

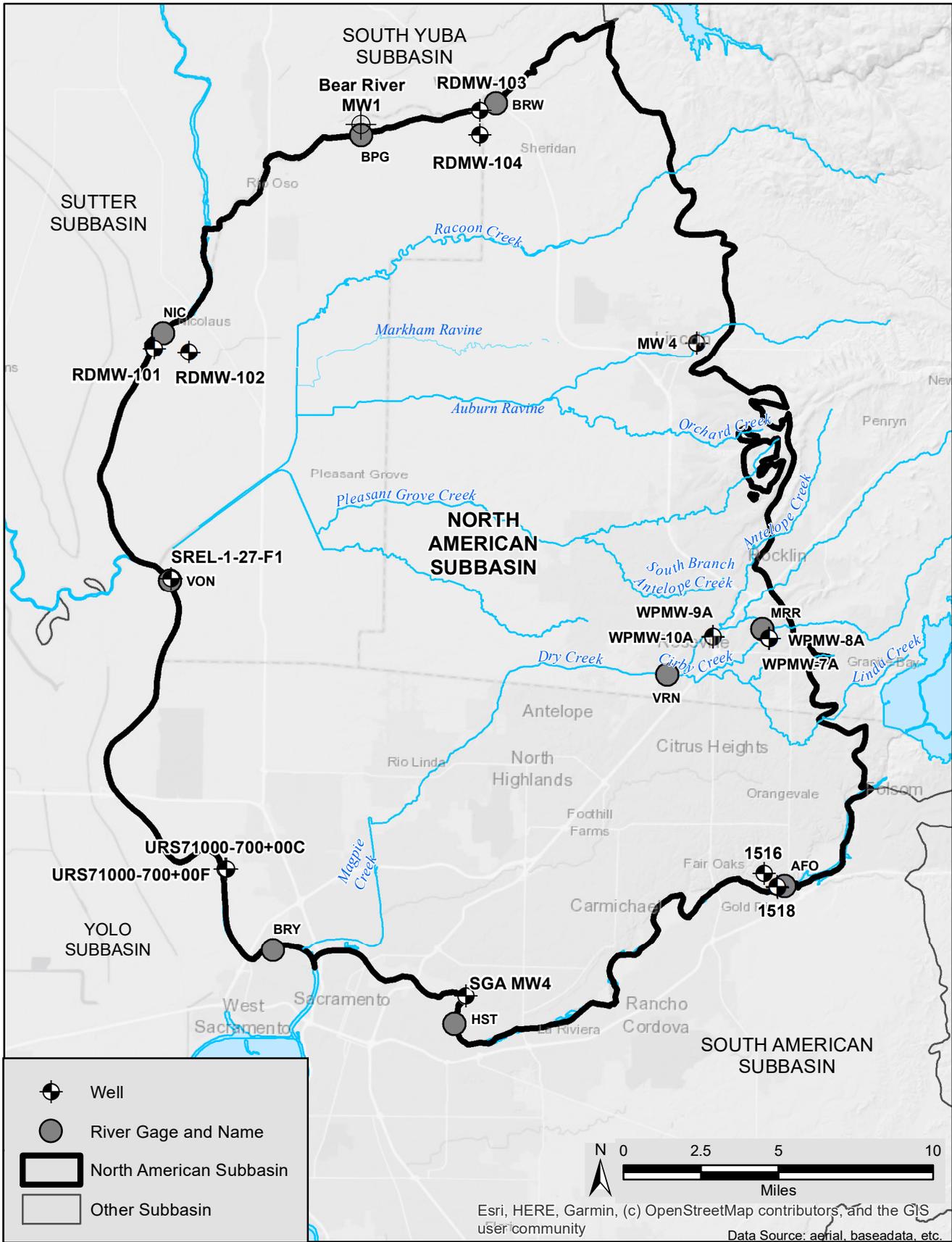
Appendix N: Surface Water Interactions

NORTH AMERICAN SUBBASIN GROUNDWATER SUSTAINABILITY PLAN

APPENDIX N Surface Water/Groundwater Interaction Hydrographs

December 2021

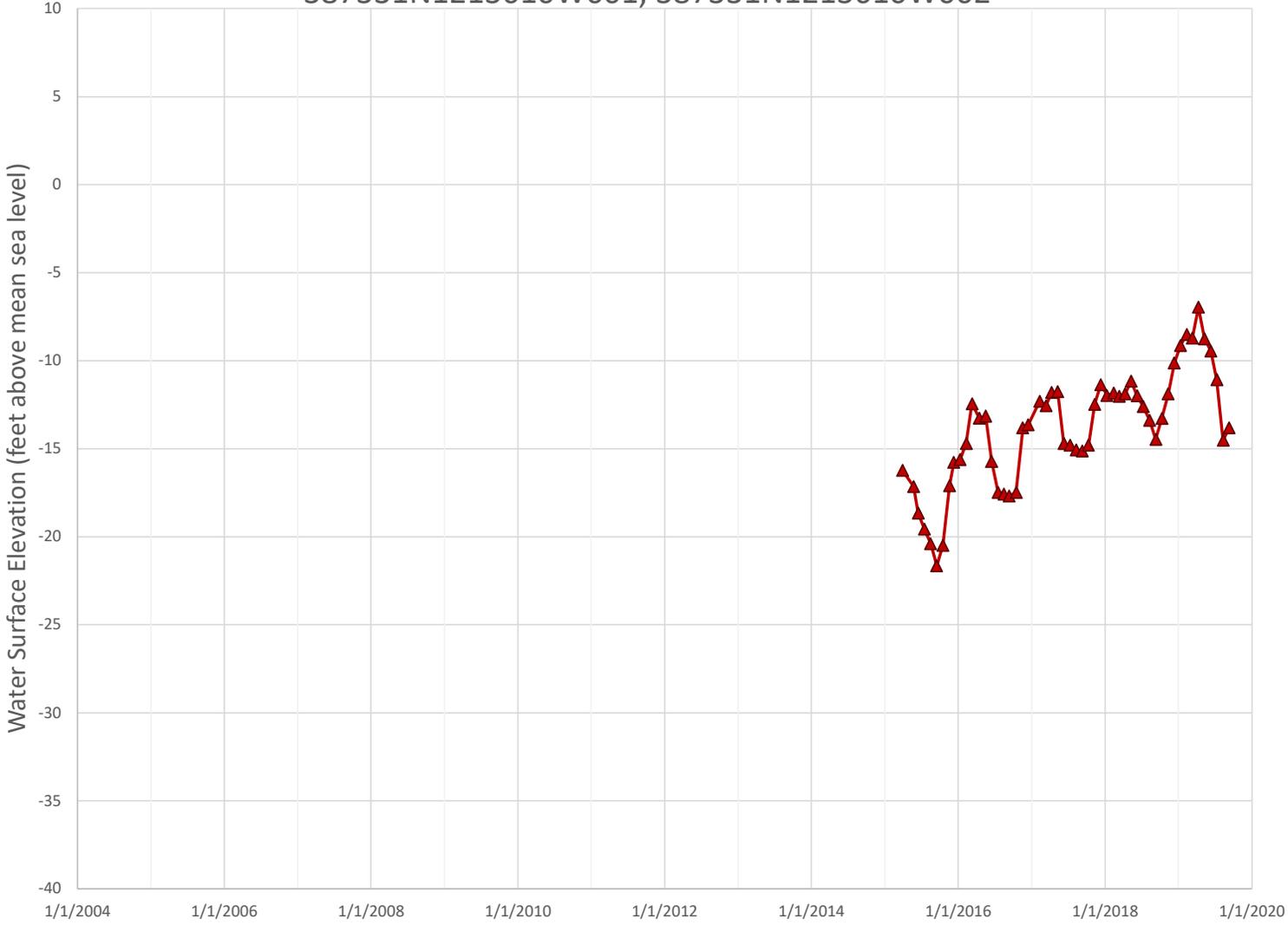
APPENDIX N
SURFACE WATER/GROUNDWATER
INTERACTION HYDROGRAPHS



Z:\Projects\1803104_GSP\NAmerican_Sub_SurfaceWater\GWMonitoringLocations.mxd PAE

North American Subbasin		<p style="text-align: center;">Surface Water/Groundwater Monitoring Locations</p>
North American Subbasin		

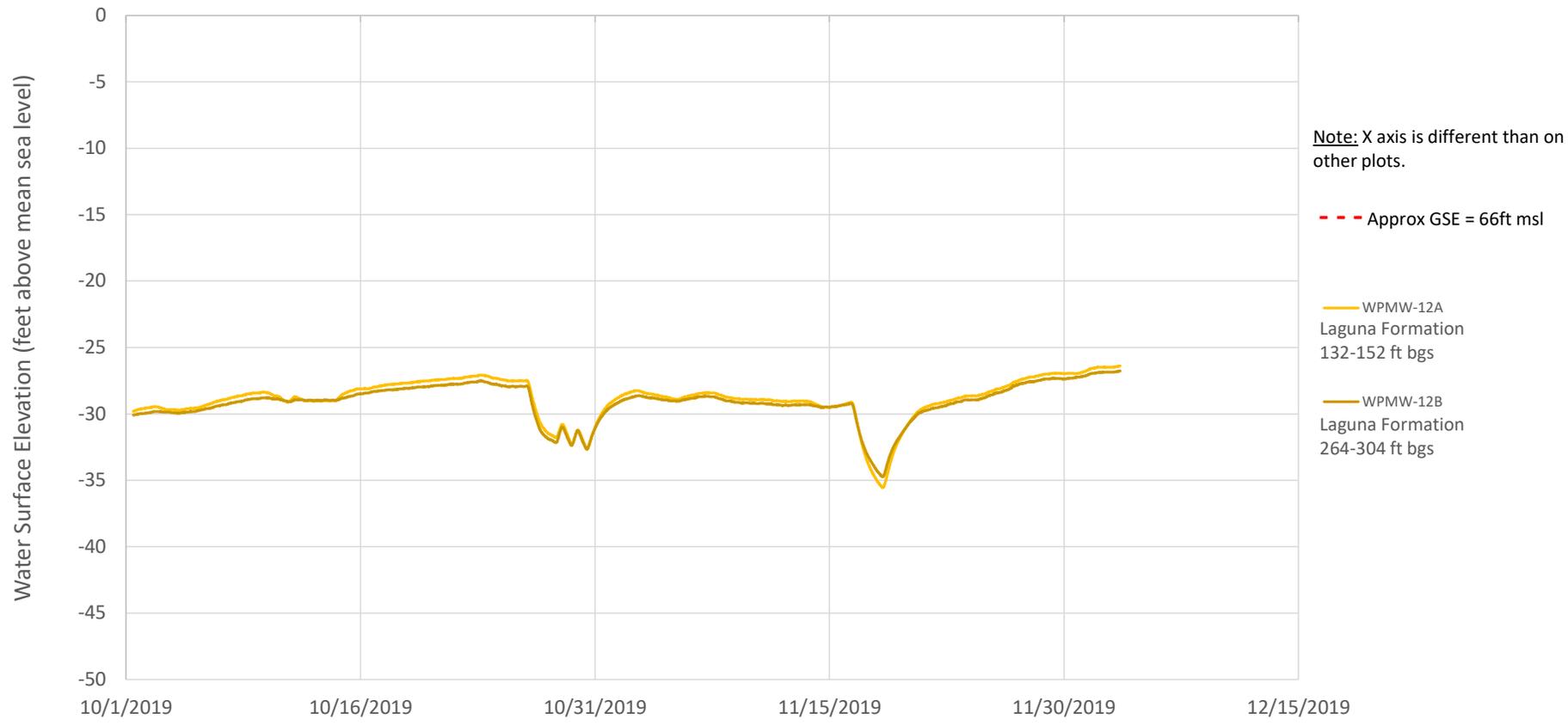
Local Well No. 41
WPMW-5 Nested Well
387331N1213610W001, 387331N1213610W002



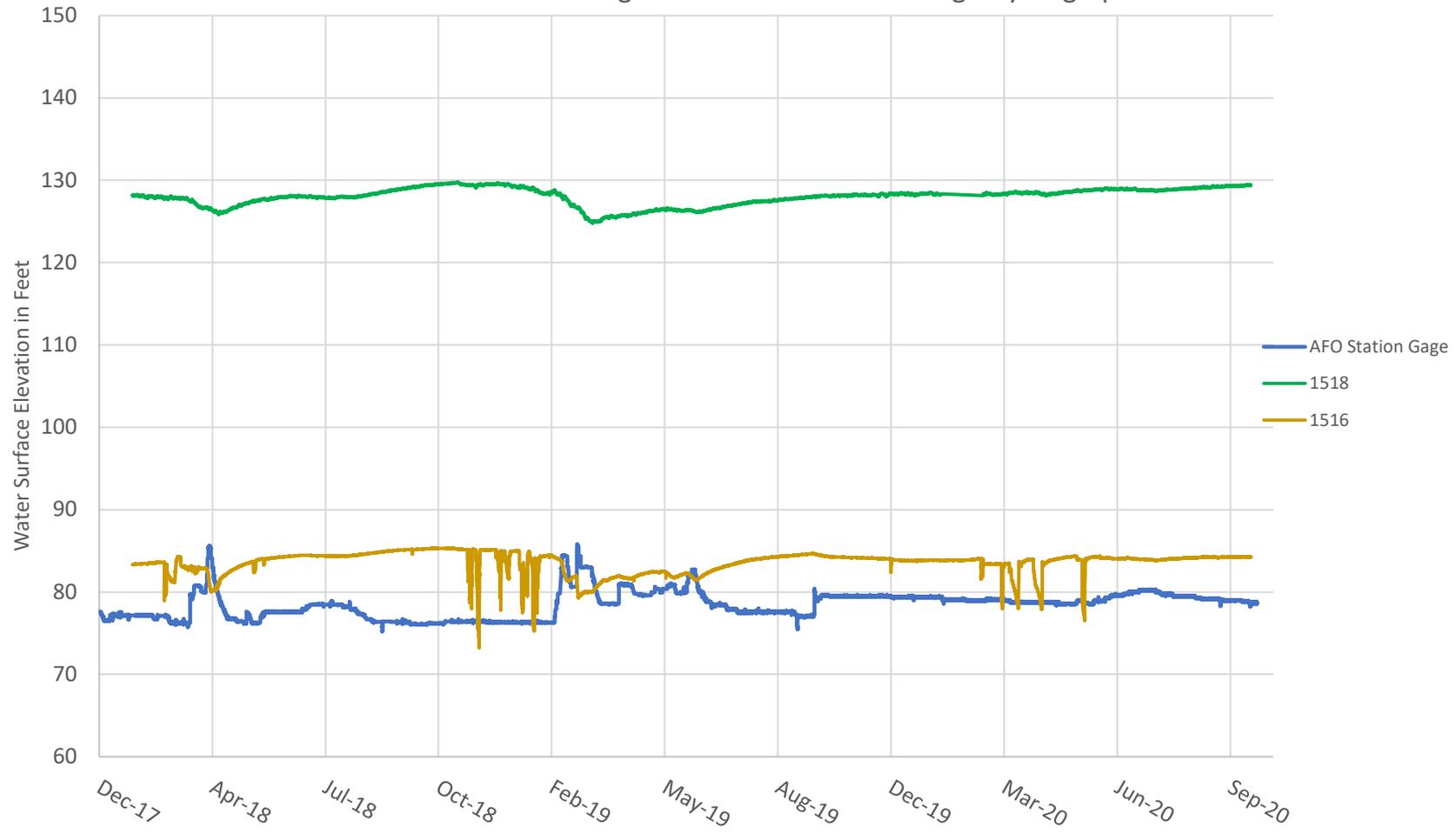
Note: WPMW-5A is dry.

- - - Approx GSE = 98ft msl
- ◇ WPMW-5A Laguna Formation 80-100 ft bgs
- ▲ WPMW-5B Mehrten Formation 630-650 ft bgs

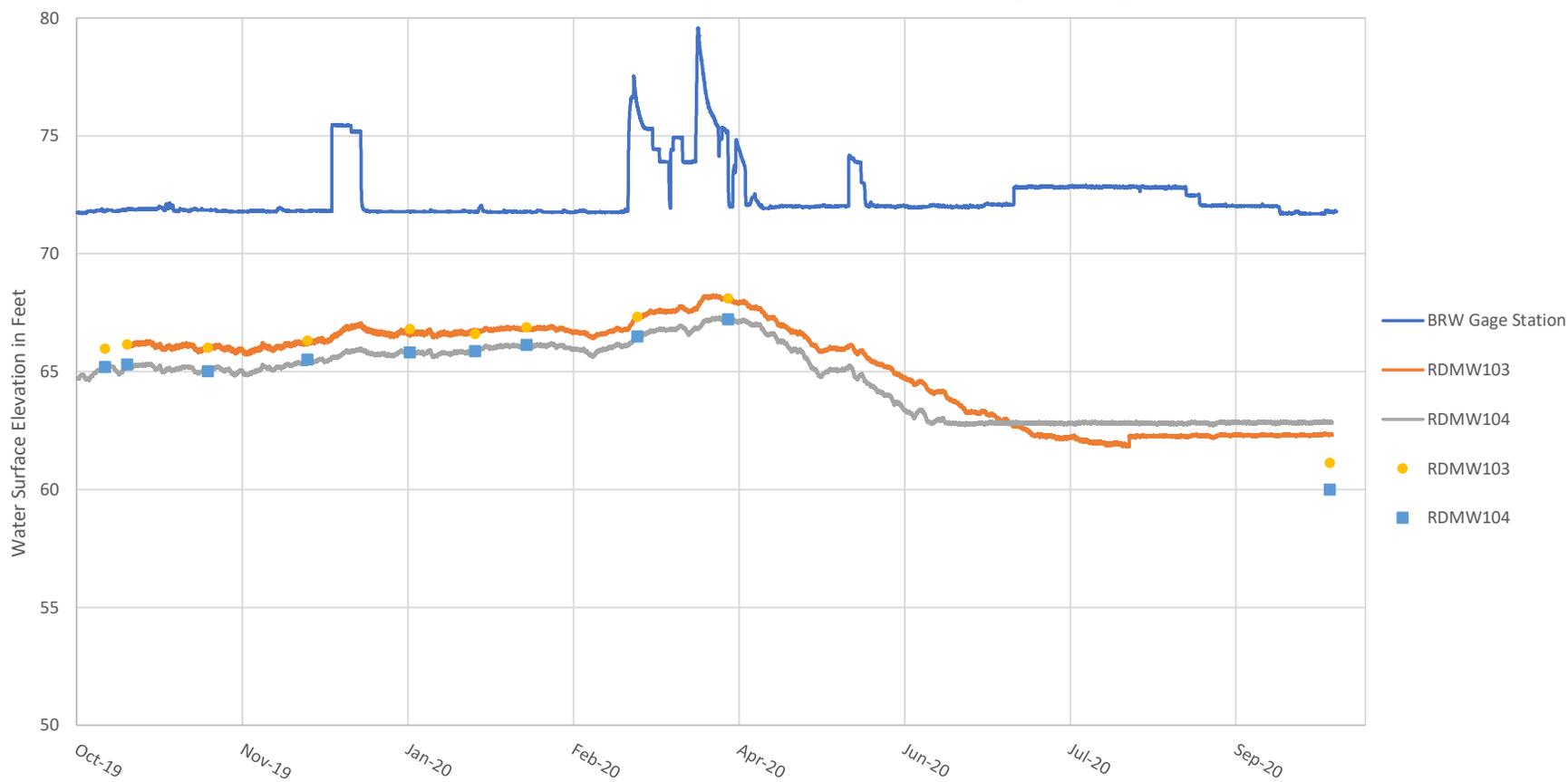
Local Well No.91
WPMW-12 Nested Well Hydrograph
388026N1214432W002, 388026N1214432W004



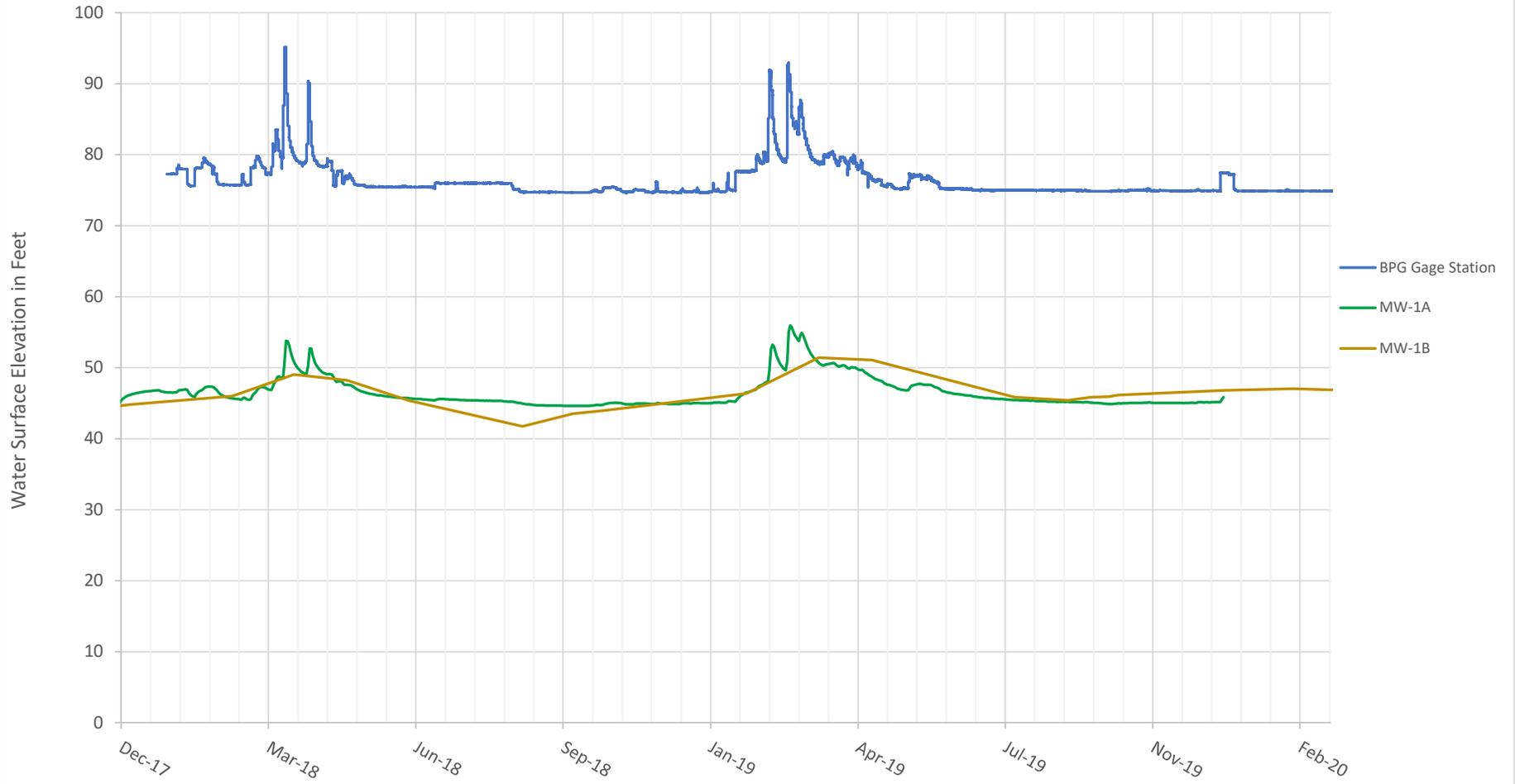
Surface Water/Groundwater Interaction 1516 & 1518 Monitoring Wells and AFO Station Gage Hydrographs



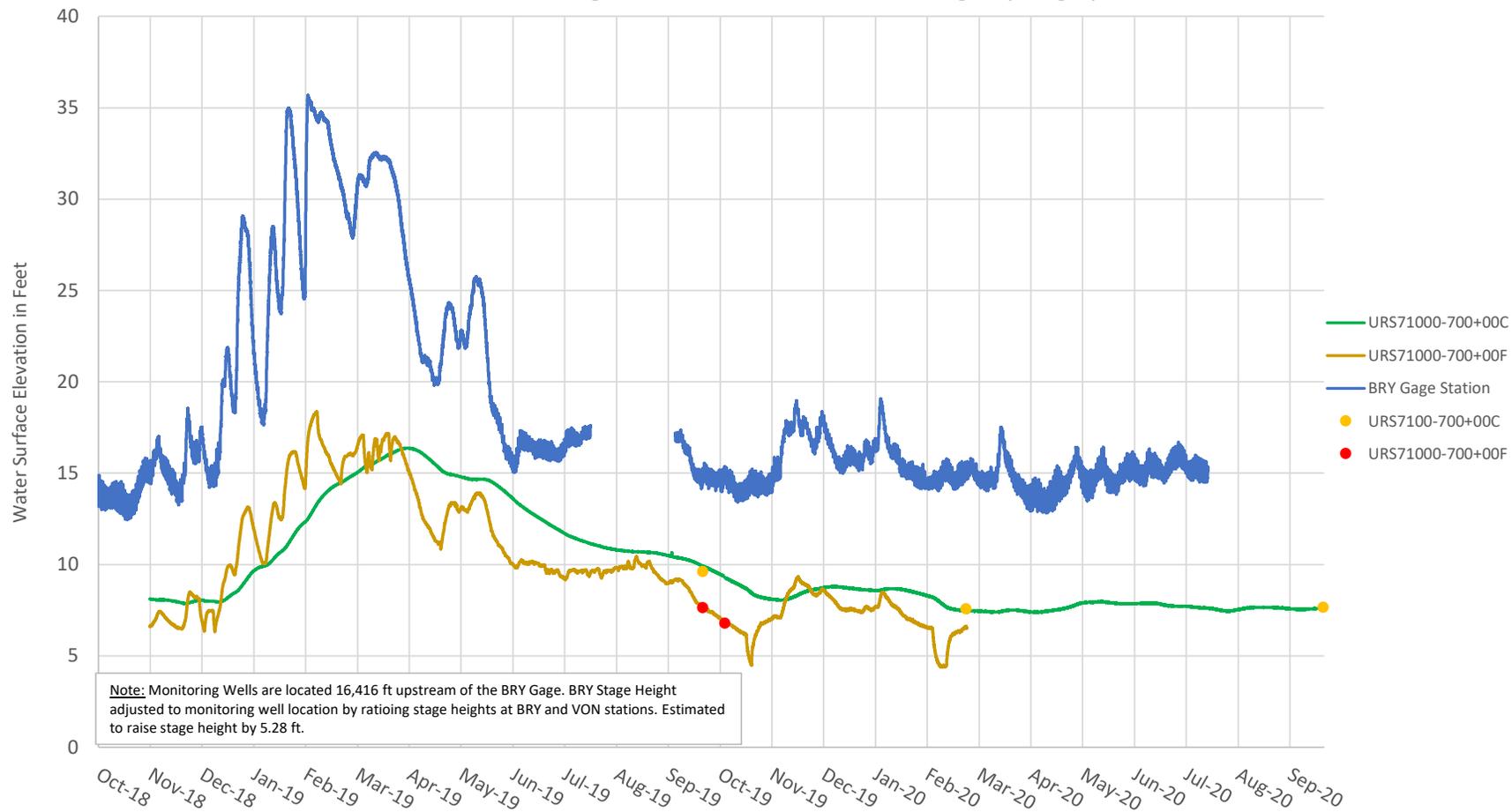
Surface Water Groundwater Interaction - Bear River
RDMW-103, RDMW-104 Monitoring Wells and Bear River Stage Hydrographs



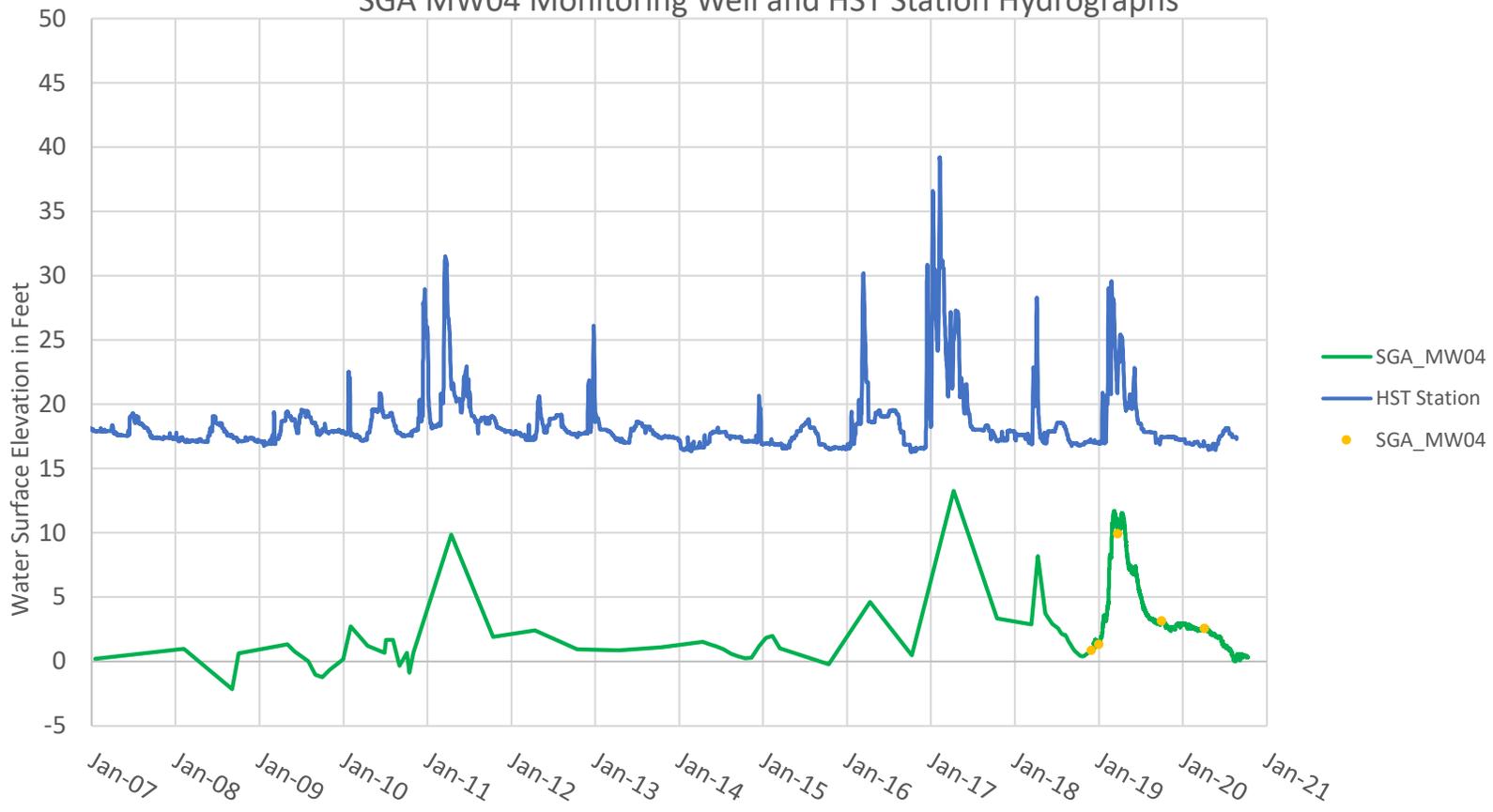
Surface Water/Groundwater Interaction MW-1 Nested Monitoring Well and BPG Station Hydrographs



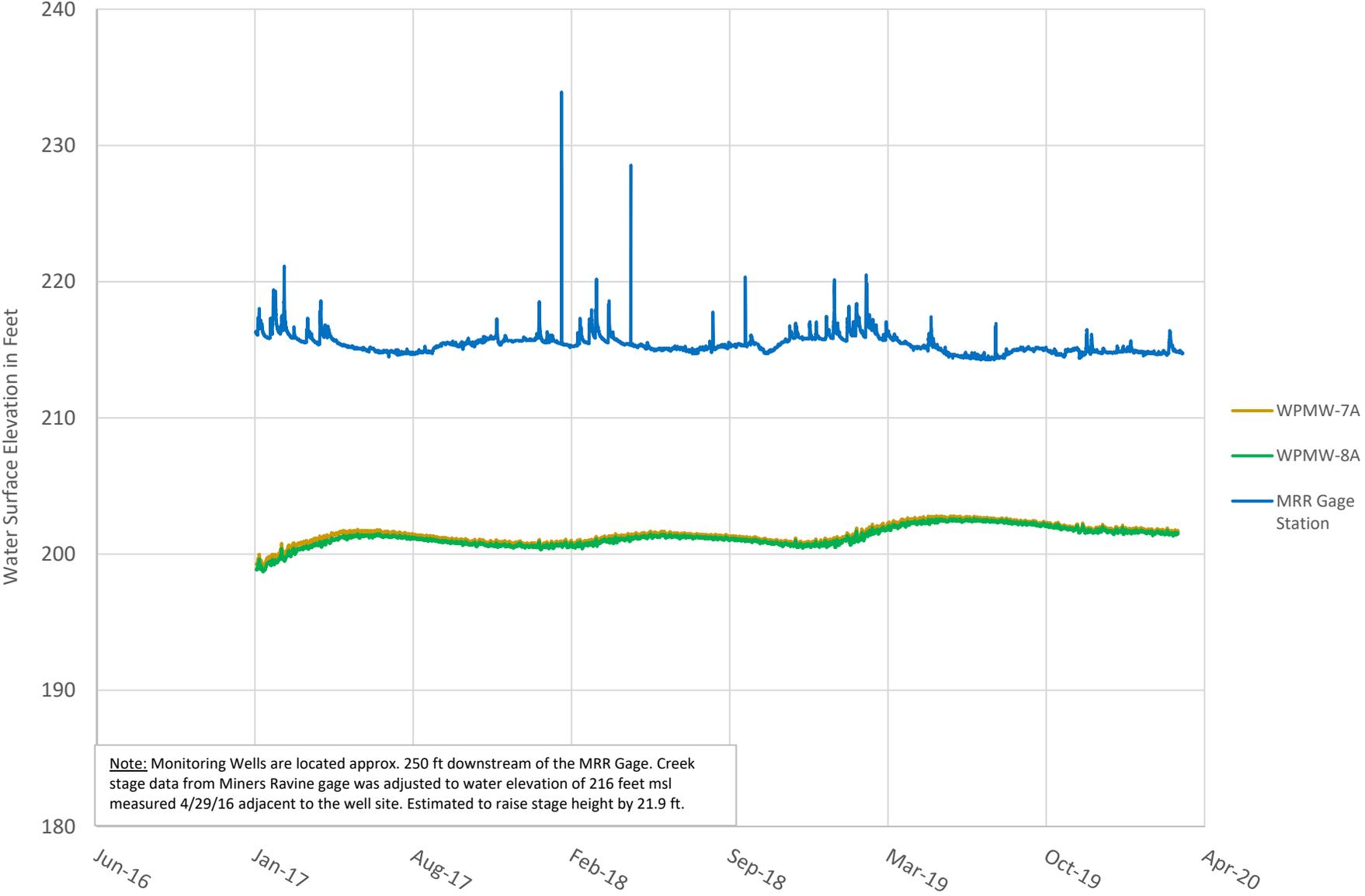
Surface Water/Groundwater Interaction - Feather River URS 71000-700 Monitoring Wells and Sacramento River Stage Hydrographs



Surface Water/Groundwater Intercation SGA MW04 Monitoring Well and HST Station Hydrographs

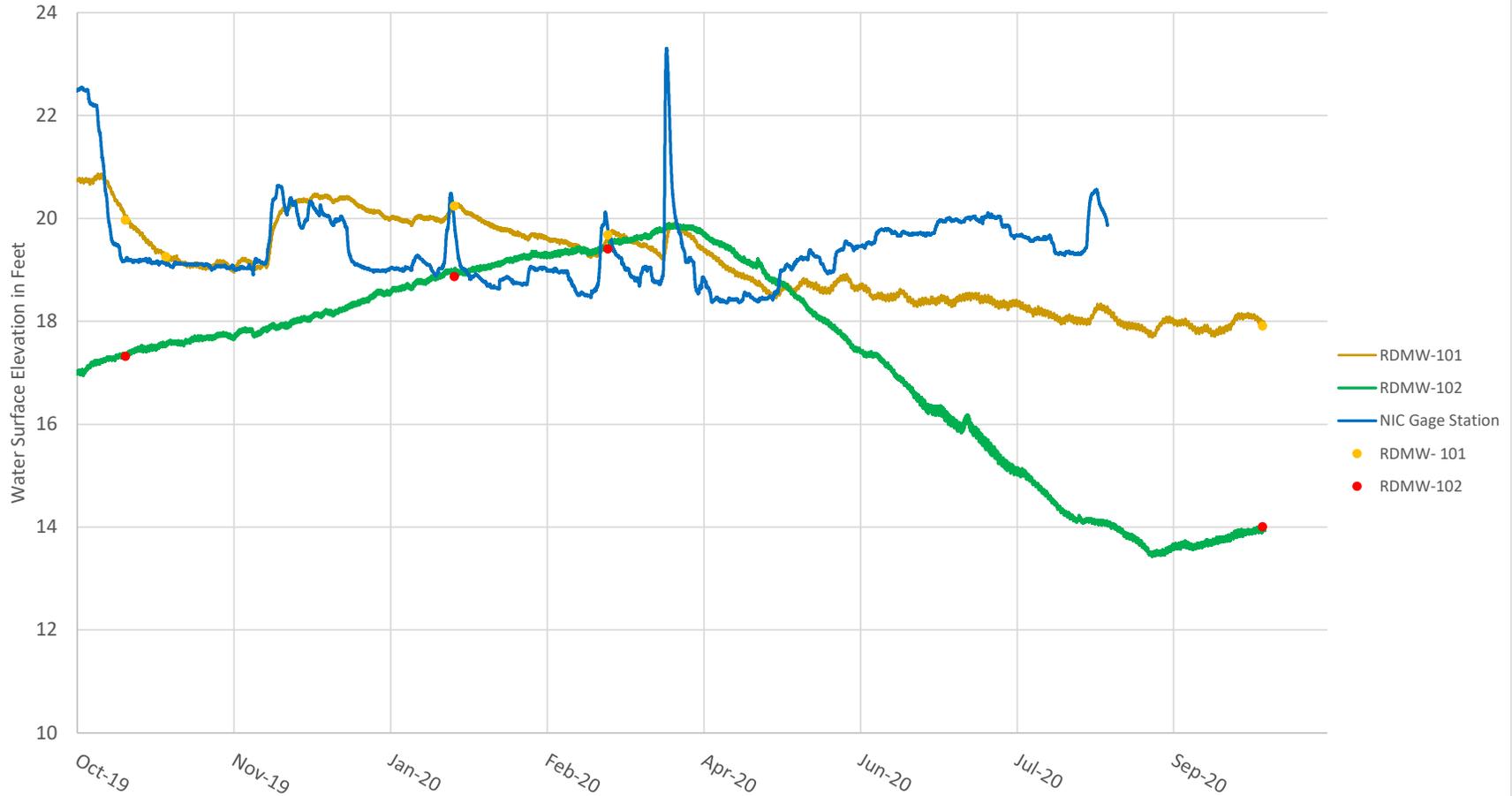


Surface Water/Groundwater Interaction WPMW-7A, WPMW-8A Monitoring Wells and MRR Station Hydrographs



Note: Monitoring Wells are located approx. 250 ft downstream of the MRR Gage. Creek stage data from Miners Ravine gage was adjusted to water elevation of 216 feet msl measured 4/29/16 adjacent to the well site. Estimated to raise stage height by 21.9 ft.

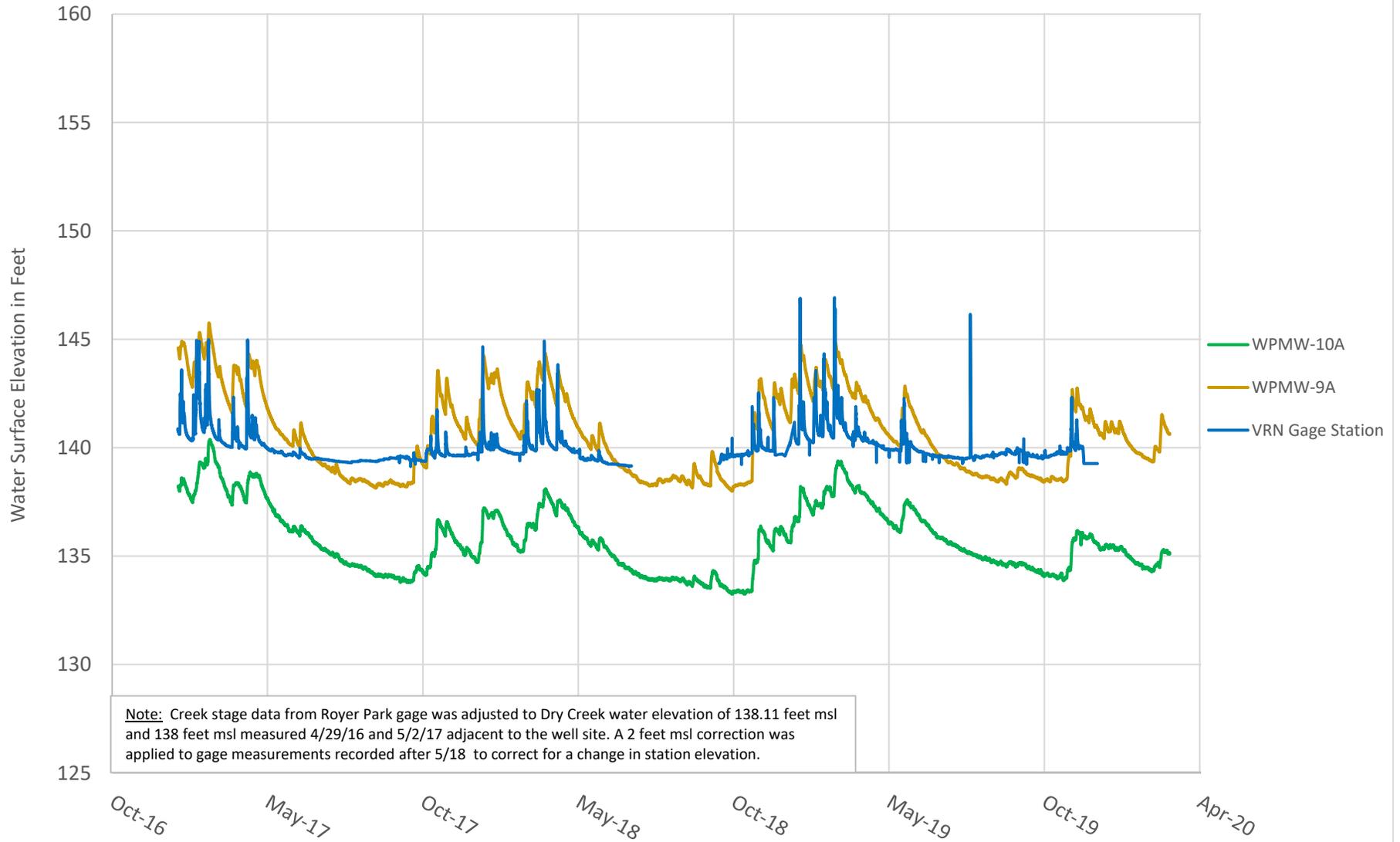
Surface Water/Groundwater Interaction - Feather River
RDMW-101, RDMW-102 Monitoring Wells and Feather River Stage Hydrographs



Surface Water/Groundwater Interaction - Sacramento River
SREL-1-27-F1 Monitoring Well and Sacramento River Stage Hydrographs



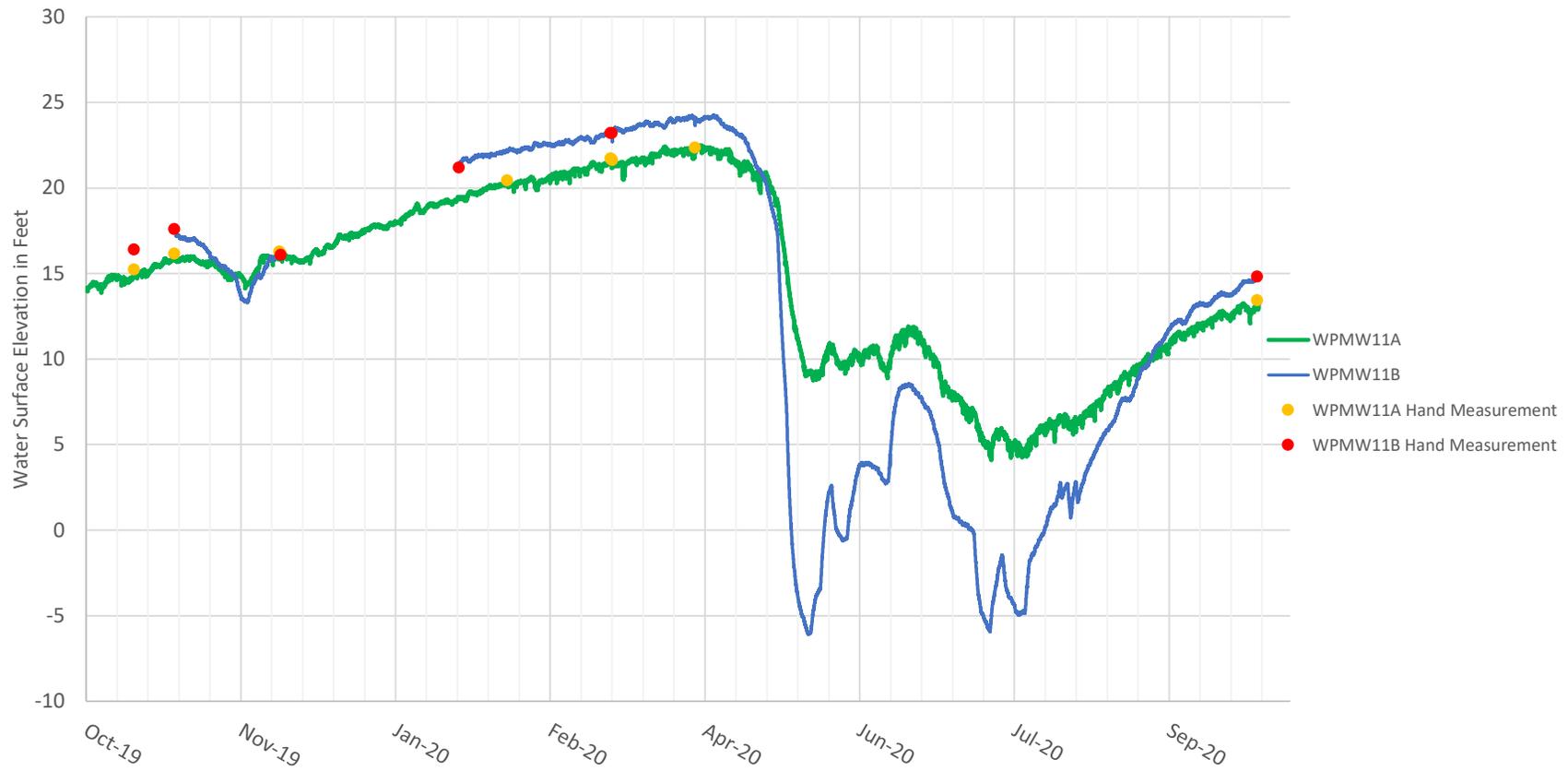
Surface Water/Groundwater Interaction WPMW-9A, WPMW-10A Monitoring Wells and VRN Station Hydrographs



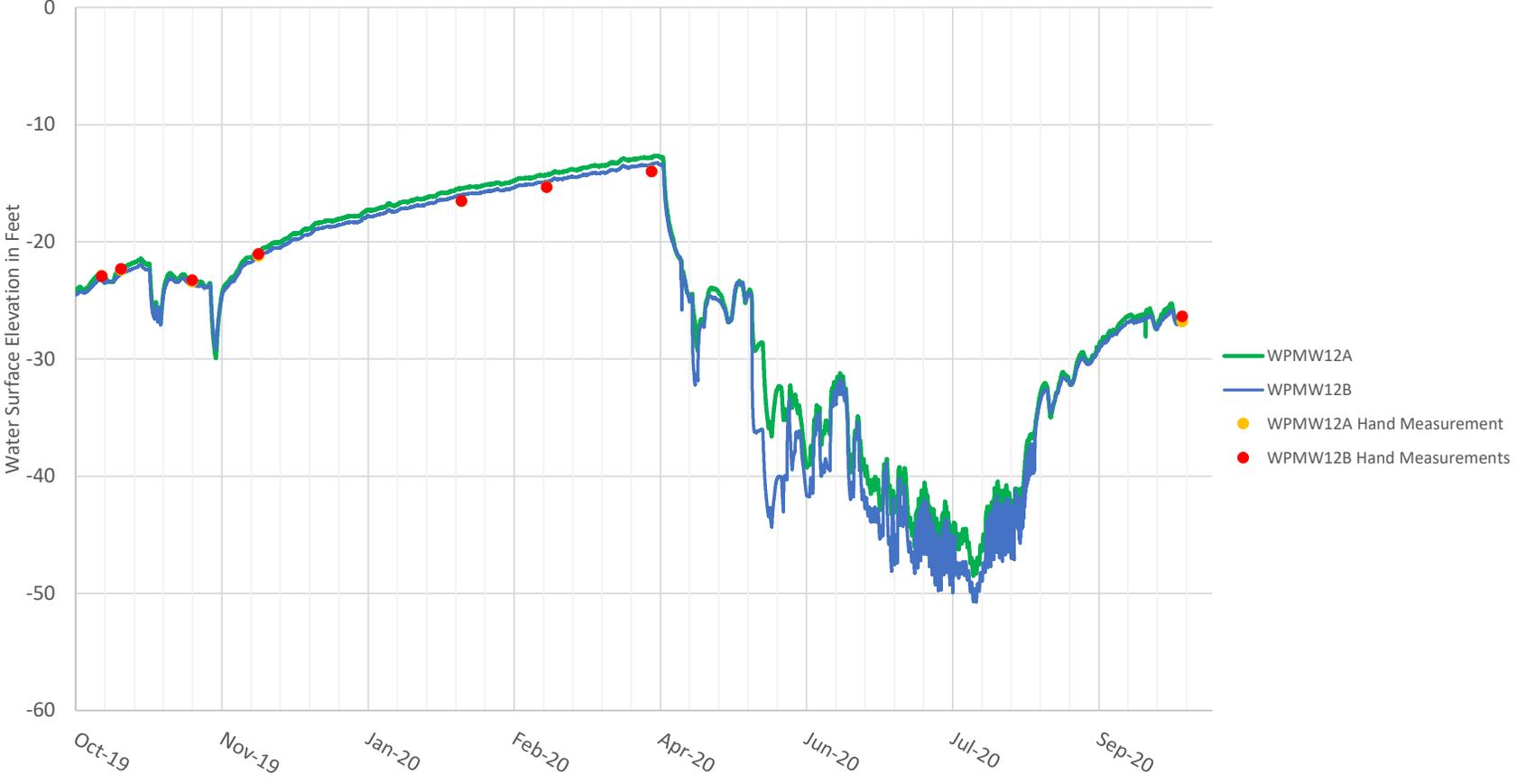
Surface Water/Groundwater Interaction WPMW-5A, WPMW-5B, and Dry Creek Hydrographs



WPMW-11 Nested Well Hydrograph



WPMW-12 Nested Monitoring Well





July 8, 2019
File No.: 20161893.005A

Mr. John Bassett, PE
SAFCA
1007 7th Street, 7th Floor
Sacramento, California 95814

**Subject: Piezometer Reading Summary, 2018-2019 Flood Season
Natomas Cross Canal
Sacramento and American Rivers
Sacramento and Sutter Counties, California**

Dear Mr. Bassett:

Kleinfelder is pleased to present this Piezometer Reading Summary Report for the 2018-2019 flood season based upon piezometer readings taken along the Natomas Cross Canal South Levee (NCCSL), Sacramento River East Levee (SREL), and American River North Levee (ARNL) see Figure 1-1, located in Sacramento and Sutter Counties, California. This report provides groundwater level data at specific locations along the NCCSL, SREL, and ARNL and a compilation of piezometer readings from a series of measurements completed during the 2018-2019 flood season. The purpose of this report is to present the measurements taken in piezometers installed by Kleinfelder and previously installed by others.

Piezometer locations are shown on Figures 2-1 through 2-9. Plots of piezometer readings showing groundwater elevation, approximate piezometer station, location, and levee improvement are shown on Figures 3-1 through 3-39. The stage of the Sacramento and American rivers, as appropriate, are shown on the piezometer reading plots along with the referenced gauge station.

BACKGROUND

Piezometers have been installed by Kleinfelder and others between approximately 2001 and 2009. Elevation references in this report are in feet and are based on the North American Vertical Datum of 1988 (NAVD88). Elevations may be converted to the previously used National Geodetic Vertical Datum of 1929 (NGVD29) by using the conversion factor $\text{Elevation 0 NGVD29} = \text{Elevation} + 2.28 \text{ NAVD88}$ (Psomas 2009).

Kleinfelder published a report summarizing groundwater levels and piezometer readings taken between December 2017 and April 2018 for the 2017-2018 flood season entitled "Piezometer Reading Summary, 2017-2018 Flood Season, Natomas Cross Canal, Sacramento and American Rivers, Sacramento and Sutter Counties, California," dated June 11, 2018.

Kleinfelder previously published a report summarizing groundwater levels and piezometer readings taken between November 2016 and June 2017 for the 2016-2017 flood season for the Natomas Cross Canals entitled "Piezometer Reading Summary, 2016-2017 Flood Season, Natomas Cross Canals, Sacramento and American Rivers, Sacramento and Sutter Counties, California," dated February 22, 2018.

Kleinfelder published a report summarizing groundwater levels and piezometer readings taken in March 2016 for the 2015-2016 flood season for the Natomas Cross Canals entitled “Piezometer Reading Summary, 2015-2016 Flood Season, Natomas Cross Canals, Sacramento and American Rivers, Sacramento and Sutter Counties, California,” dated December 22, 2016.

Kleinfelder published a report summarizing groundwater levels and piezometer readings taken between October 2011 and April 2016 for the Natomas Cross Canal entitled “Groundwater Level Data Report, Natomas Cross Canal South Levee, Natomas Levee Improvement Program, Sutter County, California,” dated August 8, 2016.

Kleinfelder published a report summarizing groundwater levels and piezometer readings taken between May 2009 and August 2011 for the subject project titled “Groundwater Level Data Report, Natomas Cross Canal South Levee, Natomas Levee Improvement Program, Sutter County, California,” dated August 25, 2011.

Piezometers are read based on the following table.

Table 1: Current RD1000 Levee Patrol Criteria and Activation WSE for Piezometer Reading ³

Locations	Stage Forecast	RD1000 Patrol Frequency Interval	Comments
American River / NEMDC / Sacramento River (downstream of Sacramento Weir)		24-48 hours	Activation WSE at I Street Gage for Piezometer Readings El. 15 (NAVD88) Reading intervals twice a week as the river is rising or falling between El. 15 and 24.3 (NAVD88). Every other day readings at WSE above El. 24.3 (NAVD88)
	I Street 25.5 ¹	6 hours	
	I Street 27.3 ¹	3 hours	
	I Street 29.3 ¹	2 hours	
	I Street 29.8 ¹	1 hour	
	I Street 30.8 ¹	30 minutes	
Sacramento River (upstream of Sacramento Weir) / NCC / PGCC		24-48 hours	Activation WSE at Verona Gage for Piezometer Readings El. 27 (NAVD88) El. 27.7 (USED) Reading intervals twice a week as the river is rising or falling between El. 27.7 and 31 (USED) [El. 27 and 30.3 NAVD88]. Every other day readings at WSE above El. 31 (USED) [El. 30.3 NAVD88]
	I Street 27.3 ¹ and/or Verona 32.0 ²	6 hours	
	I Street 29.3 ¹ and/or Verona 37.0 (36.3) ²	3 hours	
	I Street 31.3 ¹ and/or Verona 40.0 (39.3) ²	2 hours	
	I Street 33.3 ¹ and/or Verona 41.0 (40.3) ²	1 hour	
	I Street 34.3 ¹ and/or Verona 42.0 (41.3) ²	30 minutes	

Notes:

¹ WSEs were converted to elevation at I Street Gaging Station, NAVD88, in feet.

² WSEs were converted to elevation at Verona Gaging Station, USED, in feet with a conversion to NAVD88 provided in parenthesis.

³ The water surface elevations and levee patrol frequencies included in this table are used as guidelines for levee patrol staffing and flood fight readiness. Actual patrol frequency will be based on site specific observed conditions. Any signs of levee distress including, but not limited to, seepage carrying soil material, boils, sloughing, or erosion should be addressed with more frequent patrols and/or flood fight activities as appropriate.

OBSERVATIONS

Recent piezometer readings were taken between January and April 2019 during periods of high water levels in the Natomas Cross Canal, Sacramento River, and American River. Piezometer readings from this period are graphically shown on Figures 3-1 through 3-39. These readings were made to record the response of groundwater levels along the Natomas Cross Canal, Sacramento River, and American River to the fluctuation in these bodies of water. Tables 2, 3, and 4 summarize the piezometer readings located along the NCCSL, SREL, and ARNL, respectively. All elevations provided are referenced to NAVD88. Table 5 summarizes the name, station, and figure showing each of the piezometers.

**Table 2: Natomas Cross Canal South Levee
Piezometer Groundwater Surface Elevations**

Date	NCC-3-T1 El. +32.4	NCC-21-C1 El. +49.1	NCC-21-F1 El. +21.5	NCC-21-R1 El. +45.2		
1/22/19	15.1	19.4	18.9	25.2		
1/25/19	20.4	19.2	18.7	23.7		
2/5/19	21.0	19.4	19.1	23.9		
2/8/19	21.8	19.7	19.2	25.8		
2/15/19	24.0	20.4	19.8	29.6		
2/18/19	24.9	20.5	19.8	30.8		
2/20/19	25.2	20.4	19.7	29.6		
2/22/19	24.9	20.1	19.4	27.0		
2/27/19	25.2	20.7	20.5	29.6		
3/1/19	-- ²	20.9	20.1	31.7		
3/4/19	26.0	21.0	20.1	31.8		
3/6/19	26.2	21.2	20.6	31.6		
3/8/19	26.2	21.6	20.2	31.9		
3/11/19	26.2	20.9	20.0	31.5		
3/13/19	26.0	20.7	19.8	31.0		
3/15/19	26.1	20.6	19.8	30.5		
3/19/19	26.0	20.5	19.7	29.6		
3/22/19	25.7	20.4	19.6	28.2		
3/26/19	25.8	20.5	19.9	27.2		
3/29/19	26.0	20.9	20.2	30.1		

**Table 2: Natomas Cross Canal South Levee
Piezometer Groundwater Surface Elevations**

Date	NCC-3-T1 El. +32.4	NCC-21-C1 El. +49.1	NCC-21-F1 El. +21.5	NCC-21-R1 El. +45.2		
4/1/19	26.1	20.8	20.0	30.0		
4/8/19	26.1	20.8	19.9	30.6		
4/10/19	26.1	20.7	19.8	30.4		
4/12/19	26.1	20.7	19.8	30.9		
4/16/19	25.6	20.4	19.6	30.2		
4/19/19	25.8	20.3	19.5	29.6		
4/22/19	25.4	20.1	19.2	28.1		
4/25/19	24.9	19.8	19.1	26.0		
Date	NCC-53-T1 El. +27.1	NCC-56-T1 El. +28.3	NCC-58-T1 El. +33.2	NCC-61-T1 El. +28.1	NCC-63-T1 El. +26.4	
1/22/19	18.9	17.7	19.4	19.2	18.5	
1/25/19	18.7	17.5	19.1	19.0	18.4	
2/5/19	18.8	17.5	18.8	19.0	18.5	
2/8/19	19.1	17.8	19.5	19.4	18.7	
2/15/19	20.0	18.6	20.3	20.4	19.6	
2/18/19	20.0	18.5	20.7	20.6	19.5	
2/20/19	19.9	18.4	20.7	20.4	19.4	
2/22/19	19.5	18.1	20.0	19.9	19.2	
2/27/19	18.7	19.6	19.9	20.9	20.1	
3/1/19	20.5	19.0	21.4	21.2	20.1	
3/4/19	20.6	18.9	21.5	21.2	20.0	
3/6/19	20.8	19.3	21.7	21.3	20.2	
3/8/19	20.6	19.0	21.8	21.4	20.2	
3/11/19	20.3	18.6	21.4	21.0	19.7	
3/13/19	20.1	18.5	21.2	20.7	19.5	
3/15/19	-- ²	18.5	21.1	20.6	19.4	
3/19/19	19.8	18.3	-- ²	20.3	19.2	
3/22/19	19.6	18.1	20.4	20.0	-- ²	
3/26/19	19.8	18.3	-- ²	20.0	19.2	
3/29/19	20.2	18.6	-- ²	20.5	19.6	
4/1/19	-- ²	18.5	20.9	20.5	19.5	
4/8/19	19.9	18.4	20.8	20.4	19.2	
4/10/19	19.8	18.3	20.8	20.3	19.1	
4/12/19	20.3	18.3	20.8	20.2	19.1	
4/16/19	19.5	18.2	20.6	20.0	18.9	
4/19/19	19.5	18.2	20.6	20.0	18.9	
4/22/19	19.2	17.9	20.2	19.6	18.6	

**Table 2: Natomas Cross Canal South Levee
Piezometer Groundwater Surface Elevations**

Date	NCC-53-T1 El. +27.1	NCC-56-T1 El. +28.3	NCC-58-T1 El. +33.2	NCC-61-T1 El. +28.1	NCC-63-T1 El. +26.4
4/25/19	19.0	17.7	19.6	19.2	18.5
Date	NCC-116-T1 El. +26.1	NCC-116-C1 El. +49.0	NCC-116-C2 El. +49.1	NCC-118-T1 El. +26.3	NCC-121-T1 El. +32.3
1/22/19	21.4	21.8	-- ⁵	21.9	22.5
1/25/19	21.2	21.6	-- ⁵	21.5	22.0
2/5/19	20.5	20.9	-- ⁵	21.2	22.0
2/8/19	21.2	21.4	-- ⁵	21.6	22.3
2/15/19	21.8	22.2	-- ⁵	22.5	23.4
2/18/19	22.3	22.7	-- ⁵	22.6	23.4
2/20/19	22.4	22.8	-- ⁵	22.5	23.2
2/22/19	22.1	22.5	-- ⁵	22.2	22.7
2/27/19	22.3	22.7	-- ⁵	23.0	24.0
3/1/19	22.8	23.1	-- ⁵	23.2	24.0
3/4/19	23.1	23.6	-- ⁵	23.3	24.0
3/6/19	23.3	23.7	-- ⁵	23.4	24.1
3/8/19	23.3	23.7	-- ⁵	23.5	24.2
3/11/19	23.3	23.7	-- ⁵	23.3	24.0
3/13/19	23.1	23.6	-- ⁵	23.2	23.8
3/15/19	24.1	23.5	-- ⁵	23.1	23.7
3/19/19	22.9	23.3	-- ⁵	23.0	23.6
3/22/19	22.7	23.2	-- ⁵	22.8	23.4
3/26/19	22.6	23.0	-- ⁵	22.9	23.4
3/29/19	22.9	23.4	-- ⁵	23.3	23.9
4/1/19	23.1	23.4	-- ⁵	23.5	24.0
4/8/19	22.6	23.0	-- ⁵	23.8	24.6
4/10/19	22.2	22.5	-- ⁵	23.3	24.1
4/12/19	22.0	22.3	-- ⁵	23.4	24.3
4/16/19	22.1	22.4	-- ⁵	23.1	23.9
4/19/19	22.4	22.9	-- ⁵	23.5	24.2
4/22/19	22.5	23.0	-- ⁵	23.2	23.8
4/25/19	22.4	22.8	-- ⁵	22.9	23.5

**Table 2: Natomas Cross Canal South Levee
Piezometer Groundwater Surface Elevations**

Date	NCC-123-T1 El. +29.4	NCC-125-T1 El. +29.7	NCC-135-C1 El. +49.1	NCC-135-C2 El. +48.8		
1/22/19	22.2	22.6	23.8	23.8		
1/25/19	21.9	22.4	23.6	23.6		
2/5/19	22.0	22.6	23.7	23.7		
2/8/19	22.0	22.4	23.5	23.5		
2/15/19	22.9	23.2	24.1	24.2		
2/18/19	22.6	22.9	23.8	23.9		
2/20/19	22.5	22.7	23.6	23.8		
2/22/19	22.3	22.5	23.5	22.5		
2/27/19	23.4	23.8	24.6	24.4		
3/1/19	23.2	23.4	24.3	24.4		
3/4/19	23.2	23.4	24.3	24.4		
3/6/19	23.4	23.8	24.6	24.6		
3/8/19	23.3	23.5	24.4	24.5		
3/11/19	23.1	23.2	24.2	24.2		
3/13/19	23.0	23.2	24.1	24.1		
3/15/19	23.0	23.1	24.0	24.0		
3/19/19	22.9	23.0	23.8	23.9		
3/22/19	22.8	23.0	23.8	23.8		
3/26/19	23.0	23.2	23.7	24.0		
3/29/19	23.3	23.4	24.2	24.2		
4/1/19	23.3	23.4	23.9	24.0		
4/8/19	24.0	24.1	24.4	24.6		
4/10/19	23.6	23.9	24.6	24.6		
4/12/19	23.8	24.0	24.5	24.7		
4/16/19	23.4	23.7	24.5	24.5		
4/19/19	23.7	24.0	24.7	24.7		
4/22/19	23.4	23.6	24.4	24.4		
4/25/19	23.2	23.5	24.2	24.2		
Date	NCC-183-C1 El. +49.0	NCC-183-T1 El. +29.2	NCC-221-C1 El. +49.2	NCC-221-C2 El. +49.1	NCC-221-T1 El. +30.6	
1/22/19	23.1	-- ²	25.3	28.5	24.9	
1/25/19	22.9	23.3	25.0	25.7	24.8	
2/5/19	23.0	23.4	24.8	25.7	23.8	
2/8/19	23.1	23.5	25.7	27.6	24.6	
2/15/19	24.0	24.4	26.7	31.3	26.3	
2/18/19	23.9	24.4	27.4	31.9	27.0	
2/20/19	23.7	22.2	27.3	30.6	27.0	

**Table 2: Natomas Cross Canal South Levee
Piezometer Groundwater Surface Elevations**

Date	NCC-183-C1 El. +49.0	NCC-183-T1 El. +29.2	NCC-221-C1 El. +49.2	NCC-221-C2 El. +49.1	NCC-221-T1 El. +30.6
2/22/19	23.5	23.8	26.4	27.9	26.3
2/27/19	24.1	24.7	26.8	30.2	25.7
3/1/19	24.3	24.8	28.0	32.8	27.4
3/4/19	24.2	24.7	28.1	32.7	27.8
3/6/19	24.3	24.8	28.3	32.3	27.8
3/8/19	24.3	24.7	28.2	32.7	27.9
3/11/19	24.0	24.4	28.0	32.3	27.7
3/13/19	23.8	24.2	27.7	31.8	27.6
3/15/19	23.7	24.2	27.5	31.3	27.4
3/19/19	23.4	-- ²	27.3	30.5	27.2
3/22/19	23.6	23.7	26.8	29.0	26.9
3/26/19	23.3	23.8	26.7	27.9	26.7
3/29/19	23.7	24.1	27.4	30.8	26.8
4/1/19	23.6	24.1	27.6	30.9	26.8
4/8/19	23.4	23.9	27.3	31.4	26.9
4/10/19	23.3	23.8	27.2	31.3	26.9
4/12/19	23.2	23.7	27.3	31.2	26.8
4/16/19	23.1	23.6	26.8	31.0	26.7
4/19/19	23.1	23.6	26.6	30.5	26.5
4/22/19	23.1	23.5	26.1	29.0	26.2
4/25/19	22.8	23.2	25.4	26.8	25.3
Date	NCC-223-C1 El. +49.5	NCC-223-T1 El. +28.1	NCC-228-F1 El. +31.5	NCC-228-T1 El. +30.5	NCC-228-C1 El. +46.4
1/22/19	28.5	22.4	25.8	26.5	27.4
1/25/19	25.4	21.8	25.0	25.2	25.4
2/5/19	25.6	20.8	24.4	24.7	25.2
2/8/19	27.3	21.5	26.0	26.4	26.9
2/15/19	31.6	23.7	27.5	28.5	29.9
2/18/19	31.9	24.0	28.5	29.4	30.6
2/20/19	30.5	23.9	28.2	28.9	29.6
2/22/19	27.6	23.5	26.9	27.6	27.5
2/27/19	30.4	23.0	27.5	28.4	29.4
3/1/19	33.0	23.6	29.3	30.1	31.5
3/4/19	32.8	24.0	29.4	30.1	31.5
3/6/19	32.4	24.4	29.5	30.1	31.2
3/8/19	32.8	24.5	29.5	30.1	31.6
3/11/19	32.4	24.5	29.3	30.1	31.2

**Table 2: Natomas Cross Canal South Levee
Piezometer Groundwater Surface Elevations**

Date	NCC-223-C1 El. +49.5	NCC-223-T1 El. +28.1	NCC-228-F1 El. +31.5	NCC-228-T1 El. +30.5	NCC-228-C1 El. +46.0	
3/13/19	31.9	24.4	28.9	29.8	30.7	
3/15/19	31.4	24.3	28.7	29.4	30.4	
3/19/19	30.4	24.1	28.3	29.0	29.7	
3/22/19	28.9	23.9	27.5	27.9	28.5	
3/26/19	27.7	23.6	27.2	27.4	27.7	
3/29/19	31.0	23.7	28.4	-- ²	30.0	
4/1/19	30.9	23.7	-- ²	29.2	30.1	
4/8/19	31.5	24.1	28.6	29.3	30.4	
4/10/19	31.4	24.1	28.4	29.2	30.2	
4/12/19	31.4	24.1	28.5	29.2	30.2	
4/16/19	31.2	24.1	28.1	29.0	30.0	
4/19/19	30.6	23.8	27.9	28.6	29.5	
4/22/19	28.9	23.4	27.0	27.6	28.2	
4/25/19	26.8	22.6	26.0	26.1	26.4	
Date	NCC-231-T1 El. +31.1	NCC-233-T1 El. +31.9	NCC-240-C1 El. +49.1	NCC-240-C2 El. +49.3	NCC-240-T1 El. +31.4	NCC-240-F1 El. +32.4
1/22/19	25.8	25.4	24.4	29.2	24.4	24.4
1/25/19	25.1	25.0	24.5	25.9	24.5	24.5
2/5/19	24.5	24.2	24.0	26.8	24.0	24.0
2/8/19	26.0	25.9	25.4	27.9	25.3	25.3
2/15/19	27.6	27.0	26.2	32.7	26.2	26.1
2/18/19	28.7	28.2	27.4	32.7	27.4	27.4
2/20/19	28.4	28.2	27.7	31.2	27.6	27.6
2/22/19	26.9	27.1	27.0	28.2	26.9	26.9
2/27/19	27.7	27.4	27.2	31.6	27.1	27.1
3/1/19	29.6	29.2	28.5	33.8	28.4	28.4
3/4/19	29.7	29.4	28.9	33.5	28.9	28.9
3/6/19	29.8	29.5	29.2	33.1	29.2	29.0
3/8/19	29.9	29.6	29.2	33.6	29.2	29.2
3/11/19	29.6	29.3	29.1	33.1	29.1	29.1
3/13/19	29.3	29.0	28.8	32.6	28.8	28.8
3/15/19	29.0	28.8	28.6	32.0	28.6	28.6
3/19/19	28.6	28.5	28.4	31.1	28.4	28.4
3/22/19	27.9	27.8	-- ⁷	-- ⁷	27.9	27.9
3/26/19	27.5	27.7	27.9	28.3	27.8	27.8
3/29/19	28.7	28.4	28.4	31.6	29.0	28.3
4/1/19	29.0	28.8	28.8	31.5	28.8	28.8

**Table 2: Natomas Cross Canal South Levee
Piezometer Groundwater Surface Elevations**

Date	NCC-231-T1 El. +31.1	NCC-233-T1 El. +31.9	NCC-240-C1 El. +49.1	NCC-240-C2 El. +49.3	NCC-240-T1 El. +31.4	NCC-240-F1 El. +32.4
4/8/19	28.9	28.6	28.4	32.1	28.4	28.4
4/10/19	28.8	28.5	28.3	32.0	28.3	28.3
4/12/19	28.8	28.6	28.4	31.9	28.4	28.4
4/16/19	28.4	28.1	27.9	31.7	27.9	27.9
4/19/19	28.2	28.0	27.8	31.1	27.7	27.8
4/22/19	27.3	27.2	27.2	29.4	27.2	27.2
4/25/19	26.3	26.3	26.6	27.0	26.6	26.6

Notes:

1. "El." = ground surface elevation at piezometer location.
2. "--" = Not measured.
3. Groundwater elevation in feet (NAVD88)
4. Piezometer water levels measured at top of casing
5. Well is dry.
6. Well is flooded.
7. Erroneous data point removed

**Table 3: Sacramento River East Levee
Piezometer Groundwater Surface Elevations**

Date	SREL 1-27-F1 El. +27.4	SREL-27-R1 El. +44.9	SREL1-27-C1 El. +48.2	SREL1-27-C2 El. +48.7	SREL1-27-T1 El. +32.2
1/22/19	15.5	24.1	23.6	-- ⁵	23.3
1/25/19	19.7	23.7	23.6	-- ⁵	23.3
2/5/19	19.5	22.8	22.7	-- ⁵	22.8
2/8/19	20.5	24.9	24.5	-- ⁵	24.2
2/15/19	-- ⁶	26.5	25.7	-- ⁵	25.6
2/18/19	-- ⁶	28.5	27.7	-- ⁵	27.2
2/20/19	23.7	28.4	27.9	-- ⁵	27.4
2/22/19	23.0	27.2	27.0	-- ⁵	26.6
2/27/19	-- ⁶	27.2	25.9	-- ⁵	27.0
3/1/19	-- ⁶	32.8	29.1	-- ⁵	28.6
3/4/19	-- ⁶	30.7	30.1	-- ⁵	29.3
3/6/19	-- ⁶	30.9	30.3	-- ⁵	29.6
3/8/19	-- ⁶	31.2	30.6	-- ⁵	29.7
3/11/19	-- ⁶	31.2	30.5	-- ⁵	29.7
3/13/19	-- ⁶	30.8	30.4	-- ⁵	29.5
3/15/19	-- ⁶	30.5	30.1	-- ⁵	29.4
3/19/19	-- ⁶	30.0	29.5	-- ⁵	29.1
3/22/19	-- ⁶	29.5	29.0	-- ⁵	28.5
3/26/19	-- ⁶	28.4	28.3	-- ⁵	28.2
3/29/19	-- ⁶	29.7	29.2	-- ⁵	28.9
4/1/19	-- ⁶	30.1	29.6	-- ⁵	29.1
4/8/19	-- ⁶	30.4	30.0	-- ⁵	29.4
4/10/19	-- ⁶	30.4	30.0	-- ⁵	29.3
4/12/19	-- ⁶	30.4	30.0	-- ⁵	29.3
4/16/19	-- ⁶	29.0	29.7	-- ⁵	29.0
4/19/19	-- ⁶	29.8	-- ²	-- ⁵	28.9
4/22/19	-- ⁶	28.8	28.7	-- ⁵	28.0
4/25/19	-- ⁶	27.4	27.6	-- ⁵	27.0
Date	SREL 1B-72-R1 El. +44.6	SREL 1B-84-R1 El. +44.2	SREL 1B-168- R2 El. +44.3	SREL 1B-195- R1 El. +43.0	
1/22/19	28.2	25.9	14.0	24.5	
1/25/19	25.1	24.8	16.5	21.9	

**Table 3: Sacramento River East Levee
Piezometer Groundwater Surface Elevations**

Date	SREL 1B-72-R1 El. +44.6	SREL 1B-84-R1 El. +44.2	SREL 1B-168- R2 El. +44.3	SREL 1B-195- R1 El. +43.0
2/5/19	25.2	23.2	17.4	22.2
2/8/19	27.1	26.2	18.7	23.6
2/15/19	30.5	28.1	20.7	27.3
2/18/19	32.0	30.0	30.0	27.4
2/20/19	30.8	29.8	29.3	26.5
2/22/19	28.0	27.9	28.4	24.3
2/27/19	29.2	-- ⁶	19.2	26.6
3/1/19	32.5	-- ⁶	18.2	28.3
3/4/19	33.0	32.1	31.8	28.2
3/6/19	32.7	32.3	32.0	27.9
3/8/19	33.1	32.6	32.4	28.2
3/11/19	32.8	-- ⁷	32.1	27.9
3/13/19	32.3	-- ⁷	31.7	27.5
3/15/19	31.8	-- ⁷	31.3	27.1
3/19/19	30.8	30.9	30.6	26.4
3/22/19	29.2	29.6	29.9	25.2
3/26/19	27.9	28.3	29.2	24.3
3/29/19	30.8	30.4	29.6	26.7
4/1/19	31.0	30.7	30.0	26.6
4/8/19	31.7	31.4	30.7	27.0
4/10/19	31.6	31.3	30.7	27.1
4/12/19	31.5	31.3	30.7	26.9
4/16/19	31.5	31.2	30.6	27.0
4/19/19	30.8	30.7	30.2	26.6
4/22/19	29.2	29.4	29.6	25.5
4/25/19	26.8	27.4	28.8	24.5
Date	I-5 Well El. +26.4	SREL 9-423-T1 El. +44.2		
1/22/19	12.2	14.1		
1/25/19	12.9	14.2		
2/5/19	13.4	15.0		
2/8/19	14.4	15.6		
2/15/19	16.9	17.4		
2/18/19	18.9	17.8		
2/20/19	19.8	17.9		

**Table 3: Sacramento River East Levee
Piezometer Groundwater Surface Elevations**

Date	I-5 Well El. +26.4	SREL 9-423-T1 El. +44.2			
2/22/19	19.9	17.6			
2/27/19	20.3	18.9			
3/1/19	21.5	19.3			
3/4/19	22.5	19.6			
3/6/19	23.6	20.0			
3/8/19	23.2	20.0			
3/11/19	23.0	19.8			
3/13/19	22.8	19.6			
3/15/19	22.7	19.5			
3/19/19	22.3	19.2			
3/22/19	21.8	18.9			
3/26/19	21.8	19.1			
3/29/19	22.0	19.5			
4/1/19	22.2	19.4			
4/8/19	22.2	19.4			
4/10/19	22.2	19.3			
4/12/19	22.2	19.4			
4/16/19	22.0	19.2			
4/19/19	21.8	19.0			
4/22/19	21.3	18.6			
4/25/19	20.6	--			
Date	DH-7-1 (shallow) El. +41.4	DH-7-1 (deep) El. +41.4	2F-01-05 El. +24.1	2F-01-15 El. +28.4	2F-01-15 El. +23.0
1/22/19	-- ⁵	-- ⁵	14.4	-- ⁸	16.3
1/25/19	-- ⁵	12.3	13.9	-- ⁸	14.5
2/5/19	-- ⁵	13.8	13.7	-- ⁸	14.6
2/8/19	-- ⁵	14.4	14.4	-- ⁸	16.2
2/15/19	-- ⁵	16.6	15.8	-- ⁸	20.4
2/18/19	-- ⁵	17.8	15.8	-- ⁸	20.6
2/20/19	-- ⁵	18.9	15.6	-- ⁸	19.4
2/22/19	-- ⁵	19.0	15.0	-- ⁸	18.5
2/27/19	-- ⁵	18.9	16.4	-- ⁸	20.9
3/1/19	-- ⁵	19.9	16.4	-- ⁸	21.6
3/4/19	-- ⁵	21.3	16.5	-- ⁸	21.2

**Table 3: Sacramento River East Levee
Piezometer Groundwater Surface Elevations**

Date	DH-7-1 (shallow) El. +41.4	DH-7-1 (deep) El. +41.4	2F-01-05 El. +24.1	2F-01-15 El. +28.4	2F-01-15 El. +23.0
3/6/19	-- ⁵	21.9	16.3	-- ⁸	21.2
3/8/19	23.2	22.2	16.1	-- ⁸	21.3
3/11/19	24.2	22.8	15.6	-- ⁸	21.0
3/13/19	24.6	23.1	15.9	-- ⁸	20.3
3/15/19	24.6	23.1	15.7	-- ⁸	19.7
3/19/19	24.3	22.9	15.4	-- ⁸	18.9
3/22/19	23.9	22.4	15.4	-- ⁸	14.4
3/26/19	23.4	22.3	15.5	-- ⁸	17.3
3/29/19	23.1	21.9	15.9	-- ⁸	19.2
4/1/19	23.3	22.3	15.9	-- ⁸	19.2
4/8/19	23.7	22.6	15.8	-- ⁸	20.0
4/10/19	23.8	22.8	15.2	-- ⁸	19.8
4/12/19	24.0	22.9	15.5	-- ⁸	19.8
4/16/19	24.0	22.8	15.5	-- ⁸	19.7
4/19/19	23.9	22.8	15.8	-- ⁸	19.2
4/22/19	23.6	22.4	15.5	-- ⁸	18.2
4/25/19	23.2	21.9	15.0	-- ⁸	16.7
Date	URS071000_ 700+00C El. +41.7	URS071000_ 700+00F El. +24.2	URS071000_ 700+00T El. +26.5		
1/22/19	10.7	12.6	12.4		
1/25/19	11.1	12.4	12.2		
2/5/19	11.6	11.4	11.1		
2/8/19	11.5	13.0	12.8		
2/15/19	12.6	14.7	14.6		
2/18/19	13.0	15.7	15.6		
2/20/19	13.4	15.8	15.7		
2/22/19	13.6	15.1	14.9		
2/27/19	14.0	15.9	15.7		
3/1/19	14.3	17.2	17.2		
3/4/19	14.9	18.1	17.9		
3/6/19	15.2	16.9	16.7		
3/8/19	15.3	16.6	16.2		

**Table 3: Sacramento River East Levee
Piezometer Groundwater Surface Elevations**

Date	URS071000_ 700+00C El. +41.7	URS071000_ 700+00F El. +24.2	URS071000_ 700+00T El. +26.5
3/11/19	15.6	15.5	15.6
3/13/19	15.7	15.1	15.2
3/15/19	15.8	14.7	14.7
3/19/19	16.0	-- ²	14.2
3/22/19	16.2	15.5	15.4
3/26/19	16.4	15.6	15.4
3/29/19	16.6	16.2	16.1
4/1/19	16.8	16.6	16.5
4/8/19	17.2	16.2	16.1
4/10/19	17.2	15.4	15.3
4/12/19	17.4	15.4	16.3
4/16/19	17.7	16.7	16.3
4/19/19	17.7	16.6	16.4
4/22/19	17.8	16.2	16.1
4/25/19	17.9	15.4	15.2

Notes:

1. "El." = ground surface elevation at piezometer location.
2. "--" = Not measured.
3. Groundwater elevation in feet (NAVD88)
4. Piezometer water levels measured at top of casing
5. Well is dry.
6. Well is flooded.
7. Well is buried.
8. Well not located.

**Table 4: American River North Levee
Piezometer Groundwater Surface Elevations**

Date	MW-1 El. +52.0	MW-2 El. +38.6
1/22/19	12.4	5.8
1/25/19	12.3	6.0
2/5/19	11.5	5.9
2/8/19	12.4	6.1
2/15/19	16.0	7.1
2/18/19	18.1	8.0
2/20/19	18.0	8.4
2/22/19	17.2	8.6
2/27/19	18.2	-- ⁶
3/1/19	19.5	-- ⁶
3/4/19	19.9	10.0
3/6/19	20.1	-- ⁶
3/8/19	20.3	10.4
3/11/19	20.5	10.8
3/13/19	19.9	11.0
3/15/19	19.4	11.0
3/19/19	18.4	10.9
3/22/19	17.6	10.7
3/26/19	16.7	10.5
3/29/19	16.9	10.4
4/1/19	17.2	10.6
4/8/19	18.3	10.9
4/10/19	18.5	11.0
4/12/19	18.7	11.1
4/16/19	18.7	11.2
4/19/19	18.3	11.3
4/22/19	17.8	11.2
4/25/19	17.2	11.0

Notes:

1. "El." = ground surface elevation at piezometer location.
2. "--" = Not measured.
3. Groundwater elevation in feet (NAVD88)
4. Piezometer water levels measured at top of casing
5. Well is dry.
6. Well is flooded.

Table 5: Summary of Piezometer Locations

Levee Segment	Approximate Station	Piezometer Name	Figure No.
NCC	3+00	NCC-3-T1	2-1
NCC	21+00	NCC-21-R1, NCC-21-C1, NCC-21-F1	2-1
NCC	53+00	NCC-53-T1	2-2
NCC	56+00	NCC-56-T1	2-2
NCC	58+00	NCC-58-T1	2-2
NCC	61+00	NCC-61-T1	2-2
NCC	63+00	NCC-63-T1	2-2
NCC	116+00	NCC-116-C1, NCC-116-C2, NCC-116-T1	2-3
NCC	118+00	NCC-118-T1	2-3
NCC	121+00	NCC-121-T1	2-3
NCC	123+00	NCC-123-T1	2-3
NCC	125+00	NCC-125-T1	2-3
NCC	135+00	NCC-135-C1, NCC-135-C2, NCC-135-F1	2-3
NCC	183+00	NCC-183-C1, NCC-183-T1	2-4
NCC	221+00	NCC-221-C1, NCC-221-C2, NCC-221-T1	2-4
NCC	223+00	NCC-223-C1, NCC-223-T1	2-4
NCC	228+00	NCC-228-C1, NCC-228-T1, NCC-228-F1	2-4
NCC	231+00	NCC-231-T1	2-4
NCC	233+00	NCC-233-T1	2-4
NCC	240+00	NCC-240-C1, NCC-240-C2, NCC-240-T1, NCC-240-F1	2-5
SREL	27+00	SREL 1-27-R1, SREL 1-27-C1, SREL 1- 27-C2, SREL 1-27-T1, SREL 1-27-F1	2-6
SREL	72+00	SREL 1B-72-R1	2-6
SREL	84+00	SREL 1B-84-R1	2-6
SREL	168+00	SREL 1B-168-R2	2-6
SREL	195+00	SREL 1B-195-R1	2-6
SREL	336+00	SREL 7-336-T1	2-7
SREL	423+00	SREL 9-423-T1	2-7
SREL	449+00	I-5 Well	2-7
SREL	678+00	2F-01-05	2-8
SREL	700+00	URS71000_700-00C, URS71000_700+00T, URS71000_700+00F	2-8
SREL	715+00	DH-7-1 (shallow), DH-7-1 (deep)	2-8
SREL	758+00	2F-01-15	2-8
SREL	810+00	2F-01-19	2-8
ARNL	3339+50	MW-1, MW-2	2-9

LIMITATIONS

This work was performed in a manner consistent with that level of care and skill ordinarily exercised by other members of Kleinfelder's profession practicing in the same locality, under similar conditions and at the date the services are provided. Our conclusions, opinions, and recommendations are based on a limited number of observations and data. It is possible that conditions could vary between or beyond the data evaluated. Kleinfelder makes no other representation, guarantee, or warranty, express or implied, regarding the services, communication (oral or written), report, opinion, or instrument of service provided.

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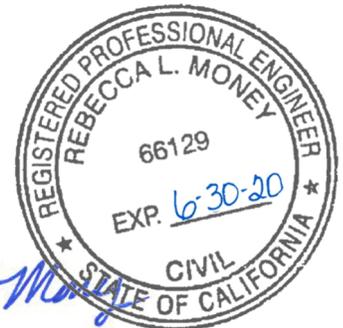
We appreciate the opportunity to work with you on this project. If you have any questions regarding this report, please contact us.

Respectfully submitted,

KLEINFELDER, INC.



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Reviewed By:



Timothy A. Williams, PE, GE
Project Manager

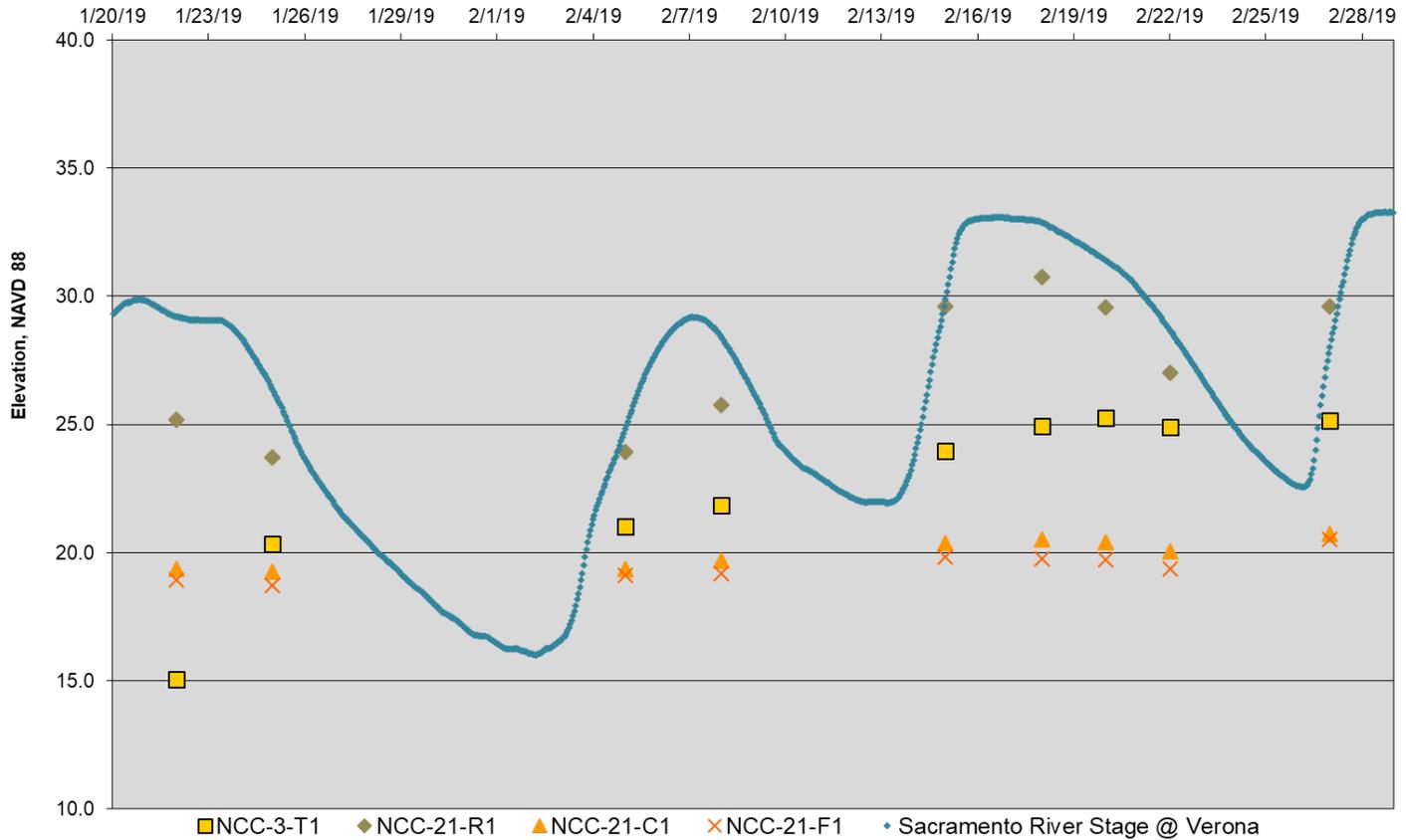
ATTACHMENTS

Figure 1-1: Site Location Map
Figures 2-1 through 2-9: Piezometer Location Maps
Figures 3-1 through 3-39: Groundwater Data

Note: Piezometers match locations on FIGURE 2-1

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Natomas Cross Canal Groundwater Level Elevations - Stations 0+00 to 30+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	3+00	Landside Toe	32.4	NCC-3-T1	Cutoff Wall
	21+00	Riverside	43	NCC-21-R1	
		Crown	49.1	NCC-21-C1	
		Field	21.5	NCC-21-F1	



PROJECT NO. 20161893
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 CHECKED BY: B. MONEY
 FILE NAME: GW_Plots.pub

**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 0+00 TO 30+00
 JANUARY AND FEBRUARY 2019**

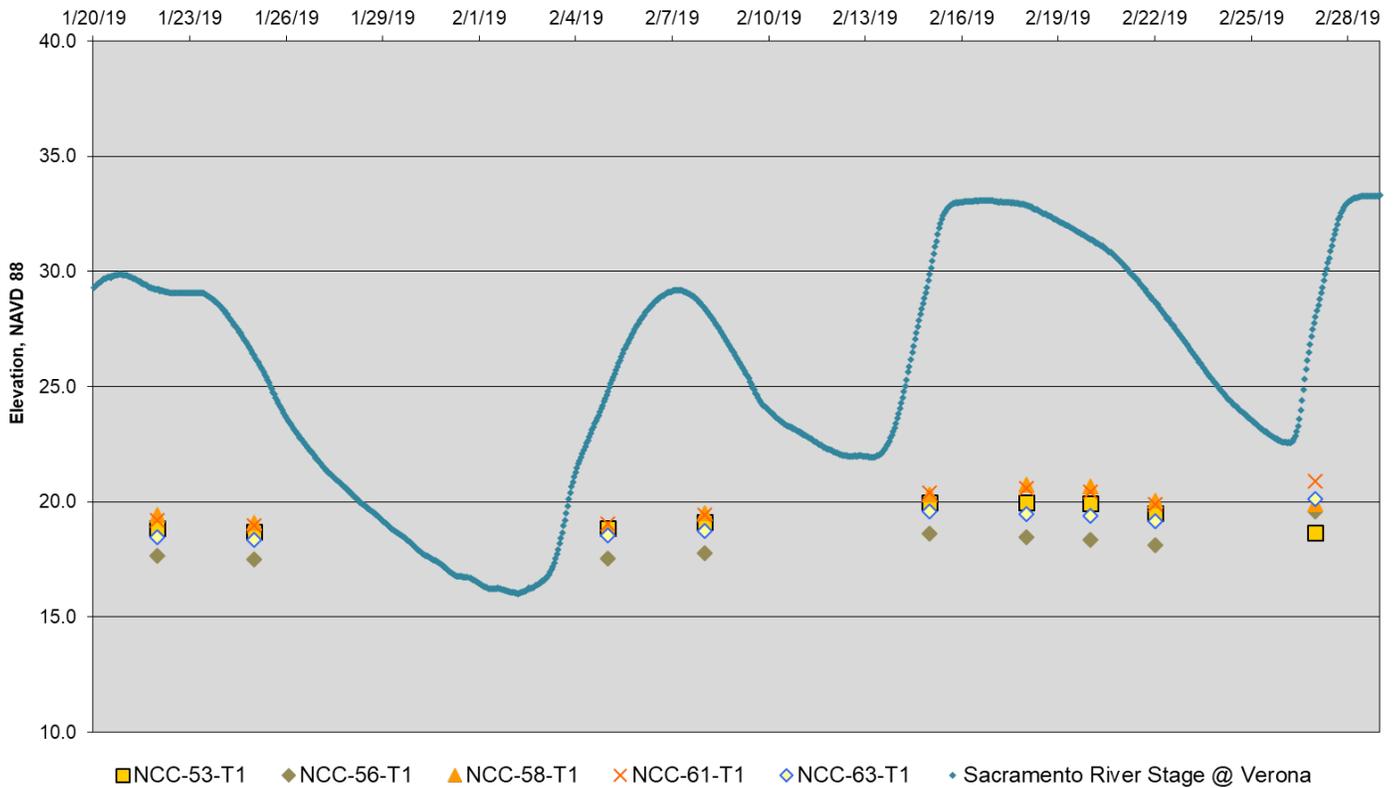
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-1

Note: Piezometers match locations on FIGURE 2-2

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Natomas Cross Canal Groundwater Level Elevations - Stations 30+00 to 80+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	53+00	Landside Toe	27.1	NCC-53-T1	Cutoff Wall
	56+00		28.3	NCC-56-T1	Pumping Plant + Window
	58+00		33.2	NCC-58-T1	Pumping Plant + Window
	61+00		28.1	NCC-61-T1	Cutoff Wall
	63+00		26.4	NCC-63-T1	Cutoff Wall



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 30+00 TO 80+00
 JANUARY AND FEBRUARY 2019**

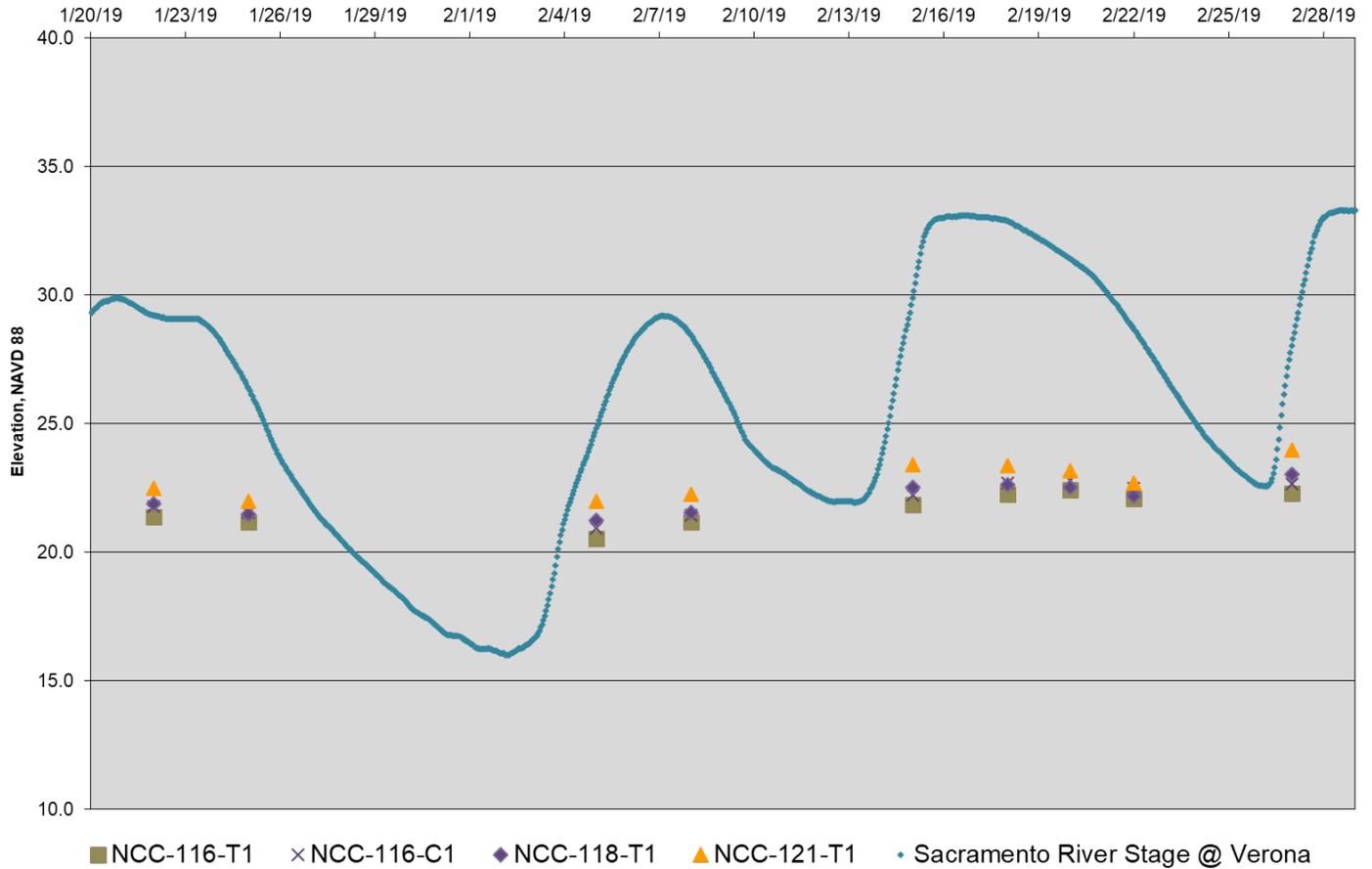
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-2

Note: Piezometers match locations on FIGURE 2-3

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Natomas Cross Canal Groundwater Level Elevations - Stations 105+00 to 160+00 (1 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC Note: NCC-116-C2 dry.	116+00	Waterside of COW	49	NCC-116-C1	Cutoff Wall
		Landside of COW	49.1	NCC-116-C2	
		Landside Toe	26.1	NCC-116-T1	
	118+00	Landside Toe	26.3	NCC-118-T1	Cutoff Wall
	121+00	Landside Toe	32.3	NCC-121-T1	Pumping Plant + Window



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 105+00 TO 160+00 (1 of 2)
 JANUARY AND FEBRUARY 2019**

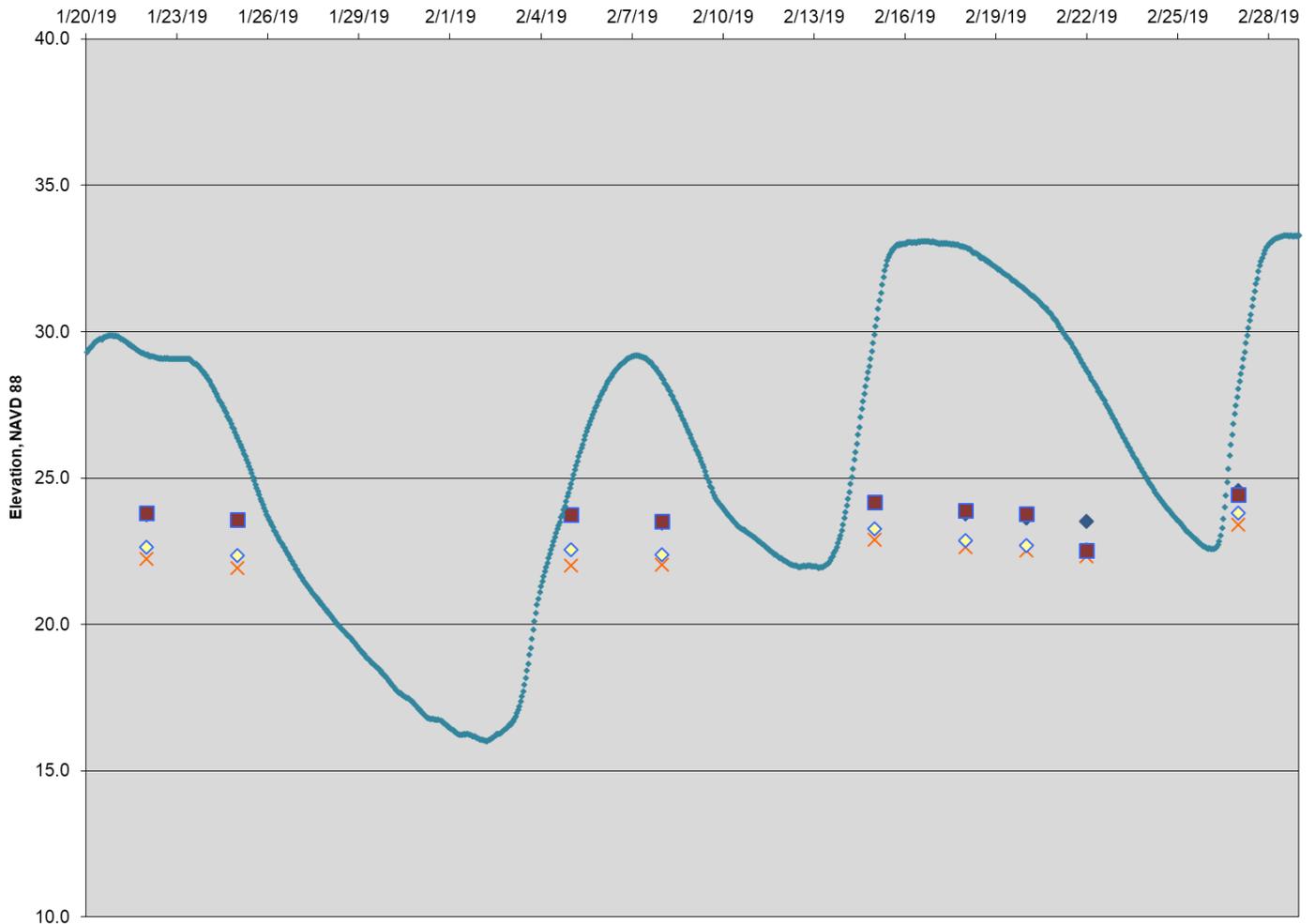
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-3

Note: Piezometers match locations on FIGURE 2-3

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Natomas Cross Canal Groundwater Level Elevations - Stations 105+00 to 160+00 (2 of 2)



× NCC-123-T1
 ◇ NCC-125-T1
 ◆ NCC-135-C1
 ■ NCC-135-C2
 ● Sacramento River Stage @ Verona

Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	123+00	Landside Toe	49	NCC-123-T1	Cutoff Wall
	125+00	Landside Toe	49.1	NCC-125-T1	
	135+00	Landside of COW	26.1	NCC-135-C1	
		Waterside of COW	26.3	NCC-135-C2	
		Field	32.3	NCC-135-F1	

Note: NCC-135-F1 destroyed and not measured.



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GROUNDWATER DATA
NATOMAS CROSS CANAL SOUTH LEVEE
STATIONS 105+00 TO 160+00 (2 of 2)
JANUARY AND FEBRUARY 2019

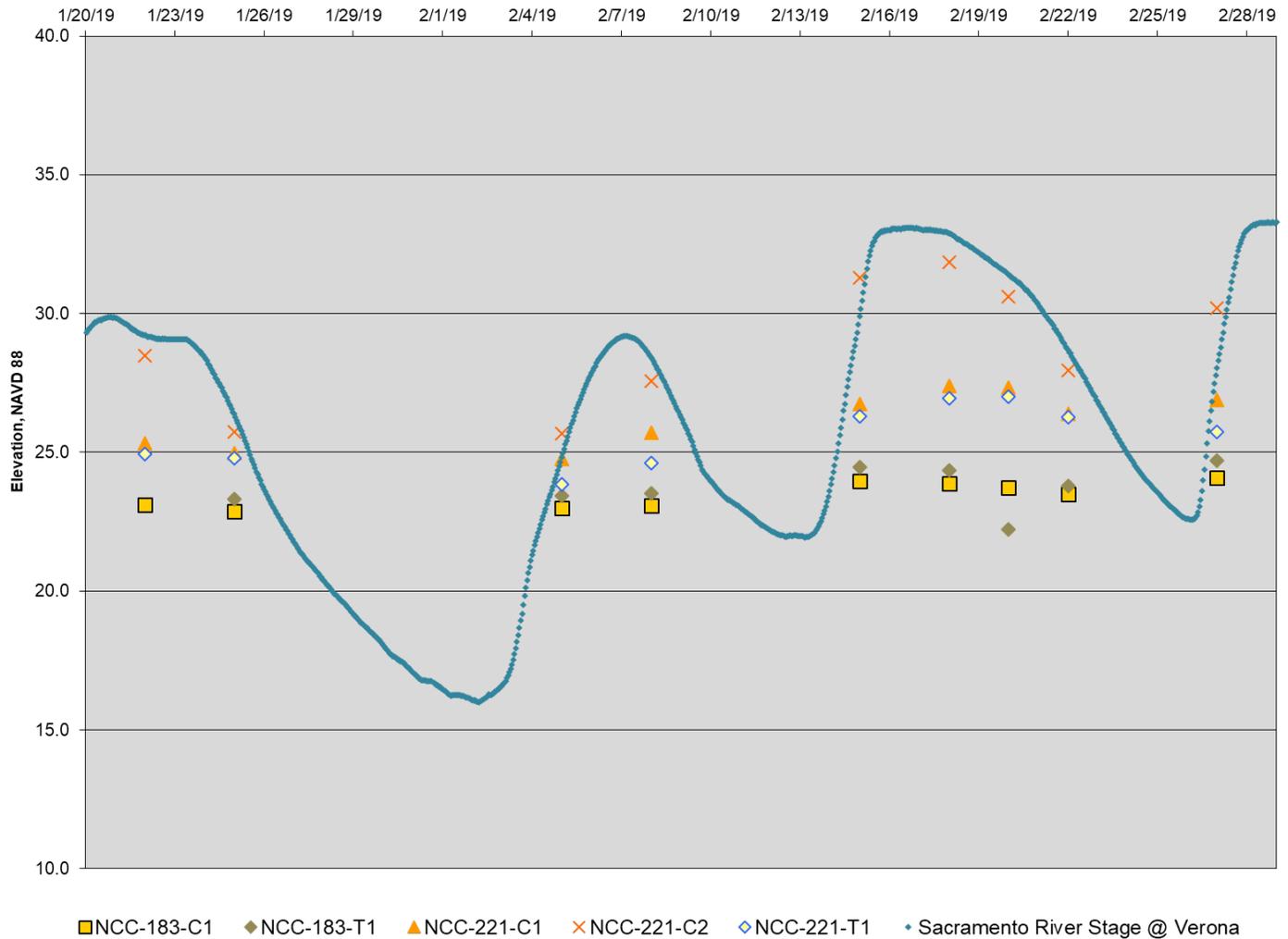
GROUNDWATER LEVEL DATA REPORT
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FIGURE
3-4

Note: Piezometers match locations on FIGURE 2-4

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Natomas Cross Canal Groundwater Level Elevations - Stations 180+00 to 230+00 (1 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	183+00	Crown	49	NCC-183-C1	Cutoff Wall
		Landside Toe	29.2	NCC-183-T1	
	221+00	Landside of COW	49.2	NCC-221-C1	
		Waterside of COW	49.1	NCC-221-C2	
		Landside Toe	30.6	NCC-221-T1	



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 180+00 TO 230+00 (1 of 2)
 JANUARY AND FEBRUARY 2019**

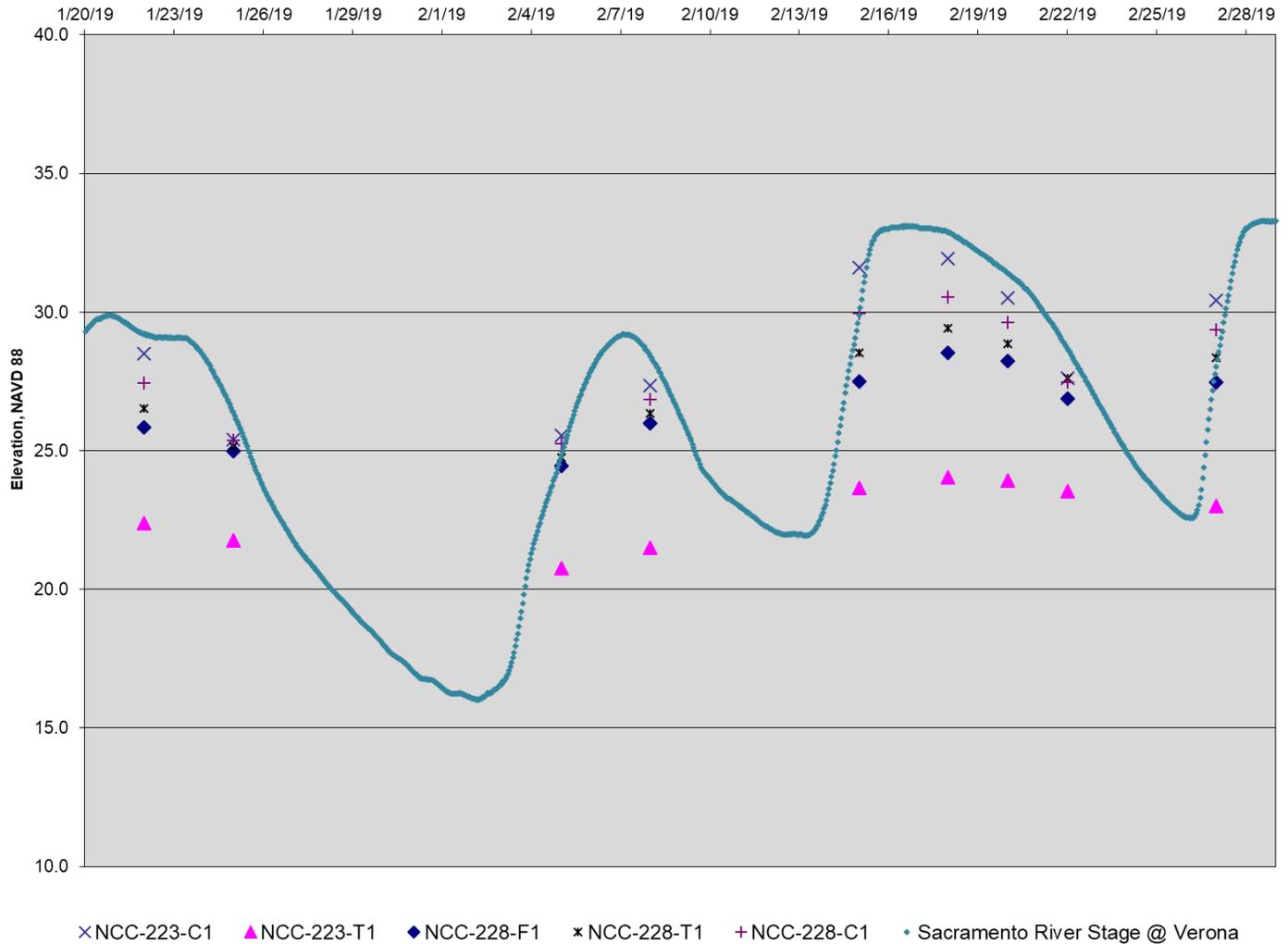
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-5

Note: Piezometers match locations on FIGURE 2-4

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Natomas Cross Canal Groundwater Level Elevations - Stations 180+00 to 230+00 (2 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	223+00	Crown	49.5	NCC-223-C1	Highway 99/70 Window
		Landside Toe	28.1	NCC-223-T1	
	228+00	Field	31.5	NCC-228-F1	
		Landside Toe	30.5	NCC-228-T1	
		Crown	46.4	NCC-228-CA	



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**GROUNDWATER DATA
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 STATIONS 180+00 TO 230+00 (2 of 2)
 JANUARY AND FEBRUARY 2019**

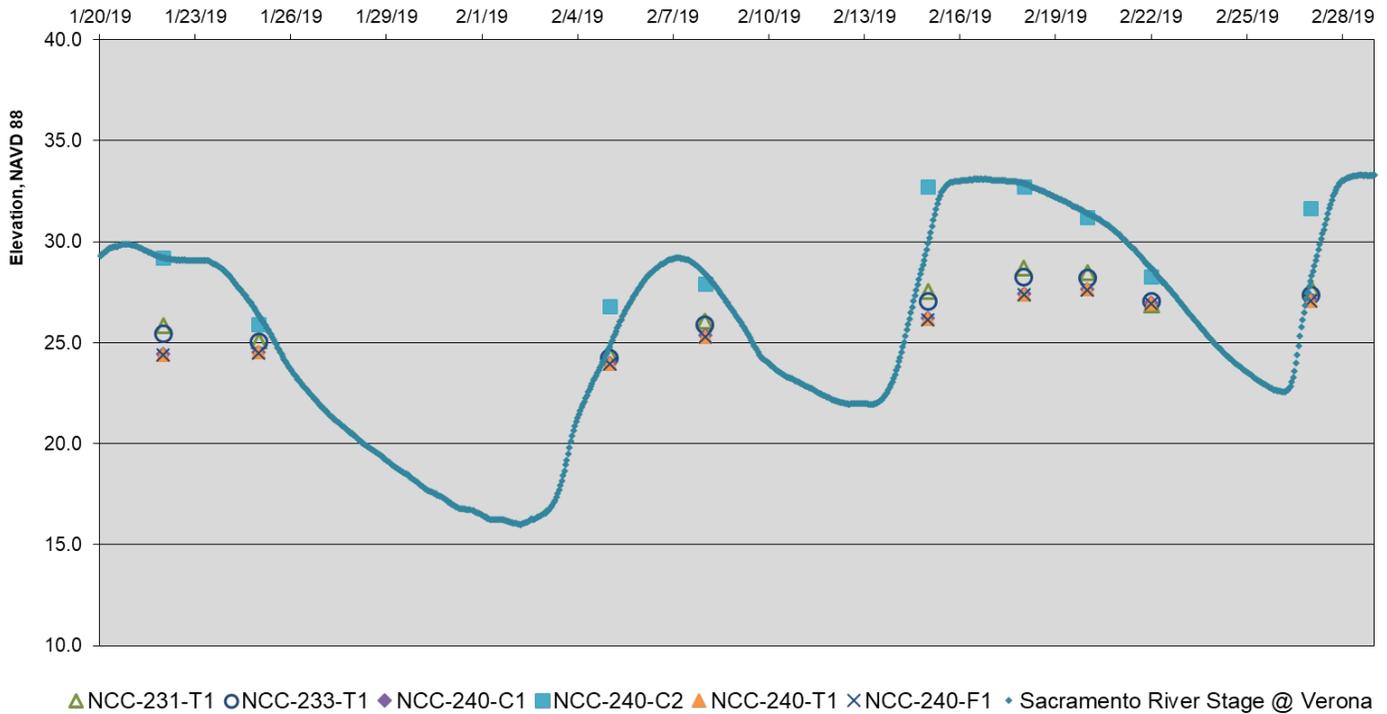
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-6

Note: Piezometers match locations on FIGURE 2-5

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Natomas Cross Canal Groundwater Level Elevations - Stations 230+00 to 240+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	231+00	Landside Toe	31.1	NCC-231-T1	Highway 99/70
	233+00	Landside Toe	31.9	NCC-233-T1	Cutoff Wall
	240+00	Landside of COW	49.1	NCC-240-C1	Cutoff Wall
		Waterside of COW	49.3	NCC-240-C2	
		Landside Toe	31.4	NCC-240-T1	
		Field	32.4	NCC-240-F1	

Note:
 224+00 to 231+00 Hwy 99/70 Window
 231+00 to 253+00 Full Cutoff Wall



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 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 230+00 TO 240+00
 JANUARY AND FEBRUARY 2019**

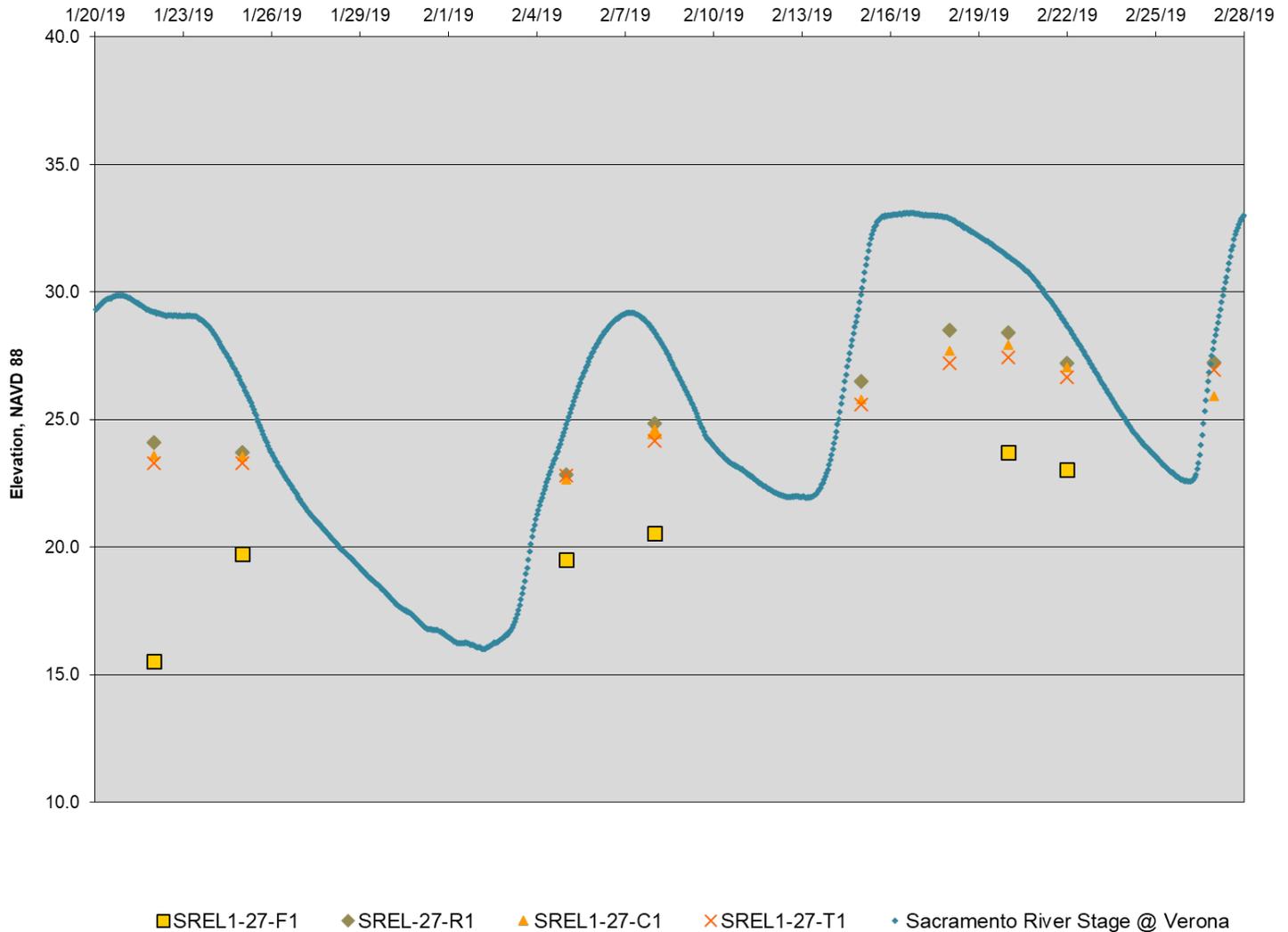
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FIGURE
3-7

Note: Piezometers match locations on FIGURE 2-6

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Sacramento River Groundwater Level Elevations - Stations 0+00 to 200+00 (1 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	27+00	Field	27.4	SREL-1-27-F1	Cutoff Wall
		Riverside	44.9	SREL-1-27-R1	
		Waterside of	48.2	SREL-1-27-C1	
		Landside of COW	48.7	SREL-1-27-C2	
		Landside Toe	32.2	SREL-1-27-T1	



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**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 0+00 TO 200+00 (1 of 2)
 JANUARY AND FEBRUARY 2019**

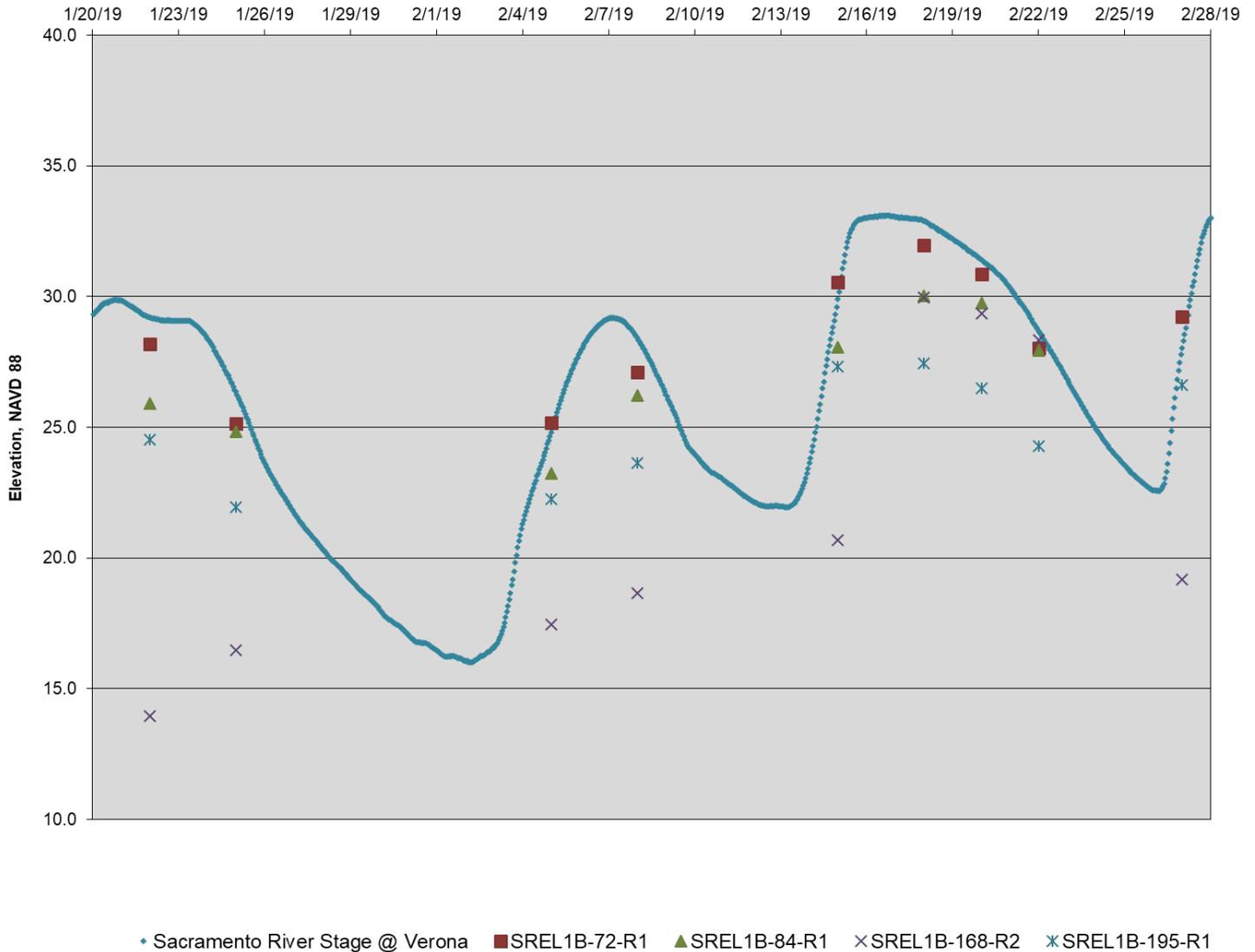
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-8

Note: Piezometers match locations on FIGURE 2-6

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Sacramento River Groundwater Level Elevations - Stations 0+00 to 200+00 (2 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	72+00	Riverside	44.6	SREL1B-72-R1	Cutoff Wall
SREL	84+00		44.2	SREL1B-84-R1	
SREL	168+00		44.3	SREL1B-168-R2	
SREL	195+00		43	SREL1B-195-R1	



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**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 0+00 TO 200+00 (2 of 2)
 JANUARY AND FEBRUARY 2019**

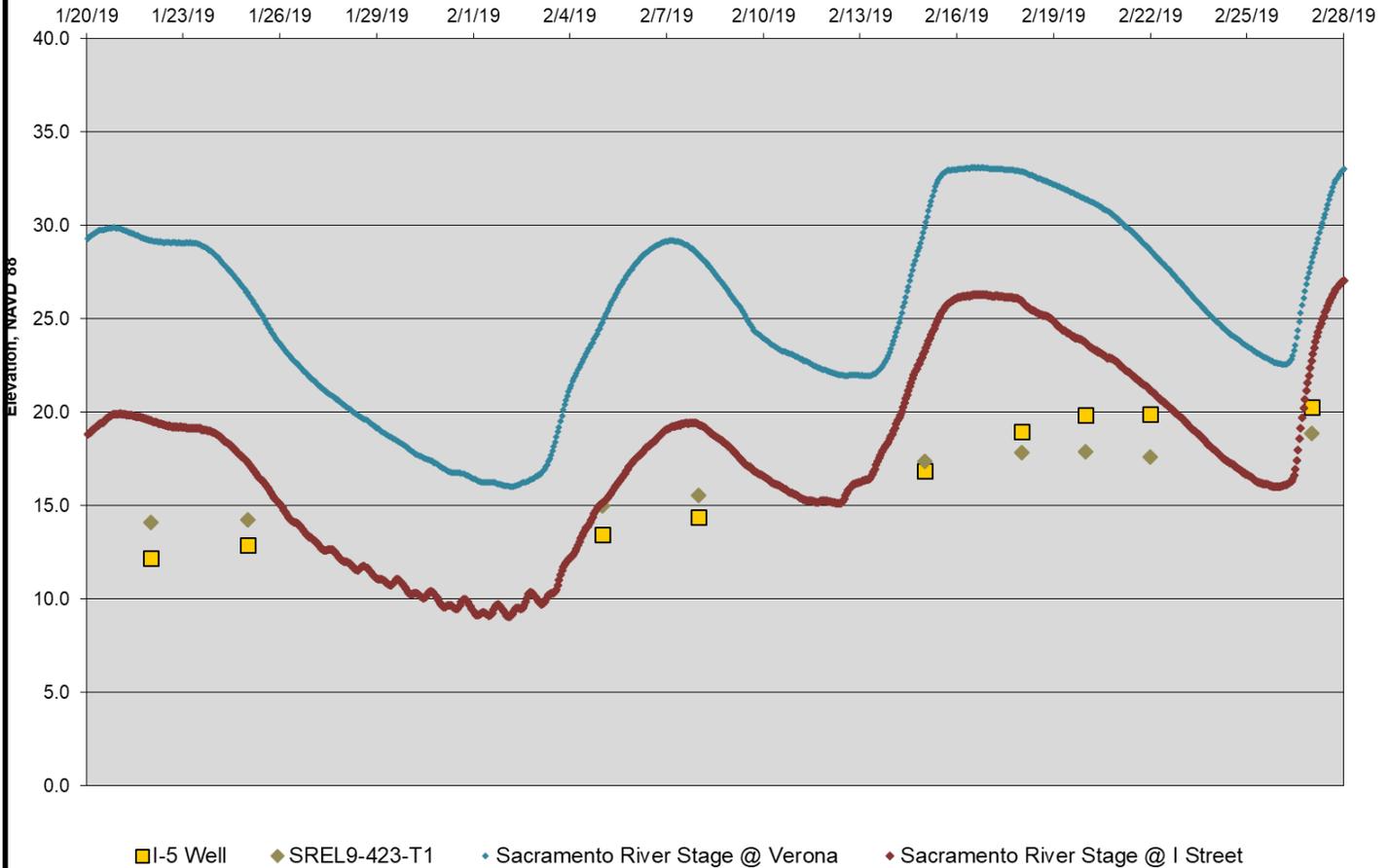
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FIGURE
3-9

Note: Piezometers match locations on FIGURE 2-7

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Sacramento River Groundwater Elevation Stations - 330+00 to 450+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	336+00	Landside Toe	34.4	SREL7-336-T1	Cutoff Wall
SREL	423+00	Landside Toe	30.1	SREL9-423-T1	
SREL	449+00	Landside Toe	26.45	I-5 Well	Window

Note:
SREL 7-336-T1 damaged.



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**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 330+00 TO 450+00
 JANUARY AND FEBRUARY 2019**

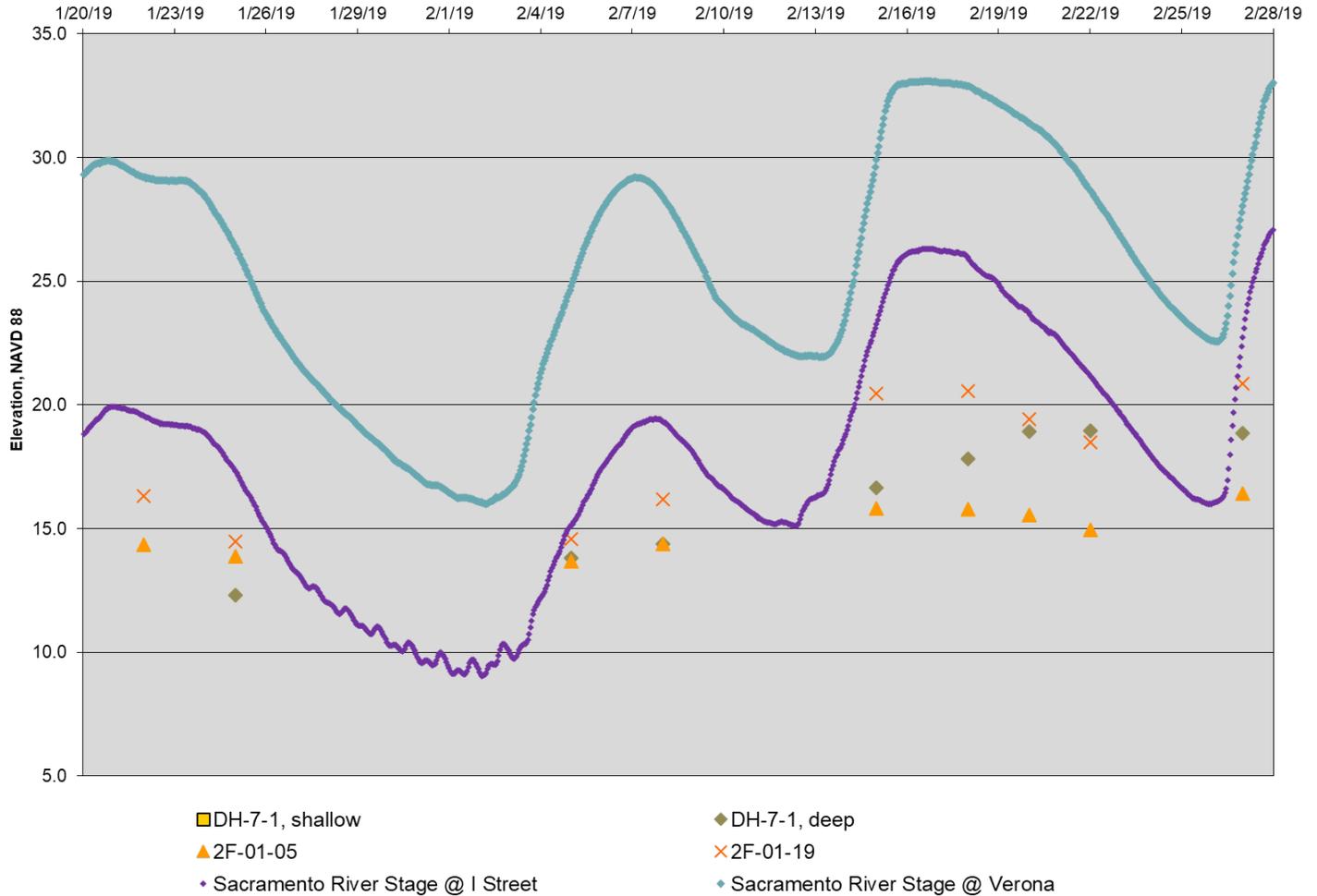
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FIGURE
3-10

Note: Piezometers match locations on FIGURE 2-8

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Sacramento River Groundwater Elevations - Stations 670+00 to 830+00 (1 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	678+00	Landside Toe	24.1	2F-01-05	No Improvement
	715+00	Crown	41.4	DH-7-1 (shallow), DH-7-1 (deep)	
	758+00	Landside Toe	27.5	2F-01-15	
	810+00	Field	23.0	2F-01-19	

Note:
 DH-7-1 Shallow was encountered to be dry.
 2F-01-15 could not be located.



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**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 670+00 TO 830+00 (1 of 2)
 JANUARY AND FEBRUARY 2019**

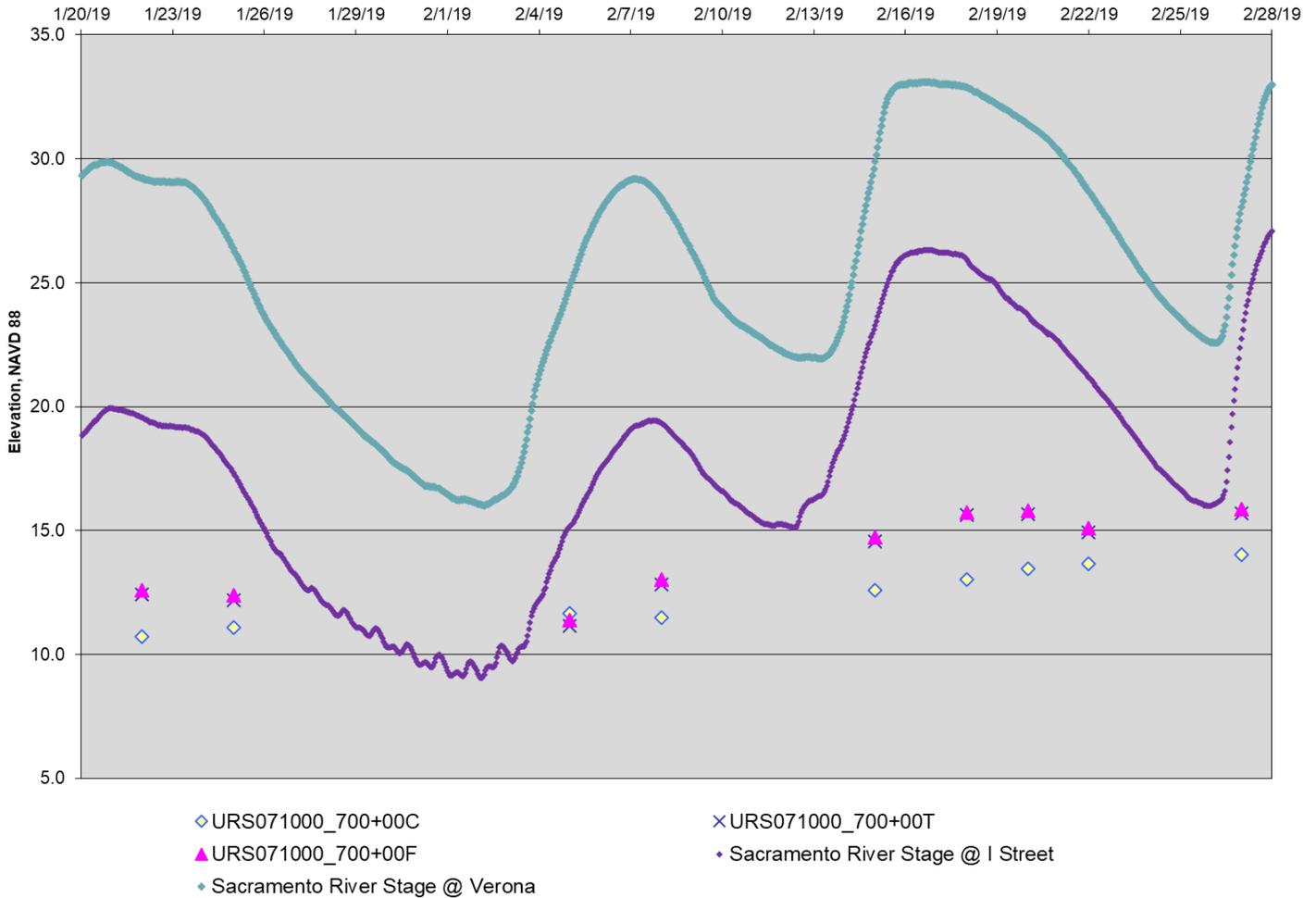
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FIGURE
3-11

Note: Piezometers match locations on FIGURE 2-8

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Sacramento River Groundwater Elevations - Stations 670+00 to 830+00 (2 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	700+00	Crown	41.7	URS71000_700+00C	No Improvement
		Landside Toe	26.5	URS71000_700+00T	
		Field	24.2	URS71000_700+00F	



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**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 670+00 TO 830+00 (2 of 2)
 JANUARY AND FEBRUARY 2019**

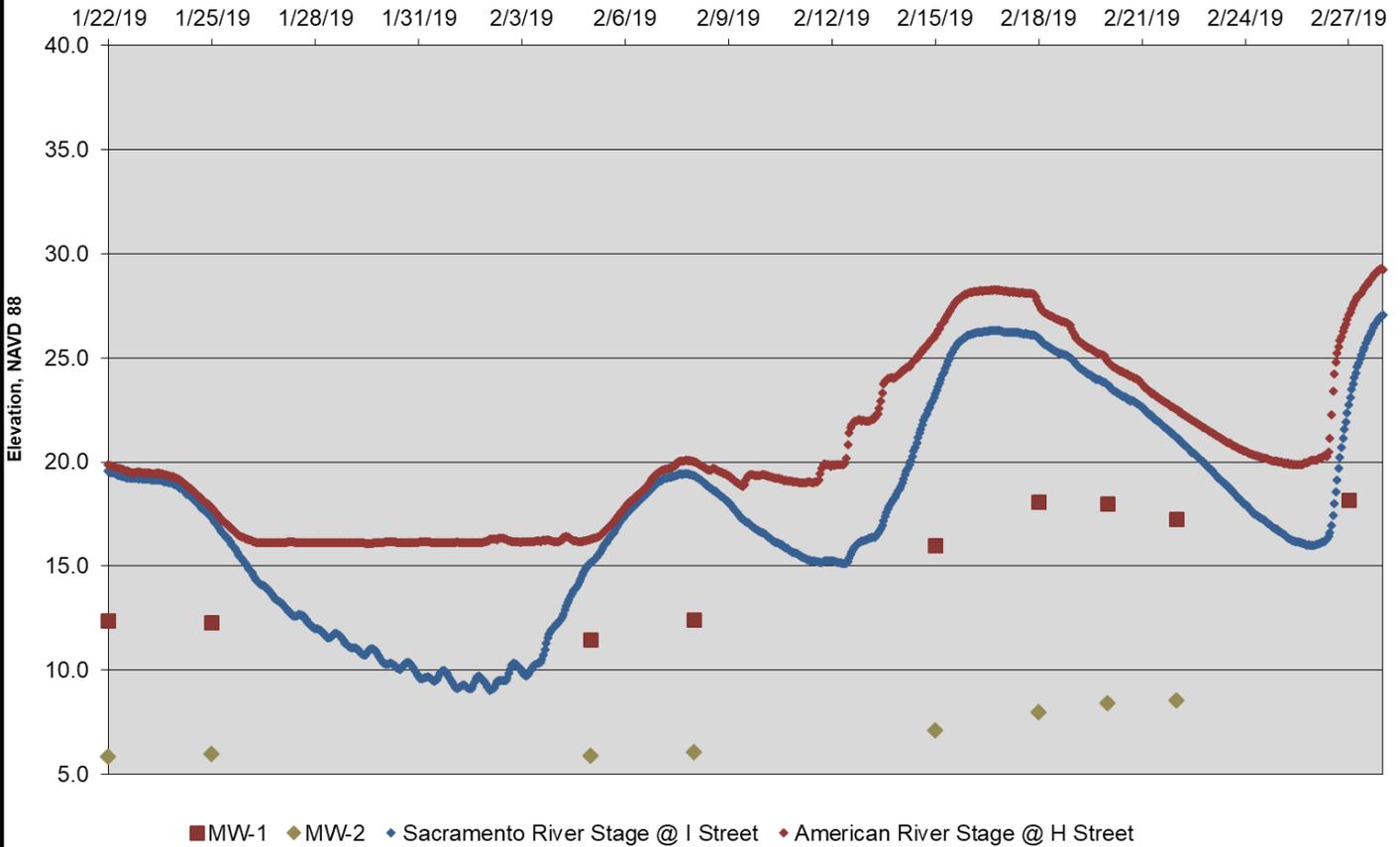
GROUNDWATER LEVEL DATA REPORT
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FIGURE
3-12

Note: Piezometers match locations on FIGURE 2-9

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American River Groundwater Level Elevations



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
ARNL	3339+50	Landside of CDW	52.0	MW-1	Cutoff Wall
		Landside Toe	38.6	MW-2	



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**GROUNDWATER DATA
 AMERICAN RIVER NORTH LEVEE
 STATION 3330+00 to 3350+00
 JANUARY AND FEBRUARY 2019**

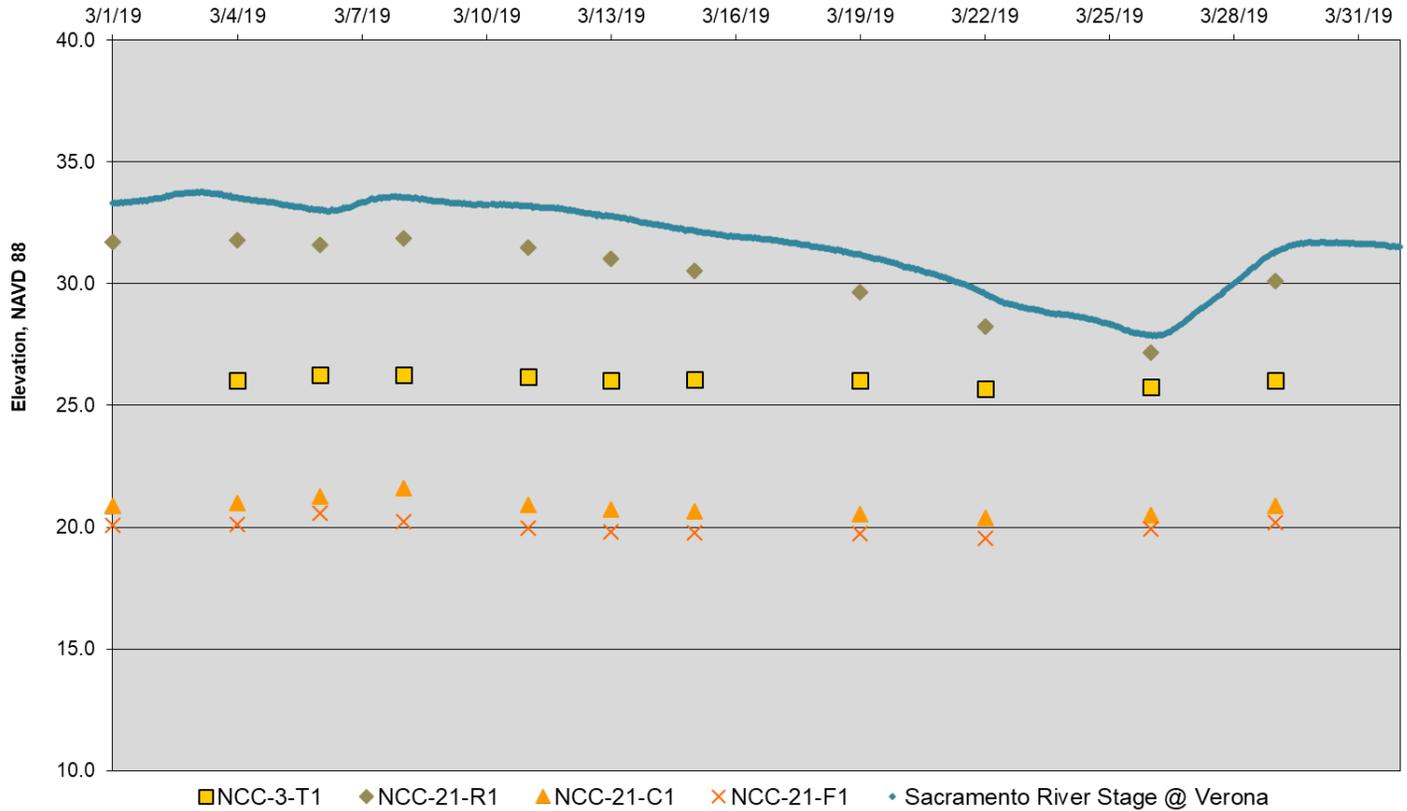
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-13

Note: Piezometers match locations on FIGURE 2-1

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Natomas Cross Canal Groundwater Level Elevations - Stations 0+00 to 30+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	3+00	Landside Toe	32.4	NCC-3-T1	Cutoff Wall
	21+00	Riverside	43	NCC-21-R1	
		Crown	49.1	NCC-21-C1	
		Field	21.5	NCC-21-F1	



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 0+00 TO 30+00
 MARCH 2019**

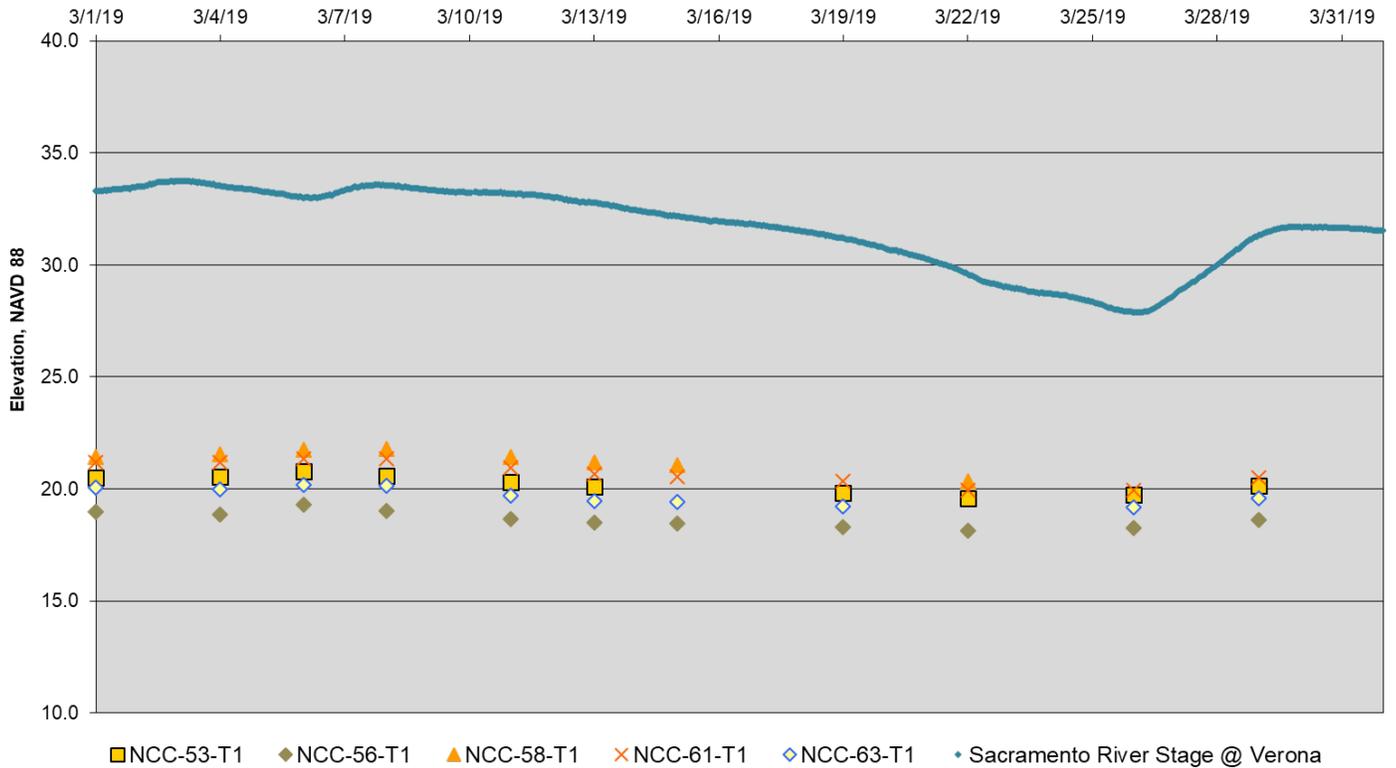
GROUNDWATER LEVEL DATA REPORT
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 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-14

Note: Piezometers match locations on FIGURE 2-2

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Natomas Cross Canal Groundwater Level Elevations - Stations 30+00 to 80+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	53+00	Landside Toe	27.1	NCC-53-T1	Cutoff Wall
	56+00		28.3	NCC-56-T1	Pumping Plant + Window
	58+00		33.2	NCC-58-T1	Pumping Plant + Window
	61+00		28.1	NCC-61-T1	Cutoff Wall
	63+00		26.4	NCC-63-T1	Cutoff Wall



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEEVE
 STATIONS 30+00 TO 80+00
 MARCH 2019**

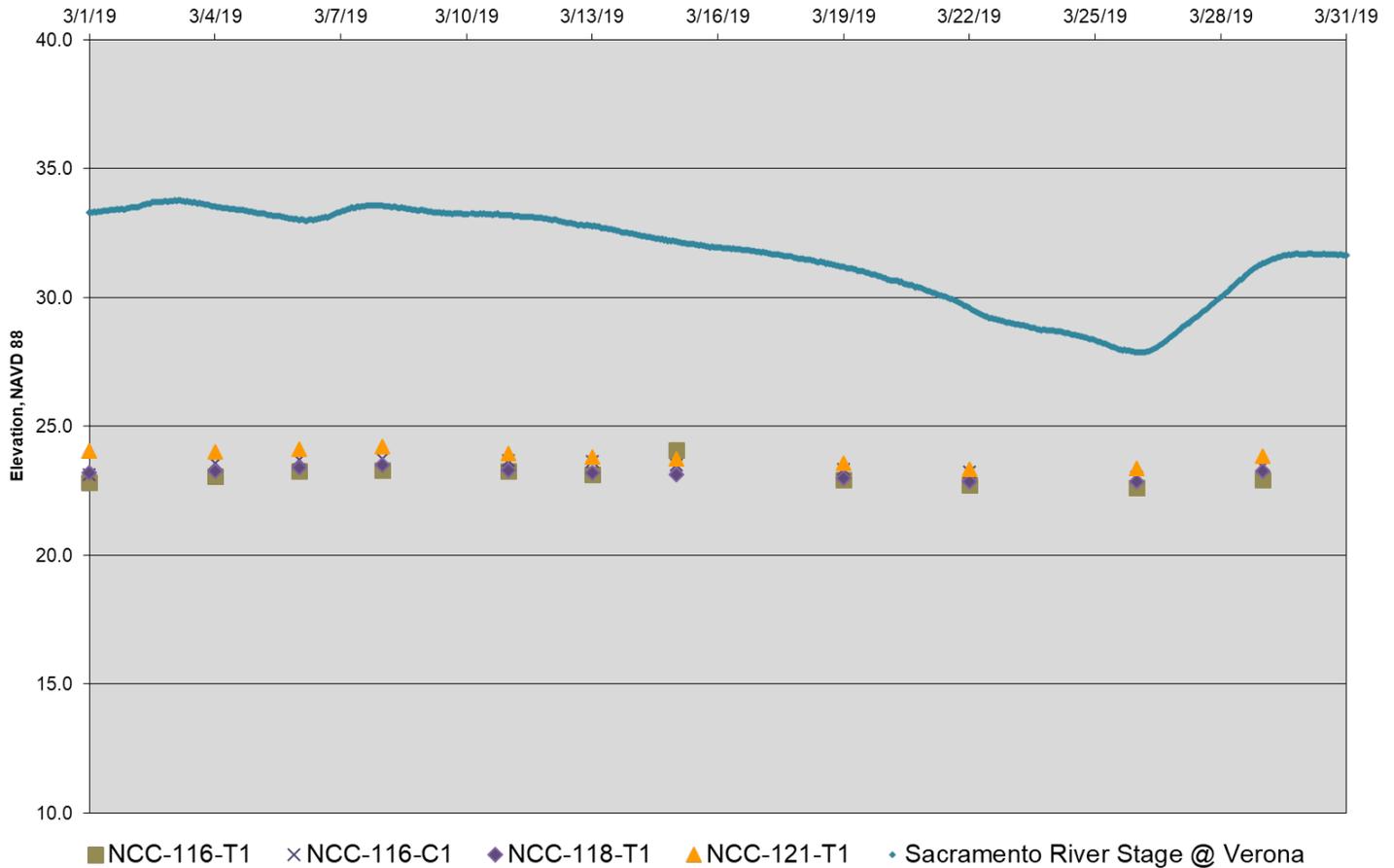
GROUNDWATER LEVEL DATA REPORT
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FIGURE
3-15

Note: Piezometers match locations on FIGURE 2-3

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Natomas Cross Canal Groundwater Level Elevations - Stations 105+00 to 160+00 (1 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	116+00	Waterside of COW	49	NCC-116-C1	Cutoff Wall
		Landside of COW	49.1	NCC-116-C2	
		Landside Toe	26.1	NCC-116-T1	
	118+00	Landside Toe	26.3	NCC-118-T1	Cutoff Wall
	121+00	Landside Toe	32.3	NCC-121-T1	Pumping Plant + Window

Note: NCC-116-C2 dry.



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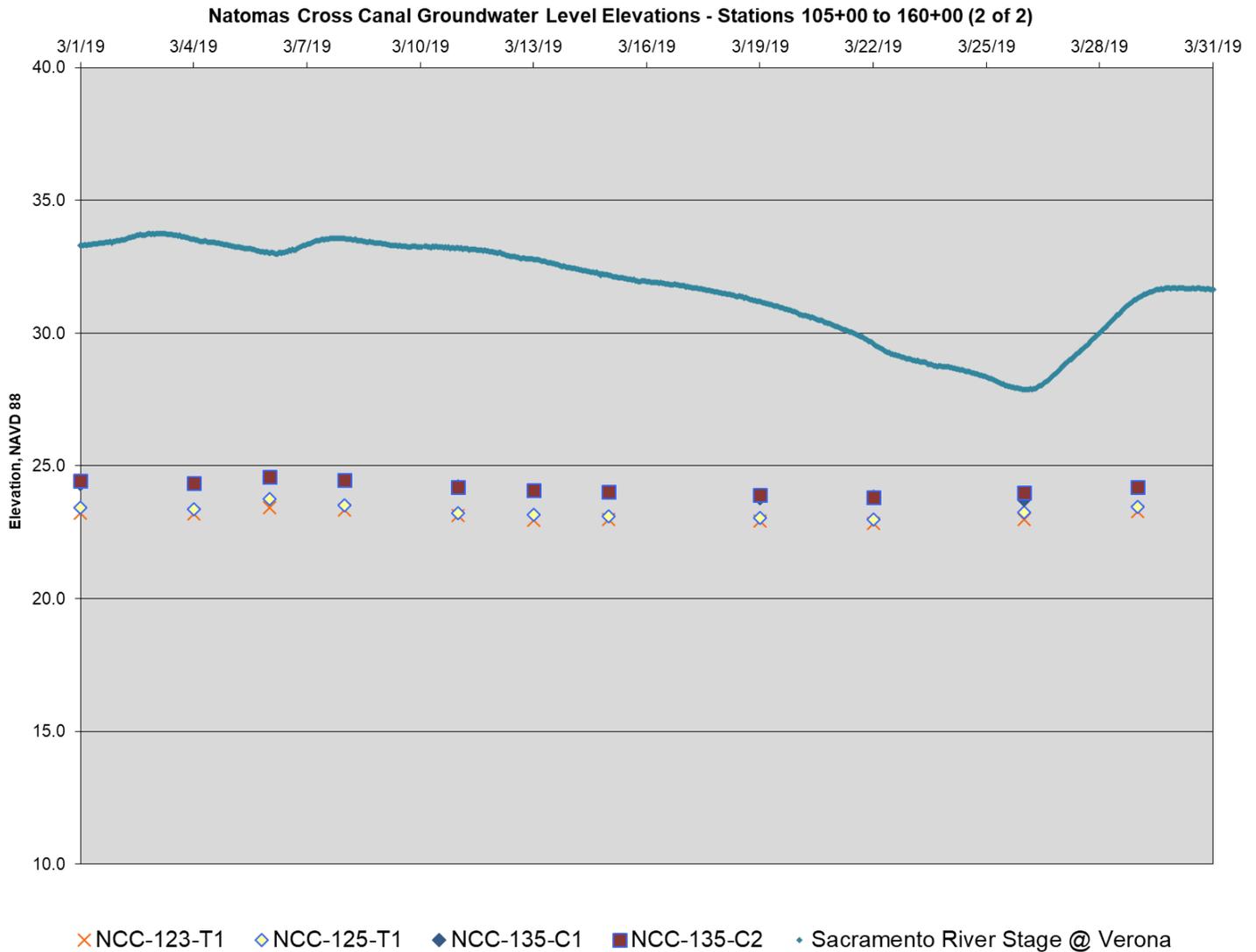
**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 105+00 TO 160+00 (1 of 2)
 MARCH 2019**

GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-16

Note: Piezometers match locations on FIGURE 2-3

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Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	123+00	Landside Toe	49	NCC-123-T1	Cutoff Wall
	125+00	Landside Toe	49.1	NCC-125-T1	
	135+00	Landside of COW	26.1	NCC-135-C1	
		Waterside of COW	26.3	NCC-135-C2	
		Field	32.3	NCC-135-F1	

Note: NCC-135-F1 destroyed and not measured.



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 FILE NAME: GW_Plots.pub

**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 105+00 TO 160+00 (2 of 2)
 MARCH 2019**

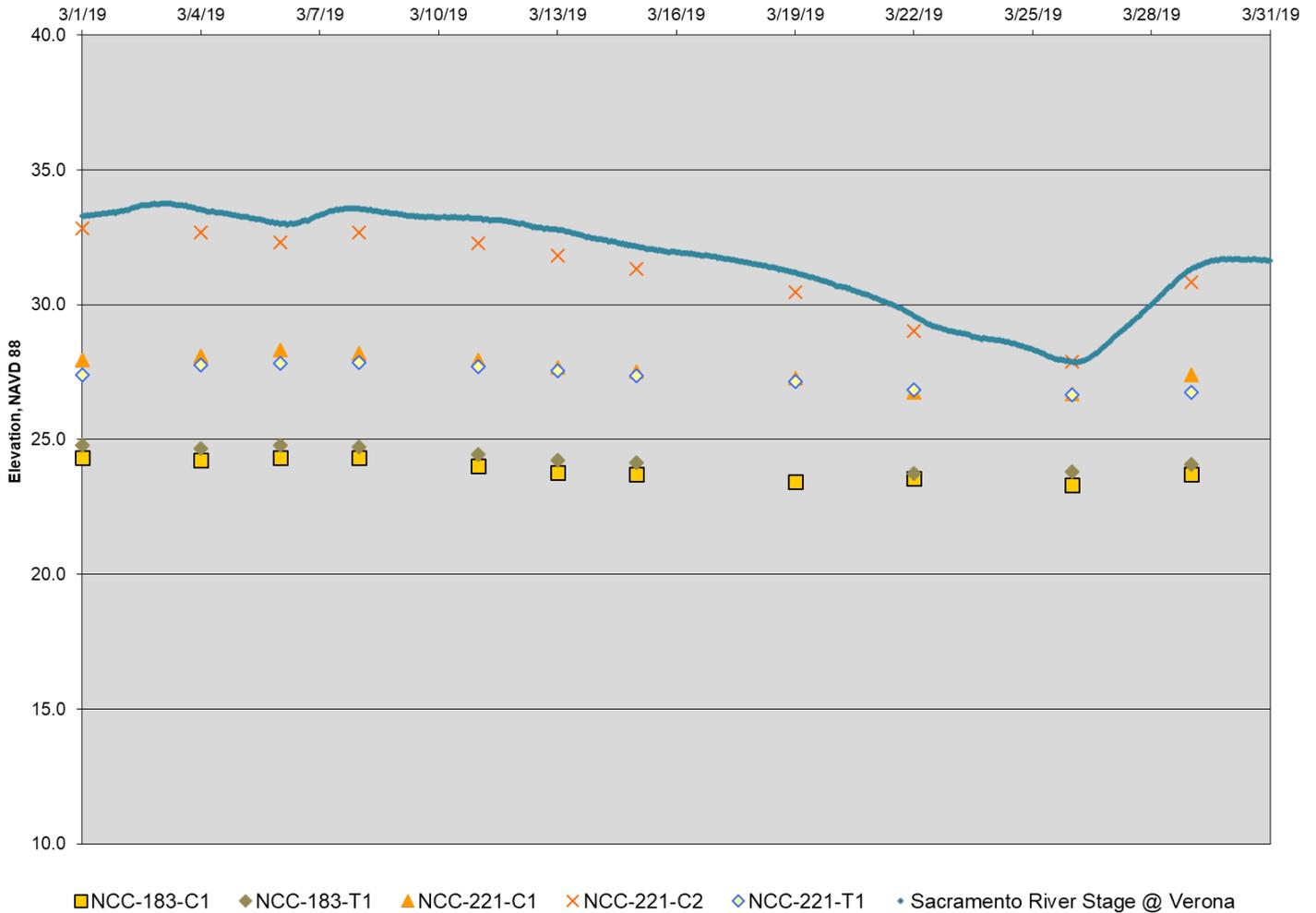
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-17

Note: Piezometers match locations on FIGURE 2-4

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Natomas Cross Canal Groundwater Level Elevations - Stations 180+00 to 230+00 (1 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	183+00	Crown	49	NCC-183-C1	Cutoff Wall
		Landside Toe	29.2	NCC-183-T1	
	221+00	Landside of COW	49.2	NCC-221-C1	
		Waterside of COW	49.1	NCC-221-C2	
		Landside Toe	30.6	NCC-221-T1	



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 180+00 TO 230+00 (1 of 2)
 MARCH 2019**

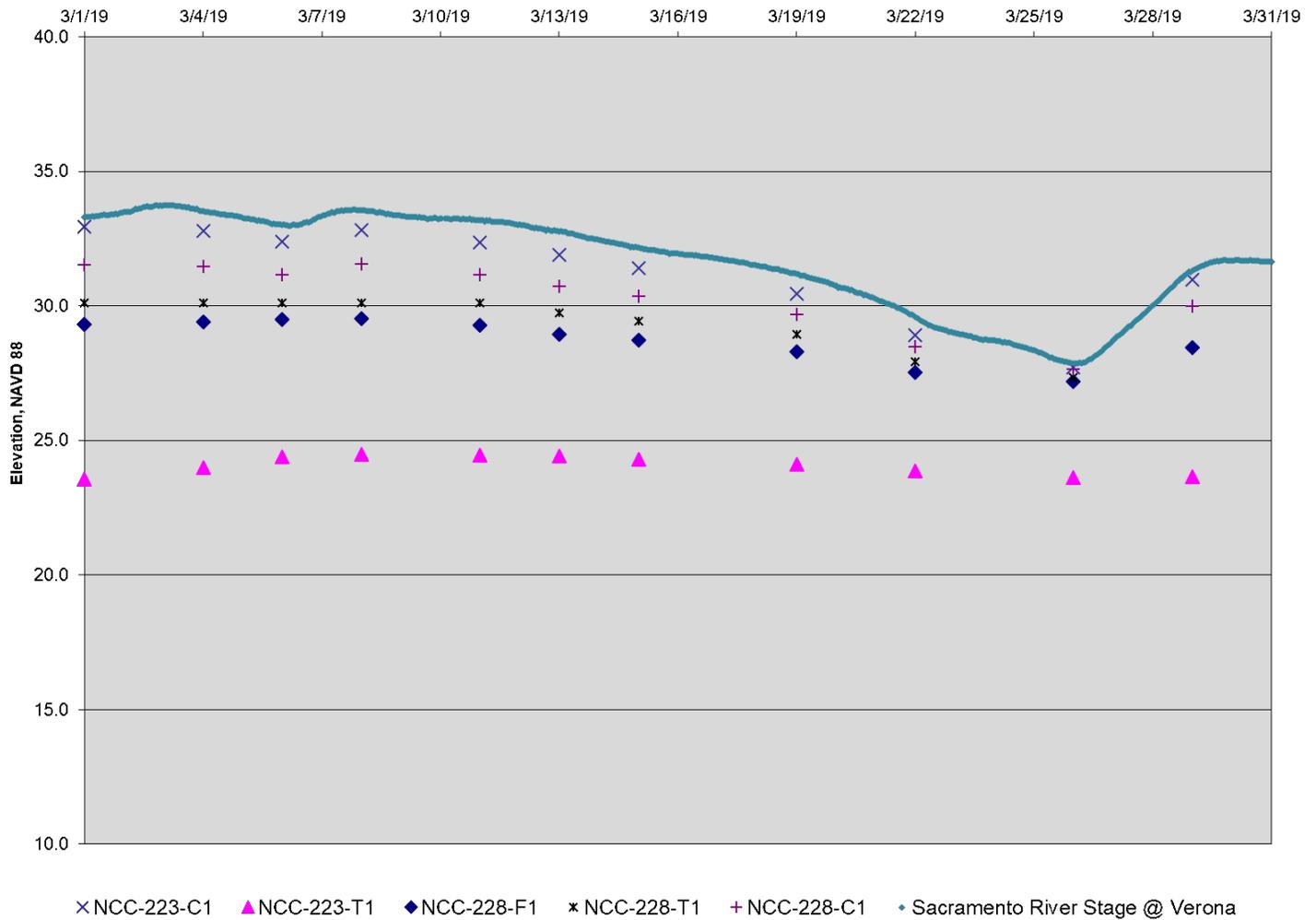
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-18

Note: Piezometers match locations on FIGURE 2-4

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Natomas Cross Canal Groundwater Level Elevations - Stations 180+00 to 230+00 (2 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	223+00	Crown	49.5	NCC-223-C1	Highway 99/70 Window
		Landside Toe	28.1	NCC-223-T1	
	228+00	Field	31.5	NCC-228-F1	
		Landside Toe	30.5	NCC-228-T1	
		Crown	46.4	NCC-228-CA	



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 180+00 TO 230+00 (2 of 2)
 MARCH 2019**

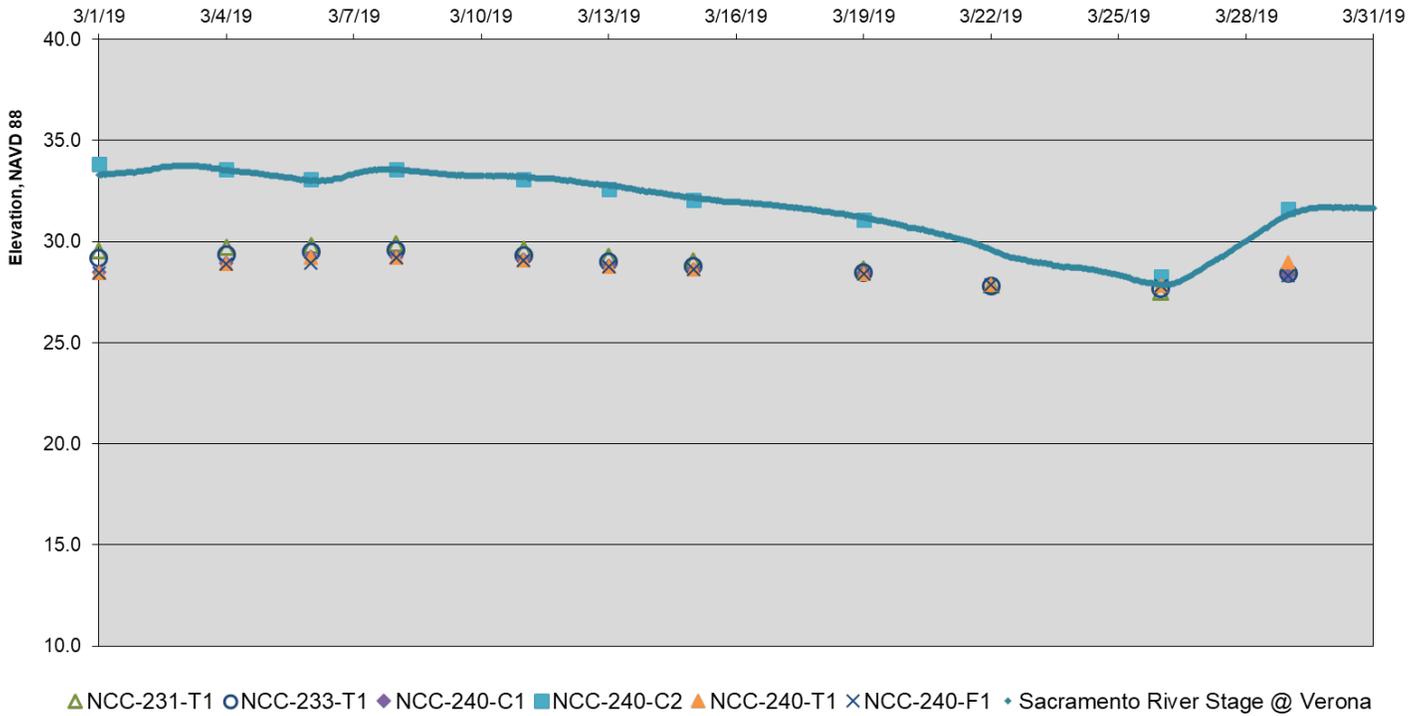
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-19

Note: Piezometers match locations on FIGURE 2-5

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Natomas Cross Canal Groundwater Level Elevations - Stations 230+00 to 240+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	231+00	Landside Toe	31.1	NCC-231-T1	Highway 99/70
	233+00	Landside Toe	31.9	NCC-233-T1	Cutoff Wall
	240+00	Landside of COW	49.1	NCC-240-C1	Cutoff Wall
		Waterside of COW	49.3	NCC-240-C2	
		Landside Toe	31.4	NCC-240-T1	
Field	32.4	NCC-240-F1			

Note:
 224+00 to 231+00 Hwy 99/70 Window
 231+00 to 253+00 Full Cutoff Wall



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 230+00 TO 240+00
 MARCH 2019**

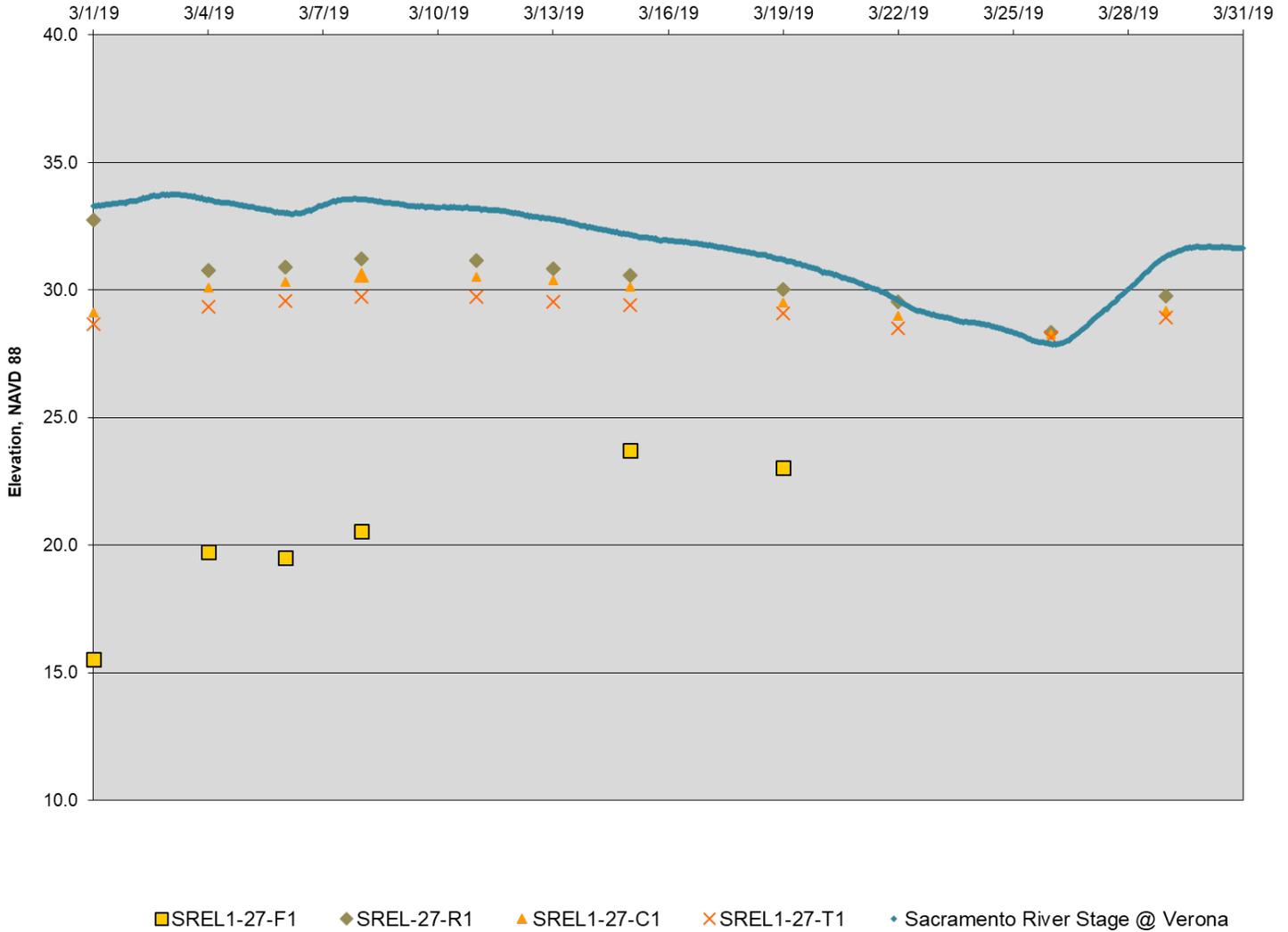
GROUNDWATER LEVEL DATA REPORT
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FIGURE
3-20

Note: Piezometers match locations on FIGURE 2-6

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Sacramento River Groundwater Level Elevations - Stations 0+00 to 200+00 (1 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	27+00	Field	27.4	SREL-1-27-F1	Cutoff Wall
		Riverside	44.9	SREL-1-27-R1	
		Waterside of	48.2	SREL-1-27-C1	
		Landside of COW	48.7	SREL-1-27-C2	
		Landside Toe	32.2	SREL-1-27-T1	



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**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 0+00 TO 200+00 (1 of 2)
 MARCH 2019**

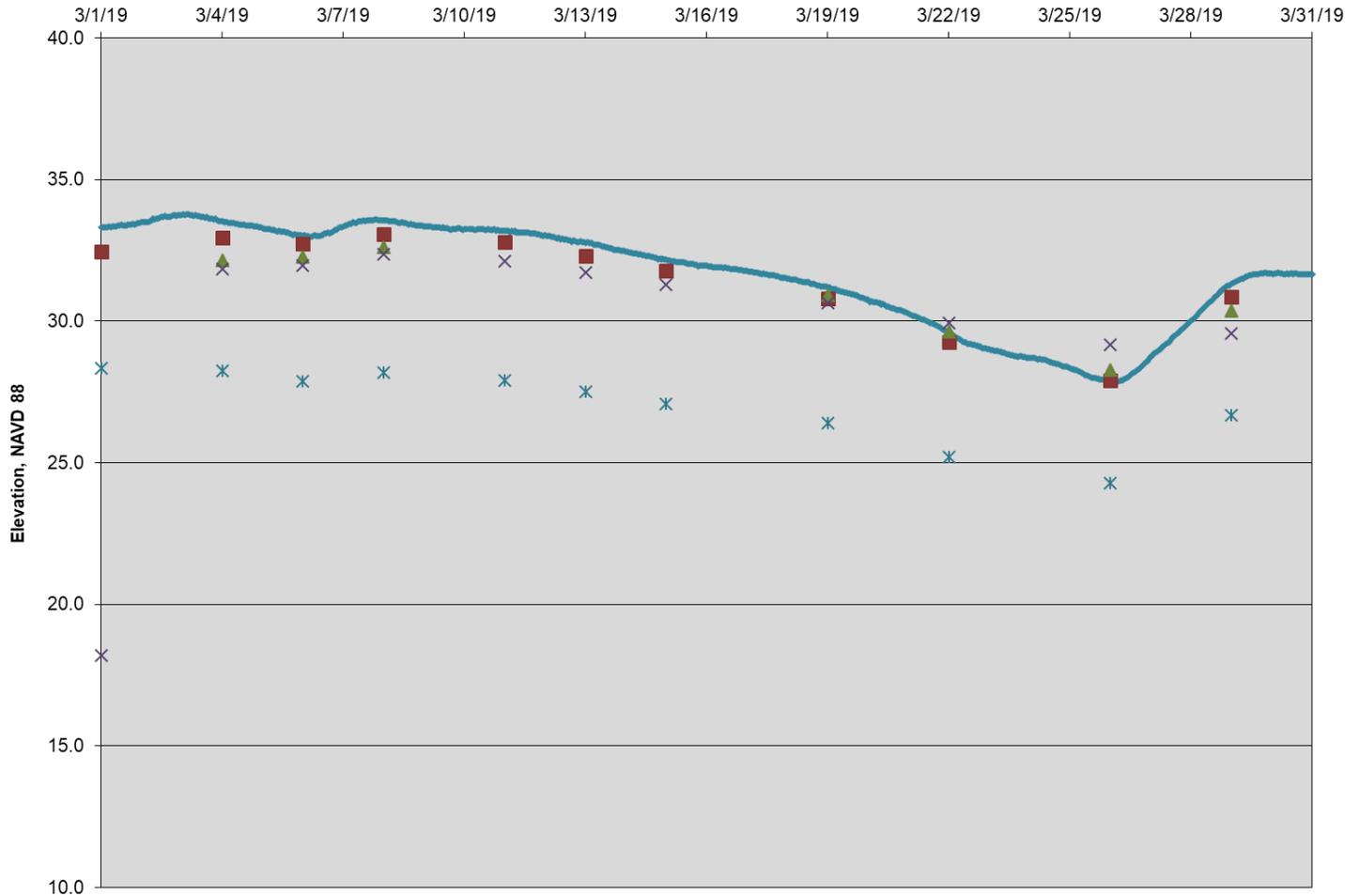
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-21

Note: Piezometers match locations on FIGURE 2-6

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Sacramento River Groundwater Level Elevations - Stations 0+00 to 200+00 (2 of 2)



• Sacramento River Stage @ Verona ■ SREL1B-72-R1 ▲ SREL1B-84-R1 × SREL1B-168-R2 * SREL1B-195-R1

Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	72+00	Riverside	44.6	SREL1B-72-R1	Cutoff Wall
SREL	84+00		44.2	SREL1B-84-R1	
SREL	168+00		44.3	SREL1B-168-R2	
SREL	195+00		43	SREL1B-195-R1	



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**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 0+00 TO 200+00 (2 of 2)
 MARCH 2019**

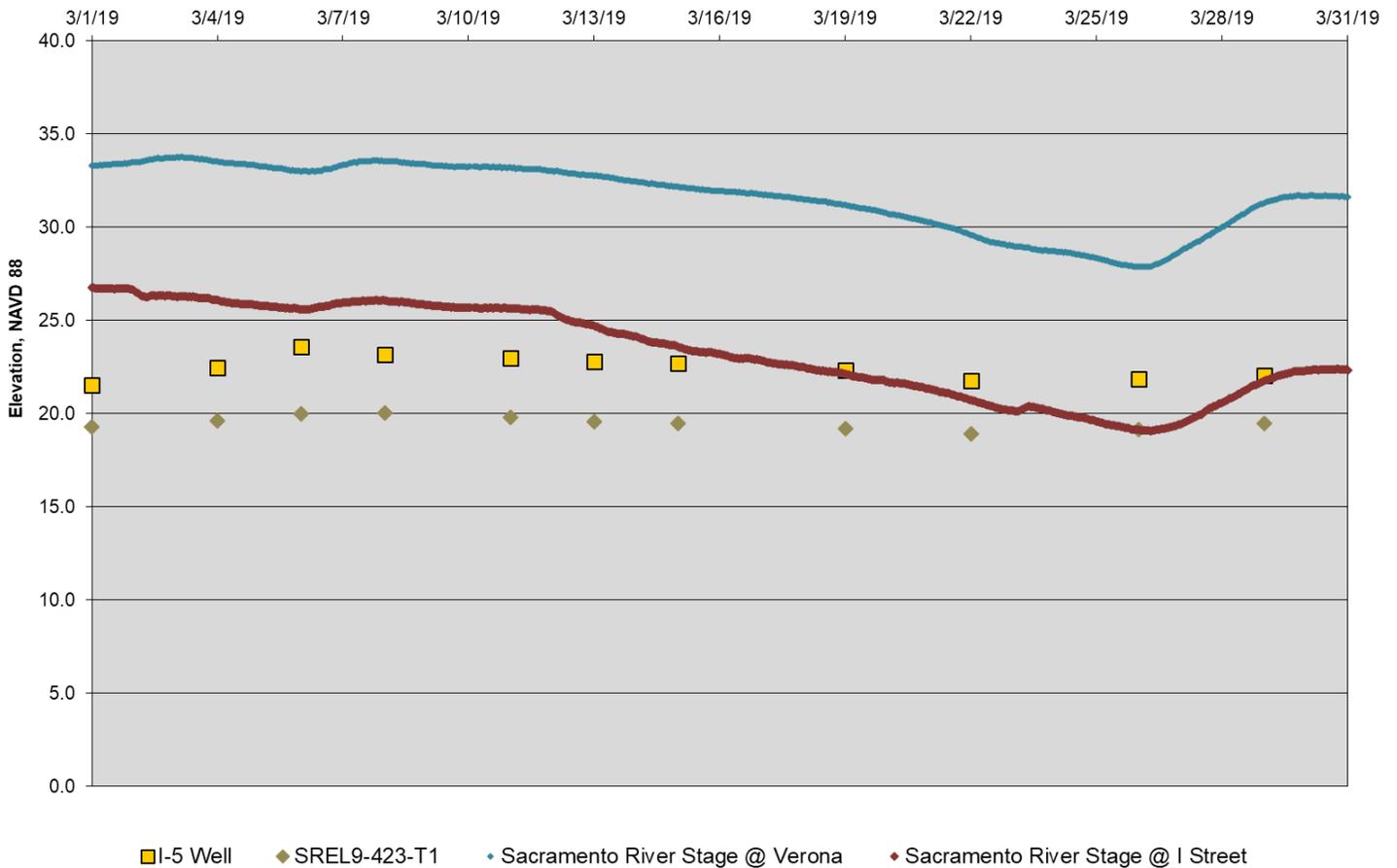
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-22

Note: Piezometers match locations on FIGURE 2-7

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Sacramento River Groundwater Elevation Stations - 330+00 to 450+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	336+00	Landside Toe	34.4	SREL7-336-T1	Cutoff Wall
SREL	423+00	Landside Toe	30.1	SREL9-423-T1	
SREL	449+00	Landside Toe	26.45	I-5 Well	Window

Note:
SREL 7-336-T1 damaged.



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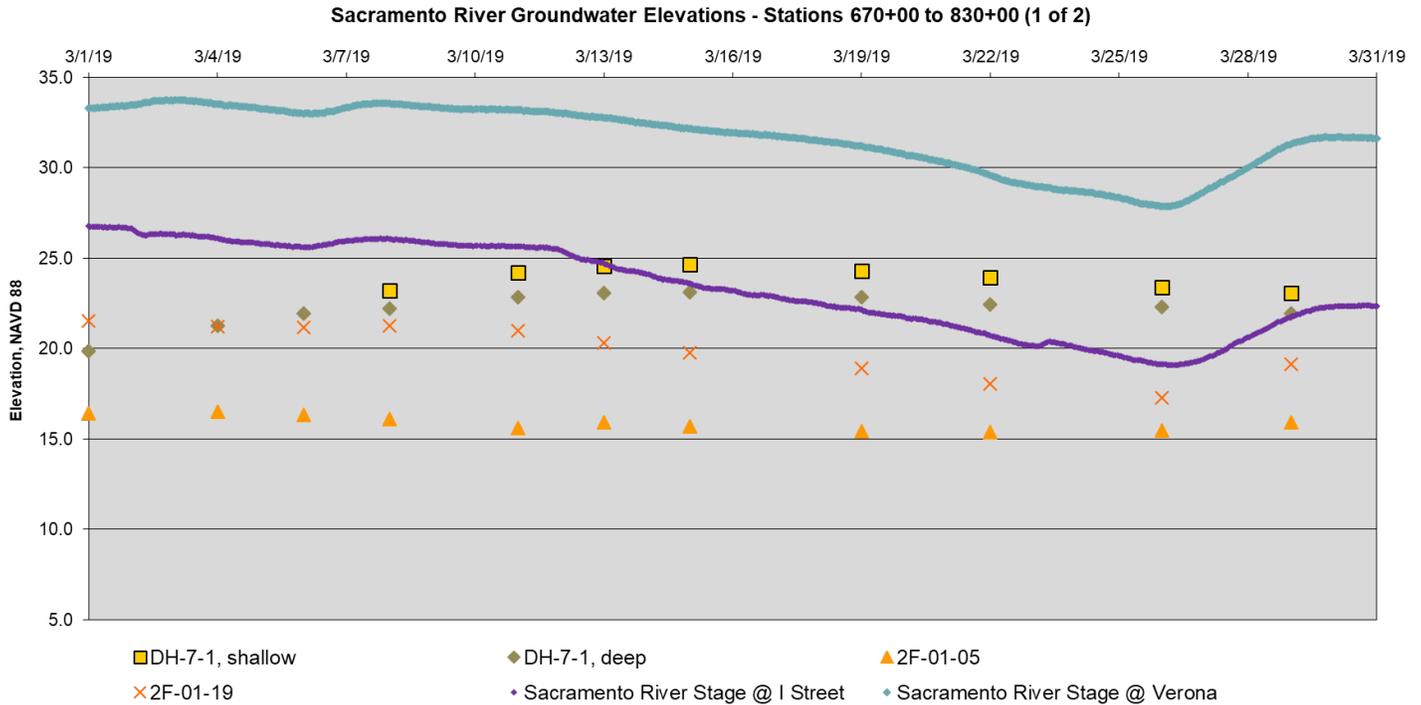
**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 330+00 TO 450+00
 MARCH 2019**

GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-23

Note: Piezometers match locations on FIGURE 2-8

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Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	678+00	Landside Toe	24.1	2F-01-05	No Improvement
	715+00	Crown	41.4	DH-7-1 (shallow), DH-7-1 (deep)	
	758+00	Landside Toe	27.5	2F-01-15	
	810+00	Field	23.0	2F-01-19	

Note:
 DH-7-1 Shallow was encountered to be dry.
 2F-01-15 could not be located.



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**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 670+00 TO 830+00 (1 of 2)
 MARCH 2019**

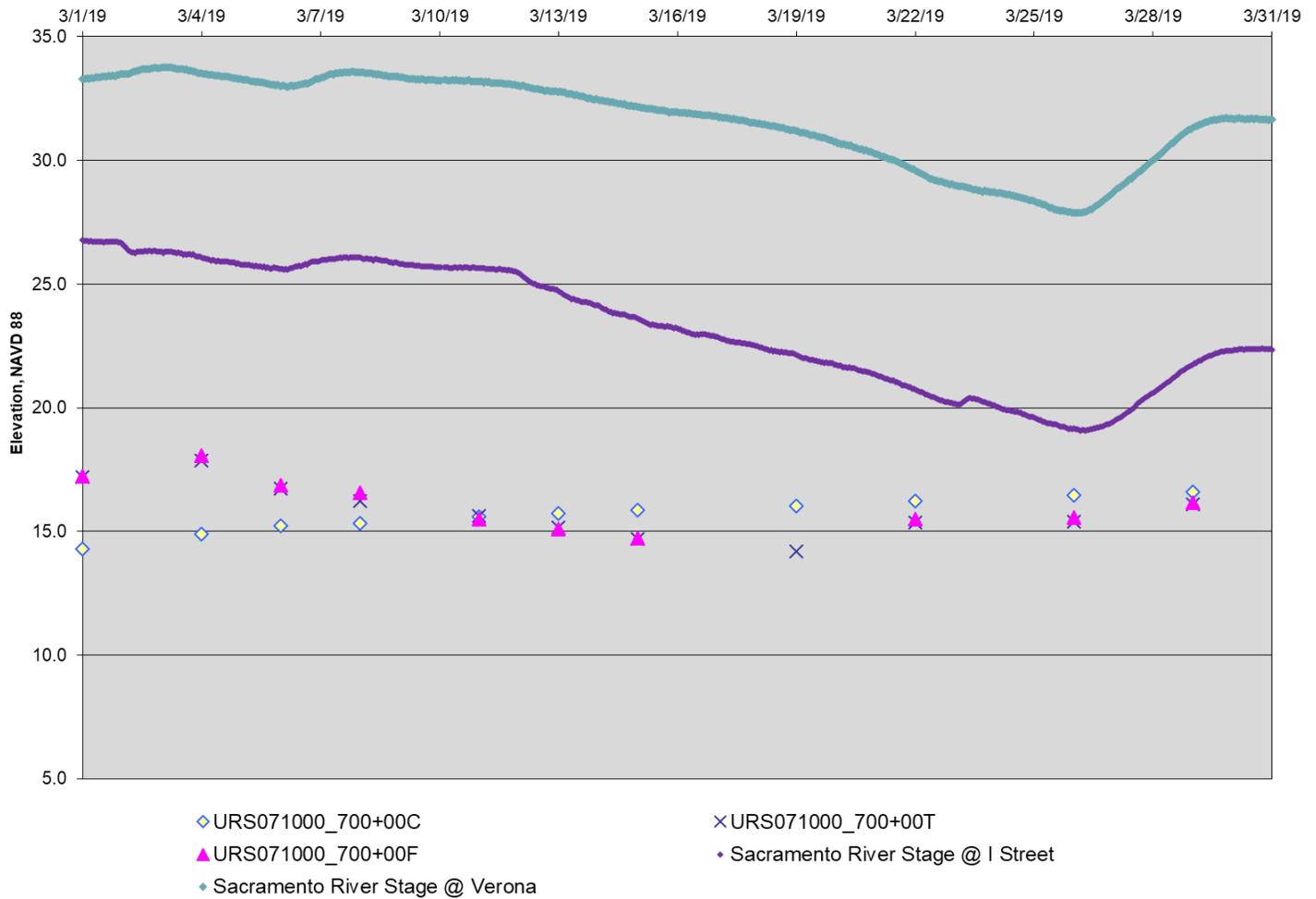
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-24

Note: Piezometers match locations on FIGURE 2-8

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Sacramento River Groundwater Elevations - Stations 670+00 to 830+00 (2 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	700+00	Crown	41.7	URS71000_700+00C	No Improvement
		Landside Toe	26.5	URS71000_700+00T	
		Field	24.2	URS71000_700+00F	



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**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 670+00 TO 830+00 (2 of 2)
 MARCH 2019**

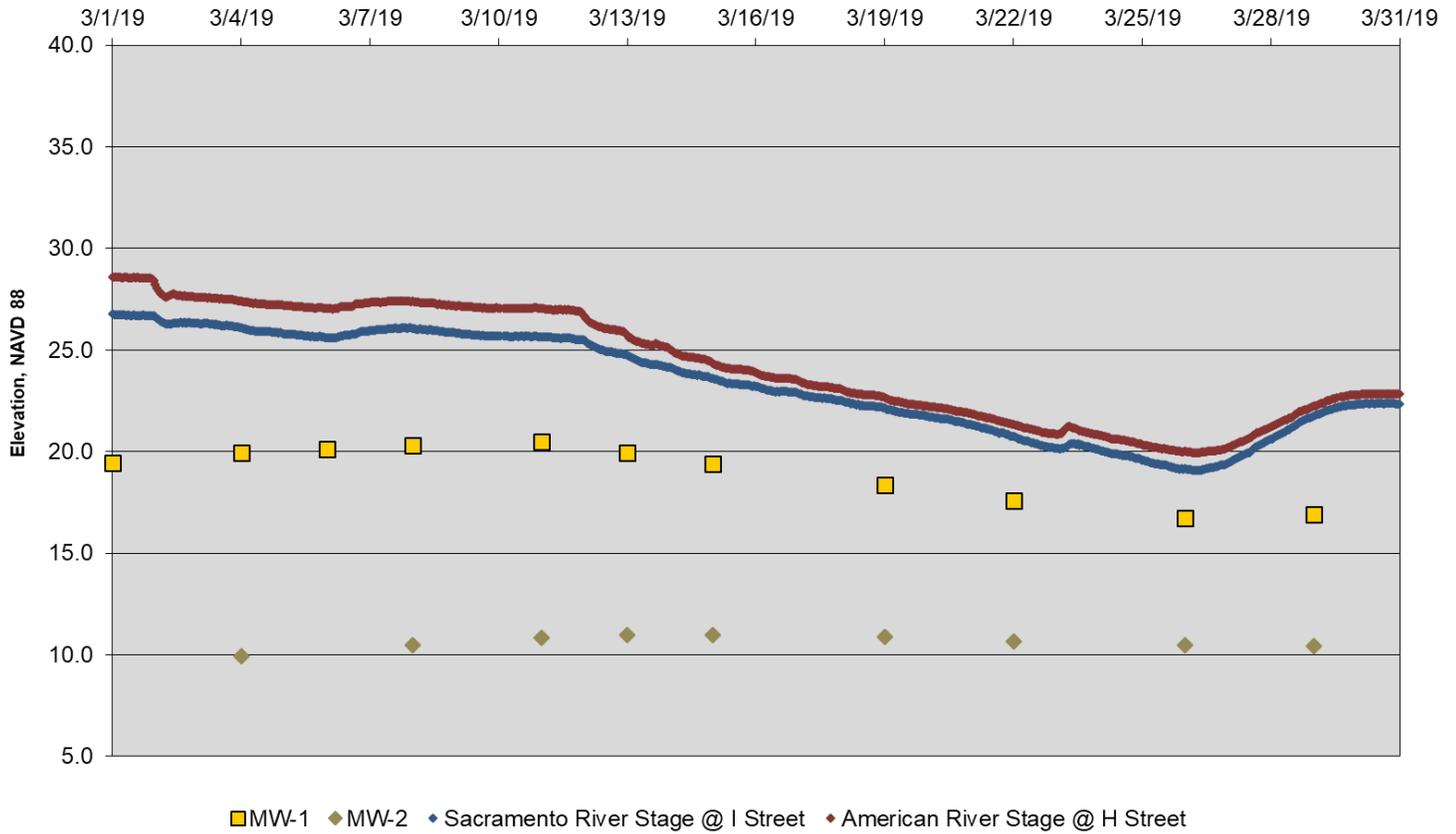
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-25

Note: Piezometers match locations on FIGURE 2-9

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American River Groundwater Level Elevations



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
ARNL	3339+50	Landside of COW	52.0	MW-1	Cutoff Wall
		Landside Toe	38.6	MW-2	



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**GROUNDWATER DATA
 AMERICAN RIVER NORTH LEVEE
 STATION 3330+00 to 3350+00
 MARCH 2019**

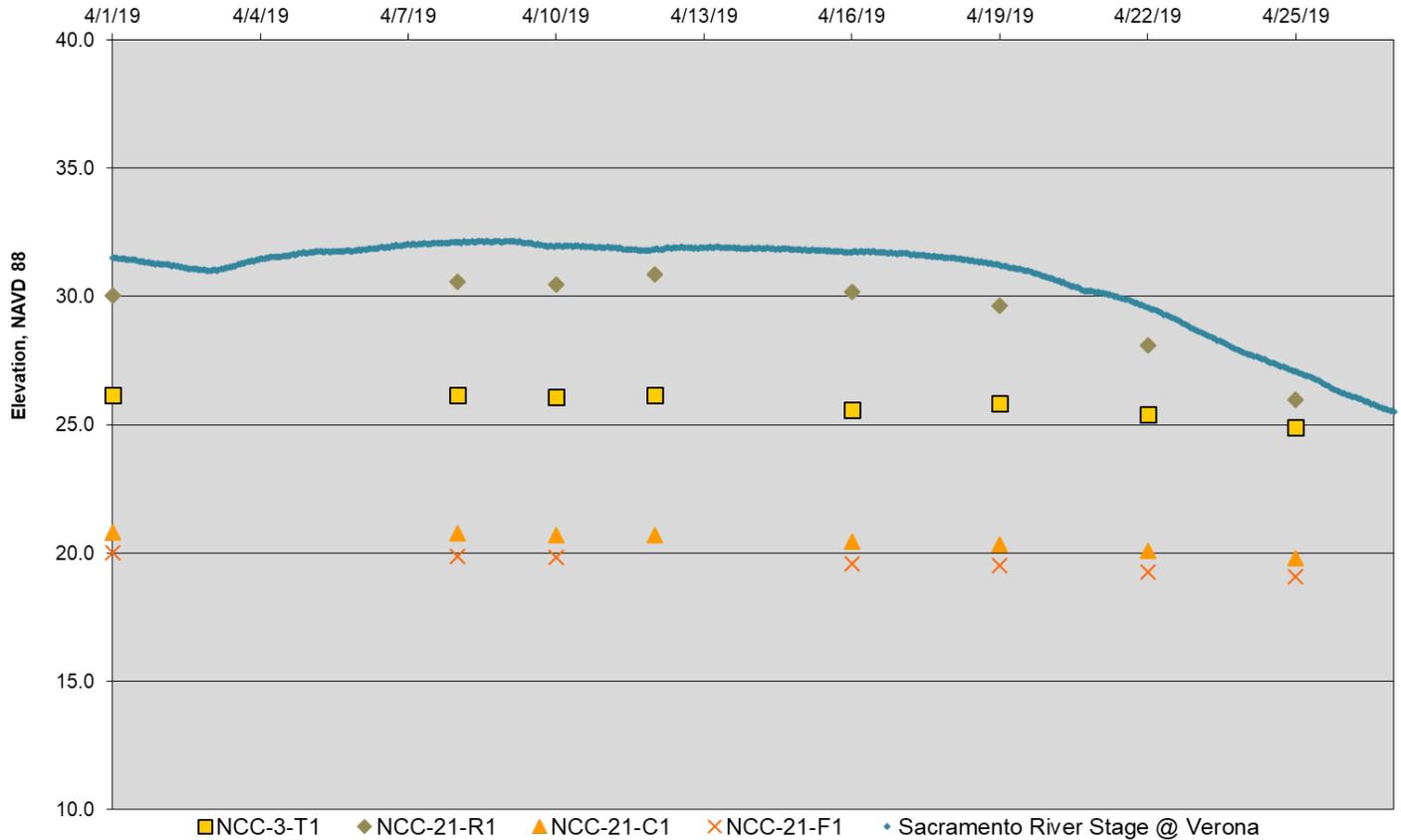
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-26

Note: Piezometers match locations on FIGURE 2-1

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Natomas Cross Canal Groundwater Level Elevations - Stations 0+00 to 30+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	3+00	Landside Toe	32.4	NCC-3-T1	Cutoff Wall
	21+00	Riverside	43	NCC-21-R1	
		Crown	49.1	NCC-21-C1	
		Field	21.5	NCC-21-F1	



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 0+00 TO 30+00
 APRIL 2019**

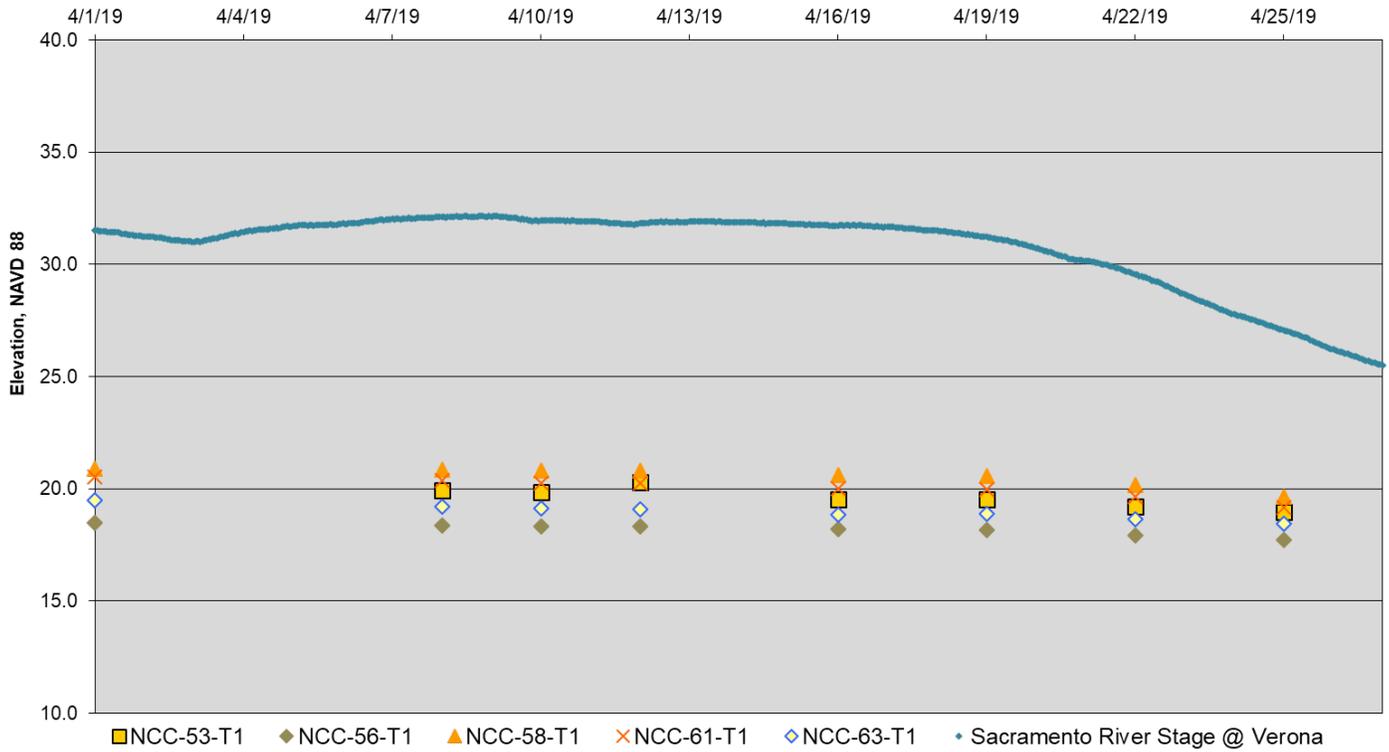
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-27

Note: Piezometers match locations on FIGURE 2-2

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Natomas Cross Canal Groundwater Level Elevations - Stations 30+00 to 80+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	53+00	Landside Toe	27.1	NCC-53-T1	Cutoff Wall
	56+00		28.3	NCC-56-T1	Pumping Plant + Window
	58+00		33.2	NCC-58-T1	Pumping Plant + Window
	61+00		28.1	NCC-61-T1	Cutoff Wall
	63+00		26.4	NCC-63-T1	Cutoff Wall



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**GROUNDWATER DATA
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 STATIONS 30+00 TO 80+00
 APRIL 2019**

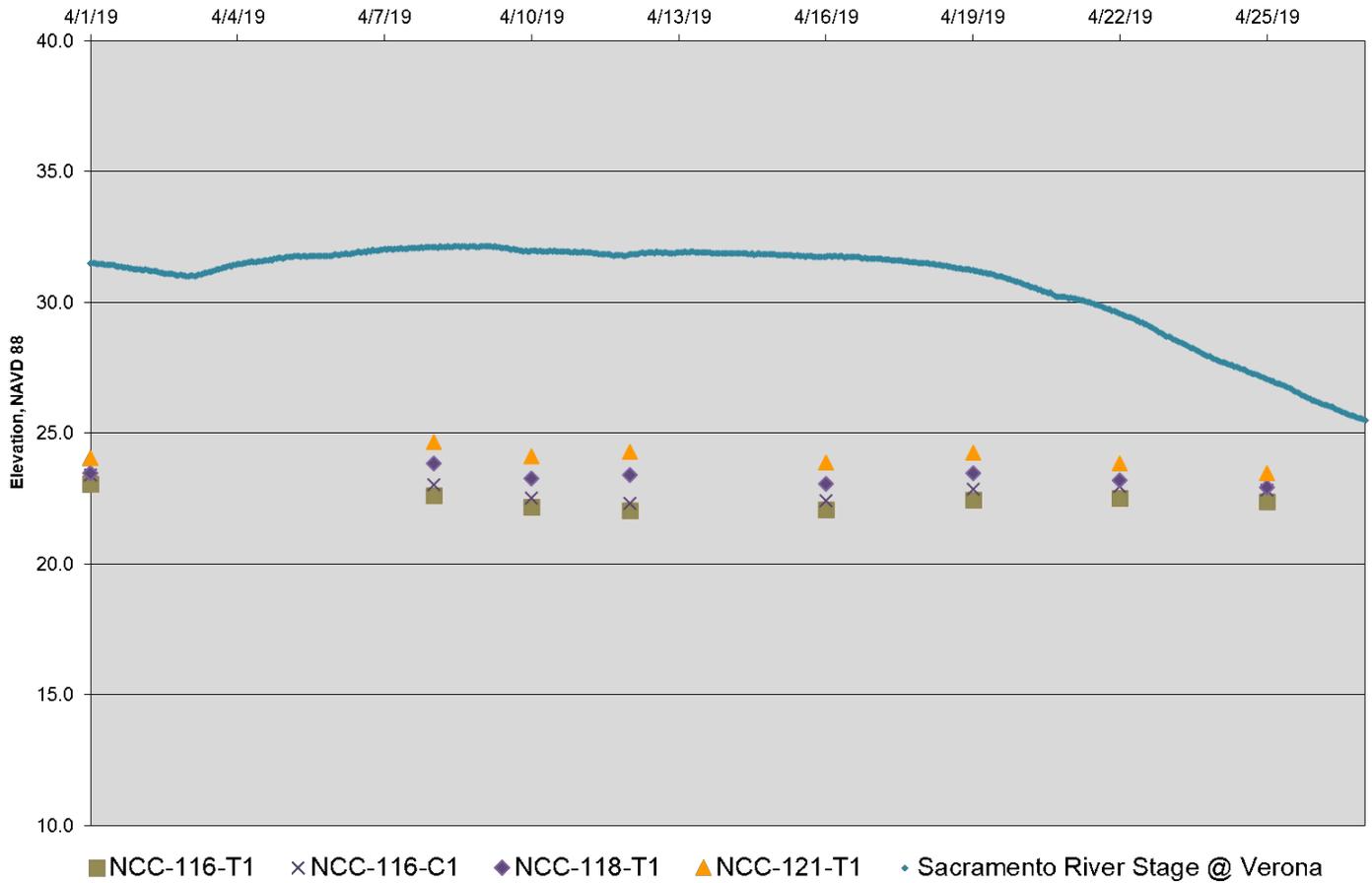
GROUNDWATER LEVEL DATA REPORT
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FIGURE
3-28

Note: Piezometers match locations on FIGURE 2-3

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Natomas Cross Canal Groundwater Level Elevations - Stations 105+00 to 160+00 (1 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	116+00	Waterside of COW	49	NCC-116-C1	Cutoff Wall
		Landside of COW	49.1	NCC-116-C2	
		Landside Toe	26.1	NCC-116-T1	
	118+00	Landside Toe	26.3	NCC-118-T1	Cutoff Wall
	121+00	Landside Toe	32.3	NCC-121-T1	Pumping Plant + Window

Note: NCC-116-C2 dry.



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 105+00 TO 160+00 (1 of 2)
 APRIL 2019**

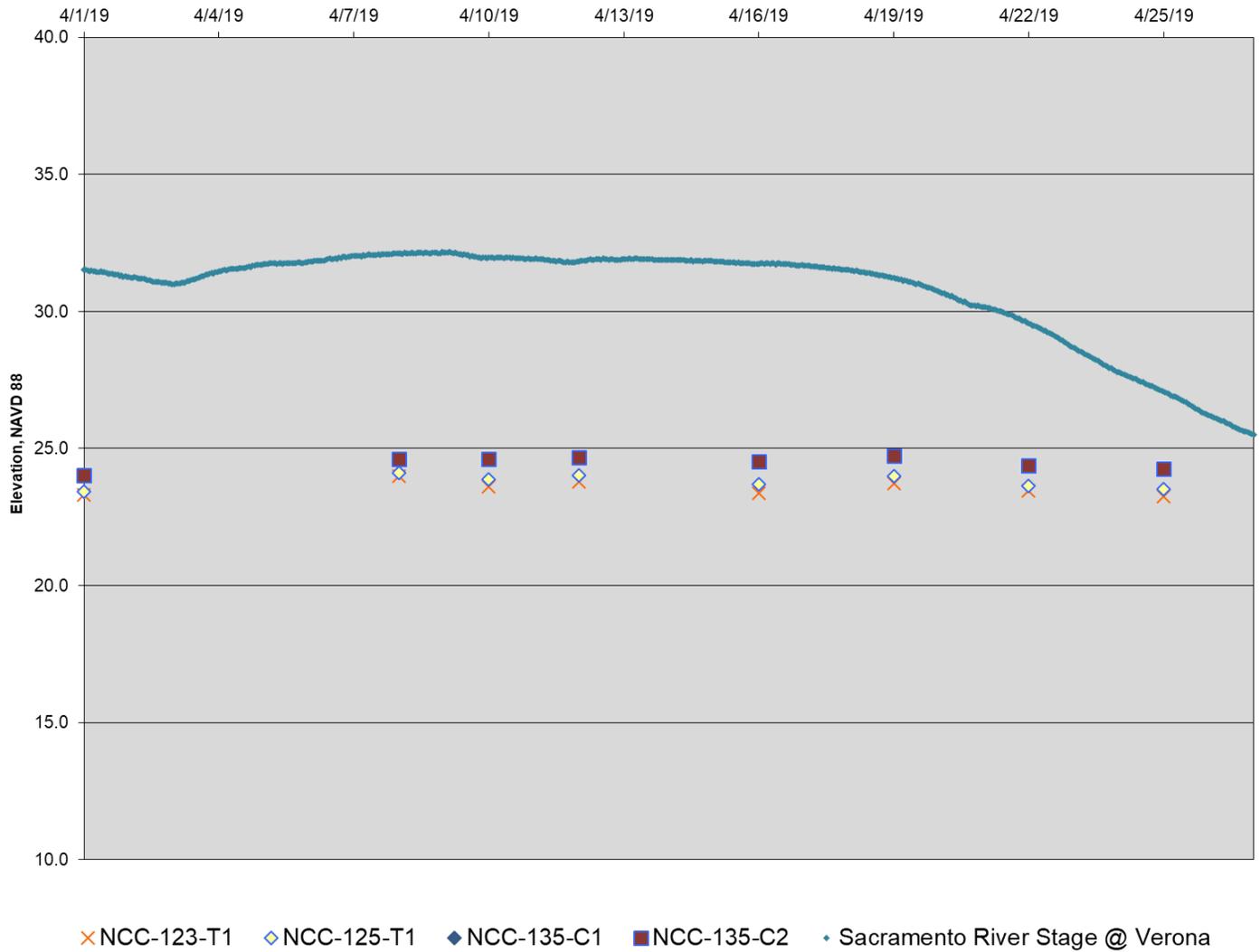
GROUNDWATER LEVEL DATA REPORT
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FIGURE
3-29

Note: Piezometers match locations on FIGURE 2-3

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Natomas Cross Canal Groundwater Level Elevations - Stations 105+00 to 160+00 (2 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	123+00	Landside Toe	49	NCC-123-T1	Cutoff Wall
	125+00	Landside Toe	49.1	NCC-125-T1	
	135+00	Landside of COW	26.1	NCC-135-C1	
		Waterside of COW	26.3	NCC-135-C2	
		Field	32.3	NCC-135-F1	

Note: NCC-135-F1 destroyed and not measured.



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 105+00 TO 160+00 (2 of 2)
 APRIL 2019**

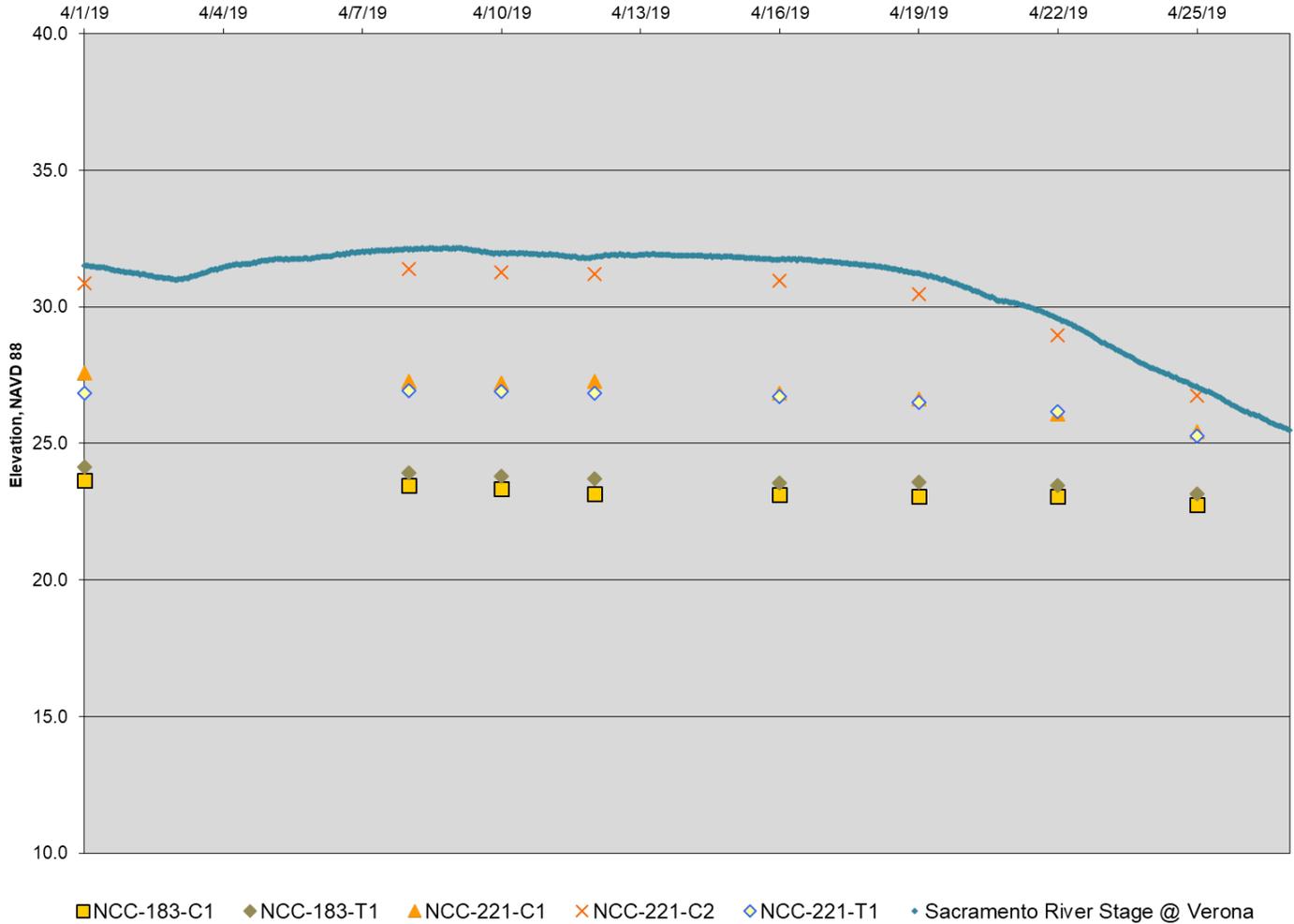
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
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FIGURE
3-30

Note: Piezometers match locations on FIGURE 2-4

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Natomas Cross Canal Groundwater Level Elevations - Stations 180+00 to 230+00 (1 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	183+00	Crown	49	NCC-183-C1	Cutoff Wall
		Landside Toe	29.2	NCC-183-T1	
	221+00	Landside of COW	49.2	NCC-221-C1	
		Waterside of COW	49.1	NCC-221-C2	
		Landside Toe	30.6	NCC-221-T1	



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**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 180+00 TO 230+00 (1 of 2)
 APRIL 2019**

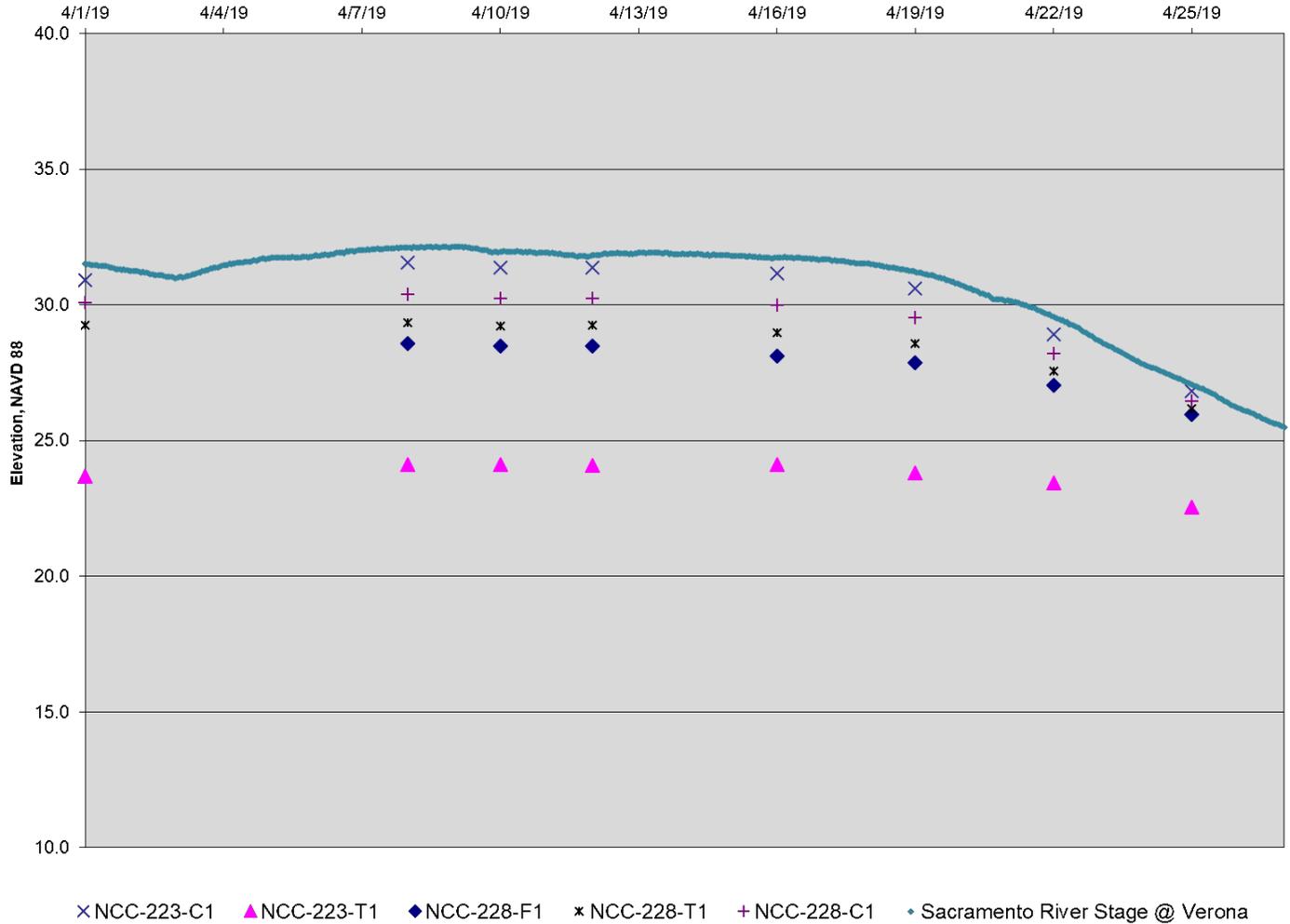
GROUNDWATER LEVEL DATA REPORT
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FIGURE
3-31

Note: Piezometers match locations on FIGURE 2-4

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Natomas Cross Canal Groundwater Level Elevations - Stations 180+00 to 230+00 (2 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	223+00	Crown	49.5	NCC-223-C1	Highway 99/70 Window
		Landside Toe	28.1	NCC-223-T1	
	228+00	Field	31.5	NCC-228-F1	
		Landside Toe	30.5	NCC-228-T1	
		Crown	46.4	NCC-228-CA	



PROJECT NO. 20161893
 DRAWN: 6/6/2019
 DRAWN BY: S. MANN
 CHECKED BY: B. MONEY
 FILE NAME: GW_Plots.pub

**GROUNDWATER DATA
 NATOMAS CROSS CANAL SOUTH LEVEE
 STATIONS 180+00 TO 230+00 (2 of 2)
 APRIL 2019**

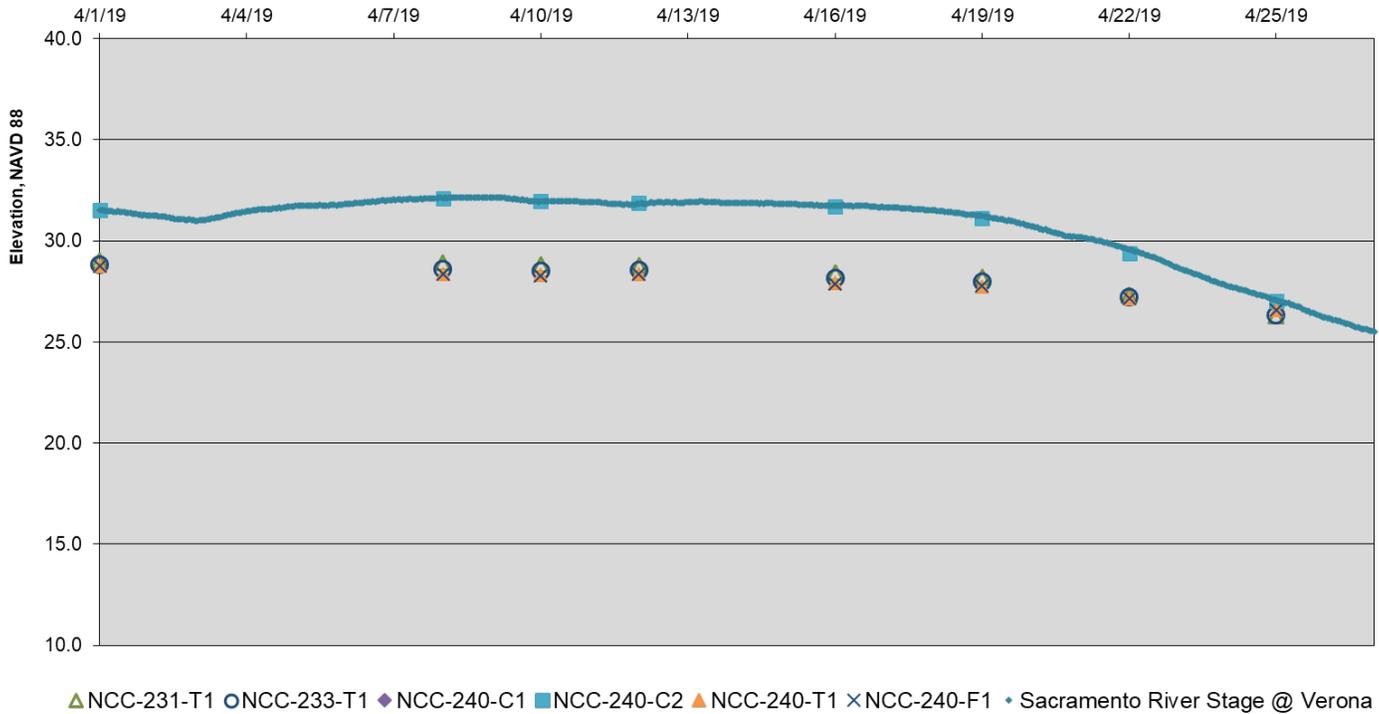
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-32

Note: Piezometers match locations on FIGURE 2-5

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Natomas Cross Canal Groundwater Level Elevations - Stations 230+00 to 240+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
NCC	231+00	Landside Toe	31.1	NCC-231-T1	Highway 99/70
	233+00	Landside Toe	31.9	NCC-233-T1	Cutoff Wall
	240+00	Landside of COW	49.1	NCC-240-C1	Cutoff Wall
		Waterside of COW	49.3	NCC-240-C2	
		Landside Toe	31.4	NCC-240-T1	
		Field	32.4	NCC-240-F1	

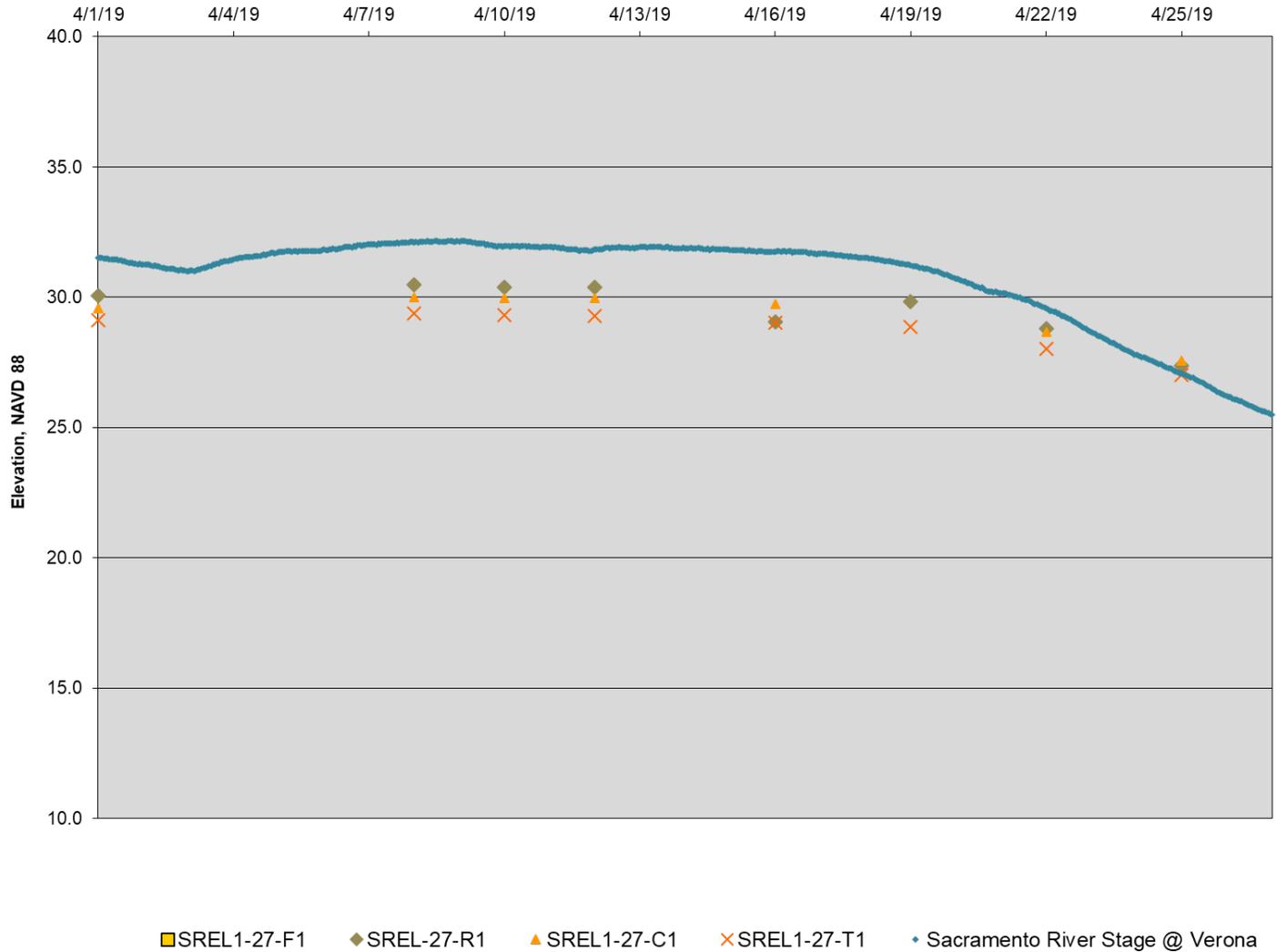
Note:
 224+00 to 231+00 Hwy 99/70 Window
 231+00 to 253+00 Full Cutoff Wall

 Bright People. Right Solutions. www.kleinfelder.com	PROJECT NO. 20161893	GROUNDWATER DATA NATOMAS CROSS CANAL SOUTH LEVEE STATIONS 230+00 TO 240+00 APRIL 2019	FIGURE 3-33
	DRAWN: 6/6/2019		
	DRAWN BY: S. MANN		
	CHECKED BY: B. MONEY		
	FILE NAME: GW_Plots.pub	GROUNDWATER LEVEL DATA REPORT NATOMAS CROSS CANAL AND SACRAMENTO AND AMERICAN RIVERS SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA	

Note: Piezometers match locations on FIGURE 2-6

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Sacramento River Groundwater Level Elevations - Stations 0+00 to 200+00 (1 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	27+00	Field	27.4	SREL-1-27-F1	Cutoff Wall
		Riverside	44.9	SREL-1-27-R1	
		Waterside of	48.2	SREL-1-27-C1	
		Landside of COW	48.7	SREL-1-27-C2	
		Landside Toe	32.2	SREL-1-27-T1	



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 FILE NAME: GW_Plots.pub

**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 0+00 TO 200+00 (1 of 2)
 APRIL 2019**

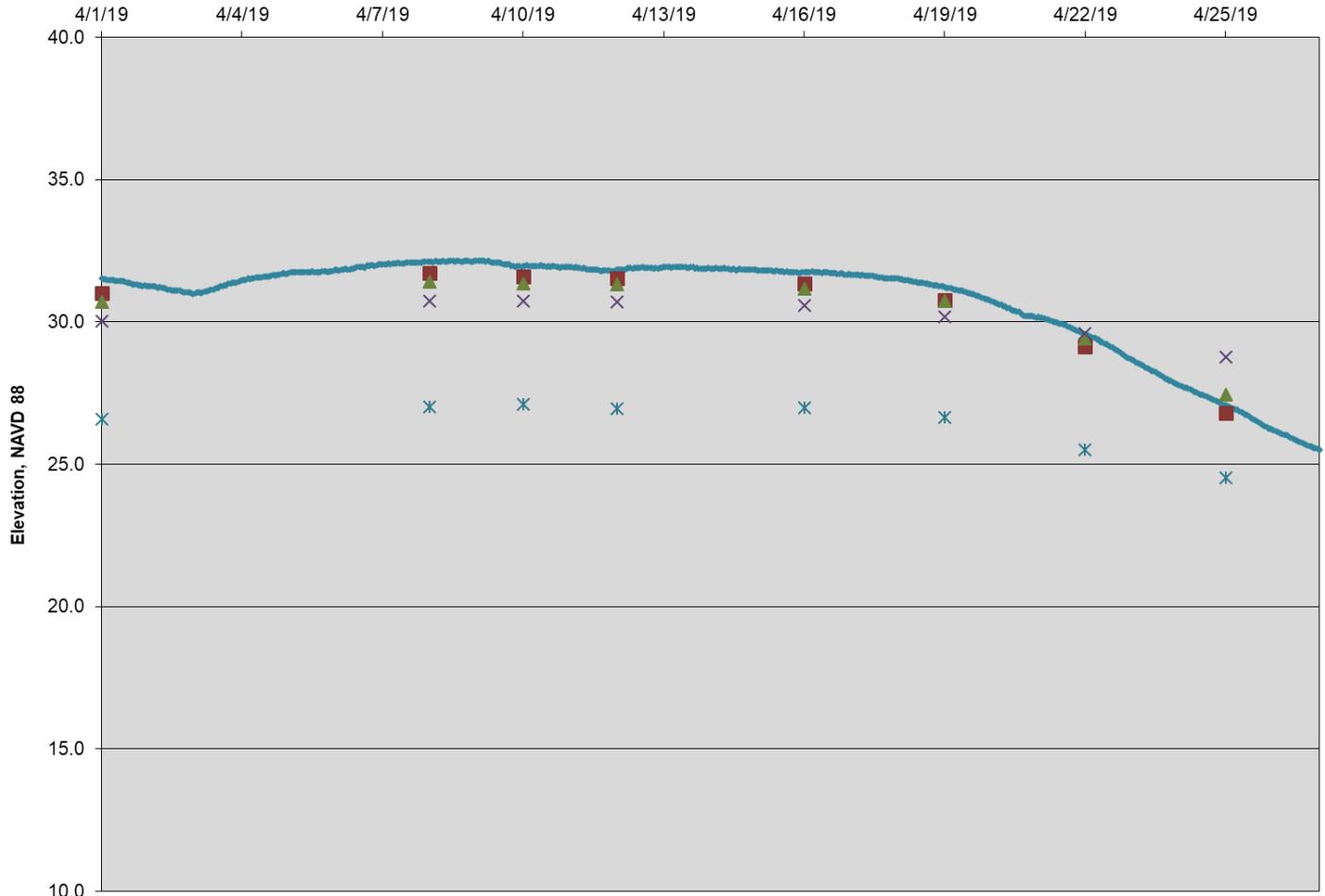
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-34

Note: Piezometers match locations on FIGURE 2-6

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Sacramento River Groundwater Level Elevations - Stations 0+00 to 200+00 (2 of 2)



◆ Sacramento River Stage @ Verona ■ SREL1B-72-R1 ▲ SREL1B-84-R1 × SREL1B-168-R2 * SREL1B-195-R1

Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	72+00	Riverside	44.6	SREL1B-72-R1	Cutoff Wall
SREL	84+00		44.2	SREL1B-84-R1	
SREL	168+00		44.3	SREL1B-168-R2	
SREL	195+00		43	SREL1B-195-R1	



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 FILE NAME: GW_Plots.pub

**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 0+00 TO 200+00 (2 of 2)
 APRIL 2019**

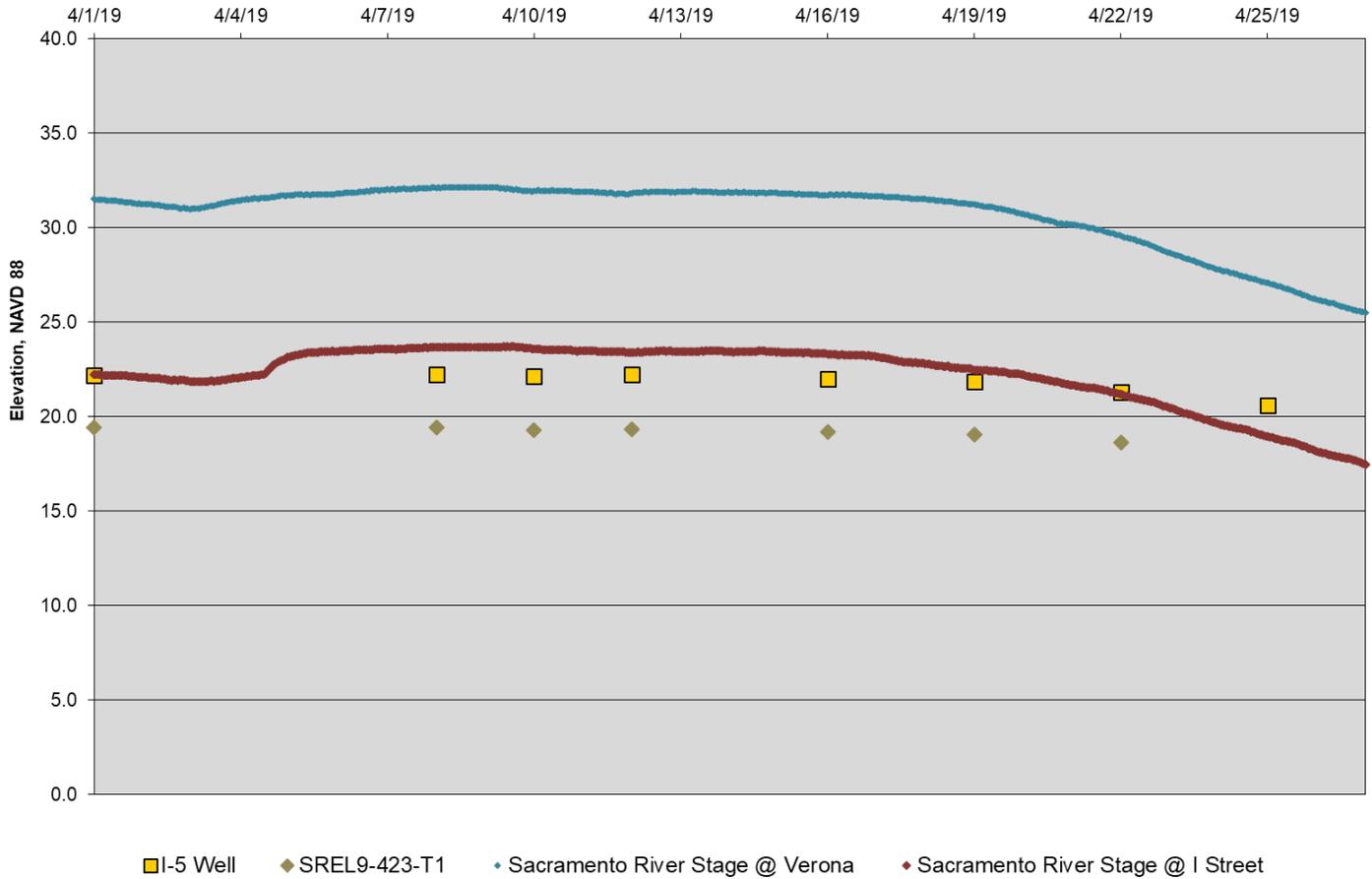
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-35

Note: Piezometers match locations on FIGURE 2-7

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Sacramento River Groundwater Elevation Stations - 330+00 to 450+00



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	336+00	Landside Toe	34.4	SREL7-336-T1	Cutoff Wall
SREL	423+00	Landside Toe	30.1	SREL9-423-T1	
SREL	449+00	Landside Toe	26.45	I-5 Well	Window

Note:
SREL 7-336-T1 damaged.



PROJECT NO. 20161893
 DRAWN: 6/6/2019
 DRAWN BY: S. MANN
 CHECKED BY: B. MONEY
 FILE NAME: GW_Plots.pub

**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 330+00 TO 450+00
 APRIL 2019**

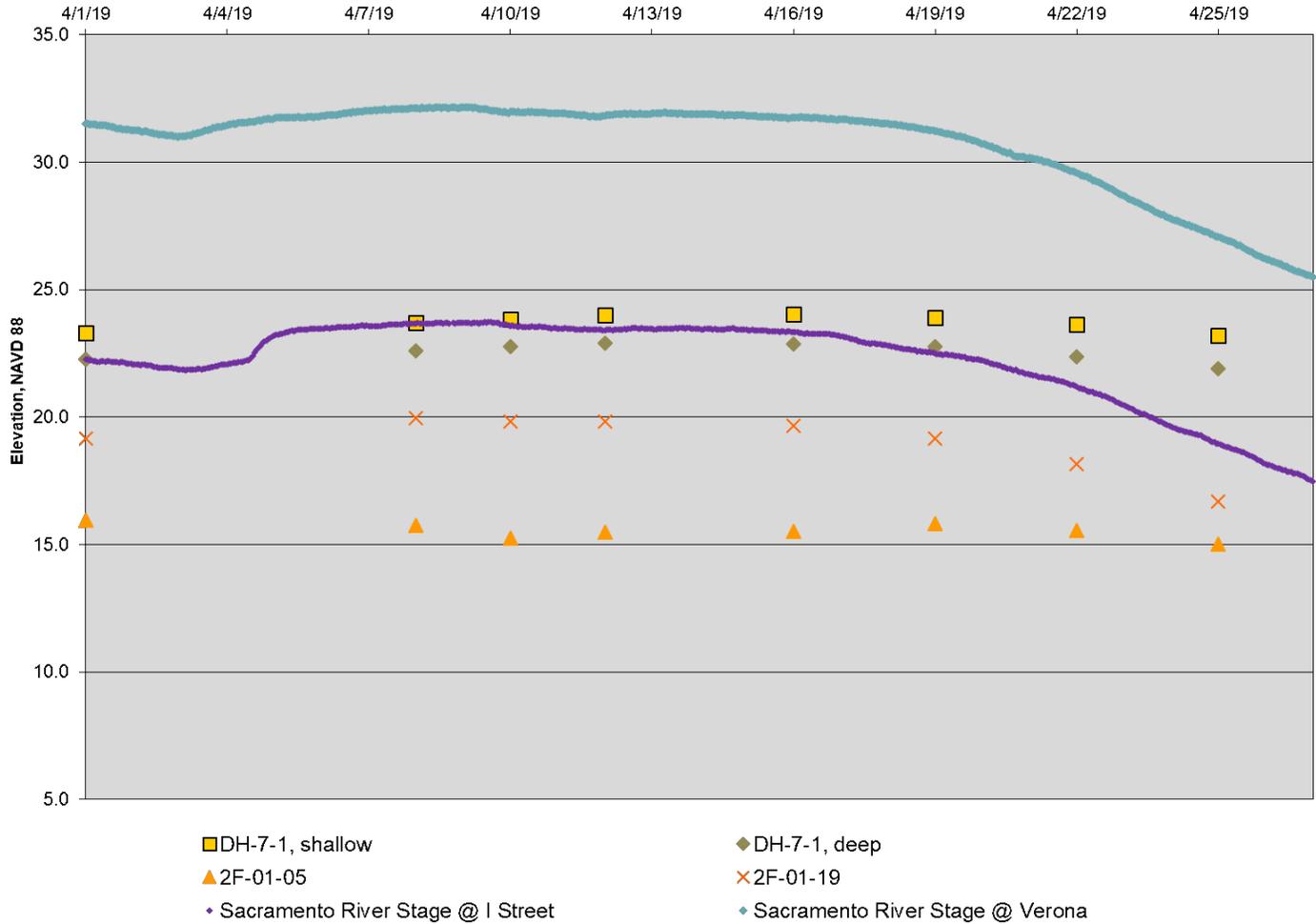
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-36

Note: Piezometers match locations on FIGURE 2-8

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Sacramento River Groundwater Elevations - Stations 670+00 to 830+00 (1 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	678+00	Landside Toe	24.1	2F-01-05	No Improvement
	715+00	Crown	41.4	DH-7-1 (shallow), DH-7-1 (deep)	
	758+00	Landside Toe	27.5	2F-01-15	
	810+00	Field	23.0	2F-01-19	

Note:
 DH-7-1 Shallow was encountered to be dry.
 2F-01-15 could not be located.



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 CHECKED BY: B. MONEY
 FILE NAME: GW_Plots.pub

**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 670+00 TO 830+00 (1 of 2)
 APRIL 2019**

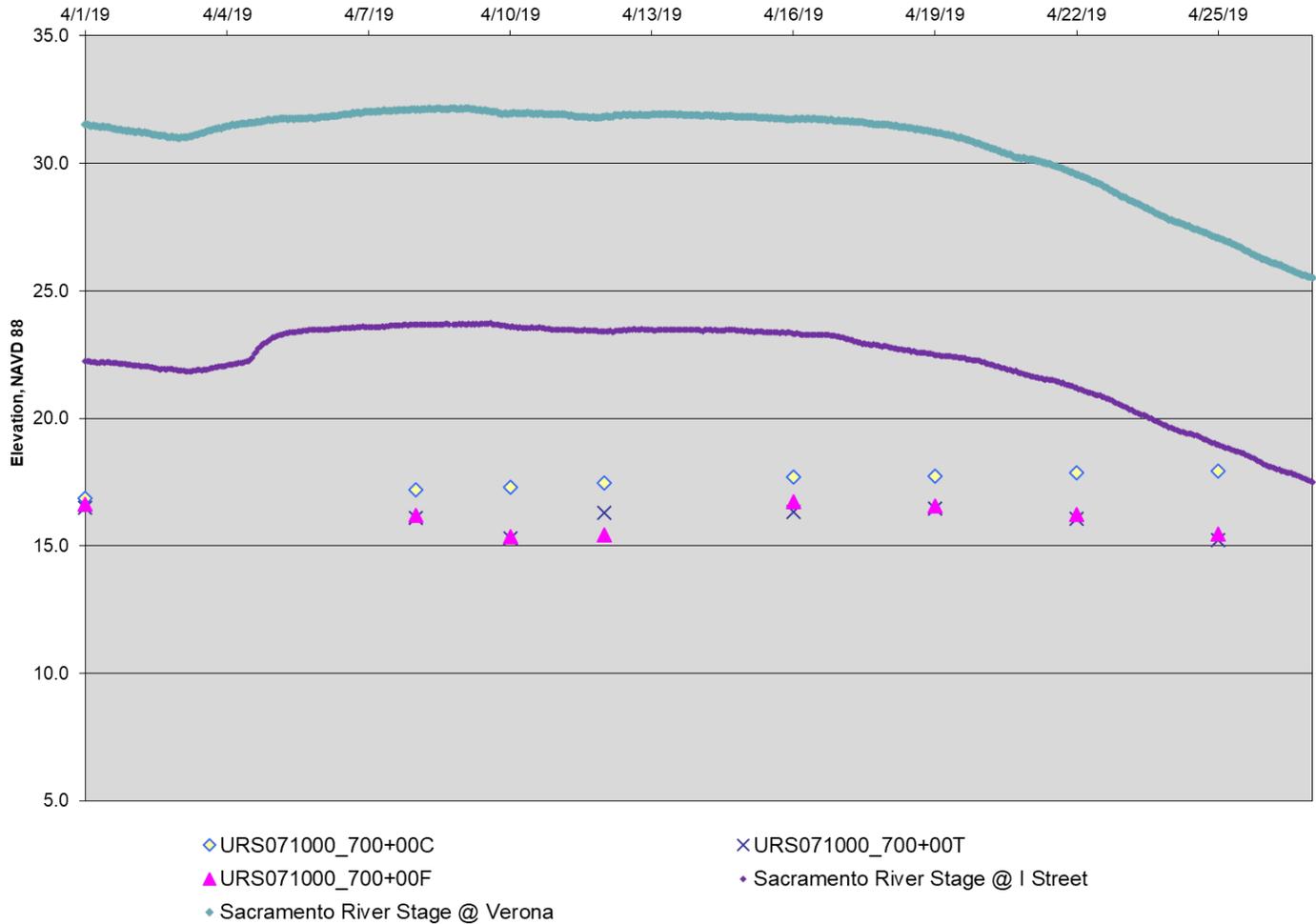
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-37

Note: Piezometers match locations on FIGURE 2-8

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Sacramento River Groundwater Elevations - Stations 670+00 to 830+00 (2 of 2)



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
SREL	700+00	Crown	41.7	URS071000_700+00C	No Improvement
		Landside Toe	26.5	URS071000_700+00T	
		Field	24.2	URS071000_700+00F	



PROJECT NO. 20161893
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 CHECKED BY: B. MONEY
 FILE NAME: GW_Plots.pub

**GROUNDWATER DATA
 SACRAMENTO RIVER EAST LEVEE
 STATIONS 670+00 TO 830+00 (2 of 2)
 APRIL 2019**

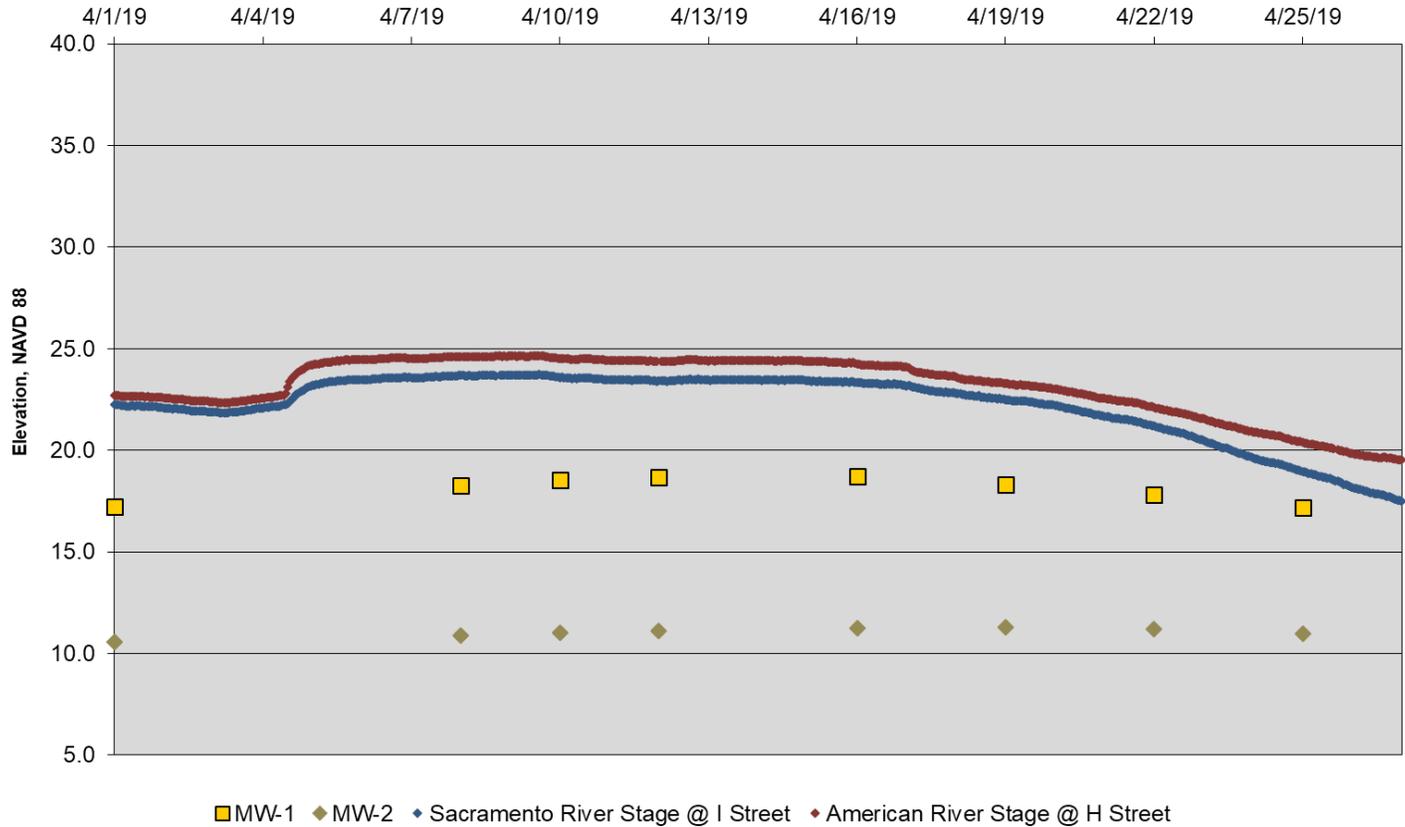
GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-38

Note: Piezometers match locations on FIGURE 2-9

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American River Groundwater Level Elevations



Levee Segment	Approximate Station	Location(s)	Elevation	Piezometer Name	Comments
ARNL	3339+50	Landside of COW	52.0	MW-1	Cutoff Wall
		Landside Toe	38.6	MW-2	

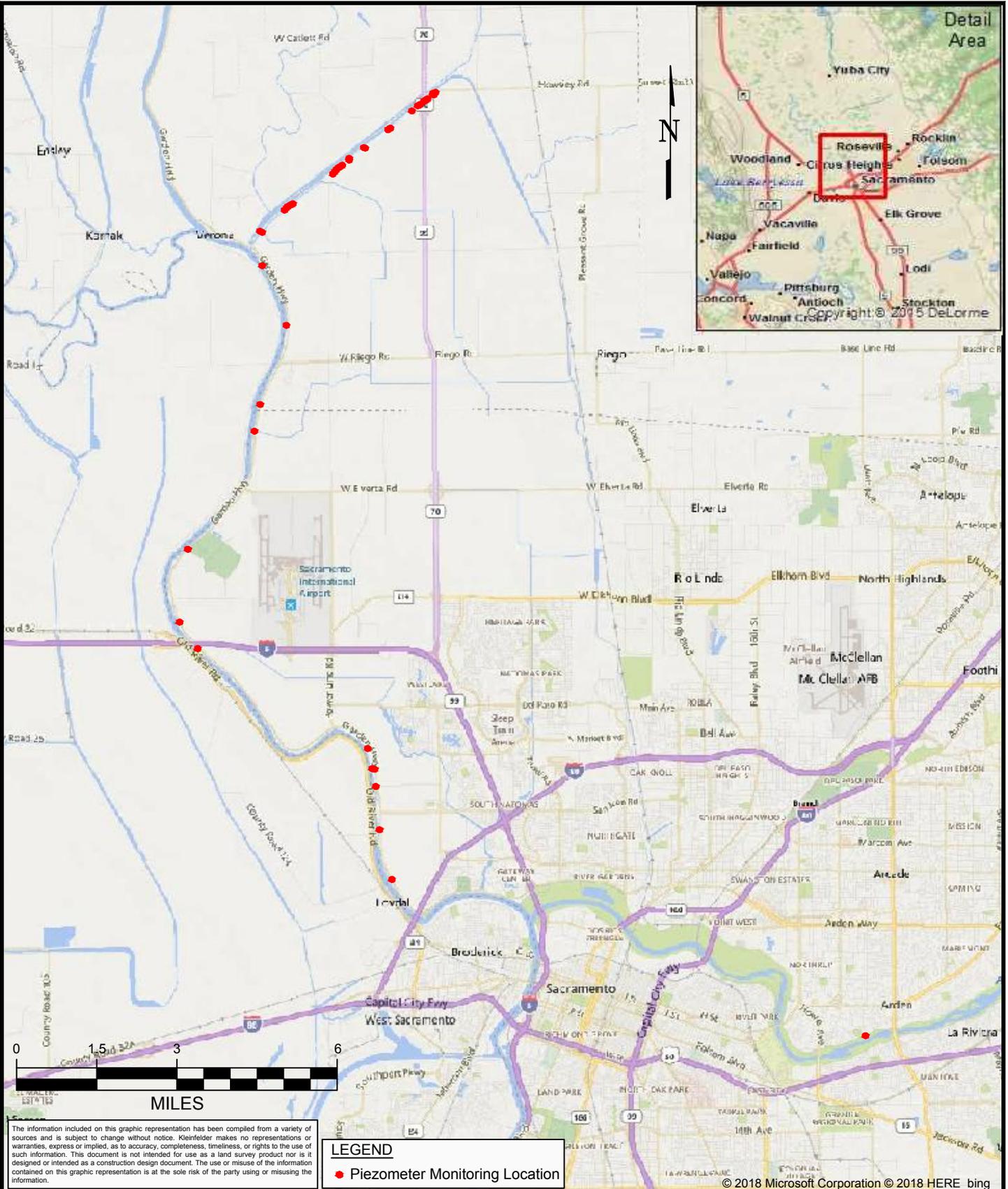


PROJECT NO. 20161893
 DRAWN: 6/6/2019
 DRAWN BY: S. MANN
 CHECKED BY: B. MONEY
 FILE NAME: GW_Plots.pub

**GROUNDWATER DATA
 AMERICAN RIVER NORTH LEVEE
 STATION 3330+00 to 3350+00
 APRIL 2019**

GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL AND
 SACRAMENTO AND AMERICAN RIVERS
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA

FIGURE
3-39



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LEGEND
 ● Piezometer Monitoring Location

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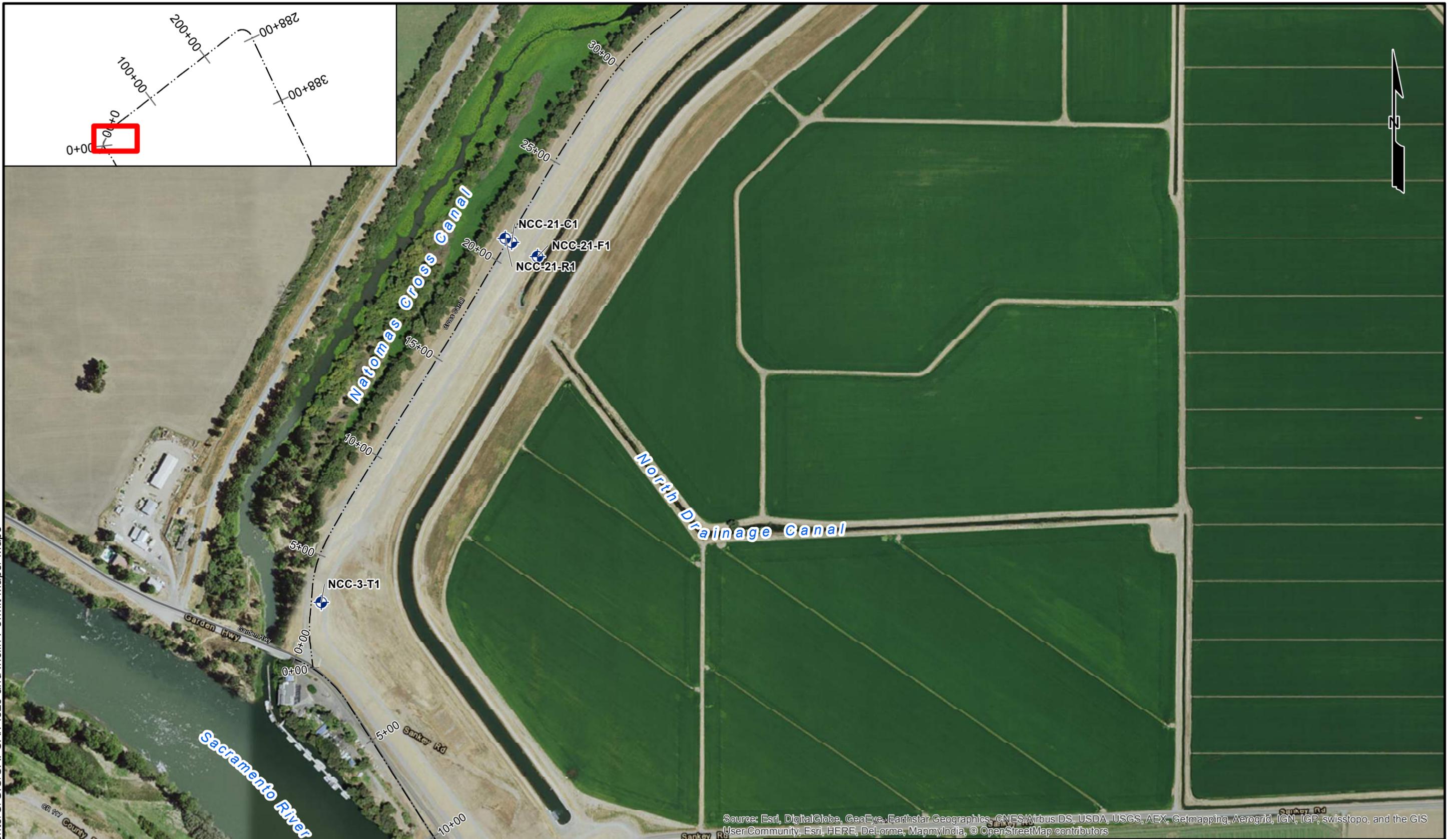


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DRAWN:	01/23/2018
DRAWN BY:	D. Ross
CHECKED BY:	B. Money
FILE NAME:	20161893_1.dwg

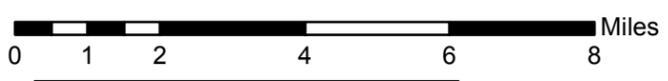
SITE LOCATION MAP

**GROUNDWATER LEVEL DATA REPORT
 NATOMAS CROSS CANAL,
 SACRAMENTO RIVER AND AMERICAN RIVER
 SACRAMENTO AND SUTTER COUNTIES, CALIFORNIA**

FIGURE
1-1



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Legend

-  Approximate Well Location
-  Levee Centerline



PROJECT NO.	94582
DRAWN:	Dec-2016
DRAWN BY:	M. Beswick
CHECKED BY:	B. Money
FILE NAME:	Wells2016.MXD

PIEZOMETER LOCATION MAP STATION 0+00 TO 30+00 NATOMAS CROSS CANAL SOUTH LEVEE
GROUNDWATER LEVEL DATA REPORT NATOMAS CROSS CANAL, SACRAMENTO RIVER AND AMERICAN RIVER SACRAMENTO AND SUTTER COUNTY, CALIFORNIA

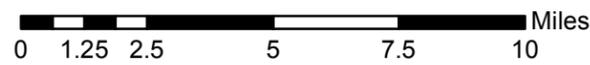
FIGURE
2-1

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Legend

- Approximate Well Location
- Levee Centerline



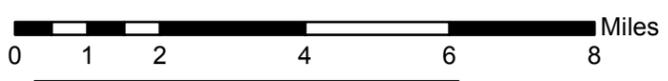
PROJECT NO.	94582
DRAWN:	Dec-2016
DRAWN BY:	M. Beswick
CHECKED BY:	B. Money
FILE NAME:	Wells2016.MXD

<p>PIEZOMETER LOCATION MAP STATION 30+00 TO 80+00 NATOMAS CROSS CANAL SOUTH LEVEE</p> <p>GROUNDWATER LEVEL DATA REPORT NATOMAS CROSS CANAL, SACRAMENTO RIVER AND AMERICAN RIVER SACRAMENTO AND SUTTER COUNTY, CALIFORNIA</p>
--

FIGURE
2-2



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Legend

- Approximate Well Location
- Levee Centerline

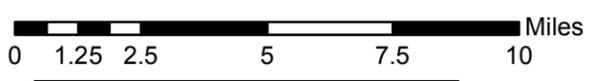


PROJECT NO.	94582
DRAWN:	Dec-2016
DRAWN BY:	M. Beswick
CHECKED BY:	B. Money
FILE NAME:	Wells2016.MXD

PIEZOMETER LOCATION MAP STATION 105+00 TO 160+00 NATOMAS CROSS CANAL SOUTH LEVEE	FIGURE
	2-3
GROUNDWATER LEVEL DATA REPORT NATOMAS CROSS CANAL, SACRAMENTO RIVER AND AMERICAN RIVER SACRAMENTO AND SUTTER COUNTY, CALIFORNIA	



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Legend

- Approximate Well Location
- Levee Centerline



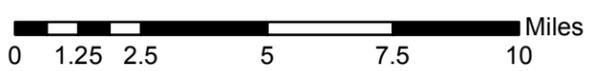
PROJECT NO.	94582
DRAWN:	Dec-2016
DRAWN BY:	M. Beswick
CHECKED BY:	B. Money
FILE NAME:	Wells2016.MXD

PIEZOMETER LOCATION MAP STATION 180+00 TO 230+00 NATOMAS CROSS CANAL SOUTH LEVEE	GROUNDWATER LEVEL DATA REPORT NATOMAS CROSS CANAL, SACRAMENTO RIVER AND AMERICAN RIVER SACRAMENTO AND SUTTER COUNTY, CALIFORNIA
---	--

FIGURE
2-4



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Legend

- Approximate Well Location
- Levee Centerline



PROJECT NO.	94582
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DRAWN BY:	M. Beswick
CHECKED BY:	B. Money
FILE NAME:	Wells2016.MXD

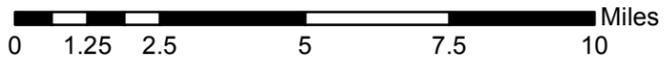
<p>PIEZOMETER LOCATION MAP STATION 230+00 TO 240+00 NATOMAS CROSS CANAL SOUTH LEVEE</p> <p>GROUNDWATER LEVEL DATA REPORT NATOMAS CROSS CANAL, SACRAMENTO RIVER AND AMERICAN RIVER SACRAMENTO AND SUTTER COUNTY, CALIFORNIA</p>
--

FIGURE
2-5



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

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- Legend**
- Approximate Well Location
 - Levee Centerline



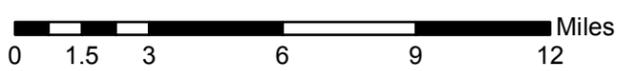
PROJECT NO.	94582
DRAWN:	Dec-2016
DRAWN BY:	M. Beswick
CHECKED BY:	B. Money
FILE NAME:	Wells2016.MXD

<p>PIEZOMETER LOCATION MAP STATION 0+00 TO 200+00 SACRAMENTO RIVER EAST LEVEE</p> <p>GROUNDWATER LEVEL DATA REPORT NATOMAS CROSS CANAL, SACRAMENTO RIVER AND AMERICAN RIVER SACRAMENTO AND SUTTER COUNTY, CALIFORNIA</p>
--

FIGURE
2-6



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors



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Legend

- Approximate Well Location
- Levee Centerline

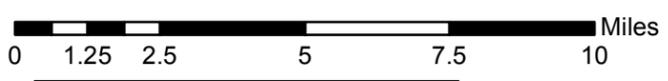


PROJECT NO.	94582
DRAWN:	Dec-2016
DRAWN BY:	M. Beswick
CHECKED BY:	B. Money
FILE NAME:	Wells2016.MXD

<p>PIEZOMETER LOCATION MAP STATION 330+00 TO 450+00 SACRAMENTO RIVER EAST LEVEE</p>	FIGURE
	2-7
<p>GROUNDWATER LEVEL DATA REPORT NATOMAS CROSS CANAL, SACRAMENTO RIVER AND AMERICAN RIVER SACRAMENTO AND SUTTER COUNTY, CALIFORNIA</p>	



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Legend

- Approximate Well Location
- Levee Centerline



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CHECKED BY:	B. Money
FILE NAME:	Wells2016.MXD

<p>PIEZOMETER LOCATION MAP STATION 630+00 TO 830+00 SACRAMENTO RIVER EAST LEVEE</p> <p>GROUNDWATER LEVEL DATA REPORT NATOMAS CROSS CANAL, SACRAMENTO RIVER AND AMERICAN RIVER SACRAMENTO AND SUTTER COUNTY, CALIFORNIA</p>
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FIGURE
2-8

File Path: Sacramento/U/GIS/SAFCA/Piezo and Inclin Permit Maps/ Maps



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors



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Legend
 Approximate Well Location Levee Centerline



PROJECT NO.	94582
DRAWN:	Dec-2016
DRAWN BY:	M. Beswick
CHECKED BY:	B. Money
FILE NAME:	Wells2016.MXD

PIEZOMETER LOCATION MAP STATION 3330+00 TO 3350+00 AMERICAN RIVER NORTH LEVEE
GROUNDWATER LEVEL DATA REPORT NATOMAS CROSS CANAL, SACRAMENTO RIVER AND AMERICAN RIVER SACRAMENTO AND SUTTER COUNTY, CALIFORNIA

FIGURE
2-9