation Site
September 2014 through August 2015

Total Monthly Precipitation Recorded on Site and at Park Forest, IL (MRCC station #116616)