Exhibit DF-13

California American Water®

August 17, 2006

RECEIVED

AUG 21 2006

MPWMD

Allen J. Stroh,
Director, Environmental Health Division
Monterey Co. Health Department
Room 109
1270 Natividad Road
Salinas, CA 93906

Re: Compliance Order No. 06-003
Ryan Ranch Water System, ID No. 270-1466

Dear Director Stroh:

This letter follows up on California American Water's ("Cal-Am's") letter to you of May 31, 2006 requesting an extension of time to respond to your letter of April 3, 2006 regarding Ryan Ranch water supply. In this letter we present Cal-Am's plan, as required by Paragraph 1(a) of Compliance Order No.06-003, for ensuring an adequate water supply in the Ryan Ranch system.[1]

We have reviewed your April 3, 2006 letter and Compliance Order regarding California American Water's water system at Ryan Ranch. We believe that we are in compliance with the standards listed in Finding 4 of Compliance Order No. 06-003 since our initial well failures and production reductions by developing and immediately implementing our plan for ensuring an adequate water supply at Ryan Ranch.

Step #1: Activate Carmel/Seaside Interconnection. We have delivered water to Ryan Ranch customers throughout this period of production problems through implementation of the first step in our plan, which is to occasionally use our emergency interconnection with the Carmel/Seaside system. Through this approach we have ensured that there is enough water in emergency storage to ensure the health and safety of the Ryan Ranch customers.

The supply we use to augment the Ryan Ranch production comes from Carmel/Seaside supply of the main Monterey water system through an emergency connection at Ragsdale Drive and Highway 68. The Monterey Peninsula Water Management District requires that we use the connection for emergency purposes and that we record and report the transfers. The State Water Resources Control Board has advised us that we can transfer Carmel River water for this purpose as long as we meet the withdrawal limits in the Carmel Valley set forth by Order 95-10. We have met those requirements.

Step #2: Identification of New Well Sites. We have been actively seeking other water supply resources, in the form of new well sites, since late 2004. As previously reported, we have been working with the City of Monterey, specifically the City Manager, seeking a new well site on the Fort Ord properties. We have not yet been successful in that effort. We met with the MPWMD to ascertain what other local solutions might be investigated. Their hydrogeologist recommended that we drill a test well at the Granite Construction site in Ryan Ranch. We have been in negotiations with Granite for the last four months to set up a test well on their property. We believe that those negotiations will successfuly conclude in the next few weeks.

Step #3: Technical Analysis. In parallel to these activities, we commissioned Martin Feeney to conduct a technical analysis of the Ryan Ranch water supply situation and to make recommendations on approaches we can take to augment production. His draft report, which is part of this plan and forms the foundation for future actions under this plan, is enclosed.

---

1 In voicemails we exchanged with Ms. Sandoval of your staff, Cal-Am was granted a short additional extension, to Friday, August 19, 2006, to present this plan. We appreciate this courtesy.

California American Water
Coastal Division
50 Ragsdale Dr., Suite 100
P.O. Box 951
Monterey, CA 93942-0951

T 831-646-3201
F 831-375-4367
I www.calamwater.com

Based on Mr. Feeney's recommendations, we will pursue a new well site in the Granite properties, and lower the well in Ryan Ranch #7 to try to improve production. As noted above, we are already pursuing the Granite well site. We have reviewed the efficacy of lowering Ryan Ranch #7 well, and I have directed that the Ryan Ranch Well # 7 be lowered to improve production. The well should be reset August 18th 2006.

In conclusion, we acknowledge your concern about water supply reliability in Ryan Ranch and share your desire to ensure a consistent and reliable supply. We have acted to ensure a reliable supply even with declining production and well failures by supplementing the supply as needed, on a very limited basis. Our plan, which we have been actively implementing already, attacks this problem on all fronts including new supply and demand management. We are working with the City and the Water Management District to improve the chances of success.

I look forward to further discussion with your staff on this important issue. Please call me with any questions.

Sincerely,

Steven Leonard
Vice President/Manager

Attachment
cc. Cheryl Sandoval, Supervising Environmental Health Specialist
Richard Le Warne, Assistant Director (w/o attachment)
Jan Sweigart, Cal-DHS
Matt Bogoshian, Deputy District Attorney (w/o attachment)
Patrick McGreal, County Counsel (w/o attachment)
Patricia Lyman, CAW Counsel (w/o attachment)
Ben Lewis, CAW Director Service Delivery (w/o attachment)
David Berger, General Manager, MPWMD
Fred Meurer, City Manager, Monterey

Martin B. Feeney
Consulting Hydrogeologist

P.G. 4634
C.E.G. 1454
C.Hg 145

June 27, 2006

California-American Water Co.
50 Ragsdale Road, Suite 100
Monterey, California 93942-0951

Attention: Mr. Aman Gonzales, PE, Senior Engineer

Subject: Ryan Ranch Water System Supply Options – Reconnaissance Level Feasibility Review.

Dear Mr. Gonzales:

INTRODUCTION

The Ryan Ranch Water System well capacity has declined over the last several years due to well failure, well maintenance issues, and falling water levels. This has left the system with low capacity and limited redundancy. At the same time, system demand is anticipated to increase as build-out continues. Most recently, the Monterey County Health Department (MCEHD) has raised concerns regarding the California American Water Company's (Company) ability to meet system demand. As such, the Company is interested in evaluating possibilities for improving system supply and reliability. This letter-report presents an evaluation of opportunities for increasing the system supply and reliability. The evaluation includes descriptions of possible supply options, required infrastructural improvements, order-of-magnitude costs of implementation, and identification of the regulatory/institutional/jurisdictional challenges of each option.

BACKGROUND

Ryan Ranch System Description

The Ryan Ranch Water System is a groundwater supplied system that serves current commercial and industrial development in the Ryan Ranch portion of the City of Monterey. It was installed approximately 16 years ago and is owned and operated by the Company and permitted as a public water system through MCEHD. The water system is separate from the larger Monterey Peninsula System that serves the other portions of the City of Monterey as well as the rest of the Peninsula. As a ground water user, the system is also permitted by the Monterey Peninsula Water Management District (District) with a System Capacity Limit of 175 acre feet per year maximum production.

The water supply is a system of wells on a manifold that feeds directly to a small treatment plant for iron and manganese removal and disinfection prior to distribution. The distribution system is approximately 3 miles in total length, consisting of a primary loop of 12 inch diameter pipeline along Upper and Lower Ragsdale drives with secondary branches serving cul-de-sacs. A single 14-inch diameter branch pipeline runs along Wilson Road to York Road and to a steel storage tank across Highway 68 to the south. The storage tank has a nominal volume of 500,000 gallons and is at a base elevation of 414.5 feet, which is sufficient to provide gravity pressure to all points in the distribution system. An emergency intertie exists along Highway 68 that connects to the Monterey Peninsula System, a system that is supplied by surface and ground water from the Carmel Valley and ground water from the Seaside Basin.

P.O. Box 23240, Ventura, CA 93002 ♦ **Phone: 805/643-7710** ♦ e-mail mfeeney@ix.netcom.com

EXISTING SUPPLY

Hydrogeologic Setting

The water system derives its water from wells extracting ground water from Laguna Seca Subarea of the larger Seaside Ground Water Basin. The aquifer system of the Laguna Seca Subarea consists of the Paso Robles Formation underlain by the Santa Margarita Sandstone. The Paso Robles Formation consists of interbedded sand, clay, and gravel, whereas the Santa Margarita is a loosely cemented friable sandstone. Both of these aquifer units supply water to wells in the Laguna Seca Subarea. However, in the Ryan Ranch area the Paso Robles Formation is above the regional water table and not saturated, therefore all the active wells in Ryan Ranch produce from the Santa Margarita Sandstone. These aquifer units are underlain by the consolidated shales and mudstones assigned to the Monterey Formation. As is discussed more fully below, the Monterey Shale has not historically been utilized for water supply, as well yields were low and quality poor.

Well Inventory

The Company has five wells in Ryan Ranch, three active wells and two scheduled for destruction due to poor water quality or low yield. The specifics and current flow rates of each active well are presented below.

Table 1 – Summary of Ryan Ranch Wells

Well Name	Date Constructed	Depth (feet)	Current Capacity[1] (gpm)	Specific Capacity (gpm/ft)	Pump Setting (feet)	Top of Perforations (feet)	Potential Yield (gpm)
Ryan Ranch No. 7	Jan - 81	480	50	0.53	335	350	72[2]
Ryan Ranch No. 8	Jun - 81	450	21	0.15	294	335	26[2]
Ryan Ranch No. 11	Aug - 03	455	50	0.29	420	360	50
		Total	**121**				**148**

NOTES: 1. Company Records; 2. Assumes lowering pump 42 feet

The Company currently operates Wells Nos. 7 and 11 as the lead wells, with Well No. 8 as a backup. As such, the instantaneous discharge rate from the lead wells is currently about a 100 gpm. Operating continuously these wells can produce approximately 160 acre-feet per year.

WATER DEMAND

Existing Demand

The historical demand for the Ryan Ranch System is presented in Table 2. As can be seen in the data presented, the demand as measured by the volume of delivered water for the last several years has been relatively constant at approximately 65 acre-feet per year. However, due to leakage and other system losses, the system production (sum of well production and imported water from the intertie) value deviates significantly from the demand number revealing the variability in system losses over the last several years. Also presented in the table is the continuous discharge rate at which the wellfield would need to operate to provide the annual volumes.

Table 2 - Ryan Ranch Water Production and Estimated Current Demand. [1]

Year	RY 1996	RY 1997	RY 1998	RY 1999	RY 2000	RY 2001	WY 2002	WY 2003	WY 2004	WY 2005
Production (af)	72.0	41.7	54.5	54.9	65.2	78.9	92.1	90.8	86.3	72.2
Production (gpm)	*44.6*	*25.9*	*33.8*	*34.0*	*40.4*	*48.9*	*57.0*	*56.3*	*53.5*	*44.7*
Deliveries (af)	57.7	60.9	52.2	56.6	58.8	61.2	56.7	65.1	68.6	63.6
Deliveries (gpm)	*35.7*	*37.7*	*32.3*	*35.0*	*36.4*	*37.9*	*35.1*	*40.3*	*42.5*	*39.4*

NOTES: 1. Reporting Year (RY) extends from July 1 of the previous year to June 30 of the identified year; Water Year (WY) extends from October 1 of the previous year to September 30 ofthe identified year. The District switched to WY reporting in 2002.
2. Instantaneous flow is calculated from annual volume pumped over the entire year.

Nature and Distribution of Demand

The Ryan Ranch Water System currently serves predominately light-industrial/office users. Water provided is utilized predominantly for indoor sanitation, industrial process, and landscape irrigation. It is estimated that, on an annualized basis, use is approximately equally split between indoor and outdoor use. Indoor use is predominately on weekdays during daylight hours. Much of the landscape irrigation occurs at night.

Projected Future Demand

The system is currently permitted for a build-out demand of 175 acre-feet per year. In-fill development in the service area is on-going and water demand continues to increase.

SYSTEM LIMITATIONS

Although the wellfield is currently easily capable of meeting average demand and can meet the theoretical maximum day demands, the well capacity is occasionally not sufficient to respond to "demand spikes" that might occur. These "demand spikes" are the result of line breaks, intense construction grading, fire department use, and heavy irrigation demand. Under these conditions the level in the storage tank falls below safe levels. Under these circumstances, the intertie with the main system has been used to restore lost storage. It is these events and the inability to quickly fill the tank that results in concerns regarding the adequacy of the system. Without these extreme events and associated "demand spikes," the current well capacity is more than adequate to supply demand.

The Company is concerned that the instantaneous yield of the wells that supply the Ryan Ranch Water System is inadequate to provide the desired factor of safety in high demand periods. This document focuses on ways to improve the balance between supply and demand. Specifically, this document explores possibilities for increasing ground water supply though new wells, the use of aquifer storage and recovery, and demand management.

ADDITIONAL GROUND WATER SUPPLIES

INCREASE YIELD FROM EXISTING SYSTEM WELLS

Description: The well capacities presented above reflect the production capacity of the wells as currently equipped. As such, the capacity number reflects the well and aquifer characteristics as well as limitations in the pumping equipment. Water wells represent a relatively imperfect

[1] Data from, Monterey Peninsula Water Management District, June 2006.

interface between the geologic materials that comprise the aquifer system and the pump that delivers water for the desired use. The performance of a well is a function of both the ability of the aquifer to move water to the well, in response to the lowering of the water level in the well by the pump, and the ability of the well to transmit water from the aquifer to the pump. Head losses occur in both the aquifer and in the materials that comprise the well intake section, i.e., the perforations and the gravel pack. These head losses are difficult to separate and are typically aggregated in a term called specific capacity. Specific capacity is the discharge from a well that results from a unit change in drawdown. The conventional units for specific capacity are gallons per minute per foot of drawdown (gpm/ft). Within the range of typical well discharge rates, the value is relatively linear. For example, if a well has a specific capacity of 1 gpm/ft it will produce 1 gpm with one foot of drawdown and 10 gpm with 10 feet of drawdown.

Given this relationship, the yield of a well is a function of the available drawdown. If the well pump is set at a depth of 100 feet and the standing water in the well is 50 feet, a well with a specific capacity of 10 gpm/ft will be capable of 500 gpm. If the specific capacity was only 1 gpm/ft the yield would only be 50 gallons per minute. Assuming more drawdown is available in a given well, the yield of the well can be increased by operating the well with increased drawdown. If the pump in this example was lowered to 120 feet increasing the available drawdown, the yields would increase to 700 and 70 gpm, respectively.

In a couple of cases, the Ryan Ranch wells' pumps could be lowered to increase yield. The most promising well to modify pumping equipment would be Well No. 7. Only minor amounts of increased discharge could be achieved from the other wells. Lowering the pump in Well No. 7 would increase its capacity by approximately 11 gpm per standard 21 foot of pipe length. Lowering the pump from its current location of 335 to 377 feet (42 feet) below ground surface would increase yield by 22 gpm (0.53 gpm/ft x 42 feet) to approximately 72 gpm, and system yield from 121 to 143 gpm. Lowering the pumps to lower depths may require replacement of the pumps and motors as the increased volume and pumping lift would require more horsepower. Lowering the pumps in the wells will require placing the pumps adjacent to the perforations. In some situations, this can lead to operational problems such as cascading water, air entrainment and in some instances, sanding. However, in many hydrogeologic settings these conditions cannot be avoided and many water systems routinely operate under these conditions.

Implementation: It is understood that the Ryan Ranch System will be supplied entirely through the intertie in the coming months to allow tank maintenance. During this time the Ryan Ranch wells will be shut down. This is the perfect opportunity to assess and re-equip the wells. It is assumed that only Well No. 7 is cost effective to lower the pump. This well should be carefully test pumped for 4 to 8 hours to assess current well performance. The data should be used to evaluate whether the existing pump and motor can perform from the proposed deeper setting. If the existing pump and motor are adequate they should be lowered to the new setting. If the pump and motor are not suitable they should be replaced with a pump and motor matched to the new setting and flow rate.

Estimated Yield: Increase in Well No. 7's discharge rate of approximately 20 gallons per minute.

Costs: Cost for lowering and replacing the pump and motor, including engineering services, are estimated at less than $20,000.

Challenges: Lowering and/or replacing the pump and motor do not require the approval of any agency or organization. As such, Company is free to perform this work at will, as allowed by system demand.

ADDITIONAL SEASIDE BASIN WELLS

Background

Ryan Ranch's existing well field is located along the northern portion of the development along the boundary with the former Fort Ord. Eleven wells have been drilled for the Ryan Ranch System, however, only those along the extreme northern boundary of Ryan Ranch have had adequate production or acceptable water quality. This distribution of "successful" wells reflects the hydrogeologic setting. Ryan Ranch straddles the extreme southern boundary of the Laguna Seca Subarea of the Seaside Ground Water Basin. The wells in the northern portion of Ryan Ranch have the access to the ground water basin, albeit limited. Much of the southern portion of the Ryan Ranch area has no access to this ground water system. Because of this hydrogeologic settling, the aquifer system is shallow and thin resulting in very low well yields when compared to other locations in the Laguna Seca basin. Even the best hydrogeologic location in Ryan Ranch is marginal because of the limited thickness of saturated aquifer available. Much higher well yields are likely to be available short distances to the north of the existing well field. However, because of land ownership, a well site in this area has previously been unavailable. With the transfer of the area immediately north of Ryan Ranch to the City of Monterey, there exists the possibility of acquiring a well site to the north. A well at a more northerly location would likely have a substantially higher discharge rate. Extractions from this portion of the aquifer system would also be consistent with the basin management practices recommend as part of the Laguna Seca Subarea Phase III Hydrogeologic Update[2] study.

Well Site on City of Monterey/Fort Ord Lands:

The Company is pursuing a well site north of Ryan Ranch on the former Fort Ord. In discussions with the City, they have indicated their willingness to provide a well site, once the property has been transferred. However, the transfer is complicated by bureaucratic process and is not yet completed. Unfortunately, it is anticipated that it will be many months, at the soonest, until the City is in control of the property.

Implementation: Given the uncertainty regarding the depth and thickness of the aquifer system in this area, it would be prudent to drill a test well at the location before committing to the construction of production well. Better geologic data will also help in ranking a well at this location as compared to other supply options.

The drilling of a test hole to gather hydrogeologic data would be a benefit to all concerned and raise significantly fewer jurisdictional issues that a production well. After acquiring hydrogeologic data and accessing the potential success of a well at the location, the jurisdictional issues could be approached more realistically, as the well would be confirmed as possible. After an agreement between all parties was reached, the production well could be constructed and connected to the system.

Status. A formal project description was submitted by the Company to the City of Monterey last year. The next phase of permitting is through the Army. The City has indicated a willingness to assist in this process. However, the process is considered slow and onerous, and has not been started in hope of better supply options.

Costs: Cost of a test hole/monitoring well at the site is estimated at $100,000, including contractor costs, hydrogeologic consulting and permitting. Costs for a full scale production well

[2] *Yates, Feeney and Rosenberg, 2001* Laguna Seca Subarea Phase III Hydrogeologic Update, for Monterey Peninsula Water Management District

at this location are estimated at $125,000. With pipelines, power drop, controls and engineering the total project costs are estimated at $270,000. Costs are presented on Table A6.

Challenges: Although the site is hydrogeologically attractive, significant, time-consuming jurisdictional issues will need to be resolved before a well site can be acquired. The transfer of the land from the US Army to the City is about complete; however, the land is within the service area of Marina Coast Water District (MCWD). In addition, the Army has reserved the "mineral rights" in these properties and it is unclear if this affects water rights. Also, FORA and LAFCO will undoubtedly have concerns regarding locating the new well on former Fort Ord. These jurisdiction conflicts raise issues that will need to be resolved before a well can be sited or operated. It is recommended that a test hole be drilled at the location to confirm the hydrogeologic conditions before serious efforts to secure and permit a permanent well site are undertaken.

Well Site on Granite Construction Property:

Acknowledging the time that it will take to resolve jurisdictional issues with a well site to the north of Ryan Ranch, the Company has under taken efforts to identify a well site in the confines of the existing Ryan Ranch. As has been previously discussed, the geologic setting of Ryan Ranch results in access to the underlying Laguna Seca Ground Water Basin only in the extreme northerly portion. In this northern portion, the water-bearing sediments included the Paso Robles Formation (often unsaturated) and the underlying Santa Margarita Sandstone (the main aquifer). The non-water bearing Monterey Shale underlies these water-bearing materials. Historically, all productive water wells (RR Wells No. 2, 4, 7, 8, 10 and 11) have been located near the Ryan Ranch/Fort Ord Fence. Currently, the majority of extractions are centered in the northeastern portion of the property. Placement of another well in this location would be difficult, as land is limited. Additionally, the existing wells in this area mutually interfere with each other and reduce each other's yields.

Hydrogeologic interpretation of the available data suggests that a successful well might be drilled north of Ryan Ranch Well No. 2. A well at this location would be close to the area described above while still being in Ryan Ranch. An inventory of the properties north of Ryan Ranch Well No. 2 resulted in the identification of a potential location in the northern portion of the Granite Construction Company's storage yard on Justin Court. The site appears underutilized and would be favorable for well or test hole construction, assuming agreements could be developed for the use of the site.

Estimated yield: Although there is significant hydrogeologic uncertainty, it is estimated that a well at this location will produce more that 50 gpm, potentially significantly more.

Implementation – Status: The Company has acted on this proposal and has awarded a contract to a drilling contractor and is in negotiations with Granite for permission to construct a test well. Initial discussions with Granite were promising, but recently these negotiations have become more complex.

Costs: Costs for an 8-inch diameter test well suitable for conversion into production well if water quantity and quality are acceptable are estimated at $60,000. Should the well prove successful, the necessary pipelines, controls, and engineering to connect the well to the treatment plant will raise total project costs to an estimated $280,000. Costs are presented on Table A5. This would not include the cost of upgrades or changes to the treatment plant due to increased flow or differing treatment requirements.

Challenges: In addition to a contractual agreement with Granite, construction of the well will require a ministerial permit from the Monterey County Health Department. If the well is successful, the Monterey County Environmental Health Department would require a permit to add the well as a new source.

WELLS OUTSIDE OF SEASIDE BASIN

Bedrock Wells

As discussed above, "successful" wells in the Ryan Ranch area have been those that produce from the conventional aquifer system comprised of the unconsolidated materials assigned to the Paso Robles Formation and Santa Margarita Sandstone. These aquifer units are underlain by the fractured bedrock of the Monterey Shale. Wells drilled into the Monterey Shale, either where it underlies the unconsolidated materials or where it is exposed at ground surface, have generally proven to have low yields (generally less than 20 gpm) or poor water quality (total dissolved solids (TDS) greater than 1,000 mg/l) or both. The low yield and poor water quality are reflections of the properties of bedrock aquifers. The limited permeability of fractured rock aquifers impedes flows to wells, reducing yields and results in long residence times for waters, in turn resulting in poorer water quality. Indeed some of the wells historically drilled within Ryan Ranch for the Ryan Ranch System (Wells 3 and 6, for example) were destroyed at the time of construction as yield and quality were deemed unsuitable for municipal supply. Across Highway 68, at least 12 wells of various depths were drilled into the Monterey Shale as part of efforts to develop the Monterra property. None of these wells had significant yield and water quality from these wells was marginal. There have also been several test holes drilled near Ryan Ranch that were not completed as wells based on the hydrogeologic data. More recently, the City of Monterey drilled a 1,000 foot test hole into the Monterey Shale on the property to the west of Ryan Ranch that was abandoned at the time of drilling. Available data on proximate bedrock wells are shown on Table 3 - Well Performance and Water Quality Data – Proximate Bedrock Wells.

Table 3 - Well Performance and Water Quality Data – Proximate Bedrock Wells

Well Name	Casing	Formation	TDS (mg/l)		EC (umhos/cm)		Fe (mg/l)		Mn (mg/l)		H2S (mg/l)	Depth (feet)	Discharge (gpm)	Specific Capacity (gpm/ft)
Stewart Well		Tm			1,680	*	0.4	*	0.04			na	na	na
Bear Canyon	PVC	Tm			2,750	*	0.005		0.07	*		na	na	na
Calvary Church (DPIC)	PVC	Tm	1,130	*	1,817	*	0.118		0.48	*		na	na	na
Tarpy's	PVC	Tm	796		1,227		0		0			na	na	na
Monterra 1	PVC	Tm	1,150	*	1,720	*	0.05		0.03		1.4	360	75	2.6
Monterra 2	PVC	Tm	1,150	*	1,770	*	0.05		0.04		1.7	375	80	3.5
Monterra 3	PVC	Tm	1,240	*	1,825	*	0.24		0.01			380	66	0.3
Monterra 5	PVC	Tm	1,250	*	1,840	*	0.23		0.05		0.1	306	180	4
Jacks Well (M6)	Steel	Tm			1,555		0.651	*	0.048			430	220	6.4
Monterra 8	PVC	Tm	1,190	*	1,850	*	0.09		0.03		0.2	405	na	na
Montera10	PVC	Tm										400	15	
			1,000		1,600		0.3		0.05		MCL			

na = data not available

* indicates exceeds Maximum Contaminant Level (MCL)

Tm = Monterey Shale

EC, TDS, Fe and Mn are secondary standards

Enforcement of these standards is discretionary

The increasing restrictions on the availability of municipal water supply on the Peninsula has resulted in more attempts to develop water supplies from these non-conventional bedrock aquifer systems. While most of these attempts have resulted in wells with performance and water quality consistent with previous data, a few wells have displayed surprisingly better performance and water quality. The geographic distribution of these anomalous wells, along with several previously drilled wells, begins to define an area where the yields and water quality are substantially better. This area appears to extend from approximately the Naval Post Graduate School Golf Course to approximately the intersection of Highways 68 and 218.

Additionally, at the time of the preparation of this document, the landowner of a property on Swain Court in Ryan Ranch was testing a newly installed well. This well is south of the location of RR #6, which was reportedly drilled to 250 feet in the Monterey Shale and destroyed at the time of construction due to poor yield and water quality. However, the new well, also completed in the Monterey Shale, is 500 feet in depth and perforated between 220 and 480 feet. Preliminary data from the new well is somewhat encouraging. The early test data suggests about 15 feet of drawdown at approximately 10 gpm for a specific capacity of approximately 0.67 gpm/ft. This value is comparable with the specific capacity of the best performing well in the Ryan Ranch System, Well No. 7. Field-measurement of TDS resulted in a value of approximately 900 mg/l. This is extremely good water quality for wells producing from the Monterey Shale. However, consistent with most other wells in the Monterey Shale, the water has a strong odor of hydrogen sulfide.

Description:

If the development of new wells in the Seaside Basin is not possible or unsuccessful, efforts to develop water from the bedrock aquifers may be an alternative. This might take the form of utilizing a currently unused existing nearby high-performing well or undertaking an exploratory well program in the southern portion of Ryan Ranch with the intent of developing bedrock wells with adequate yields and acceptable water quality.

Use of an existing well allows assessment of performance and water quality prior to expending funds to construct and test the well. However, the delivery of the water from the well to the system requires the construction of a pipeline. Alternatively, an exploratory test well program allows drilling in areas more proximate to the system where pipeline lengths and costs would be reduced, but the variability in yields and quality in fractured bedrock increases the risk of construction of wells that are unsuitable for use.

Use of existing nearby wells

Several unused bedrock wells are known to exist near Ryan Ranch. These include the wells across Highway 68 on the Monterra property, a well at Stone Creek Shopping Center, and a well at 2801 Monterey Highway (Fenton Well). Of these, the well at Stone Creek Shopping Center appears the most viable. The wells at Monterra only had moderate yields and water quality was poor. The Fenton Well displayed extremely high yield (>200 gpm) and good water quality, but is approximately 1.3 miles from Ryan Ranch. Additionally, the Fenton Well, while currently idle, is proposed to support scheduled development on the property.

Stone Creek Shopping Center Well

This well was drilled in November 1999 under the supervision of this author. The well was drilled to 522 feet and penetrates 26 feet of alluvial materials underlain by Monterey Shale to

bottom. The well is perforated entirely in the Monterey Shale with perforations from a depth of 120 to 480 feet. After the well's construction, a formal 72-hour constant rate pumping test was performed. The well was tested at a rate of 50 gpm and after 72-hours of pumping displayed 18 feet of drawdown resulting in a specific capacity of 2.8 gpm/ft. Based on the pumping test, the well is easily capable of 100 gpm with less than 40 feet of drawdown.

Water quality samples were collected at the conclusion of the pumping test. The laboratory results are summarized below. Presented for comparison is water quality data from California-American Water Ryan Ranch Well No. 11.

Constituent	Stone Creek Well	California-American Water Co. Ryan Ranch System[3]
Total Dissolved Solids	1,030 mg/l	880 mg/l
Hardness	392 mg/l	340 mg/l
Arsenic	0.002 mg/l	0.013 mg/l
Iron	0.11	1.2
Manganese	0.01	0.139
Nitrate	ND	< 1 mg/l
Chemical Character	Sodium Chloride	Calcium Bicarbonate
Sodium Adsorption Ratio	4.3	2.2
Electrical Conductivity	1,760 microsiemens/cm	1,300 microsiemens/cm
Hydrogen Sulfide	0.25 mg/l	trace

The laboratory data reveals the water to be of fair quality, demerited primarily due to elevated concentration of total dissolved solids (TDS). However, the water does meet primary drinking water standards[4] for all constituents measured. The water slightly exceeds the second tier of the secondary standards for total dissolved solids and electrical conductivity. During air-lifting and test pumping the odor of hydrogen sulfide (rotten egg smell) was present in the produced water. The presence of this gas is common in the Monterey Shale. Laboratory analysis quantified the concentration of this gas at 0.25 mg/l.

This well was originally constructed to provide supplemental water supply for the Stone Creek Shopping Center at the time of its development. At the time of the Shopping Center's development, the developer was concerned that the available allocation for the property was going to be inadequate for the prospective tenants. After the well was constructed, the well was equipped with a pump, controls and chlorinator. Extensive additional water quality sampling was performed as part of applying for a permit as a small water system from the MCEHD. The well is currently permitted for use but is idle because the shopping center is able to operate within the original allocation.

Implementation: Use of this well to supplement the Ryan Ranch supply would require an agreement with the owner of the shopping center. After reaching an agreement the well could be used by reequipping the well to pump into the Ryan Ranch system. Given the water quality, the water could likely be pumped directly into the system with only chlorination (unlike the Ryan Ranch wells, this well does not need treatment for iron and manganese). The following improvements would be required:

- The existing pump is designed for a flow rate of 15 gpm. This pump would need to be replaced with a pump sized to pump 100 gpm (~20 HP?) from the well into the Ryan Ranch system.

[3] Water Quality from Cal-Am's system represents water quality in Ryan Ranch (Well No. 11).
[4] The California Department of Health Services enforces a two tiered water quality system. Primary standards are health based and cannot be exceeded. Secondary standards are aesthetic based and are enforced on a case-by-case basis on type of use and availability of alternative supply. Secondary standards for TDS are tiered at 500-1,000-1,500 mg/l corresponding to conductivity values of 900-1600-2400 microsiemens/cm.

- The chlorinator would need to be resized for the increased flow rate.
- Pipeline from the well would need to cross Stone Creek Shopping Center parking lot, cross Canyon del Rey Creek, cross Highway 218 and extend 1,700 feet to tie-in at the intersection of Highway 68 and Ragsdale.
- SCADA tie-in

Schematic of the required improvements is included as Figure 4.

Estimated Yield: 100 gpm. Likely more, but additional testing may be required.

Costs: The costs associated with the agreement and the water purchase costs are difficult to predict. Costs for improvements described, including 20% for engineering/legal/admin and 30% contingency, are estimated at $340,000. Cost estimate is included in as Table 4.

Challenges: An agreement to use the well would need to be developed and executed with the well owner. Permission from MCEHD to add a new source to Ryan Ranch will also be required. However, since the well has already been approved and permitted, this is considered procedural.

Bedrock Well Test Drilling Program in Ryan Ranch

Implementation:
Implementation of a test well program would entail the following:

- Potential well sites would need to be identified and permission to drill a test well with the possibility of permanent installation acquired.
- Wells would be drilled and tested to assess yield and quality.
- Data would be evaluated to determine whether water could be directed into system or whether site would need raw water line to treatment plant.

Costs:
Costs of acquiring well sites are difficult to estimate. Some well site easements might be provided as a condition of service. Other sites may require fee title. For budgetary purposes, the costs of test wells with testing and hydrogeologic support are estimated at $50,000. If the well is successful, pump, controls and power costs are estimated are estimated at $40,000. Pipeline costs would be contingent on the need for treatment and the distance to the treatment plant. At some locations, the cost of raw water piping to the treatment plant could easily cost more than the well and improvements.

Challenges:
Securing Well Sites

ASR POSSIBILITIES

Background:

Aquifer storage and recovery (ASR) is the utilization of a ground water basin to store water imported from an alternative source and the subsequent use of this water to meet demands. In its simplest form, water from a surface water source is injected through wells into the ground water basin during periods when supply is available and later extracted from the basin during drier periods. The use of ASR can increase basin yield by capturing and storing water that would be otherwise lost for recovery during times when water is not available. A successful ASR program

has several requirements. First and foremost is a source of available water. This is typically a seasonally available surface water source that is treated for injection into the ground water basin. Secondly, the receiving ground water basin must have capacity to store the injected water. Thirdly, the aquifer hydraulic properties must be such that injection wells can take the available water at rapid enough rates to justify the infrastructural improvements required to implement the program.

ASR in Ryan Ranch

Several ideas for ASR in Ryan Ranch have been advanced. One of the suggestions includes the use of the currently idle Ryan Ranch Wells No. 2 and No. 9. These wells are scheduled for destruction and it was suggested that they may have residual value as injection wells. This idea is considered impractical for several reasons. These wells are scheduled for destruction because they have historically had low yields and/or poor water quality. As such, these wells would perform poorly as injection wells in that injection rates, for operational reasons[5], are necessarily less than extraction rates. Given these operational constraints, the injection rates would be extremely low. In addition, the wells in Ryan Ranch produce water that needs treatment prior to being delivered to the consumer, injection of high quality water into the wells would likely require that the water be treated twice. While the conditions at Well Nos. 2 and 9 are particularly poor, none of the wells in Ryan Ranch are particularly attractive for injection for these same reasons.

ASR Concepts utilizing Carmel River/Main System Water

Description: In most ASR programs, water is injected into the ground water basin through wells for later use; however, in some situations imported water is used directly, allowing the ground water basin to relax and accrue storage from natural recharge. This latter approach is typically referred to *in-lieu ASR* where the storage is achieved substituting alternate supply for ground water supplies that would have been extracted. It is this in-lieu ASR concept that has the most opportunity to supplement the Ryan Ranch supply. The Ryan Ranch System could be provided peaking capacity and reduce its overall extractions from the Seaside Basin. The program would involve the following:

Similar to the existing to the operations of the District and the Company's ASR program, seasonally available excess water from the Carmel River would be diverted into the Company's system. The availability of excess water has been demonstrated through numerous analyses performed by the District and others. Based on historical data, it can be conservatively estimated that in most years excess flows are available January through April. The in-lieu ASR program as described below assumes this four month period.

Water would be diverted through the existing Ryan Ranch intertie and a newly installed Bishop-Ryan Ranch (BR-RR) two-way intertie to meet these systems' demands during the period of water availability. When water from Carmel River is no longer available, the intertie between the main system and Ryan Ranch System would be closed. Ryan Ranch and Bishop Ranch wellfield would be reactivated after being idled while alternative supplies were available. The BR-RR intertie would remain open allowing Ryan Ranch system to peak off the Bishop System when supply shortfalls occur.

Operation in this manner could result in the banking of the total aggregate demand of the Ryan Ranch and Bishop Ranch systems during the period when water was available. The monthly use

[5] Injection wells are typically operated at 50% of extraction rates to assure the ability to effectively backflush the wells to prevent permanent clogging.

of these two systems for 2005 is presented in Table 4 -- Ryan Ranch and Bishop Ranch System Demand – 2005 below. Reviewing the current use of these systems and assuming 4 months (January – April) of operation, approximately 47 acre-feet of water, or 67% of the Ryan Ranch System demand, could be banked during the storage period. In wet years with extended periods of flow in the Carmel River, the amount banked could be greater. If the intertie was open through May, the amount banked would be approximately 100% of Ryan Ranch systems current demand. In drought years, the Ryan Ranch System would recover the banked storage through use of the Ryan Ranch and Bishop Wells.

Table 4 - Ryan Ranch and Bishop Ranch System Demand – 2005 (acre-feet)

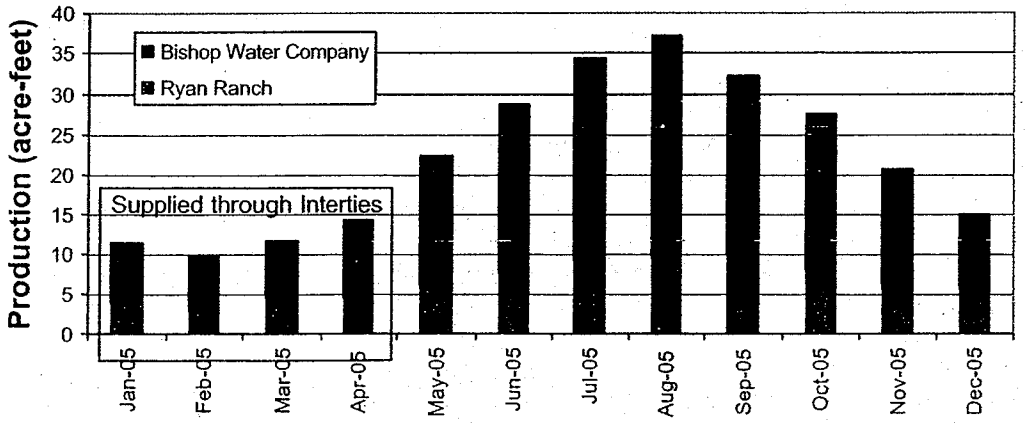
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Ryan Ranch	**3.7**	**2.9**	**4.4**	**4.4**	5.9	7.4	9.1	9.5	7.4	6.6	4.9	4.1	70.2
Bishop Ranch	**7.5**	**6.8**	**7.3**	**10.0**	16.4	21.2	25.2	27.7	22.5	19.6	15.2	9.2	188.6
Total	**11.2**	**9.7**	**11.6**	**14.4**	22.4	28.6	34.3	37.2	29.9	26.2	20.1	13.3	258.8

Operationally, the above could be achieved with limited impact on the main system. During the storage period, the Ryan and Bishop systems would operate off their respective tank storage during the day and have tank storage replaced at night by opening the Main System Intertie. This would allow cycling of the water in the tanks and would take water off the main system during times when demand is low. Assuming the intertie was open 8 hours per night this would require flows from the main system into Ryan and Bishop as shown below:

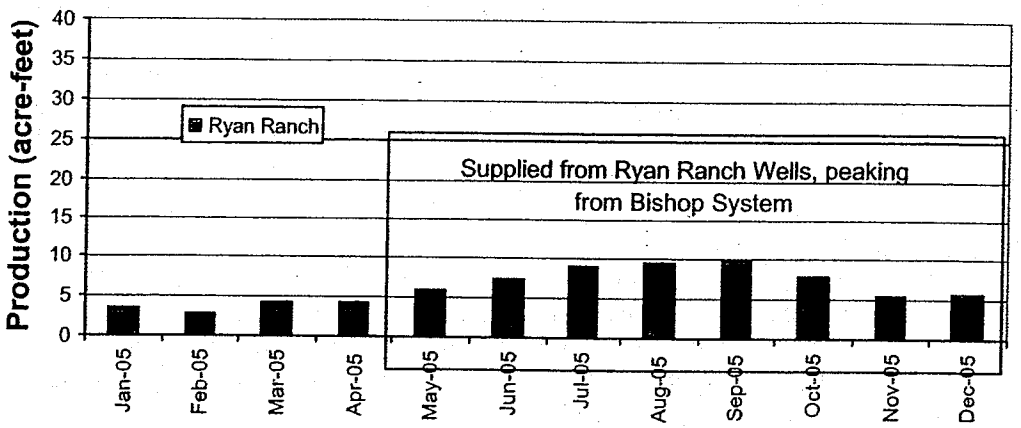
	Jan	Feb	Mar	Apr	May
Daily Intertie Flow Rate (gpm)	246	235	254	326	490

These flow rates are understood to be within the range that are currently delivered through the intertie. However, the duration of time that water would be delivered might need to be adjusted to accommodate for systems hydraulics which might require a lower rate.

During the summer period, Ryan and Bishop systems would operate on their respective wellfields. The graphs below show the generalized operation of the in-lieu ASR project.



WINTER (STORAGE)



SUMMER

While Ryan Ranch wellfield/storage is sufficient in most cases to meet demand, in the event of demand spikes, Ryan System would take water from Bishop System through the BR-RR intertie. This linkage would not burden the Bishop Ranch system as each of the two wells that support this system is capable of discharge rates in excess of 300 gpm.

Water Budget: As stated above, assuming a storage period of 4 months supplying in-lieu supply to both Bishop and Ryan Ranch systems the volume of water banked would be on the order of 47 acre-feet. Assuming 10 "demand emergencies" in Ryan Ranch where water was taken from the Bishop system at a rate of 120 gpm for 4 hours, the "take" from the banked water would be approximately 10 acre-feet, resulting in a net annual storage of 37 acre-feet. At this rate of banking, the system would bank its annual demand every two years, allowing for variations in availability of in-lieu supply.

A simpler variant of the above in-lieu ASR project would be to supply only Ryan Ranch and not Bishop Ranch. This variant would still require a one-way[6] intertie with the Bishop System to provide for peak supply. This variant would also result in the storage of significantly less water (15 acre-feet) with no benefit to the ground water basin in the Bishop area where peaking flows would be derived. However, as discussed below, the necessary infrastructural improves are significantly less.

Impacts/Benefits to Laguna Seca Seaside Basin. An in-lieu ASR program as described would result in recharge to the Laguna Seca Subarea of the Seaside Basin. The cessation of extractions from the Ryan and Bishop Ranch wellfields during the storage period will result in the recovery of ground water levels due to aquifer relaxation and seasonal recharge. When extractions are reinitiated, well performance will be enhanced due to the higher water levels. As the bulk of the water replaced are the extractions from Bishop Ranch system, the benefits from the in-lieu ASR program would accrue disproportionally to the eastern portion of the Laguna Seca Subarea, an area where water levels are declining due to concentrated extractions.

Implementation - Infrastructure
Implementation on the in-lieu ASR as outlined above would require the following:

[6] Pressure in Bishop System is higher than Ryan Ranch. Booster is only need to go from Ryan Ranch to Bishop.

- An intertie between the Ryan Ranch and Bishop Ranch Systems is an essential component of the in-lieu ASR concept in that it provides for recharge to the Bishop Ranch System and provides peaking for the Ryan Ranch System. The proposed intertie would consist of approximately 250 feet of 8-inch diameter pipe crossing York Road at approximately Blue Larkspur Lane. The intertie would be valved and metered such that transfers between the two systems can be quantified. The construction of an intertie would have ancillary benefits to both systems in that it would decrease the vulnerability of both the Ryan Ranch and Bishop Ranch systems to contamination or terrorist acts.

- Because the pressure of the Bishop Ranch System is higher than the Ryan Ranch System, a Booster Station will be required to move water from Ryan to Bishop. It would be possible to configure the in-lieu project such that the booster station was not required by building a pipeline from the Main System Intertie to York Road, thereby eliminating the energy loss into Ryan Ranch. However, this alternative has almost twice the capital costs.

- Various valves will be required to implement this option. An altitude valve will be required at the Ryan Ranch tank. A solenoid valve and pressure reducing valve will be required on the intertie between the Ryan Ranch and Bishop Systems.

Schematics of the three alternatives are included in as Figures 1-3.

Costs: Capital costs for the BR-RR two-way intertie, booster station and valving needed to implement the full project are estimated at $380,000 including engineering, legal and administrative costs. Operation and maintenance costs for the booster station are estimated at $2,500 per year. Cost for a one-way intertie for the smaller alternative where water from the main system intertie is delivered only to Ryan Ranch is estimated at $90,000 inclusive of engineering, legal, contingency and administrative costs. Cost estimates are included in Tables 1 through 3.

Overall Challenges:

Although the implementation of an in-lieu ASR program in the Ryan/Bishop area is technically relatively simple, the challenges associated with getting permission to use water from the Carmel River system in this manner are significant. The thorough review of these issues and identification of a path through these hurdles is beyond the scope of this document. However, some ideas and perspective on this issue are presented below:

- The District has filed Petitions for Water Rights with SWRCB to divert up to approximately 7,900 afy of "excess" water from the Carmel River for ASR in the Seaside Basin. In support of these Petitions, the District has performed a Water Availability Analysis (dated November 17, 2003), which takes into account the most recent NMFS/NOAA Fisheries report (dated June 3, 2002) on bypass requirements to meet the instream flow needs for steelhead in the Carmel River. The analysis shows that an average of over 48,000 afy of "excess" flow is available on the river while still meeting the minimum instream flow needs. However, the 48,000 afy "excess" volume is constrained by the current maximum allowable diversion rate of 80 cfs, which reduces the average "excess" flow volume to approximately 7,200 afy. The 80 cfs maximum diversion rate is acknowledged as being somewhat arbitrary, and is based on limiting diversions to no more than 5 percent of the 2-year flow event to provide adequate "flushing" flows for channel maintenance. In its report, NOAA Fisheries noted that "Additional field study of the river's geomorphology and sediment transport

characteristics may demonstrate the somewhat higher levels of diversion can be accommodated without undue adverse impact". An additional 10 cfs of diversion capacity would equate to an average of approximately 1,500 afy of additional "excess" flow that could potentially be captured. The Company and/or the District could/should undertake these studies to determine if "excess" flows somewhere between the 7,200 and 48,000 afy 'end-points' are in fact available.

- The District is in the final stages of the environmental review for a permit to take "excess" water from the Carmel River for the Phase 1 Seaside Basin ASR program. It is anticipated that the permit will allow taking, river conditions permitting, the amount of water necessary for the District's Phase I ASR Project – an average of approximately 1,000 afy Phases 2 and 3 of the District's ASR Project to achieve 7,900 afy capacity have been conceptually identified, but no environmental review has been initiated for project sizes beyond Phase 1. It is anticipated that the District will not have the facilities or permits to use all of the "excess" available water for at least 5 years. In the interim, it may be possible to obtain permits to use a small portion of the remaining "excess" water to provide for in-lieu ASR in the Ryan/Bishop Ranch portion of the Seaside Basin.
- The rules and framework of the newly formed Seaside Basin Watermaster may provide a basis and mechanism to allow in-lieu ASR as a method of replenishment of the Seaside Basin.
- In reviewing the District's application for their Seaside ASR, the fisheries agencies have filed protests with the SWRCB and have commented on the District's Phase 1 ASR Project DEIR/EA. It is our understanding that the principal concern of these agencies is ensuring that the benefits of taking of "excess" winter/spring flows from the Carmel River System for seasonal storage in the Seaside Basin accrue to the Carmel River System during drier periods, i.e., if 1,000 afy is diverted to storage from the river in the winter/spring then 1,000 afy less water should be diverted/pumped from Carmel River System during critical dry periods. In other words any available "excess" water must first be used on a one-for-one basis towards restoring the Carmel River System until a source for the 10,730 afy of "illegal" diversions per Order 95-10 has been secured (i.e., via the CWP, expanded ASR, or other sources). It is our understanding that the District is currently negotiating Mitigation Measures language for the Phase 1 EIR/EA to satisfy the agencies concerns. Given this backdrop, therefore, even though the in-lieu ASR would benefit the Seaside Basin, the benefit to the Carmel River may not be viewed to be sufficiently direct for these agencies.
- The District and possibly the PUC may have concerns regarding the Ryan-Bishop intertie. The District's concerns can likely be mitigated if its use is part of a defined plan with rules for its use. The PUC may have concerns as to how and where the costs of intertie and its operation are included in the rate bases

DEMAND MANAGEMENT

Whereas the above discussions have focused on possible approaches to supplementing the Ryan Ranch Water System supply, this section provides suggestions toward reducing system demand.

The Ryan Ranch Water System currently serves predominately light-industrial/office users. Water provided is utilized predominantly for indoor sanitation, industrial process, and landscape irrigation. It is estimated that the on an annualized basis, use is approximately equally split between indoor and outdoor use. Indoor use is predominately on weekdays during daylight hours. Much of the landscape irrigation occurs at night.

Although the users of the main system have been under strict water conservation rules for years, the Ryan Ranch System was not included in these restrictions. Currently, water conservation efforts in Ryan Ranch are limited to those contained in the UPC – the requirements that stipulate low-flow toilets and low-flow shower heads, and recirculating hot water. There are no restrictions on the type of landscaping, although most properties have installed drought tolerant landscaping because it is required elsewhere on the peninsula.

The reduction of demand that might be achieved by instituting stricter water conservation requirements for indoor use is hard to quantify. Undoubtedly, some reduction could be achieved. However, exterior water use can likely be significantly reduced through adoption of landscaping and irrigation guidelines.

All of the development in the Ryan Ranch Office Park has occurred since 1990. Each development was landscaped at the time of construction. Most are equipped with outdoor irrigation systems controlled by multi-station time-clocks set to apply measured amounts of water. These controllers are typically set at the time of planting when plant water demands are substantially higher than when plantings are established. Often these controllers are never reset to match the reduced water demands of the established plants or reset for seasonal changes in water demand. In sandy soils, such as occur in Ryan Ranch, the application of water in excess of the plants requirements results in little runoff, the excess water simply infiltrating below the plants roots. In addition, because time-controlled irrigation applies water on a set schedule regardless of the weather, there is a tendency to program for over-irrigation to assure sufficient water is applied for the driest hottest periods.

Better management of the irrigation water in Ryan Ranch could result in significant savings in annual demand. This could be achieved through irrigation water audits or adoption of more sophisticated irrigation controllers. A new generation of irrigation controllers have emerged which achieves a better match of applied water with plant water demand. These controllers base water application on evapotranspiration (ET) data based on real-time local weather information. The ET data are sent to the controller through a daily satellite page. The controller then recalculates the appropriate run times for each station. The District has tested one of these controllers at their office in Ryan Ranch over the last year and has seen a 33% decline in the amount of irrigation water for their office landscaping compared to the average of the last 3 years. The manufactures claim reductions of up to 40% depending on the nature of the landscaping and the soil type.

Adoption of ET-based controller technology in Ryan Ranch could yield real reductions in water demand. This reduction in demand would occur during the drier portions of the year; the period when the current supply system struggles to meet demand. A 30% reduction in exterior use would result in an approximate demand reduction of 10 acre-feet per year or the equivalent of a continuous pumping rate of 12 gpm over the irrigation season (180 days). Achieving this reduction would require the adoption of ET-based controllers by all users.

Implementation:

Reducing the irrigation demand could be achieved through the following:

- Establish rebate program for installation of ET-Based Irrigation Controllers. This could be encouraged through incentives similar to those used for low-flush toilets.

- Similar programs are currently offered by San Diego Water Authority, East Bay Municipal Utility District, Contra Costa County Water and Santa Clara Valley Water District, among others.
- Work with District to include Ryan Ranch and Bishop into District's conservation rules
- Work with District to adopted rules regarding landscape irrigation efficiency.
- Require periodic irrigation water audits unless property has ET-based controller.

Costs: It is understood that there are approximately 25 irrigation services in Ryan Ranch. It's estimated that each service has a single 12- or 24-channel controller. Based on discussions with various vendors it is understood that professional grade ET-based controllers cost between $500 and $700 depending on the number of stations. Assuming $1,000 parts and labor per service, the cost of replacing all of the controllers would be about $25,000 dollars. This estimate was confirmed with a local irrigation consultant. Given the administrative costs for the program the cost to the Company might increase to $50,000. There is also an annual fee for the ET data of $48 per year per controller after the second year. This fee could be paid by the user or perhaps some type of rebate from the Company.

Challenges: Compared to many of the options, the envisioned challenges are few. There will be resistance to change but with a good education program and rebates, the users should be able to see the financial benefits to lowering their water bills.

SUMMARY

A summary of the options discussed are presented on Table 5.

CONCLUSIONS AND RECOMMENDATIONS

Options for increasing the production and reliability of the Ryan Ranch Water System exist. Most of these options require the cooperation of other agencies or landowners. As such, the ability to implement these relies on more on negotiation than engineering. The costs provided reflect the infrastructural costs. The costs associated with time to secure permission and agreements with concern parties are difficult to estimate. As such, an alternative with a relatively high infrastructural cost may actually be less expensive that one with less infrastructural costs and a high permitting cost.

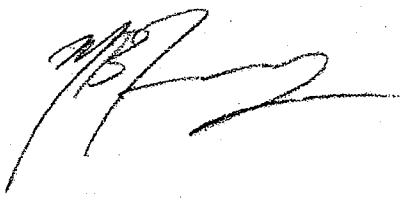
General Comments:

- The most quickly implemented option is the optimization of the pumps/motors in the existing wells to maximize the production. Implementation of this option does not require permission of any agency and can be performed at the Company's discretion. It is recommended that the Company move ahead with this option as soon as possible.
- It is understood that the Ryan Ranch System will be supplied entirely through the intertie in the coming months to allow maintenance on the tank. During this time the Ryan Ranch Wells will be shut down. This is the perfect opportunity to assess and reequip these wells. It is assumed that only Well No. 7 is cost-effective to lower the pump. This well should be formally test pumped for 4 to 8 hours to assess current well performance. The data should be used to evaluate whether the existing pump and motor can perform from the proposed deeper setting. If the existing pump and motor are adequate they should be lowered to the new setting. If the pump and motor are not suitable they should be replaced with a pump and motor matched to the new setting and flow rate.

- The Stone Creek Shopping Center Well represents a relatively rapidly adoptable source of additional supply which could double existing well capacity. Water quality is only slightly poorer than the existing system and given the nature of the use in Ryan Ranch would likely be allowed for use. Although on its face the use of an offsite well to supplement supply seems counter-intuitive, given the amount of data available and investment that has gone into the well and the level of permitting already completed, the use this well might be a relatively easily implemented solution.
- Although previous attempts to develop economical amounts of water from the Monterey Shale in the Ryan Ranch area have been unsuccessful, the apparent success of the new well at Swain Court in Ryan Ranch raises the possibly that wells with discharge rates comparable to the existing wells may be possible at some locations, an that the potential of the Monterey Shale is not fully understood. If well sites are available, a test well program to explore the potential of the Monterey Shale in the southern portion of Ryan Ranch might be considered.
- The use of excess flows in the Carmel River would support an in-lieu ASR program that would improve the reliability of the Ryan Ranch System and provide benefit to the Laguna Seca Subarea of the Seaside Basin in the form of replenishment. However, permission to utilize this water for this use may be difficult to obtain.
- The area north of Ryan Ranch that was formerly Fort Ord is believed to be hydrogeologically superior to Ryan Ranch. As such, it has been recommended that a new production well be located in this area. However, constructing and operating a well at this location will have significant jurisdictional and permitting challenges. It is recommended that a test hole be drilled at the location to confirm the hydrogeologic conditions before serious efforts to secure and permit a permanent well site are undertaken.
- There is a significantly opportunity to reduce demand in the summer months when the system production has historically fallen behind demand through aggressive irrigation management. It is projected that through the implementation of water audits coupled with ET Controllers total system summer demand can be reduced by 15 percent.
- The some of the options above work together cumulatively. A reduction in demand during the summer months through the use of improved irrigation management would decrease the likelihood of having to "peak" off the Bishop System. This would increase the annual volume of water banked through in-lieu recharge and provide for a larger drought reserve.

The opportunity to be of service is appreciated. I look forward to discussing these ideas with the Company at your convenience.

Sincerely,



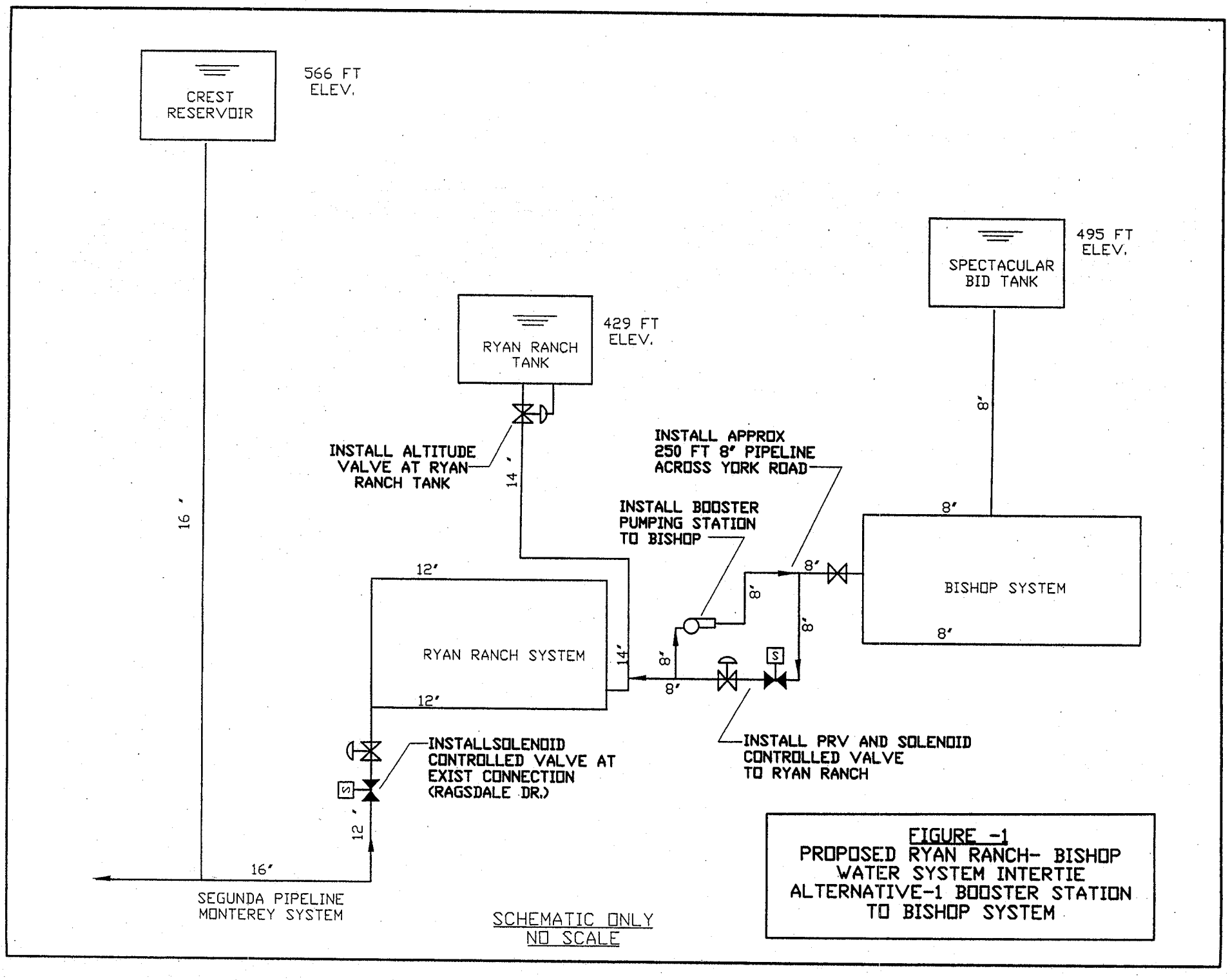
Martin B. Feeney
Attachments: Table 5 Tables A1-A6, Figures 1-4

TABLE 5 - Summary of Water Supply Alternatives

	Possible Yield (gpm)	Possible Yield (AF/Y)	Cost to Implement ($1,000)	Seaside Basin	Implementation (months)	Interested, Involved Agencies	Overall Feasibility	Cost per gpm	Required Infrastructure	Critical Issue
Ground Water Sources										
Within Seaside Basin										
Reequip/Modify Existing Wells	20		10	Y	<1	1	*****	$ 500	New Pump (?)	
New Well @ Granite Site	50		280	Y	3?	1,2	**	$ 5,600	Well, Controls, Power,Pipeline to system	Landowner Permission
New Well @ S. Boundary Rd.	200		270	Y	>24	1,2,3,4, 5,6	*	$ 1,350	Well, Controls, Power,Pipeline to system	Jurisdictional Conflicts
Outside Seaside Basin										
Stonegate Well	100		340	N	9	1,3	***	$ 3,400	Pipeline to RR System, Upsize Pump Chlorinator, Power	Well Owner Agreement
Aquifer Storage and Recovery										
Ryan Ranch In-lieu - Carmel Valley Source		11-17	90			2,7,8,9	**		Bishop Intertie	Approval to use excess Carmel River flows
Ryan/Bishop In-lieu - Carmel Valley Source		36-54	380			2,7,8,9	**		Bishop Intertie, Booster Station, PRV	Approval to use excess Carmel River flows
Demand Management										
Landscape Irrigation Management										
ET Controller Rebate Program	12	10	50		8	2	*****	$ 4,167		
Interior Water Conservation										District Support/Regulation

1-MCEHD, 2-MPWMD, 3-City of Monterey, 4-FORA, 5-MCWD, 6-LAFCO, 7-NOAA Fisheries, 8-SWRCB, 9-PUC

TABLE 5 - Summary of Water Supply Alternatives



SCHEMATIC ONLY
NO SCALE

FIGURE -1
PROPOSED RYAN RANCH- BISHOP WATER SYSTEM INTERTIE
ALTERNATIVE-1 BOOSTER STATION TO BISHOP SYSTEM

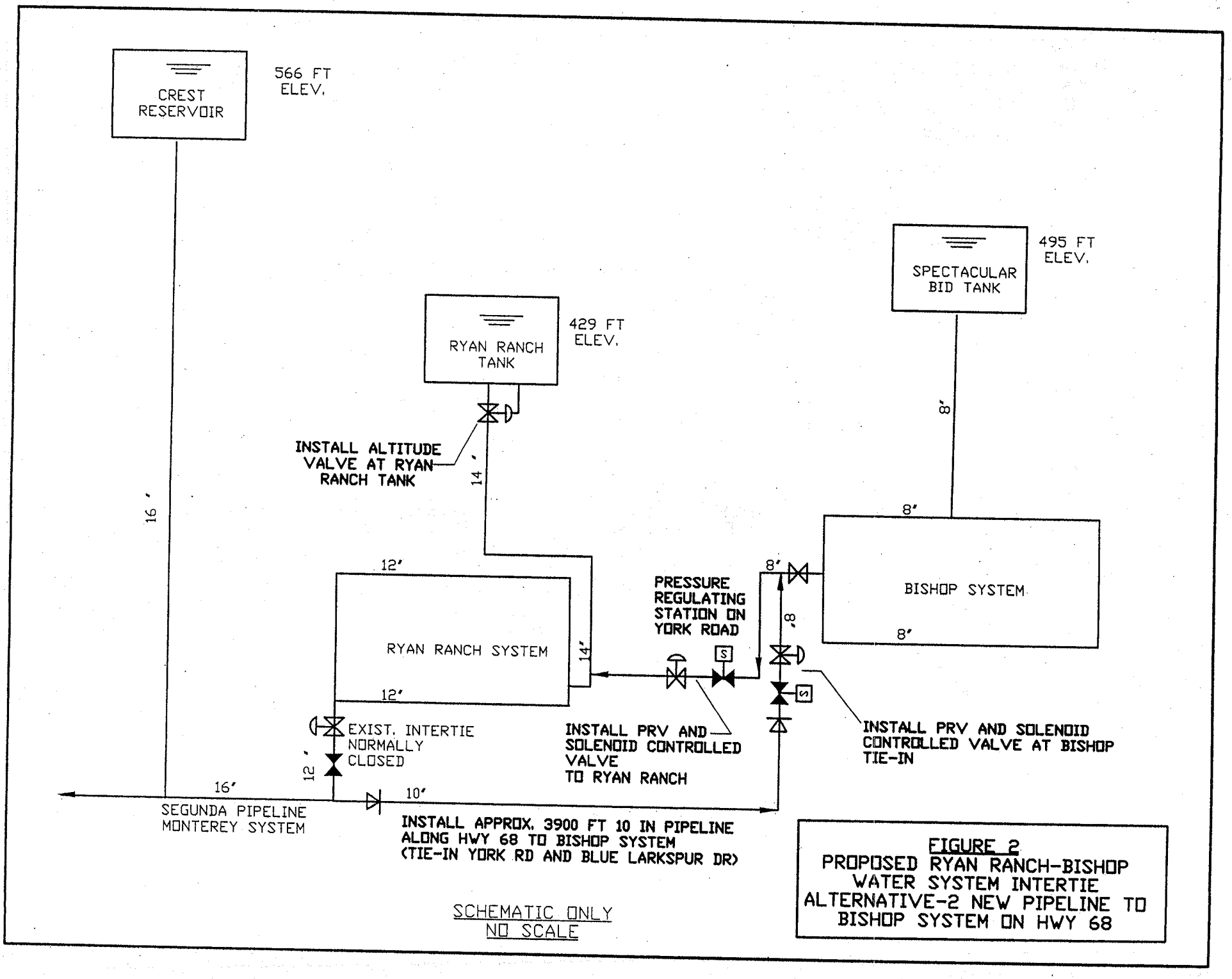
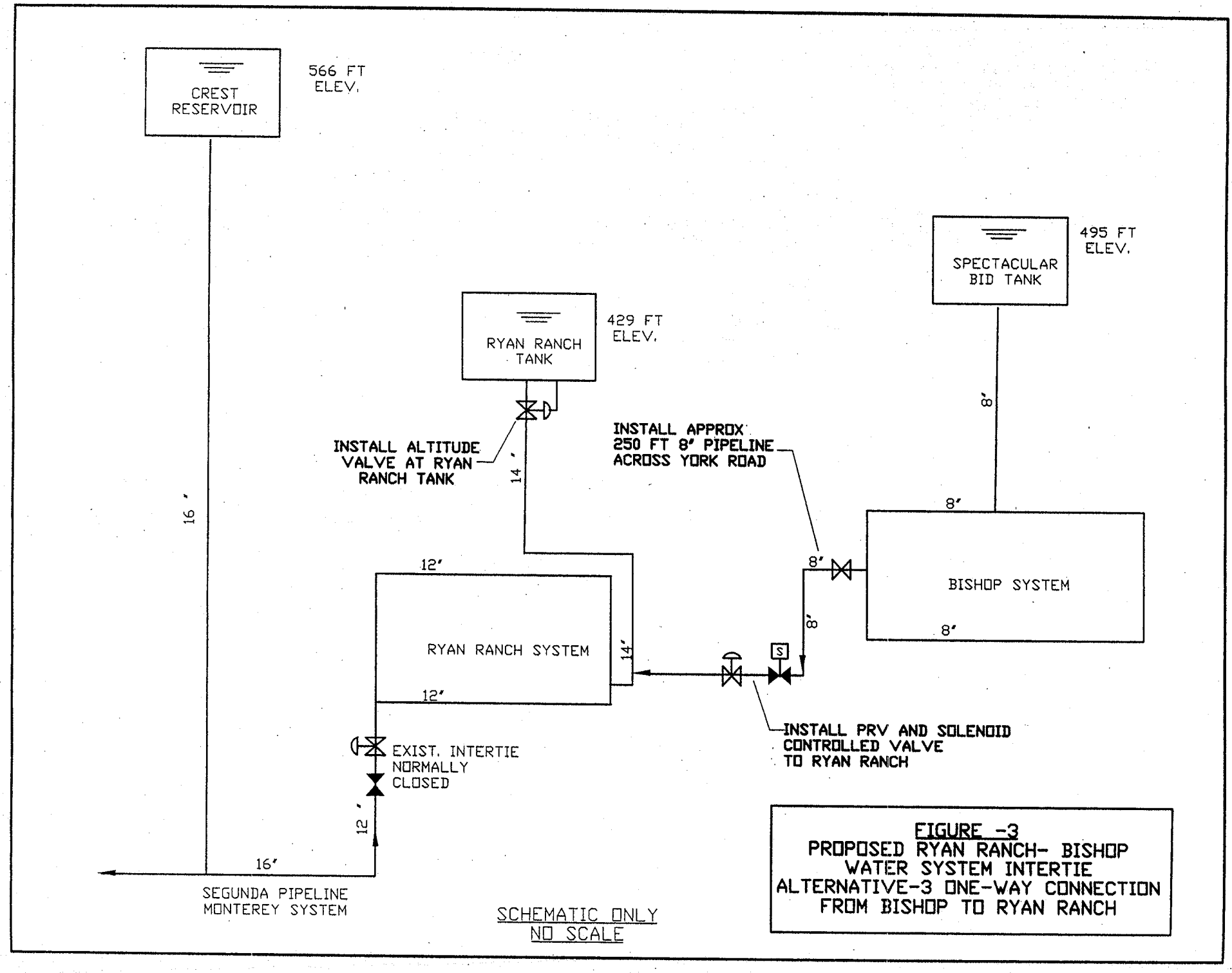
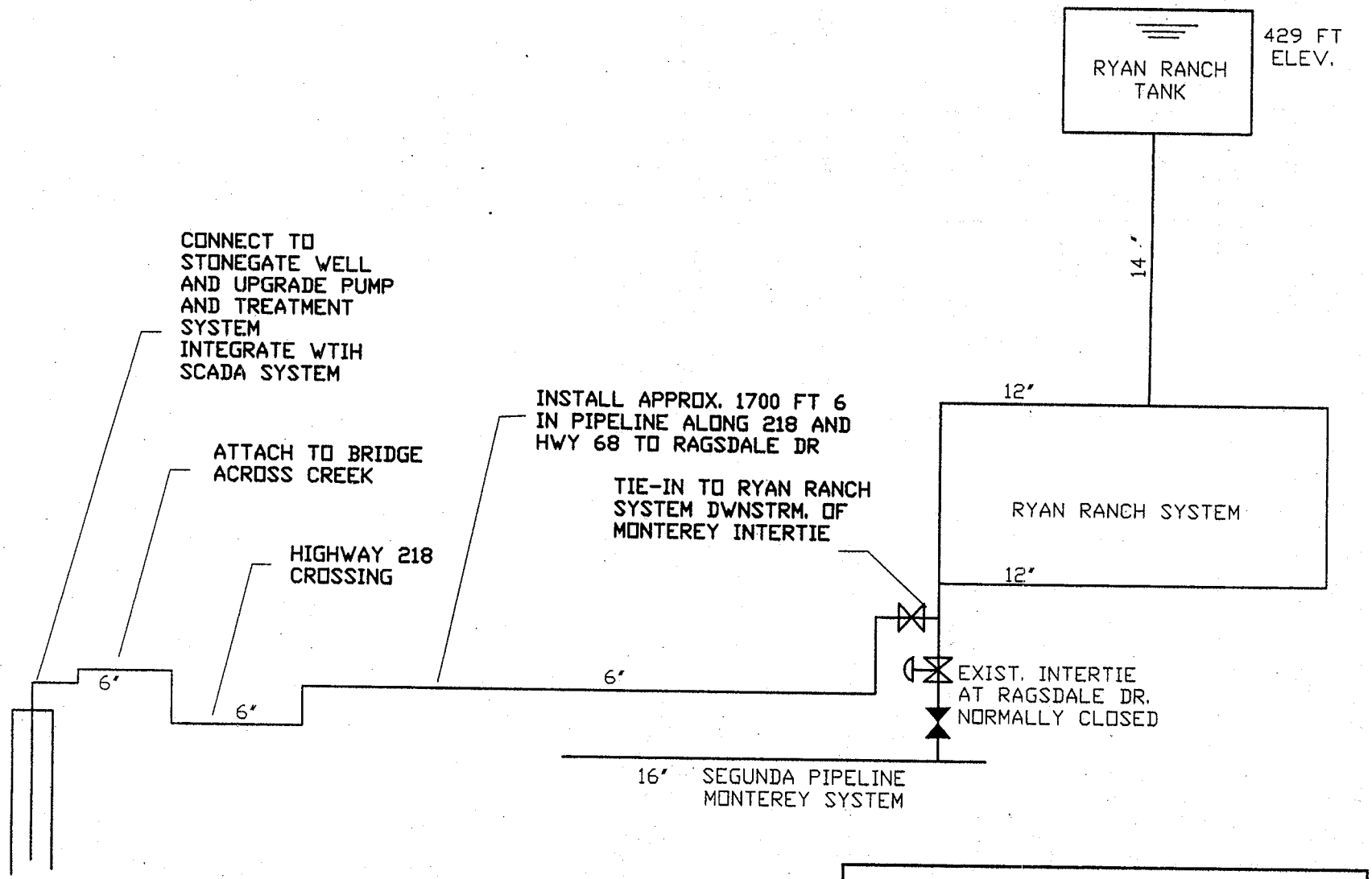


FIGURE 2
PROPOSED RYAN RANCH-BISHOP WATER SYSTEM INTERTIE ALTERNATIVE-2 NEW PIPELINE TO BISHOP SYSTEM ON HWY 68


CREST RESERVOIR
566 FT ELEV.
SPECTACULAR BID TANK
495 FT ELEV.
RYAN RANCH TANK
429 FT ELEV.
INSTALL ALTITUDE VALVE AT RYAN RANCH TANK
INSTALL APPROX 250 FT 8" PIPELINE ACROSS YORK ROAD
16"
14"
8"
12"
RYAN RANCH SYSTEM
BISHOP SYSTEM
S
INSTALL PRV AND SOLENOID CONTROLLED VALVE TO RYAN RANCH
EXIST. INTERTIE NORMALLY CLOSED
12"
16"
SEGUNDA PIPELINE MONTEREY SYSTEM
SCHEMATIC ONLY NO SCALE
FIGURE -3
PROPOSED RYAN RANCH- BISHOP WATER SYSTEM INTERTIE
ALTERNATIVE-3 ONE-WAY CONNECTION FROM BISHOP TO RYAN RANCH



SCHEMATIC ONLY
NO SCALE

FIGURE 4
PROPOSED RYAN RANCH CONNECTION TO STONEGATE WELL, HWY 68

Table A1:
Ryan Ranch/Bishop-Water Supply Augmentation Options
Two-way Connection to Bishop Water Sytstem, RechargeThrough Ryan Ranch
Preliminary Capital Cost Estimate

	Item Description	Quantity	Unit	Unit Price Including Installation	Cost[1.]	Capital Cost[2.]
1	Install altitude valve on Ryan Ranch tank	1	ls	$10,000	$10,000	$15,600
2	Install solenoid valve at Ragsdale intertie	1	ea	$10,000	$10,000	$15,600
3	Booster pump station at York Rd., 25 HP[3.]	1	ls	$160,000	$160,000	$249,600
4	Install PRV bypass to Ryan Ranch w/solenoid valve inside booster station at York Rd.	1	ls	$15,000	$15,000	$23,400
5	New PG&E service, York Rd.	1	ls	$20,000	$20,000	$31,200
6	Connecting pipeline, across York Rd to Bishop system	250	ft	$80	$20,000	$31,200
7	SCADA integration	1	ls	$10,000	$10,000	$15,600
				Total Project Capital Cost=		**$380,000**

1. CA DGS CCCI (MAY 2006)= 4599
2. Capital Cost includes 20 % engineering/ legal /administrative and 30% contingency.
3. Does not include standby power, since backup exits with Bishop and Ryan Ranch wells.

Table A2:
Ryan Ranch/Bishop-Water Supply Augmentation Options
Two-way Connection to Bishop Water Sytstem, Recharge via Pipeline on Hwy 68
Preliminary Capital Cost Estimate

	Item Description	Quantity	Unit	Unit Price Including Installation	Cost[1.]	Capital Cost[2.]
1	Install altitude valve on Ryan Ranch tank	1	ls	$15,000	$15,000	$23,400
2	Install two-way pressure station at York Rd.	2	ls	$40,000	$80,000	$124,800
3	Install 10" recharge pipeline Hwy. 68 to York R	3650	ft	$80	$292,000	$455,520
4	Install 8" pipeline to Bishop across York Rd.	250	ft	$80	$20,000	$31,200
5	SCADA integration	1	ls	$5,000	$5,000	$7,800
			Total Project Capital Cost=			**$630,000**

1. CA DGS CCCI (MAY 2006)= 4599
2. Capital Cost includes 20 % engineering/ legal /administrative and 30% contingency.

Table A3:
Ryan Ranch/Bishop-Water Supply Augmentation Options
One-way connection from Bishop to supply Ryan Ranch
Preliminary Capital Cost Estimate

	Item Description	Quantity	Unit	Unit Price Including Installation	Cost[1.]	Capital Cost[2.]
1	Install altitude valve on Ryan Ranch tank	1	ls	$15,000	$15,000	$23,400
2	Install one-way pressure station at York Rd.	1	ls	$20,000	$20,000	$31,200
3	Connecting pipeline, across York Rd	250	ft	$80	$20,000	$31,200
4	SCADA integration	1	ls	$2,500	$2,500	$3,900
			Total Project Capital Cost=			**$90,000**

1. CA DGS CCCI (MAY 2006)= 4599
2. Capital Cost includes 20 % engineering/ legal /administrative and 30% contingency.

Table A4:
Ryan Ranch/Bishop-Water Supply Augmentation Options
Connection to Stonegate Well
Preliminary Capital Cost Estimate

	Item Description	Quantity	Unit	Unit Price Including Installation	Cost[1.]	Capital Cost[2.]
1	Wellhead upgrades, pump and treatment sys	1	ls	$20,000	$20,000	$31,200
2	Parking lot and creek crossing	1	ls	$25,000	$25,000	$39,000
3	Highway 218 Crossing	100	ft	$250	$25,000	$39,000
4	Pipeline on 218, Highway 68	1700	ft	$80	$136,000	$212,160
5	SCADA tie-in	1	ls	$10,000	$10,000	$15,600
				Total Project Capital Cost=		**$340,000**

1. CA DGS CCCI (MAY 2006)= 4599
2. Capital Cost includes 20 % engineering/ legal /administrative and 30% contingency.

Table A5:
Ryan Ranch/Bishop-Water Supply Augmentation Options
Connection to New Well at Granite Construction Site
Preliminary Capital Cost Estimate

	Item Description	Quantity	Unit	Unit Price Including Installation	Cost[1]	Capital Cost[2]
1	Well Installation	1	ls	$60,000	$60,000	$93,600
2	New PG&E service to well	1	ft	$20,000	$20,000	$31,200
3	6" pipeline to exist. raw water pipeline on Upper Ragsdale Dr.	1100	ft	$80	$88,000	$137,280
4	SCADA tie-in	1	ls	$10,000	$10,000	$15,600
			Total Project Capital Cost=			**$280,000**

1. CA DGS CCCI (MAY 2006)= 4599
2. Capital Cost includes 20 % engineering/ legal /administrative and 30% contingency.

Table A6:
Ryan Ranch/Bishop-Water Supply Augmentation Options
Connection to New Well on North Boundary of Ryan Ranch, Rancho Saucito and South Boundary Rd.
Preliminary Capital Cost Estimate

	Item Description	Quantity	Unit	Unit Price Including Installation	Cost[1.]	Capital Cost[2.]
1	Well Installation	1	ls	$120,000	$120,000	$187,200
2	New PG&E service to well	1	ft	$20,000	$20,000	$31,200
3	6" pipeline to exist. raw water pipeline on Upper Ragsdale Dr.	250	ft	$80	$20,000	$31,200
4	SCADA tie-in	1	ls	$10,000	$10,000	$15,600
				Total Project Capital Cost=		**$270,000**

1. CA DGS CCCI (MAY 2006)= 4599
2. Capital Cost includes 20 % engineering/ legal /administrative and 30% contingency.