MILAN BELTWAY, GREEN ROCK **ISGS #44**
WETLAND COMPENSATION SITE
FAU 5822
Sequence #67
Henry County, near Green Rock, Illinois
Primary Project Manager: Steven E. Benton
Secondary Project Manager: Kathleen E. Bryant

SITE HISTORY

- December 2005: IDOT tasked the ISGS to conduct five-year performance monitoring of the Green Rock wetland mitigation site.

- March 2006: The monitoring network was installed on Phase I of the site.

- November 2007: The monitoring network was installed on Phase II of the site.

WETLAND HYDROLOGY CALCULATION FOR 2009

The site is divided into two portions, Phase I and Phase II. In 2009, 15.9 ha (39.4 ac) of Phase 1, out of a total area of 16.7 ha (41.3 ac), and 3.3 ha (8.2 ac) of Phase 2, out of a total area of 4.3 ha (10.7 ac), satisfied wetland hydrology criteria at both 5% and 12.5% of the growing season. Using new guidance proposed by the U. S. Army Corps of Engineers (2008), we estimate that 15.9 ha (39.4 ac) of Phase I and 3.3 ha (8.2 ac) of Phase II satisfied wetland hydrology criteria for 14 or more consecutive days during the growing season. These estimates are based on the following factors:

- According to the MRCC, the median date that the growing season begins at the Quad City International Airport in nearby Moline, Illinois, is April 13 and the season lasts 196 days; 5% of the growing season is 10 days and 12.5% of the growing season is 25 days. According to methods outlined in the Midwest Regional Supplement (U. S. Army Corps of Engineers 2008), we estimate that March 18 was the starting date of the 2009 growing season based on soil temperatures measured at the compensation site.

- Total precipitation during the monitoring period was 153% of normal. Precipitation was at or above normal in September and December 2008, from February through April 2009, and from June through August 2009. Total precipitation in the spring (April through June) was 109% of normal.

- In 2009, water levels measured in all of the monitoring wells, except well 15S, satisfied the criteria for jurisdictional wetland hydrology for greater than 5% of the growing season, for 14 or more consecutive days, and for greater than 12.5% of the growing season.

- The site was flooded ten times during the monitoring period. One occurred near the end of the 2008 growing season and four occurred during the non-growing season portion of the period. One of these flood events, on or about 2/7/09, initiated a period of continuous inundation on the site that lasted from February to July. Subsequent flood events, on or about 2/26, 3/1, 3/11, 3/28, 5/3, 5/17, and 6/24, maintained inundation on the site.

ADDITIONAL INFORMATION

- The determination of the elevation at which the Green Rock site floods has been refined by a further analysis of Rock River stage data and on-site logger data. The analysis reveals that the site floods when the Rock River at Moline, Illinois, rises above a stage of about 2.86 m (9.38 ft), which is an elevation of about 170.90 m (560.72 ft).

- On-site observations reveal that surface water on the site tends to flow westward. Three surface-water outlets were seen that convey water to the Green River (marked by arrows on the attached wetland hydrology map). After water has stopped flowing through the lowest outlet, about 20 cm (8 in.) to 30 cm (12 in.) of surface water remains on most of the site.

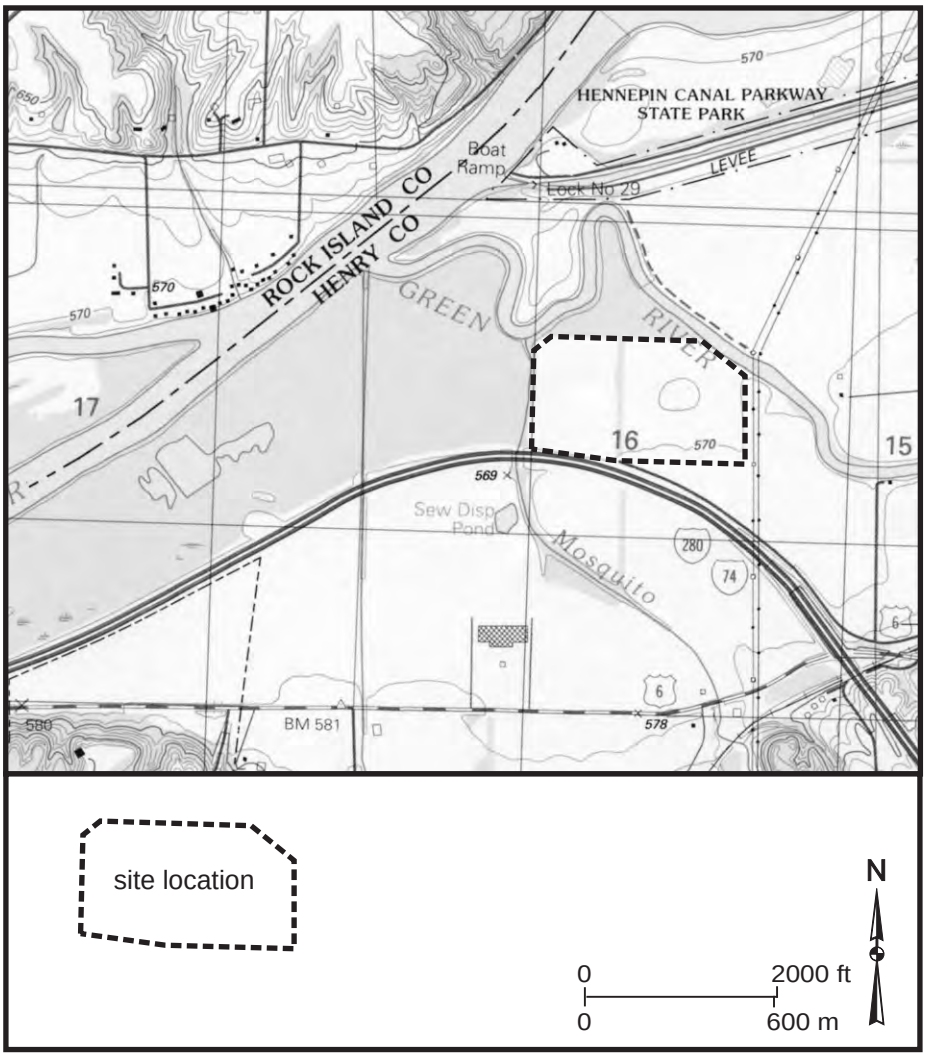
PLANNED FUTURE ACTIVITIES

- Monitoring of the site will continue until notified otherwise by IDOT.

Milan Beltway, Green Rock Wetland Compensation Site (FAU 5822)

General Study Area and Vicinity

from the USGS Topographic Series, Coal Valley, IL (W) (USGS 1991) and
Green Rock, IL (E) (USGS 1992) 7.5-minute Quadrangles
contour interval is 10 feet



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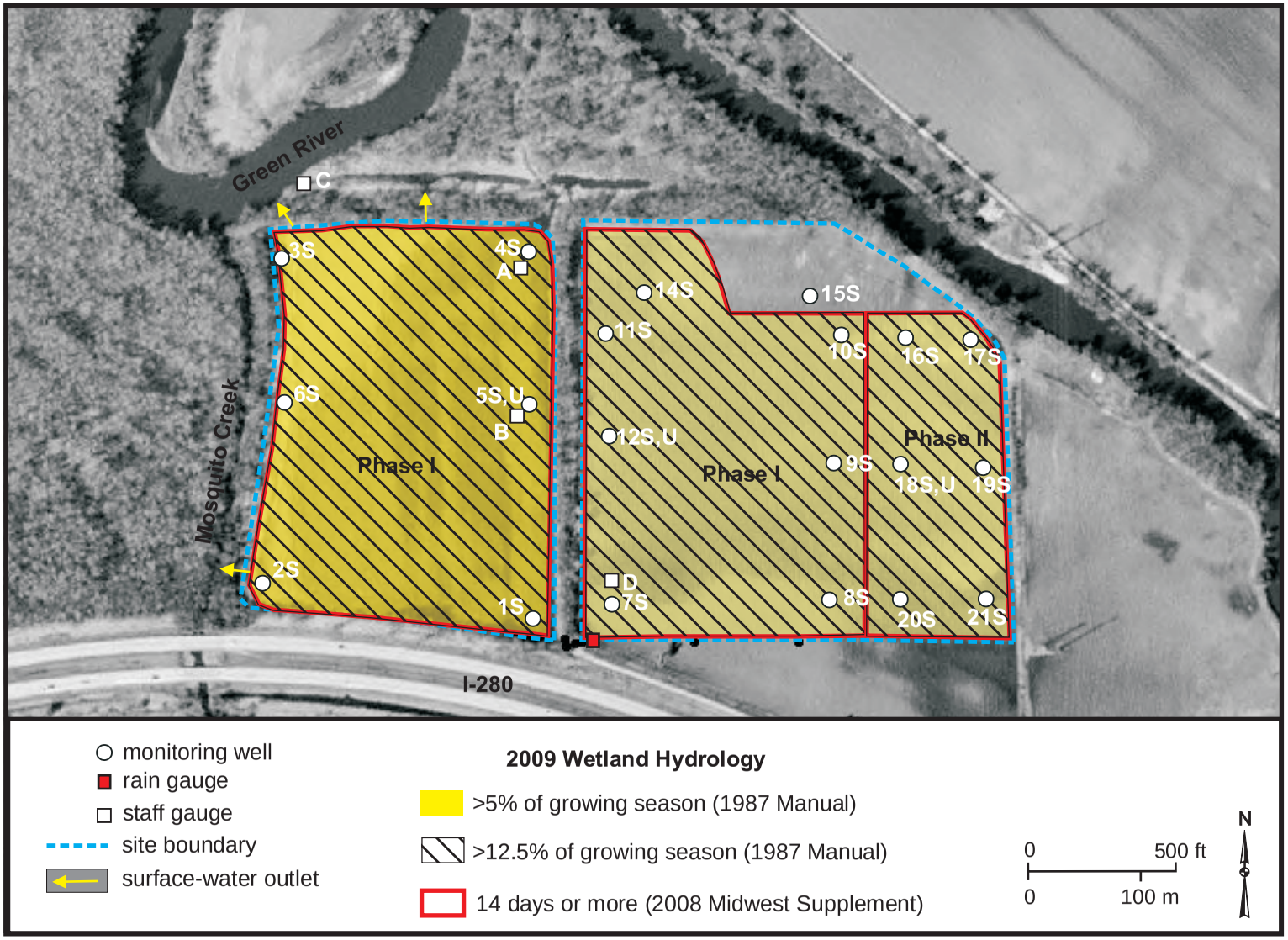
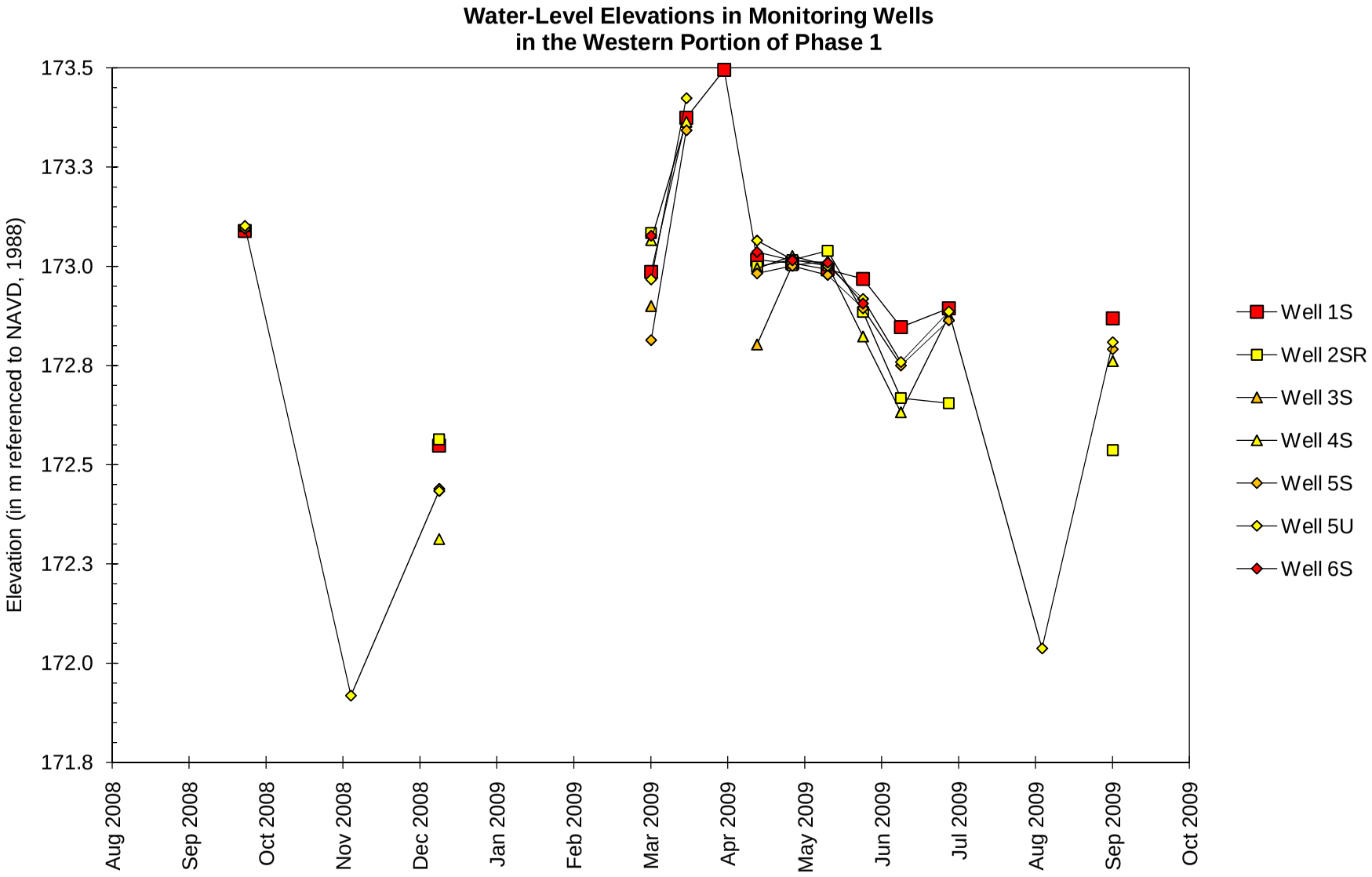
Estimated Areal Extent of 2009 Wetland Hydrology

September 1, 2008 through August 31, 2009

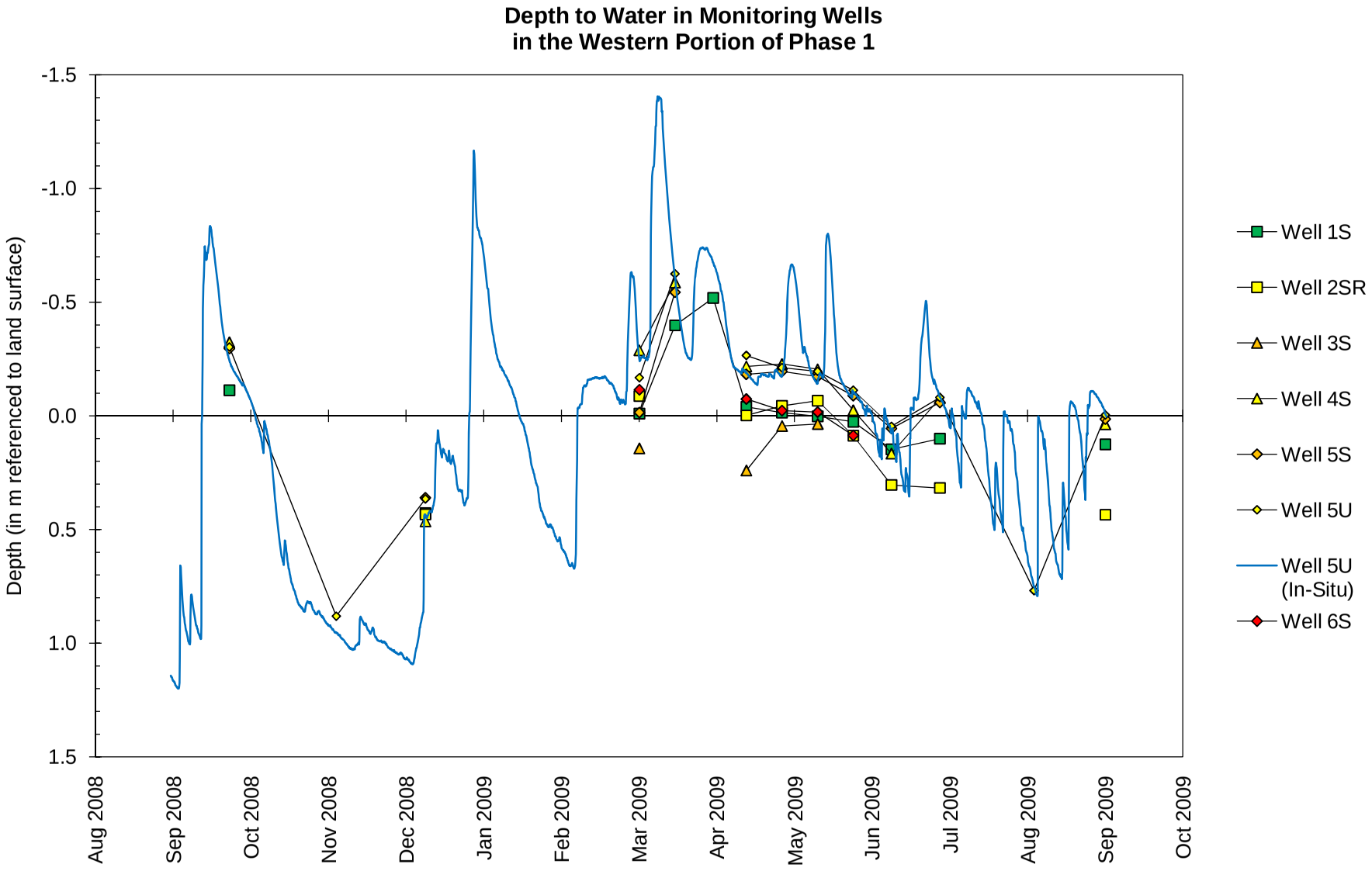
Map based on USGS digital orthophotograph, Coal Valley NE quarter quadrangle
produced from 4/14/98 aerial photography (ISGS 2006)



Milan Beltway, Green Rock Wetland Compensation Site
September 1, 2008 through August 31, 2009

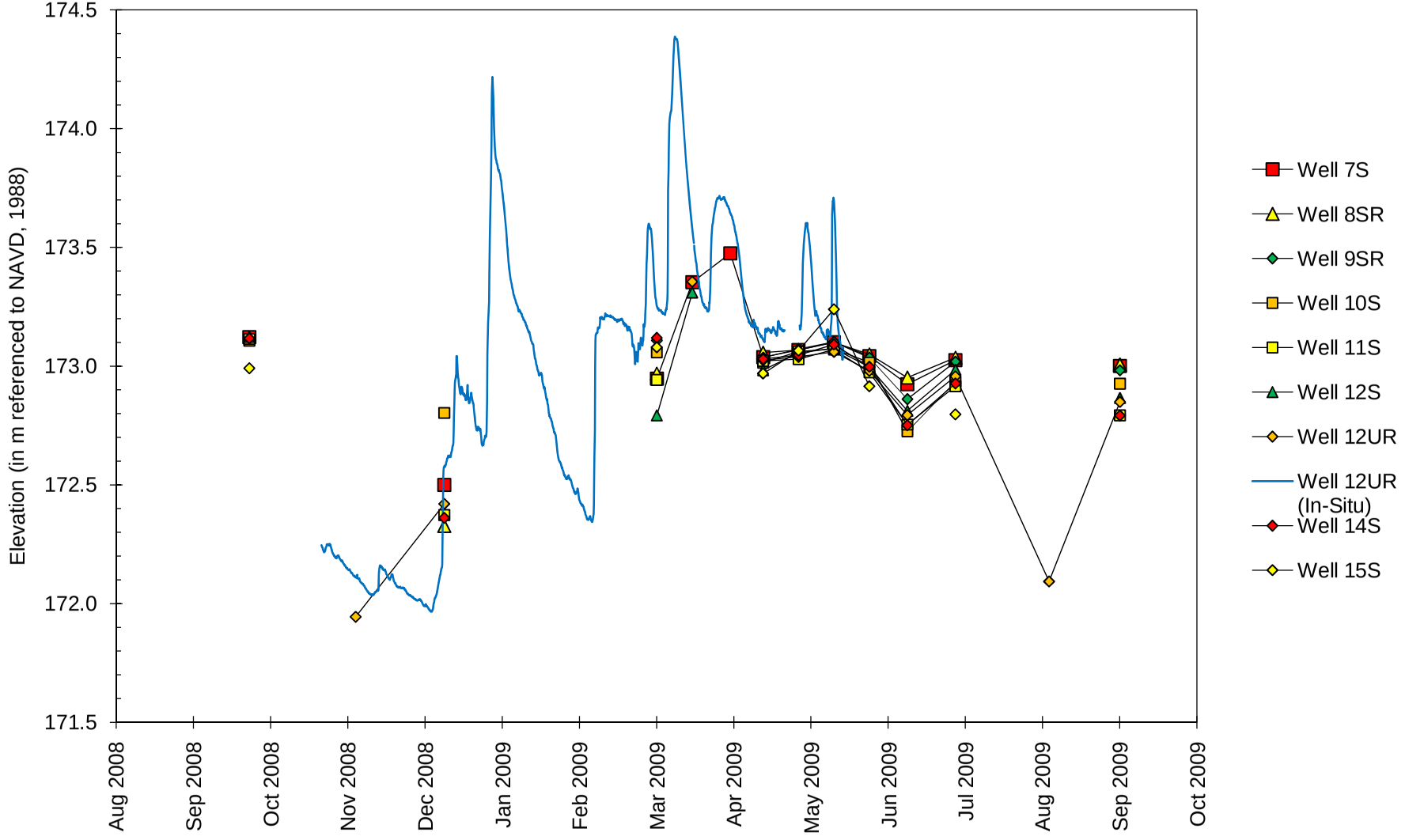


Milan Beltway, Green Rock Wetland Compensation Site
September 1, 2008 through August 31, 2009

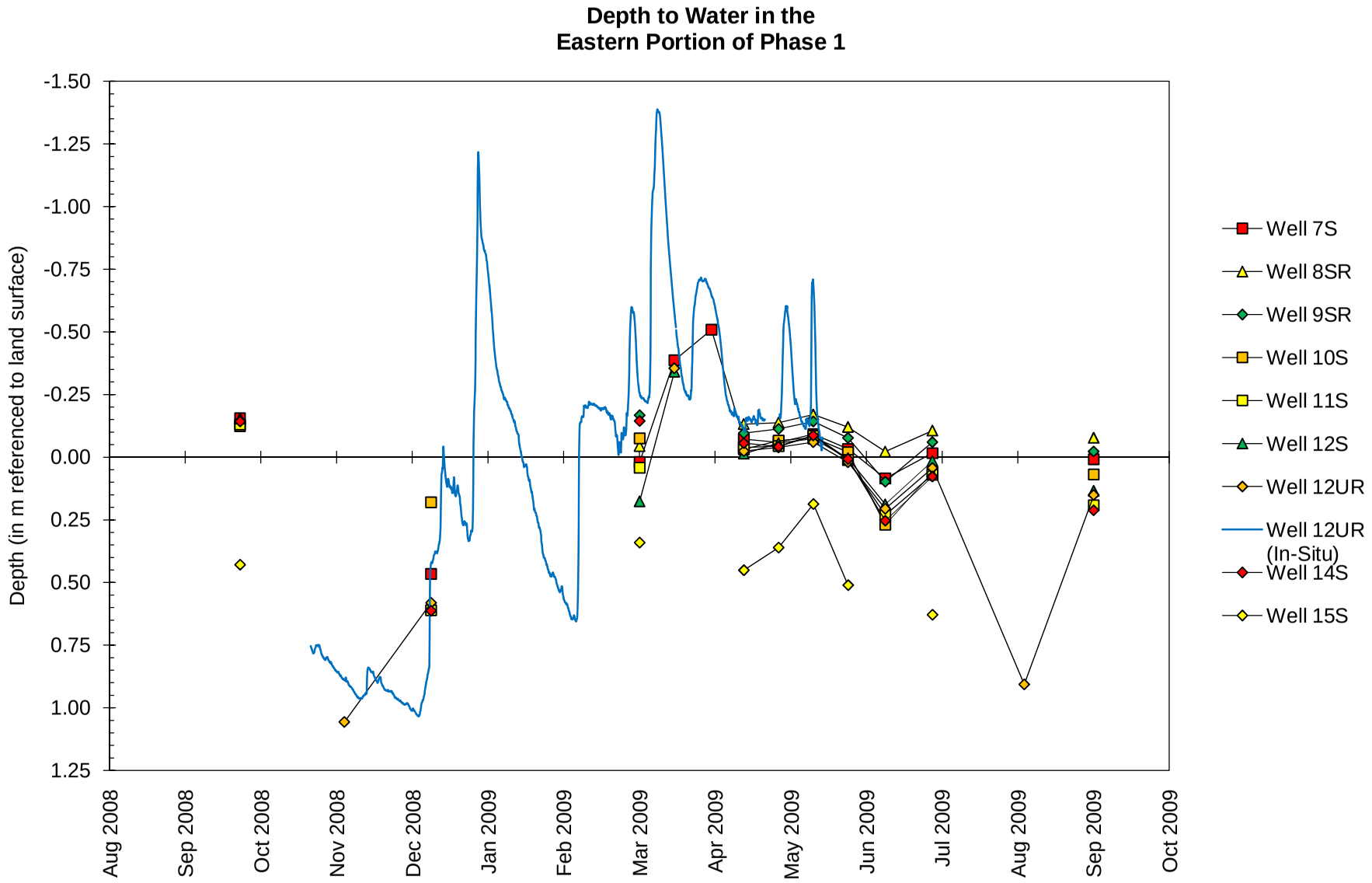


Milan Beltway, Green Rock Wetland Compensation Site
September 1, 2008 through August 31, 2009

Water-Level Elevations in the Eastern Portion of Phase 1

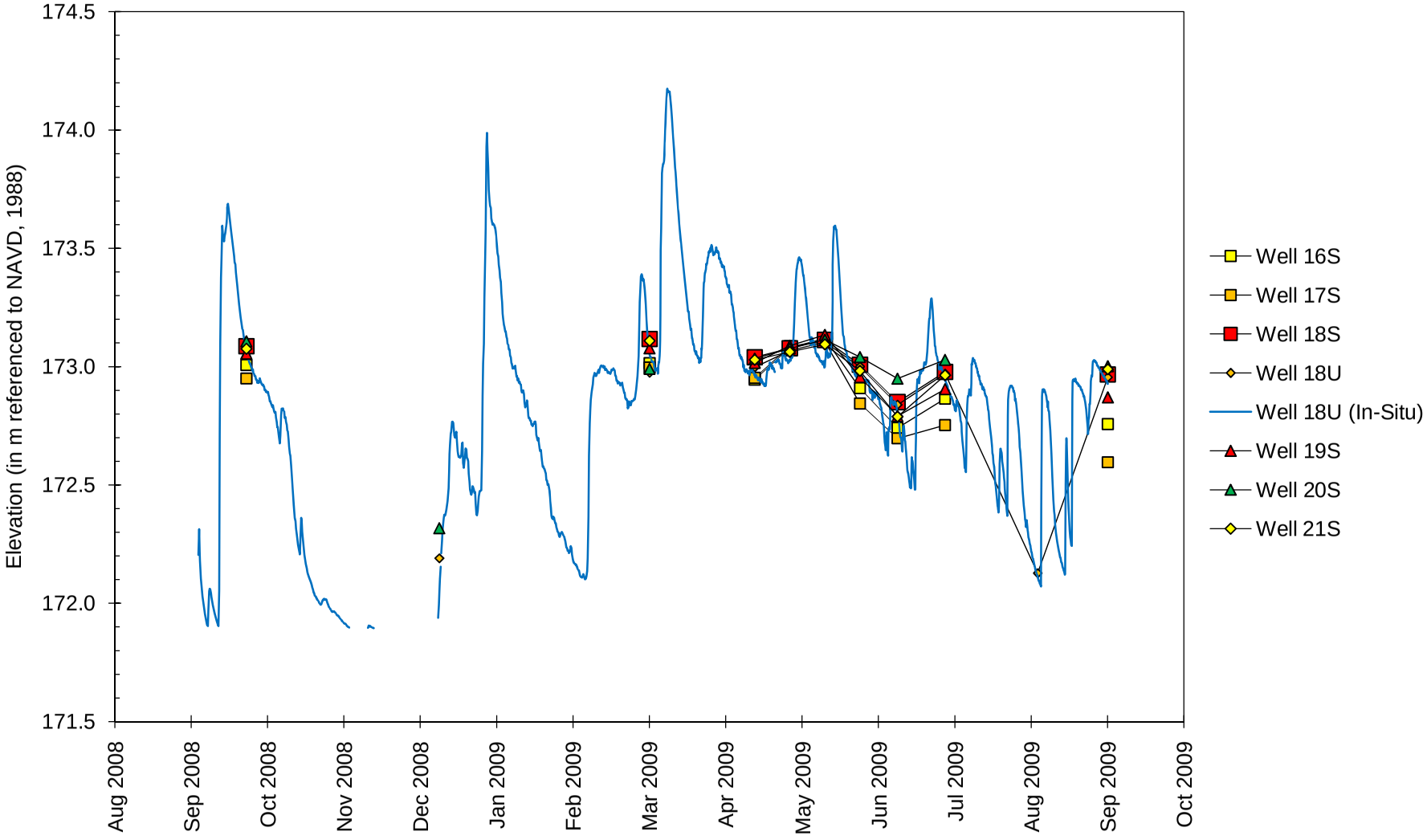


Milan Beltway, Green Rock Wetland Compensation Site
September 1, 2008 through August 31, 2009



Milan Beltway, Green Rock Wetland Compensation Site
September 1, 2008 through August 31, 2009

Water-Level Elevations in Monitoring Wells in Phase 2



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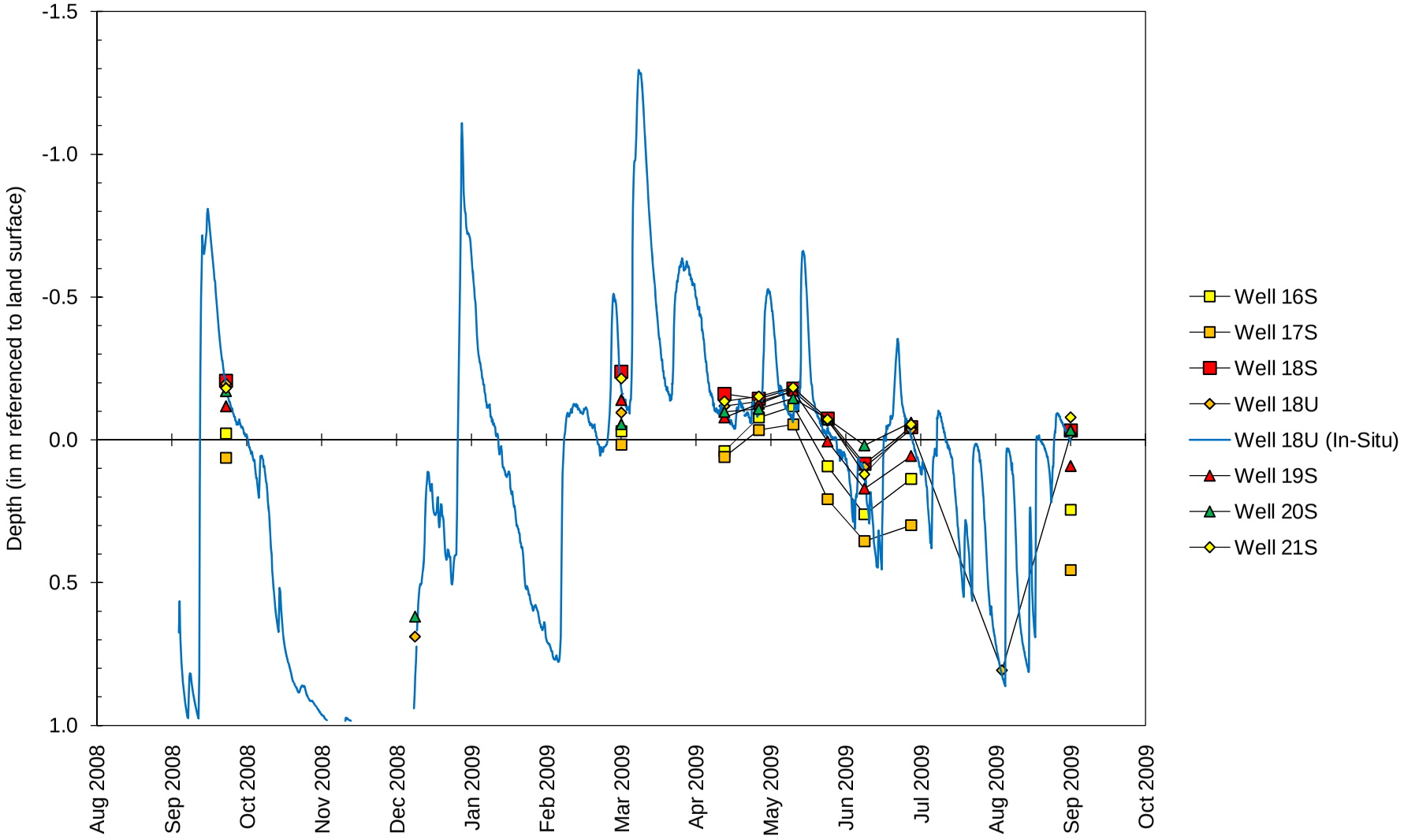
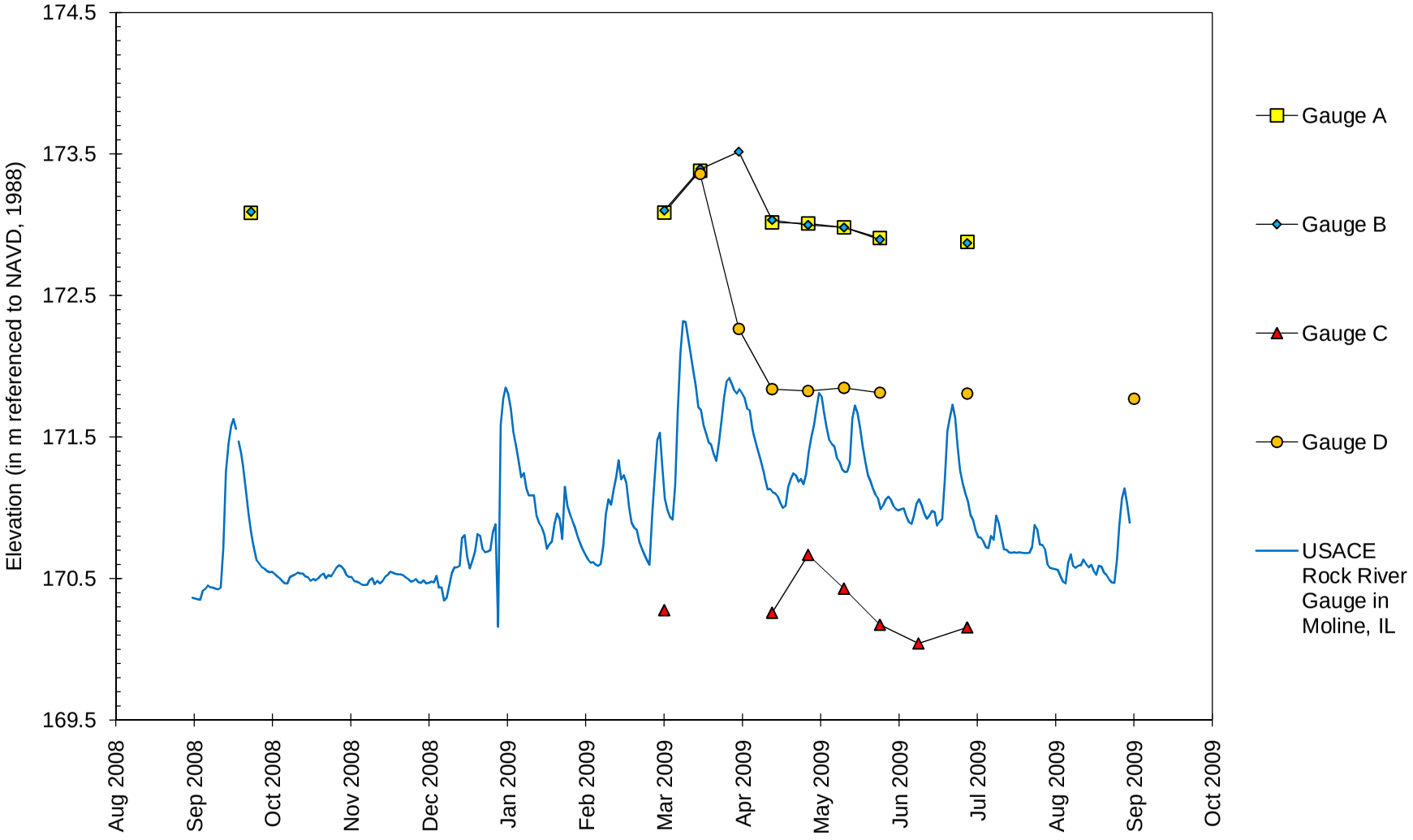
September 1, 2008 through August 31, 2009

Depth to Water in Monitoring Wells in Phase 2



Milan Beltway, Green Rock Wetland Compensation Site
September 1, 2008 through August 31, 2009

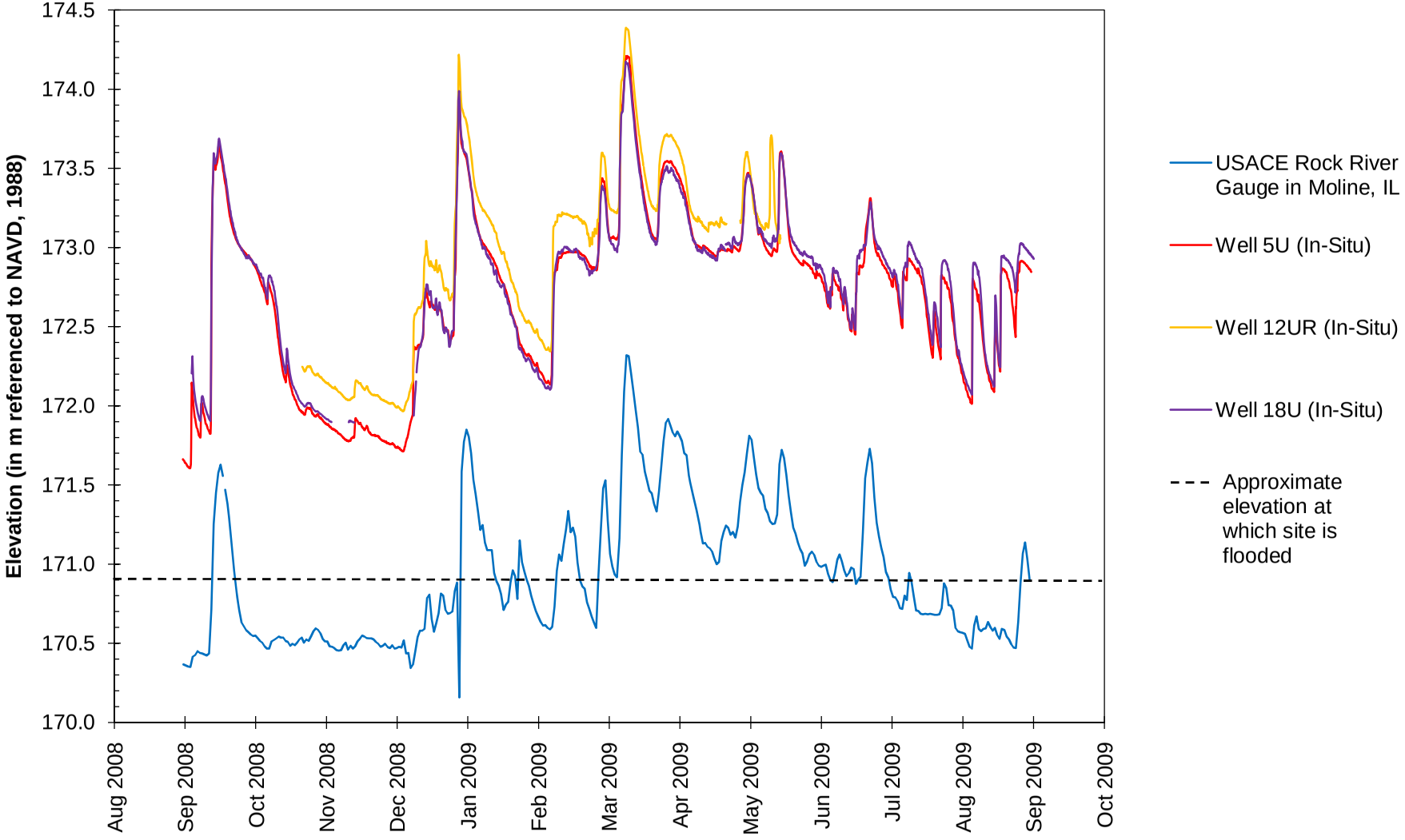
Water-Level Elevations on Stage Gauges at the Site and in the Rock River



Milan Beltway, Green Rock Wetland Compensation Site

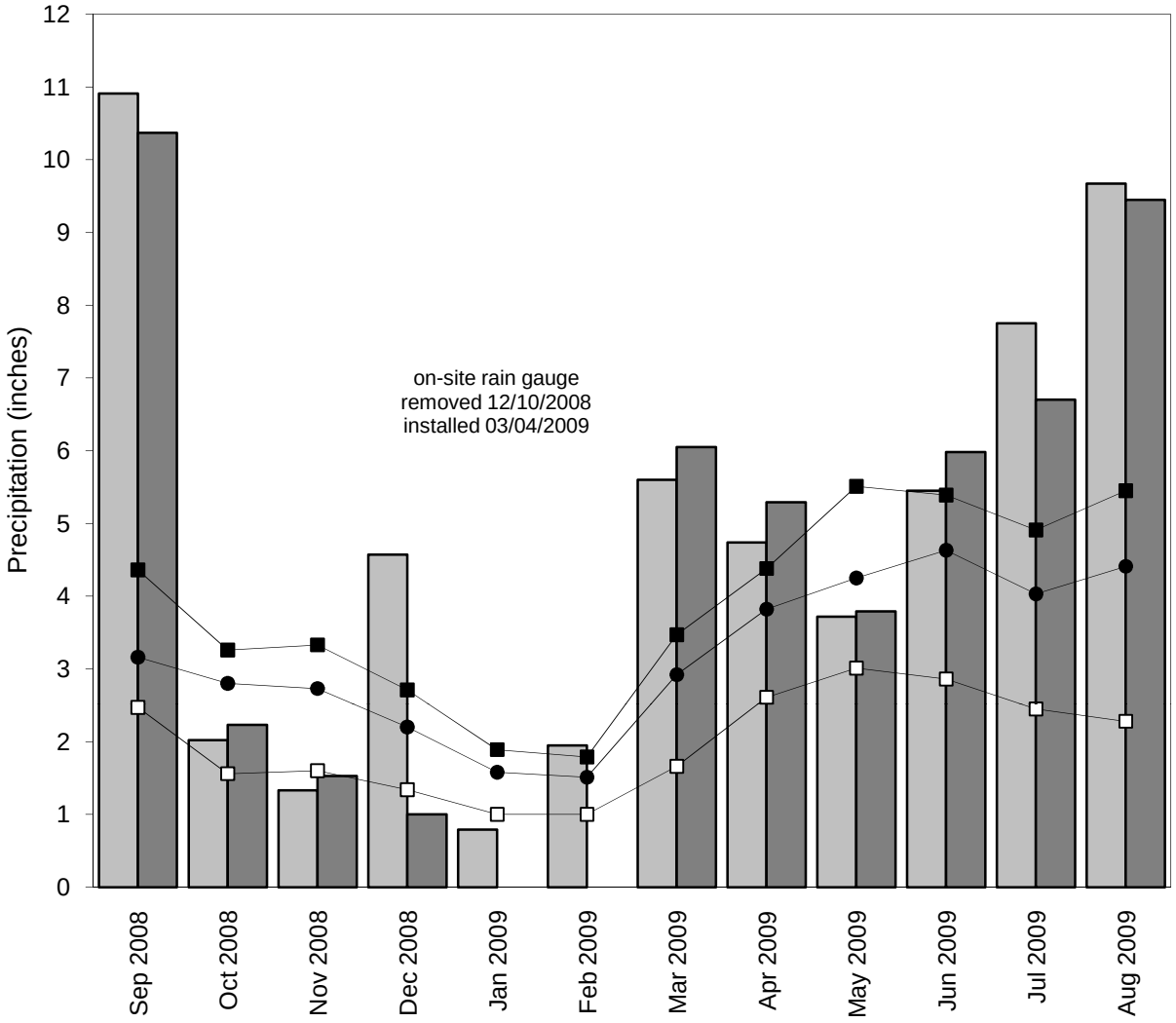
September 1, 2008 through August 31, 2009

Water-Level Elevations in Monitoring Wells at the Site and at the USACE Rock River Gauge in Moline, Illinois



Milan Beltway, Green Rock Wetland Compensation Site
September 2008 through August 2009

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



monthly precipitation recorded at weather station (Midwestern Regional Climate Center)

monthly precipitation recorded on site by ISGS

data incomplete

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)

Graph last updated Sept 14, 2009