

Notice and Agenda of a Meeting of the Beaumont Basin Watermaster

Wednesday, August 2, 2017 at 10:00 a.m.

Meeting Location:

Beaumont Cherry Valley Water District
560 Magnolia Avenue
Beaumont, California 92223
(951) 845-9581

Watermaster Members:

City of Banning
City of Beaumont
Beaumont Cherry Valley Water District
South Mesa Water Company
Yucaipa Valley Water District

I. Call to Order

II. Roll Call

City of Banning: Arturo Vela (Alternate: _____)

City of Beaumont: _____ (Alternate: Kyle Warsinski)

Beaumont Cherry Valley Water District: Eric Fraser (Alternate: Tony Lara)

South Mesa Water Company: George Jorritsma (Alternate: Dave Armstrong)

Yucaipa Valley Water District: Joseph Zoba (Alternate: Jennifer Ares)

III. Pledge of Allegiance

IV. Public Comments

At this time, members of the public may address the Beaumont Basin Watermaster on matters within its jurisdiction; however, no action or discussion may take place on any item not on the agenda. To provide comments on specific agenda items, please complete a Request to Speak form and provide that form to the Secretary prior to the commencement of the meeting.

V. Consent Calendar

A. Meeting Minutes

1. Meeting Minutes for June 7, 2017

VI. Reports

A. Report from Engineering Consultant - Hannibal Blandon, ALDA Engineering

B. Report from Legal Counsel - Keith McCullough/Thierry Montoya, Alvarado Smith

VII. Discussion Items

- A. Approval of the Watermaster Budget for Fiscal Year 2017-18 [[Memorandum No. 17-17, Page 6 of 34](#)]

Recommendation: That the Watermaster Committee approve the budget for Fiscal Year 2017-18 as presented.

- B. Consideration of Resolution No. 2017-02 Approving the Transfer of Overlying Water Rights to Specific Parcels - Oak Valley Partners [[Memorandum No. 17-18, Page 8 of 34](#)]

Recommendation: That the Watermaster Committee approves Resolution No. 2017-02.

- C. 2016 Consolidated Annual Report and Engineering Report - Presentation of Draft Report [[Memorandum No. 17-19, Page 20 of 34](#)]

Recommendation: No recommendation.

- D. Status Report on Water Level Monitoring throughout the Beaumont Basin through July 24, 2017 [[Memorandum No. 17-20, Page 21 of 34](#)]

Recommendation: No recommendation.

- E. Consideration of Task Order No. 14 with ALDA Inc. for the Preparation of a Methodology to Estimate Storage Losses from the Beaumont Groundwater Basin at Selected Locations [[Memorandum No. 17-21, Page 29 of 34](#)]

Recommendation: That the Watermaster Committee approves Task Order No. 14 for a sum not to exceed \$46,190.

VIII. Topics for Future Meetings

- A. Development of a methodology and policy to account for new yield from capturing local stormwater in the basin.
- B. Development of a methodology and policy to account for groundwater storage losses in the basin resulting from the spreading of additional water sources.
- C. Development of a methodology and policy to account for recycled water recharge.
- D. Develop a protocol to increase the accuracy and consistency of data reported to the Watermaster.
- E. Develop a policy to account for transfers of water that may result when an Appropriator provides water service to an Overlying Party.

IX. Comments from the Watermaster Committee Members

X. Announcements

- A. The next regular meeting of the Beaumont Basin Watermaster is scheduled for Wednesday, October 4, 2017 at 10:00 a.m.

XI. Adjournment

Consent Calendar

Watermaster Meeting Minutes will be
distributed prior to the August 2, 2017 meeting

Discussion Items

BEAUMONT BASIN WATERMASTER

MEMORANDUM NO. 17-17

Date: August 2, 2017

From: Joseph Zoba, Treasurer

Subject: Approval of the Watermaster Budget for Fiscal Year 2017-18

Recommendation: That the Watermaster Committee approve the budget for Fiscal Year 2017-18 as presented.

The Treasurer of the Beaumont Basin Watermaster invoices Watermaster Committee members when one of the following events occur: (1) the Watermaster Committee approve a task order; (2) The Watermaster Committee approves a special project; (3) when a budget is approved to replenish the anticipated administrative funds for the next year; or (4) when the administrative funds have been depleted.

As of June 30, 2017, the Watermaster had an operating fund balance of \$189,260.11 in a designated account at Bank of America.

Based on the typical expenses incurred by the Beaumont Basin Watermaster, the estimated annual contribution for each member agency will be \$1,375 for routine administrative expenses. The Watermaster will invoice the Committee members when specific task orders are approved throughout the year.

Beaumont Basin Watermaster**Fiscal Year 2017-18 Operating Budget**

Fiscal Year 2017-2018 Budget			
	Account Number	Administrative Revenue	Special Projects Revenue
OPERATING REVENUE:			
Carryover from Fiscal Year 2016-17	--	189,260	
City of Banning	3120	1,375	
City of Beaumont	3105	1,375	
City of Beaumont	3105	1,375	
Beaumont Cherry Valley Water District	3110	1,375	
South Mesa Mutual Water Company	3125	1,375	
Yucaipa Valley Water District	3115	1,375	
Total Operating Revenue		197,510	\$0.00

	Account Number	Summary of Operating Expenses	Special Project Expenses
OPERATING EXPENSES:			
Bank Fees & Interest	5000	100	--
Miscellaneous & Meetings	5010	200	--
Acquisition/Computation & Annual Report BBWM TO 12 - \$95,970	5020	100,000	--
Annual Audit	5040	2,500	--
Engineering - General BBWM TO 14 - \$12,960	5060	15,000	--
Monitoring & Data Acquisition BBWM TO 13 - \$21,520	5063	25,000	--
Meter Installation & Repair	5064	10,000	--
Legal Expenses	5070	20,000	--
Reserves	5080	25,000	--
Total Operating Expense		197,800	\$0.00

Revenue Over / (Under) Expenses **-290**

BEAUMONT BASIN WATERMASTER

MEMORANDUM NO. 17-18

Date: August 2, 2017

From: Joseph Zoba, Treasurer

Subject: Consideration of Resolution No. 2017-02 Approving the Transfer of Overlying Water Rights to Specific Parcels - Oak Valley Partners

Recommendation: That the Watermaster Committee approves Resolution No. 2017-02.

On July 5, 2017, the Secretary of the Beaumont Basin Watermaster received a request to transfer overlying water rights from representatives of Oak Valley Partners (attached). This request is consistent with prior actions taken by the Watermaster to approve the transfer of overlying water rights to specific parcels as Resolution Nos. 2006-05, 06, 07, and 08.

The proposed Resolution No. 2017-02 also authorizes the Watermaster Engineer to implement and update the transfer of 1,806 acre-feet/year of overlying water rights assigned by OVP to appropriative rights based on the redetermination of safe yield as shown in the following table. The routine transfer of overlying water rights to appropriative rights will be identified in annual reports of the Watermaster in manner similar to the transfer of water in storage between appropriators/parties.

Table 3-6

Overlying Parties Production Rights Allocation Based on Revised Safe Yield

Overlying Party to the 2003 Judgment	Initial Overlying Water Right through 2013	New Overlying Water Right Starting in 2014	5-Year (2012-16) Average Production (ac-ft)	5-Year (2012-16) Running Avg % of Water Right
Sharondale Mesa Owners Association	200.0	154.9	121.7	78.6%
California Oak Valley Golf and Resort LLC	950.0	735.8	572.7	77.8%
Tukwet Canyon Golf Club	2,200.0	1,704.0	1,033.6	60.7%
Rancho Calimesa Mobile Home Park	150.0	116.2	41.9	36.0%
Plantation on the Lake LLC	581.0	450.0	104.6	23.2%
Darmont, Boris and Miriam	2.5	1.9	1.4	73.8%
Gutierrez, Hector, et al.	10.0	7.7	0.4	4.5%
Aldama, Nicolas and Amalia	7.0	5.4	0.9	16.0%
McAmis, Ronald L.	5.0	3.9	0.6	14.5%
Beckman, Walter M.	75.0	58.1	0.8	1.3%
Nikodinov, Nick	20.0	15.5	2.7	17.7%
Albor Properties III, LP	300.0	232.4	2.4	1.0%
Stearns, Leonard M. and Dorothy D.	200.0	154.9	0.7	0.5%
Sunny-Cal Egg and Poultry Company	1,439.5	1,115.0	4.3	0.4%
Merlin Properties	550.0	426.0	1.6	0.4%
Oak Valley Partners, LP	1,806.0	1,398.9	2.5	0.2%
Roman Catholic Bishop of San Bernardino	154.0	119.3	0.0	0.0%
	8,650.0	6,700.0	1,892.8	28.3%

OAK VALLEY PARTNERS, L.P.
P.O. Box 645 or 10410 Roberts Road
Calimesa, CA 92320
Telephone: (714) 785-2381

July 5, 2017

Mr. Eric Fraser
Secretary
Beaumont Basin Watermaster
560 Magnolia Avenue
Beaumont, CA 92223

Re: Transfer of Overlying Water Rights from Oak Valley Partners to
Summerwind Ranch Project

Dear Eric:

Discussions have been ongoing between Oak Valley Partners ("OVP") and San Geronio Land, LLC ("SGL") regarding the transfer of 1,806 acre-feet/year of overlying water rights from OVP to be utilized for the development of the Summerwind Ranch ("SWR") project in Calimesa by SGL and OVP. We are hereby requesting that the Beaumont Basin Watermaster ("Watermaster") approve this transfer of these overlying water rights for the benefit of the Assessor Parcel Numbers (APN's) that comprise the SWR project.

OVP has certain water rights which were assigned to its property as described within the Beaumont Basin Adjudication ("Adjudication") that was filed on February 4, 2004 with the Superior Court of the State of California for the County of Riverside. Within this Adjudication, OVP was granted overlying water rights of 1,806 acre-feet/year over a total of 5,331.65 acres consisting of several assessor parcels that are identified within Exhibits D and E of the Adjudication. Section 3(G) of the Adjudication clearly defines OVP's Overlying Water Rights and states that these rights can be passed on to OVP's successors and assigns. The entire SWR property that is defined by the approved SWR Specific Plan is located entirely within the OVP Adjudication parcels.

Also attached is a draft resolution. The old 2004 parcel numbers listed on Exhibit D of the Adjudication that are pertinent to the SWR Specific Plan area include the following parcel numbers:

- 413-040-002

Letter to
Watermaster
July 5, 2017

Page 2


- 413-160-003 thru 007
- 413-170-020, 021, 023, 027 thru 031, 033, and 035
- 413-180-011 and 019
- 413-190-001 and 011
- 413-200-002, 010, 014, 015, 020, 023, 024, 026 thru 030, and 034 thru 037
- 413-290-003 and 007
- 413-460-038

We request that the OVP Overlyer Rights be assigned to the APN's listed in exhibit 1 of this letter for the benefit of the SWR Specific Plan.

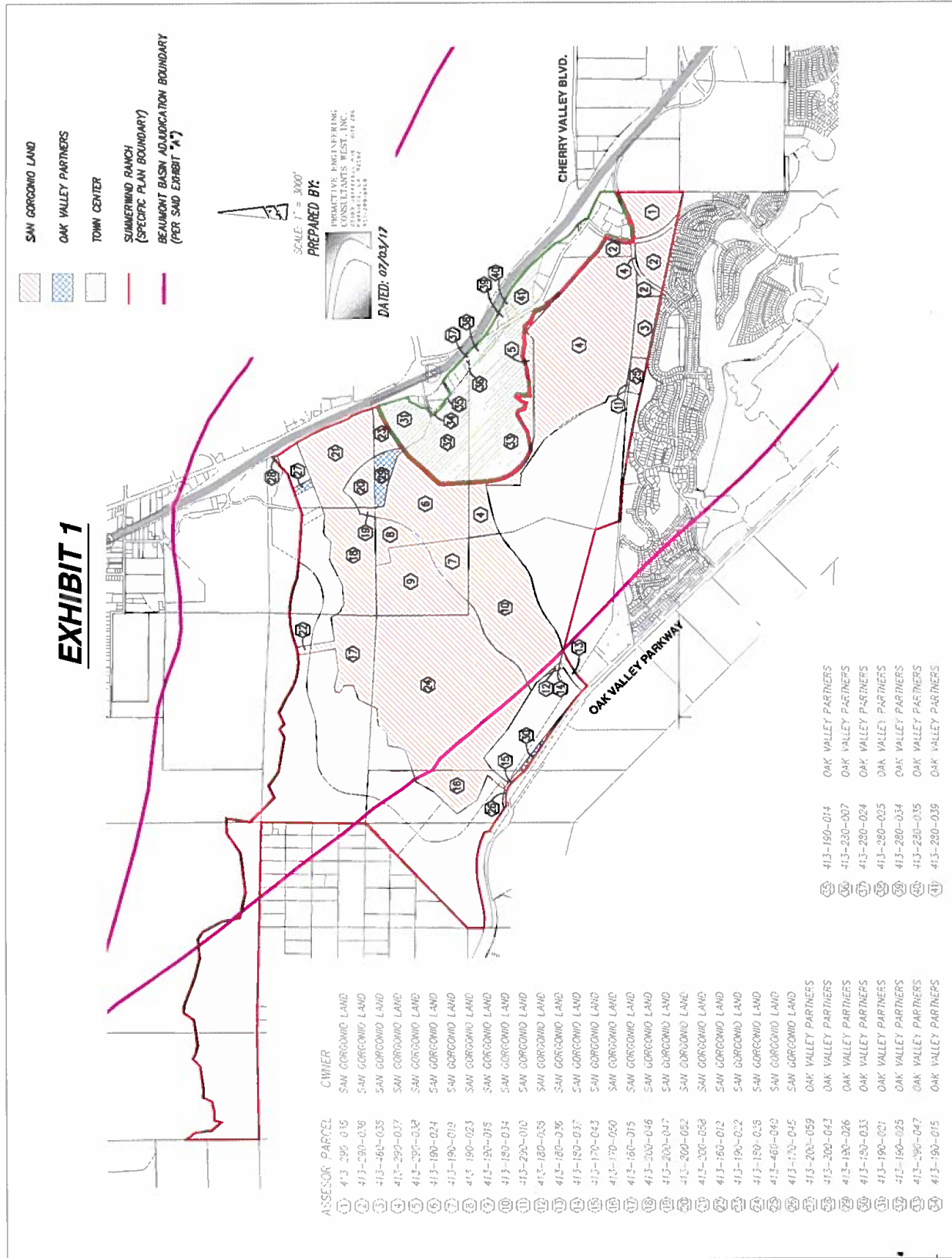
A copy of this letter and the attachments have been discussed and provided to SGL. We respectfully request that the Watermaster place this item on the agenda for consideration of approval at the next scheduled meeting.

If I can be of any further assistance or can provide any further information, please contact me at your convenience at (714)785-2381.

Very truly yours,



John Ohanian
Oak Valley Partners, L.P.



RECORDING REQUESTED BY:**BEAUMONT BASIN WATERMASTER****AND WHEN RECORDED MAIL TO:**

Oak Valley Partners, L.P.
P.O. Box 645 or 10410 Roberts Road
Calimesa, CA 92320
Attention: John Ohanion

DRAFT

RESOLUTION NO. 2017-____
BEAUMONT BASIN WATERMASTER
APPROVING THE TRANSFER OF A SPECIFIC AMOUNT
OF OVERLYING WATER RIGHTS TO SPECIFIC PARCELS

WHEREAS, Oak Valley Partners, L.P. ("OVP") has certain water rights which were assigned to its property as described within the Beaumont Basin Adjudication ("Adjudication") that was filed on February 4, 2004 with the Superior Court of the State of California for the County of Riverside. Within this Adjudication, OVP was granted overlying water rights of 1,806 acre-feet/year over a total of 5,331.65 acres consisting of several assessor parcels that are identified within Exhibits D and E of the Adjudication. Section 3(G) of the Adjudication clearly defines OVP's Overlying Water Rights and states that these rights can be passed on to OVP's successors and assigns for development of their projects. OVP desires to have the Overlyer Rights assigned to the Assessor Parcel Numbers that make up the entire Summerwind Ranch Specific Plan ("Project"). The entire Project property that is defined by the approved Summerwind Ranch Specific Plan is located entirely within the OVP Adjudication parcels.

WHEREAS, the referenced OVP 2004 parcel numbers listed on Exhibit D of the Adjudication that are pertinent to the Project property includes the following parcel numbers:

- 413-040-002
- 413-160-003 thru 007
- 413-170-020, 021, 023, 027 thru 031, 033, and 035
- 413 – 180-011 and 019

- 413-190-001 and 011
- 413-200-002, 010, 014, 015, 020, 023, 024, 026 thru 030, and 034 thru 037
- 413-290-003 and 007
- 413-460-038

WHEREAS, OVP desires that the Beaumont Basin Watermaster ("Watermaster") approve the transfer of all 1806 acre-feet/year of OVP's overlying water rights that are defined within the Adjudication for the development of the Project by OVP and its successors. Once this transfer is approved by the Watermaster, incremental portions of the 1,806 acre-feet/year of water rights, as agreed upon by OVP and SGL, will be subsequently transferred to the Yucaipa Valley Water District to service the development phases of the Project.

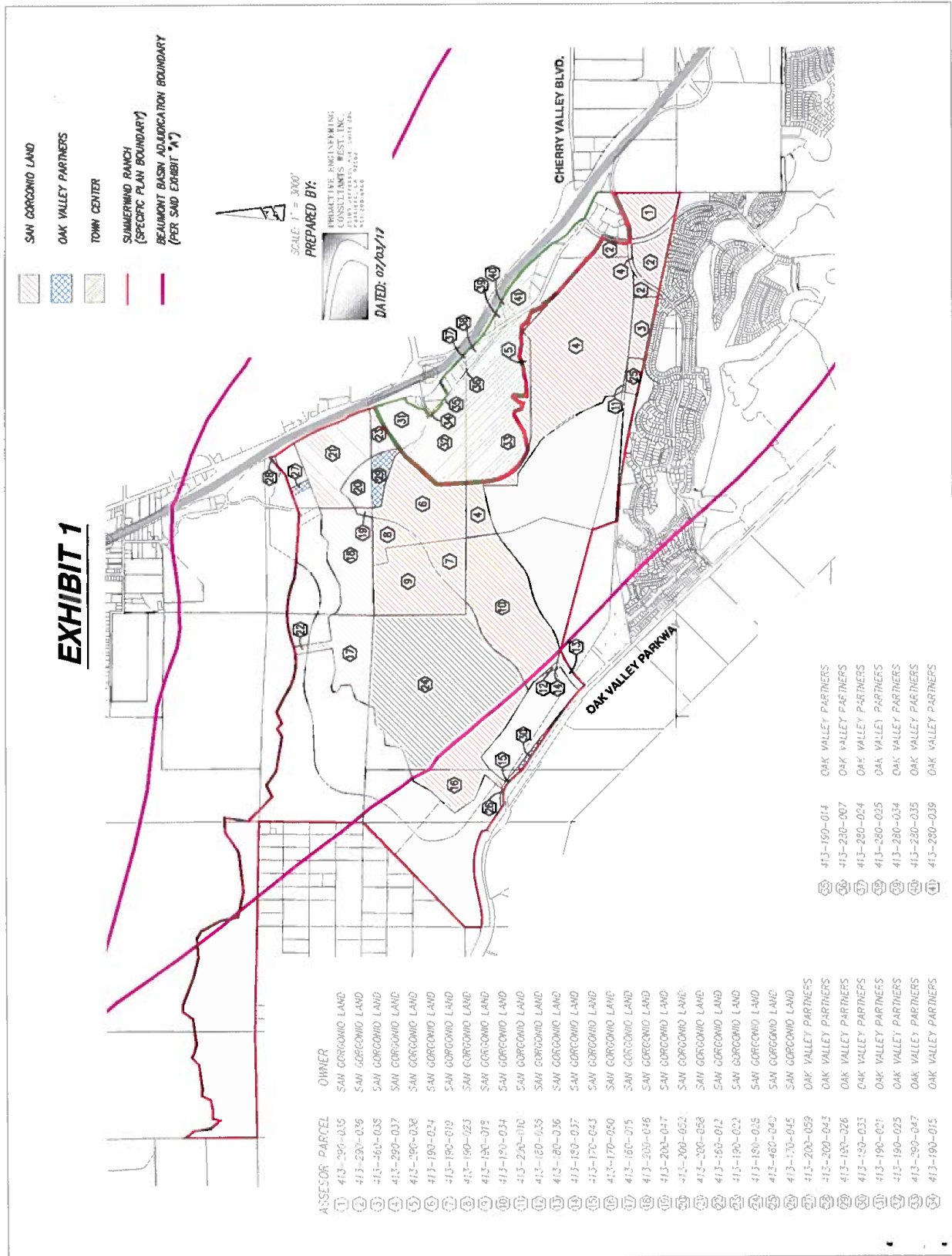
NOW, THEREFORE, the Beaumont Basin Watermaster hereby resolves as follows:

1. Transfer of Overlying Water Rights. The Watermaster hereby approves the transfer of 1,806 acre-feet of OVP's overlying water rights to the Project parcels listed on Exhibit 1 to provide for the development phases of the Project by SGL and OVP. Once this transfer is approved by the Watermaster, incremental portions of the 1,806 acre-feet/year of water rights, as agreed upon by OVP and SGL, will be subsequently transferred to the Yucaipa Valley Water District to service the development phases of the Project.
2. Use of Wells. The Beaumont Basin Watermaster hereby recognizes that the wells on the Project property may be used to extract water for use on the Project parcels and/or the remaining OVP parcels.
3. Effect of Judgement on Successors and Assigns. The Adjudication provides, in Article VII.4, that the Adjudication "shall be binding on and shall inure to the benefit of ... successors and assigns of the parties."
4. Further Documentation or Action. The Chief of Watermaster Services is hereby authorized and directed to execute such further documents and instruments, and take such further action, as shall be reasonable required to carry out the purposes and intent of this resolution.
5. Effective Date. The effective date of this resolution is _____, 2017.

BEAUMONT BASIN WATERMASTER

By _____
Chairman of the WATERMASTER

Exhibit 1
(See attached Exhibit 1)



RESOLUTION NO. 2017-02**A RESOLUTION OF THE BEAUMONT BASIN WATERMASTER APPROVING THE
TRANSFER OF OVERLYING WATER RIGHTS TO SPECIFIC PARCELS**

WHEREAS, the Stipulated Judgment establishing the Beaumont Basin Watermaster (Riverside Superior Court Case No. 389197) was filed with the Superior Court of California, County of Riverside on February 4, 2004; and

WHEREAS, Oak Valley Partners, L.P. ("OVP") has certain water rights which were assigned to its property as described in the Beaumont Basin Adjudication ("Adjudication") that was filed on February 4, 2004 with the Superior Court of the State of California for the County of Riverside. Within this Adjudication, OVP was granted overlying water rights of 1,806 acre-feet/year over a total of 5,331.65 acres consisting of several assessor parcels that are identified within Exhibits D and E of the Adjudication. Section 3(G) of the Adjudication clearly defines OVP's Overlying Water Rights and states that these rights can be passed on to OVP's successors and assigns for development of their projects. OVP desires to have the Overlyer Rights assigned to the Assessor Parcel Numbers that make up the entire Summerwind Ranch Specific Plan ("Project"). The entire Project property that is defined by the approved Summerwind Ranch Specific Plan is located entirely within the OVP Adjudication parcels; and

WHEREAS, the reference OVP 2004 parcel numbers listed on Exhibit D of the Adjudication that are pertinent to the Project property includes the following parcel numbers:

- 413-040-002;
- 413-160-003 through 007;
- 413-170-020, 021, 023, 027 through 031, 033, and 035;
- 413-180-011 and 019;
- 413-190-001 and 011;
- 413-200-002, 010, 014, 015, 020, 023, 024, 026 through 030, and 034 through 037;
- 413-290-003 and 007;
- 413-460-038; and

WHEREAS, OVP desires that the Beaumont Basin Watermaster ("Watermaster") approve the transfer of all 1,806 acre-feet/year of OVP's overlying water rights that are defined within the Adjudication for the development of the Project by OVP and its successors. Once this transfer is approved by the Watermaster, incremental portions of the 1,806 acre-feet/year of water rights will be subsequently transferred to the Yucaipa Valley Water District to service the development phases of the Project.

NOW, THEREFORE, BE IT RESOLVED BY THE BEAUMONT BASIN WATERMASTER
as follows:

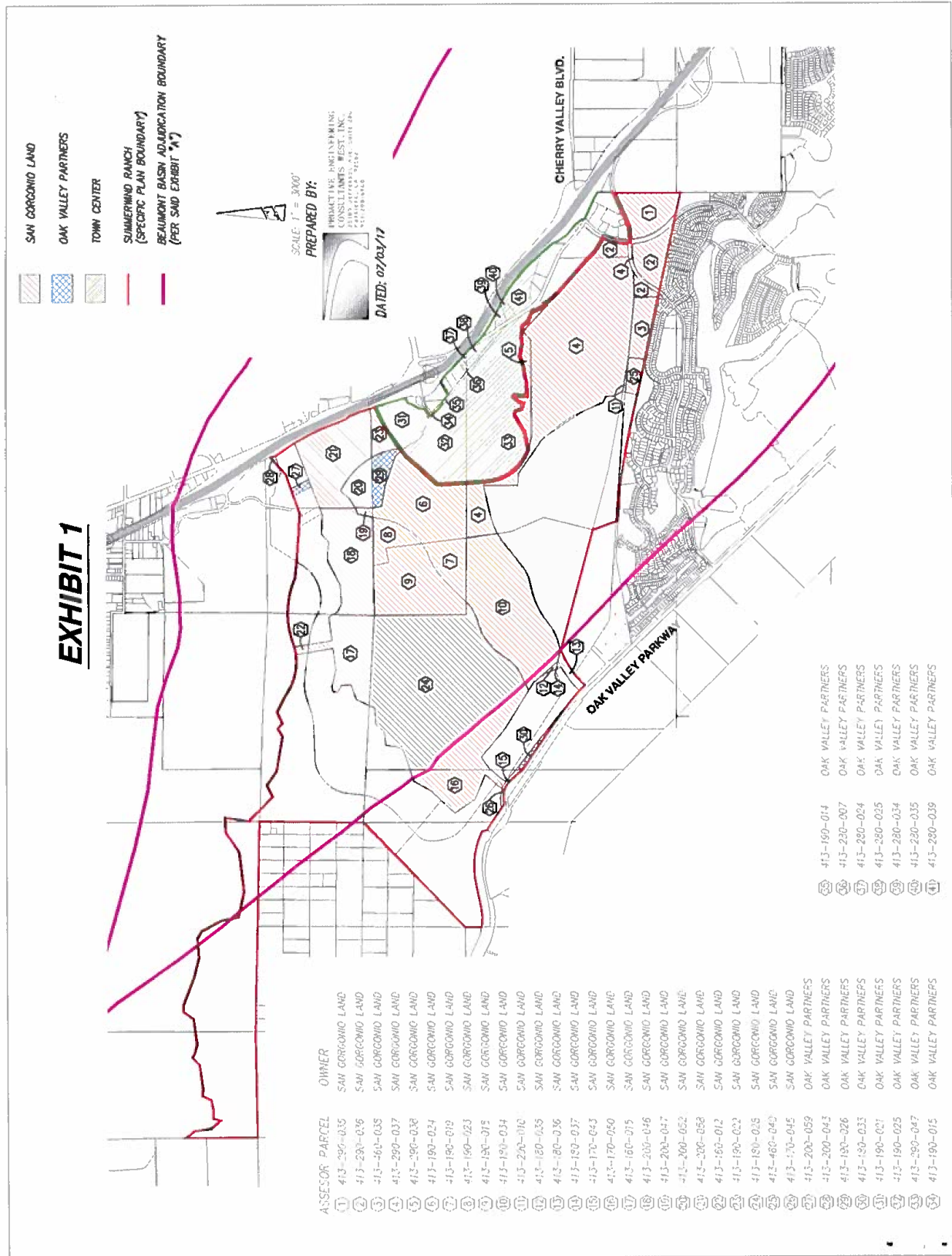
1. Transfer of Overlying Water Rights. The Watermaster hereby approves the transfer of 1,806 acre-feet of OVP's overlying water rights, as amended from time to time when approved by the Watermaster as a recalculation of Beaumont Basin Safe Yield, to the Project parcels listed on Exhibit 1 to provide for the development phases of the Project by OVP and its successors/assigns. Once this transfer is approved by the Watermaster, incremental portions of the 1,806 acre-feet/year of water rights will be subsequently transferred to the Yucaipa Valley Water District to service the development phases of the Project.

2. Use of Wells. The Beaumont Watermaster hereby recognizes that the existing and future wells on the Project property may be used to extract water for use on the Project parcels and/or the remaining OVP parcels.
3. Effect of Judgement on Successors and Assigns. The Adjudication provides, in Article VII.4, that the Adjudication "shall be binding on and shall inure to the benefit of...successors and assigns of the parties."
4. Further Documentation or Action. The Chief of Watermaster Services or Watermaster Engineer is hereby authorized and directed to execute such further documents and instruments, and take such further action, as shall be reasonable required to carry out the purposes and intent of this resolution.
5. Effective Date. The effective date of this resolution is August 2, 2017.

PASSED AND ADOPTED this 2nd day of August 2017.

BEAUMONT BASIN WATERMASTER

By: _____
Art Vella, Chairman of the
Beaumont Basin Watermaster



BEAUMONT BASIN WATERMASTER

MEMORANDUM NO. 17-19

Date: August 2, 2017

From: Hannibal Blandon, ALDA Inc.

Subject: 2016 Consolidated Annual Report and Engineering Report -
Presentation of Draft Report

Recommendation: No recommendation.

ALDA Inc., in association with Thomas Harder & Company, will provide a formal presentation of the draft of the 2016 Beaumont Basin Annual Report. The presentation will include conditions of the basin including groundwater production, water levels, spreading, and water quality conditions that occurred during 2016.

Committee members will have the opportunity to ask questions and comment on the various sections of the report and presentation.

The Draft 2016 Consolidated Annual Report is available online from the “Documents & Publications” section of the Beaumont Basin Watermaster website (www.beaumontbasinwatermaster.org) or from the following link: <http://documents.yvwd.dst.ca.us/bbwm/documents/2016AnnualReportDRAFT170802.pdf>

BEAUMONT BASIN WATERMASTER

MEMORANDUM NO. 17-20

Date: August 2, 2017

From: Hannibal Blandon, ALDA Inc.

Subject: Status Report on Water Level Monitoring throughout the Beaumont Basin through July 24, 2017

Recommendation: No recommendation.

At the present time, there are 12 monitoring wells collecting water level information on an hourly basis at various locations throughout the basin. In addition, there are two monitoring probes collecting barometric pressures at opposite ends of the Beaumont Basin. The location of active monitoring wells is depicted in the attached Figure No. 1.

Water levels at selected locations are depicted in Figures 2 through 6 and are described as follows:

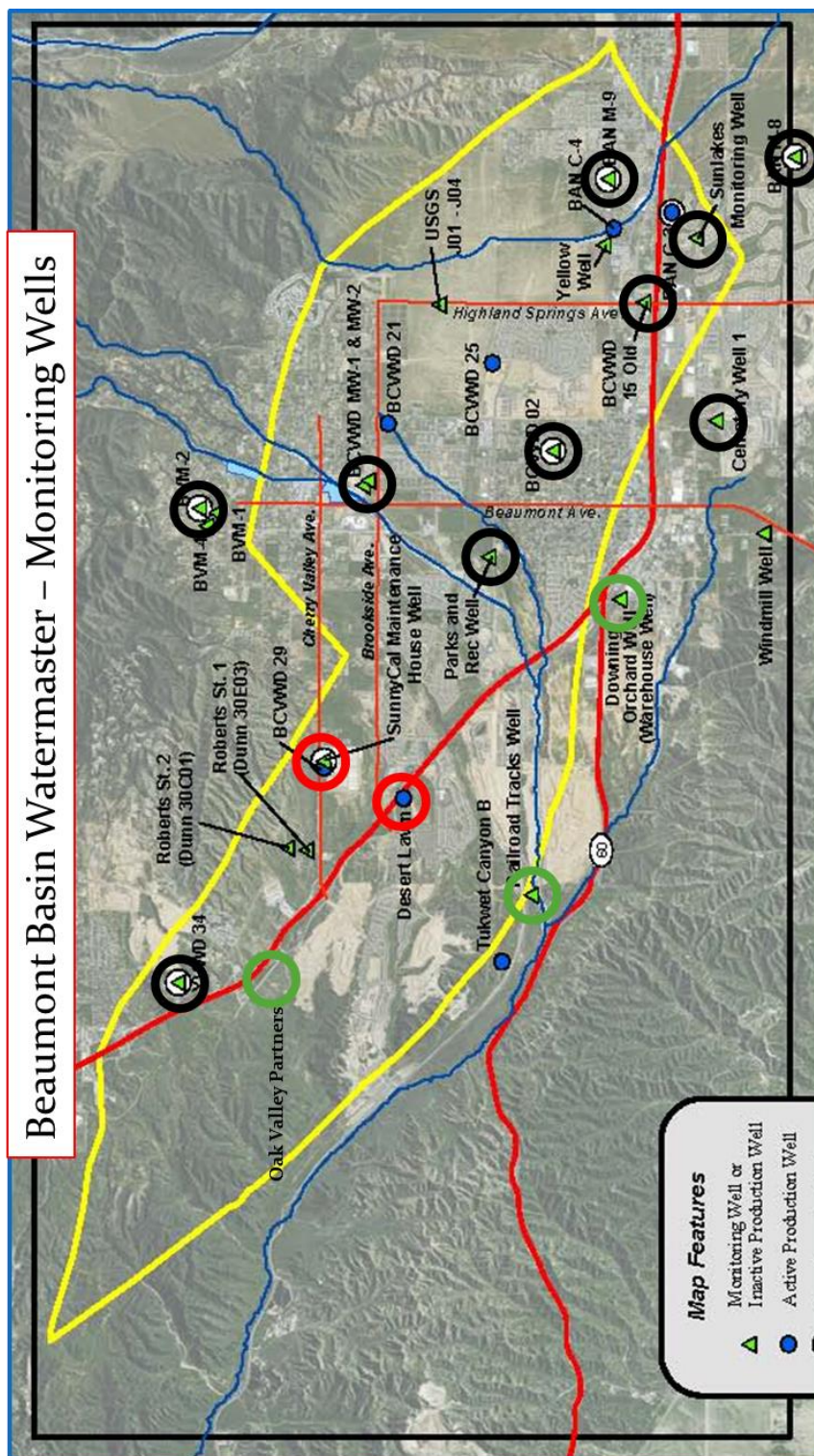
- ✓ Figure No. 2 – Water levels at YVWD Well No. 34 and Oak Valley Well No. 5 are considered representative of basin conditions in the Northwest portion of the basin. At YVWD No. 34 the water level is fairly stable; it has increased a mere three feet over the last 2 years. Conversely, water level at Oak Valley No. 5 rose over five feet in the March 2016 to May 2017 period. Data for the last two months could not be downloaded from the field probe at this location.
- ✓ Figure No. 3 – Two of the Noble Creek observation wells are presented in this figure representing the shallow and deep aquifers. In the shallow aquifer, the water level has increased over 60 feet over the last year from a low of 2,337 ft. to a current level of 2,398 ft. Levels in the deep aquifer have fluctuated within a 10-foot band over the same period.
- ✓ Figure No. 4 – Southern Portion of the Basin. Water level at the Summit Cemetery well is highly influenced by a nearby pumping well that is used to irrigate the cemetery grounds. The Water level at this well has fluctuated over a 20-foot band over the last two years. Conversely, the water level at the Sun Lakes well has fluctuated minimally over the same period as it decreased two feet.
- ✓ Figure No. 5 illustrates levels at three wells owned by the City of Banning in the Southeast portion of the basin. While water level at the Old Well No. 15 (Chevron Well) has been fairly flat over the last two years, a somewhat significant and steady decline, close to 18 feet, has been recorded at Banning M-8. Levels at Banning M-9 have stayed within a 10-foot range.

- ✓ Figure No. 6 illustrates recorded water levels at BCVWD No. 2. Over the last two years, the level at this well has increased by over 20 feet topping in May 2017 at an elevation of 2,218 ft. The level at this well has declined by seven feet over the last two months.

Troubleshooting Issues

The following malfunctioning issues were encountered during our July 25, 2016 field visit:

- ✓ BCVWD No 2 – Communication cable has been replaced and it is now working fine.
- ✓ Sun Lakes Well – Communication cable was replaced with a new cable; however, communications continue to be difficult at this site. Data was downloaded by pulling the probe out of the well.
- ✓ YVWD Well No. 34 – Communications cable is not working at this time and may need to be replaced at the next visit. Data was downloaded by pulling the probe out of the well.



Wells under Contract Negotiation

ICON Warehouse well
Oak Valley Partners well
Railroad Track well

Other Wells Under Consideration

Desert Lawn - Negotiations
Sunny Cal Egg Ranch

Wells with Monitoring Probes - Working

Bonita Vista No. 2
Noble Creek Observation 4D and 4S
Noble Creek Park
BCVWD No. 2
BCVWD Old Well No. 15 (Banning)
Summit Cemetery No. 1
Sun Lakes Golf Course
Banning M-8 and M-9
YVWD Well No. 34

Figure No. 2
Static Groundwater Elevations at YVWD No. 34 and Oak Valley No. 5
 (July 29, 2015 through July 24, 2017)

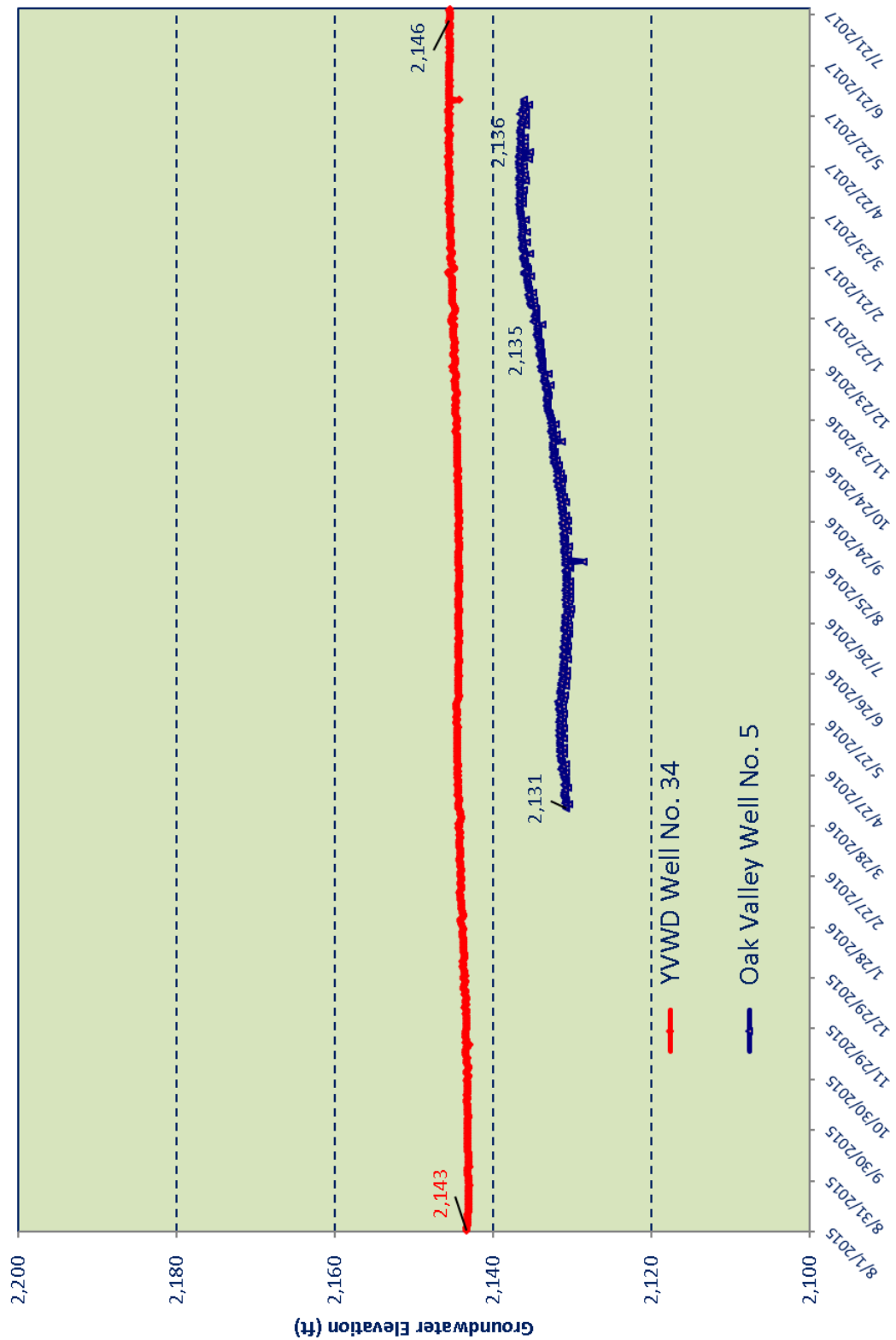


Figure No. 3
Static Groundwater Elevations at Noble Creek Obs. Well 4S and 4D
 (May 28, 2015 through July 24, 2017)

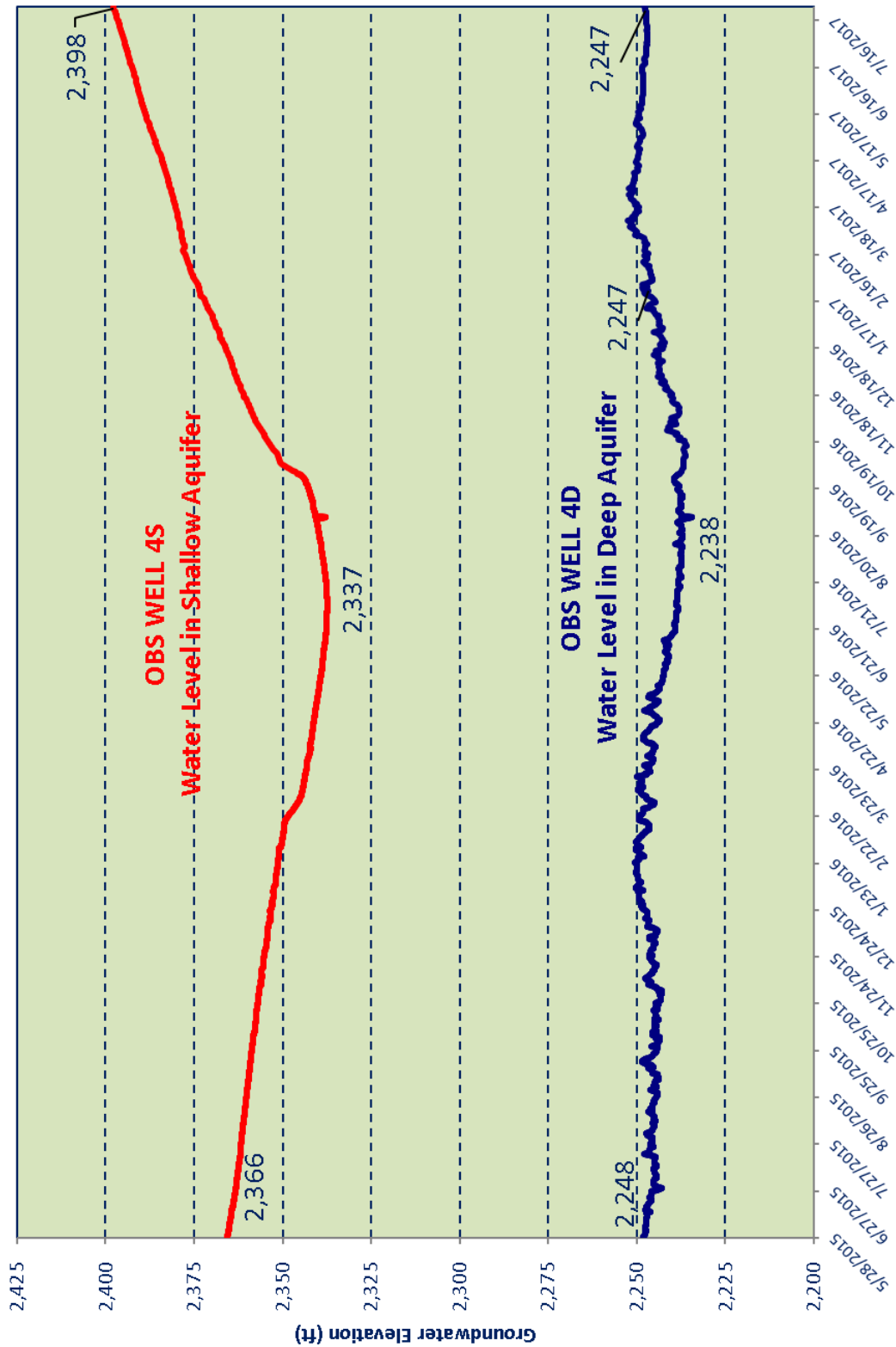


Figure No. 4
Static Groundwater Elevations at Summit Cemetery and Sun Lakes Wells
 (May 28, 2015 through July 24, 2017)

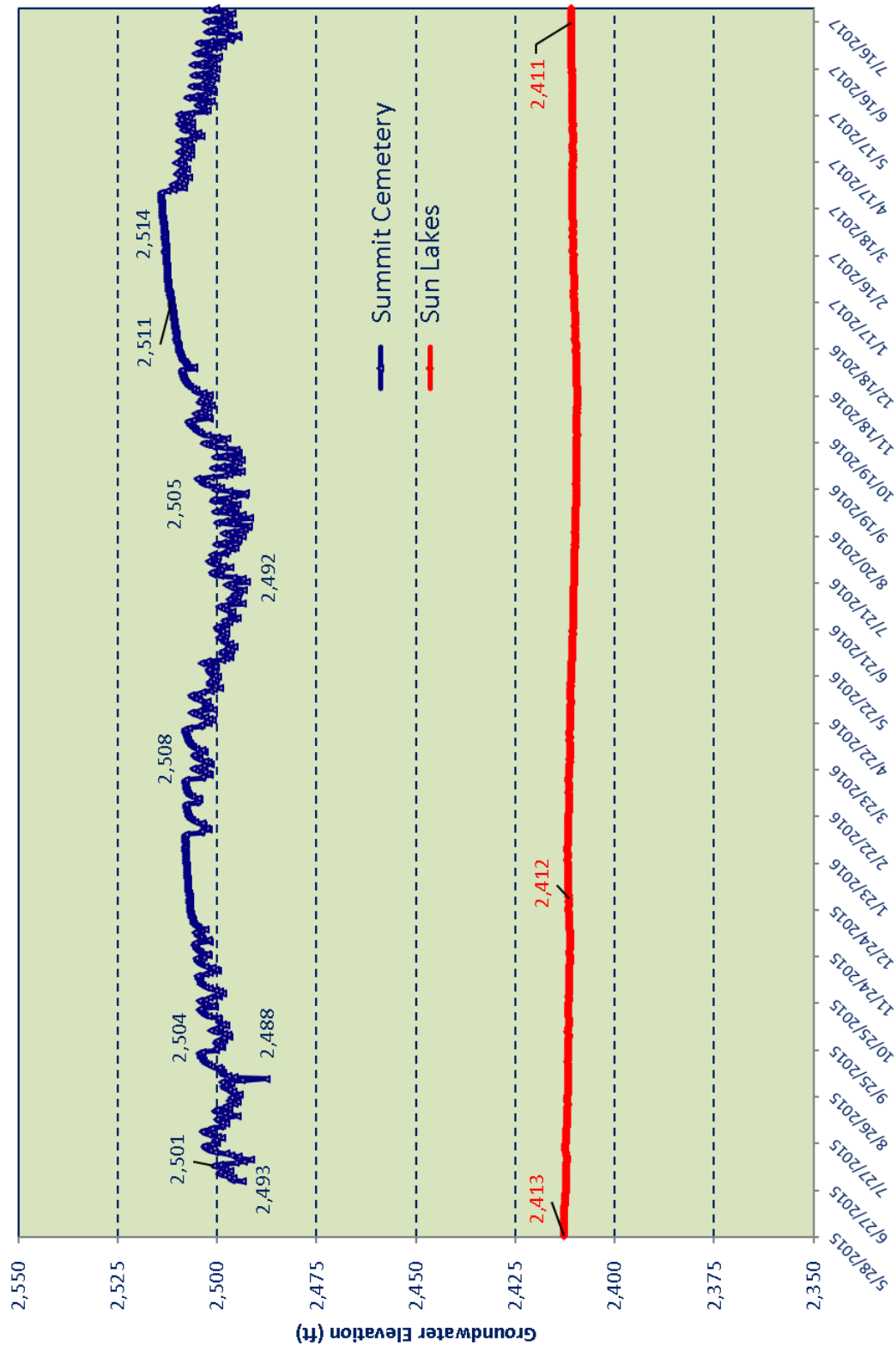


Figure No. 5
Static Groundwater Elevations in the Banning Area
 (May 28, 2015 through Jul 24, 2017)

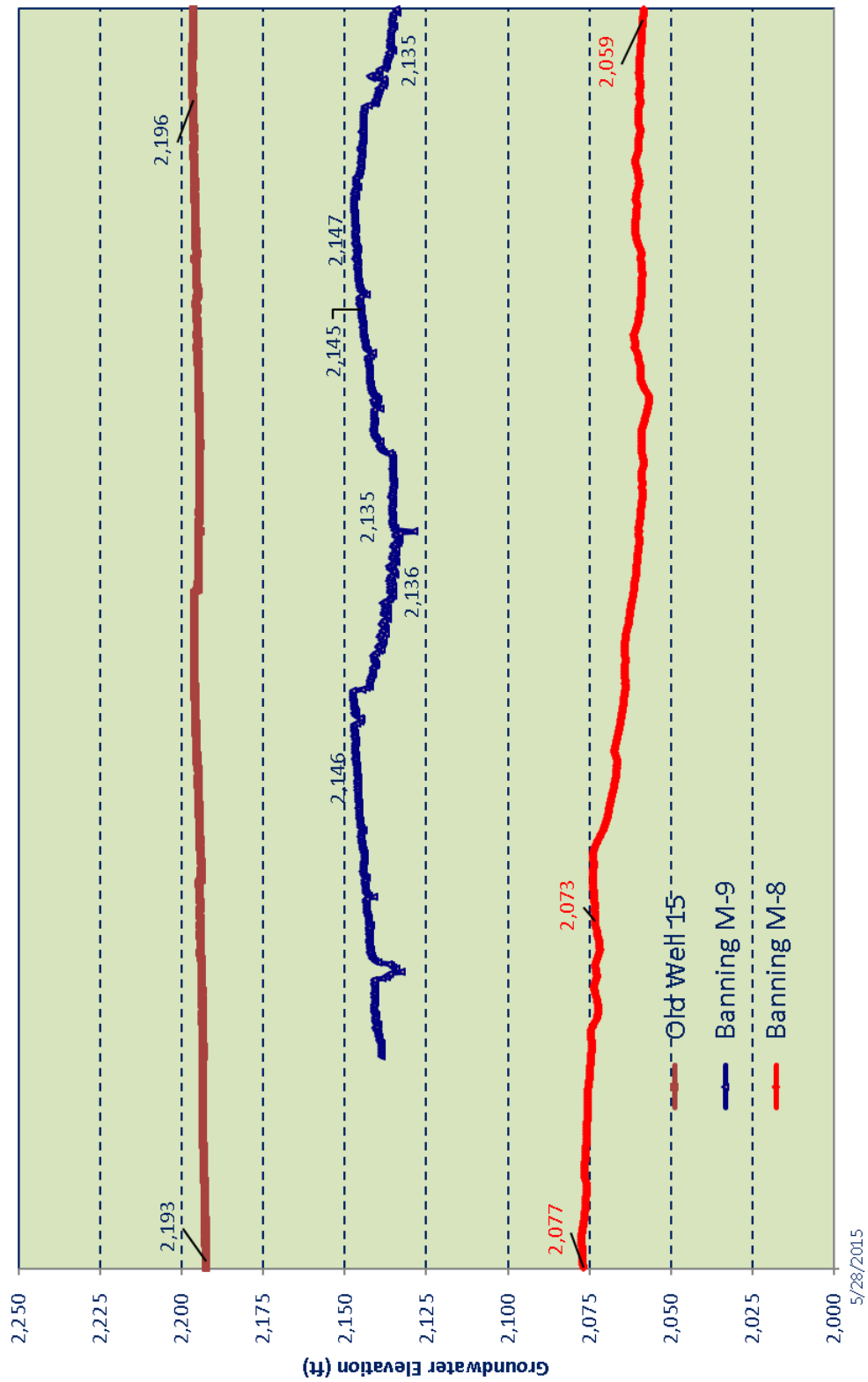
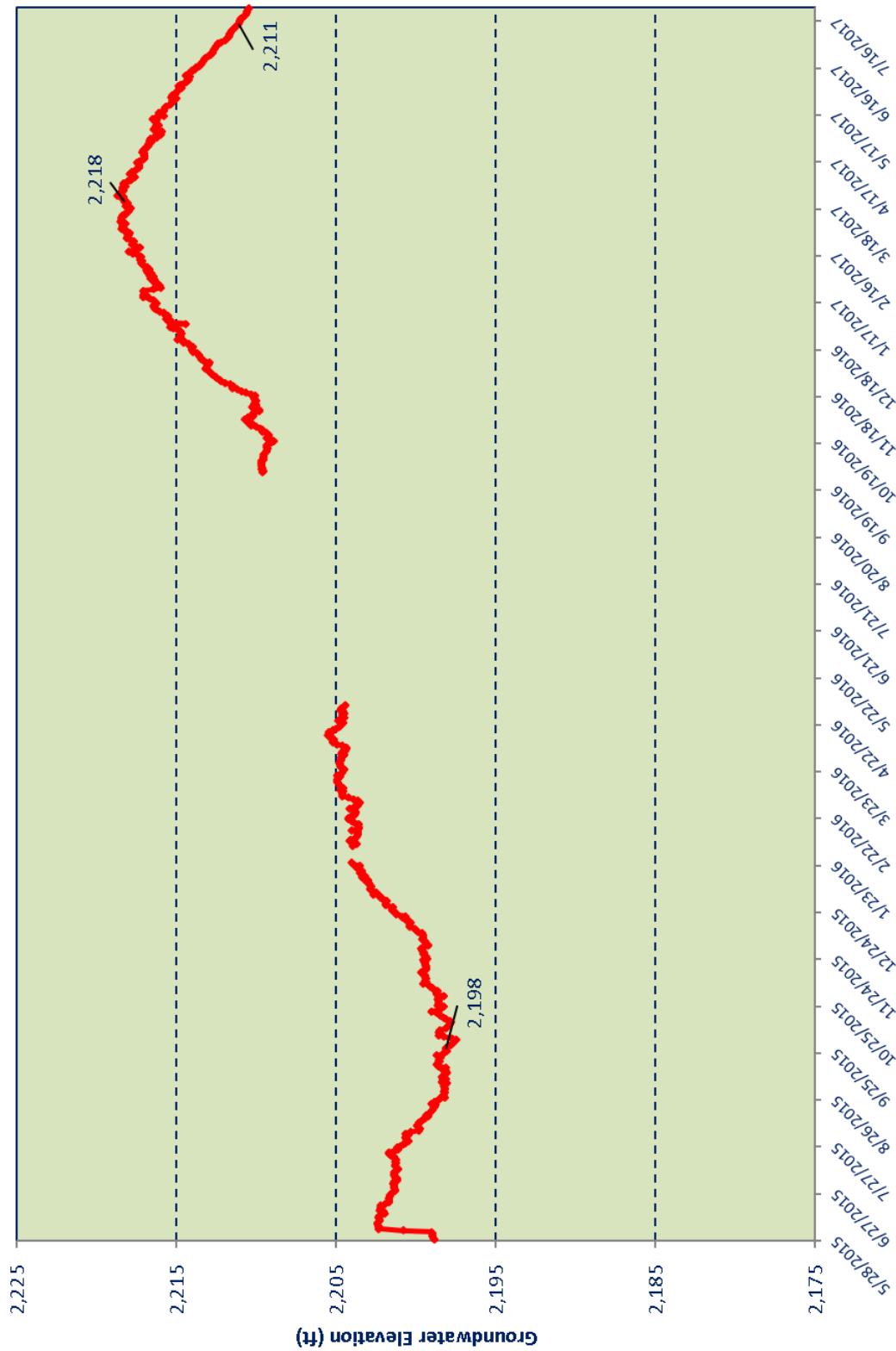


Figure No. 6
Static Groundwater Elevations at BCVWD Well No. 2
 (May 28, 2015 through Jul 24, 2017)



BEAUMONT BASIN WATERMASTER

MEMORANDUM NO. 17-21

Date: August 2, 2017

From: Hannibal Blandon, ALDA Inc.

Subject: Consideration of Task Order No. 14 with ALDA Inc. for the Preparation of a Methodology to Estimate Storage Losses from the Beaumont Groundwater Basin at Selected Locations

Recommendation: That the Watermaster Committee approves Task Order No. 14 for a sum not to exceed \$46,190.

Task Order No. 14, prepared by ALDA Inc., in association with Thomas Harder and Company, will be used to develop a methodology to estimate groundwater storage losses from selected locations in the basin and under various groundwater recharge and extraction conditions.

The proposed scope of services for Task Order No. 14 addresses the estimation of storage losses from the basin; an issue that has been discussed at length in numerous occasions in the past.

The financial impacts associated with the proposed contract would result in a budget line item of \$46,190, and if approved would result in an invoice sent to each Watermaster Committee member in the amount of \$9,238.

Mr. Blandon and Mr. Harder will make a formal presentation to give members of the Watermaster Committee an opportunity to discuss the proposed Task Order.

ALDA Inc.

5928 Vineyard Avenue
Alta Loma, CA 91701
Tel: (909) 587-9916
Fax: (909) 498-0423

August 2, 2017

Arturo Vela, President
Beaumont Basin Watermaster Technical Committee
560 Magnolia Avenue
Beaumont, California 92223

Subject: **Beaumont Basin Watermaster – Task Order No. 14
Estimation of Groundwater Loss from the Beaumont Basin at
Various Locations and under Various Conditions**

Dear Mr. Vela:


ALDA Inc., in association with Thomas Harder & Company, is pleased to provide our proposal to conduct Task Order No. 14 for the Board's consideration. Under this task, the ALDA team will develop a methodology to estimate groundwater storage losses at various locations in the Beaumont Basin and under various operating conditions.

As reported in the 2013 Reevaluation of the Beaumont Basin Safe Yield, groundwater underflow losses occur in various locations along the south and west boundaries of the Beaumont Basin. The amount of loss varies with time and is sensitive to pumping and recharge from both within and outside the Beaumont Basin. Further, the locations where water is stored and extracted, the duration of underground storage, and the rate stored water is extracted all affect the losses.

We welcome your thorough review of our proposed scope services. Should you have any questions on our proposed services or need further information, please contact us at 909-587-9916 during normal business hours.

Very truly yours

ALDA Inc.



F. Anibal Blandon, P.E.
Principal

Beaumont Basin Watermaster – Task Order No. 14

Estimation of Groundwater Storage Losses from the Beaumont Groundwater Basin – 08/02/17

TASK OBJECTIVES

The objective of Task No. 14 is as follows:

- A. To use the calibrated groundwater model to develop a methodology for estimating groundwater storage losses from various locations in the Beaumont Basin under various operating conditions.

PROJECT BACKGROUND

The ultimate goal in estimating losses is to make sure the Beaumont Basin Watermaster's accounting of stored supplemental water is representative of basin conditions. The purpose of this scope of work is to develop a methodology for estimating storage losses from the Beaumont Basin. Some of the issues that will need to be considered in preparing the methodology include:

- ✓ **Location of Storage** – The aquifer system within the Beaumont Basin is essentially bifurcated; water stored west of the Beaumont Plains Fault Zone will flow to the west and water stored east of the fault zone will flow to the southeast toward Banning. In addition to having different flow directions, the aquifer systems of these two areas have different storage capacities, aquifer properties, flow gradients, and points/areas of discharge out of the basin. It may be necessary to apply different loss factors for water depending on the location where the water is stored.
- ✓ **Location of Extraction** – Storing water in the aquifer on the east side of the basin and extracting it from the west side is likely to create groundwater level impacts in the vicinity of extraction because the water is physically not there.
- ✓ **Time of Storage** – Some consideration may be necessary for the length of time parties are allowed to keep water in storage. The groundwater basin is a dynamic system and groundwater levels will equilibrate over time. Holding water in storage accounts indefinitely and then extracting a large portion over a short period of time can create impacts.
- ✓ **Extraction Amounts** – Extracting large volumes of water from storage over a short period of time can create localized groundwater level impacts.
- ✓ **Losses Associated with Evaporation** – The losses discussed herein are primarily associated with subsurface outflow out of the basin. There will also be losses in recharge basins from evaporation, although these are likely to be relatively small.

In order to inform the storage loss accounting methodology, our recommended approach is to analyze hypothetical recharge and recovery scenarios using the calibrated groundwater flow model. The basin storage scenarios would be designed to address the issues outlined above.

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Our detailed scope of work is as follows:

SCOPE OF SERVICES

Task 1 – Develop Storage Loss Scenarios for Analysis Using Calibrated Model

Basin storage scenarios envisioned for analysis using the model include the following:

- ✓ A model scenario where the historical supplemental recharge in the Noble Creek Basins is “turned off” (i.e. removed from the model). The resulting subsurface outflow would be quantified and compared to the outflow from the calibrated model of actual historical conditions. The difference in outflow between the calibration and scenario would represent the historical losses attributed to Noble Creek recharge operations.
- ✓ A model scenario of projected future basin conditions that includes recharge associated with the planned San Gorgonio Pass Water Agency (SGPWA) project. Basin outflow from this model scenario would be analyzed and compared to basin outflow from a scenario that does not include this simulated recharge. The difference in outflow would represent the losses attributed to the SGPWA recharge.
- ✓ A model scenario that evaluates the impact of additional groundwater production downgradient of the Noble Creek Recharge facility on basin losses. It is envisioned that the additional groundwater production would be incorporated into the historical condition and then compared to the calibrated model to assess the difference in basin losses.
- ✓ Model scenarios that analyze subsurface losses from a hypothetical recharge project west of the Beaumont Plains Fault Zone and in the center of the basin. The recharge would be placed at an optimum location based on existing data. It is envisioned that three scenarios would be developed for low supplemental recharge volume, intermediate recharge volume, and high recharge volume, based on a preliminary estimate of recharge area and infiltration rate.
- ✓ Model scenarios that analyze subsurface losses from a hypothetical recharge project west of the Beaumont Plains Fault Zone but closer to the southern Beaumont Basin boundary. Scenarios would be developed for low, intermediate and high recharge volumes.

Prior to analysis with the model, the ALDA team will generate a technical memorandum (TM) that outlines in more detail each of the scenarios for analysis. The TM will include details of the timing and volumes of recharge and production for each scenario. The TM will also include maps showing existing, planned and hypothetical future recharge locations as well as existing and hypothetical future production well locations to be used in the scenarios. Upon completion, the TM will be submitted to the Watermaster for

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review and comment prior to analysis. It is anticipated that the TM can be discussed and the scenarios finalized in a workshop setting at the next schedule Board meeting after the TM is submitted.

Task 2 – prepare model input files for each storage scenario

The ALDA team will develop the recharge and recovery input files necessary to evaluate basin losses from each of the model scenarios. This task involves preparing model files with estimates of monthly recharge and production based on the scenarios developed in Task 1. The budget for this task assumes preparation of input files for a total of ten model scenarios.

Task 3 – Analyze Scenarios Using the Model

Basin losses for each scenario will be evaluated using the existing calibrated groundwater flow model of the Beaumont Basin. The ALDA team will generate maximum groundwater level difference maps that show the maximum groundwater level changes associated with each recharge and recovery scenario (10 maps). Storage losses by scenario will be summarized in a table. The ALDA team will also generate charts showing storage losses with time to assess the impacts of different storage and production conditions on storage losses.

Task 4 – Prepare a Report of findings and recommendations

The results of analysis of storage losses using the calibrated groundwater flow model will be summarized in a report. The report will include:

- ✓ A background and purpose for the analysis.
- ✓ A description of the methodology to evaluate basin storage losses.
- ✓ A description of each model analysis scenario.
- ✓ Results of the analysis including maps showing simulated groundwater level changes associated with each scenario, tables summarizing storage losses by scenario, and charts showing storage losses over time for each scenario.
- ✓ Recommendations for developing a storage loss accounting methodology for the Beaumont Basin.

Supporting data and information will be provided in appendices as appropriate.

The budget for this task includes development and submittal of one draft version of the report for review and comment (six hard copies with electronic files). Upon incorporation of comments, The ALDA team will generate one final version of the report. The budget for this task assumes six hard copies with electronic files.

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COST ESTIMATE and SCHEDULE

The estimated cost for this scope of work is \$ 46,190 as summarized in Table 1. If approved, the Task 1 TM can be completed and submitted to the Watermaster prior to the October 2017 Board meeting. Assuming the scenarios are finalized at the October meeting, the analysis and report can be completed four months later. Thus, the total estimated schedule to complete the work is six months.

Task Description	Project Manager	Principal Hydro-geologist	Project Hydro-geologist	Staff Hydro-geologist	Graphics	Clerical	Total Cost
1.- Develop storage loss scenarios for model analysis	8	12	48		16	6	\$11,110
2.- Develop model input files for each storage scenario	4	6	16	40			\$7,520
3.- Analyze scenarios using the model	8	12	40	60			\$14,100
4.- Prepare a report of findings and recommendations	8	16	40	16	24	12	\$13,460
Total:							\$46,190