



**FORMER TIERNAN PROPERTY, NEW RIVER CROSSING  
POTENTIAL WETLAND COMPENSATION SITE**

**ISGS #57**

FAP 999

Sequence #33G

Saint Clair County, near Cahokia, Illinois

**Primary Project Manager: Bonnie J. R. Sperling**

**Secondary Project Manager: Charles W. Knight**

**SITE HISTORY**

- July 2000: The ISGS was tasked to perform a Level II hydrogeologic assessment of the site.
- March–November 2001: Thirty-two S wells, ten VS wells, five M wells, two staff gauges, and six benchmarks were installed and surveyed. Six soil-moisture probes were installed in three clusters in the northern field. Water-quality sampling was terminated because no quality standards were exceeded in any of the initial samples.
- July 2005: A Level II hydrogeologic characterization report was submitted to IDOT (ISGS Open-File Series 2005–11).

**WETLAND HYDROLOGY CALCULATION FOR 2007**

The area that satisfied wetland hydrology criteria (Environmental Laboratory 1987) for greater than 5% of the growing season was estimated to be 17.1 ha (42.1 ac) out of a total site area of 26.4 ha (65.3 ac). Furthermore, 15.0 ha (37.0 ac) of that area also satisfied wetland hydrology criteria for greater than 12.5% of the growing season. The estimates for 2007 are based on the following factors:

- According to the MRCC, the median date that the growing season begins in nearby Cahokia, Illinois, is April 2 and the season lasts 214 days; 5% of the growing season is 11 days and 12.5% of the growing season is 27 days.
- Precipitation during the monitoring period was 91% of normal at the Belleville, Illinois weather station. Above-normal precipitation in October and December 2006 through February 2007 increased water levels on site. Despite below-normal precipitation in March and April 2007, water levels remained high, and the pattern of precipitation coupled with low evapotranspiration rates resulted in flooding in the southern portion of the site. Water levels remained elevated through May, a month of above-normal precipitation, and then fell throughout the summer as a result of high summer evapotranspiration rates coupled with below-normal precipitation.
- In 2007, water levels measured in wells 2S, 8S, 9S, 10S, 13S, 14S, 15S, 16S, 19S, 20S, 21S, 22S, 24S, 24VS, 25S, 25VS, 26S, 26VS, 27VS, 28S, 28VS, 29S, 29VS, 30S, 30VS, 31S, 31VS, and 32S satisfied the wetland hydrology criteria for greater than 5% of the growing season. Furthermore, wells 8S, 13S, 14S, 15S, 16S, 19S, 20S, 21S, 22S, 24VS, 25S, 25VS, 26S, 27VS, 28S, 28VS, 29S, 29VS, 30S, 30VS, 31S, 31VS, and 32S satisfied wetland hydrology criteria for greater than 12.5% of the growing season. Surface-water stage data from gauge D indicate that inundation occurred to an elevation of 121.291 m (397.94 ft) for a period sufficient to satisfy wetland hydrology criteria for greater than 5%

of the growing season and to an elevation of 120.839 m (396.45 ft) for 12.5% of the growing season.

- While most of the southern half of the site (the former borrow pit) is mapped as preexisting wetland, the hydrology is controlled primarily by the water level in Blue Waters Ditch southeast of the site. Extreme springtime precipitation events resulted in widespread flooding in the southern half of the site.

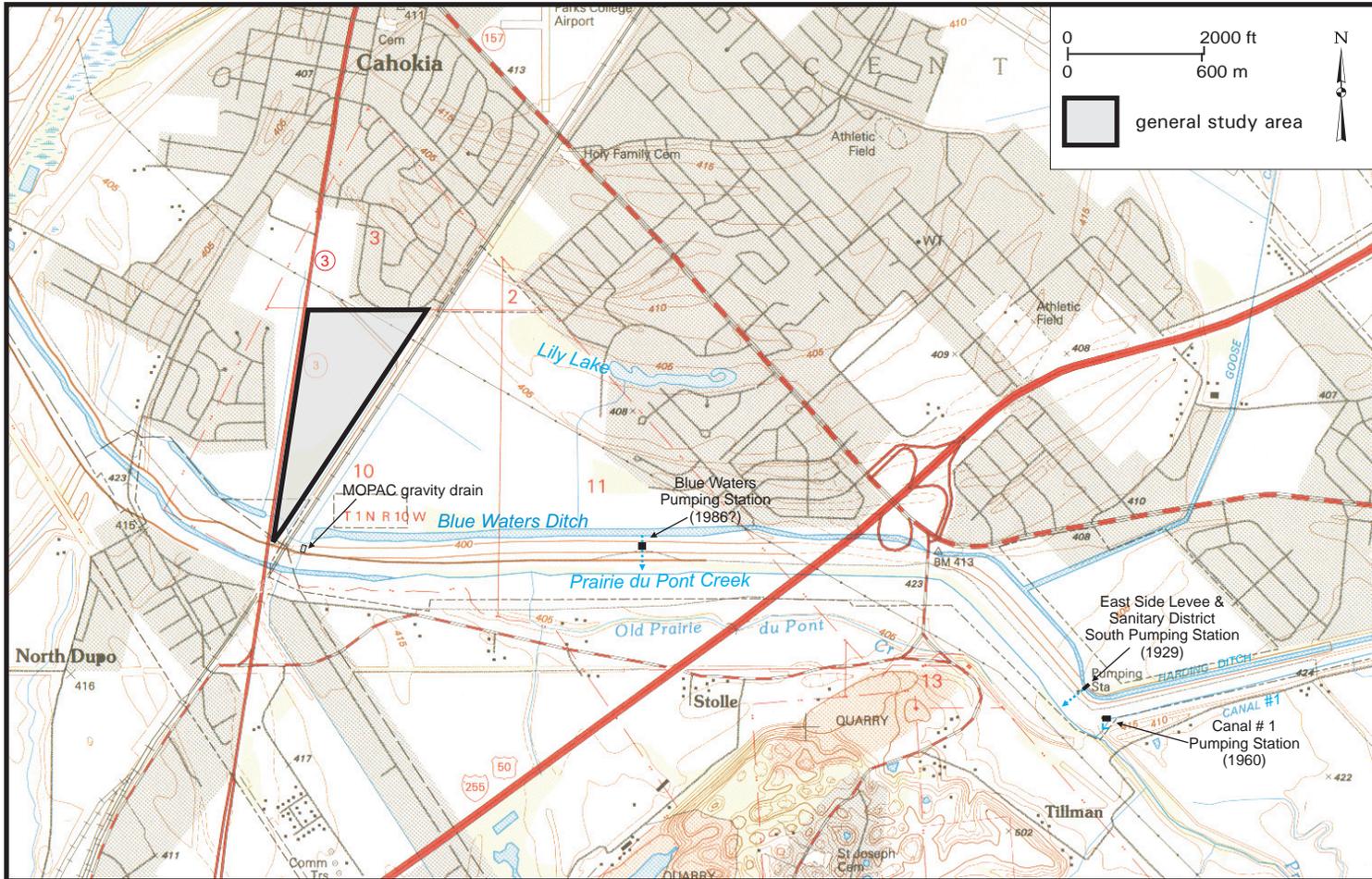
#### PLANNED FUTURE ACTIVITIES

- Monitoring will continue until no longer required by IDOT.

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

## General Study Area and Vicinity

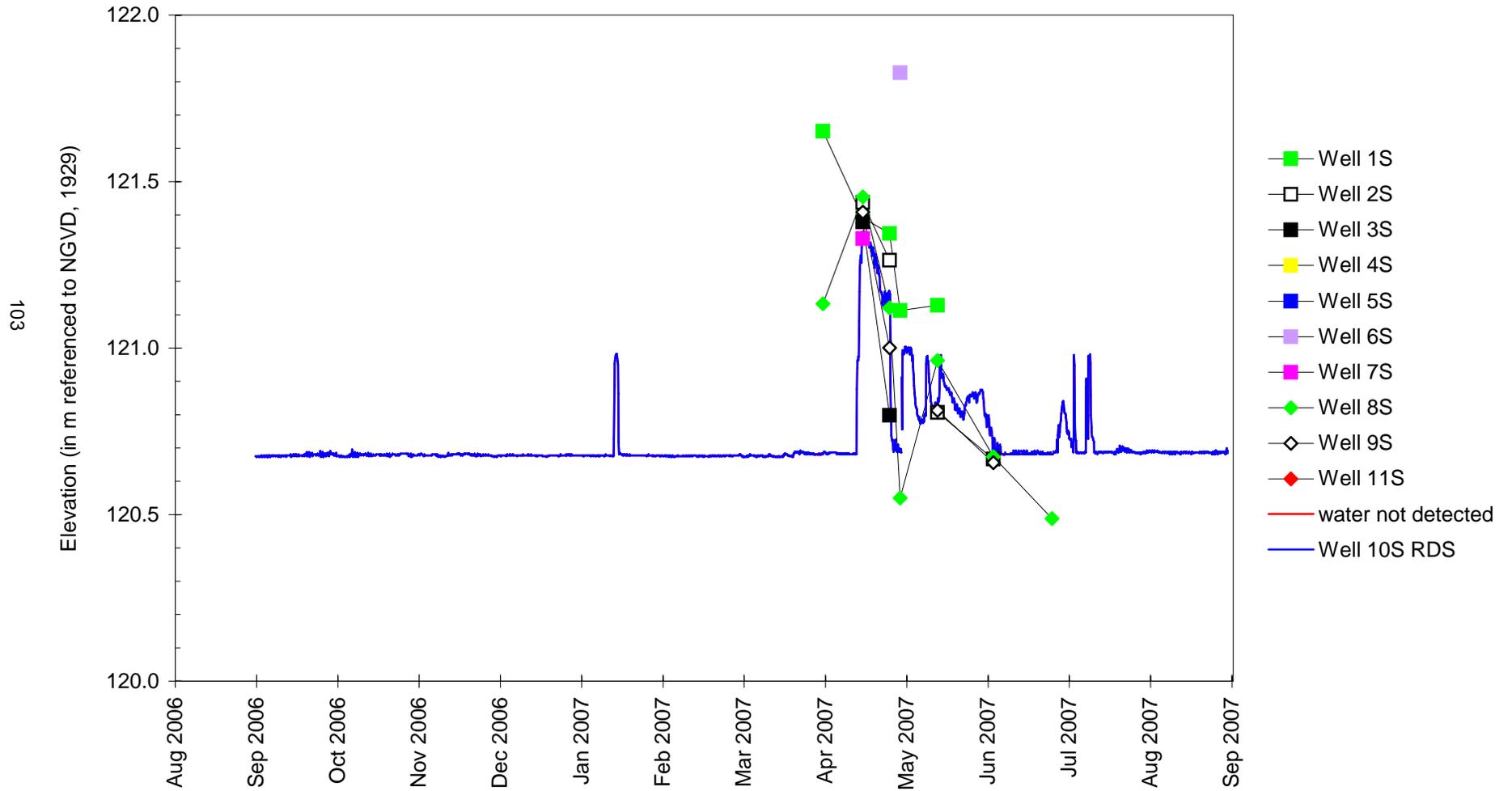
from the USGS Topographic Series, Cahokia, IL 7.5-minute Quadrangle (USGS 1993)  
contour interval is 3 m (10 ft)





# Former Tiernan Property, New River Crossing Potential Wetland Compensation Site September 1, 2006 to September 1, 2007

## Water-Level Elevations

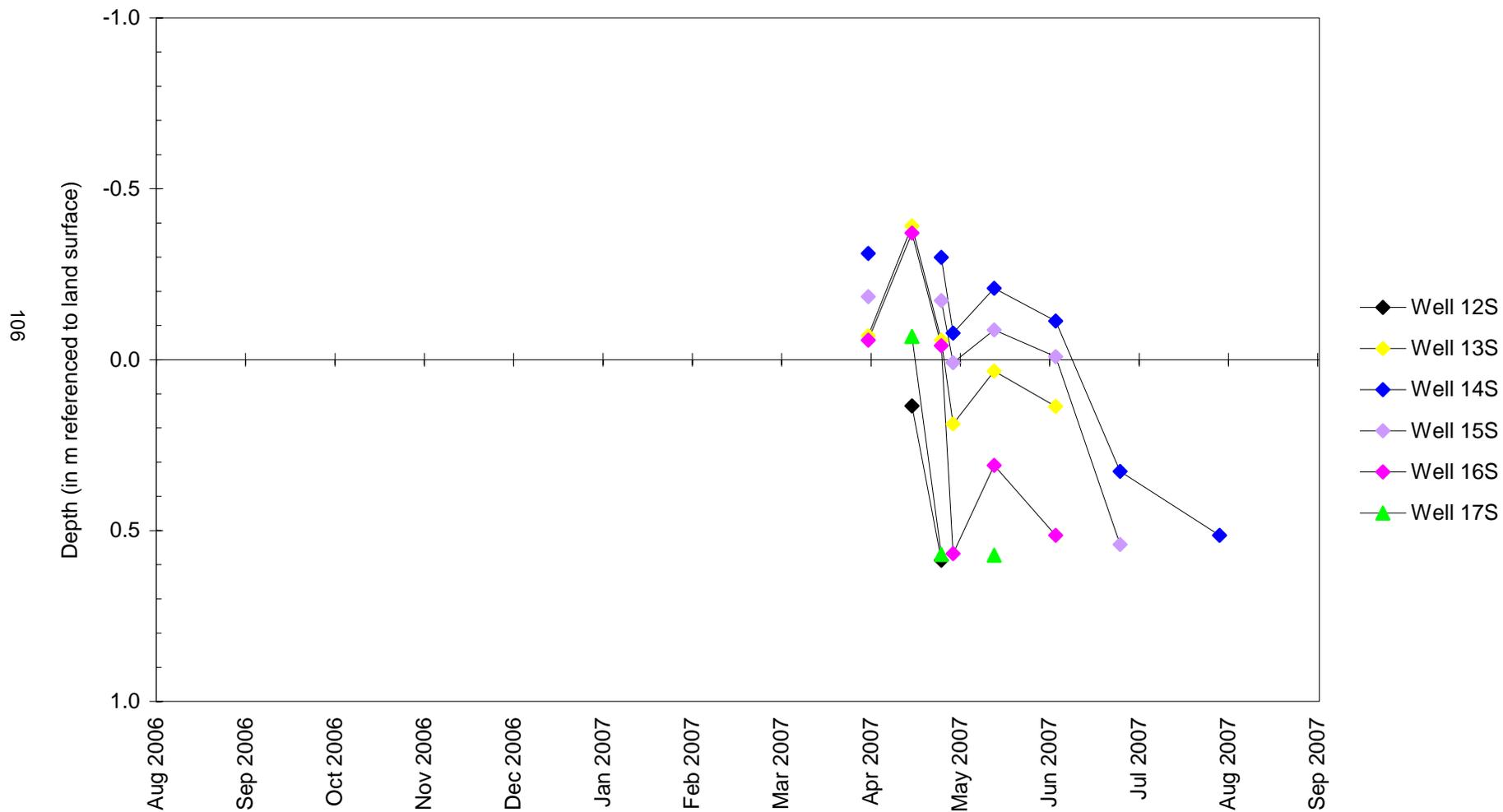






# Former Tiernan Property, New River Crossing Potential Wetland Compensation Site September 1, 2006 to September 1, 2007

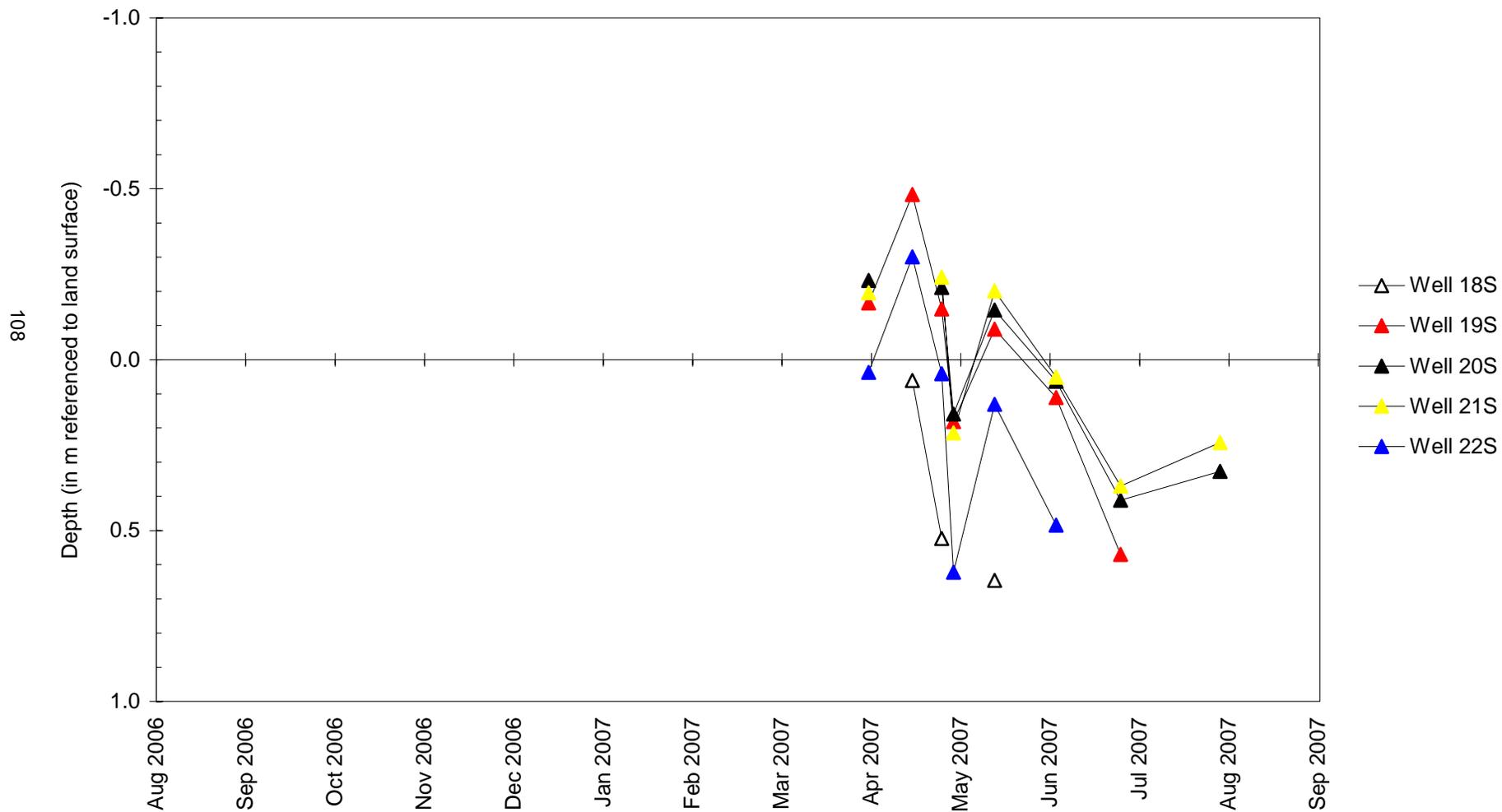
## Depth to Water





# Former Tiernan Property, New River Crossing Potential Wetland Compensation Site September 1, 2006 to September 1, 2007

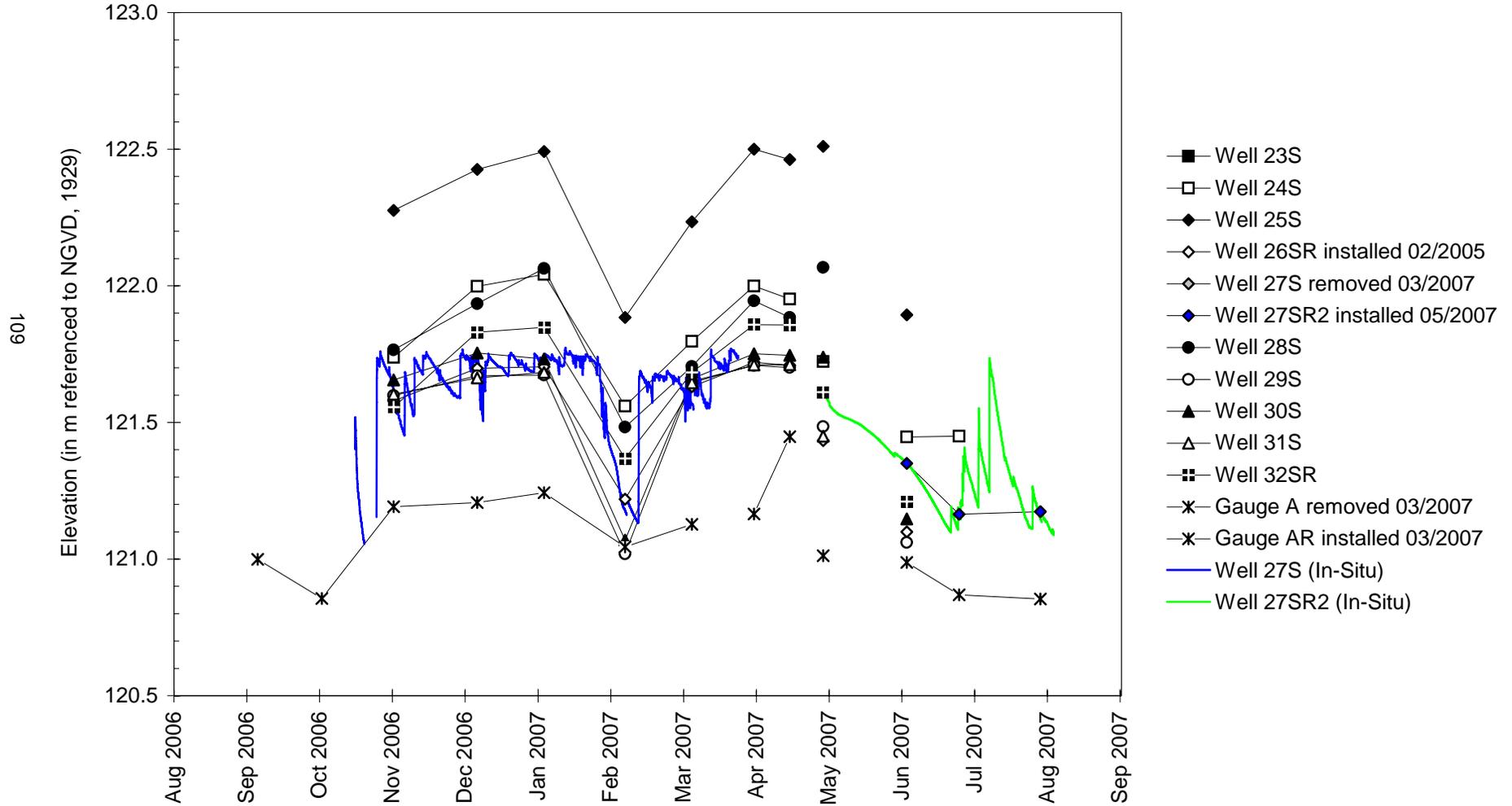
## Depth to Water



# Former Tiernan Property, New River Crossing Potential Wetland Compensation Site

## September 1, 2006 to September 1, 2007

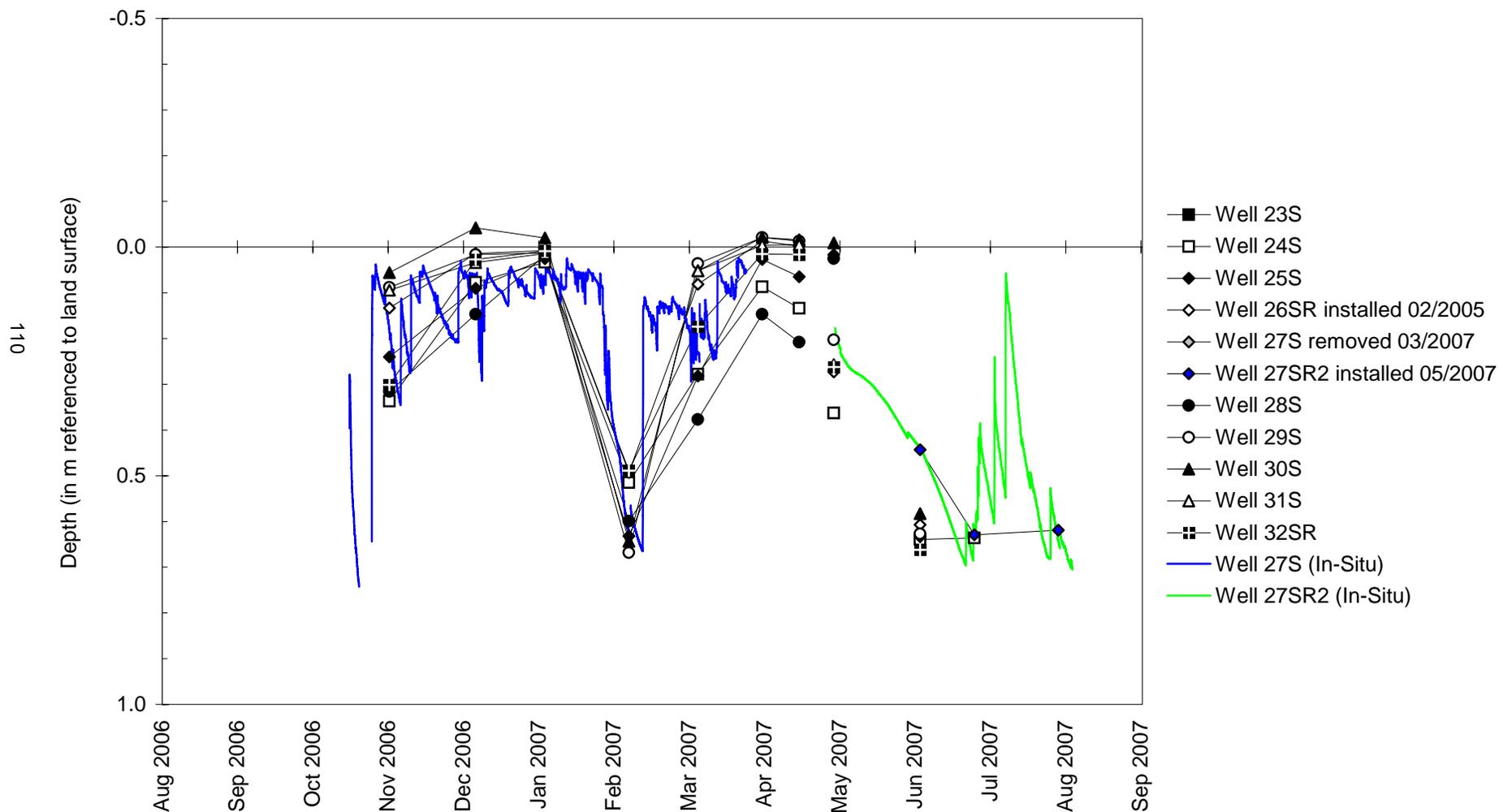
### Water-Level Elevations



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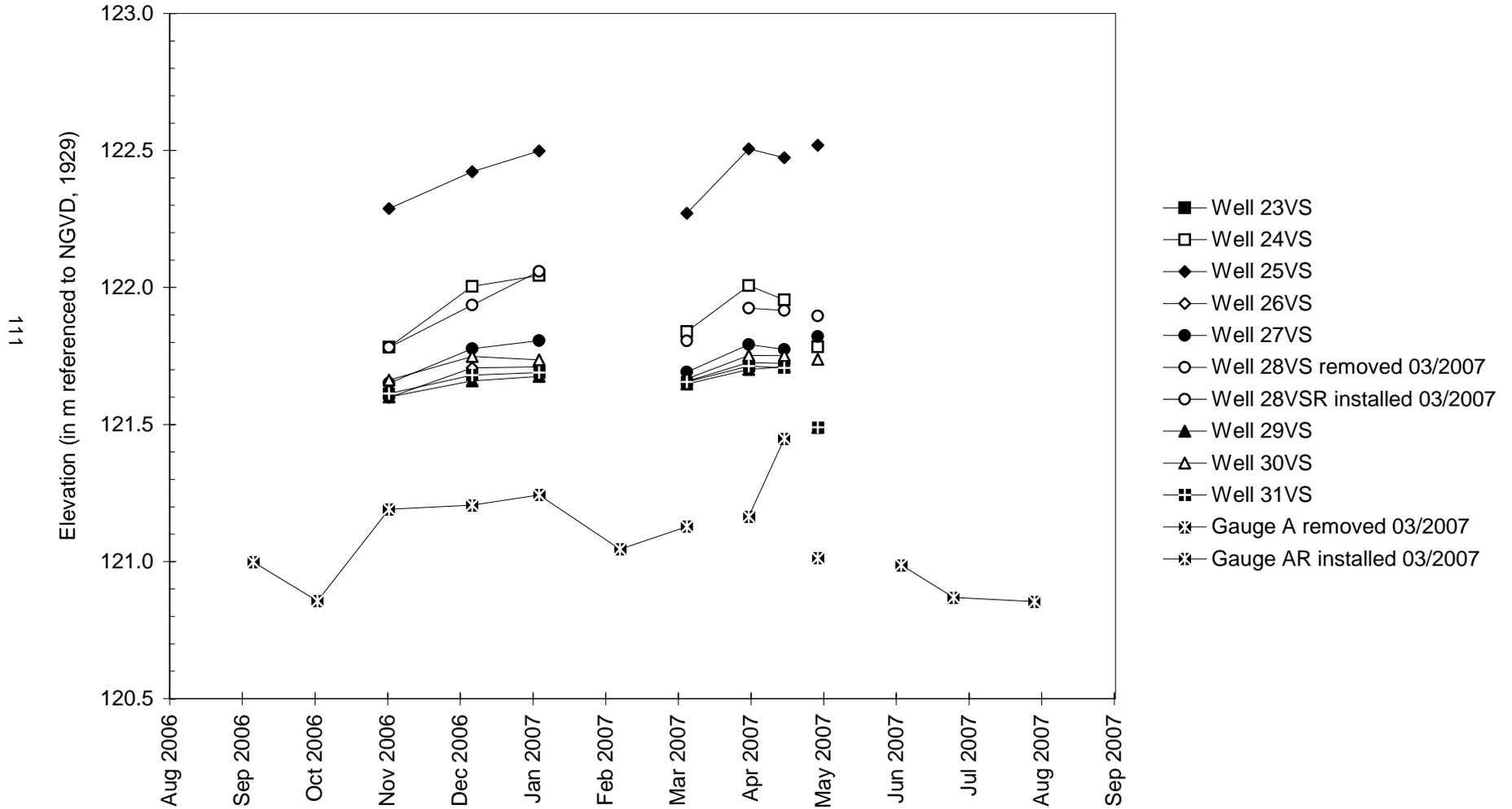
## September 1, 2006 to September 1, 2007

### Depth to Water



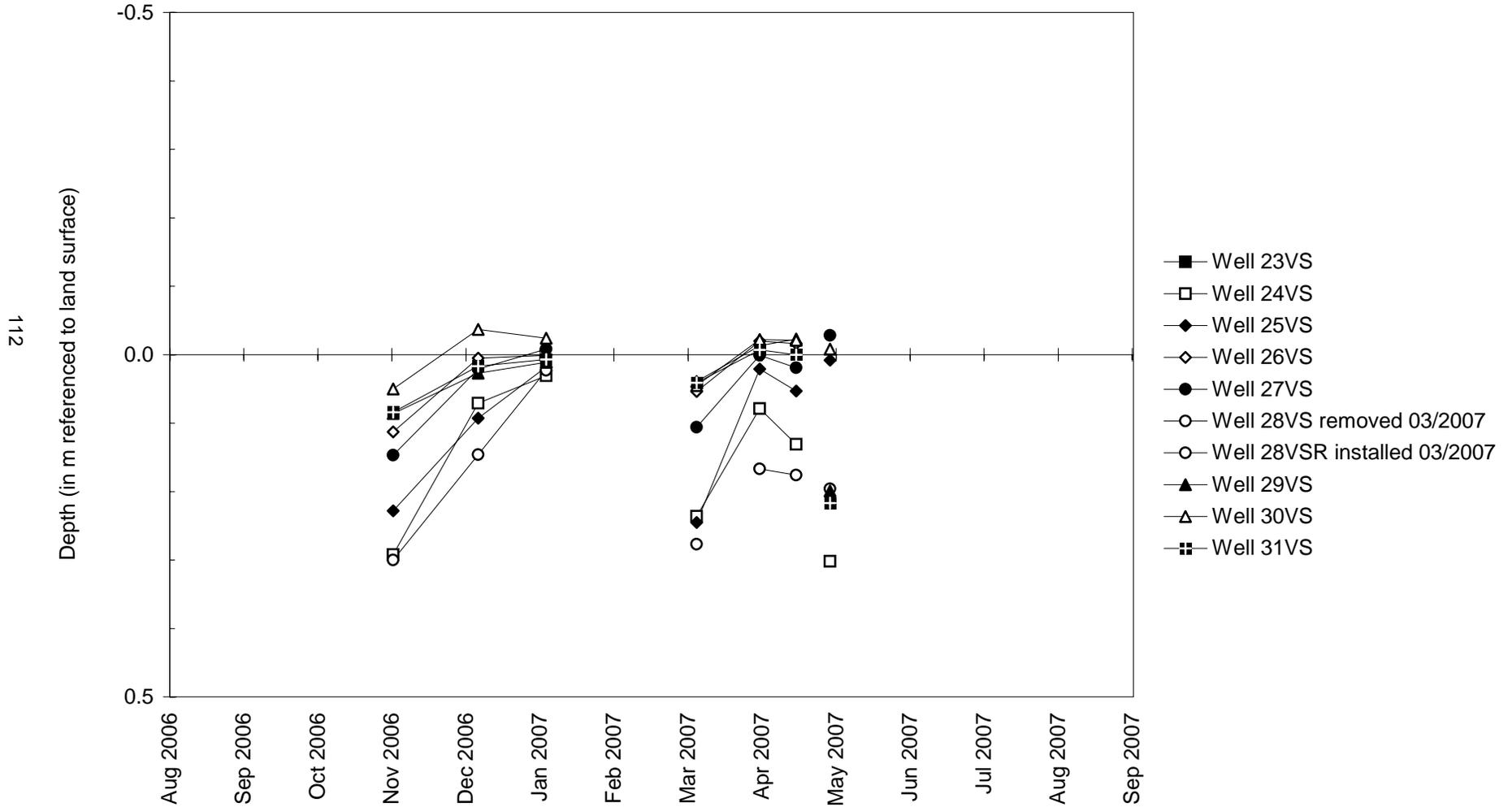
**Former Tiernan Property, New River Crossing Potential Wetland Compensation Site**  
**September 1, 2006 to September 1, 2007**

**Water-Level Elevations**



Former Tiernan Property, New River Crossing Potential Wetland Compensation Site  
September 1, 2006 to September 1, 2007

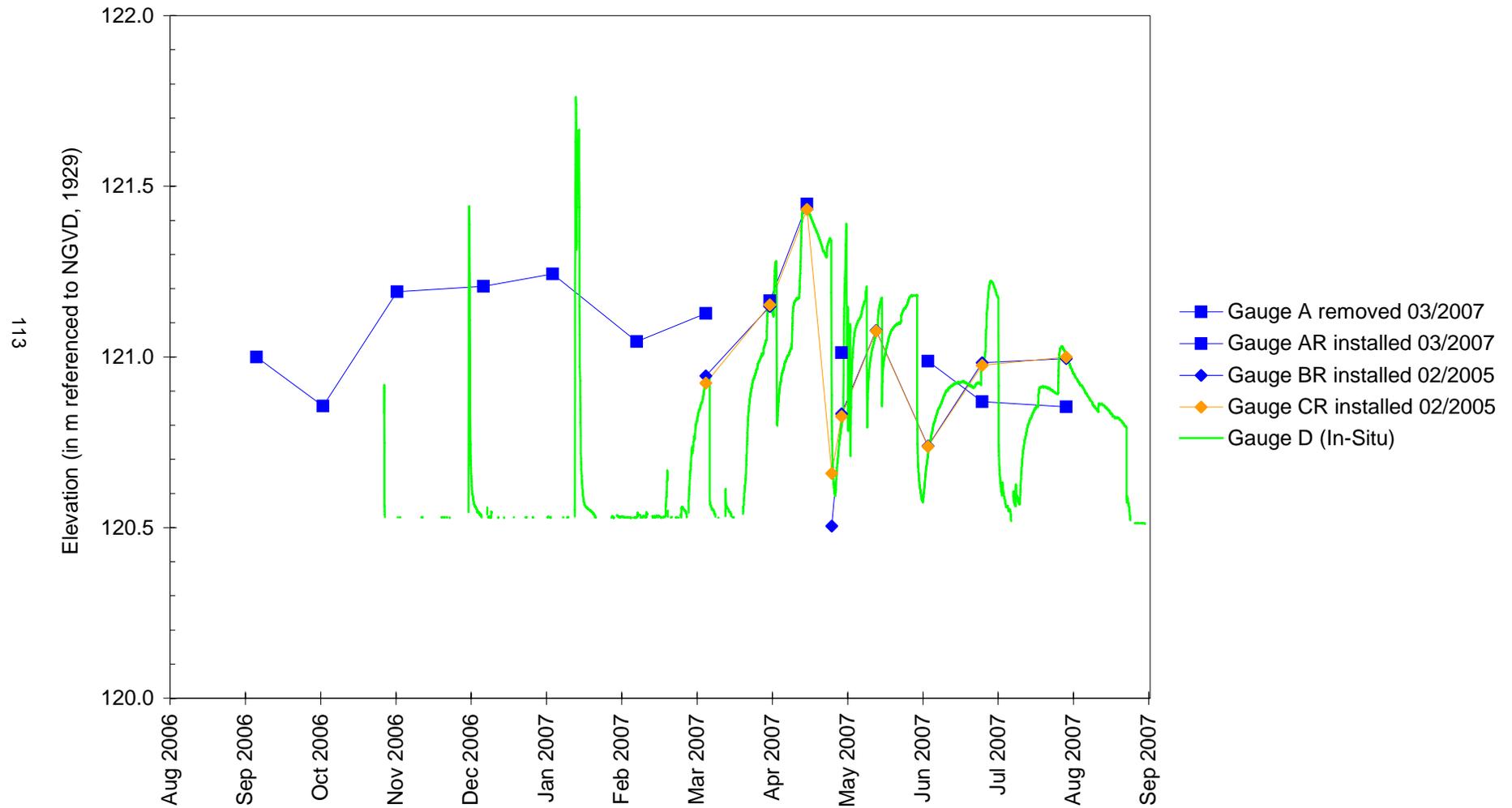
Depth to Water



# Former Tiernan Property, New River Crossing Potential Wetland Compensation Site

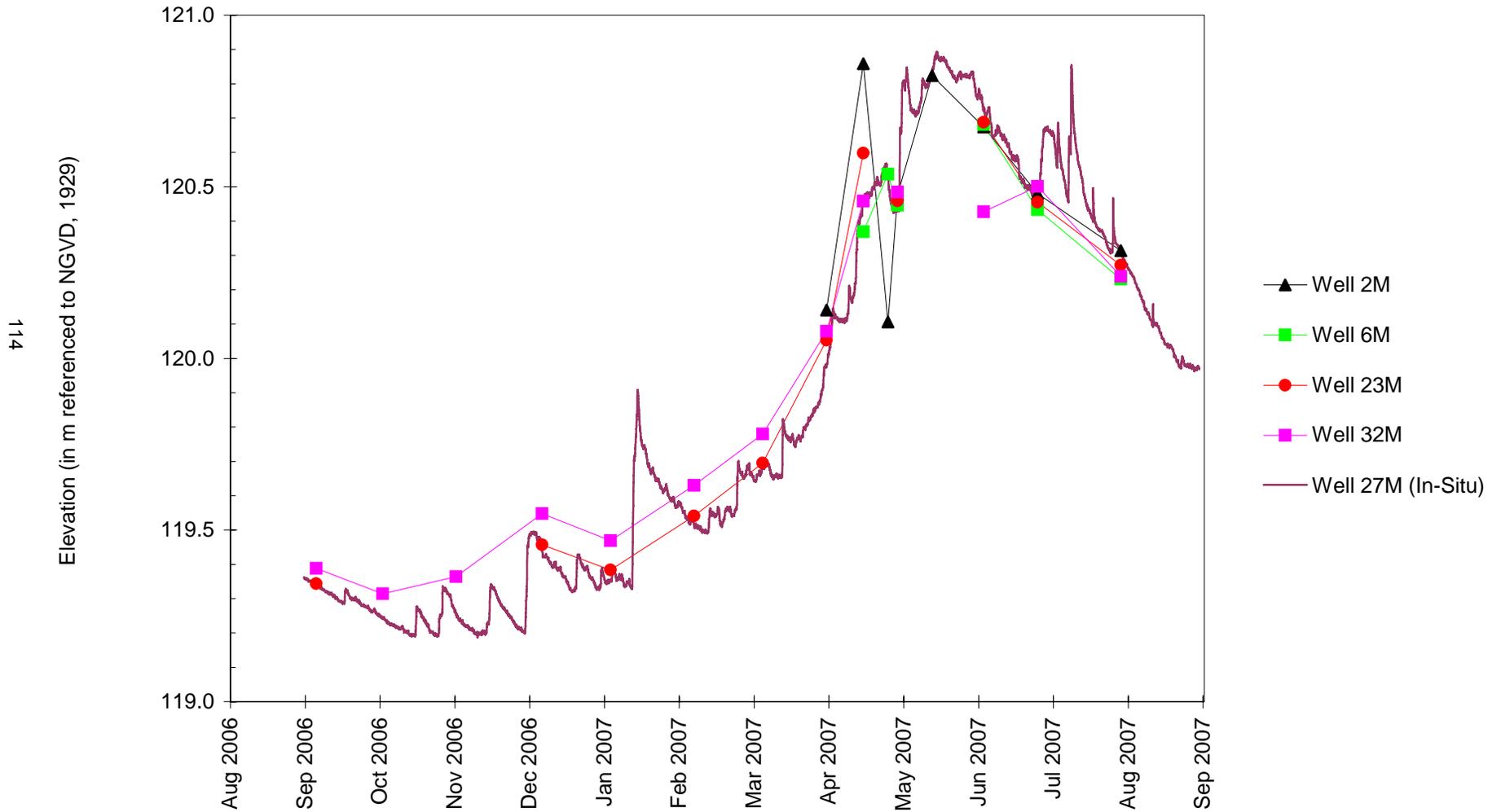
September 1, 2006 to September 1, 2007

## Water-Level Elevations



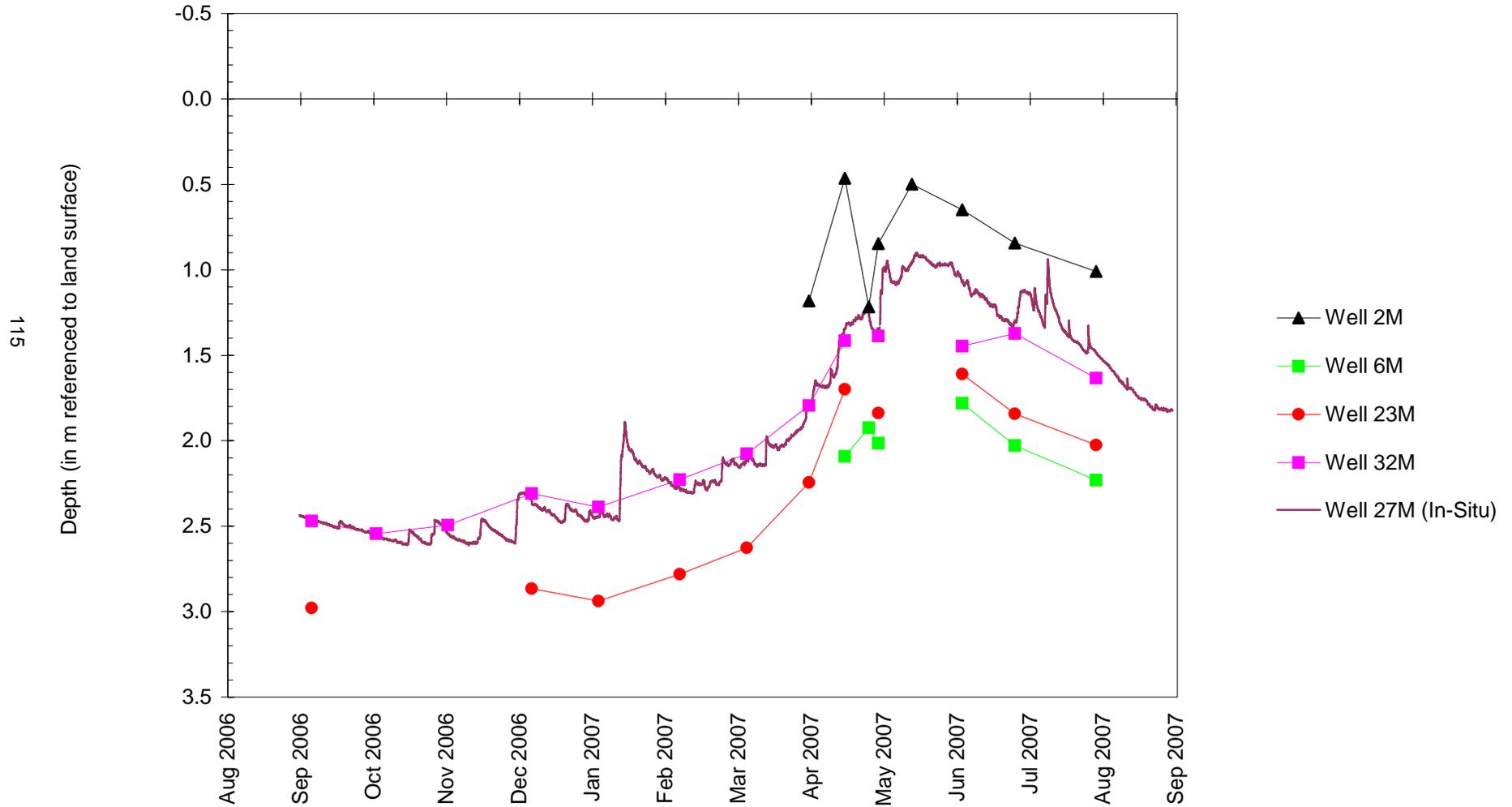
**Former Tiernan Property, New River Crossing Potential Wetland Compensation Site**  
**September 1, 2006 to September 1, 2007**

**Water-Level Elevations**



**Former Tiernan Property, New River Crossing Potential Wetland Compensation Site**  
September 1, 2006 to September 1, 2007

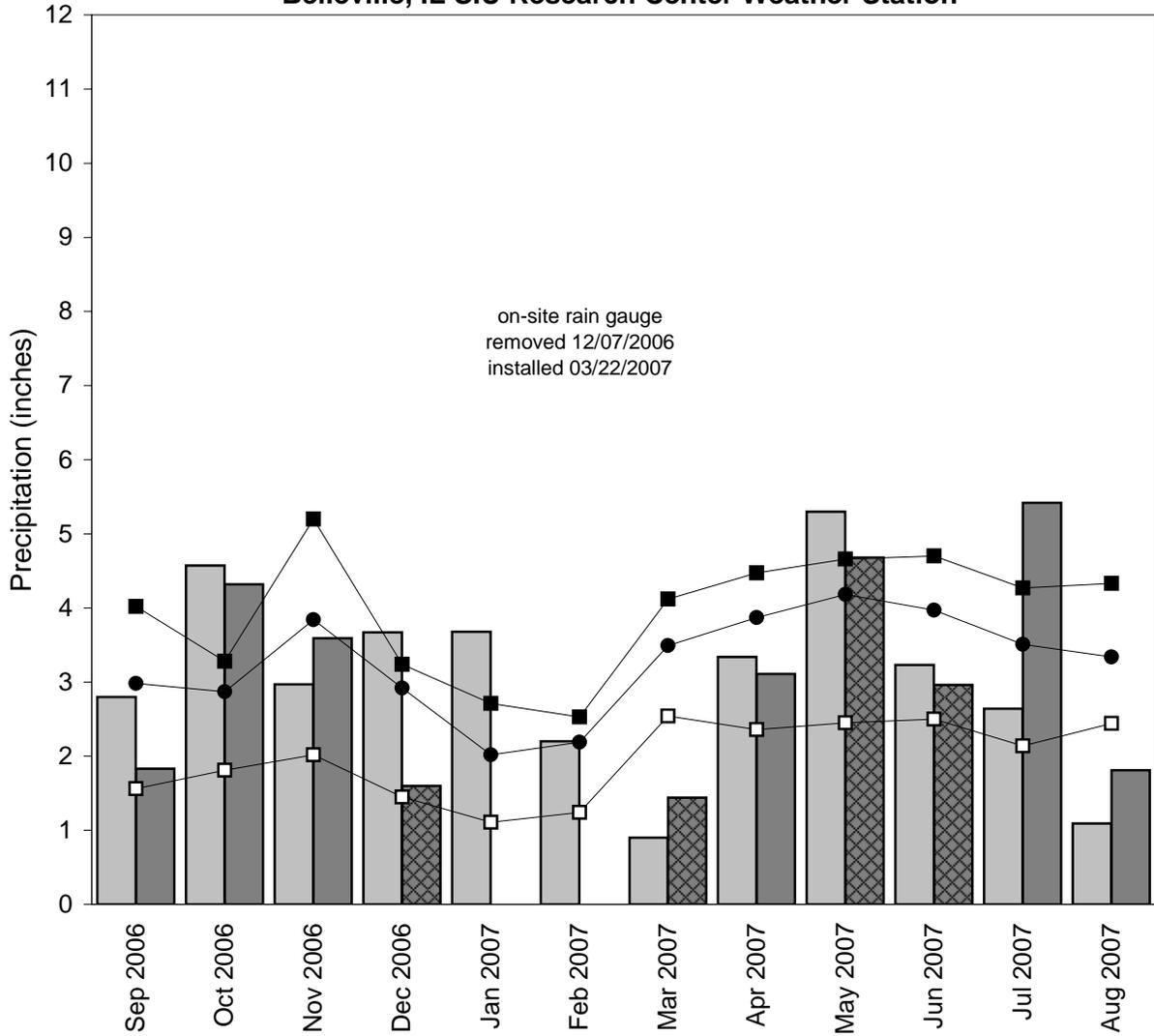
**Depth to Water**



**Former Tiernan Property, New River Crossing  
Potential Wetland Compensation Site**

**September 2006 through August 2007**

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



- monthly precipitation recorded at weather station (Midwestern Regional Climate Center)
- monthly precipitation recorded on site by ISGS
- 1971-2000 monthly 30% above average threshold (National Water and Climate Center)
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- 1971-2000 monthly 30% below average threshold (National Water and Climate Center)
- ▣ data incomplete

Graph last updated October 10, 2007