

Attachments:

6a Fresno ID Banking Project Annual Report

**OPERATIONS REPORT
FOR
WALDRON BANKING FACILITIES
2011 WATER YEAR**



MAY 2012

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DATE SIGNED 6/29/12

**FRESNO IRRIGATION DISTRICT
WALDRON BANKING FACILITIES
OPERATIONS REPORT
2011 WATER YEAR**

FRESNO, CA

MAY 2012

Prepared for:

Fresno Irrigation District

Prepared by:

Provost & Pritchard Consulting Group
Clovis, California

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1 INTRODUCTION

1.1 Background

In 2003 the District applied for and was successful in obtaining grant funding through the Water Conservation and Groundwater Recharge Program of Proposition 13 the Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Act for development of a groundwater bank within the District. The grant was administered by the California Department of Water Resources.

The Project as originally conceived consisted of 270 acres of recharge facilities and recovery wells near the existing Waldron Pond. During the Project's development it became apparent that one 270 acre project site would not be possible due to difficulties in finding willing sellers. The Project's concept was revised to include three sites – Waldron, Empire, and Lambrecht. The Waldron site is the largest site, located on approximately 160 acres at the northeast corner of Bishop and Nielsen Avenues, and is comprised of six recharge cells and three recovery wells. The Lambrecht site is located on approximately 60 acres at the southwest corner of Shaw and Goldenrod Avenues and is comprised of four recharge cells and three recovery wells. The Empire site is located on approximately 32 acres at the northwest corner of Shields and Jameson Avenues and is comprised of two recharge cells and one recovery well. **Plate 1** is a map identifying the locations of the three sites.

Overall, the District plans to recharge an average of approximately 11,500 acre-feet (AF) of water annually at the three sites. The District plans to recover up to 90% of the water recharged. On an average annual basis this equates to approximately 10,350 AF being recovered from the aquifer and approximately 1,150 AF (10% of the recharged water) being left in the aquifer to account for losses and help mitigate local impacts due to operations.

1.2 Scope

The purpose of this report is to summarize the recharge and recovery operations for the 2011 water year (October 2010 – September 2011). The 2011 water year is the third year that all recharge and recovery facilities have been operational. The report also summarizes the results of water level measurements and water quality sampling for the various wells included in the monitoring network.

1.3 Monitoring Committee

The Monitoring Committee was established as an advisory committee April 14, 2004 for the Waldron Banking Facilities. The goal of the Committee is to provide advice and recommendations to the District regarding the Project's operation. The Committee is comprised of members of local agencies as well as local landowners. An additional member will be added to the Committee for the Boswell Banking Facility. Technical

SECTION ONE

evaluations are performed by Provost and Pritchard and Kenneth D. Schmidt and Associates, groundwater specialists. Committee Members are as follows:

Gary Serrato, FID General Manager
Lisa Koehn, Assistant Director of Public Utilities, City of Clovis
Paul Lanfranco, Project Area Landowner
Nick Nazaroff, Project Area Landowner
Jim Wulf, Project Area Landowner
Don Hornor, Project Area Landowner

The Committee provides guidance to the District in response to local concerns based on review of the data and Project operation. They are expected to ensure that the Project does not create conditions that are worse than would have prevailed without the Project, and give due recognition to the benefits that may result from the Project. Meetings are set as needed to keep the Committee informed of the operations of the Project. At the time of this report there were two Committee positions open.

1.4 Description of Groundwater Monitoring Program

A Groundwater Monitoring Program (GMP) for the Project sites was developed in March of 2009. The GMP allows the District to track recharge, recovery well pumping, groundwater levels and groundwater quality, and provide a monitoring tool to aid in operating the Project. An effective GMP will help alleviate concerns regarding potential Project impacts on adjacent landowners. The objectives of this program are to provide the District and the Committee with a documented framework for the program that allows the District and Committee to:

- A. Determine long term recharge rate for the facility.
- B. Evaluate effect of groundwater recharge on shallow groundwater levels beneath and adjacent to the facility.
- C. Determine drawdowns during recovery well pumping in zones tapped by nearby water supply wells.
- D. Evaluate development of operation and maintenance procedures to maintain or enhance recharge rates.
- E. Evaluate need for measures to increase recharge rates, should long-term rates be found inadequate.
- F. Evaluate the need for measures to reduce groundwater mounding should it be found to adversely affect properties or public facilities adjacent to the facility.
- G. Determine measures to limit drawdowns in water supply wells in area if needed.
- H. Evaluate ability to monitor Project operations and to allow controls so that the Project accomplishes the goals of developing additional water supplies while not negatively impacting neighboring landowners.
- I. Evaluate effect of groundwater recharge on local groundwater quality.

2 OPERATIONS SUMMARY FOR 2011 WATER YEAR

2.1 Recharge Operations

The runoff for the 2011 water year was approximately 192% of average on the Kings River and 180% of average for the San Joaquin River¹. This resulted in an 9 month irrigation season which ran from March 1, 2011 through November 10, 2011. The District was able to make gross deliveries to all three sites totaling 31,838 AF. During the 2011 water year, 19,763 AF were delivered at Waldron, 2,203 AF were delivered at Empire and 9,872 acre feet were delivered at Lambrecht. Deducting 10% for losses from the gross deliveries, the credited recharge between all three sites totaled 28,653 AF. Of the amount credited for recharge, 17,786 AF were recharged at Waldron, 1,982 AF were recharged at Empire and 8,885 acre feet were recharged at Lambrecht. **Tables A-1, A-2, and A-3 in Appendix A** summarizes the monthly deliveries for Waldron, Empire and Lambrecht respectively.

2.2 Recovery Operations

Due to the above average water year, recovery operations were limited to October 2010. During October 2010, the District recovered a total of 638 AF from the three sites (312 AF from Waldron, 46 AF from Empire and 280 AF from Lambrecht).

2.3 Operations Impact on Stored Water

As a result of both the recovery and recharge activities over the past water year, the amount of water stored at Waldron, Empire, and Lambrecht have increased. For Waldron, the water year began with 13,867 AF in storage and ended with 31,341 AF for an increase of 17,474 AF. For Empire, the water year began with 1,607 AF and ended with 3,543 AF for an increase of 1,936 AF. Lastly for Lambrecht, the water year began with 13,625 AF in storage and ended with 22,230 AF for an increase of 8,605 AF. Between all three sites, the storage increased by 28,015 AF. **Table 2-1** summarizes the entire Project's operations since inception of operations in 2005.

¹ Source: California Department of Water Resources, California Data Exchange Center website. <http://cdec.water.ca.gov/cgi-progs/reports/FLOWOUT.201109>

SECTION TWO

**TABLE 2-1
Summary of Project Recharge & Recovery Operations**

Waldron						
Year	Beginning of Year Storage (AF)	Gross Deliveries (AF)	Losses (10%) (AF)	Recharge (AF)	Recovery (AF)	End of Year Storage (AF)
2005	0	1,857	186	1,671	0	1,671
2006	1,671	1,355	136	1,219	0	2,890
2007	2,890	676	68	608	0	3,498
2008	3,498	7,390	739	6,651	1,651	8,498
2009	8,498	2,989	298	2,691	4,706	6,483
2010	6,483	12,976	1298	11,678	4,294	13,867
2011	13,867	19,763	1,977	17,786	312	31,341
Totals		47,006	4,702	42,304	10,963	

Empire						
Year	Beginning of Year Storage (AF)	Gross Deliveries (AF)	Losses (10%) (AF)	Recharge (AF)	Recovery (AF)	End of Year Storage (AF)
2005*	0	0	0	0	0	0
2006	0	225	23	202	0	202
2007	202	659	66	593	0	795
2008	795	721	72	649	399	1,045
2009	1,045	1,217	122	1,095	1,212	928
2010	928	1,995	200	1,795	1,116	1,607
2011	1,607	2,203	221	1,982	46	3,543
Totals		7,020	704	6,316	2,773	

Lambrecht						
Year	Beginning of Year Storage (AF)	Gross Deliveries (AF)	Losses (10%) (AF)	Recharge (AF)	Recovery (AF)	End of Year Storage (AF)
2005	0	1,690	169	1,521	0	1,521
2006	1,521	0	0	0	0	1,521
2007	1,521	1,993	199	1,794	0	3,315
2008	3,315	6,213	622	5,591	393	8,513
2009	8,513	6,783	678	6,105	4,249	10,369
2010	10,369	8,051	805	7,246	3,990	13,625
2011	13,625	9,872	987	8,885	280	22,230
Totals		34,602	3,460	31,142	8,912	

Project Total						
Year	Beginning of Year Storage (AF)	Gross Deliveries (AF)	Losses (10%) (AF)	Recharge (AF)	Recovery (AF)	End of Year Storage (AF)
2005	0	3,547	355	3,192	0	3,192
2006	3,192	1,580	159	1,421	0	4,613
2007	4,613	3,328	333	2,995	0	7,608
2008	7,608	14,324	1,433	12,891	2,443	18,056
2009	18,056	10,989	1,098	9,891	10,167	17,780
2010	17,780	23,022	2,303	20,719	9,400	29,099
2011	29,099	31,838	3,185	28,653	638	57,114
Totals		88,628	8,866	79,762	22,648	

NOTE: * The Empire site was not able to receive water until the 2006 water year.

3 MONITORING RESULTS

3.1 Water Level Measurements

The District continues to measure water levels in selected wells on a monthly basis in the vicinity of each of the three sites. **Plate 1** shows the locations of all of the wells measured for the Project. **Plates 2, 3, and 4** shows the locations of the wells measured at the Empire, Lambrecht, and Waldron sites respectively. **Table B-1 in Appendix B** summarizes the completion depth and perforated intervals for the on-site wells. Overall, water levels have been relatively stable at the sites over the long term. In most recent years water levels have risen, partly due to intentional recharge.

In general, the depth to groundwater at the Waldron site is generally between 50 and 80 feet. The depth to groundwater at the Empire site is approximately 55 to 65 feet. The depth to groundwater at the Lambrecht site is generally between 35 and 45 feet. Much of the data presented represents intermediate depths tapped by irrigation wells in the area. The depth to groundwater beneath the Waldron, Empire, and Lambrecht sites rose by approximately 5 to 10 feet over the course of the 2011 water year (October 2010 to September 2011). Groundwater elevation maps for spring and fall 2010 for all three sites are included as **Plates 5 through 10. Table B-2 Appendix B** summarizes the monthly depth to groundwater measurements for the off-site wells that were measured during the 2011 water year. Water level hydrographs for the measured wells are also included in **Appendix B**.

Water level hydrographs of onsite monitor wells for the 2011 water year are provided in **Appendix B** for each site.

3.1.1 Waldron Banking Facility

Stable groundwater levels are indicated in the onsite and offsite measured wells. Raised groundwater levels between 10 to 20 feet are indicated in the measured onsite monitor wells for the 2011 water year.

3.1.2 Empire Banking Facility

Stable groundwater levels are indicated in the onsite and offsite measured wells. Raised groundwater levels of approximately 5 feet are indicated in the measured onsite monitor wells for the 2011 water year.

3.1.3 Lambrecht Banking Facility

Stable groundwater levels are indicated in the onsite and offsite measured wells. Raised groundwater levels of approximately 5 feet are indicated in the measured onsite monitor wells for the 2011 water year.

SECTION THREE

3.2 Water Quality Monitoring

Water quality testing was performed on surface water in the spring and fall during the 2011 water year at all three sites. **Tables 3-1** summarize results of water quality testing performed in March 2011 and November 2011. Sampling was generally consistent with the March 2009 Groundwater Monitoring Plan. The water quality laboratory reports are on record with FID and are available for review upon request.

3.2.1 Basin Surface Water Sampling

Surface water samples were collected from each recharge facility in March and November 2011. At all sites, the constituents measured fell within the maximum constituent level (MCL) for drinking water, except for iron levels during the spring at Waldron. A summary of the test results is provided in **Table 3-1**.

TABLE 3-1
Summary of Water Quality Sampling - 2011

Analyte	Units	MCL	Waldron Surface Water		Empire Surface Water		Lambrecht Surface Water	
			Mar	Nov	Mar	Nov	Mar	Nov
Chloride	mg/L	250	2.9	ND	2.6	ND	2.8	ND
Nitrate as NO3	mg/L	10	1.3	ND	ND	ND	ND	ND
pH	pH Units	6.5-8.5	7.9	7.5	8.4	7.4	7.8	7.6
Sulfate as SO4	mg/L	250	3.1	ND	2.8	ND	3.0	ND
Arsenic	µg/L	10	ND	ND	ND	ND	ND	ND
Iron	mg/L	0.3	0.44	0.23	0.12	0.11	0.17	0.097
Magnesium	mg/L	N/A	2.4	0.57	2.1	0.5	2.5	0.49
Sodium	mg/L	N/A	3.7	1.3	3.7	1.2	4.1	1.2
Total Dissolved Solids	mg/L	500	45	26	41	24	42	24
Manganese	mg/L	0.05	0.017	0.011	ND	ND	ND	ND

NOTE:

MCL: Maximum Contaminant Level (Environmental Protection Agency Drinking Water Standards and R.S. Ayers, 1985)
ND: None Detected

3.2.2 Groundwater Sampling

Groundwater was not sampled during the 2011 water year because pumping operations that occurred were limited to October due to the extension of the 2010 water year deliveries. These wells were sampled during the 2010 water year.

4 RECOMMENDATIONS

Based on the data collected and provided by FID, the following recommendations are offered for consideration.

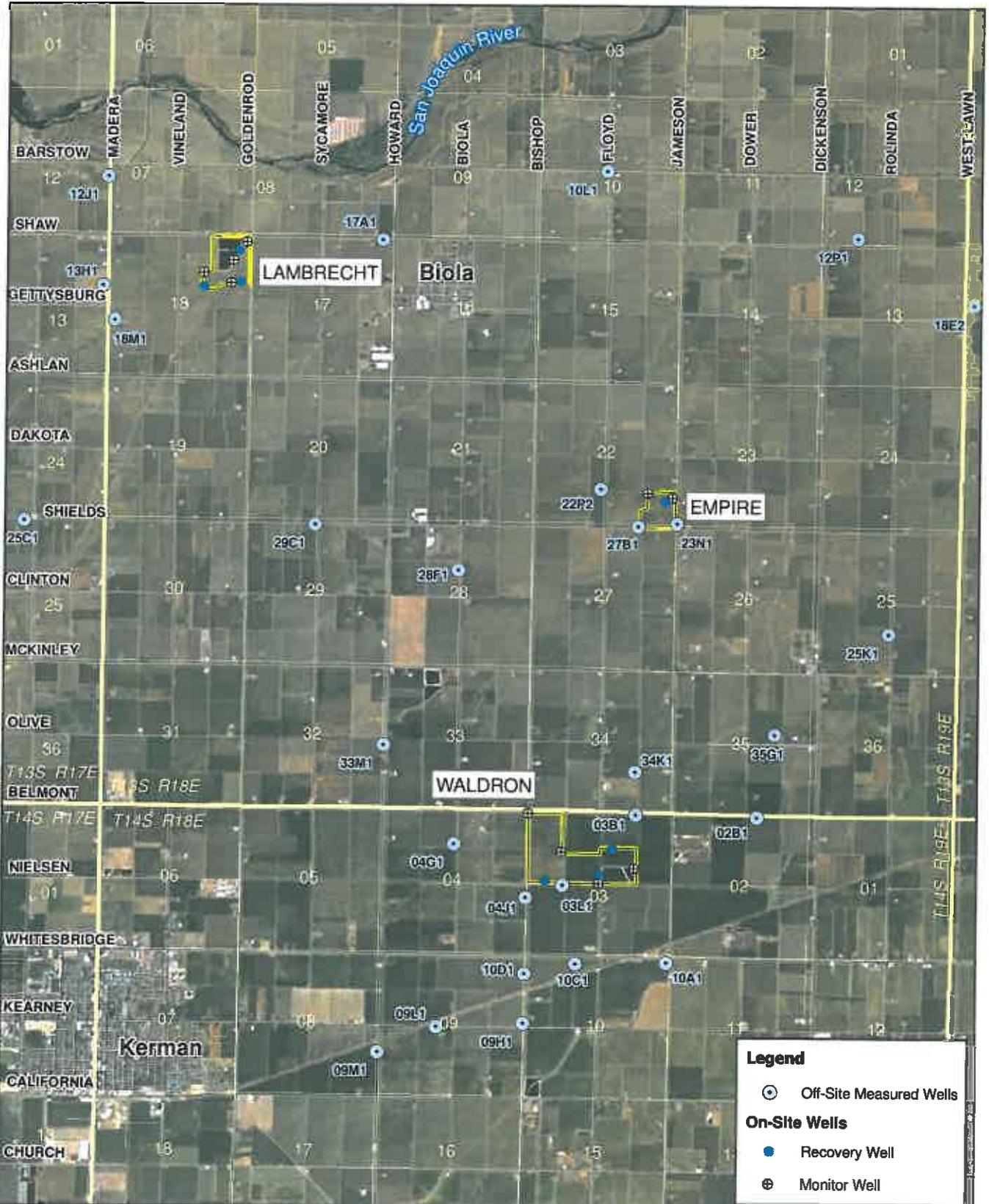
1. Continue to closely monitor the operations of the Waldron Banking Facilities recovery wells impact on offsite wells 03L1, 04J1 and 10A1.
2. Survey the reference point elevations for the following wells:

Waldron Site	Empire Site	Lambrecht Site
03G1	22P2	13H1
MW101	27B1	18A1
MW102	MW201	18M1
MW103	MW202	MW301
MW104		MW302
		MW303
		MW304

This will allow these wells to be included in the calculations for the groundwater elevations. The reference point survey should be done on the same datum as used for the original well survey.

3. Recalibrate the data loggers in the on-site monitoring wells and download the data each time the wells are manually sounded. FID should continue to sound these wells monthly. The sensors should be recalibrated annually, or if manual readings indicate the sensor is not reading correctly.
4. Continue to sample all wells and basins at the intervals stated in the March 2009 Groundwater Monitoring Plan.

PLATES



0 0.5 1 Miles



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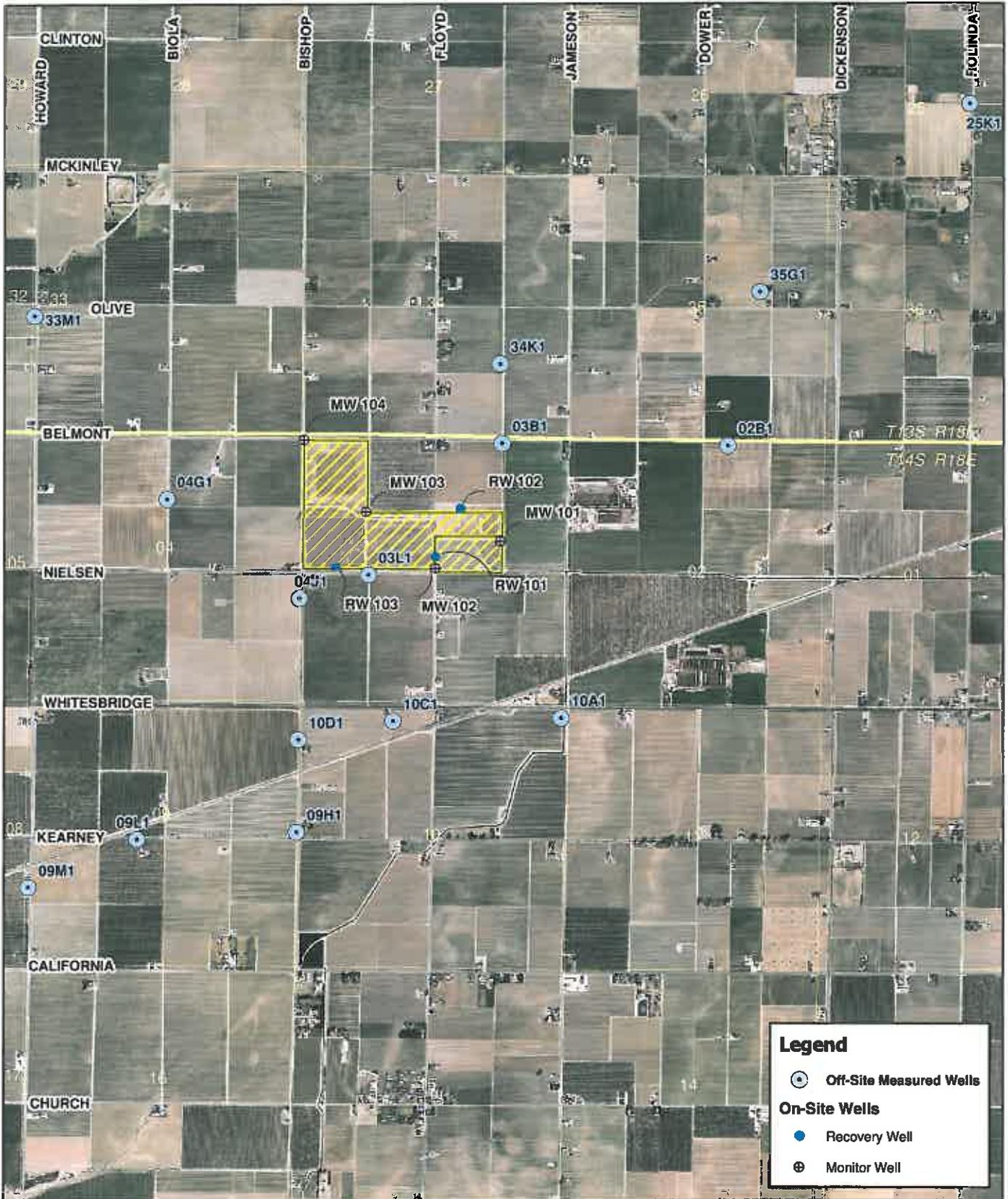
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Legend

- ⊙ Off-Site Measured Wells
- On-Site Wells**
- Recovery Well
- ⊕ Monitor Well

PLATE 1

On Site & Off Site Measured Wells
 All Banking Facilities



Legend

- ⊕ Off-Site Measured Wells
- On-Site Wells**
- Recovery Well
- ⊕ Monitor Well

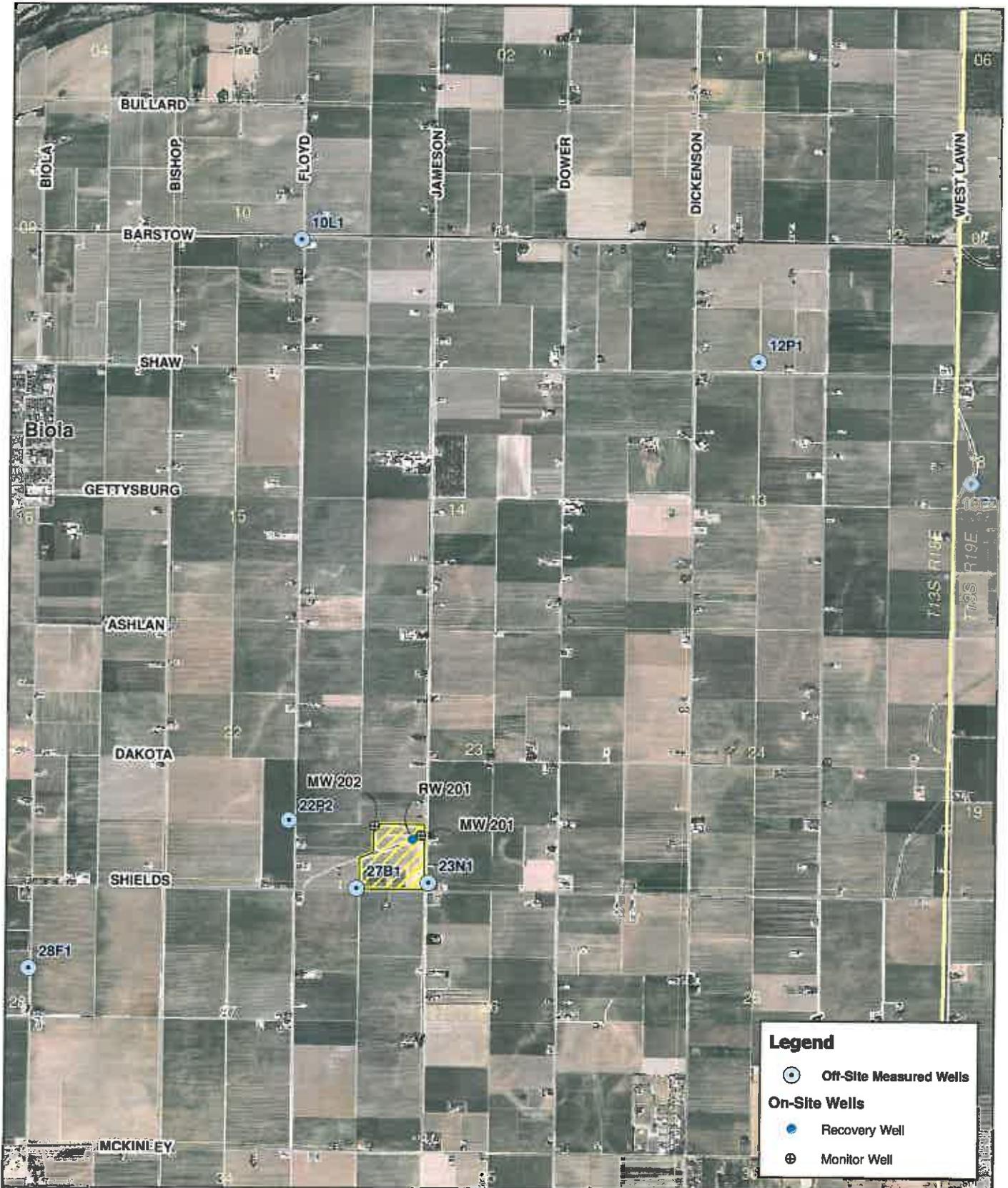
0 1,000 2,000 Feet



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PLATE 2

On Site & Off Site Measured Wells
 Waldron Banking Facility



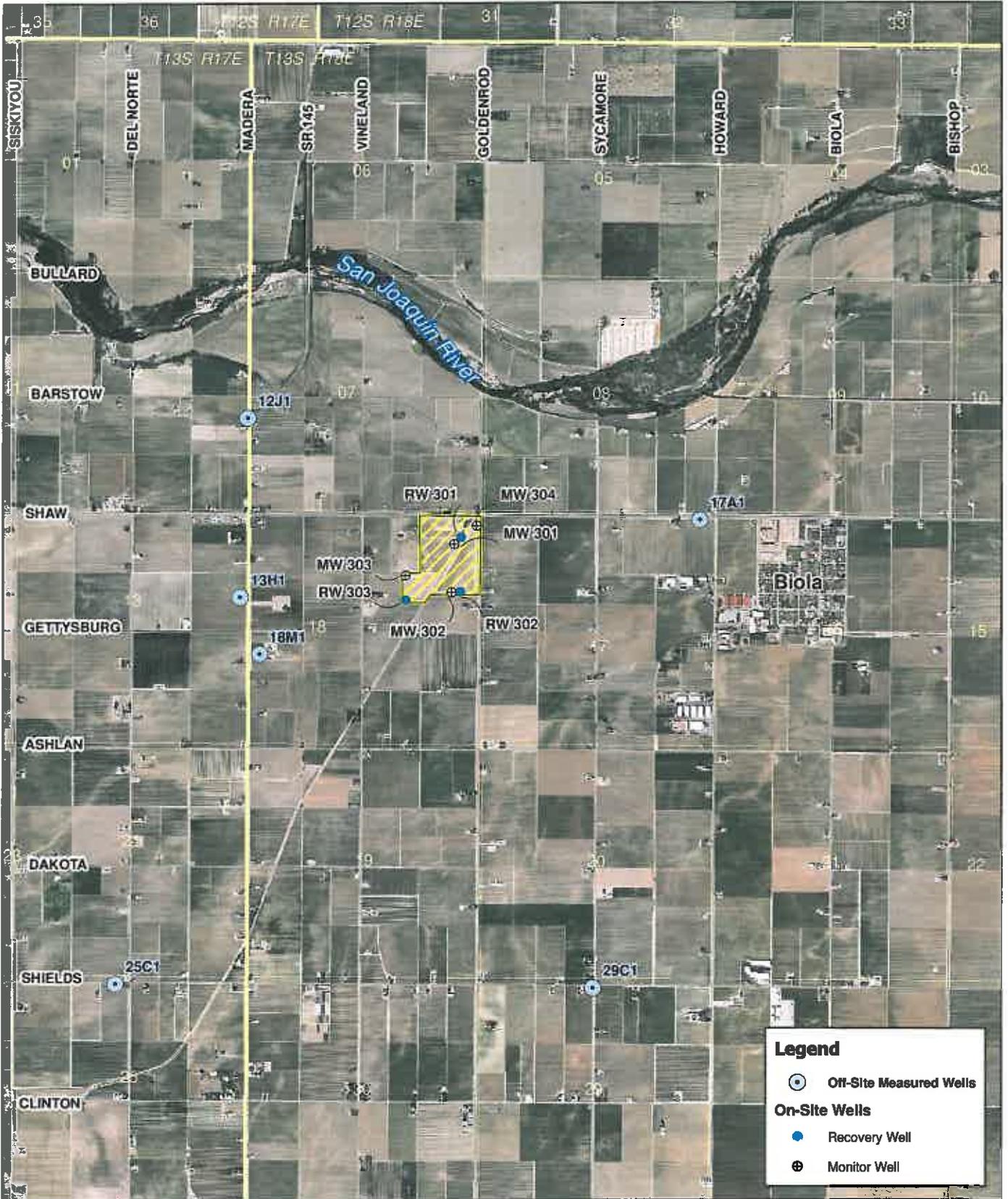
Legend

- Off-Site Measured Wells
- On-Site Wells**
- Recovery Well
- ⊕ Monitor Well

0 1,000 2,000 Feet

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PLATE 3
 On Site & Off Site Measured Wells
 Empire Banking Facility



Legend

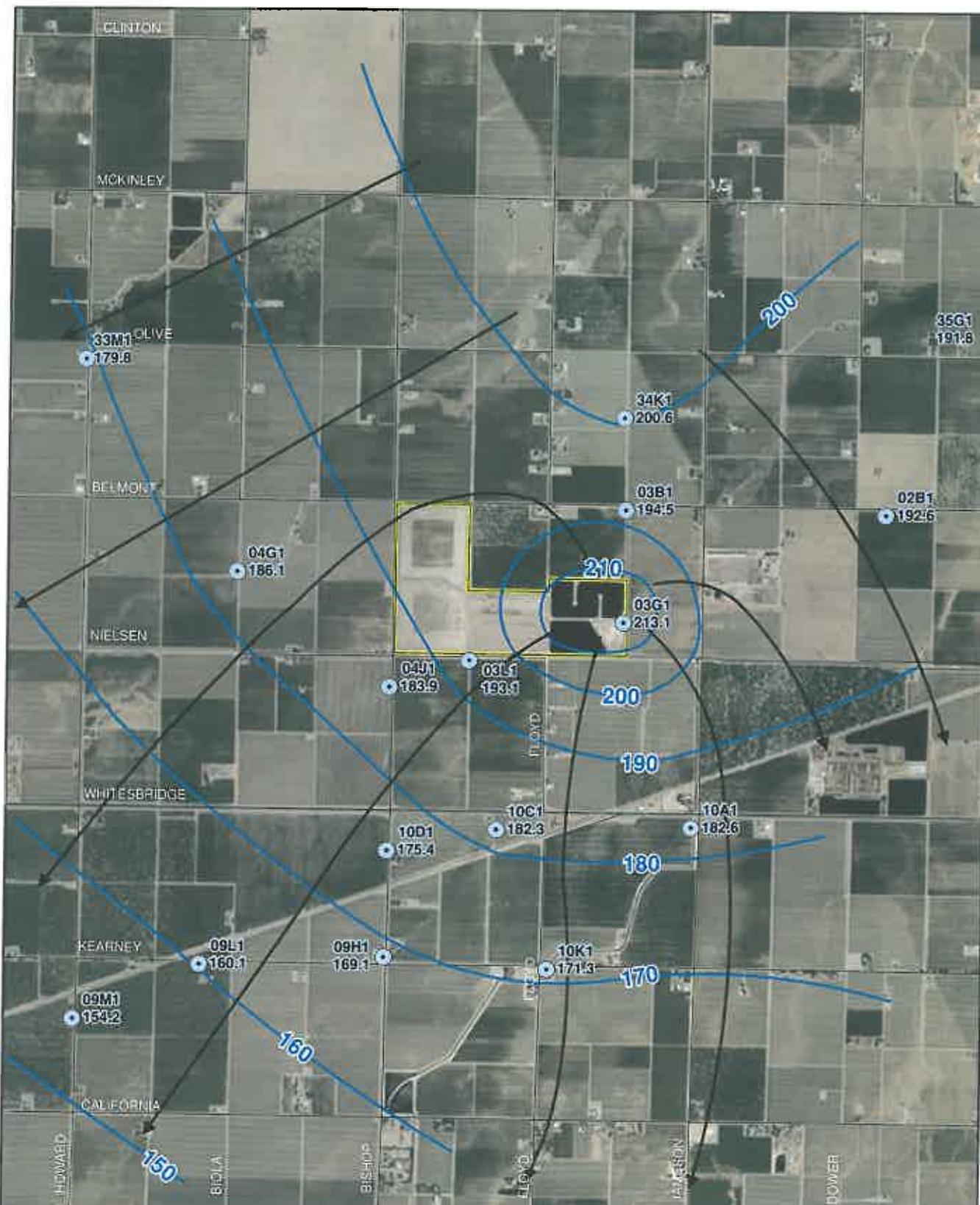
- Off-Site Measured Wells
- On-Site Wells
 - Recovery Well
 - ⊕ Monitor Well



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PLATE 4

On Site & Off Site Measured Wells
 Lambrecht Banking Facility



0 1,000 2,000 Feet

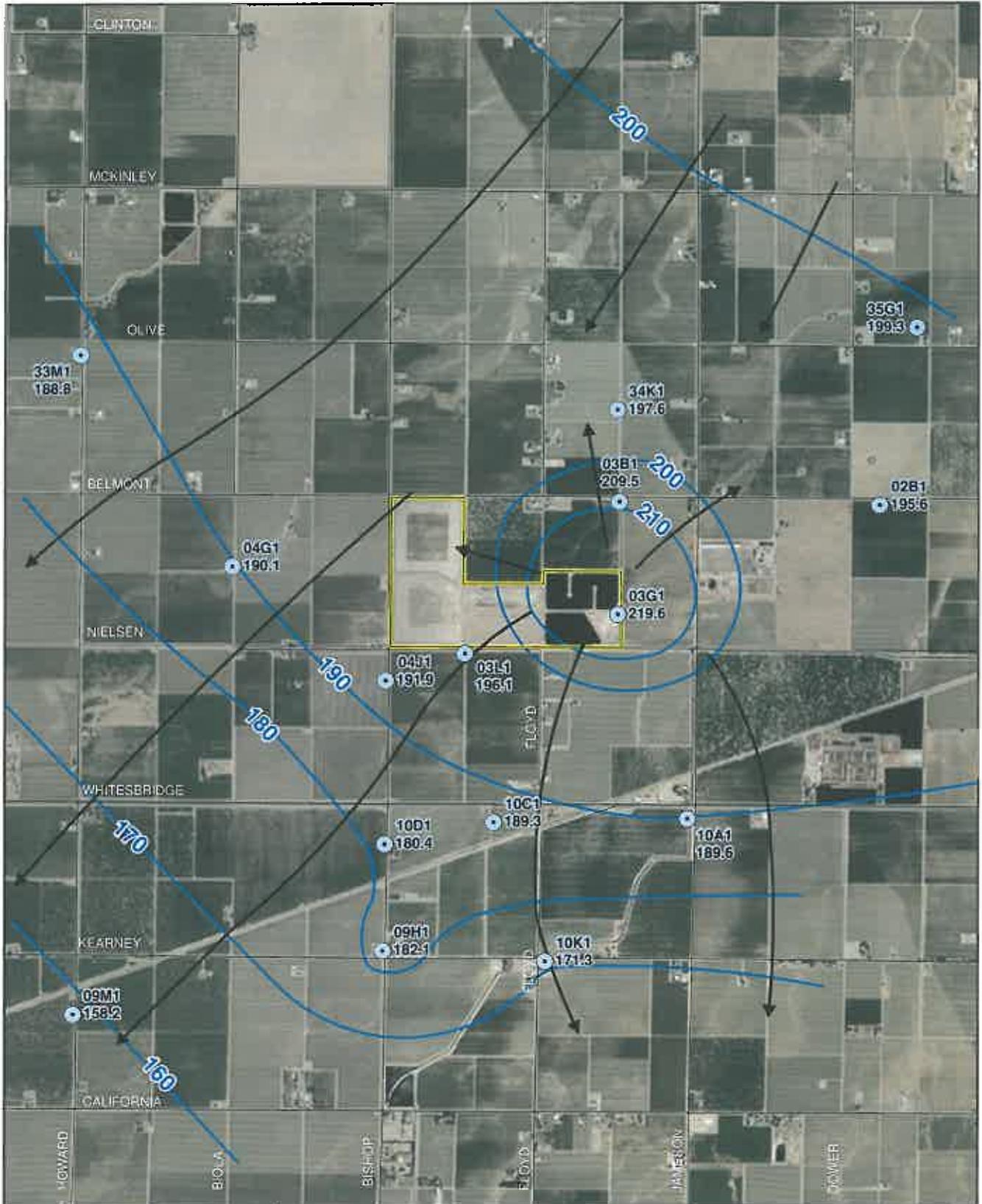
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Legend

- Well Location (Labeled With Water Elev.)
- Water Level Elevation Contour (Feet)
- Direction of Groundwater Flow

PLATE 5
 Water Level Elevations
 Spring 2011
 Waldron Banking Facility



0 1,000 2,000 Feet

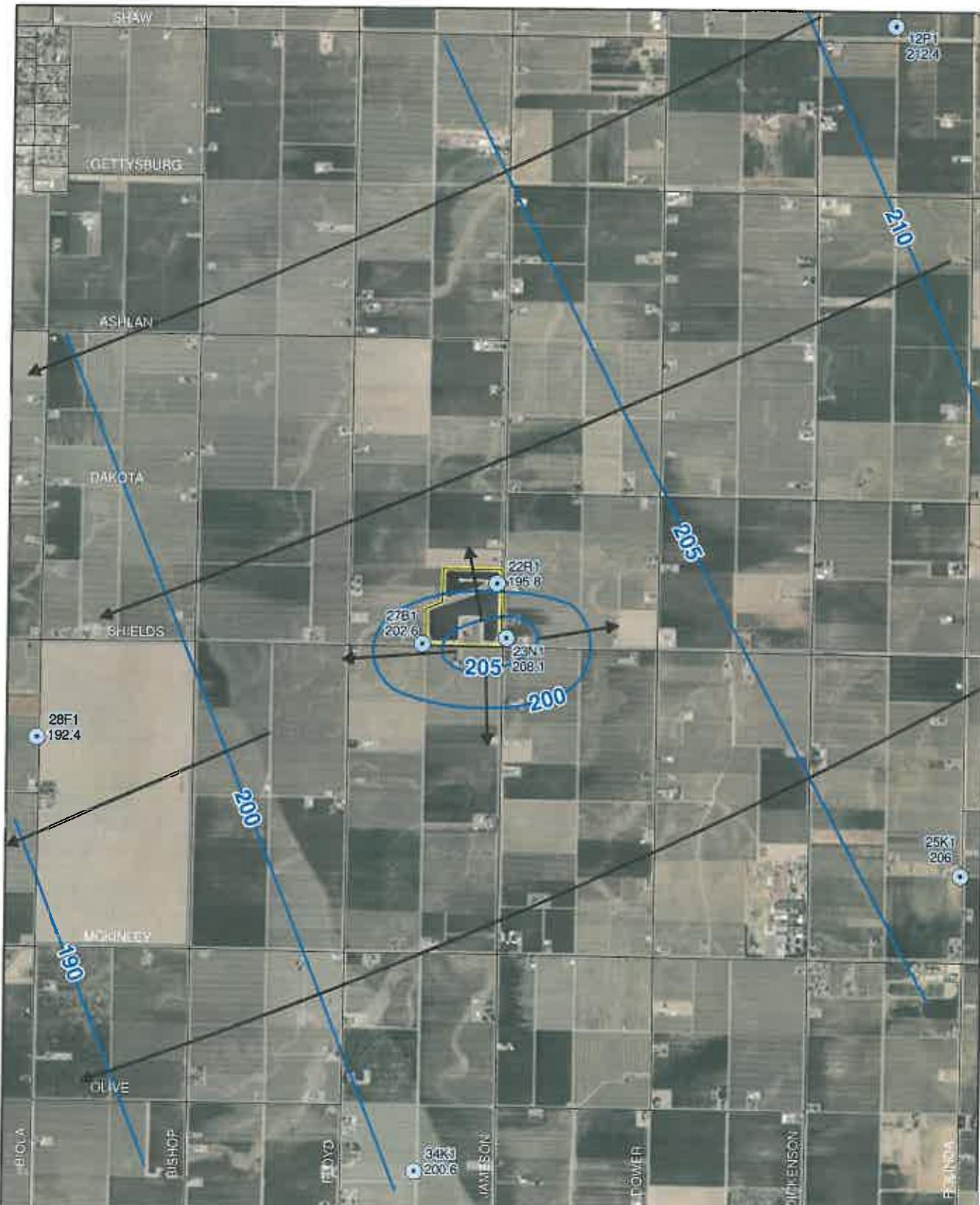
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Legend

- Well Location (Labeled With Water Elev.)
- Water Level Elevation Contour (Feet)
- Direction of Groundwater Flow

PLATE 6
 Water Level Elevations
 October 2011
 Waldron Banking Facility



0 1,000 2,000 Feet

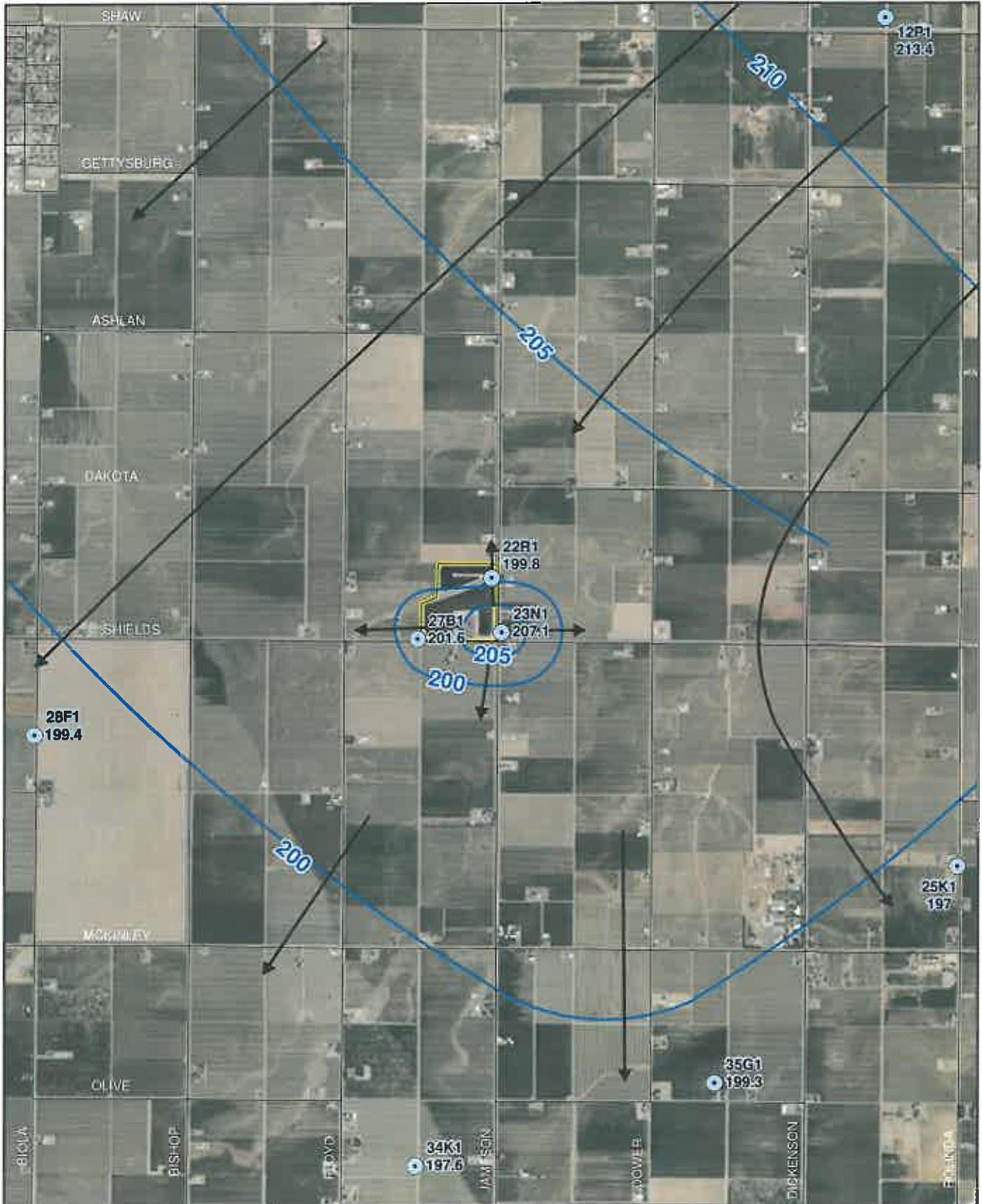
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Legend

- Well Location (Labeled With Water Elev.)
- Water Level Elevation Contour (Feet)
- Direction of Groundwater Flow

PLATE 7
 Water Level Elevations
 Spring 2011
 Empire Banking Facility



0 1,000 2,000 Feet

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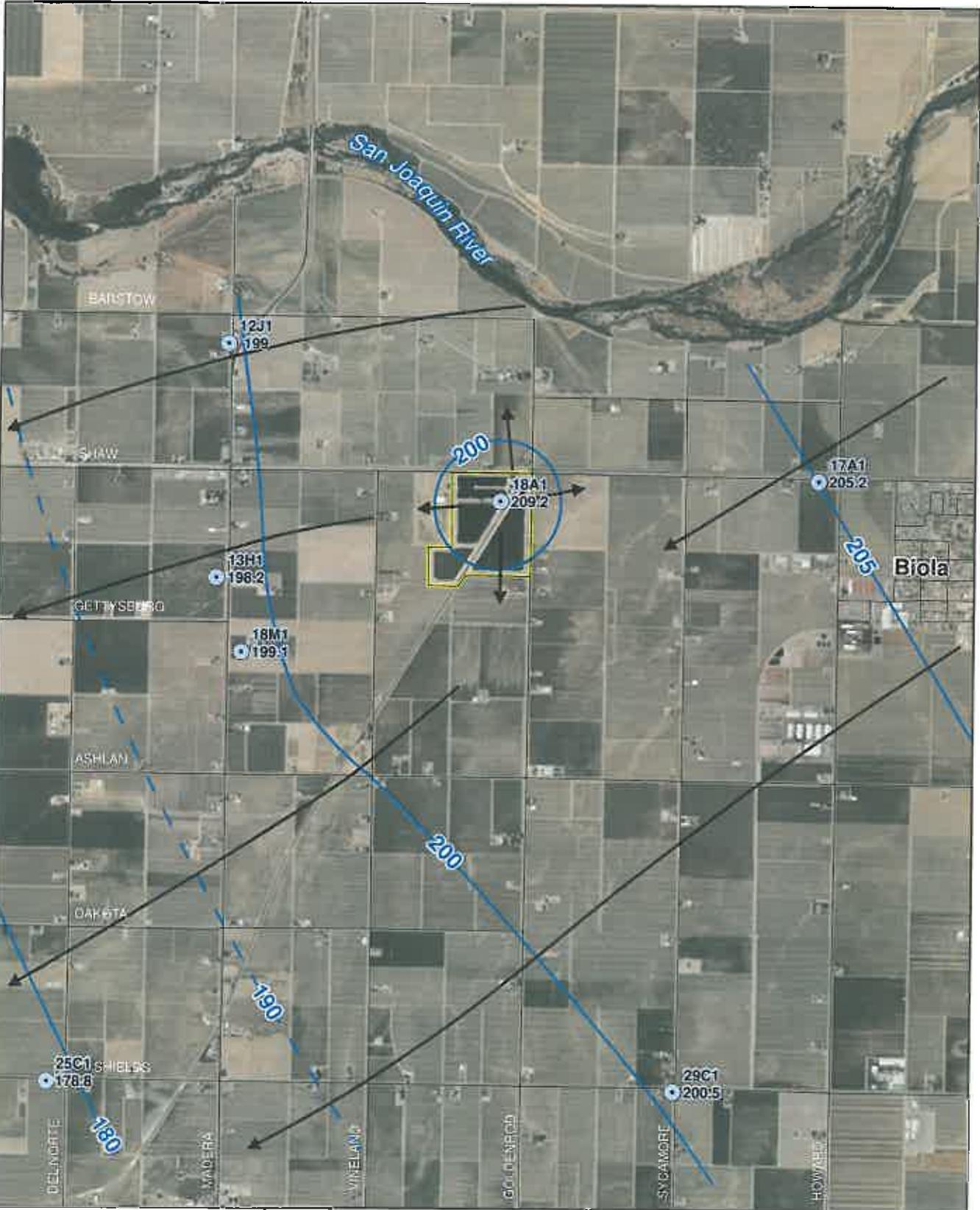
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Legend

-  Well Location (Labeled With Water Elev.)
-  Water Level Elevation Contour (Feet)
-  Direction of Groundwater Flow

PLATE 8
 Water Level Elevations
 October 2011
 Empire Banking Facility



0 1,000 2,000 Feet

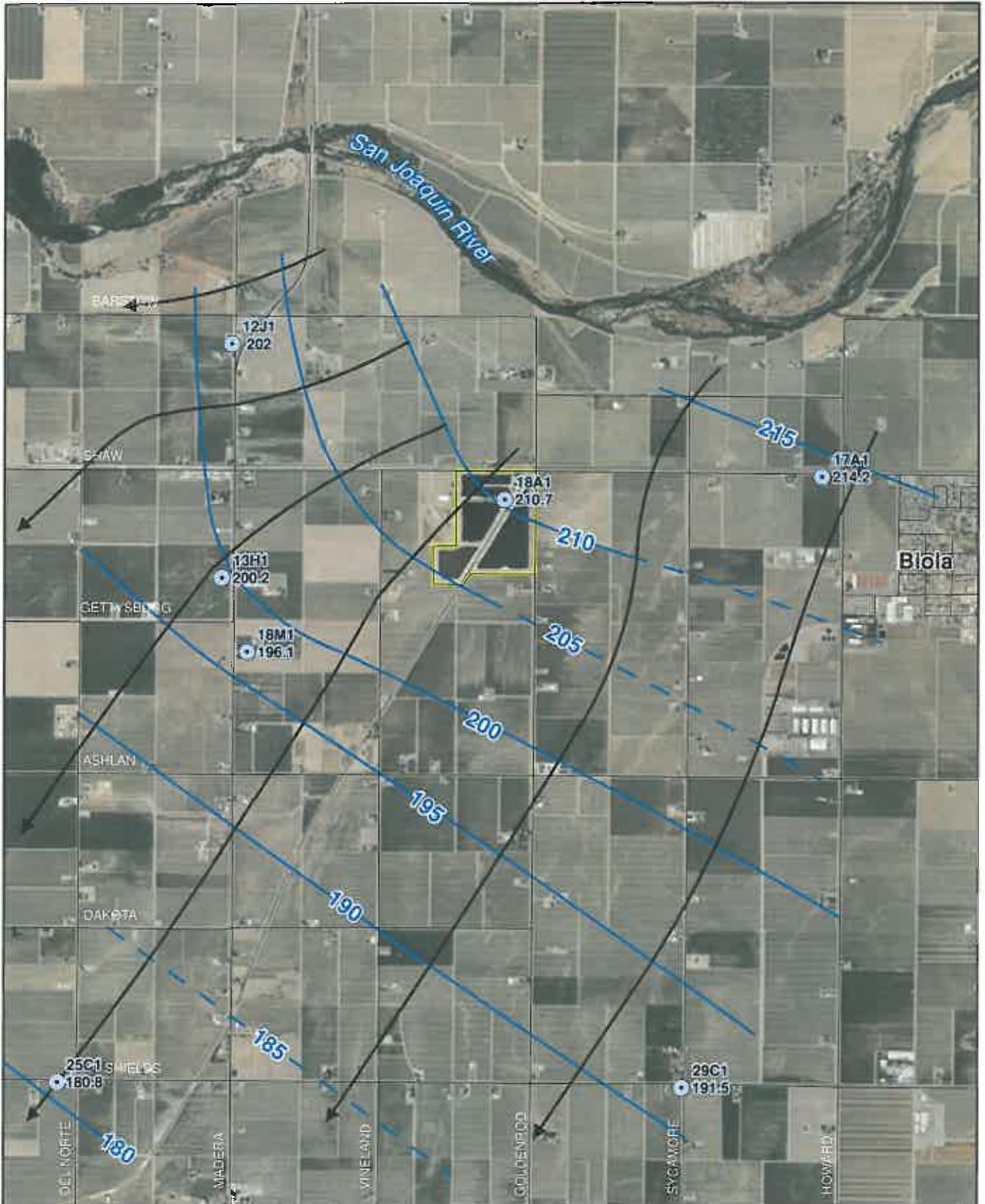


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Legend

- Well Location (Labeled With Water Elev.)
- Water Level Elevation Contour (Feet)
- Direction of Groundwater Flow

PLATE 9
 Water Level Elevations
 Spring 2011
 Lambrecht Banking Facility



0 1,000 2,000 Feet



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Legend

-  Well Location (Labeled With Water Elev.)
-  Direction of Groundwater Flow
-  Water Level Elevation Contour (Feet)

PLATE 10
 Water Level Elevations
 October 2011
 Lambrecht Banking Facility

APPENDIX A
SUMMARY OF RECHARGE & RECOVERY OPERATIONS

TABLE A-1
 FRESNO IRRIGATION DISTRICT
 WATER SUPPLY & DISTRIBUTION RECORD
 For the water year ending: SEPTEMBER, 2011

WALDRON BANKING FACILITY

Month	Beginning of Month Storage (AF)	Gross Deliveries (AF)	Losses 10% (AF)	Recharge (AF)	Recovery (AF)	End of Month Storage (AF)
Oct-10	13867	758	76	682	312	14237
Nov-10	14237	0	0	0	0	14237
Dec-10	14237	1572	157	1415	0	15652
Jan-11	15652	2738	274	2464	0	18116
Feb-11	18116	2604	260	2344	0	20460
Mar-11	20460	2900	290	2610	0	23070
Apr-11	23070	2510	251	2259	0	25329
May-11	25329	2687	269	2418	0	27747
Jun-11	27747	820	82	738	0	28485
Jul-11	28485	605	61	544	0	29029
Aug-11	29029	811	81	730	0	29759
Sep-11	29759	1758	176	1582	0	31341
Totals		19763		17786	312	31341

TABLE A-2
 FRESNO IRRIGATION DISTRICT
 WATER SUPPLY & DISTRIBUTION RECORD
 For the water year ending: SEPTEMBER, 2011

EMPIRE BANKING FACILITY

Month	Beginning of Month Storage (AF)	Gross Deliveries (AF)	Losses 10% (AF)	Recharge (AF)	Recovery (AF)	End of Month Storage (AF)
Oct-10	1607	245	25	220	46	1781
Nov-10	1781	0	0	0	0	1781
Dec-10	1781	83	8	75	0	1856
Jan-11	1856	93	9	84	0	1940
Feb-11	1940	256	26	230	0	2170
Mar-11	2170	209	21	188	0	2358
Apr-11	2358	193	19	174	0	2532
May-11	2532	264	26	238	0	2770
Jun-11	2770	216	22	194	0	2964
Jul-11	2964	207	21	186	0	3150
Aug-11	3150	240	24	216	0	3366
Sep-11	3366	197	20	177	0	3543
Totals		2203		1982	46	3543

TABLE A-3
 FRESNO IRRIGATION DISTRICT
 WATER SUPPLY & DISTRIBUTION RECORD
 For the water year ending: SEPTEMBER, 2011

LAMBRECHT BANKING FACILITY

Month	Beginning of Month Storage (AF)	Gross			Recovery (AF)	End of Month Storage (AF)
		Deliveries (AF)	Losses 10% (AF)	Recharge (AF)		
Oct-10	13625	1254	125	1129	280	14474
Nov-10	14474	273	27	246		14720
Dec-10	14720	669	67	602		15322
Jan-11	15322	730	73	657		15979
Feb-11	15979	660	66	594		16573
Mar-11	16573	809	81	728		17301
Apr-11	17301	989	99	890		18191
May-11	18191	1131	113	1018		19209
Jun-11	19209	935	94	841		20050
Jul-11	20050	981	98	883		20933
Aug-11	20933	941	94	847		21780
Sep-11	21780	500	50	450		22230
Totals		9872		8885	280	22230

APPENDIX B

WELL DATA, WATER LEVEL MEASUREMENTS AND HYDROGRAPHS

**Table B-1
Well Completion Data**

WELL ID	Location	Well Casing Diameter (in)	Perforation Interval (FT) from FG	Depth to Borehole (FT)	Depth to Bowl Assembly (FT)	Design Flow (GPM)	Motor HP
WALDRON BANKING FACILITY							
<i>Recovery Wells</i>							
RW 101	NW Cell 3	16	358-949		306	3,250	200 HP
RW 102	SE Cell 4	22	80-240		266	2,500	200 HP
		16	320-505				
RW 103	S Cell 5	18	300-700		240	4,000	250 HP
<i>Monitor Wells</i>							
MW 101	NE Cell 2	4	80-130	150			
MW 102	SE Cell 4	5	400-800	820			
MW 103	NW Cell 4	4	60-130	140			
MW 104	NW Cell 6	4	70-130	140			
EMPIRE BANKING FACILITY							
<i>Recovery Well</i>							
RW 201	NE Cell 2	16	455-680		327	2,500	200 HP
<i>Monitor Wells</i>							
MW 201	NE Cell 2	5	450-680	700			
MW 202	NW Cell 1	4	65-125	140			
LAMBRECHT BANKING FACILITY							
<i>Recovery Wells</i>							
RW 301	NE Cell 2	18	260-460		247	2,500	150
RW 302	S Cell 4	14	330-655		280	4,000	300
RW 303	SW Cell 3	22	110-314		280	3,500	250
		14	317-570				
<i>Monitor Wells</i>							
MW 301	NE Cell 2	5	210-380	390			
MW 302	S Cell 4	4	125-145	165			
MW 303	NW Cell 3	4	250-340	350			
MW 304	N Cell 4	4	80-120	140			

Table B-2
Depth to Water Surface
2011 water year
(All Units in Feet)

EMPIRE

WELL ID	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
13S18E10L1	51	53	51	51	50	50	50	52	52	49	49	50	39
13S18E12P1	63	64	60	60	59	58	61		61		60	57	57
13S18E23N1	47	56	52	51	51	47	48	46	45	44	46	47	48
13S18E28F1	52	54	48	49	49	51	50	48	48	48	39	47	44
13S19E18E2	70	69	70	70	70	70	71	70	69	68	69	67	67
13S18E22P2	70	69	72	70	70.5	70	69	69	68	68	70	65	67
13S18E27B1	53	54	57	55	56	54	53	51	53	48	51	53	55

LAMBRECHT

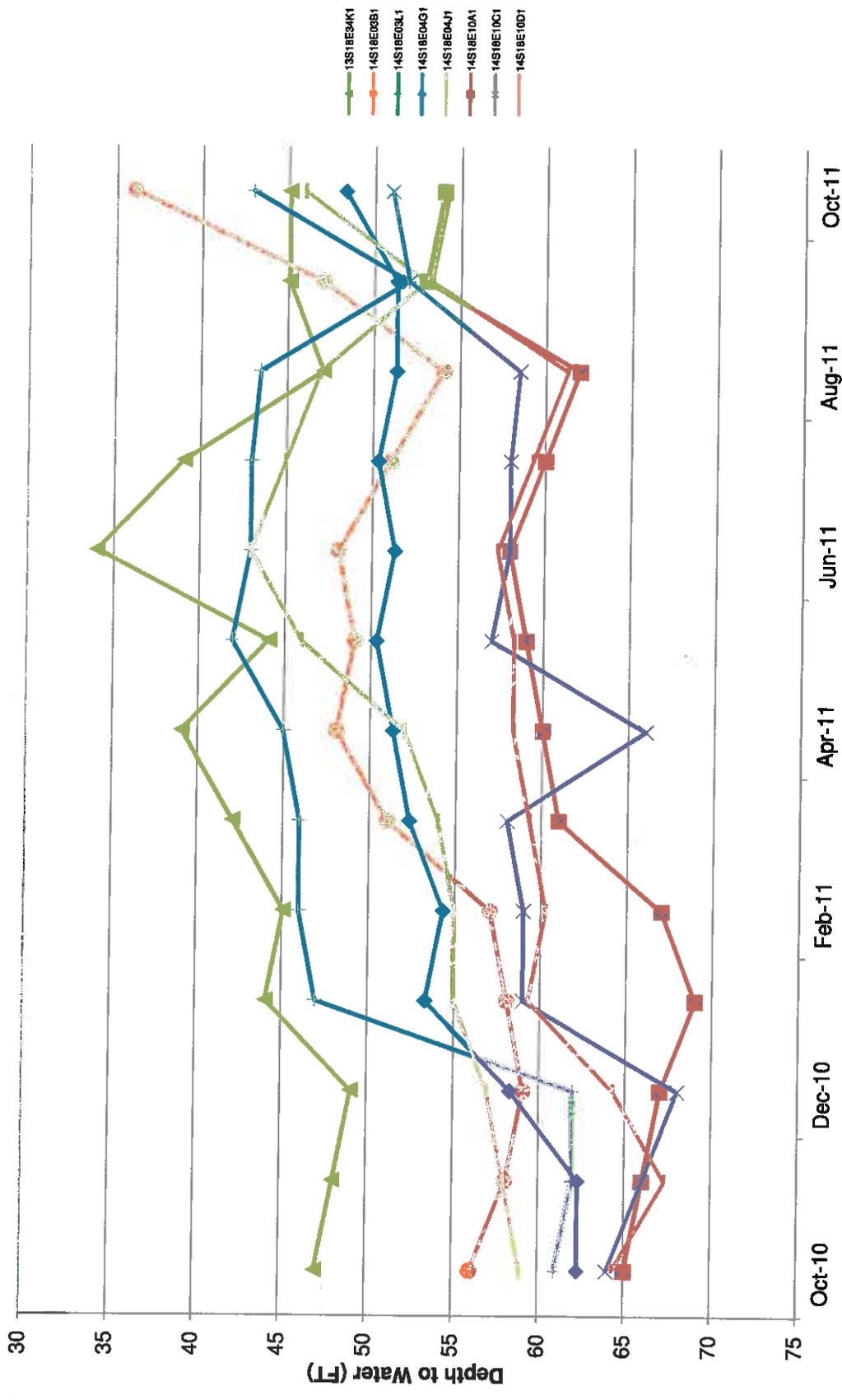
WELL ID	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
13S17E12J1	57	47	47	45	44	45	46	44	45	43	41	47	42
13S17E25C1	55	55	49	45	44	53	53	55	54	53	49	55	51
13S18E17A1	55	55	49	45	45	48	50	48	47	42	44	42	39
13S18E29C1	53	52	48	44	44	38	44	50	48	41	47	50	47
13S17E13H1	54	50	46	36	36	44	46	45	44	41	38	46	42
13S18E18A1	42	48	48	46	46	45	43	42	40	40	40	40	43
13S18E18M1	50	51	46	46	46	45	47	45	45	48	41	48	
13S18E19A1	50	51	49	46	46	46	50	52	46	44	43	42	40

WALDRON

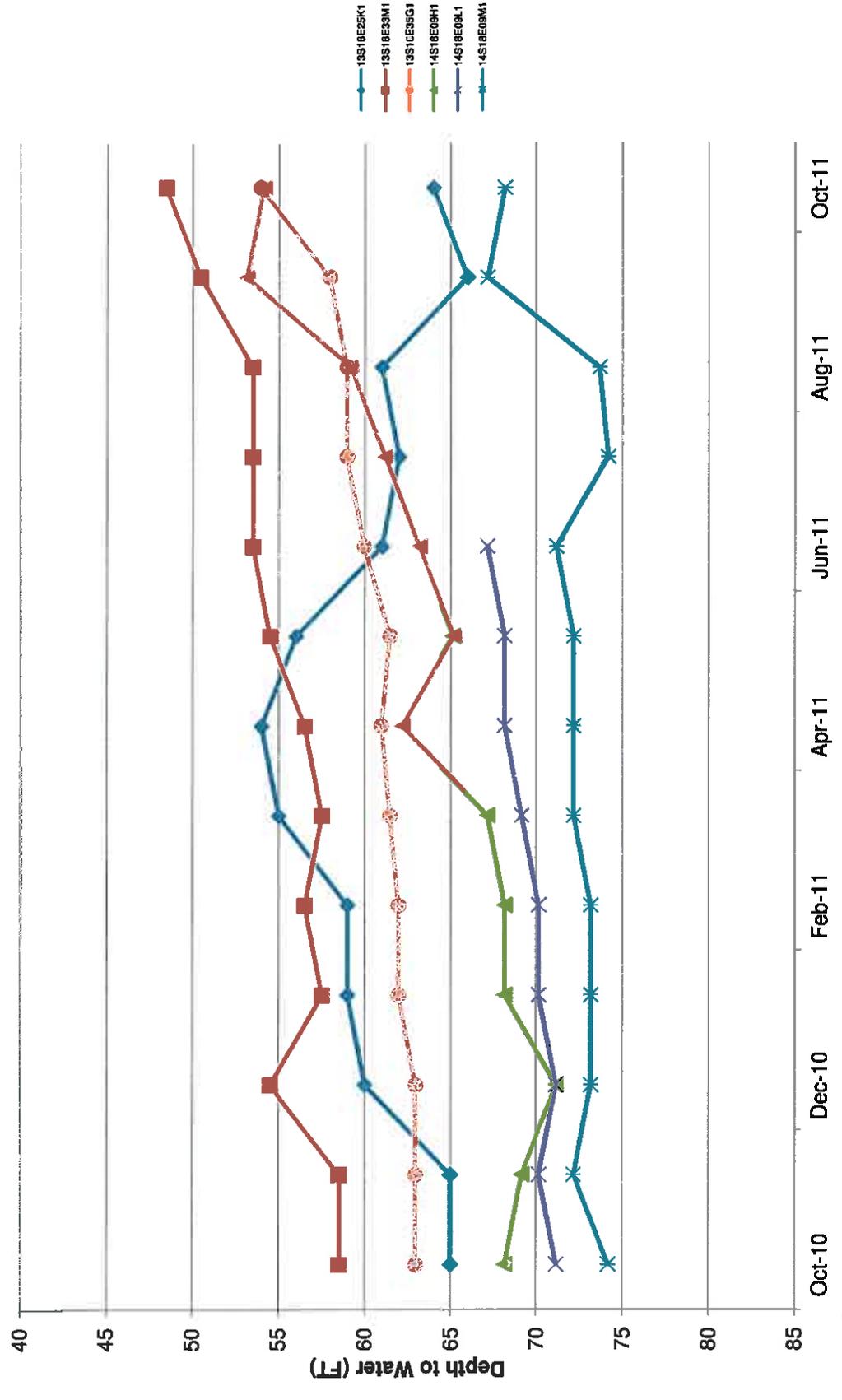
WELL ID	Oct-10	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
13S18E25K1	65	65	60	59	59	55	54	56	61	62	61	66	64
13S18E33M1	59	59	55	58	57	58	57	55	54	54	54	51	49
13S18E34K1	47	48	49	44	45	42	39	44	34	39	47	45	45
13S18E35G1	63	63	63	62	62	61	61	61	60	59	59	58	54
14S18E02B1	60	62	60	53	53	57	59	58	52	59	61	51	54
14S18E03B1	56	58	59	58	57	51	48	49	48	51	54	47	36
14S18E03L1	61	62	62	47	46	46	45	42	43	43	43	52	43
14S18E04G1	62	62	58	53	54	52	51	50	51	50	51	51	48
14S18E04J1	59	58	57	55	55	54	52	46	43	45	47	53	46
14S18E09H1	68	69	71	68	68	67	62	65	63	61	59	53	54
14S18E09L1	71	70	71	70	70	69	68	68	67				
14S18E09M1	74	72	73	73	73	72	72	72	71	74	74	67	68
14S18E10A1	65	66	67	69	67	61	60	59	58	60	62	53	54
14S18E10C1	64	66	68	59	59	58	66	57	58	58	59	52	51
14S18E10D1	64	67	64	59	60	59	58	58	57	59	61	53	54

WALDRON
MONTHLY WATER LEVEL HYDROGRAPHS

Waldron Banking Facility Hydrographs of Offsite Measured Wells (Within 1 Mile from Site) 2010-11 Water Year



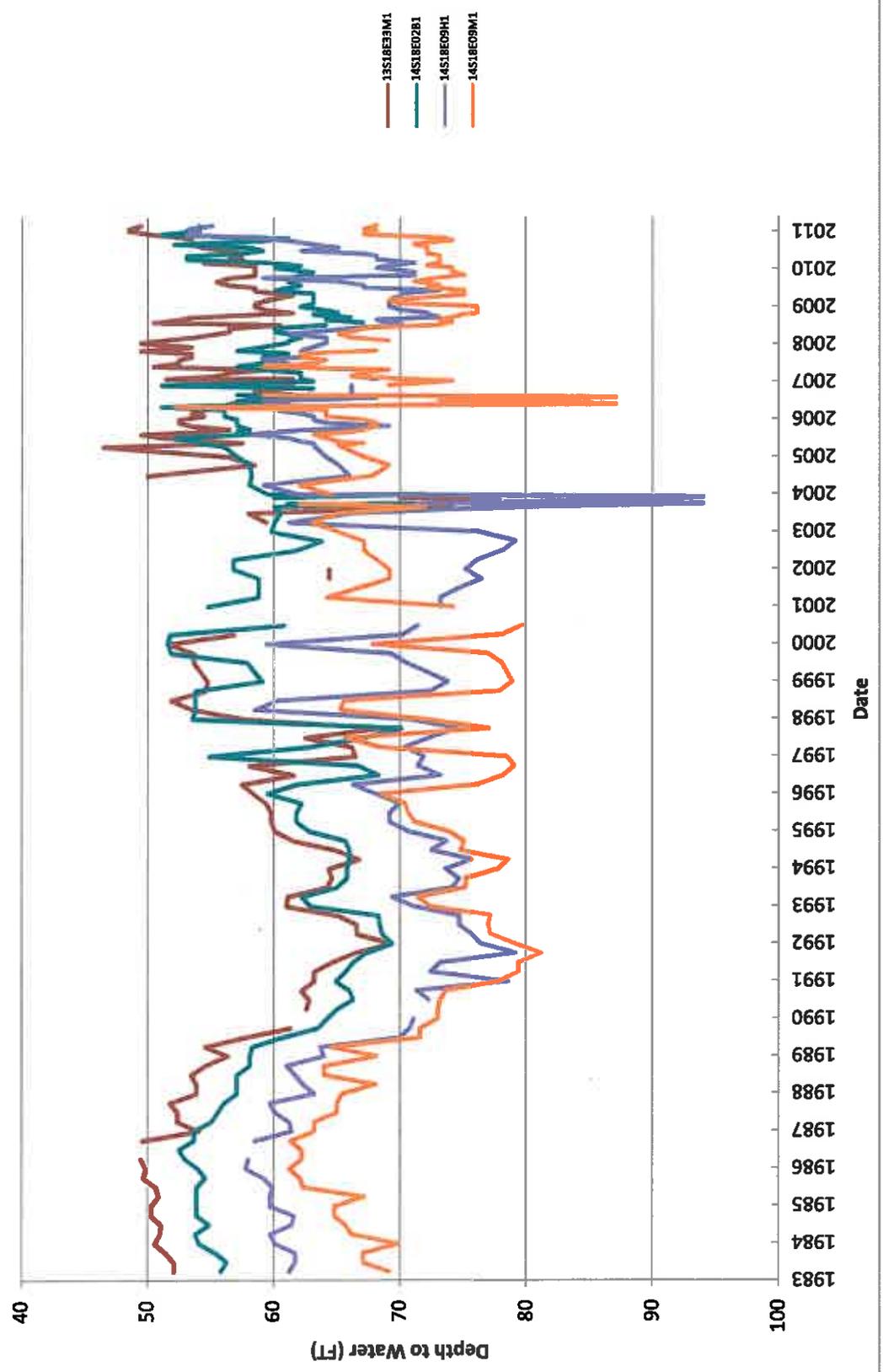
Waldron Banking Facility Hydrographs of Offsite Measured Wells (Greater Than 1 Mile from Site) 2010-11 Water Year



Waldron Banking Facility Hydrographs of Onsite Monitor Wells 2010-11 Water Year

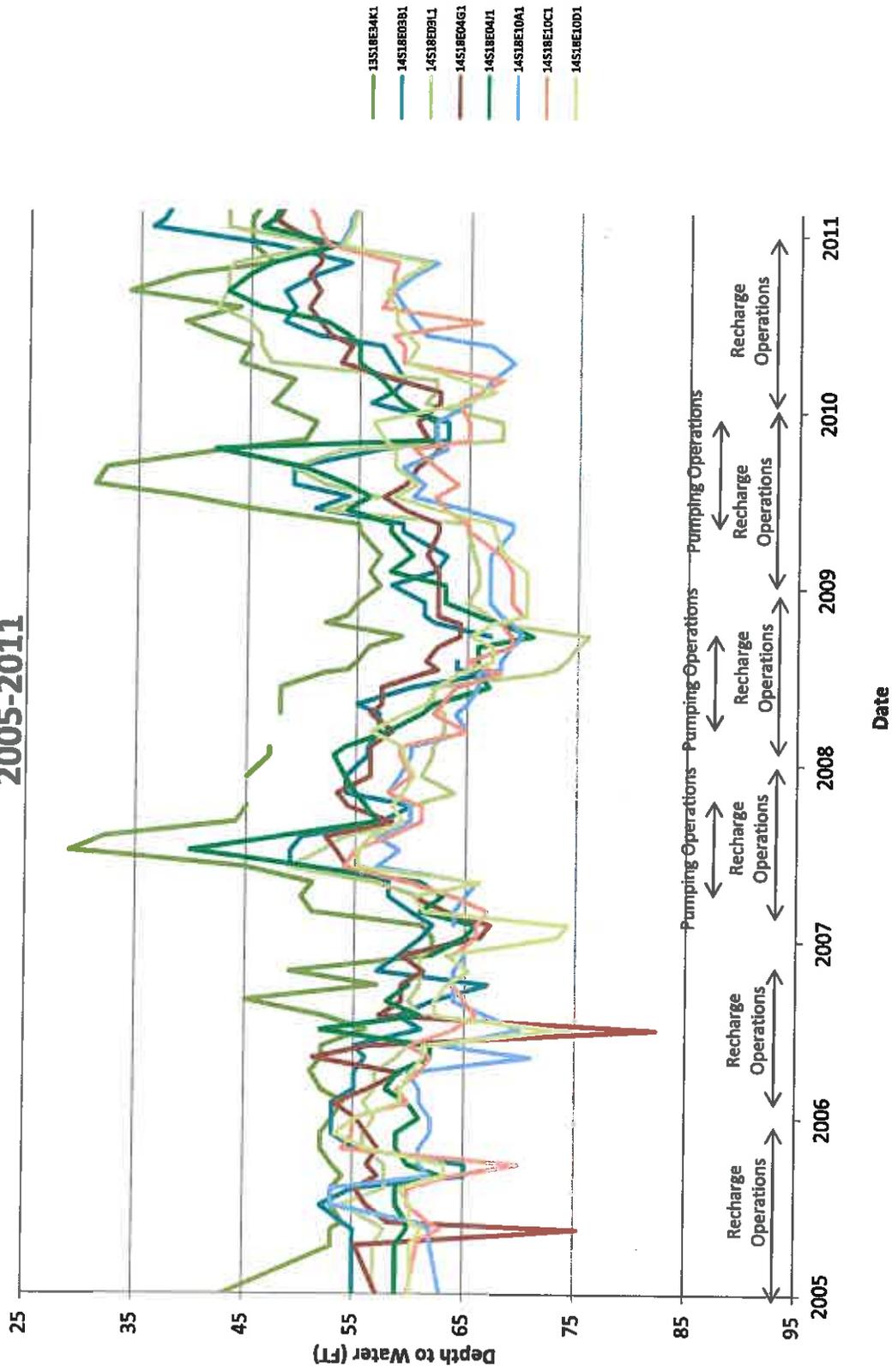


Waldron Banking Facility Hydrographs of Offsite Measured Wells 1984-2011

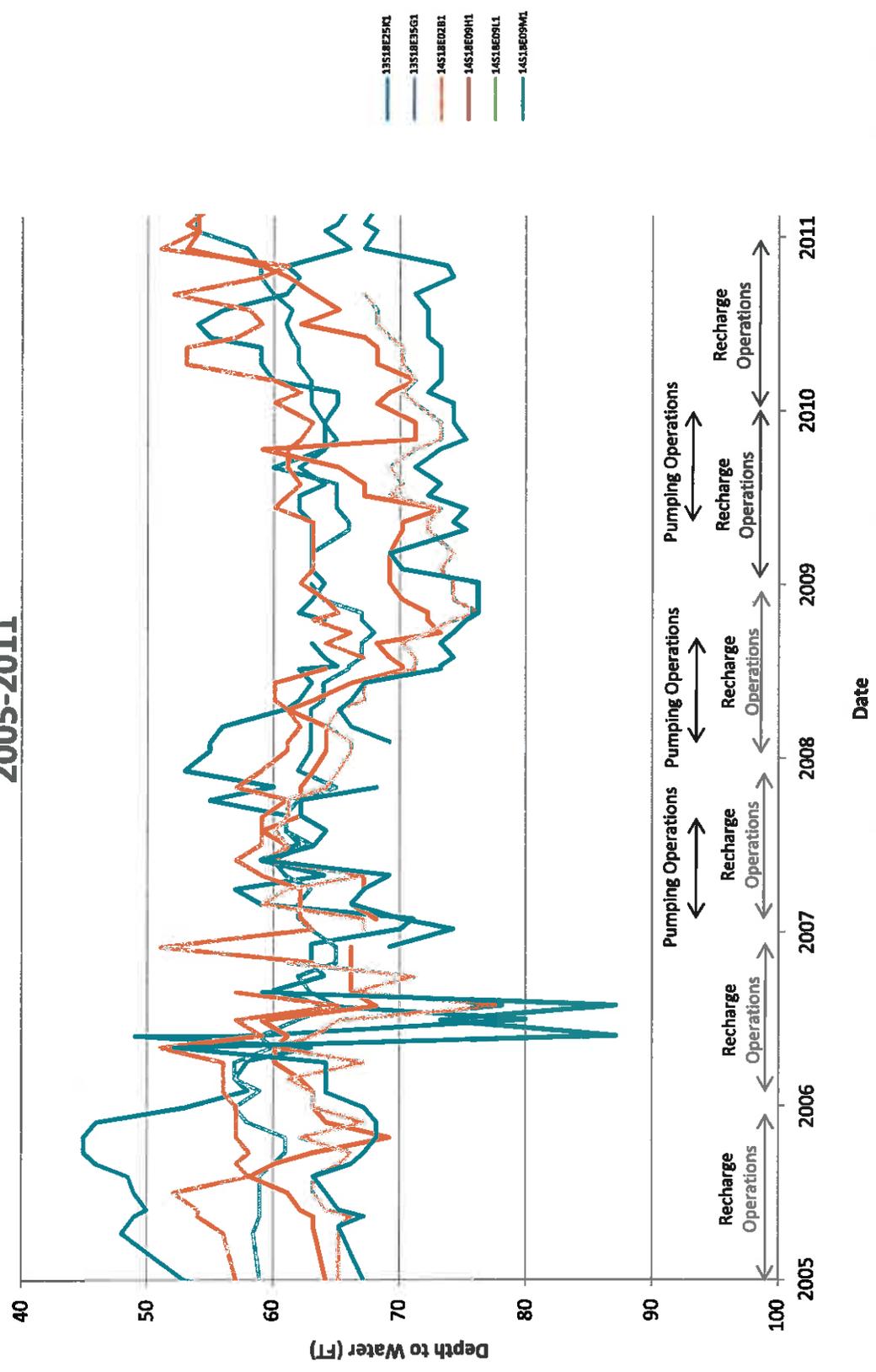


Waldron Banking Facility Hydrographs of Offsite Measured Wells (Within 1 Mile from Site)

2005-2011

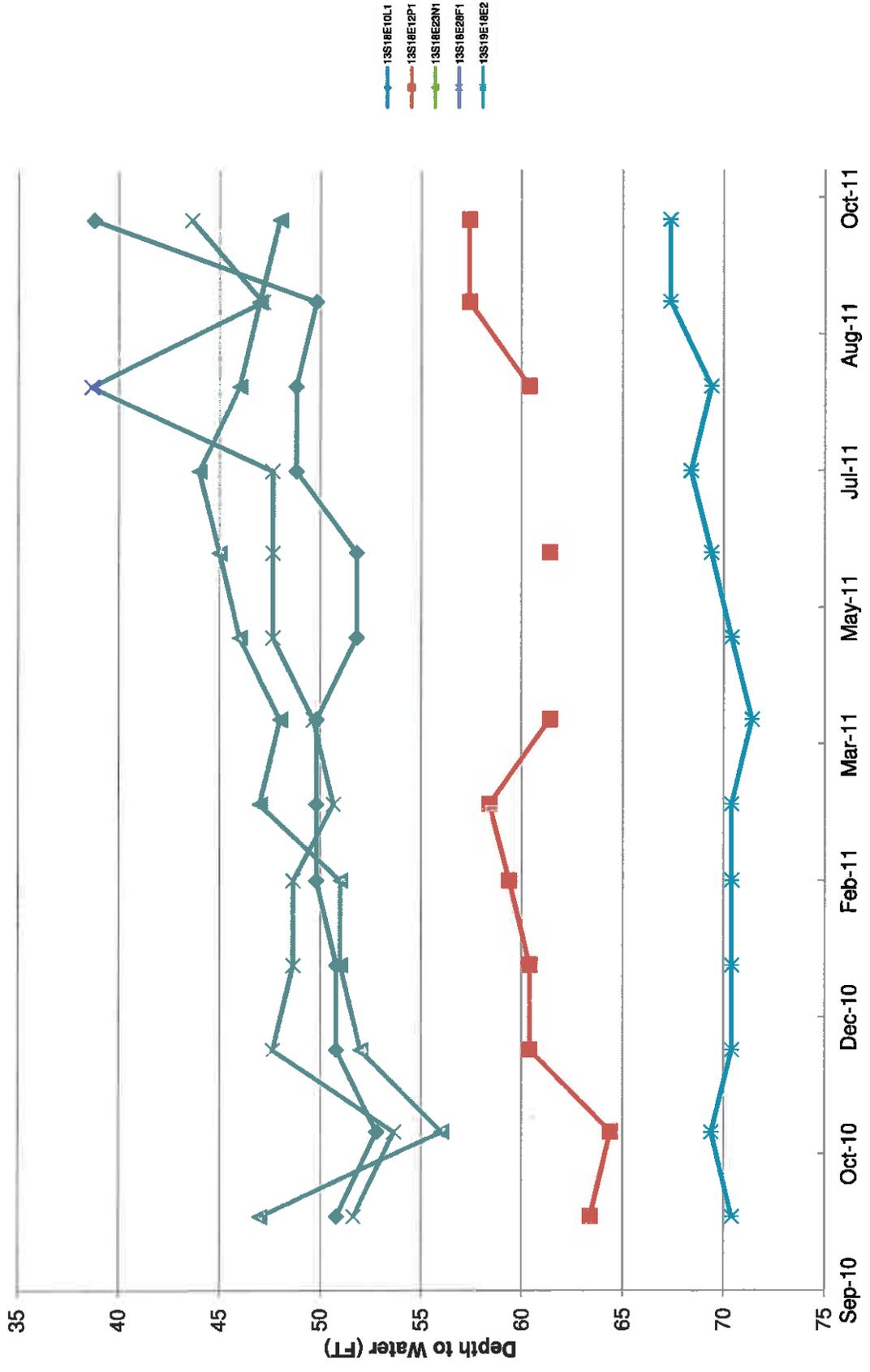


Waldron Banking Facility Hydrographs of Offsite Measured Wells (Greater than 1 Mile from Site) 2005-2011

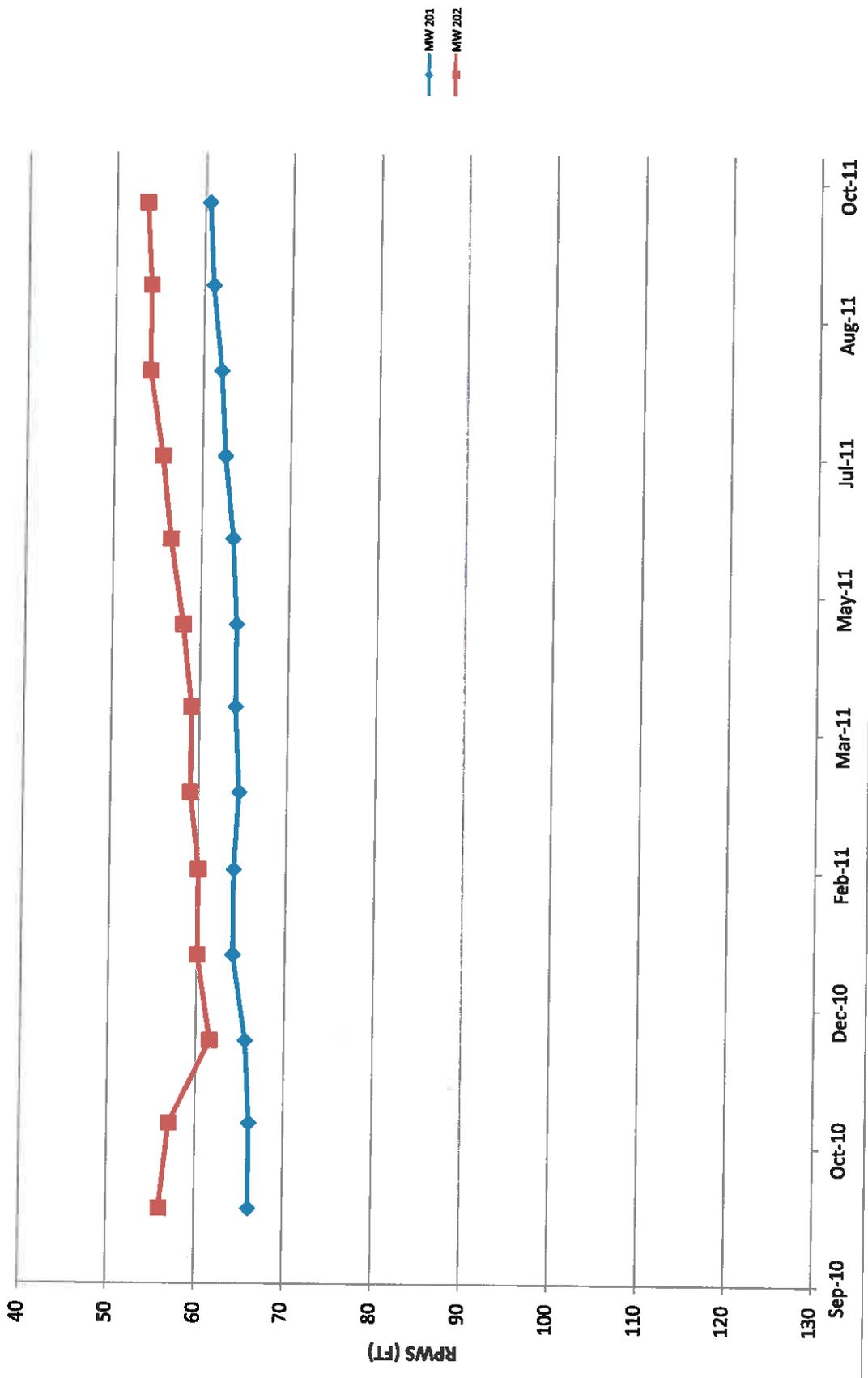


EMPIRE
MONTHLY WATER LEVEL HYDROGRAPHS

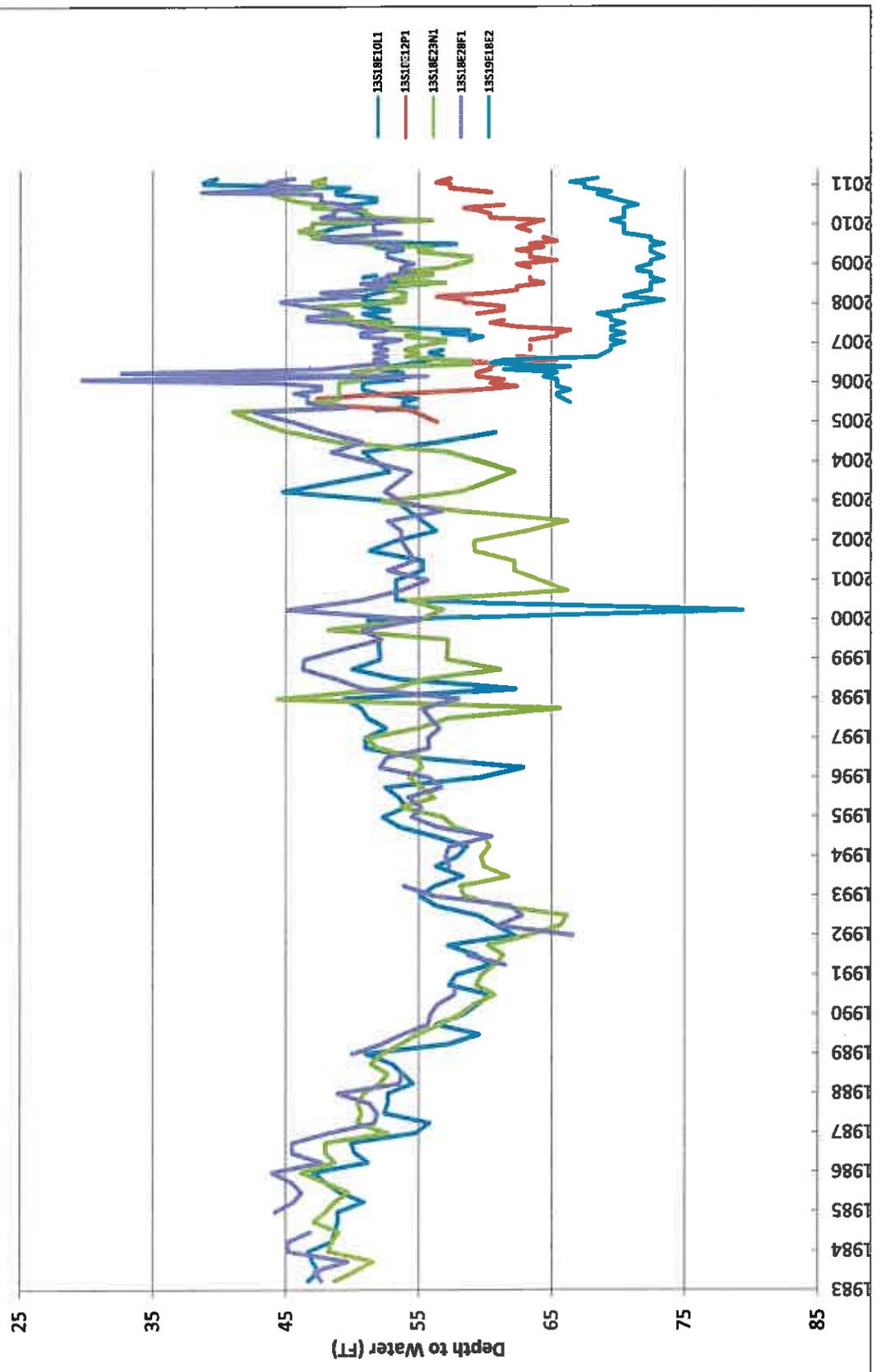
Empire Banking Facility Hydrographs of Offsite Measured Wells 2010-11 Water Year



Empire Banking Facility Hydrograph of Onsite Monitor Wells 2010-11 Water Year

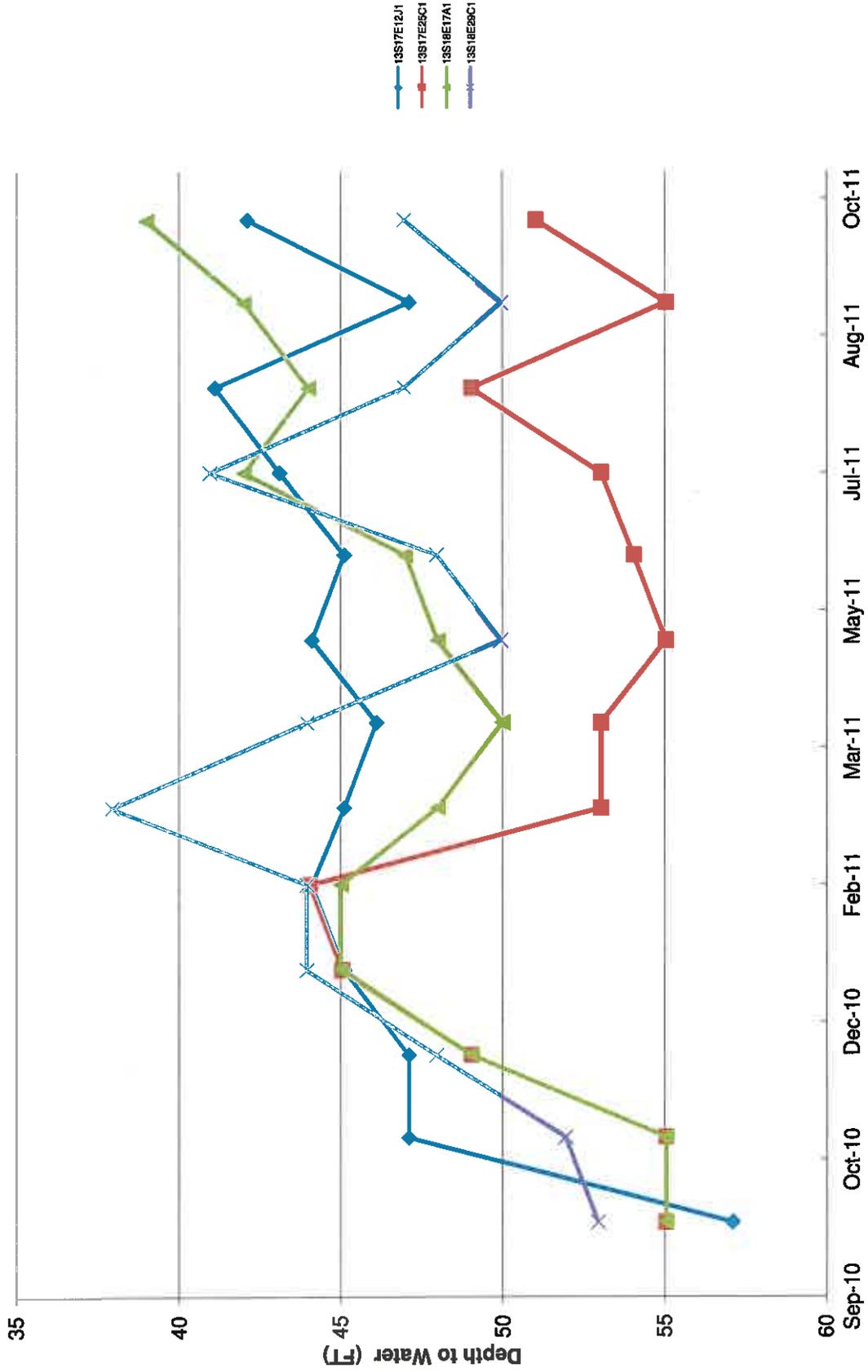


Empire Banking Facility Hydrographs of Offsite Measured Wells 1984-2011

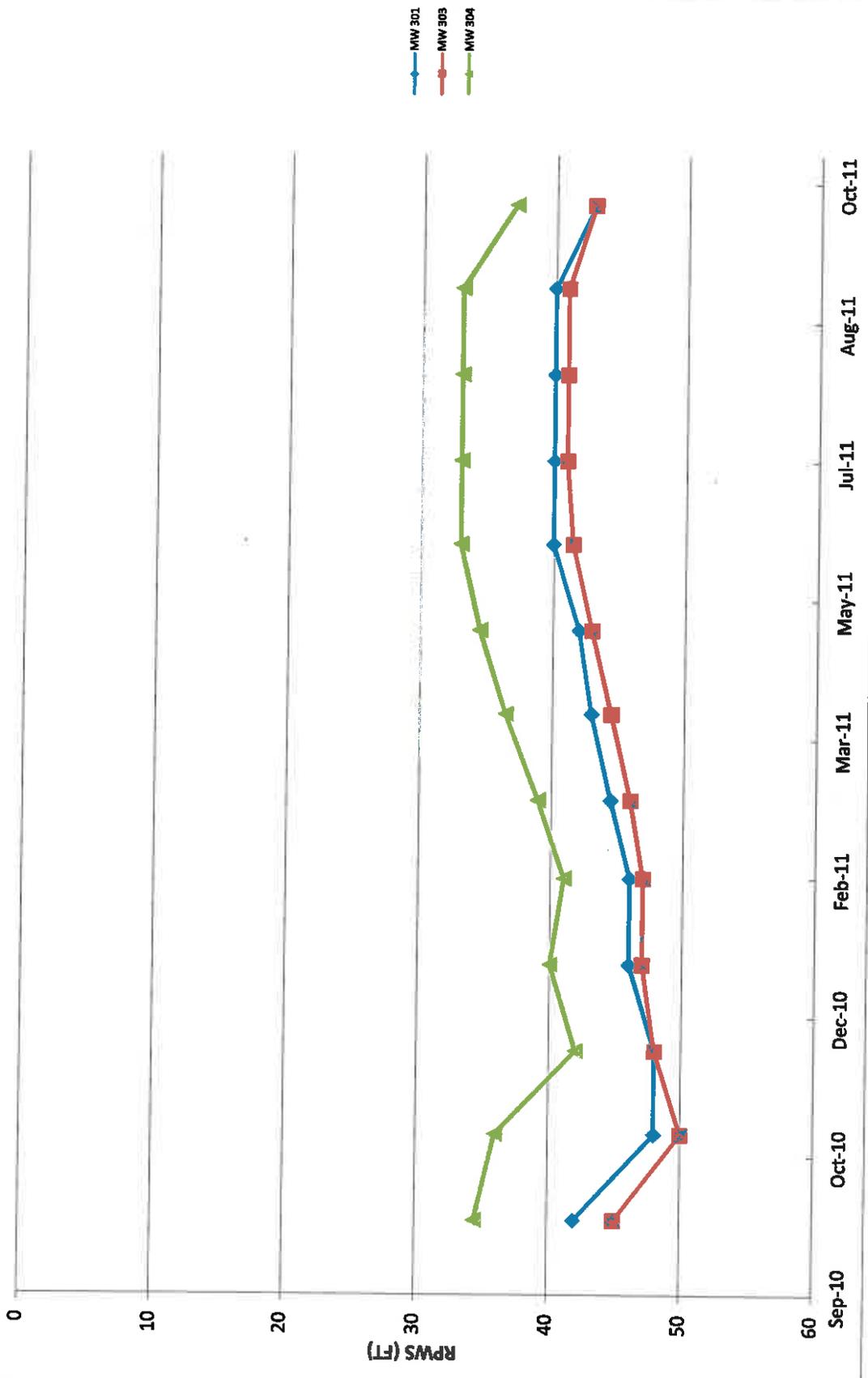


LAMBRECHT
MONTHLY WATER LEVEL HYDROGRAPHS

Lambrecht Banking Facility Hydrographs of Offsite Measured Wells 2010-11 Water Year



Lambrecht Banking Facility Hydrograph of Onsite Monitor Wells 2010-11 Water Year



Lambrecht Banking Facility Hydrographs of Offsite Measured Wells 1984-2011

