Appendix B7

Rules and Regulations
Governing the Operation and
Distribution of Irrigation Water within the
Solano Irrigation District Service Area

Rules & Regulations

Governing the Operation and Distribution of Irrigation Water

Within the Solano Irrigation District Service Area

November 20, 2012

The intent of this document is to supersede

"Rules & Regulations for Distribution of Water in the Solano Irrigation District"

(Revised 1980)

Rules & Regulations

Governing the Operation and Distribution of Irrigation Water

Within the Solano Irrigation District Service Area

PREAMBLE

These Rules and Regulations Governing the Operation and Distribution of Irrigation Water within the Solano Irrigation District are established pursuant to California Water Code Section 22257 which states that, "each District shall establish rules for the distribution and use of water, which shall be printed in convenient form for distribution in the district." Solano Irrigation District has established these rules to ensure equitable, economical, and efficient distribution, use, and conservation of water resources available to the District. The Solano Irrigation District is dedicated to and will strive for the orderly and timely delivery of those water resources through every effort possible within the physical and operational constraints of the distribution facilities and operators. The District is committed to excellence in resource management and all aspects of operation.

MISSION STATEMENT

"To *provide safe and reliable water to our farms, families, and businesses. As stewards of our precious local water resources, we are committed to responsible environmental and fiscal management in order to protect and ensure those resources into the future.*"

- **SOLANO IRRIGATION DISTRICT**

GENERAL INFORMATION

The District is a local public agency of the State of California organized in 1948, includes 60,000 acres and maintains over 178 miles of laterals and pipelines, 23 deep well pumps and 55 recovery pumps. Some of the rights to operate and maintain such facilities were acquired by use for the period required to create a prescriptive right or adverse possession and have the same affect and validity as if they were set forth in a deed.

Water to supply the District comes from the Solano Project under well-established water rights and also by recapture of drainage water and pumping from wells. The District's average annual water supply is 155,000 acre-feet.

The District is governed by a five member Board elected by the people in the District's service area. Regular meetings of the Board are held at the District office located at 810 Vaca Valley Parkway, Vacaville, California, at 7:00 p.m. on the third Tuesday of each month. All meetings are open to the public. Water users in the District are particularly urged to attend. Special meetings are also held. Advance notice of special meetings is available in the District office and posted as required by law.

The Board endeavors to carry on the affairs of the District in an economical, businesslike, and orderly manner and to distribute water equitably to the water users. The District makes no profit. To assist in this effort and to secure the greatest good to the greatest number, the following rules are adopted pursuant to Section 22257 and 22283 of the California Water Code and related sections. Each Irrigator and Landowner, as a party directly interested in the welfare of the District, should make every effort to see that the rules are complied with.

These rules and regulations may be changed at any time by order of the Board.

DISTRICT PERSONNEL

The Board employs a Manager to act as the principal administrative officer of District operations. The Manager is directly responsible to the Board. Under the Manager is a Water & Power Operations Manager who supervises such District activities as are assigned by the Manager to that position. However, in general, the Water & Power Operations Manager is responsible for maintenance, repair, and improvement of District works, and is responsible for the apportioning and distributing District water to its Water Users. The Water & Power Operations Manager distributes the water through Watertenders employed by the District who work under the Water & Power Operations Manager's direction through a Supervisor of Operations.

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SECTION 1: DEFINITIONS

"Board" means the Board of Directors of the District.

"Conduits" means canals, laterals, ditches, drains, flumes, pipes, measurement, and control devices, and all related operational facilities.

"District" means the SOLANO IRRIGATION DISTRICT functioning under Irrigation District Laws of the California Water Code.

"District Conduit" means any conduit owned or leased by the District according to District records but does not include Improvement District Facilities.

"District Facilities" includes dams, structures, wells, conduits, pumps, reservoirs, and all other facilities of the District as identified by records, but do not include Improvement District Facilities.

"Engineer" means the District employee serving under the direction of the Manager in regard to the management and supervision of any and all engineering activities.

"Improvement District" means an improvement district formed under the California Water Code pursuant to the Irrigation Improvement Act.

"Improvement District Facilities" include conduits, pumps, wells, structures, and other facilities owned by an Improvement District.

"Irrigator" means the person responsible for the distribution and control of irrigation water applied to the irrigated parcel.

"Irrigation" means the application of water for the purposes of stimulating or maintaining growth of plant life.

"Landowner" or "Owner" means holder of title or evidence of title to land.

"Manager" means the General Manager of the District.

"Person" means any person, firm, association, organization, partnership, business trust, corporation, or company.

"Private" means any interest belonging to, restricted to, or intended for an individual or group of individuals benefit.

"Pollutant" means any earth, debris or foreign or deleterious substance or material including, but not limited to, garbage, rubbish, refuse, animal carcasses, matter from any barnyard, stable, dairy or hog pen, herbicides, pesticides, or any other material which is offensive to the senses or injurious to health, or which pollutes or degrades the quality of the receiving water as defined by federal, state or local law.

"Tenant" means a person or entity that leases, rents, or sharecrops land of a Landowner.

"Shall" is mandatory and "may" is permissive.

"Vehicle" means any motor vehicle, self propelled vehicle, motorcycle, motorized bicycle, or all terrain vehicle.

"Water Allotment" means the base quantity of water which is set annually by the Board for each acre of land within the District which can receive District water from District Facilities directly or through Improvement District or Private Facilities and which comply with these rules.

"Watermaster" see "Water & Power Operations Manager" – used interchangeably

"Water & Power Operations Manager" means the District employee serving under the direction of the General Manager in regard to the management and supervision of the Water Operations Department. Used interchangeably with "Watermaster".

"Watertender" means the District employee serving under the direction of the Water& Power Operations Manager in regard to the control and delivery of irrigation water.

"Water User" means the person(s) who has the primary responsibility for use of the District water upon the parcel.

"Works of the District" include canals, laterals, ditches, drains, pipelines, conduits, pumps, reservoirs, valves, check gates, weirs, measuring devices in or used in connection with such facilities, and all other facilities of the District used in connection with the performance of its business in place or hereafter installed according to District records.

SECTION 2: ENFORCEMENT OF RULES & REGULATIONS

General

2001 Landowners and irrigators should realize that it is in their interest that District personnel perform their duties and maintain order and control in the distribution of water. Cooperation in this effort is the key to satisfactory service to all. District personnel have been instructed to carry out their duties without favor or bias to any person and to do so in a courteous and respectful manner.

2002 All Water Users, by applying for or receiving water service from the District, agree to be bound by and to comply with all rules and regulations of the District, as adopted from time to time by the Board.

2003 All District employees are charged with enforcing the rules and regulations as established by the District.

Failure to Comply with Rules & Regulations

2004 Failure or refusal of any Landowner, Water User, Irrigator or renter, to comply with the rules and regulations governing the distribution and use of water within the District's service area, or any part thereof, may be sufficient cause for curtailment or termination of delivery of District water to the parcel and/or all parcels under the control of the violator.

2005 Interference by any Landowner, Water User, Irrigator, or renter with a District employee, agent or official in the course of their assigned duties may be sufficient cause for curtailment or termination of delivery of District water to any and all improvements, lands of that Landowner, other land or improvements rented or famed by that party, Water User, Irrigator, or renter.

2006 The District reserves the right to terminate or discontinue the delivery of District water supplied to any parcel of land if the condition of the land improvements or irrigation facility may pose danger to any person, to the general public, or to any property, including, but not limited to, the flooding of property or public roads or improvements.

2007 Compliance with each and all of these rules shall be a condition precedent to the delivery of water to any parcel of land. The Board of Directors retains the authority to rule in all instances that are not specifically contained in these rules and regulations.

Restoration of Service

2008 Water delivery that has been curtailed or terminated will be restored upon full compliance with the rules and regulations governing the distribution of and use of water within the District's service area.

Disputes

2009 Where a Watertender or other District employee and an Irrigator or Landowner cannot agree, the matter shall be referred to the Water & Power Operations Manager. If the decision of the Water & Power Operations Manager is unacceptable to the Irrigator or Landowner, the dispute may be taken to the Manager and, if not settled by the Manager the matter may be presented to the Board after written notice to the Irrigator and Landowner for a hearing. The decision of the Board shall be final and binding in the absence of court proceedings.

SECTION 3: FACILITIES

Control of Facilities

3001 All District Facilities are under the exclusive control, direction, and management of authorized District personnel. At no time shall any unauthorized person, private or public, interfere with, regulate, or control any District facility.

3002 Inquiries in regard to control of District facilities shall be directed to the Water & Power Operations Manager.

Operation of Facilities

Limits of Liability

3003 The District's responsibility for the quality or any damage that might arise from or be related to the water deliveries shall cease when the water is diverted into any Private Facility and the Landowner and Irrigator accept and assume responsibility and control of the water when delivered. If water is ordered by the Landowner or Irrigator to be delivered into the Private Facilities and the Private Facilities are not ready or in a condition to accept the deliveries at the time affirmed for the delivery by District and the Landowner or Irrigator and damages are caused to other lands, facilities or property or injuries to persons as a result of overflow or spillage of the water, the Landowner and Irrigator shall be liable for defending and indemnifying the District, its officers and employees from any claim for damages or injuries.

3004 The District shall not be liable for any nuisance or neglect, wasteful or other use, or handling of water by any recipient or user thereof.

3005 The District shall not be responsible for any trash, debris, or earth, other deleterious matter that may flow or accumulate in the water. The District shall not be responsible for any interference with, decrease in the operation or capacity of, or damage to facilities, public or private, as a result of such trash, debris, or other materials within the water.

3006 The District is not a guarantor of service and shall not be liable for any damage any person may suffer as a result of insufficient water, a surfeit of water delivered, water fluctuations, untimely delivery of water nor water not delivered.

Conduits (Main Canals, Sub-Laterals, & Pipelines)

3007 The operation of District Conduits shall be at the discretion of the Watertender. This includes the determination of the safe operating level or capacity of all Conduits.

3008 Operation of the District Conduits is subject to change at anytime without prior notice.

Control Structures

3009 Center gates, valves, weirs, flashboards, and other control devices not listed here, are to be operated by the Watertender. The Watertender may adjust any such facility at anytime without prior notice to better provide for the safe operation of the delivery system.

3010 Watertenders authorized to operate control structures within their defined service area may, with prior permission of their District supervisors, authorize trained non-district personnel permission to adjust settings when it is impractical for the Watertender to do so. Permission is granted to the non-district personnel for the specific circumstance. Permission to operate shall not establish any blanket or extended authority for later events or conditions. A failure to be able to contact a water tender is not a basis for assuming authority to operate the District or private facility.

3011 District personnel are authorized to take any measures necessary to secure control structures including, but not limited to, the use of locks and chains. The failure to lock a facility is not evidence of authority of Landowners or Irrigators to adjust or alter the facility.

Pumps

General

3012 The District owns and operates a number of deep well pumps, deep drainage pumps and reclamation pumps to supplement the water supply diverted from the Solano Project. During the irrigation season these pumps will be operated at the discretion of District staff and coordinated with the operation of the distribution system.

3013 The operation of District owned pumps depend on a variety of circumstances. Watertenders under the direction of Operations Supervisors shall determine the most efficient and appropriate times to operate the pumps. Landowners and Irrigators may not rely on or specify delivery of water from those facilities.

Reclamation

3014 Reclamation pumps shall be used as a method of water conservation and water use efficiency.

Deep Wells

3015 Deep wells may be used as a permanent or supplemental source of irrigation water for Water Users. Operation of deep wells to deliver irrigation water shall not constitute or set precedence for future deliveries. Landowners and Irrigators must administer their crops assuming the irrigation season limits will be strictly enforced and that water from wells, reclamation pumps or similar facilities will not be available. The District shall have no liability for damages should those facilities not be made available for delivery of water to lands either during or outside the period of the irrigation season.

Booster

3016 The Watertenders shall determine the most efficient and appropriate use of booster pumps in order to deliver scheduled irrigations to maximize the benefit of booster pump operation.

3017 Booster pumps shall only be used when it is impractical to deliver gravity water and are not to be used or relied upon to provide pressurized water deliveries to crops or lands.

Turnouts

3018 The operation of turnouts from District Facilities shall be at the discretion of the responsible Watertender.

3019 All turnouts from District Facilities shall be gated or shall have another positive shut-off system easily accessible to the Watertender within the District rights-of-way.

3020 The Water & Power Operations Manager has the authority to lock or secure any and all turnouts from District facilities at any time for violations of the rules and regulations. The installation and locking of the gate or control facility shall be accompanied by written notice. Verbal communication proceeded by written notification will be provided to the owner of the locked or secured turnout by the Water & Power Operations Manager. The notification shall provide the background and justification of locking or securing the affected turnout. The notification shall also outline procedures or conditions that the owner shall complete in order for the District to remove the lock or security device.

3021 Watertenders have the authority to authorize for the operation of turnouts by private individuals in the event that the Watertender is unavailable to operate said turnout at a critical or scheduled time. Upon granting permission, the Watertender shall investigate to confirm that the turnout was operated appropriately and as directed, as soon as time permits. Permission to operate turnouts from District Facilities shall be considered a distinct and solitary event and shall not establish any precedence for future events or blanket authorization or authority in similar conditions.

3022 Any turnouts constructed in District Conduits in accordance with District requirements at the Landowners' expense are thereafter the property of the District at the option of the District. The assumption of ownership shall be in writing. If the District does not accept title to the turnout, the Landowner is liable for all cost of maintenance and reconstruction whether or not the turnout facility is accepted as owned by the District, the Landowner may be required to provide at its cost for new or reconstructed turnout facilities with different capabilities from time to time to meet new standards of measurement or efficiency or to accommodate changes in the District delivery system or operations.

Private Facilities

3023 All privately owned lift or sprinkler pumps that will pump water from works of the District or from natural or artificial drains conveying water subject to recapture by the District shall be placed under District supervision and control as to time of use and extent of use. All such pumps shall be operated solely at the owner's risk and the District shall not be liable for any damage or failure of such installation.

3024 All bridges and culvert crossings on District owned laterals and drains shall be the responsibility of the Landowner unless the District has a recorded contractual obligation therefor. The District may contribute to the maintenance cost of crossings essential for use by the District in its maintenance and operation work. The fact that District may have aided or contributed to installation, repair or reconstruction of a bridge, culvert or other crossing shall not constitute evidence of an obligation to do so in the future. The District Board of Directors has the exclusive authority to enter into

agreements relating to the obligation to repair, reconstruct or replace facilities of this nature and such action must be placed on the minutes of the District meeting, memorialized by written agreement and must be recorded to be binding upon the District in regard to successor owners of the lands affected.

3025 The District will not contribute to the cost of improving privately owned facilities or to improving works of the District for the benefit of individual landowners unless the Board concludes the improvements are essential for District operations. Work shall not begin on cooperative improvements until a written agreement for doing such work is approved by the Board and the landowners' share of the cost is paid to the District.

3026 All Private facilities shall be constructed and maintained by the owner in accordance with acceptable industry standards as approved by the District in advance.

3027 All Private facilities shall be free from weeds and other obstructions, and properly maintained to permit sufficient capacity to convey the reasonable flow of water requested by any Water User in a manner that minimizes the potential of ditch bank or levee breaks, overflow, undue seepage, or any other unreasonable use of irrigation water.

3028 The operation of Private facilities is the sole responsibility of the owners and shall be conducted in such a manner as to prevent the unnecessary waste of water and prevent damage to third parties or injuries to persons or property.

3029 In the event that an owner of a Private facility in disrepair has been notified of the inadequacy of the facility by the District and has failed to correct the condition and improve the condition of said facility, the District, in its discretion, may complete the necessary repairs in order to protect the various interests of the District. In such an event, the District shall bill the owner of the Private facility for any and all costs associated with making the necessary repairs and corrections as may be appropriate. The charges of the District shall include reasonable costs of overhead and general administration costs of the District and interest at the delinquent interest rate charged upon water charges. The District shall, if the charges are not promptly paid to the District, terminate water service and provide for addition of the delinquent charges to the Assessments payable to the District.

3030 The operation and maintenance of Private facilities by the District shall not establish any ownership or set any precedent for any future operation or maintenance of said facility.

3031 The Watertender shall deliver the scheduled amount of irrigation water to the Private facility. It shall be incumbent on the Water Users from Private conduits to control the actions of individuals taking water from Private conduits. Any disputes of water allocation downstream of the District delivery point shall be resolved among the owners of the Private facility. The District does not guarantee or ensure the apportionment of deliveries among irrigators taking delivery from Private facilities.

3032 The District shall not be responsible for any damages to Private facilities caused by water hammer. Water hammer is a result of poor system design, for which, the District shall not be liable.

3033 The District may refuse to deliver water to any person not complying with an obligation to maintain or help maintain any Private conduit and may deliver water to other Water Users from a conduit who have met the maintenance obligations. However, the District shall maintain the right to discontinue the delivery of any water to all Water Users through a Private conduit until such time as the conduit is put into a proper condition as determined by the Water & Power Operations Manager.

Private Use of District Facilities

General

3034 Absent the District's express written approval issued by the General Manager or Board of Directors, private use of District Facilities is strictly prohibited.

3035 Any and all use of District Facilities by any person or agency, public or private, shall be solely permitted by written permission of the District and shall be in compliance with any and all applicable federal, state, and local laws, statutes, regulations, and other terms and conditions properly established.

3036 At no time shall District Facilities be used for recreation purposes, including but not limited to, swimming, diving, boating, hunting, or fishing.

3037 Except as otherwise specifically permitted by written agreement with the District, water contained within District Facilities, either flowing or non-flowing, shall at no time be used for purposes of stock water. It is the sole responsibility of livestock owners to provide a source of water for livestock outside District rights-of-way and facilities.

3038 Livestock is not permitted on District canal banks. The owners of the livestock and the land on which they are pastured are liable for any damage caused to District Facilities by livestock and shall promptly make repairs in a good and workmanlike manner. If after proper notification has been given repairs are not promptly so made, the District may make them and bill the owner of the livestock or land involved for the cost thereof.

Drainage

3039 No surplus irrigation water, storm water, wastewater, tile drainage, nor any other water or substance shall be drained, dumped, pumped, siphoned, or otherwise discharged directly or indirectly into any District Facility without the prior written permission of the District. In granting written permission to discharge, the District may impose reasonable conditions, including, without limitation, the right of the District to approve and monitor the discharger's measurement facilities. Permission to discharge shall be revocable by the District at any time and for any reason as determined appropriate by the Water & Power Operations Manager.

3040 Water and other substances, permitted through written agreement that are discharged into District Facilities shall meet all applicable federal, state, and local water quality standards and provisions.

3041 Written District approval to discharge into District Facilities shall only be granted to those parties who have coverage from the Regional Water Quality Control Board under a waiver or waste discharge permit. Having coverage from the Regional Water Quality Control Board does not guarantee approval or establish a right to discharge into District Facilities.

3042 The rate and quantity of discharge into any District Facility may be subject to limitations based on the capacity of the facility and the quality of water or other substance being discharged. The Water & Power Operations Manager shall be so empowered to set forth such limitations in writing.

3043 All discharge facilities shall be constructed and maintained at the sole expense of the discharger, and must be in accordance with District standards.

3044 All approved discharges to District Facilities shall be limited to one 8 inch diameter outlet per 40 acres of irrigated land, unless otherwise dictated by topography as determined by the Water and Power Operations Manager. The outlet shall be gated such that any authorized District employee may close and/or lock the outlet in the event that such control is warranted to protect water quality or for the benefit of the District.

3045 Where excessive runoff from lands receiving District water is entering District Facilities, the District may reduce the quantity of water delivered in an effort to reduce the drainage flows or require the Landowner to install special drainage facilities to regulate the flow into the District Facilities. The District may also require a Landowner to cease all such runoff into District Facilities whenever necessary for the District's or the public's interest, including, but not limited to, ensuring water quality standards, preventing injury or damage, or performing repairs or maintenance or to further reasonable conservation of water.

3046 All existing discharges to District Facilities, not currently covered by a written agreement, shall be subject to the District's current terms and conditions.

Transportation

3047 No person or agency, public or private, shall transport any water or other substance through District Facilities without the prior written agreement of the District. In granting permission to transport water or other substances, the District may impose reasonable conditions, including, without limitation, the right of the District to set flow and water quality limits and to require monitoring at dischargers expense. Permission to transport shall be revocable at any time and as determined by the Water and Power Operations Manager.

3048 Water and other substances, permitted through written agreement to be transported via District Facilities, shall meet all applicable federal, state, and local water quality standards and provisions.

3049 All transport facilities and measurement facilities shall be constructed at the sole expense of the transporter, and must be in strict accordance with the construction and design standards of the District.

3050 All existing transportations through District Facilities not currently covered by a written agreement shall be subject to the District's current terms and conditions.

Pumps

3051 No person or agency, public or private, shall be allowed to operate or control any District owned pumps without the written approval of the Water & Power Operations Manager. Written authorization to operate District owned pumps shall be considered a distinct and solitary event and shall not establish any right or precedence for future events or requests.

3052 A written request shall be submitted to the Water & Power Operations Manager at a minimum of ten (10) days in advance of the proposed pumping event. The use of District owned pumps is subject to termination at any time for any reason as determined by the Water & Power Operations Manager.

3053 The Water & Power Operations Manager is to make reasonable effort to confirm that the person granted permission to operate the pump is properly trained and knowledgeable about the safe and responsible operation of pumps and pump drivers.

3054 During periods the District is not using a District pump, requests may be made with the Watertender in charge or with the Water & Power Operations Manager for private rental of the pump in accordance with the following:

(a) Pump rentals will be granted in the order in which requests with accompanying payment are received.
(b) Rental time will be determined and assigned by the Watertender or Water & Power Operations Manager.
(c) No extensions of rental time assigned will be granted unless there is no one waiting for the use of the pump.
(d) No renter will be allowed to rent the same pump for a second period until all those on the waiting list have had the opportunity to use the pump.

3055 Once a pump is started, no refunds will be made for the hours not used except under the following conditions:

(a) Should the hours rented be interrupted by rainfall and the landowner has requested that the pump be turned off, a refund of the unused hours may be made upon request.
(b) Should regular scheduled gravity water or District pumped water become available, thereby causing an early termination of the rental period, a refund of the unused portion may be made upon request.

All requests for refunds must be made in writing within fifteen (15) days of the termination of delivery.

3056 The District shall limit water supplied by pump rental to not more than 2.4 inches per acre per irrigation if that pump is in demand by other Water Users.

3057 The District reserves the right to not rent a pump or to cancel a rental and refund the deposit made if the pump use will interfere with District maintenance or other District operations.

3058 A District employee will have complete charge of turning pumps on and off and servicing them.

3059 The Watertender has complete charge of setting up and operating the gates, weirs and other facilities in the District conduit that will be used. The pump renter shall be responsible for monitoring and reporting any interruption in delivery.

3060 If the pump is off due to power failure, breakdowns, or other causes, the down time will be added at the end of the rental period.

3061 The charges for all pumps will be determined from the power meter.

3062 The District will endeavor to anticipate the probable demand for private use of a pump and limit the periods of rental to endeavor to provide all probable renters with a period of use.

3063 The rental period begins with the "time on" and ends with "time off" at the pump. No allowances will be made for time required to fill conduits; however, the time required to fill the conduit may be prorated among those using the water.

3064 The District shall establish the rental rate for each pump. Such rate is subject to change without notification.

3065 Payment of all pump rental for the entire rental period must accompany the application for rental. No application will be recognized until the payment is received, and the time of application shall be the time of payment.

Rights-of-Way

3066 District canal roads, rights-of-way, easements, and lands owned by the District are intended to be used for District operations and maintenance activities. No unauthorized Vehicle shall be permitted on or within District canal roads, rights-of-way, easements, or lands owned by the District. District canal roads, rights-of-way, easements, and lands owned by the District are for the exclusive use of authorized District employees and agents, and other authorized persons permitted in accordance with these Rules and Regulations or Landowner's retained real property rights which are of record. Persons requiring a specific use of a canal road, right-of-way, easement, or land owned by the District may apply to the District for written permission prior to such use. Notwithstanding any permission granted by the District, use of District canal roads, rights-of-way, easements, and lands owned by the District is at the sole risk of the user. Use which is not authorized in writing by District which District is aware of shall not give rise to prescriptive rights or claims of estoppels to terminate that use.

3067 The following persons are authorized to operate a Vehicle upon a District canal road or right-of-way provided the District approves in writing the manner of use or the Landowner is exercising rights of record retained by the Landowner's lands: (1) Persons actively involved in farming a parcel of land adjacent to the specific District canal road, right-of-way, easement, or land owned by the District; (2) Persons actively involved in farming who use the specific District canal road, right-of-way, easement, or land owned by the District for access to irrigation facilities serving their parcel of land; (3) Persons whose property is directly adjacent to the District canal and to whom

permission for ingress and egress to the property has been granted by the District and the permission does not exceed District's authority of record; and (4) Any sheriff, police, fire, or public, safety personnel on official business.

3068 The District reserves the right to bill the owner of any livestock, for any and all costs associated with the maintenance or repair of facilities damaged by their livestock.

Crossings/Culverts/Bridges

3069 Except as otherwise specifically permitted by the District in writing, no person shall cross any District Facility, including without limitation any canal, pipeline, weir, bridge, or other crossing, except those clearly marked for public use.

3070 No improvements such as buildings, bridges, gates, cross canal pipes, facilities, etc., shall be constructed or placed in or over any District Conduit until applications for an Encroachment Agreement or Revocable License Agreement have been made to the District and Board authorization is granted therefor. The applicant does not acquire any rights in the District's right-of-way other than those set forth in the signed agreements.

3071 All such permitted buildings, bridges, gates, cross canal pipes, or other cross canal facilities shall be constructed, erected, installed, and maintained at the Landowner's expense and built in accordance with the construction and design standards of the District where applicable.

Charges

3072 Any person or agency, public or private, shall pay any and all charges established by the District for the non-District use of District Facilities and processing requests for authority to use District facilities. Payment must accompany the request for approval prior to use. Therefore any request submitted without accompanying payment will be deemed incomplete and discarded.

3073 The District shall bill for any and all additional charges resulting from the non-District use of District Facilities that are not covered by original payment. Charges shall be paid in full by the responsible party within 30 days of the District invoice date.

3074 The District assumes that the user is properly prepared to use the specific District facility authorized to be used for the duration of the requested time. The District shall not refund or credit any user for downtime resulting from operational decisions made by the user. In the event of a facility failure not resulting from inappropriate use or ill-treatment of District equipment, a credit for use shall be established directly proportional to the duration of the downtime.

3075 A written petition for a partial refund or credit may be submitted to the Board of Directors within fifteen (15) days of the nonscheduled termination of use.

Liability

3076 Any person entering upon District property or District right-of-way does so at their sole risk and assumes all risks associated therewith and by such action accepts the responsibility for any resulting damage to District or Private property and to indemnify

and defend District, its officers, directors and employees for expenses, damages or claims arising from the entrance or use of District facilities, including reasonable attorney fees and expert witness costs incurred in the defense.

3077 Dischargers are solely liable and responsible for meeting and complying with all local, state, and federal regulations of water quality and subsurface pumping. Dischargers agree to indemnify, defend, and hold harmless the District, its Board, officers, employees, and agents against all liability, claims, damages, and costs (including reasonable attorney fees) relating to the quality of water discharged by the discharger.

Access to Lands

3078 The Watertenders and other authorized agents of the District shall have access, to all Private Conduits and lands being irrigated for the purpose of determining whether or not the Conduits are in satisfactory condition to handle the water and whether the water is being used efficiently and economically. The application for receipt of water and the receipt of water service constitutes agreement of the Landowner and Irrigator that the District personnel shall have reasonable access, provided verbal notice is given in sufficient time that the Landowner and or Irrigator may be present to accompany the District personnel, for the purposes of conducting inspections and documenting the conditions of water delivery facilities and the use of District water.

3079 The District shall have reasonable access to any lands whether within or outside District when responding to an emergency related to District facilities or operations upon notification from law enforcement or other person of the emergency conditions.

3080 If the District holds a right-of-way or easement across Private land for the operation and maintenance of a canal or other facility, the law provides that the District shall have certain secondary rights, such as the right to enter upon the property on which the right-of-way or easement is located; to make repairs; and do such things reasonably necessary for the efficient and economical operation and maintenance of the system. Landowners and Irrigators shall reasonably cooperate with District in the exercise of this secondary easement.

Encroachments

3081 No trees, vines, shrubs, corrals, fences, buildings, bridges, or any other type of encroachment shall be planted or placed in, on, over, or across any District Facility; or the rights-of-way including secondary easements therefor except pursuant to specific written authority of the Water and Power Operations Manager. Any such encroachment of an unusual or extraordinary nature shall be approved by the Board.

3082 Any encroachment, authorized or otherwise; in, on, over, under, along, or across any District Facility or right-of-way that interferes with or unreasonably burdens the operation or maintenance of said facility may be immediately revocable and subject to removal by the District, at the sole expense of the encroacher or adjacent Landowner. Authorization for an encroachment is immediately revocable if and when said encroachment is determined to be interfering with or burdening District operations.

Construction of Irrigation Facilities

3083 No private stop gates, stand pipes, turn out pipes, or valves, lift or sprinkler pumps or other privately owned facilities shall be connected to or placed in or on District Conduits or in drains conveying District water unless and until all the following have occurred:

(a) A written application setting forth the type and specification of the installation to be made is filed with the Water and Power Operations Manager.

(b) The application and specifications are approved in writing by the Water and Power Operations Manager prior to start of construction.

(c) If any of the work is to be performed by District personnel or under District contract, the full estimated cost to the District shall be paid to the District by the applicant in advance; however, the applicant shall be responsible for the actual costs of construction irrespective of the amount of the estimate. Upon completion, the applicant shall pay the difference between the estimated amount and the actual costs if the estimate is exceeded. If the actual cost is less than the estimate, the applicant will receive a rebate from the District for the overpayment.

(d) In order that all involved be protected, in instances and to the extent the Water and Power Operations Manager deems appropriate, a written contract shall be entered into specifying the conditions of performing the work and conditions applicable to the use of the facilities.

(e) If the work can affect the flow of water in works of the District, the work must only be performed during times approved in writing by the Water and Power Operations Manager. Ordinarily, in the absence of an emergency, such work will not be permitted during the period of April 1 to November 1.

3084 No irrigation system improvements, including without limitation diverting gates, weirs, pump intakes, mechanical screens or structures of similar nature, shall be installed, constructed or placed in, on, over, under, along, or across any District Facility or right-of-way unless written permission, in the form of an encroachment agreement and/or a revocable license agreement, has first been granted therefor by the District. No permitted person or agency, public or private, shall acquire any rights in the District's Facilities or rights-of-way other than those set forth in the District's agreement. Permittees shall, at their sole expense, upon receipt of notice from the District, promptly relocate or remove any improvement. In the event that the Permittee fails to do so, the District reserves the right to perform such relocation or removal at the Permittee's sole expense.

3085 No improvements, including without limitation buildings, bridges, culverts, gates, corrals, landscaping, recreational pools, cross-canal conduits, or structures of similar

nature, shall be planted, installed, constructed, or placed in, on, over, under, along, or across any District Facility or right-of-way unless written permission has first been granted therefor by the District. No permitted person or agency, public or private, shall acquire any rights in the District's Facilities or rights-of-way other than those set forth in the District's agreement. Permittees shall, at their sole expense, promptly upon receipt of notice from the District, relocate or remove any improvement. In the event that the Permittee fails to do so, the District reserves the right to perform such relocation or removal at the Permittee's sole expense.

3086 Except where otherwise specified by agreement, all improvements, irrigation or otherwise, shall be at the sole expense of the Permittee and constructed in accordance with District construction and design standards. Permittee shall hold the District free and harmless from any liability or costs related to or arising from such improvements.

Design of Irrigation Facilities

3087 The District water distribution system was established to maintain the capacity to deliver water to parcels of an assumed size at an assumed delivery rate. The division or change in the dimensions of parcels may require modification of District Facilities and/or the construction of new privately owned facilities. The District will not permit the service of more than one Landowner's land through private facilities as the result of division of parcels and the proposal of a division of land or reconfiguration of parcels of land must be approved by the District in advance of the division or a violation of these rules and regulations will occur and all parcels of land subject to the change may be subject to termination of water service.

3088 All new Private or Improvement District Facilities are to be approved, in writing, by the District Engineer prior to the start of construction. Plans and construction details shall be submitted to the District along with payment of any charges and a written request.

3089 The District Engineer shall have the authority to approve any new Private or Improvement District Facilities. The design of said facilities shall be required to meet the flow requirements of the land being served without negatively impacting or burdening operations of the District or other Landowners. The District's rights hereunder to review and accept the plans shall not impose any duties or obligations on the District, nor shall such review or approval relieve the Water User of the sole responsibility for the facilities' plans, schedules and installations, and construction and placement of work.

3090 Water Users shall be required to install, operate, and maintain lift or booster pumps, at their sole expense, for all irrigation improvements that cannot utilize District delivered gravity water.

Improvements/Relocation of Irrigation Facilities

3091 If extensions of District Conduits, increases in capacity or additional outlets are desired, they must be approved by the Board and the desired construction or

modification must be done in accordance with District specifications at the sole expense of the person desiring the work to be done. The estimated cost shall be deposited with the District in advance of the start of the work.

3092 Any person desiring to build on or develop the area over a District Conduit or to move or relocate a lateral or drain, must apply in writing to the District and receive written approval of the Board prior to commencement of work. Once permission is granted, all construction shall be performed in a good and workmanlike manner approved by the Engineer in accordance with all legal requirements and at the sole cost of the applicant.

SECTION 4: DUTIES OF WATER USERS

Responsibilities

4001 All land to be irrigated shall be properly prepared to efficiently and economically receive water.

4002 Water Users shall maintain Private facilities in a manner that is conducive to the reasonable and beneficial use of supplied water. The Water User is responsible for ensuring that all Private facilities are in an acceptable working condition, able to receive water at the irrigation start time, and capable of continued use for the duration of the irrigation event.

4003 Water Users shall be responsible for the control and distribution of water to their lands at all times after the water is diverted from a District Facility. As determined by the District, where control is not appropriately exercised by the Water User, the District may require that an Irrigator be present at all times during irrigation events.

4004 Water Users shall be responsible to close all Privately owned gates and valves at the conclusion of the irrigation event.

4005 Water Users are responsible for communication with the Watertender. The District requires that the Watertender be notified of any planned or unplanned changes that may occur during the irrigation event. At a minimum, the Irrigator is responsible for notifying the Watertender four (4) hours prior to any change in, or termination of, the irrigation event.

4006 The Watertender may require any Water User, at the end of an irrigation event, to notify the Water User next in line for the receipt of water.

4007 For the purposes of determining operation schedules and water demand, the District requires that Water Users submit a crop declaration report to the District prior to first irrigation event of the irrigation season. The crop declaration report shall include without limitation the assessor's parcel number, type of crop, number of acres of each crop type, an estimate of the annual crop water requirement and the amount of private groundwater anticipated to be used.

4008 All Water Users are responsible for providing the District with the most current and accurate contact information. At a minimum the District requires that Water Users provide a mailing address, Landowner telephone number, and Irrigator telephone number. The crop declaration report shall also include the names and contact information for any authorized agent of the property. An authorized agent as determined on the crop declaration report will be used by the District in determining who can place water orders for the property during the specified irrigation season.

Use of Water

4009 All District supplied water must be applied efficiently and used reasonably and beneficially.

4010 When delivery of water is made, the water shall be used day and night at the authorized rate of delivery until the irrigation event is completed.

4011 All District supplied water shall be used for irrigation purposes, except where a written agreement has been entered into between the Water User and the District.

4012 Any Water User who wastes water on roads, vacant land, or land previously irrigated, either willfully, carelessly, or on account of defective or inadequate conduits or facilities, or inadequately prepared land, or who floods a portion of the land to an unreasonable depth or amount in order to irrigate other portions, or floods across one parcel to irrigate another parcel, may be refused District water until such conditions are remedied.

4013 Water shall not be used on lands outside of District boundaries except where agreed upon through an annual Out of District Service Agreement. Water Users shall not use water on lands outside the District that was originally applied on lands within the District, whether by routing through a conduit, first flowing it across land within the District, recapturing it from drains, or otherwise. The District has the authority to terminate any current or future water use if it is determined that the aforementioned event has occurred. The District may also require that facilities be constructed to ensure that future deliveries are maintained on the property to which it was originally diverted and authorized from service.

Charges

4014 All charges for water service will be levied as set forth in the rate schedules as established by the Board of Directors. Current rate schedules are available for inspection at the District office.

4015 All charges for water service shall be billed on a monthly basis for water used the previous month.

4016 Any Water User whose application is accepted by the District and who is furnished with water service as provided in these regulations becomes liable for payment under the appropriate rate schedule for all water service furnished by the District.

4017 Any Landowner may designate a third party as an authorized agent for purposes of water ordering and bill payment. Nevertheless, all charges shall be made for individual parcels and are the responsibility of the owners of record for each parcel.

4018 Direct billing to the Agent/Tenant can be made upon receipt of written authorization from the Landowner that the Agent/Tenant has been designated as the agent of the Landowner. If the owner desires a duplicate of the water statement which is sent to the agent/tenant, a handling charge, per the District's current fee schedule, will be applied. The Landowner remains liable for all water charges, interest and penalties despite the designation and District shall have no duty to attempt to collect the charges from the Agent or Tenant prior to collecting the amounts from the Landowner.

4019 In the event of non-payment of charges in full by the District's prescribed payment date, the District shall apply penalties and interest in accordance with the current penalty and fee schedule.

4020 The District reserves the right to enforce payment of delinquent water charges and penalties through any and all of the following methods: (a) cause a lien therefor to be placed and enforced pursuant to California Water Code §25806 on the subject real property of the delinquent account; (b) through contracts with County Tax Collectors, placement of delinquent charges and added to the District assessment on county tax rolls for collection; (c) refuse or discontinue water service (d) require full payment in advance of future service; and (e) bring action to collect.

4021 If the District incurs any collection costs, including staff time or other direct costs, including attorney fees, those charges shall be added to the billing and payable by the Landowner and Tenant. If the District is required to file claims in Bankruptcy Court or otherwise appear in any legal proceeding in regard to delinquent amounts owed to the District, the costs of District staff, District attorneys and any expert witness fees shall become a charge payable by the Landowner and if there is a Tenant as the Water User the Tenant which caused those charges and costs to be incurred, the Landowner and Tenant shall be jointly and severally liable for the costs and charges.

4022 In the event of discontinued water service for non-payment, the General Manager, or his/her authorized representative, may approve deliveries of water in cases where the Landowner of record is requesting the service for the subject property provided that the Landowner makes arrangements for paying the delinquency. The General Manager or his/her authorized representative shall not approve additional water service to the Tenant's third party agents or a successor Agent or Tenant on the property that is delinquent without payment or arrangements for payment of the delinquency agreed to by the Landowner and acceptable to the General Manager, as the outstanding balance may eventually be placed as a lien on the subject property or added to the District assessment.

SECTION 5: DISTRIBUTION OF WATER

Allocations & Entitlements

5001 Irrigation water is typically available starting in March and ending during the middle of October. The start and end of the irrigation season shall be approved by the Board.

5002 The Water & Power Operations Manager shall determine and has the authority to apportion water to the District distribution system. The Watertenders shall be held responsible for the equitable, efficient, and economical distribution of the water that is allotted by the Water & Power Operations Manager to the individual distribution service areas.

5003 The District has numerous sources of water, including but not limited to surface water, reclaimed drain water, groundwater, and recycled wastewater. The District reserves the right to utilize any and all sources of water under its control and any combination thereof to satisfy the water requirements of the District's Water Users.

5004 Water shall be distributed equitably and fairly to Water Users within the District who have paid all charges and penalties therefrom.

5005 No Water Users shall receive or be entitled to a greater amount of water than can be reasonably and beneficially used without waste.

5006 The District does not guarantee that delivered water will be of any specified condition or quality.

5007 The District may, if operational conditions warrant, vary the irrigation time and flow rate so long as the Water User is afforded a reasonable opportunity to utilize a fair allotment of irrigation water.

Scheduling & Notification

General

5008 Distribution of irrigation water shall generally be by scheduled deliveries as requested by the Water Users, but where appropriate, the Water & Power Operations Manager has the authority to implement variations to the delivery schedule and/or method.

Scheduled Deliveries

5009 Water Users may request water delivery by placing a water order with the Watertender or the Operations Supervisor.

5010 All water orders shall be received by the District no later than 2:00 p.m. the day prior to the delivery date desired by the Water User.

5011 Water deliveries shall be made on the basis of continuous and steady use of water during all days and nights, including holidays and Sundays. It shall be incumbent upon the Water User to fully utilize water during the allotted time and to relinquish the water at the end of the scheduled time period unless otherwise approved by the Watertender. In order to prevent the waste of water, canal overtopping and canal breaks, it is mandatory that every Water User notify the Watertender if the irrigation event must be discontinued prior to the scheduled time.

5012 The Watertender shall provide as much advance notice as possible to Irrigators in the event that the requested delivery time will not be met. The Watertender will provide the Water User with an estimation of the approximate time that water will be delivered.

5013 Because there is a potential for breaks and/or unforeseen interruptions to occur, the Water User must be available and maintain its system for distribution in order to take the delivered water at the time it is available by the Watertender.

5014 In the event that an Irrigator or Water User cannot be contacted, located, or otherwise notified of the availability of water, the Watertender may declare that the Water User has passed and will not receive water until other water orders are satisfied.

5015 In the event that water is ordered and the Water User is not ready for receipt of said water at the time it was ordered, the Water User may be required to pay for the water until he/she is ready to take delivery. If another Water User can be located, the Watertender may transfer the water and in that event the Water User originally ordering the water must wait until another head is available as determined by the Watertender.

5016 Any person who takes water out of turn without the permission of the Watertender forfeits the right to water and may be liable to criminal prosecution under the California Penal Code.

Rotational Deliveries

5017 Certain service areas in the District, as determined by the Water & Power Operations Manager, may be required to take delivery of irrigation water on a rotational basis.

5018 Rotational deliveries will be determined at the beginning of the irrigation season by the District and impacted Water Users will be notified in writing.

5019 In the event that rotational deliveries are established for a Water User, the Water User shall not be responsible for placement of an order for water delivery. The Watertender will make the water available on the pre-determined schedule for use.

Specialty Crop Deliveries

5020 Any Water User who desires irrigation water on a tailored delivery schedule in order to grow a specialty crop is required to submit a detailed application to the District for consideration in advance of planting the crop.

5021 Surface irrigation water shall not be made available during the months of November through March unless otherwise approved by the Board. Water Users desiring to grow winter crops and utilize District facilities shall submit a request for off-season

irrigation services. The District reserves the right to approve or deny any request for Private use of any District facility for any reason at any time.

5022 The District will strive to supply water of sufficient quality to those crops which are sensitive to certain constituents or parameters. However, the District does not and cannot guarantee the quality of water that is delivered to any agricultural Water User and therefore shall not be liable for any damages that may result from the application of the supplied irrigation water.

5023 The planting and cultivation of rice within the District is prohibited under the water supply agreements from the Bureau of Reclamation.

Measurement

5024 All measurements of water delivered by the District to a Water User shall be made at the diverting gate or valve in the District's canal, or at other appropriate locations as determined by the Watertender.

5025 The Watertender is required to measure and maintain documentation of flow rates, delivered volume, and other pertinent irrigation event statistics as determined by the Water & Power Operations Manager.

5026 All water measurements performed and documented by the District shall be considered correct in the absence of evidence to the contrary.

5027 The District shall maintain, calibrate, and otherwise properly care for all measurement facilities, equipment, and devices.

5028 The District, as provided by California Water Code §22083, has the authority to install or require the installation of irrigation flow measurement devices, equipment, or structures at all District turnouts.

5029 Measurement equipment is the property of the District and shall not be tampered with, removed, or otherwise inhibited by any person unauthorized to do so. Any unauthorized person that performs such acts is subject to criminal prosecution under Penal Code § 498c.

Interruption or Refusal of Service

5030 The Watertender will make every effort to maintain an adequate flow of water in each lateral system to meet anticipated demands. However, changes in water use due to temperature variation, improper coordination by upstream users during water changes, local runoff from precipitation, spill water from other lateral systems, canal breaks, and other emergencies may cause unavoidable fluctuations and interruptions in flow. It is the duty of a Water User to promptly notify the Watertender if water is not available at the time the rotation is scheduled to begin or if the flow is interfered with during the irrigation event. All Water Users will cooperate with the Water & Power Operations Manager and/or the Watertender in determining the cause of the interruption or fluctuation and will, to the extent practical, assist in correcting the problem.

5031 No additional time shall be granted to Water Users who fail to use the water continuously when available during the allotted time. If a Water User fails, neglects, or refuses to use the water during the period assigned, it shall not be a valid basis for claiming the right to use water at any other subsequent time. However, if such failure to use water is due to circumstances beyond the control of the Water User, particularly if caused by the unavailability of water, the District shall endeavor to make up the lost time insofar as it can be done without unreasonably interfering with the scheduled delivery of water to other Water Users. Any such Water User which is unable to divert the full allotment of water shall promptly notify the Water & Power Operations Manager of the desire to divert the remainder of the entitlement but shall not proceed without prior authorization from the Watertender.

Out of District Service Agreements

5032 All water delivered to lands outside of the District boundary shall be subject to, without limitation, any and all of the rules and regulations established by the District and provided within this document.

5033 Persons interested in or currently receiving water for application onto lands outside of the current District boundaries are required annually to submit an application for water service. Applications for out of District water shall be submitted to the District on or before the first Monday of February. The application shall be accompanied by any and all fees, charges, or deposits as required by the District.

5034 Applications will be reviewed by the General Manager, Water & Power Operations Manager, Director of Engineering, and Director of Finance. Upon completion of the review process a recommendation will be made by District Staff and presented to the Board. The Board shall approve or deny the application, and reserves the right to do so for any reason.

5035 Out of District irrigation service is established on an annual basis and is not guaranteed for the duration of any irrigation season. Out of District water is considered surplus water and is made available, without obligation to continue the service, to Board approved recipients. Water supplied to out of District Landowners is a non-guaranteed availability and may be suspended at any time by the District. Approval to receive out of District water shall not establish any right or precedence for future events, or consideration for service.

5036 The District shall not be liable for any damages that occur from the negligent use or misuse of water supplied to out of District Water Users.

5037 The District shall not be liable for any damages, economic hardships, or otherwise unfavorable consequences resulting from the suspension of an out of District service agreement. Persons entering into agreements for out of District irrigation service assume and shall be knowledgeable of all risks associated with not receiving anticipated flows and/or volumes of irrigation water. The District does not and cannot guarantee any degree or level of service to any out of District Water Users.

Unauthorized Use of Water

5038 Any person who uses District water without the District's permission may become subject to criminal prosecution and/or civil liability under Penal Code § 498 and § 592.

5039 Use of District water without the District's permission may result in a forfeiture of the Landowner's and/or Water User's right to receive water on the next scheduled rotation or planned irrigation event.

SECTION 6: LIABILITY

District Liability

6001 The District will not be liable for any damages resulting directly or indirectly from any Private Conduit or the water flowing therein or by reason of lack of capacity in any Private or District Conduit or for negligent, wasteful, careless, or other use of handling of water by Irrigators, Landowners, or consumers of water.

6002 Nothing in these rules shall be construed as an assumption of liability on the part of the District, its Directors, officers, or employees for any damage occasioned by the use of water by any Irrigator or for failure to enforce any of the provisions of these rules.

6003 Most of the water furnished by the District flows through many miles of open ditches, and is subject to changes in water quality, shortages, fluctuation in flow, and interruption in services. District employees are forbidden to make any agreements binding the District to serve an uninterrupted, constant supply of water. All water furnished by the District will be on the basis of irrigation deliveries and every consumer putting the water to other uses does so at their own risk and by doing so assumes all liability for, and agrees to hold the District and its officers and employees free and harmless from and defends those parties from liabilities and damages that may occur as a result of defective water quality, shortages, fluctuation in flow and interruptions in service.

6004 The District sells water as a commodity only and not as a guaranteed service and will not be liable for defective quality of water, shortage of water, either temporary or permanent, or for failure to deliver water or delay in doing so.

6005 Pumping by consumers of District water is done at the consumer's risk and the District assumes no liability for damages to pumping equipment or other damages as a result of turbulent water or shortage or excess of water or other causes.

6006 The District assumes no liability for damages to persons or property occasioned through defective works.

6007 District Conduits are to be used solely for the purpose of conveying water for use on land and for conveying drainage water away from the land. Their use for recreation purposes, including swimming or other similar uses or for uses requiring continuous delivery is prohibited.

6008 Landowners and Water Users are prohibited from using District Conduits and their lands for swimming or play. The water in many District Conduits is cold, swift and deep, and the Conduits cover so many miles that District supervision of their use of recreation is impossible.

Water User Liability

6009 Each Irrigator shall be responsible to the District and to third parties for all damages caused by his or her neglect or malicious or careless acts. It is the duty of each Irrigator to regulate and control the water delivered to his or her land so as to avoid damage to the District or third persons.

6010 Any persons who cause damages or injury to works of the District as a result of doing or permitting any of the following to be done shall pay to the District all costs incurred by the District in repairing the damage or removing the obstructions:

a. Permitting livestock, poultry, or waterfowl to go on or in District Conduits;
b. Burning or otherwise injuring or destroying works of the District;
c. Dumping or flowing into the District Conduits rubbish, soil, filth, or other substances that would pollute or impede the flow of water therein;
d. Erecting signs, fences, or other structures on or across or otherwise obstructing District rights-of-way without written permission of the District;
e. Shutting off or reducing the flow of water from a District Conduit into a Private Conduit or field without giving reasonable prior notice of such proposed action to the Manager or Watertender in charge;

6011 Under the Penal Code § 588, § 592, and § 607, it is unlawful to do any of the following without authority of the District:

a. Take water from a District Conduit with intent to defraud.
b. Disturb any facility for the control or measurement of water.
c. Cause to be emptied or placed into any District Conduit any rubbish, filth, or obstruction to the free flow of water.
d. Willfully and maliciously cut, break, injure, or destroy any bridge, dam, or District Conduit.

6012 The Water User is responsible and liable for any damage caused by the Irrigator's negligence or careless use of water, or the result or failure of the Irrigator to properly operate or maintain any ditch, pipeline, or other facility for which the Water User is wholly or partially responsible.

6013 The District's responsibility for water and its associated characteristics, including quality, shall cease when the water is diverted into any Private or Improvement District Facility or property. The District shall not be liable for any damages that occur once the water is diverted from District Facilities.

Claims for Damages

6014 Landowners must submit a damage claim in writing to the District within ten (10) business days of the date that the damage occurred in order to permit prompt investigation.

6015 The Water & Power Operations Manager shall within five business days of receipt of the claim, investigate the incident, document the events, and provide to the General Manager recommendation of action.

6016 Claims shall be processed by the Water & Power Operations Manager and forwarded to the General Manager. The General Manager shall prepare a response to the claim and notify the Board.

6017 Claims from Water Users or third parties for damages resulting from the misuse or negligent use of water by the Water User shall immediately be rejected.

Appendix B8

Solano County Water Agency
Memorandum, August 10, 2010,
regarding Reliability Data (Okita)

SOLANO COUNTY WATER AGENCY

MEMORANDUM

TO: City/District Urban Agencies

FROM: David B. Okita, General Manager DBO

DATE: August 10, 2010

SUBJECT: UWMP Reliability Data(Revised for SWP-prior memo is dated 6/10/10 – Solano Project data unchanged)

Attached are new tables that SCWA will be using in our 2011UWMP for SWP and Solano Project supplies. Note that the SWP Reliability Report is in draft form and could be revised – so my SWP table may change.

DWR guidelines are not out yet, but last time, UWMP's require data for Normal Year, Single Dry Year and Multiple Dry Years. These terms are not defined in the law and are subject to local interpretation. In 2005 we discussed using common assumptions, but not every agency wanted to conform – and there was no requirement to do so. Note that for single dry year, DWR has recommended using the driest of years – like 1977. We disagree with that interpretation and thus use the average of single dry years and the first year or multiple dry years. We also define multiple dry years as three or more consecutive dry years. I think we all understand that the requirements in State law for UWMP are not necessarily the data we would use to analyze our local water supply reliability. The requirements probably originated by a legislative staffer who has little understanding about local water supply planning. Nevertheless, these are the requirements we must live with. The method SCWA plans to use for our UWMP is the same we used in 2005.

Note that the averages may not be what you intuitively would expect. In the big scheme of things, there is really a short history of data to rely upon. This can skew the averages.

State Water Project

For SWP we identify the year type (Normal and Dry) based on the Sacramento Valley Index (SVI). SVI uses terms Above Normal and Below Normal. I combine them to be Normal. I also combine Dry and Critically Dry to be Dry. Wet is Wet. The Draft 2009 SWP Reliability Report is the basis for water supply numbers. This year they did an analysis customized for each contractor –

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accessible on their web page – not in the printed report. The individual contractor data, this year, are based on a model that makes some assumption of carryover supplies. Carryover from prior years is added to the current year supply for annual allocations of Table A. Also DWR has provided data on Article 21 water for NBA contractors. Carryover and Article 21 supplies need to be explained help understand how these supplies may be incorporated in a water supply analysis in Solano County.

There are also other significant changes from the data provided for the 2005 UWMP's. The 2009 model includes South Delta pumping restrictions based on the Biological Opinions for Delta smelt and salmon. Some of these restrictions have been reduced since the publishing of the draft Reliability Report, but the future is uncertain as to how the restriction may change in the future. The 2009 data also includes different climate change impacts for the 2029 scenario that reduce supplies.

The addition of carryover supplies from prior years has a major impact on NBA supplies. Attached is the data for SCWA provided by DWR. In many years carryover makes a large amount of the overall supply. Note that the 2029 scenario assumes no carryover because they assume that demand will increase such that all Table A is used each year – that may or may not be the case for us. To determine carryover amounts, DWR first calculated carryover demand then calculated carryover supply. If there is carryover demand and there is carryover supply then carryover is allocated. Carryover demand is based on our annual schedules that we submit to DWR – they used 2004-2007 data. Our schedules show requests based on 100%, 50% and 30% allocation. For a 100% allocation DWR assumes our carryover demand is 23,700 AF/YR. For a 50% and 30% allocation DWR assumes our carryover demand is 8,400 AF/YR. For carryover supply they assumed that for different levels of final Table A allocation, a percentage of carryover demand is the carryover supply. For allocation less than 45% carryover supply is 30% carryover demand. For allocation between 45%-65% carryover supply is 50% carryover demand. For allocation greater than 65% carryover supply is 100% carryover demand. This is hard to figure out, but I think the logic behind this goes something like this: If the allocation for the year is low, that means that the prior year allocation was also probably low, so that the carryover supply is lower too. The weakness of this approach is that the carryover demand is based on our 2004-2007 schedules. We are currently in a mode where we carryover a relatively large amount of Table A, thus the DWR model assumes a relatively large carryover demand that results in a relatively large carryover supply. A potential problem is that if there is a large carryover supply assumed, this requires Table A deliveries to be depressed because carryover is generated from prior year reduced Table A. The bottom line is that over the 1922-2003 analysis period, the average total SWP deliveries may be OK, but when you analyze a single year or short groups of years, the supply may be skewed due to the carryover assumptions that, for example, may mask a short supply year.

Article 21 water for the NBA is not included in these figures. This is a major omission as this is a big part of our SWP supply. Currently we can get Article 21 whenever the Delta is in excess conditions, but our use of Article 21 water is highly variable and dependent on a number of factors that would be virtually impossible to model. New for the 2009 study, DWR has modeled NBA Article 21 separately from other contractors. They have modeled the availability of Article 21 when the Delta is in excess conditions and assumed that the maximum SCWA Article 21 delivery is 1,000 AF/month. I have the monthly data they used, but it does not reflect reality, so I do not think it is of much use. Our UWMPs will need to qualitatively describe Article 21 water, as well as other supplies we get through the NBA.

Solano Project

For Solano Project we have used allocation numbers from the 2009 update of the reliability study we sent to Solano Project users in 2009 – memo from me dated November 23, 2009. In the 2005 data we used the SVI as our year type designation. For the 2009 study we used Lake Berryessa inflow data to develop our own index. The development of Dry and Normal year designations are somewhat arbitrary. We used the 66th and 35th percentile to make the designations to conform to the SVI designations. There is not much of a change for the Solano Project reliability from the 2005 to the 2009 data.

If you have any questions please contact me at 455-1103 or by e-mail at dokita@scwa2.com.

A-2 UWMP.mem

File A-2; S-17; N-16C

Appendix B State Water Project Reliability

DWR Study 2009 data - SCWA Specific

Sacramento Valley Index

Value	Year Type
W	Wet
N	Below Normal
N	Above Normal
D	Dry
D	Critically Dry

Year	Sacramento Valley Index	% Full Table A	% Full Table A for Normal Year (N)	% Full Table A for Single Dry Year (D) *	% Full Table A for Multiple Dry Year (3 or more Dry years)
1922	N	0.37	0.37		
1923	N	0.84	0.84		
1924	D	0.26		0.26	0.26
1925	D	0.39			0.39
1926	D	0.49			0.49
1927	W	0.46			
1928	N	0.86	0.86		
1929	D	0.31		0.31	0.31
1930	D	0.36			0.36
1931	D	0.22			0.22
1932	D	0.35			0.35
1933	D	0.35			0.35
1934	D	0.24			0.24
1935	N	0.43	0.43		
1936	N	0.71	0.71		
1937	N	0.66	0.66		
1938	W	0.77			
1939	D	0.96		0.96	
1940	N	0.60	0.60		
1941	W	0.59			
1942	W	0.83			
1943	W	0.77			
1944	D	0.75		0.75	
1945	N	0.44	0.44		
1946	N	0.74	0.74		
1947	D	0.74		0.74	
1948	N	0.65	0.65		
1949	D	0.58		0.58	
1950	N	0.50	0.50		
1951	N	0.43	0.43		
1952	W	0.86			
1953	W	0.89			
1954	N	0.69	0.69		
1955	D	0.51		0.51	
1956	W	0.48			

1957	N	0.82	0.82		
1958	W	0.58			
1959	N	0.83	0.83		
1960	D	0.52		0.52	
1961	D	0.49			
1962	N	0.70	0.70		
1963	W	0.46			
1964	D	0.81		0.81	
1965	W	0.54			
1966	N	0.83	0.83		
1967	W	0.55			
1968	N	0.83	0.83		
1969	W	0.66			
1970	W	0.58			
1971	W	0.83			
1972	N	0.58	0.58		
1973	N	0.45	0.45		
1974	W	0.78			
1975	W	0.79			
1976	D	0.81		0.81	
1977	D	0.14			
1978	N	0.45	0.45		
1979	N	0.65	0.65		
1980	N	0.60	0.60		
1981	D	0.84		0.84	
1982	W	0.57			
1983	W	0.64			
1984	W	0.53			
1985	D	0.77		0.77	
1986	W	0.67			
1987	D	0.55		0.55	0.55
1988	D	0.24			0.24
1989	D	0.38			0.38
1990	D	0.42			0.42
1991	D	0.20			0.20
1992	D	0.20			0.20
1993	N	0.43	0.43		
1994	D	0.67		0.67	
1995	W	0.54			
1996	W	0.85			
1997	W	0.75			
1998	W	0.91			
1999	W	0.60			
2000	W	0.86			
2001	D	0.37		0.37	
2002	D	0.42			
2003	N	0.79	0.79		
	Average	0.59	0.64	0.63	0.33

*Includes first year of consecutive dry years

Appendix B State Water Project Reliability

DWR Study 2029 data - SCWA Specific

Sacramento Valley Index

Value	Year Type
W	Wet
N	Below Normal
N	Above Normal
D	Dry
D	Critically Dry

Year	Sacramento Valley Index	% Full Table A	% Full Table A for Normal Year (N)	% Full Table A for Single Dry Year (D) *	% Full Table A for Multiple Dry Year (3 or more Dry years)
1922	N	0.64	0.64		
1923	N	0.61	0.61		
1924	D	0.20		0.20	0.20
1925	D	0.42			0.42
1926	D	0.52			0.52
1927	W	0.72			
1928	N	0.64	0.64		
1929	D	0.28		0.28	0.28
1930	D	0.41			0.41
1931	D	0.15			0.15
1932	D	0.39			0.39
1933	D	0.39			0.39
1934	D	0.27			0.27
1935	N	0.57	0.57		
1936	N	0.66	0.66		
1937	N	0.81	0.81		
1938	W	1.00			
1939	D	0.43		0.43	
1940	N	0.63	0.63		
1941	W	0.75			
1942	W	0.64			
1943	W	0.74			
1944	D	0.47		0.47	
1945	N	0.75	0.75		
1946	N	0.59	0.59		
1947	D	0.48		0.48	
1948	N	0.58	0.58		
1949	D	0.56		0.56	
1950	N	0.59	0.59		
1951	N	0.74	0.74		
1952	W	0.82			
1953	W	0.57			
1954	N	0.58	0.58		

1955	D	0.43		0.43	
1956	W	0.82			
1957	N	0.54	0.54		
1958	W	0.92			
1959	N	0.44	0.44		
1960	D	0.47		0.47	
1961	D	0.46			
1962	N	0.66	0.66		
1963	W	0.58			
1964	D	0.64		0.64	
1965	W	0.67			
1966	N	0.62	0.62		
1967	W	0.81			
1968	N	0.55	0.55		
1969	W	1.00			
1970	W	0.69			
1971	W	0.59			
1972	N	0.57	0.57		
1973	N	0.66	0.66		
1974	W	0.74			
1975	W	0.69			
1976	D	0.62		0.62	
1977	D	0.09			
1978	N	0.78	0.78		
1979	N	0.68	0.68		
1980	N	0.83	0.83		
1981	D	0.57		0.57	
1982	W	0.95			
1983	W	1.00			
1984	W	0.77			
1985	D	0.68		0.68	
1986	W	0.79			
1987	D	0.23		0.23	0.23
1988	D	0.30			0.30
1989	D	0.49			0.49
1990	D	0.19			0.19
1991	D	0.22			0.22
1992	D	0.18			0.18
1993	N	0.66	0.66		
1994	D	0.57		0.57	
1995	W	0.85			
1996	W	0.66			
1997	W	0.81			
1998	W	0.83			
1999	W	0.71			
2000	W	0.65			
2001	D	0.30		0.30	
2002	D	0.67			
2003	N	0.58	0.58		
	Average	0.60	0.64	0.46	0.31

*Includes first year of consecutive dry years

SWP Table A Deliveries for 2009 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (taf)	Article 56 Carryover (taf)	Total Table A Delivery (taf)	Percent of Maximum Table A (47.8 taf)	Year	SWP Total Table A Delivery (taf)	Exceedence Frequency (%)	Percent of Maximum Table A (47.8 taf)
1922	17.5	0.0	17.5	37%	1939	45.8	0%	96%
1923	22.9	17.4	40.3	84%	1998	43.4	1%	91%
1924	7.2	5.4	12.6	26%	1953	42.4	2%	89%
1925	18.0	0.7	18.7	39%	1928	41.0	4%	86%
1926	19.7	3.8	23.5	49%	1952	40.9	5%	86%
1927	18.2	3.6	21.8	46%	2000	40.9	6%	86%
1928	22.8	18.1	41.0	86%	1996	40.8	7%	85%
1929	9.9	4.9	14.9	31%	1923	40.3	9%	84%
1930	15.0	2.1	17.0	36%	1981	40.1	10%	84%
1931	7.4	3.0	10.5	22%	1971	39.9	11%	83%
1932	14.8	2.1	16.9	35%	1942	39.7	12%	83%
1933	15.1	1.4	16.5	35%	1968	39.7	14%	83%
1934	8.2	3.0	11.3	24%	1966	39.4	15%	83%
1935	18.3	2.2	20.5	43%	1959	39.4	16%	83%
1936	20.2	13.6	33.8	71%	1957	39.3	17%	82%
1937	21.1	10.3	31.3	66%	1964	38.8	19%	81%
1938	23.7	13.2	36.9	77%	1976	38.7	20%	81%
1939	22.1	23.7	45.8	96%	2003	37.9	21%	79%
1940	21.9	7.0	28.9	60%	1975	37.6	22%	79%
1941	20.8	7.3	28.1	59%	1974	37.2	23%	78%
1942	19.0	20.8	39.7	83%	1985	36.9	25%	77%
1943	18.9	17.9	36.7	77%	1938	36.9	26%	77%
1944	18.5	17.5	36.0	75%	1943	36.7	27%	77%
1945	17.7	3.4	21.1	44%	1944	36.0	28%	75%
1946	17.7	17.7	35.4	74%	1997	35.8	30%	75%
1947	20.9	14.6	35.4	74%	1947	35.4	31%	74%
1948	21.6	9.2	30.8	65%	1946	35.4	32%	74%
1949	22.9	4.7	27.6	58%	1936	33.8	33%	71%
1950	20.8	5.5	26.3	55%	1962	33.5	35%	70%
1951	18.3	2.0	20.3	43%	1954	33.2	36%	69%
1952	22.7	18.3	40.9	86%	1986	31.9	37%	67%
1953	19.8	22.6	42.4	89%	1994	31.8	38%	67%
1954	22.1	11.1	33.2	69%	1969	31.7	40%	66%
1955	19.7	4.8	24.5	51%	1937	31.3	41%	66%
1956	20.8	1.9	22.7	48%	1979	31.0	42%	65%
1957	18.6	20.7	39.3	82%	1948	30.8	43%	65%
1958	23.7	3.9	27.7	58%	1983	30.7	44%	64%
1959	18.9	20.5	39.4	83%	1940	28.9	46%	60%

SWP Table A Deliveries for 2009 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (taf)	Article 56 Carryover (taf)	Total Table A Delivery (taf)	Percent of Maximum Table A (47.8 taf)	Year	SWP Total Table A Delivery (taf)	Exceedence Frequency (%)	Percent of Maximum Table A (47.8 taf)
1960	21.0	4.0	25.0	52%	1999	28.7	47%	60%
1961	19.1	4.5	23.6	49%	1980	28.4	48%	60%
1962	21.3	12.2	33.5	70%	1941	28.1	49%	59%
1963	17.3	4.6	21.9	46%	1970	27.9	51%	58%
1964	21.5	17.3	38.8	81%	1958	27.7	52%	58%
1965	17.7	8.1	25.8	54%	1949	27.6	53%	58%
1966	21.8	17.7	39.4	83%	1972	27.5	54%	58%
1967	18.9	7.6	26.5	55%	1982	27.2	56%	57%
1968	20.8	18.9	39.7	83%	1967	26.5	57%	55%
1969	23.7	7.9	31.7	66%	1987	26.3	58%	55%
1970	18.3	9.5	27.9	58%	1950	26.3	59%	55%
1971	21.6	18.3	39.9	83%	1965	25.8	60%	54%
1972	22.9	4.7	27.5	58%	1995	25.8	62%	54%
1973	16.6	4.9	21.6	45%	1984	25.3	63%	53%
1974	20.6	16.6	37.2	78%	1960	25.0	64%	52%
1975	17.0	20.6	37.6	79%	1955	24.5	65%	51%
1976	21.7	17.0	38.7	81%	1961	23.6	67%	49%
1977	2.1	4.7	6.8	14%	1926	23.5	68%	49%
1978	21.0	0.5	21.5	45%	1956	22.7	69%	48%
1979	18.3	12.7	31.0	65%	1963	21.9	70%	46%
1980	21.7	6.7	28.4	60%	1927	21.8	72%	46%
1981	19.0	21.1	40.1	84%	1973	21.6	73%	45%
1982	23.7	3.5	27.2	57%	1978	21.5	74%	45%
1983	23.7	7.0	30.7	64%	1945	21.1	75%	44%
1984	18.4	6.9	25.3	53%	1993	20.7	77%	43%
1985	18.6	18.3	36.9	77%	1935	20.5	78%	43%
1986	20.6	11.3	31.9	67%	1951	20.3	79%	43%
1987	14.7	11.6	26.3	55%	2002	20.2	80%	42%
1988	8.4	3.0	11.3	24%	1990	20.0	81%	42%
1989	16.5	1.6	18.2	38%	1925	18.7	83%	39%
1990	8.1	11.9	20.0	42%	1989	18.2	84%	38%
1991	8.4	1.4	9.8	20%	2001	17.6	85%	37%
1992	7.8	2.0	9.8	20%	1922	17.5	86%	37%
1993	18.9	1.9	20.7	43%	1930	17.0	88%	36%
1994	18.2	13.6	31.8	67%	1932	16.9	89%	35%
1995	21.8	3.9	25.8	54%	1933	16.5	90%	35%
1996	19.0	21.8	40.8	85%	1929	14.9	91%	31%
1997	20.6	15.2	35.8	75%	1924	12.6	93%	26%

SWP Table A Deliveries for 2009 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (taf)	Article 56 Carryover (taf)	Total Table A Delivery (taf)	Percent of Maximum Table A (47.8 taf)	Year	SWP Total Table A Delivery (taf)	Exceedence Frequency (%)	Percent of Maximum Table A (47.8 taf)
1998	22.9	20.6	43.4	91%	1988	11.3	94%	24%
1999	18.2	10.5	28.7	60%	1934	11.3	95%	24%
2000	23.0	17.9	40.9	86%	1931	10.5	96%	22%
2001	12.7	5.0	17.6	37%	1992	9.8	98%	20%
2002	17.7	2.5	20.2	42%	1991	9.8	99%	20%
2003	23.5	14.4	37.9	79%	1977	6.8	100%	14%
Average	18.5	9.8	28.3	60 ~~59%~~		28.3		60 ~~59%~~
Maximum	23.7	23.7	45.8	97 ~~96%~~		45.8		97 ~~96%~~
Minimum	2.1	0.0	6.8	14%		6.8		14%

SWP Table A Deliveries for 2029 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (taf)	Article 56 Carryover (taf)	Total Table A Delivery (taf)	Percent of Maximum Table A (47.8 taf)	Year	SWP Total Table A Delivery (taf)	Exceedence Frequency (%)	Percent of Maximum Table A (47.8 taf)
1922	30.6	0.0	30.6	64%	1983	47.8	0%	100%
1923	29.3	0.0	29.3	61%	1938	47.8	1%	100%
1924	9.5	0.0	9.5	20%	1969	47.8	2%	100%
1925	19.9	0.0	19.9	42%	1982	45.6	4%	95%
1926	24.7	0.0	24.7	52%	1958	44.0	5%	92%
1927	34.4	0.0	34.4	72%	1995	40.5	6%	85%
1928	30.6	0.0	30.6	64%	1980	39.8	7%	83%
1929	13.5	0.0	13.5	28%	1998	39.4	9%	83%
1930	19.8	0.0	19.8	41%	1956	39.1	10%	82%
1931	7.1	0.0	7.1	15%	1952	39.1	11%	82%
1932	18.4	0.0	18.4	39%	1967	38.9	12%	81%
1933	18.5	0.0	18.5	39%	1997	38.6	14%	81%
1934	12.8	0.0	12.8	27%	1937	38.6	15%	81%
1935	27.0	0.0	27.0	57%	1986	37.6	16%	79%
1936	31.3	0.0	31.3	66%	1978	37.1	17%	78%
1937	38.6	0.0	38.6	81%	1984	36.8	19%	77%
1938	47.8	0.0	47.8	100%	1941	35.7	20%	75%
1939	20.4	0.0	20.4	43%	1945	35.7	21%	75%
1940	30.3	0.0	30.3	63%	1974	35.4	22%	74%
1941	35.7	0.0	35.7	75%	1943	35.3	23%	74%
1942	30.5	0.0	30.5	64%	1951	35.3	25%	74%
1943	35.3	0.0	35.3	74%	1927	34.4	26%	72%
1944	22.6	0.0	22.6	47%	1999	34.1	27%	71%
1945	35.7	0.0	35.7	75%	1975	33.1	28%	69%
1946	28.3	0.0	28.3	59%	1970	32.9	30%	69%
1947	22.9	0.0	22.9	48%	1979	32.4	31%	68%
1948	27.9	0.0	27.9	58%	1985	32.3	32%	68%
1949	26.5	0.0	26.5	56%	1965	32.1	33%	67%
1950	28.3	0.0	28.3	59%	2002	32.0	35%	67%
1951	35.3	0.0	35.3	74%	1962	31.7	36%	66%
1952	39.1	0.0	39.1	82%	1973	31.6	37%	66%
1953	27.4	0.0	27.4	57%	1993	31.5	38%	66%
1954	27.8	0.0	27.8	58%	1996	31.4	40%	66%
1955	20.5	0.0	20.5	43%	1936	31.3	41%	66%
1956	39.1	0.0	39.1	82%	2000	31.1	42%	65%
1957	25.6	0.0	25.6	54%	1964	30.7	43%	64%
1958	44.0	0.0	44.0	92%	1928	30.6	44%	64%
1959	21.0	0.0	21.0	44%	1922	30.6	46%	64%

SWP Table A Deliveries for 2029 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (taf)	Article 56 Carryover (taf)	Total Table A Delivery (taf)	Percent of Maximum Table A (47.8 taf)	Year	SWP Total Table A Delivery (taf)	Exceedence Frequency (%)	Percent of Maximum Table A (47.8 taf)
1960	22.4	0.0	22.4	47%	1942	30.5	47%	64%
1961	22.0	0.0	22.0	46%	1940	30.3	48%	63%
1962	31.7	0.0	31.7	66%	1976	29.7	49%	62%
1963	27.6	0.0	27.6	58%	1966	29.6	51%	62%
1964	30.7	0.0	30.7	64%	1923	29.3	52%	61%
1965	32.1	0.0	32.1	67%	1950	28.3	53%	59%
1966	29.6	0.0	29.6	62%	1946	28.3	54%	59%
1967	38.9	0.0	38.9	81%	1971	28.0	56%	59%
1968	26.5	0.0	26.5	55%	1948	27.9	57%	58%
1969	47.8	0.0	47.8	100%	1954	27.8	58%	58%
1970	32.9	0.0	32.9	69%	2003	27.7	59%	58%
1971	28.0	0.0	28.0	59%	1963	27.6	60%	58%
1972	27.5	0.0	27.5	57%	1972	27.5	62%	57%
1973	31.6	0.0	31.6	66%	1981	27.4	63%	57%
1974	35.4	0.0	35.4	74%	1994	27.4	64%	57%
1975	33.1	0.0	33.1	69%	1953	27.4	65%	57%
1976	29.7	0.0	29.7	62%	1935	27.0	67%	57%
1977	4.5	0.0	4.5	9%	1949	26.5	68%	56%
1978	37.1	0.0	37.1	78%	1968	26.5	69%	55%
1979	32.4	0.0	32.4	68%	1957	25.6	70%	54%
1980	39.8	0.0	39.8	83%	1926	24.7	72%	52%
1981	27.4	0.0	27.4	57%	1989	23.4	73%	49%
1982	45.6	0.0	45.6	95%	1947	22.9	74%	48%
1983	47.8	0.0	47.8	100%	1944	22.6	75%	47%
1984	36.8	0.0	36.8	77%	1960	22.4	77%	47%
1985	32.3	0.0	32.3	68%	1961	22.0	78%	46%
1986	37.6	0.0	37.6	79%	1959	21.0	79%	44%
1987	10.8	0.0	10.8	23%	1955	20.5	80%	43%
1988	14.1	0.0	14.1	30%	1939	20.4	81%	43%
1989	23.4	0.0	23.4	49%	1925	19.9	83%	42%
1990	9.3	0.0	9.3	19%	1930	19.8	84%	41%
1991	10.4	0.0	10.4	22%	1933	18.5	85%	39%
1992	8.4	0.0	8.4	18%	1932	18.4	86%	39%
1993	31.5	0.0	31.5	66%	2001	14.5	88%	30%
1994	27.4	0.0	27.4	57%	1988	14.1	89%	30%
1995	40.5	0.0	40.5	85%	1929	13.5	90%	28%
1996	31.4	0.0	31.4	66%	1934	12.8	91%	27%
1997	38.6	0.0	38.6	81%	1987	10.8	93%	23%

SWP Table A Deliveries for 2029 Study					Probability Curve			
Year	Delivery w/o Article 56 Carryover (taf)	Article 56 Carryover (taf)	Total Table A Delivery (taf)	Percent of Maximum Table A (47.8 taf)	Year	SWP Total Table A Delivery (taf)	Exceedence Frequency (%)	Percent of Maximum Table A (47.8 taf)
1998	39.4	0.0	39.4	83%	1991	10.4	94%	22%
1999	34.1	0.0	34.1	71%	1924	9.5	95%	20%
2000	31.1	0.0	31.1	65%	1990	9.3	96%	19%
2001	14.5	0.0	14.5	30%	1992	8.4	98%	18%
2002	32.0	0.0	32.0	67%	1931	7.1	99%	15%
2003	27.7	0.0	27.7	58%	1977	4.5	100%	9%
Average	28.4	0.0	28.4	60%		28.4		60%
Maximum	47.8	0.0	47.8	100%		47.8		100%
Minimum	4.5	0.0	4.5	9%		4.5		9%

Appendix C Solano Project Reliability

Ultimate level of development-of Lake Berryessa watershed @ 30,000 AF/yr - 2009 Study

Lake Berryessa Index

Value	Year Type
W	Wet
N	Below Normal
N	Above Normal
D	Dry
D	Critically Dry

Year	Index Value	% Full Alloc	% Full Alloc for Normal Year (N)	% Full Alloc for Single Dry Year (D) *	% Full Alloc for Multiple Dry Years (3 or more Dry years)
1906	W	100%			
1907	W	100%			
1908	D	100%		100%	
1909	W	100%			
1910	N	100%	100%		
1911	W	100%			
1912	D	100%		100%	
1913	D	100%			
1914	W	100%			
1915	W	100%			
1916	W	100%			
1917	N	100%	100%		
1918	D	100%		100%	
1919	N	100%	100%		
1920	D	100%		100%	
1921	N	100%	100%		
1922	N	100%	100%		
1923	N	100%	100%		
1924	D	95%		95%	
1925	N	95%	95%		
1926	N	95%	95%		
1927	W	95%			
1928	N	100%	100%		
1929	D	95%		95%	
1930	N	95%	95%		
1931	D	100%		100%	100%
1932	D	100%			100%
1933	D	45%			45%
1934	D	45%			45%
1935	N	100%	100%		
1936	N	100%	100%		
1937	N	100%	100%		
1938	W	100%			
1939	D	95%		95%	

1940	W	100%			
1941	W	100%			
1942	W	100%			
1943	N	100%	100%		
1944	D	100%		100%	
1945	N	100%	100%		
1946	N	100%	100%		
1947	D	100%		100%	100%
1948	D	95%			95%
1949	D	95%			95%
1950	D	95%			95%
1951	N	95%	95%		
1952	W	100%			
1953	N	100%	100%		
1954	N	100%	100%		
1955	D	95%		95%	
1956	W	100%			
1957	D	100%		100%	
1958	W	100%			
1959	D	100%		100%	
1960	N	100%	100%		
1961	D	100%		100%	
1962	N	100%	100%		
1963	W	100%			
1964	D	100%		100%	
1965	W	100%			
1966	N	100%	100%		
1967	W	100%			
1968	N	100%	100%		
1969	W	100%			
1970	W	100%			
1971	N	100%	100%		
1972	D	100%		100%	
1973	W	100%			
1974	W	100%			
1975	N	100%	100%		
1976	D	100%		100%	
1977	D	100%			
1978	W	100%			
1979	N	100%	100%		
1980	W	100%			
1981	D	100%		100%	
1982	W	100%			
1983	W	100%			
1984	N	100%	100%		
1985	D	100%		100%	
1986	W	100%			
1987	D	100%		100%	100%
1988	D	100%			100%
1989	D	100%			100%
1990	D	95%			95%
1991	N	95%	95%		

1992	D	90%		90%	
1993	W	95%			
1994	D	95%		95%	
1995	W	100%			
1996	W	100%			
1997	W	100%			
1998	W	100%			
1999	N	100%	100%		
2000	N	100%	100%		
2001	D	100%		100%	
2002	N	100%	100%		
2003	N	100%	100%		
2003	W	100%			
2004	N	100%	100%		
2005	N	100%	100%		
2006	W	100%			
2007		100%			
	Average	98%	99%	98%	89%

*Includes first year of consecutive dry years

Appendix B9

Memorandum from Lee Axelrad regarding Groundwater Rights for the Middle Green Valley Specific Plan

OFFICE OF THE COUNTY COUNSEL
SOLANO COUNTY
675 TEXAS STREET, SUITE 6600
FAIRFIELD, CA 94533

Confidential/Attorney-Client Privileged

MEMORANDUM

TO: Michael Yankovich

FROM: Lee Axelrad, Deputy County Counsel

DATE: July 19, 2013

RE: Middle Green Valley Specific Plan – Groundwater Rights

Water rights for public supply of groundwater under Water Supply Option B of the Middle Green Valley Specific Plan will likely be appropriative rights.

Appropriative Rights of CSA. Option B anticipates that groundwater will be extracted by a County Service Area for public uses such as supply of potable water for municipal/residential purposes. The right to use groundwater for public purposes is typically deemed to be an appropriative right. (*Pasadena v. Alhambra* (1948) 33 Cal. 2d 908, 925-26; *Wright v. Goleta Water Dist*. (1985) 174 Cal. App. 3d 74, 92.) The right to appropriate groundwater is limited to the amount that is not needed for the reasonable and beneficial uses of overlying users (i.e., the "surplus" amount). (*Pasadena, supra,* 33 Cal. 2d at p. 925.)

Overlying Rights of Landowners. As shown by Figure 3-1 of the Water Supply Assessment, land within the Plan Area overlies the relevant portions of the Suisun-Fairfield Valley Groundwater Basin. Each landowner overlying a groundwater basin has an equal correlative right to extract the amount of percolating groundwater that can be reasonably and beneficially used on their own overlying land. The amount associated with overlying rights is not quantified unless the relevant basin has been adjudicated. (*Wright, supra,* 174 Cal.App.3d at p. 84.) The relevant portions of the Suisun-Fairfield Valley Groundwater Basin have not been adjudicated.

If a surplus ceases to exist and there is insufficient groundwater for overlying users and appropriators, then: (1) the rights of overlying users take precedence over the rights of appropriators; but (2) if an appropriator has been using groundwater for public purposes, overlying landowners may exercise their rights by seeking damages but not an injunction. (*Pasadena, supra, 3*3 Cal.2d at p. 926; *Wright, supra,* 174 Cal.App.3d at p. 90.)

This memo concisely identifies water rights for public supply of groundwater under Water Supply Option B, and was prepared solely for the purpose of describing those rights in the plan's groundwater Water Supply Assessment and Recirculated Draft Environmental Impact Report. This memo should not be used in any other context without first conferring with me. At later stages of the planning process, it may be desirable for the County or the County Service Area, once formed, to obtain a more detailed review of groundwater rights as appropriate to later phases of the process.

Appendix C

WSA for Water Supply Option C
(SID Surface Water)

SOLANO IRRIGATION DISTRICT

DATE: April 15, 2014 **AGENDA ITEM NO. 6.2**

TITLE: **Middle Green Valley Water Supply Assessment**

SUBJECT: **Approve the Water Supply Assessment (WSA) for the Middle Green Valley Specific Plan Development.**

EXECUTIVE SUMMARY:

At the January, 2014 Solano Irrigation District (SID or, District) Board Meeting, the Board authorized staff to complete a Water Supply Assessment (WSA) for Solano County's proposed Middle Green Valley (MGV) Development. The California Water Code requires responsible agencies to complete a WSA when requested by a land use authority (in this case Solano County). Since SID is the default water purveyor in the area, the SID Board authorized the retention of Summers Engineering to perform the WSA. The WSA is now complete and is presented to the Board for approval.

The attached WSA prepared by Summers Engineering includes a continuation of the work done by Davids Engineering regarding the agricultural demands presented at last month's board meeting (March 17, 2014). Overall, the water for the MGV development demand of 190 AF falls well within SID's annual demand and ability to deliver said surface water. The County intends to base its environmental review of the project based on a conjunction surface water/groundwater mix to entitle the project. Therefore, from a supply perspective, Staff recommends the Board approve the WSA.

Further, its Staff's understanding the County intends to move forward with the project (the County is the land use agency approving development within the County). As such, Staff believes SID should be the first agency the County turns to for the operations of the water system. Mainly, because the majority of the project is located within the Boundaries of SID, we have service staff in the area (Suisun City, Green Valley, Fairfield Corporate Commons, Cordelia, etc.) and having an additional five hundred customers will help spread out our costs thereby helping maintain lower costs to our existing customers.

Based on these points, Staff recommends approval of the WSA and the concept of SID operating the water system should the County approve or, entitle the project.

BACKGROUND:

At the January, 2014 Solano Irrigation District (SID or, District) Board Meeting, the Board authorized staff to complete a Water Supply Assessment (WSA) for Solano County's proposed Middle Green Valley (MGV) Development. The California Water Code requires responsible agencies to complete a WSA (within 90 days) when requested by a land use authority (in this case Solano County). Since SID is the default water purveyor in the area, the SID Board authorized the retention of Summers Engineering to perform the WSA. The WSA is now complete and is presented to the Board for approval.

The attached WSA prepared by Summers Engineering includes a continuation of the work done by Davids Engineering regarding the agricultural demands presented at last month's board meeting (March 17, 2014). Based on Board input, the WSA also includes various demand scenarios for the contractual obligations with the cities. In projected minimum years, the District has a 44,388 AF surplus, 6,403 AF surplus in the average year, and a 17,100 AF deficit in the worst case year. The WSA indicates the District uses its carryover storage to bridge years where demand may exceed the annual Solano Project entitlement plus groundwater supplies.

In addition, the WSA contemplates an increase in overall District efficiency in deliveries of agricultural water which would reduce demand. The WSA further discusses the provision in the Rules and Regulations that provide for the implementation of an allocation of water to all users, which, in worst case scenarios, could be utilized to ensure a pro-rata share of water was available to all users. Overall, the water for the Middle Green Valley development demand of 190 AF falls well within SID's annual demand and ability to deliver said surface water.

To date, two (2) other WSA's for the MGV project have been completed; one from the City of Fairfield, and the other by the County for groundwater. SID's WSA addresses a third component of water supply, surface water. The County intends to bundle all three (3) WSA's and include in their environmental review of the project. Whether the County relies on SID's WSA or not, the other two (2) WSA's identify sufficient water for the project. The County intends, however, to rely on SID's WSA for surface water to be used in conjunction with groundwater (conjunctive use) to entitle the project.

Approving the attached WSA does not obligate the District to be the potable water provider. Also, SID is not approving the County's project (that is a separate County Board of Supervisors action). By approving the WSA, however, SID is stating that it does have the water resources to serve the project should the County approve or, entitle the project.

Further, if the County does move forward and approve or, entitle the project, Staff believes SID should be the first agency the County turns to for the operations of the water system. Mainly, because of the following:

- ✓ The majority of the project is located within the Boundaries of SID (the remaining area would need to be annexed to the District Boundary)
- ✓ SID has service staff in the area (Suisun City, Green Valley, Fairfield Corporate Commons, Cordelia, etc.)
- ✓ SID has the expertise and the resources to operate the system
- ✓ Having an additional five hundred customers to spread out costs will help SID maintain lower costs to its existing customers
- ✓ SID has the water resources
- ✓ It would not serve as a benefit to SID or its customers to having a competing water agency operating a water system within SID boundaries
- ✓ Lastly, since the DSWA JPA ends in August of 2014, it is a direct benefit to all of SID's other M&I customers to generate other M&I customers (again, holds cost increases down)

Based on these points, Staff supports approval of the WSA and the concept of SID operating the water system should the County approve or, entitle the project.

TITLE: ***Middle Green Valley Water Supply Assessment***

RECOMMENDATION:

Staff recommends the Board approve the Water Supply Assessment for the MGV Specific Plan and to also assert SID's right to operate the development's water system should the County approve the project.

FINANCIAL IMPACT:

None

ATTACHMENTS:

1. Middle Green Valley Water Supply Assessment

STAFF RESPONSIBLE FOR REPORT:

Paul Fuchslin, Director of Engineering — Date: 4-10-14

Cary Keaten, General Manager — Date: 4-10-14

Agenda Item No. 6.2
Attachment 1

SOLANO IRRIGATION DISTRICT

WATER SUPPLY ASSESSMENT
FOR THE
MIDDLE GREEN VALLEY SPECIFIC PLAN PROJECT

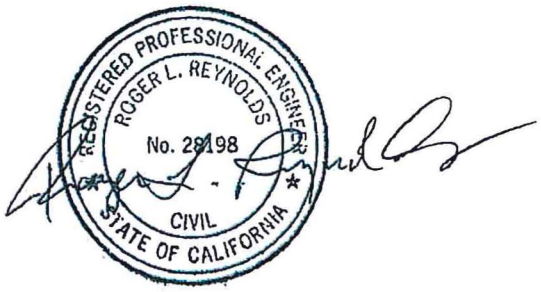
April 2014

Summers Engineering, Inc.
Consulting Engineers
Hanford, California

SOLANO IRRIGATION DISTRICT

WATER SUPPLY ASSESSMENT
FOR THE
MIDDLE GREEN VALLEY SPECIFIC PLAN PROJECT

April 2014



Summers Engineering, Inc.
Consulting Engineers
Hanford, California

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Table 3 SID Water Supplies and Water Demands

Table 4 SID Water Supplies, Water Demands & Remaining Supplies

1. Introduction

The proposed Middle Green Valley Specific Plan Project is described and detailed in the Recirculated Draft Environmental Impact Report (RDEIR) prepared for Solano County and dated August 2013. As described in the RDEIR the proposed project includes construction of up to 400 new primary residential units, up to 100 new secondary residential units, agricultural tourism, local neighborhood retail and community facility uses, and over 1,490 acres designated as permanent open land, including 440 acres described as protected or preserved working agriculture. Two Water Supply Assessments are included in the RDEIR, one for each of two water supply options evaluated. One option is a *municipal connection* to the City of Fairfield. Another option is consideration of the use of onsite groundwater as a source to meet all future project water demands.

Solano County requested Solano Irrigation District (SID), currently a water supplier for both agricultural and non potable urban water deliveries within Green Valley and whose service area encompasses a large portion of Green Valley, be involved in water provision and operations within the Specific Plan area. SID is the default potable water purveyor within its boundary limits. This would include the Middle Green Valley area. SID has been asked to prepare an additional Water Supply Assessment to determine if they would be able to provide the project water supplies needed to meet the potable water supply requirements of the Middle Green Valley Specific Plan Project pursuant to the requirements of Water Code §10910.

In accordance with Water Code §10910 (c) (3) *"If the projected water demand associated with the (a) proposed project was not accounted for in the most recently adopted urban water management plan, or the public water system has no urban water management plan, the water supply assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."*

2. Project Water Demands

Water Code §10910 (c) (3) requires an analysis of the projected water demand of the Middle Green Valley Specific Plan Project. This analysis is presented in the RDEIR. Following are a few comments and discussion from the RDEIR clarifying some of the water demand issues affecting SID in Green Valley. At the completion of construction of the Solano Project's Putah South Canal and Terminal Reservoir into Green Valley in the 1960's surface water deliveries to 18 agricultural turnouts began through a piped

distribution system. A summary of SID's historic water use in Green Valley is included in Section 16.1 of the RDEIR and in the Groundwater Water Supply Assessment (WSA), Appendix B. As described in the RDEIR the central portion of the Specific Plan Area is within the boundaries and jurisdiction of SID and SID provides this area with surface water for irrigation purposes. SID also delivers non-potable water (municipal and industrial) to 11 residential turnouts many of which are located within the Specific Plan Project Area. The agricultural water demand for agricultural lands within the Middle Green Valley Specific Plan Project and within the SID boundary would not be considered a new demand for SID. SID will continue to provide this irrigation demand into the future. New water demands to SID from the proposed project would consist of the domestic water demands required for the new proposed residential units and any adjacent retail businesses.

There are approximately 55 existing agricultural residential housing units within the Middle Green Valley Specific Plan area. These homes currently and historically have received their water from domestic wells. The Groundwater WSA assumes this supply source would continue to be available in the future, and therefore, would not create an additional water supply demand for SID. The projected additional domestic water demands summarized in the Groundwater WSA for the proposed Middle Green Valley Specific Plan Area are estimated at 186 acre feet per year. This WSA is rounding this amount to 190 acre feet. This additional demand will be reviewed in this Water Supply Assessment to determine whether SID's projected water supplies available during normal, single dry, and multiple dry water years during the next 20 years will be able to meet the projected water demand associated with the Middle Green Valley Specific Plan Area project.

3. Water Supply and Water Rights

In 1955, the Solano County Flood Control and Water Conservation District, now the Solano County Water Agency (SCWA), entered into a contract with the United States of America acting through the U.S. Bureau of Reclamation for a water supply from the Solano Project. The Solano Project is SID's primary water supply and this supply is based on Water Rights originally filed with the State Water Resources Control Board at the time of the project. Copies of these water rights were included in the RDEIR in Appendices B1, B2 and B3. SID has been and continues to be the primary Solano Project water user in Solano County. Included in Appendices B4 and B5 of the RDEIR are copies of (1) the Contract between the U.S. Bureau of Reclamation and Solano County Water Agency for providing Water Service and (2) the Solano County Water Agency Agreement with the Solano Irrigation District, specifically its Participating Agency Contract for Solano Project Water Service.

Approval from the State Water Resources Control Board is required, to change the place of use boundary for the water rights in the RDEIR Appendices B1, B2, and B3, in order

to be able to deliver the water supply to the portions of the Specific Plan outside the current place of use. Approval from the Solano Local Agency Formation Commission is required, to change the SID service area boundary, in order to be able to deliver the water supply to the portions of the Specific Plan outside the current service area.

4. SID Solano Project Water Deliveries

A summary of the annual Solano Project water deliveries to SID from 1988 - 89 through 2012 - 13 is provided in the following Table 1.

TABLE 1 – SID SOLANO PROJECT WATER DELIVERIES

Water Year	Water Delivered (Acre Feet)
1988-89	143,850
1989-90	130,143
1990-91	132,897
1991-92	104,452
1992-93	111,768
1993-94	123,112
1994-95	148,097
1995-96	129,008
1996-97	131,613
1997-98	154,551
1998-99	105,744
1999-00	125,783
2000-01	125,915
2001-02	133,599
2002-03	128,729
2003-04	101,908
2004-05	127,154
2005-06	106,282
2006-07	98,290
2007-08	129,107
2008-09	141,233
2009-10	120,100
2010-11	114,235
2011-12	113,161
2012-13	126,978

5. SID Available Water Supplies and Projected Water Demands

SID has an allocated surface water supply from the Solano Project for 141,000 acre feet per year. With the addition of groundwater supplies SID has available an average annual water supply of approximately 146,000 acre feet. Fully utilizing historic capacity of wells would result in a supply potential of 155,000 acre feet.

The Solano Irrigation District's primary water demand is the agricultural water necessary to produce the crops grown within the SID service area. In addition to this demand SID provides municipal and industrial (M&I) and non-potable water supplies to some rural developments within its service area. When land use changes and increased urbanization occur, M&I water demand increases. Historically, SID has entered into agreements with cities (Benicia, Fairfield, Suisun, and Vacaville) to augment the cities' supplies. The agreements provide for water transfers from SID to said cities. Depending upon the agreement, water may be held in trust for the city and available upon demand, or on an entitlement basis. If on an entitlement basis, the city is able to utilize said entitlement water as carryover storage if it is not used in the year allotted.

To confirm its agricultural water demand an agricultural water balance analysis for a 1991 – 2010 study period is under development by SID to guide development of a future agricultural water allocation policy. The preliminary analysis shows crop evapotranspiration of applied irrigation water (ETAW) or the portion of applied water actually consumed within SID has ranged from 57,000 to 91,000 acre-feet per year over a 1991 –2010 study period. Table 2 summarizes the normalized ETAW for the crops grown within SID. It summarizes by year, from the lowest to the highest, the annual applied water required to meet the evapotranspiration requirements for the agricultural acreage of the study period. This analysis included the weather data and cropping patterns experienced. The ETAW has significant variations which are dependent on changes in weather. This includes variations in precipitation, temperature, and winds which all affect the amount of water required for optimum crop production. The agricultural water balance analysis shows variations in cropping patterns have occurred during the study period. Additional changes in the type of crops being planted and crop acreage can alter the crop water demands.

The review of projected agricultural water demands needs to consider ongoing improvements in water delivery efficiency. Water delivery losses in the SID distribution system and the on-farm delivery systems of individual farmers together with operational spills and the recovery and reuse of tailwater are all factors affecting the required quantity of SID water deliveries. SID has a rehabilitation and betterment program which continues to improve infrastructure which helps to reduce losses. This includes installing concrete lining in canals not originally lined to reduce seepage losses, automatic control gates, and Supervisory Control and Data Acquisition (SCADA) systems to better monitor operational spills and reduce unnecessary water supply losses. All potential, cost effective control measures to further reduce water losses and improve

the efficiency of surface water deliveries are investigated. As the value of water increases, many farmers in SID are also making changes and improvements to their on-farm water delivery systems. This includes capturing and reusing agricultural tailwater return flows and installing new water delivery systems. Over the last five years SID has seen an increased number of farmers installing micro spray and drip irrigation systems on newly planted orchards. Continued technological improvement in water delivery efficiency will further reduce the water delivery needed to meet the annual SID ETAW. A current estimate of SID water supplies and water demands projected to 2034 is provided in Table 3.

TABLE 2 - Normalized Evapotranspiration of Applied Water (ETAW) For SID Agricultural Acreage 1991-2010 [1]

Seasonal ET of Applied Water (ac-ft)						Representative Year
Corn	Grain	Other Annual	Pasture/ Hay	Tree/ Vine	Total	
4,219	4,215	14,946	24,562	9,031	56,974	1998
4,680	5,764	17,315	28,469	10,638	66,866	1995
4,865	5,404	17,271	30,792	11,364	69,695	1993
4,695	5,942	16,512	30,921	11,964	70,035	2010
4,956	5,840	17,858	31,038	11,162	70,854	2006
5,005	5,548	17,785	31,734	11,814	71,885	1996
4,853	5,970	17,490	31,640	12,039	71,993	2005
4,819	5,743	16,975	33,711	12,926	74,174	2000
5,177	6,420	18,905	32,438	11,380	74,320	1991
5,088	6,405	18,730	34,264	12,493	76,980	2003
5,031	6,192	17,795	36,109	13,569	78,696	2009
5,171	5,940	18,419	36,077	13,327	78,933	1992
4,929	6,544	18,187	36,691	14,095	80,445	1999
5,093	6,721	18,460	37,882	14,329	82,485	1994
5,259	6,739	18,703	38,888	14,449	84,039	2004
5,339	6,513	18,959	38,770	14,461	84,042	2001
5,088	6,919	18,170	40,132	15,606	85,914	2007
5,333	7,212	19,707	39,142	14,772	86,166	2008
5,452	7,244	19,793	40,235	15,397	88,121	2002
5,444	7,643	19,849	42,592	15,572	91,101	1997
				Average	77,186	

[1] Source Davids Engineering SID AG Water Balance Analysis

TABLE 3

SID Water Supplies and Water Demands

	Ag Water Balance Scenario Types [1] (Quantities in AF)		
	A	B	C
SID Water Supplies	Minimum	Average	Maximum
1. Solano Project Allocation	141,000	141,000	141,000
2. Groundwater Pumping (Historic Minimum, Average, and Historic Maximum)	2,300	5,000	14,000
Estimated Range Total Water Supply (AF)	**143,300**	**146,000**	**155,000**
SID Water Demands			
1. **Ag Water Demand** - The estimated range of SID Agricultural Water Demands is based on Water Balance Scenario Types, defined below in the footnotes.			

SID ETAW for Water Scenario Types (AF)		
A	B	C
56,974 [2]	77,186 [3]	91,101 [4]

The ETAW are the in field crop water demands and do not include estimated distribution system losses and on-farm losses experienced in delivering and applying the irrigation water. These are estimated at 30.1% in the Water Balance Analysis. The estimated Water Deiliveries required to meet the Etaw are estimated by dividing the ETAW by 69.1%.

SID Estimated Range for Ag Water Demands (AF)	(82,452)	(111,702)	(131,839)
2. **SID Municipal & Industrial Demands (AF)**	(5,240)	(5,300)	(5,650)
3. **SID Supply Provided to Suisun-Solano Water Authority (AF)**	(2,400)	(3,150)	(3,900)
Estimated Range Total SID Water Demands (AF)	**(90,092)**	**(120,152)**	**(141,389)**
SID WATER SUPPLY CITY COMMITMENTS			
1. **Vacaville Agreement**	(3,000)	(6,525)	(9,325)
2. **Fairfield Agreements**	(3,820)	(10,920)	(19,386)
3. **Benicia**	(2,000)	(2,000)	(2,000)
Estimated Range SID Water Supply City Commitments (AF)	**(8,820)**	**(19,445)**	**(30,711)**

[1] The Water Scenario Types were developed by Davids Engineering and SID during a recent District Water Balance Analysis. For Water Supply and Demands, "Minimum" refers to the minimum supply or demand available or required during the period of record, the "Average" refers to the average supply or demand over the period of record, and the "Maximum" represents the maximum supply or demand anticipated in the future through 2034.

[2] The Minimum Normalized ETAW experienced from 1991 - 2010. See Table 2.

[3] The Average Normalized ETAW calculated between 1991 - 2010. See Table 2.

[4] The Maximum Normalized ETAW experienced from 1991 - 2010. See Table 2.

The tabulated data for water delivered to cities shows a minimum demand (today's contractual amount to supply, not waters held in trust), a maximum demand (maximum water required to deliver by contract in year 2034), and an average demand (an average of the minimum and maximum based on water entitled and held in trust). These various demands are shown to illustrate the use of carryover water that is stored in Lake Berryessa.

6. Water Supply Reliability

6.1 Water Code §10910 (c)(3)

"... the water assessment for the project shall include a discussion with regard to whether the public water system's total projected water supplies available during normal, single dry, and multiple dry water years during a 20-year projection will meet the projected water demand associated with the proposed project, in addition to the public water system's existing and planned future uses, including agricultural and manufacturing uses."

The Solano Project watershed includes 576 square miles above Monticello Dam, and the Lake Berryessa reservoir provides a storage capacity of 1,602,000 acre-feet. Flow measurements have been kept on Putah Creek since 1906. The average annual inflow is estimated at 360,000 acre-feet. The inflow over the period of record has varied from a maximum of 1,140,000 acre-feet in 1983 to a minimum of 26,100 acre-feet in 1976-77. The Lake Berryessa storage capacity allows Solano Project water users the ability to store and carryover 440% of the project's average annual yield. A primary reason for construction of the large reservoir was to increase the annual safe yield. With a 1,602,000 acre-foot reservoir, the safe annual yield was estimated at 262,000 acre-feet. The annual contractual entitlements of Solano Project water users are 207,350 acre-feet. The remaining inflow covers reservoir evaporation losses and downstream flow requirements.

Normal Year – During a "normal year", defined as a year when the average annual runoff for the Solano Project is available, SID is able to meet all of their demands using the existing water rights mentioned above.

Dry Year(s) – Since construction of the Solano Project, the multiple dry years of the 1987 –1992 California Drought had the greatest impact on delivery of Solano Project water supplies. The cumulative Putah Creek runoff into Lake Berryessa during the six year 1987-92 drought was approximately 800,000 acre feet providing an average annual runoff of only 133,300 acre feet during this period. This runoff was well below the annual average listed above. However, due to

the large storage capacity in Lake Berryessa, mandatory curtailments in water supplies did not begin until 1991-92, the fifth year of that drought. The last few years of the six year drought severely impacted the Department of Water Resources (DWR) ability to provide water supplies from the North Bay Aqueduct (NBA) to some of the urban Solano Project water users. There were 70% deficiencies in NBA deliveries in 1991 and 55% in 1992. Entities for which NBA supplies were a primary supply source were scrambling for options. A recommendation to create a Solano County 1991 Emergency Water Pool was suggested and the SID Board of Directors agreed to participate assisting SCWA create an emergency water pool to help the urban agencies meet their demands and get through the drought. SID agreed to offer landowners the opportunity to idle their land for a year, i.e. forgo farming so the water saved could be put into a pool and used to help the urban agencies. This program was implemented and SID was able to provide up to 15,000 acre feet of water for the emergency pool.

The operational flexibility of a large storage reservoir has allowed Solano Project Water Users to work together to minimize water shortages. Throughout the six year drought SID was able to provide a full water supply to the vast majority of its water users but when water supplies were short many water users agreed to forgo an irrigation supply on lands without permanent crops to help urban areas make up for their water shortages. The landowners were paid to forgo their water use, reducing the SID water demand that year by nearly 15,000 acre feet. Carryover water, or the volume of water that is not used from any one year's entitlement, is cumulative, stored in Lake Berryessa and used by SID to meet the varying agricultural water demands. This explains why SID is able to meet annual demands in excess of the annual supply available (Solano Project allocation water and groundwater).

The Solano County Water Agency provided reliability data for Solano Project water deliveries in Appendix B8 of the RDEIR. This data shows SID surface water deliveries following completion of the Solano Project from 1959 through 2007 have been 100% reliable during normal years, 99% reliable during single dry years, and 99% reliable during the 1976-77 and 1987-92 multiple dry year periods.

6.2 Solano Project Water Shortage Allocation

The Solano Project with its large storage capacity in Lake Berryessa has provided a reliable water supply for Solano Project water users for many years. However, long term Solano Project reliability is impacted by extended drought years which cause a major drawdown of water supplies in Lake Berryessa. The dry years occurring during the 1987-92 drought showed that some type of water shortage allocation policy was needed. At the end of 1992 the water storage in Lake Berryessa reduced to approximately 422,000 acre feet. Thankfully, increased

precipitation and runoff occurring during the winters of 1992-93 and again in 1995-96 refilled the water storage in Lake Berryessa.

Water management planning was still needed to develop and establish an operational plan to help mitigate future drought water supply impacts. In 1999 Solano Project water users entered into a *Drought Measures and Water Allocation Agreement* which provides a phased response and planning process to address future drought situations. The agreement calls for mandatory curtailment of Solano Project water use when drought conditions on December 1 reduce storage in Lake Berryessa below 800,000 acre-feet. When this occurs all parties are to begin developing drought contingency plans with specific water conservation measures to further reduce demand. When April 1 storage is between 550,000 and 800,000 acre-feet, each party agrees to reduce their delivery by at least 5% of their annual entitlement, and the curtailed water is carried over in Solano Project storage for use in future dry years. When April 1 storage drops below 400,000 acre-feet, the Agreement provides that Solano Irrigation District will begin implementing a voluntary agricultural water marketing program for growers willing to sell their water allocations to cities for municipal and industrial use the following March. A copy of the *Drought Measures and Water Allocation Agreement* is included in Appendix B6 of the RDEIR. This joint Agreement between Solano Project water users improves the ability to meet water supply needs when multiple dry years occur.

7. Comparison of Water Supply, Demand and Remaining Supplies

Table 4 summarizes the SID water supply and the SID water demands presented in Table 3, but also lists the Water Supplies Remaining for SID under the three different agricultural water balance scenarios reviewed by SID. Due to historic variations in the SID evapotranspiration of applied water occurring from year to year (see Table 2), Table 4 presents Remaining SID Water Supplies for a year with an estimated Minimum agricultural water demand, a year with an estimated Average water demand, and a year when the agricultural and M&I demands are at the Maximum they have ever been or are projected to be in the future (year 2034). This Maximum year presents the maximum normalized agricultural water demand which occurred in 1997 during the 1991 – 2010 study period. This year was a wet year and 1995, and 1996 were also wet years. In 1997 Lake Berryessa was full and water was available. Farmers wanting to double crop had the opportunity to do so, and in 1997 many of them did, thus maximizing SID's cropped acreage and the ETAW water requirements. The likelihood of this demand being needed or required in the future is also less because of reductions in the SID agricultural acreage.

In years when demand will exceed supply (and no carryover water is available), SID has the means within its Rules and Regulations to implement an allocation policy to

TABLE 4

SID Water Supplies, Water Demands & Remaining Supplies

	Ag Water Balance Scenario Types [1] (Quantities in AF)		
	A	B	C
	Minimum	Average	Maximum
SID Water Supplies			
Estimated Range Total Water Supply (AF)	143,300	146,000	155,000
SID Water Demands			
Estimated Range Total SID Water Demands (AF)	(90,092)	(120,152)	(141,389)
SID WATER SUPPLY CITY COMMITMENTS			
Estimated Range SID Water Supply City Commitments (AF)	(8,820)	(19,445)	(30,711)
SID Remaining Water Supply (AF)			
(= Total Water Supply - SID Demands - City Commitments)	**44,388**	**6,403**	**-17,100**

[1] The Water Scenario Types were developed by Davids Engineering and SID during a recent District Water Balance Analysis. For Water Supply and Demands, "Minimum" refers to the minimum supply or demand available during the period of record, the "Average" refers to the average supply or demand over the period of record, and the "Maximum" represents the maximum supply or demand anticipated in the future through 2034.

limit the amount of water supplied (or allocated) to each user. Further, by managing its carryover supplies in Lake Berryessa (Solano Project entitlement waters that are not used in one year are carried over to the next and are cumulative until Lake Berryessa spills), SID has the ability to meet the anticipated future annual demand of 190 acre feet for the Green Valley Specific Plan Area. SID has proven this ability over the last 50+ years with only one year (1991) when SID implemented a water shortage allocation program to conserve water and provide a supplemental urban water supply to help Solano Project urban water users meet their demands during a water shortage.

As presented in Sections 5 and 6 which summarize SID's water supplies and demands (Table 3) and its water supply reliability, SID concludes it will have the ability to meet this demand and provide the supply during normal, single dry, and multiple dry water years during the next 20 years, as well as maintain their delivery of agricultural water supplies to SID landowners. This demand is relatively minor in comparison to the

annual SID water allocation and it would be relatively straightforward for SID to provide it.

Appendix D

Correspondence from City of Fairfield,
November 7, 2011, regarding
Middle Green Valley Project

HEART OF SOLANO COUNTY
FAIRFIELD
CALIFORNIA

CITY OF FAIRFIELD

Founded 1856 Incorporated December 12, 1903

COUNCIL

Mayor
Harry T. Price
707.428.7395

Vice-Mayor
Chuck Timm
707.429.6298

Councilmembers
707.429.6298

Catherine Moy

John Mraz

Rick Vaccaro

• • •

City Manager
Sean P. Quinn
707.428.7400

• • •

City Attorney
Gregory W. Stepanicich
707.428.7419

• • •

City Clerk
Arletta K. Cortright
707.428.7384

• • •

City Treasurer
Oscar G. Reyes, Jr.
707.428.7496

DEPARTMENTS

Community Development
707.428.7461

• • •

Community Resources
707.428.7465

• • •

Finance
707.428.7496

• • •

Fire
707.428.7375

• • •

Human Resources
707.428.7394

• • •

Police
707.428.7551

• • •

Public Works
707.428.7485

PUBLIC WORKS DEPARTMENT

November 7, 2011

Mr. Bill Emlen
Solano County Director of Resource Management
675 Texas Street, Suite 5500
Fairfield, California 94533

Re: Middle Green Valley Project

Dear Bill:

As you are aware, the City of Fairfield ("City") has had on-going discussions with Solano County ("County") about the provision of or treatment of water to the County. The City would provide this water to the County, government entity to government entity. The City would not be providing this water directly to the end uses. The County will provide the water to the end user, through a community services district or other mechanism. The City previously provided the County with a water service assessment memorandum, dated September 18, 2009 that demonstrates that the City has adequate capacity to provide or treat water for the County for the proposed project.

The City provides water to other government agencies, and others, outside of the city limits. A number of these agreements have been entered after the adoption of Measure L. The most recent example is the provision of City water to the State of California for the relocation of the truck scales. It is our conclusion that Measure L does not preclude the City from providing or treating water for the County as proposed.

Sincerely,

GEORGE R. HICKS, P.E.
Director of Public Works

cc: Greg Stepanicich, City Attorney
Sean Quinn, City Manager
Erin Beaver, Community Development Director
County Counsel

Appendix E

Consultant Resumes

YEARS OF EXPERIENCE: 35

EDUCATION

MA, Recreation Resources Planning and Development, Texas A&M University

BS, Wildlife Science, Cornell University

CERTIFICATIONS

AICP, No. 040218 (1984)

AFFILIATIONS

American Planning Association California (APACA); Co-chair, Enhanced CEQA Action Team (ECAT, 2011 - 2012)

APACA, Chair, Climate Change Task Force (2007)

Association of Environmental Professionals; Chair, Legislative Review Committee (1995-2004).

REPRESENTATIVE PROFESSIONAL WORKSHOPS/PRESENTATIONS:

AEP Advanced CEQA Workshops (2007 – 2012)

CEQA Practicum Instructional Sessions, AEP State Conferences (2011 - 2013)

Continuing Legal Education, Annual CEQA Symposium, SF (2010 – 2012)

Climate Adaptation Planning, UC Davis (2012, 2010)

Infill Streamlining Under CEQA, California State Bar Environmental Law Section Conference , Yosemite (2011)

Climate Change and CEQA, UC Davis (2010, 2009)

Climate Action Planning, UC Davis (2009 - 2011)

CEQA Streamlining Toolbox, UC Davis Extension (2009, 2007)

Attorney General's CEQA and Climate Change Workshops (2009)

Senator Steinberg SB 375 GHG Reduction Workshops (2008)

First UC Davis Climate Change, Land Use, and CEQA Conference (2007)

AEP Basic CEQA Workshops (2004, 2002, 2001)

Curtis E. Alling, AICP

PRINCIPAL

Curtis E. Alling, AICP, is a recognized expert in the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), and a specialist in complex environmental impact assessment programs. He has 35 years of experience and managed or directed more than 1,000 Environmental Impact Statements (EISs), Environmental Impact Reports (EIRs), Environmental Assessments (EAs), and other studies for federal, state, and local agencies, private industry, and land developers. His projects have involved State and Federal threatened and endangered species in agricultural, wetland, riverine, vernal pool, Delta, coastal, foothill, Lake Tahoe Basin, and other Sierra settings. He has managed numerous complex, litigious projects and large-scale joint NEPA/CEQA documents. His project specialties include water resources projects, habitat mitigation planning, endangered species compliance, flood control projects, outdoor recreation planning, community planning, and interagency environmental consultation programs. He is also an outdoor recreation planner with extensive work on river recreation issues.

Curtis is a recognized specialist in climate change adaptation and mitigation planning. He has led numerous local government climate action planning programs, most recently for the City of Sacramento. He has also been invited by the California Attorney General's office, Governor's Office of Planning and Research, and Natural Resources Agency to help determine environmental impact review approaches to greenhouse gas analysis and climate risk/adaptation. Curtis also led environmental document preparation for the California Air Resources Board's approval of greenhouse gas reduction regulations that implement California's landmark Global Warming Solutions Act (Cap-and-Trade, Renewable Energy Strategy, Advanced Clean Cars).

He has been a member of the American Institute of Certified Planners since 1984. Curtis has personally managed or directed 11 CEQA documents that were the subject of litigation. The defensibility record of these projects is outstanding. Curtis has also regularly instructed for the Association of Environmental Professionals, American Planning Association, UC Davis Extension, and UCLA Extension on CEQA and NEPA practice.

Project experience referenced herein includes Curtis' background during her tenure at other firms.

WATER SUPPLY PROJECT EXPERIENCE

Sacramento Area Water Forum Agreement EIR, Sacramento

Sacramento City-County Office of Metropolitan Water Planning

Curtis directed the preparation of a program EIR that addressed the environmental effects of implementing the Sacramento Area Water Forum Agreement. The Agreement is the product of a consensus process among water agencies, business leaders, environmentalists, agricultural leaders, local governments, and public interest groups to provide a reliable water supply to Sacramento, El Dorado, and Placer counties while protecting the fisheries and other sensitive natural resources of the American River. Key issues included threatened and endangered fisheries (steelhead, winter-run chinook salmon, and splittail), flood control, recreation, vegetation and wildlife, and growth-inducement impacts. The EIR addressed integrated operations of the Central Valley Project and State Water Project in its impact analysis. The document served as program EIR providing cumulative analyses useful to second tier water facility EIRs. The Association of Environmental Professionals recognized the EIR with an Outstanding Environmental Document award.

Pyramid Lake Water Release /Groundwater Recharge EIR/EA, Ventura County

United Water District

Directed the combined EIR/EA for the United Water District water release/ groundwater recharge program for water from Pyramid Lake in Ventura County. The project involved a joint CEQA/NEPA process with federal agency involvement including the U.S. Forest Service, U.S. Fish and Wildlife Service, and the Federal Energy Regulatory Commission. Key issues included the water release schedule and instream flow impacts to fisheries (salmon, and native and stocked trout), endangered species (arroyo toad), and river recreation (camping and fishing).

PUBLIC AND PRIVATE DEVELOPMENT PROJECT EXPERIENCE

Lucasfilm Grady Ranch Precise Development Plan/Lucas Valley Road Realignment - Supplement to the 1996 Grady Ranch/ Big Rock Ranch Master Plan FEIR

Marin County Community Development Agency **Project Director**

Ascent prepared a Supplement to the 1996 Grady Ranch/Big Rock Ranch Master Plan FEIR for the Grady Ranch Precise Development Plan (PDP). The PDP details a second phase of the implementation of the Lucasfilm Ltd. Grady Ranch/Big Rock Ranch Master Plan and Use Permit. The Grady Ranch PDP includes construction of the Main Building, Gate House Building, and Main Entry Road; realignment of Lucas Valley Road at the main entrance to the project; improvement of West Fire Road; replacement of the fire access road to the east side of Grady Creek (East Fire Road); realignment of the Upper Fire Road around the Main Building; nine bridges; and other related improvements such as construction of two water tanks and undergrounding and extension of off-site utilities. In addition, the Grady Ranch PDP details the restoration and enhancement of Miller Creek, Grady Creek, Landmark Creek and other tributaries located on the property. Restoration and enhancement plans include improving the habitat functions and values of the Stream Conservation Area (SCA) as well as the creek channels. The project incorporates Low Impact Development (LID) practices to manage stormwater through a natural system that is coordinated with SCA restoration and enhancement. The remaining parcel area of 187 acres around the 52-acre development area will be preserved as private open space. Key issues include hydrology/geomorphology of Miller Creek, greenhouse gas emissions, traffic impacts, visual impacts, and water supply.

Santa Clara Gardens Development Project EIR, Santa Clara

Department of General Services, Real Estate Services Division **Project Director**

Curtis directed the preparation of the EIR for the Santa Clara Gardens Development Project, which is a proposed single-family and senior housing development located on one of the last remaining undeveloped infill parcels in the urban area of the City of Santa Clara. The State of California, Department of General Services (DGS) is the owner of the surplus State property. The State will be responsible for all site cleanup and removal of contaminated soils and then will sell the property to the City and an affordable housing developer. The senior housing owner/operator (Santa Clara Methodist Retirement Foundation) proposes to develop a senior housing facility on approximately 6 acres and the market-rate developer (Summerhill Homes) proposes to develop single-family housing and park uses on approximately 11 acres The City of Santa Clara is the Lead Agency and the DGS is a Responsible Agency under CEQA. Key environmental issues associated with the project include conversion of land that qualifies for Prime Farmland classification, hazardous materials associated with past agricultural operations, transportation and circulation impacts associated with the new development including impacts on the surrounding neighborhood (i.e., cut-through traffic and parking), nighttime lighting and glare, and historic resources. After the EIR was certified, CEQA litigation was filed against the City and State by a neighborhood group. The EIR was upheld and the lawsuit was dismissed by Superior Court.

Mountain Springs Community Specific Plan EIR, Tuolumne County

County of Tuolumne **Project Director**

Directed the preparation of the EIR for the Mountain Springs Community, an 1,100-acre area targeted for growth (Lime Kiln) located in and around the Mountain Springs Golf Course, approximately 1.5 miles southeast of the City of Sonora. The project proposed 1,800 residential dwelling units and commercial development. Key issues included additional vehicle traffic on roadways within the unincorporated area of Tuolumne County and the City of Sonora, impacts to streams and other sensitive habitats, cultural resources, air quality, water supply, and wastewater treatment capacity. The EIR analyzed the environmental impacts associated with the new development, and was streamlined to focus on new specific project impacts not addressed in the recently prepared program EIR for the County's General Plan Update. Mitigation measures provided additional guidance in determining the appropriate or desirable locations for growth, thereby preventing scattered development and destruction or degradation of valuable resources.

In response to a community initiative to reduce the size of the project, the applicant submitted an amended application proposing approximately 900 units. Curtis directed the preparation of a thorough Supplement to the EIR, which included updated traffic analysis, an oak woodland management plan, and revisions to original EIR necessary to make it adequate to address the revised application. The EIR and Supplement were certified and the community plan was approved.

Bay Meadows Redevelopment Project and U.S. Highway 101/Hillsdale Interchange Project EIR, San Mateo

City of San Mateo **Project Director**

Directed the EIR preparation for the Bay Meadows Redevelopment Project and U.S. Highway 101/Hillsdale Interchange Project for the City of San Mateo and Caltrans District 4. The Bay Meadows Racetrack property was one of the last remaining major infill parcels available in the city. The project is proposed to include a new campus-style headquarters for Franklin Fund in a mixed-use plan with retail, entertainment, multiple-family residential, single-family residential, and park/open space uses. The proposed mixed-use redevelopment included over one million square feet of commercial uses (office, retail, entertainment), 775 dwelling units in a mix of densities, and neighborhood parkland in the 204-acre specific plan area. The project also included substantial infrastructure improvements, including modifications to the U.S. 101/Hillsdale Boulevard interchange. Key issues included traffic, hydrology, public services, aesthetics, noise, air quality, hazardous materials, and land use compatibility. The EIR was certified and the project has been implemented.

Point Reyes Affordable Housing Project EIR, Point Reyes Station, Marin County

Marin County Community Development Agency **Project Director**

Curtis directed the preparation of an EIR for the development of a 36-unit, mixed-use residential project on an 18-acre property located in Point Reyes Station, Marin County, California. The affordable units were to be restricted to low and moderate-income levels. A visitor-serving commercial parcel was included in the project, which was expected to be lodging and retail use. The project also included the construction of a 30-space public parking lot, public restrooms and dedication of approximately 2.5 acres of land for permanent open space purposes. Key issues addressed in the EIR included the effects on groundwater quality and domestic wells from on-site septic systems, effects on surface hydrology from irrigation and storm water runoff, and the effects on the architectural character of the town from new construction. Traffic impacts, public service availability, visual effects, and wetland protection were other important issues.

Madera State Center Community College Specific Plan and EIR, Madera County

County of Madera **Project Manager**

Managed the EIR and specific plan preparation for the Madera State Center Community College Specific Plan area in Madera County. The 1,800-acre planned development was centered on a new community college campus and consisted of mixed commercial, residential, institutional, and industrial uses. Key issues included water supply, flood control, traffic, habitat loss, agricultural land loss, public services, school sites, air quality, and noise.

Ridgemark Country Club Estates EIR, San Benito County

County of San Benito **Project Manager**

Managed EIR preparation for a proposed 2,000-unit residential development and golf course project outside Hollister in San Benito County. The project site was in a rolling hill setting with grassland and oak savannah habitat. The proposed project included single and multi-family units, wastewater treatment plant, expanded water supply, and transportation improvements. Key issues addressed in the EIR included habitat loss, water quality related to wastewater disposal approaches, traffic effects, air quality, seismic hazard, visual impacts, public services, and water supply.

Joiner Ranch Master Planned Community EIR, Placer County

City of Lincoln **Project Manager**

Managed the EIR for a proposed multi-use community with substantial residential and neighborhood commercial uses, along with a public golf course. The program EIR addressed the master plan for this 2,500-acre planned development in the City of Lincoln, Placer County. The proposed development included flood control/drainage infrastructure, wastewater treatment, and open space preservation areas, along with the commercial and residential development. Key issues in the EIR included oak tree removal, biological impacts, traffic effects, public service capacity, water quality, and air quality.

Sydney B. Coatsworth, AICP

PRINCIPAL

YEARS OF EXPERIENCE: 27

EDUCATION

M.A., Geography, University of California, Los Angeles

B.A,. Earth Science, California State University, Northridge

AFFILIATIONS

American Institute of Certified Planners (AICP)

American Planning Association (APA)

Association of Environmental Professionals (AEP)

REPRESENTATIVE PROFESSIONAL WORKSHOPS/PRESENTATIONS:

AEP State Conference, CEQA Practicum, Sacramento (2012)

AEP Advanced CEQA Series, Sacramento (2011)

AEP Spring Workshops—Advanced CEQA, Sacramento (2013, 2008, 2004, 2003, 2002)

Successful CEQA and NEPA Compliance, UC Davis Extension, Mono County (2010)

Climate Change and CEQA, UC Davis Extension course, Sacramento (2009)

Local Government Commission, Ahwahnee Conference on Adaptation for Climate Change (2009)

Second Climate Change Conference, CEQA Compliance Panel, UC Davis Extension (2008)

Attorney General/Local Government Commission Climate Change Workshops, CEQA Approaches, Statewide (2008)

CCAPA Planning Principles for Climate Change Response (2008)

First Climate Change, Land Use and CEQA Conference, UC Davis Extension (2007)

Special Forum for Cities and Counties on Climate Change, Northern California (2008)

Sydney Coatsworth is a Principal, Vice President, and Senior Project Manager/Director responsible for successful completion of California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and Tahoe Regional Planning Agency (TRPA) compliance projects in a wide variety of California environments. Sydney has 27 years of experience in managing large-scale and complex environmental compliance projects and has overseen the preparation of hundreds of environmental documents in accordance with state and federal statutes and regulations. Her practice is diverse, including projects related to water resources, wastewater treatment, floodplain management, public works, affordable housing, urban development, natural resources management, and environmental policy and regulation. She regularly conducts public and agency outreach meetings, workshops, community education, and other public presentations for a variety of projects. She regularly teaches CEQA courses for Association of Environmental Professionals (AEP) American Planning Association (APA), UC Davis Extension, and client agencies. Project experience referenced herein includes Sydney's background during her tenure at other firms.

WATER SUPPLY PROJECT EXPERIENCE

City of Rancho Cordova Water Supply Evaluation, Rancho Cordova

City of Rancho Cordova — **Project Director/Senior Water Resources Specialist**

Sydney supported the City of Rancho Cordova with respect to water supply planning for the City's General Plan. Sydney oversaw preparation of, provided strategy support and senior review for the water supply evaluation that identified total water supply demands associated with the City's proposed Land Use Plan, existing available water supplies, land uses within the City that have been planned for in relevant water supply planning documents, land uses and associated demands that do not have an identified water supply source, and potential future sources of water supplies to meet proposed demand and the associated environmental impacts with delivering these water supplies to the City.

Eastern County Replacement Water Supply Project EIR, Sacramento

Sacramento County DERA — **Project Director**

Sydney directed preparation of the EIR for this project that included construction of a water supply conveyance system that would transport remediated water to discharge locations along the Sacramento and American Rivers in Sacramento County. The remediated water would be used for replacement water, would serve new development areas in eastern Sacramento County, and would provide enhanced environmental benefits within Sacramento County, including providing enhanced fishery flows along the Cosumnes River. The EIR comprehensively evaluated the project-related environmental effects of constructing project facilities (i.e., pipelines, pump stations, and discharge and diversion structures) for the discharge of remediated water and diversion of surface water.

North Vineyard Wellfield Project EIR, Sacramento County

County of Sacramento/Department of Water Resources — **Project Director**

The County of Sacramento proposed implementation of a water supply plan for replacement water supplies for the Mather Field/Sunrise Corridor area of Sacramento County. Sydney directed preparation and distribution of the EIR for this project. The proposed water supply plan relied on a groundwater supply to provide replacement water for wells lost in the Mather Field/Sunrise Corridor service area as a result of groundwater contamination. Key environmental issues include noise, air quality, biology, and water supply.

El Dorado County General Plan Update EIR, El Dorado County

El Dorado County Planning Department — **Senior Water Resources Specialist**

Sydney directed the EIR's assessment of potential water supply, water quality and wastewater-related impacts. She also provided strategy recommendations and senior review of population and water demand estimates and integrated regional water supply, wastewater and land use planning in the study area for the general plan EIR. Key issues for this project included defining the water demand and supply ramifications of the county adopting one of the four growth scenarios/alternatives under consideration in the general plan update process. Potential impacts

to existing and potential water supply sources and the quality of affected surface waters and groundwater were also addressed.

Sacramento Area Water Forum Agreement EIR, Sacramento

Sacramento City-County Office of Metropolitan Water Planning **Project Director**

Directed the EIR preparation for the Sacramento Area Water Forum's Regional Water Agreement. The Agreement is the product of a consensus process among water agencies, business leaders, environmentalists, agricultural leaders, local governments, and public interest groups to provide a reliable water supply to Sacramento, El Dorado, and Placer counties while protecting the fisheries and other sensitive natural resources of the American River. Key issues included threatened and endangered fisheries (steelhead, winter-run chinook salmon, and splittail), flood control, recreation, vegetation and wildlife, and growth- inducement impacts. The EIR addressed integrated operations of the Central Valley Project and State Water Project in its impact analysis. The document served as program EIR providing cumulative analyses useful to second tier water facility EIRs. The Association of Environmental Professionals recognized the EIR with an Outstanding Environmental Document award.

Sunrise Douglas Community Plan/Sun Ridge Specific Plan Project Alternative Water Supply Plan Revised EIR, Sacramento County

Sacramento County Department of Environmental Review and Assessment (DERA) **Project Director**

The Revised EIR evaluated the environmental impacts of implementing a near-term alternative water supply program to supply potable water to the Sunrise Douglas Community Plan/Sun Ridge Specific Plan areas in Sacramento County. Elements of the project included construction of an off-site well field, and water treatment plant in the Laguna/Vineyard area of Sacramento County. The off-site well-field would accommodate the near-term water demands of projected development at Mather Field, the Sunrise Corridor WMD, and the Citizen Water Resources Security Park franchise area. Key environmental issues included water quality, water supply, air quality, noise, land use, and traffic impacts.

Zone 40 Water Supply Master Plan Update Draft EIR, Sacramento

Sacramento County Department of Environmental Review and Assessment (DERA) **Project Director**

The EIR evaluated the environmental impacts of implementing a conjunctive use water supply program for Zone 40 located in the unincorporated portion of Sacramento County. Elements of the project included diversion of surface water from the Sacramento River in amounts consistent with those identified in the Water Forum Proposal, construction of a network of conveyance pipelines, and construction of groundwater extraction and treatment facilities throughout the Zone 40 area. Key environmental issues included water quality, water supply, fisheries, vegetation and wildlife, and growth inducing impacts.

PUBLIC AND PRIVATE DEVELOPMENT PROJECT EXPERIENCE

Raley's Landing EIR, West Sacramento

City of West Sacramento **Principal-in-Charge**

Sydney managed the preparation of an EIR for the Raley's Landing mixed-use development. The project consisted of multifamily residential units, a hotel with a large conference center, surface and multilevel parking, and commercial, office, and open space features oriented toward the Sacramento River waterfront. Under the proposed project, residences would be located near a large number of workplaces, as well as near present and future public transit systems. The EIR evaluated a full range of environmental issues, with emphasis on traffic and visual resources. EIR was certified February 8, 2006.

Rio Del Oro Specific Plan EIR/EIS, Rancho Cordova

City of Rancho Cordova **Water Resources Specialist**

Sydney provided strategy and quality assurance/senior review for the Water Supply Assessment, pursuant to Senate Bill 610 (SB610) for the project. She also supported the preparation of the EIR/EIS (for the City of Rancho Cordova and the USACE) for the Rio del Oro Specific Plan for a mixed-use development project on just over 3,800 acres in eastern Sacramento County. The project site is located within the Aerojet/Gencorp property, formerly used for solid rocket fuel testing. The project would include construction of over 11,000 residential units, commercial mixed-use areas, a large community park as well as neighborhood parks and open spaces, and a proposed 507-acre wetland preserve. Surrounding land uses include Aerojet, Security Industrial Park, Mather Field Airport, Sacramento County Landfill, and other industrial lands and agricultural land uses. Key issues included biological issues, cultural resources, water availability and supply, water quality, air quality and noise, traffic and circulation, hazards and hazardous materials.

Mariposa Lakes Specific Plan EIR, San Joaquin County

PCCP Mariposa Lakes, LLC **Principal-in-Charge**

Sydney managed the efforts in substantially revising an administrative draft EIR prepared by another firm and reviewed by the City of Stockton. Proposal includes a general plan amendment and annexation to the City of Stockton. Sydney's team transformed the EIR from a programmatic analysis of development of a specific plan on an over 3,800-acre site into both a project-level evaluation of approximately 1,000 acres proposed for tentative subdivision map approval, and a program-level evaluation of the remaining 2,180 acres proposed for future development. The Mariposa Lakes community would include approximately 10,500 homes, 1 million square feet of commercial uses, and 10 million square feet of industrial uses. The project also includes a system of artificial lakes

and drainage canals to collect stormwater that would be integrated as part of a site-specific groundwater recharge program operated by the City under its NPDES permit. Project tasks included preparation of a conceptual level restoration plan for one of the three creeks that cross the project site. Environmental issues of concern include agricultural, biological, cultural, and paleontological resources, as well as traffic, air quality, noise, hydrology, and public utilities (provision of water and wastewater services).

Villages of Laguna San Luis EIR, Merced County

River West Investments **Principal-in-Charge**

Sydney directed preparation of an EIR for a proposed mixed-use development project on 6,214 acres in the lower foothills of the San Joaquin Valley. The site is characterized by rolling hills and rural agricultural and open space lands bordered by similar land uses on all sides. The proposed land plan includes more than 15,000 residential units expecting to house approximately 44,773 people, more than 1.4 million square feet of commercial space, and offering employment to more than 10,000. A primary goal of the project is to plan for an economically viable, self-sustaining community where employment opportunities are provided in proportion to the population generated within the community. Key issues analyzed in the EIR included water supply, traffic impacts, loss of agricultural land, air quality, and biological resources.

Central Larkspur Specific Plan EIR, Larkspur

City of Larkspur **Principal-in-Charge**

Sydney directed the preparation of the EIR for a 22-acre infill site in the downtown area of the City of Larkspur. The Specific Plan would permit a mix of land uses, including a variety of residential types, retail commercial uses, a hotel, and a park. Key issues include effects on sensitive marsh habitats in an adjacent creek, potential disturbance to prehistoric artifacts and historic buildings, structural damage caused by settlement of Bay Mud, removal of existing hazardous materials, and deterioration of traffic conditions.

College Park at Mountain House Specific Plan 3 EIR, San Joaquin County

San Joaquin County **Principal-in-Charge**

Directed the preparation of an environmental opportunities/constraints analysis and CEQA documentation for an 812-acre mixed use specific plan. The project is proposed as the third of three specific plans under the greater Mountain House Master Plan approved by the County in 1994. The project will include three residential neighborhoods, each with school and park facilities, a commercial component, and the planned Delta Community College. The environmental opportunities/constraints analysis was used as an input to Specific Plan and concept plan development. The EIR evaluated the full range of environmental issues and consistency of the proposal with the Mountain House Master Plan. A preliminary endangerment assessment was prepared to evaluate site suitability for the proposed schools. Challenges included designing around environmental constraints at the project site, interacting with multiple property owners and interest groups, and addressing community concerns in the conceptual plan and EIR to the degree appropriate. The EIR was certified in May, 2005.

Sarah J.B. Henningsen

ENVIRONMENTAL PLANNER

YEARS OF EXPERIENCE: 9

EDUCATION
BS, Community and Regional Development, University of California, Davis

AFFILIATIONS
Association of Environmental Professionals

RELEVANT EXPERIENCE
CEQA/NEPA Compliance

Environmental Planning

Water Resources

Sarah Henningsen is an environmental planner with 9 years of experience with CEQA and NEPA environmental planning and policy, with an emphasis in water resources. She has experience working with a broad range of environmental issues, participating in community outreach, conducting legal research, and preparing environmental analyses for NEPA- and CEQA-related documents. Sarah routinely prepares technical analyses for agricultural resources, land use policy, environmental justice, public services, recreation, and alternatives analysis. Additionally, Sarah is skilled in project coordination, client relations, and regulatory environmental policy interpretation. She is relied upon to assist with the preparation of initial studies, environmental assessments, EIRs, EISs, and mitigation monitoring plans, along with other project-specific plans and decision/approval documents. Sarah served as project coordinator and assistant project manager for the series of EIS/EIR documents prepared for the Natomas Levee Improvement Project (Project Phases 2-4b) in Sacramento and Sutter Counties (SAFCA and US Army Corps of Engineers). Most recently, for Ascent, Sarah managed the Middle Green Valley Specific Plan Project EIR and the Napa County Jail Project EIR. Project experience referenced herein includes Sarah's background during her tenure at other firms.

PROJECT EXPERIENCE

City of Galt Wastewater Treatment Plant (WWTP) Facilities Master Plan and Phase I Immediate Improvements Project EIR, Galt

City of Galt **Assistant Project Manager**

Preparation of an EIR to evaluate the effects of a Facilities Master Plan for the City's WWTP. In addition, the EIR will analyze the first phase of work identified in the Facilities Master Plan, the Phase I Immediate Improvements. Because construction of the WWTP Facilities Master Plan may be partially funded with a loan from the State Water Resources Control Board (SWRCB) State Revolving Fund (SRF) Loan Program, which is funded by federal Clean Water Act funds administered by the U.S. Environmental Protection Agency (EPA), it is subject to certain federal environmental regulations, as specified through an agreement between the SWRCB and EPA. Therefore, the EIR will comply with the requirements of the *Environmental Review Process Guidelines for State Revolving Fund Applicants,* which requires consideration of certain federal laws intended to protect federally designated endangered species, cultural resources, air quality, and other resources. Sarah assisted the project manager with overall EIR preparation, and prepared various environmental analyses, including agricultural resources and environmental justice. [3/2012 - 10/2012]

Edgewood Lodge and Golf Course Realignment Project EIS, Lake Tahoe, NV

Tahoe Regional Planning Agency **Environmental Planner**

A project that includes expanding the existing Edgewood Gold Course in Stateline, Nevada. The entire golf course encompasses approximately 237 acres of land located within the Edgewood Plan Area Statement (PAS) 070A in California and Nevada. The project concentrates on approximately 10 acres of land located entirely within the PAS 070A Special Area #1 (Tourist Area). Access to the project site is provided by Lake Parkway from U.S. Highway 50. The project includes a new 194-unit hotel complex with a full-service spa and wellness center, restaurant and bar, and banquet and meeting space as well as accessory uses on undeveloped higher capability lands at the Edgewood Golf Course. Key issues for the EIS included land coverage, scenic quality, water quality, traffic, air quality, and noise. Sarah prepared the public utilities and services analysis and assisted the project manager with overall EIS preparation. The EIS was certified in August 2012. [10/2011 - 7/2012]

Village at Squaw Valley Specific Plan and Phase I Project EIR, Squaw Valley

Placer County **Assistant Project Manager**

Preparation of an EIR for the proposed Village at Squaw Valley Specific Plan Project, which includes development of an all-season, world class resort. The project site is located on approximately 100 acres within the 4,500-acre-plus Squaw Valley. The proposed project is a mixed-use development that includes residential, commercial, and recreation uses as well as parking and other visitor amenities. Key issues include aesthetic impacts from key vantage points, including Squaw Valley Road, which is designated as a scenic roadway; hydrology and water quality, including site drainage effects on the stream flow in Squaw Creek, stream sedimentation and water quality, and water

demands; and traffic impacts on the local access road and State Route 89, which serves the greater region. The EIR will be programmatic but will also include project-specific details and analyses for a first phase of the proposed project. Sarah is preparing the land use analysis and assisting the project manager with overall EIR preparation. [2/2012 - present]

Central Valley Flood Protection Plan (CVFPP) Program EIR

California Department of Water Resources **Assistant Project Manager and Environmental Planner**

A program EIR that evaluated the potential environmental effects of the 2012 CVFPP, which is legislatively mandated, and is intended to be a sustainable, integrated flood management plan that describes the existing flood risk in the Sacramento-San Joaquin Valley and recommends actions to reduce the probability and consequences of flooding. Sarah assisted the project manager with overall EIR preparation and staff coordination, and prepared the public services analysis. Additionally, Sarah prepared the Mitigation Monitoring and Reporting Plan and helped respond to comments on the Draft EIR. [6/2010 - 12/2010 and 5/2012 - 7/2012]

American River Watershed Common Features Project/Natomas Post-Authorization Change Report/Natomas Levee Improvement Program (NLIP), Phase 4b Landside Improvements Project (Phase 4b Project) EIS/EIR, Sacramento and Sutter Counties

U.S. Army Corps of Engineers and Sacramento Area Flood Control Agency **Assistant Project Manager**

Preparation of an EIS/EIR to evaluate the final subphase (Phase 4b) of the NLIP Landside Improvements Project. The Phase 4b Project consisted of improvements to the remaining portions of the Natomas Basin's perimeter levee system (including to the American River north levee Reaches 1–4) and associated landscape and irrigation/drainage infrastructure modifications to help achieve the NLIP's overall purpose of bringing the entire 42-mile Natomas Basin perimeter levee system into compliance with applicable federal and state standards for levees protecting urban areas. Sarah assisted the project manager in overseeing all aspects of project scoping, EIS/EIR preparation, NEPA/CEQA document noticing, administrative record preparation, and client and internal staff coordination. [10/2009 - 12/2010]

Natomas Levee Improvement Program (NLIP), Phase 4a Landside Improvements Project (Phase 4a Project) EIS/EIR, Sacramento and Sutter Counties

Sacramento Area Flood Control Agency **Assistant Project Manager**

Preparation of an EIS/EIR to evaluate Phase 4a of the NLIP Landside Improvements Project. The Phase 4a Project primarily consisted of levee raising and seepage remediation along the Sacramento River east levee (Reaches 10–15) and in 2 locations of the Natomas Cross Canal south levee to help achieve the NLIP's overall purpose of bringing the entire 42-mile Natomas Basin perimeter levee system into compliance with applicable federal and state standards for levees protecting urban areas. Sarah assisted the project manager in overseeing all aspects of project scoping, EIS/EIR preparation, NEPA/CEQA document noticing, administrative record preparation, and client and internal staff coordination. A record of decision (ROD) was issued by the U.S. Army Corps of Engineers for the Phase 4a Project in November 2010. Construction of the Phase 4a Project began in 2011. [2/2009 - 6/2010]

Natomas Levee Improvement Program (NLIP), Phase 3 Landside Improvements Project (Phase 3 Project) EIS/EIR, Sacramento and Sutter Counties

Sacramento Area Flood Control Agency **Assistant Project Manager**

Preparation of an EIS/EIR to evaluate Phase 3 of the NLIP Landside Improvements Project. The Phase 3 Project primarily consisted of levee improvements along the Sacramento River east levee (Reaches 5A–9B), the Pleasant Grove Creek Canal west levee, and a portion of the Natomas East Main Drainage Canal west levee to help achieve the NLIP's overall purpose of bringing the entire 42-mile Natomas Basin perimeter levee system into compliance with applicable federal and state standards for levees protecting urban areas. Sarah assisted the project manager in overseeing all aspects of project scoping, EIS/EIR preparation, NEPA/CEQA document noticing, administrative record preparation, and client and internal staff coordination. A record of decision (ROD) was issued by the U.S. Army Corps of Engineers for the Phase 3 Project in April 2010. Construction of the Phase 3 Project began in 2009 and was largely completed as of January 2012. [1/2009 - 11/2009]

Natomas Levee Improvement Program (NLIP), Phase 2 Landside Improvements Project (Phase 2 Project) EIR and EIS, Sacramento and Sutter Counties

Sacramento Area Flood Control Agency **Project Coordinator**

Preparation of an EIR to evaluate Phase 2 of the NLIP Landside Improvements Project. The Phase 2 Project primarily consisted of improvements to the Natomas Cross Canal and Reaches 1–4B of the Sacramento River east levee to help achieve the NLIP's overall purpose of bringing the entire 42-mile Natomas Basin perimeter levee system into compliance with applicable federal and state standards for levees protecting urban areas. Sarah assisted with all aspects of preparation of the EIR, after which USACE determined that an EIS was required for compliance with NEPA. Sarah assisted with all aspects of EIS preparation. A record of decision (ROD) was issued by the U.S. Army Corps of Engineers for the Phase 2 Project in January 2009. Construction of the Phase 2 Project was largely completed in 2010. [9/2007 - 12/2008]

Local Funding Mechanisms for Comprehensive Flood Control Improvements for the Sacramento Area EIR, Sacramento and Sutter Counties

Sacramento Area Flood Control Agency **Project Coordinator**

Preparation of a program EIR to evaluate the environmental effects of a project that would create a local funding mechanism to finance future flood control improvements and related mitigation and habitat enhancements in the Sacramento Area; the program EIR also evaluated the first phase of the project (Phase 1 Project) at a project level. Sarah assisted in managing the preparation of a program EIR that documented the potential environmental impacts of a wide range of proposed regional flood control improvements and related activities. Construction of the Phase 1 Project began in 2007 and is complete. [4/2006 - 4/2007]

Natomas Levee Evaluation Project, Sutter and Sacramento Counties

Sacramento Area Flood Control Agency **Project Coordinator**

A study to identify improvements necessary to provide 200-year flood protection to the Natomas Basin; the study area included approximately 25 miles of levees on the Sacramento and American Rivers and the Natomas Cross Canal. Sarah assisted with problem identification and alternatives analysis. Sarah coordinated team efforts and contributed to the preparation of a series of technical memoranda documenting related projects and overlapping resource management concerns to assist SAFCA in its decision making. [12/2004 - 12/2005]

Alternative Intake Project, San Joaquin and Contra Costa Counties

Contra Costa Water District (CCWD) **Project Coordinator/Environmental Analyst**

A water quality improvement project that included the construction of a new intake and fish screen in the Central Delta, a pumping plant, and an associated conveyance facility from the new intake to CCWD's Old River Pumping Plant on Old River. Sarah coordinated all aspects of the environmental compliance effort, which included the preparation of environmental feasibility studies, an alternatives analysis report, a joint EIR/EIS, and an Action-Specific Implementation Plan to meet federal and state endangered species requirements. Sarah also assisted CCWD with all environmental permitting and supporting documentation, and contributed to agency and public outreach. Construction was completed in summer 2010. [7/2004 - 12/2006]

Shasta Lake Enlargement Plan Formulation Report Environmental Assistance

U.S. Bureau of Reclamation **Project Coordinator/Environmental Analyst**

Sarah assisted in the preparation of the Plan Formulation Report (PFR) for the Shasta Lake Water Resources Investigation (SLWRI) – a major product in the feasibility study phase – with the purpose of confirming the potential for a federal interest in a project to enlarge Shasta Reservoir. Sarah coordinated environmental planning efforts and prepared various environmental analyses. [1/2006 - 8/2006]

Oleander, Sundance, and Sundance 2 Developments Project Initial Study and EIR, Manteca

City of Manteca **Assistant Project Manager/Environmental Analyst**

Three separate, but geographically related, residential subdivision development projects that would add approximately 1,074 new single-family residences to the City of Manteca, as well as over 17 acres of new parkland, a Boys and Girls Club, and 2.29 acres of new commercial space. Sarah assisted the project manager in coordinating the preparation of an Initial Study and a Focused EIR to further evaluate the identified potentially significant environmental impacts in seven resource areas: agricultural resources, air quality, cultural resources, hydrology/water quality, noise, transportation and circulation, and utilities and service systems. She also prepared various environmental analyses, including agricultural resources. [6/2005 - 3/2007]

Deuel Vocational Institute (DVI) Reverse Osmosis Water Treatment System, Tracy

California Department of Corrections and Rehabilitation **Environmental Planner**

A project to construct and operate a groundwater treatment plant and non-potable water distribution system at DVI to meet the state drinking water quality requirements and improve the facility's treated wastewater quality. Sarah contributed to the preparation of an Initial Study and Mitigated Negative Declaration; prepared the hazards and hazardous materials, utilities and service systems, and public services analyses; and assisted with the hydrology and water quality analyses. [1/2005 - 2/2005]

Suzanne Enslow

ENVIRONMENTAL PLANNER

YEARS OF EXPERIENCE: 14

EDUCATION
B.A., Environmental Studies/Biology, University of California, Santa Cruz, 1996

AFFILIATIONS
Association of Environmental Professionals

Suzanne is a project manager and environmental planner with 14 years of experience in environmental consulting. Suzanne's focus is on managing and preparing environmental review documents pursuant to CEQA, TRPA, and NEPA. She has managed environmental compliance documents for projects in the Lake Tahoe Basin and the Sacramento Valley for housing, office and mixed-use developments, infrastructure, linear public facilities, and restoration and recreation projects. Suzanne's responsibilities have included project management as well as writing, editing, and compiling the various sections of environmental documents. She understands the regulatory guidelines and legal requirements, as well as the nuts and bolts of preparing and delivering these documents. Suzanne has also participated in the planning and implementation of robust public outreach for a number of these projects. Suzanne's consulting experience also includes biological resource surveys and monitoring as well as preparing regulatory permits for biological resources, including 404 (wetlands) and 401 (water quality) in accordance with the federal Clean Water Act, U.S. Fish and Wildlife Service, and California Department of Fish and Wildlife. Suzanne assisted in the development of permitting strategies, consultation regarding permit and mitigation requirements, preparing permit applications and obtaining approvals.

PROJECT EXPERIENCE

WATER SUPPLY, WASTEWATER, FLOOD

Stockton Regional Wastewater Control Facility Capital Improvement and Energy Management Plan – Phase 2 Improvement Project EIR

City of Stockton, Municipal Utilities Department **Project Manager**

The City of Stockton proposes to implement Phase 2 Improvements identified in the Capital Improvement and Energy Management Plan (CIEMP) for the City's Regional Wastewater Control Facility (RWCF). The CIEMP identified, budgeted, and prioritized improvements needed at the RWCF through the year 2035 and identified energy development projects to reduce energy costs and provide reliable renewable energy alternatives. The CIEMP consists of two parts: the capital improvement plan (CIP), which focuses on the wastewater treatment facilities improvements, and the energy management plan, which provides an approach for developing energy sources and improving energy efficiency at the RWCF. The CIP projects would increase the reliable capacity of the liquid and solids treatment processes close to the permitted RWCF capacity of 55 mgd and improve reliability in treating existing and projected flows. Suzanne is managing preparation of the EIR for the project. Key issues include air quality, biological resources, cultural resources, GHG emissions, and hydrology and water quality.

City of Galt Wastewater Treatment Plant Facility Master Plan and Immediate Improvements Project CEQA-Plus EIR (CEQA NEPA Compliance) (Ascent)

City of Galt **Project Manager**

Suzanne managed the preparation of an Initial Study and Notice of Preparation and, based on this scoping analysis, prepared a focused program EIR for upgrades at the City's wastewater treatment plant, including expansion to accommodate General Plan growth projections. The EIR met compliance documentation needed to satisfy the State Water Resources Control Board "CEQA Plus" requirements for State Revolving Fund loans as well as U.S. EPA's NEPA requirements for Special Appropriation Grants. Suzanne also assisted the EPA in federal agency coordination regarding potential waters and wetlands and giant garter snake habitat. Key issues included water quality, fisheries, terrestrial biological resources, agricultural land conversion, and air quality.

City of Lathrop Recycled Consolidated Treatment Facility Project IS/MND

City of Lathrop **Assistant Project Manager**

Suzanne prepared an IS/MND tiered from the EIR for the *Lathrop Water, Wastewater, and Recycled Water Master Plan* consistent with CEQA Guidelines Sections 15152 and 15168, to evaluate the potential environmental effects of consolidation of previously-approved wastewater treatment capacity at the City of Lathrop Membrane Bioreactor (MBR) Plant as well as temporarily increasing the percentage of treatment capacity at the Manteca Wastewater Quality Control Facility (Manteca WQCF) available to the City of Lathrop.

County Sanitation District 1, Upper Northwest Interceptor 9 and Associated Northeast Area Relief Projects, Sacramento County

Sacramento County, Department of Environmental Review and Assessment **Project Manager**

Suzanne managed the preparation of technical studies in support of Sacramento County's CEQA document for two new pumping stations, two diversions, and approximately 35,200 linear feet of interceptor, force main, gravity pipe, and sewer relief pipe routed primarily through residential, retail, and commercial areas along roads in Citrus Heights and other parts of eastern Sacramento County. Suzanne and her team conducted agency consultation and prepared permit applications for a Tree Permit, California Department of Fish and Wildlife Streambed Alteration Agreement, Clean Water Act (CWA) Section 401 Water Quality Certification Package, and CWA Section 404 Permit Application.

Sunrise Douglas Community Plan/SunRidge Specific Plan Long-Term Water Supply, Rancho Cordova

City of Rancho Cordova **Project Manager**

Suzanne managed preparation of a court-ordered partially-revised Draft EIR providing a revised analysis of the portions of the Sunrise Douglas Community Plan/SunRidge Specific Plan (SDCP/SRSP) EIR concerning an analysis of long-term water needs of the SDCP/SRSP project and how identified sources are likely to meet those water needs; an analysis of potential project impacts on Cosumnes River flows and fish migration; and an analysis of potential project impacts on public trust resources.

TRANSPORTATION

Port of Oakland Runway 11-29 Rehabilitation Project, Alameda County

Port of Oakland **Assistant Project Manager**

Suzanne coordinated with agencies and the client to prepare permits, receive approvals, and translate the permit requirements into mitigation and monitoring goals. Project permits were obtained from the Bay Conservation and Development Commission, US Army Corps of Engineers, and the Regional Water Quality Control Board.

Eureka to Arcata Route 101 Corridor Improvement Project EIS/EIR, Humboldt County

California Department of Transportation **Assistant Project Manager**

Suzanne assisted with the preparation of an EIS/EIR to comply with NEPA and CEQA for a proposed safety improvement project on US Highway 101 between the cities of Eureka and Arcata.

NATURAL RESOURCES MANAGEMENT

Riparian Habitat Restoration of the Codora Unit IS/MND, Glenn County

California Wildlife Conservation Board / The Nature Conservancy **Project Manager**

Suzanne prepared and managed an Initial Study and Mitigated Negative Declaration for riparian habitat restoration of a 274.5-acre walnut orchard within the 399-acre Codora Unit of the Sacramento River National Wildlife Refuge. The project restored riparian and associated habitats in a flood-neutral manner to help fulfill USFWS' congressional mandate to preserve, restore, and enhance riparian habitat for threatened and endangered species, songbirds, waterfowl, other migratory birds, anadromous fish, riparian wildlife, and plants. The project called for the active restoration of the Codora Unit to 208 acres of valley oak savanna, 28.5 acres of mixed riparian forest, 30 acres of cottonwood riparian forest, and 8 acres of grassland. Key issues included conversion of agricultural land and related flood impacts.

Sierra Nevada Conservancy Grants CEQA Review, Northern California

Sierra Nevada Conservancy / California Department of General Services **Project Manager**

Through contract to provide for a full range of environmental, biological, and cultural resources services to the California Department of General Services (DGS) for projects in Northern California, Suzanne assisted DGS in providing CEQA review for the Sierra Nevada Conservancy (SNC), which was reviewing grant applications for consideration of funding. Suzanne reviewed grant applications to determine if SNC (as lead agency providing project funding) needed to complete environmental review for compliance with CEQA. Suzanne and her colleagues prepared CEQA exemptions for numerous Sierra Nevada projects being considered by SNC for funding in the 2007 and 2008 funding cycles.

On-Call Biologist, Northern California

Kinder Morgan Energy Partners L.P. **On-call Biologist**

Suzanne provided support on tasks related to a refined petroleum product pipeline system operated by Kinder Morgan Energy Partners L.P. Suzanne strategized and prepared environmental clearances for required pipeline repairs from the U.S. Army Corps of Engineers, the Regional Water Quality Control Board, the Bay Conservation and Development Commission, the U.S. Fish and Wildlife Service, and the California Department of Fish and Wildlife; on-site biological surveys; and biological construction monitoring.

Port of Oakland Burrowing Owl Surveys, Oakland International Airport, Alameda County

Port of Oakland **Assistant Project Manager**

Suzanne completed burrowing owl surveys at Oakland International Airport in 2002 and 2003, including implementation of mitigation to passively relocate owls within runway safety areas. She also prepared the 2002 survey report regarding the status of burrowing owls at the airport.

PUBLIC AND PRIVATE DEVELOPMENT

Level II Infill Correctional Facilities Project

California Department of Corrections **Assistant Project Manager**

Suzanne assisted in the management and preparation of a multi-volume EIR that addressed the potential environmental impacts associated with construction and operation of three infill level II correctional housing facilities at existing CDCR prison facilities in California. As directed by Senate Bill (SB) 1022, the EIR evaluated construction of infill correctional facilities at five locations (San Diego County and the Cities of Chino, Ione, Folsom, and Vacaville); after EIR certification, the state approved construction at two sites: San Diego and Ione. Key issues included air quality, biological resources, transportation, historic resources, and cumulative impacts. [2013]

Capitol West Side Projects EIR, Sacramento County

Department of General Services, Real Estate Services Division **Assistant Project Manager**

This joint EIR analyzed proposals for both construction of a 1.4-million-square foot Capitol West Side Office Complex in downtown Sacramento and renovation and modernization of the Central Plant. The office complex project included parking facilities and renovation and relocation of the historic Heilbron Mansion. The Central Plant provides chilled water and steam to 23 state buildings, including the State Capitol, for cooling and heating. The Central Plant renovation project addressed operational issues to allow the plant to continue meeting state needs and to provide capacity to heat and cool the proposed Capitol West Side Office Complex. The Central Plant renovation also mitigated a cease and desist order issued over discharges of heated water into the Sacramento River. Suzanne shared management responsibilities for this EIR, particularly in relation to the Central Plant renovation project, and assisted in the organization and implementation of the public outreach plan.

State Library and Courts Renovation IS/MND, Sacramento County

California Department of General Services, Real Estate Services Division **Project Manager and Environmental Planner**

Suzanne managed preparation of an Initial Study/Mitigated Negative Declaration for renovation of the Library and Courts building, as required for compliance with current safety and Americans with Disabilities Act standards. The California Department of General Services, Real Estate Services Division, proposed to renovate the Stanley Mosk Library and Courts Building (State Office Building No. 1), an important historic building located at 914 Capitol Mall in downtown Sacramento. Because of the building's age, infrastructure elements and some of its architectural features were deteriorating and in need of repair. Key issues included effects on historic architecture, visual resources (the building is located directly west of Capitol Park), and construction impacts.

Sutter Gould Medical Office Expansion Project, Stanislaus County

City of Modesto **Project Manager**

Suzanne managed preparation of an Initial Study and a finding of conformance with the Modesto Urban Area General Plan Master EIR for the Sutter Gould medical office building expansion. The project included building an expanded replacement medical office facility and parking on the existing site to meet forecasted demand for medical services in the community. The original facility would be demolished along with seven private residences purchased by the Sutter Gould Medical Foundation. The project also included some tree removal, a new bus turnout, and widening of Coffee Road to provide a deceleration lane. This project required rezoning the project area through an amendment to the existing Planned Development Zone to allow expansion of the facility. The facility would continue operations during construction. Key issues included neighborhood encroachment and conformance with the previously prepared Master EIR.

San Quentin State Prison Condemned Inmate Complex Project EIR, Marin County

California Department of Corrections and Rehabilitation **Environmental Planner**

This EIR evaluated two design options for the Condemned Inmate Complex (CIC) (single-level and stacked buildings) at a project-specific level for all environmental resource areas. Suzanne wrote various sections of the EIR, including land use, utilities, and transportation. The proposed project involved construction of a new condemned inmate complex and electrified fence on approximately 40 acres within the grounds of the existing San Quentin State Prison. The CIC would provide 1,024 cells that would safely and securely house 1,408 condemned inmates. The EIR was certified and challenged, and was upheld in court.

U.C. Merced Long Range Development Plan EIR, Merced County

University of California, Merced **Environmental Planner**

Suzanne assisted in preparation of the UC Merced Long Range Development Plan (LRDP) EIR, which analyzed the potential environmental impacts associated with implementation of the UC Merced LRDP and construction of Phase 1 of the UC Merced

campus. The University of California proposed to establish a new major research university campus in the San Joaquin Valley for a student population of 25,000 full-time equivalent students. The campus is now located approximately 2 miles northeast of the city limits of Merced, on property owned by the Virginia Smith Trust and the County of Merced. The site is immediately east of Lake Yosemite Regional Park and a portion of Lake Road. The purpose of the LRDP was to guide the physical planning and development to achieve the academic needs and goals of the new campus in Merced County.

U.C. Davis Long Range Development Plan EIR, Yolo County

University of California, Davis **Assistant Project Manager**

Suzanne assisted in preparation of the UC Davis 2003 Long Range Development Plan (LRDP) EIR, which analyzed the potential environmental impacts associated with implementation of the 2003 LRDP. The 2003 LRDP was prepared to accommodate an increased enrollment of approximately 5,130 students and increased academic and research activities at UC Davis, to meet the anticipated educational and research demand that is projected through 2015–2016. The EIR consists of five volumes, including: Volumes I and II (program-level analyses of the 2003 LRDP); Volume III (project-specific evaluations of the Neighborhood Master Plan, Research Park Master Plan, Multi-Use Stadium Complex, Robert Mondavi Institute, and Chilled Water Facility Expansion); and Volumes IV & V (responses to comments).

Central Lathrop Specific Plan EIR, San Joaquin County

City of Lathrop **Environmental Planner**

Suzanne assisted in preparation of an EIR that evaluated the annexation and development of the Central Lathrop Specific Plan. The plan area is located on approximately 1,540 acres within the City of Lathrop's sphere of influence but not its city limits. Under the proposed project, the Specific Plan area was annexed to the City. A mixed-use development was proposed; most of the plan area was identified for residential zoning, with up to 6,790 housing units. The specific plan also included an internal roadway network, with road alignments connecting with roadways in adjacent planned developments. A network of trails and pedestrian greenways was proposed. Major issues included agricultural resources, endangered species, traffic, and utility infrastructure.

Central Larkspur Specific Plan EIR, Marin County

City of Larkspur **Environmental Planner**

This specific plan encompassed a 22.7-acre area near the central business district of Larkspur and bordered by established residential neighborhoods. The site contains a mixture of land uses, including commercial uses and an abandoned nursery. The underutilized nature of the plan area and its pivotal location within the city provides an opportunity for careful redevelopment. A specific plan for the area was created to guide redevelopment while meeting the City's general plan objectives to enhance the historic downtown, encourage development of affordable and diverse housing, create a vibrant town center, and provide additional employment opportunities. Suzanne assisted in preparation of the EIR.

San Jose State University Master Plan EIR, Santa Clara County

San Jose State University **Environmental Planner**

Suzanne coordinated technical studies and assisted in writing substantial portions of the program EIR in compliance with CEQA.

Chuckawalla Valley State Prison Facility Repairs and Central Chiller Plant Notice of Exemption, Riverside County

California Department of Corrections and Rehabilitation **Project Manager**

Suzanne prepared a Class 1 and Class 2 Notice of Exemption to comply with CEQA for prison facility repairs and the replacement of the existing cooling system with a central chiller plant.

Stanford Annual Report 1 and 2, Santa Clara County

Santa Clara County **Assistant Project Manager**

Suzanne researched and wrote the first and second annual reports to document Stanford's development activity and compliance with conditions pursuant to the 2000 General Use Permit for Stanford University. She also coordinated with Santa Clara County and the university to compile data and complete report preparation.

Oakland Army Base EIR, Alameda County

Oakland Army Base **Assistant Project Manager**

Suzanne coordinated and managed technical studies for air quality, noise, surface water, biology, and cultural resources in relation to a program EIR in compliance with the CEQA.

Genome Launch Facility IS/MND, Yolo County

University of California, Davis **Environmental Planner**

Suzanne researched and prepared an Initial Study and Mitigated Negative Declaration in compliance with CEQA for a fast-track UC Davis laboratory facility.

Primate Center IS/ND, Yolo County
University of California, Davis **Environmental Planner**
Suzanne researched and prepared an Initial Study and Negative Declaration in compliance with CEQA for a fast-track UC Davis primate center project.

SOLID WASTE/HAZARDOUS WASTE MANAGEMENT

Western Regional Compost Pad Expansion IS/MND, Placer County
Western Placer Waste Management Authority **Assistant Project Manager**
Suzanne assisted the project manager with preparation of an Initial Study and Mitigated Negative Declaration to expand existing composting operations at the Western Regional Sanitary Landfill and Materials Recovery Facility located just outside of the City of Roseville, in unincorporated Placer County. The Authority's goal was to accommodate the anticipated growth in green waste materials accepted at the facility over the next 25 years. The project included expansion of the 7-acre compost pad by approximately 5.5 acres. An additional 2 acres was identified for a second materials screening and stockpiling area and another acre was identified for compost leachate collection and storage.

LAKE TAHOE BASIN

Tahoe Regional Plan Update EIS, Lake Tahoe Basin, California and Nevada (Ascent)
Tahoe Regional Planning Agency **Environmental Planner**
The Tahoe Regional Planning Agency completed a comprehensive update to the Tahoe Basin Regional Plan. An important focus of the update was to revitalize urban areas within the Basin through implementation of smart growth principles, focusing development in key locations with the environmental capacity to accommodate such development. TRPA's goal was to encourage compact mix-use projects and walkable communities that achieve environmental benefits for the Basin. Ascent prepared an EIS for the Regional Plan Update. Suzanne assisted with preparation of the Land Use, Geology, Soils, Land Capability and Coverage as well as responding to comments on the Draft EIS.

Vista Village Affordable Housing Project EIR/EIS/EIS, Placer County
Tahoe Regional Planning Agency **Project Manager**
Suzanne managed preparation of an EIR/EIS/EIS that assessed a proposal for deed-restricted housing affordable to low-income households and potentially for-sale condominiums affordable to moderate-income households in Tahoe Vista. Vista Village would include 72–152 residential units. Suzanne managed supporting technical studies to meet requirements of CEQA, Placer County Environmental Review Ordinance, NEPA (due to proposed HUD funding), and TRPA's Code of Ordinances and Rules of Procedure. The EIR/EIS/EIS analyzed potentially increased flows of sediment, contaminants, and nutrient concentrations into Lake Tahoe. Other environmental issues analyzed included land use and coverage, traffic and circulation, noise, air quality, biological resources, scenic quality, and growth-inducement. As part of the EIR/EIS/EIS process, the team prepared alternative site plans, which were used to analyze and compare impacts of potential project alternatives. The review process involved stakeholders, agencies, and the public.

Tahoe Vista Partners LLC Affordable Housing and Interval Ownership Development Project EIR/EA, Placer County
Tahoe Regional Planning Agency and Placer County **Assistant Project Manager**
Suzanne assisted the project manager with preparation of an EIR and environmental assessment (EA) that evaluated a proposal to construct a combination resort and affordable housing community in Tahoe Vista, on a site currently occupied by a campground and recreational vehicle park. The project necessitated removal of the campground for redevelopment of the site with 45 tourist accommodation units, a clubhouse/ administration building, 10 affordable residential/employee housing units, and commercial building space. The project included modifications to the two-story building fronting North Lake Tahoe Boulevard (SR 28), new parking, landscaping, street frontage improvements, and granting an easement to the California Tahoe Conservancy for the North Tahoe Bike Trail. Key issues included loss of a privately owned campground, potential scenic impacts, noise, water quality, historic buildings, land use impacts, and cumulative development in Tahoe Vista.

Sierra Colina Village Development Project EIS, Lake Tahoe Basin
Tahoe Regional Planning Agency **Environmental Planner**
Suzanne assisted with preparation of an EIS that evaluated a proposed residential development that would include up to 54 residential units adjacent to Burke Creek in the Lake Tahoe Basin. The EIS met the substantive and procedural requirements of TRPA's Code of Ordinances and Rules of Procedure for an undeveloped site proposed for a new housing development. Key issues included affordable housing, Plan Area Statement consistency, traffic, water quality/stream environment zone (Burke Creek), land coverage, growth inducement, and land use planning.

Lake Tahoe Beach Club EIS, Douglas County, Nevada

Tahoe Regional Planning Agency **Environmental Planner**

Suzanne assisted with preparation of this EIS evaluating the proposed construction of a 143-unit residential development on 20 acres at the existing Tahoe Shores Mobile Home Park near the community of Stateline. The project proposed removal the mobile homes and redevelopment of the site with 143 residential units in 14 detached structures. The EIS analyzed two other build alternatives and two no-project alternatives in compliance with the TRPA Code of Ordinances and Rules of Procedure.

PARKS, TRAILS, AND RECREATION AREAS

Edgewood Lodge and Golf Course Realignment Project EIS, Lake Tahoe, NV

Tahoe Regional Planning Agency **Environmental Planner**

Suzanne assisted the project manager with overall EIS preparation for expansion of the existing Edgewood Golf Course in Stateline, Nevada. The entire golf course encompasses approximately 237 acres of land located within the Edgewood Plan Area Statement (PAS) 070A in California and Nevada. The proposed project would be concentrated on approximately 10 acres of land located entirely within the PAS 070A Special Area #1 (Tourist Area). Access to the project site is provided by Lake Parkway from U.S. Highway 50. The proposed project includes a new 194-unit hotel complex with a full-service spa and wellness center, restaurant and bar, and banquet and meeting space as well as accessory uses on undeveloped higher capability lands at the Edgewood Golf Course. Key issues for the EIS include land coverage, scenic quality, water quality, traffic, air quality, and noise.

Singh and Nicolaus Restoration and Public Access Project and EIR, Butte County

The Nature Conservancy of California / California State Parks **Project Manager**

Suzanne managed preparation of and public outreach for an EIR evaluating a riparian habitat restoration and public access project on the Singh and Nicolaus properties, located along the Middle Sacramento River in and adjacent to Bidwell-Sacramento River State Park (Park), west of the city of Chico. This habitat restoration project involved revegetation and restoration of the two agricultural properties with oak woodland, oak savannah, and riparian habitats. The Singh property, owned by California State Parks, is part of Bidwell-Sacramento River State Park. The Nicolaus property was owned by The Nature Conservancy (TNC), but the project included acquisition of the Nicolaus parcel by State Parks from TNC and inclusion of the property in the park. Key issues included conversion of agricultural land and related flood impacts.

North Tahoe Bike Trail Project EIR/EIS/EIS, Placer County

North Tahoe Public Utility District **Assistant Project Manager**

Suzanne assisted in management of environmental documentation in compliance with CEQA, NEPA, and TRPA's Code of Ordinances, for the proposed construction of a new 8- to 9-mile Class I bike trail facility from North Tahoe Regional Park in Tahoe Vista to Dollar Point, just east of Tahoe City. Although the project went on hold before an EIR/EIS/EIS went public, Suzanne managed supporting technical and due diligence studies; regulatory permitting services; and mitigation planning, implementation, and monitoring. Key issues included land use compatibility and biological resources, particularly Northern Goshawk.

Nevada Stateline-to-Stateline Bicycle Facility/America's Most Beautiful Bikeway, Environmental Review, East Shore Lake Tahoe, NV

Tahoe Transportation District **Environmental Planner**

Suzanne assisted with the environmental review for the South Demonstration Project (extending from the state line in South Lake Tahoe to Round Hill Pines Beach), the first of two near-term 3-mile segments of the larger Nevada Stateline-to-Stateline Bicycle Facility. The environmental review was comprised of a Joint EA (TRPA/NEPA) with TRPA and the U.S. Forest Service, Lake Tahoe Basin Management Unit as the lead agencies.

Suzanne assisted with the environmental review for the North Demonstration Project (extending from Incline Village to the Lake Tahoe-Nevada State Park at Sand Harbor). The environmental review for the North Demonstration Project includes another Joint EA (TRPA/NEPA) with TRPA and the U.S. Federal Highway Administration, Nevada Division as the lead agencies.

TAMMIE BEYERL

SENIOR BOTANIST AND WETLAND ECOLOGIST

YEARS OF EXPERIENCE: 11

EDUCATION

M.S., Plant Biology (Ecology), Southern Illinois University, Carbondale, 2001

B.S., Plant Biology, Southern Illinois University, Carbondale, 1999

SPECIALIZED TRAINING

NRCS California Tiger Salamander Workshop, Livermore, CA 2010

California Rapid Assessment Method Training, Sacramento, CA 2008

Basic Wetland Delineation Training, Houston, TX, 2004

AEP CEQA Basics, Sacramento, CA 2004

Assessing Proper Functioning Condition of Lotic Riparian-Wetland Areas, Santa Rosa, CA, 2003

Introduction to CEQA/NEPA for Botanists, Chico, CA, 2002

Tammie Beyerl is a senior botanist and wetland ecologist specializing in CEQA/NEPA compliance. She is particularly skilled at preparing environmental compliance documents for large-scale projects with complex biological resource issues including specific plans, general plans, and management plans. She collaborates with ecologists, engineers, landscape designers, land use planners and resource agencies to develop appropriate mitigation and design solutions. Tammie has 11 years of field experience in plant ecology and taxonomy in the Sacramento and San Joaquin Valleys, the Sierra Nevada, the Central and Southern Coast Ranges, and the Great Basin, and also has experience working in the Mojave and Sonora Deserts. She is experienced in leading and coordinating, as well as conducting biological resources investigations including special-status plant surveys, noxious weed risk assessments, wetland delineations, California Rapid Assessment Method for wetlands; and plant community mapping and classification. Tammie has designed and conducted ecological studies of invasive plant species, old-field succession, and wetland restoration; participated in assessment of riparian communities along flow augmented and bypass stream reaches in the Sierra Nevada, developed detailed mitigation and monitoring plans for federally listed plant species, and developed adaptive management plans for noxious weeds. Project experience referenced herein includes Tammie's background during her tenure at other firms.

PROJECT EXPERIENCE

LEVEL II INFILL CORRECTIONAL FACILITIES PROJECT EIR, AMADOR, SACRAMENTO, SAN BERNARDINO, SAN DIEGO, AND SOLANO COUNTIES

California Department of Corrections and Rehabilitation — **Technical Lead**

Preparation of four EIRs concurrently to evaluate the development of three, stand-alone, correctional facilities at four different locations throughout the state (including San Diego County and the Cities of Chino, Ione, Folsom, and Vacaville). In total, the proposed project involves the construction of a total of 2,376 infill housing units (beds) and associated accessory uses. Tammie prepared the biological resources sections of the EIRs for five potential infill sites. Tammie also conducted biological reconnaissance surveys at each of the potential infill sites.

RIO DEL ORO SPECIFIC PLAN EIR/EIS, SACRAMENTO COUNTY

City of Rancho Cordova and US Army Corps of Engineers, Sacramento District — **Botanist**

Biological resources technical lead who prepared the biological resource sections and responses to over 200 biological resources comments on the EIR/EIS for this mixed-use development project within the Aerojet/GenCorp property, formerly used for solid rocket fuel testing. Tammie collaborated with USACE in developing a project alternative to minimize biological resources impacts, helping develop a methodology identifying the most biologically valuable habitats on the site to preserve. The project would include construction of 11,614 dwelling units on just over 3,800 acres in three residential land use classifications. Biological resources issues were extremely complex because of the number and quantity of sensitive habitats (e.g., riparian habitats, oak woodland, vernal pools) and known and potential special-status species on the project site (e.g., vernal pool branchiopods, valley elderberry longhorn beetle, Swainson's hawk). [Prior to Ascent, 5/2005-8/2010]

FOLSOM SOUTH OF US 50 ANNEXATION EIR/EIS, SACRAMENTO COUNTY

City of Folsom — **Lead Biologist**

Led preparation of biological resource sections of the program-level EIR/EIS for a specific plan project requiring annexation of 3,585 acres south of US Highway 50 to the City of Folsom. Tammie collaborated with stakeholders to develop mitigation for impacts on protected oaks and oak woodland habitat. The mixed-use community would include a 1,000-acre on-site preserve protecting oak woodlands, vernal pool fairy shrimp, cultural resources, and Alder Creek. The EIR/EIS addressed impacts on special-status plants, waters of the United States, blue oak woodland and trees protected by City ordinance, vernal pool fairy shrimp, nesting raptors, valley elderberry longhorn beetle, and burrowing owls. The site contains over 80 acres of waters of the United States and 600 acres of blue oak woodland. A complex issue was developing criteria for quantifying impacts on oak woodland habitat. [Prior to Ascent, 2007-2012]

FAIRFIELD TRAIN STATION SPECIFIC PLAN EIR, SOLANO COUNTY

City of Fairfield **Lead Biologist**

Prepared biological resource sections of the programmatic EIR. The project site consists of over 3,500 acres of mostly undeveloped vernal pool grasslands used primarily for livestock grazing. This area supports numerous sensitive biological resources, including nearly 200 acres of potential waters of the United States, mostly vernal pools; federally listed plant and wildlife species (Contra Costa goldfields, vernal pool fairy shrimp, and California tiger salamander); nesting Swainson's hawks; several species of special concern; and sensitive plants. Critical habitat has been designated by USFWS on the project site and the Draft Solano Multispecies Habitat Conservation Plan identifies portions of the project site as high-value conservation areas. The larger project involved preparation of the specific plan, which includes nearly 1,500 acres of open space designed for habitat conservation, mitigation banking, public open space, and agriculture. [Prior to Ascent, 4/2010-4/2012]

PRESERVE AT SUNRIDGE SPECIFIC PLAN EIS, SACRAMENTO COUNTY

US Army Corps of Engineers **Lead Biologist**

Preparation of an EIS for this highly controversial mixed-use development project on 500 acres of vernal pool grassland habitat that supports the federally listed vernal pool tadpole shrimp and is within a core area identified in the U.S. Fish and Wildlife Service's vernal pool recovery plan as vital to species recovery. Tammie developed a new project alternative, in collaboration with the resource agencies, to preserve a greater percentage of sensitive on-site biological resources than the project proposed in the certified EIR. She trained and led a team of biologists and wetland scientists in conducting wetlands functional assessments using the California Rapid Assessment Method to identify the site's highest quality wetlands. The new alternative was adopted as the new preferred alternative. [Prior to Ascent, 12/2008-4/2012]

YUBA COUNTY GENERAL PLAN UPDATE AND EIR, YUBA COUNTY

Yuba County **Lead Botanist**

Led the biological resources chapter of the programmatic EIR analyzing a comprehensive update for the County's General Plan. Tammie analyzed potential impacts of implementing the general plan update on sensitive plant species; waters of the United States, including vernal pools and other wetlands; oak woodlands; and riparian habitats. She assessed the level to which proposed general plan policies could reduce potentially significant impacts and proposed additional mitigation where necessary. Full buildout of the general plan land uses could result in the loss of over 25,000 acres of oak woodland habitats, 450 acres of vernal pool complexes, and over 1,700 acres of riparian habitats and adversely affect numerous listed and sensitive plant and wildlife species. This analysis resulted in an effort to develop additional general plan policy measures to encourage protection of these resources. [Prior to Ascent, 8/2010-5/2011]

MAGNOLIA RANCH SPECIFIC PLAN REVIEW AND EIR, YUBA COUNTY

Yuba County **Senior Biologist**

Preparation of the biological resources section of the EIR for the Magnolia Ranch Specific Plan. The specific plan area was the most substantial new growth area added to Yuba County's general plan in 2010 and represents a highly visible and important project for the county. Key biological issues include potential impacts to giant garter snake and waters of the United States, including substantial acreage of rice fields. [Prior to Ascent, 10/2011-4/2012]

SUISUN CITY GENERAL PLAN UPDATE, SOLANO COUNTY

City of Suisun City **Botanist**

Conducted biological reconnaissance surveys, prepared a background biological resources report, and helped develop general plan policies and diagrams to protect high-value biological resources. Work supported preparation of the general plan update and general plan EIR. Tammie prepared the biological resources impact and mitigation section of the EIR. Important resources to consider in the planning process include wildlife movement corridors, freshwater and brackish marsh habitats, vernal pool grasslands, and special-status species known to occur in the planning area including Contra Costa goldfields, vernal pool fairy shrimp, and salt marsh harvest mouse. [Prior to Ascent, 7/2010-4/2012]

SUN CREEK SPECIFIC PLAN EIR/EIS, SACRAMENTO COUNTY

City of Rancho Cordova **Lead Biologist**

Led the biological resource sections of the joint EIR/EIS for a mixed-use project on 1,253 acres of vernal pool grasslands currently used for livestock grazing. Tammie addressed direct, indirect, and cumulative impacts on and mitigation for plants, waters of the United States (vernal pools), burrowing owl, Swainson's hawk, and vernal pool branchiopods at a project level. She helped develop a project alternative to minimize biological resources impacts. She contributed to the EIR/EIS's hazards section by analyzing the potential impact of increasing bird strike hazards at the nearby Mather Airport with creation of detention basins for the project. The project site supports burrowing owl, western spadefoot, vernal pool fairy and tadpole shrimp, Cooper's hawk, and northern harrier. [Prior to Ascent, 11/2005-4/2012]

ARBORETUM COMMUNITY SPECIFIC PLAN AND ENVIRONMENTAL SERVICES, SACRAMENTO COUNTY

Lewis Investment Company **Technical Lead**

Conducted wetlands functional assessments using the California Rapid Assessment Methodology (CRAM) for vernal pools, seasonal wetlands, and creeks; prepared a detailed CRAM report; and was lead author for the biological resources technical report (the basis for CEQA and NEPA analyses). Work supported specific plan development for this sustainable new community on 1,400 acres. The specific plan would include site-specific sustainability policies and design guidelines; about half the site would be set aside as wetland and riparian preserves. The team of biologists conducted surveys for branchiopods, western spadefoot, burrowing owl, and Swainson's hawk; microwatershed assessments for vernal pool preserve planning; and plant community/habitat mapping and assessments. Several new special-status species population occurrences were recorded and submitted to the California Natural Diversity Database: fairy shrimp, tadpole shrimp, and Swainson's hawk nest sites. [Prior to Ascent, 2007-2008]

MOUNTAIN SPRINGS COMMUNITY PLAN SEIR, TUOLUMNE COUNTY

Tuolumne County **Botanist**

Prepared biological resource sections of the EIR; conducted biological reconnaissance surveys; assisted with oak woodland sampling in support of the oak woodland impact analysis/mitigation plan; and identified and mapped biological constraints, including potential waters of the United States and trees protected under county ordinance, for off-site improvement areas. The project site supports several California species of special concern: western pond turtle, southwestern river otter, and yellow-breasted chat. In addition, many sensitive habitats are present: creeks and wetlands that qualify as waters of the United States, oak woodlands, riparian habitats, and elderberry shrubs. The community plan provides for the phased development of the 1,063-acre community and contains a variety of land uses that include open space, parks and recreation, a variety of housing options, a village center with residential office, commercial, hotel lodging, and related amenities and services. [Prior to Ascent, 4/2006-5/2007]

UNION RANCH SPECIFIC PLAN EIR, SAN JOAQUIN COUNTY

City of Manteca **Botanist**

Prepared the biological resources section of the EIR for development of a residential and commercial planned community on a 553-acre site located adjacent to the northern city limits of the City of Manteca. The section included a description of the existing biological resources, applicable regulatory issues, and assessment of potential biological impacts. Because the project site was outside the City's sphere of influence, the project required annexation of the site to the City of Manteca. [Prior to Ascent, 8/2004-3/2005]

GARIBALDI RANCH RESIDENTIAL SUBDIVISION PROJECT, SOLANO COUNTY

Discovery Builders Inc. **Botanist**

Conducted special-status plant surveys and a wetland delineation and mapped *Viola pedunculata*, host plant for the federally listed Callippe silverspot butterfly. The project proposed development of approximately 207 acres in the city of Fairfield. The project purpose was to provide a residential development encompassing single-family homes, public park uses, and open space on the project site in conformance with the City of Fairfield General Plan (July 1992, as amended in December 2000) and the Cordelia Area Specific Plan (1986). The development of the proposed Garibaldi Ranch subdivision would constitute the buildout of the last remaining property proposed for residential use in the Cordelia area under the Cordelia Area Specific Plan. [Prior to Ascent, 4/2004-8/2004]

BANCROFT GARDENS I AND II PROJECTS, SOLANO COUNTY

Discovery Builders Inc. **Botanist**

Conducted wetland delineations and prepared the wetland delineation reports for these two projects. The Bancroft Gardens I Project included 22 single-family residential units on lots averaging 6,600 square feet; Bancroft Gardens II included 28 single-family homes on lots averaging 6,600 square feet. The project sites covered approximately 9.5 acres and were located adjacent to each other in the City of Fairfield. [Prior to Ascent, 7/2004-9/2004]

YEARS OF EXPERIENCE: 16

EDUCATION
Liberal Arts , American River Jr. College, 1994

Gayiety Lane

PRODUCTION SPECIALIST

Gayiety is a highly skilled publishing specialist with over 15 years of experience. She has expertise in formatting, editing, and document production. She is proficient in coordinating simultaneous projects and meeting deadlines; conformance with Quality Assurance practices; and use or creation of custom and standardized style guides.

She has advanced use and knowledge of tools such as Microsoft Word, Adobe Acrobat Professional, and Excel. Her expert use of tools includes the following: client-specific, custom, and standardized templates; creating auto-updatable table of contents; chapter and section formatting; coordinating headers and footers of multiple-chapter document files; development of extensive acronym and abbreviation tables; incorporating formatted indices; creation of detailed citation sections critical for agency compliance document review and production; incorporating graphics in margins/headers/footers; development of multi-column formats; use of large appendices of annotated scanned letters; compilation of multiple files to create bookmarked, password-protected, web-ready document files; and proficient use of the Mail Merge feature to produced public mailings for small or large-scale documents.

Her publishing expertise of large federal, state, and local agency regulatory compliance documents includes CEQA/NEPA technical documents such as EIRs, EISs, IS/MNDs, master plans, specific plans and resource management plans.

PROJECT EXPERIENCE

Natomas Levee Improvement Project, Sacramento and Sutter Counties

Sacramento Area Flood Control Agency (SAFCA) **Publishing Specialist**

An environmental compliance effort for SAFCA's program of flood control improvements to provide the Sacramento metropolitan area with a "200-year" level of protection. This team prepared a program EIR on funding mechanisms for comprehensive flood control improvements for the Sacramento area that documents the potential environmental impacts of a wide range of regional flood control strategies and related activities, including Folsom Dam physical and operational modifications; construction of a new bridge at Folsom; American River floodplain habitat enhancements; South Sacramento stream channel improvements; implementation of seepage, levee freeboard, and erosion remediation on Sacramento River, American River, and Natomas Cross Canal levees; and other measures to ensure long-term levee integrity and flood protection for the Sacramento area. At the same time, the team prepared a project-level EIR on the Phase 1 Landside Improvement Projects.

CalPeco 625 and 650 Electrical Line Upgrade Project EIS/EIS/EIR

U.S. Forest Service, Lake Tahoe Basin Management Unit/Tahoe Regional Planning Agency/ California Public Utilities Commission **Production Specialist**

Ascent is preparing a joint EIS/EIS/EIR that will evaluate the environmental effects of CalPeco's proposed upgrades to its North Lake Tahoe Transmission System loop. The transmission system loop is comprised of four electrical lines that extend between the Town of Truckee, Tahoe City, and Kings Beach. The proposed project focuses on an upgrade of CalPeco's existing 625 and 650 electrical lines and associated substations from 60 kilovolt (kV) to 120 kV; the other two electrical lines comprising the loop have previously been upgraded. The project consists of six primary components: 1) removal of the existing 625 Line and construction of a new, rerouted 625 Line; 2) rebuild of the existing 650 Line; 3) realignment of two short segments of the 650 Line and removal of the re-routed segments; 4) work on the "Northstar Tap" line; 5) rebuild of a 1.6-mile long section of the existing 132 Line; and 6) upgrade, modification, and/or decommissioning of six substations and/or switching stations. The project components are predominantly located on lands managed by the USFS in the LTBMU and Tahoe National Forest. Portions of the project are also located in the Town of Truckee as well as Kings Beach and Tahoe City, and on lands within the Martis Creek Lake Recreation Area. Key issues include historic resources, biological resources, scenic resources, the potential for recreation conflicts, and plan consistency.

Cabin Creek Biomass Facility EIR

Placer County **Production Specialist**

Ascent is preparing an EIR for Placer County for the Cabin Creek Biomass Facility Project. The proposed facility includes is a 2 megawatt (MW) wood- to- energy plant that would produce electricity and heat, and produce indirect benefits related to fuels management and reduced potential for catastrophic wildfire. The facility would consist of an 80-foot by 80-foot two-story building and an open structure for biomass storage. The EIR will assess impacts of construction and operation of the facility, including land use, air quality, GHG emissions, noise, truck traffic, water supply and water quality, sustainable forest practices, and biological resources. Impacts to resources will be analyzed at both the facility site and the areas from which biomass fuel will be obtained. Sydney is directing the team preparing the project's environmental review. The EIR will assess impacts of construction and operation of the facility, including land use, air quality, greenhouse gas emissions, noise, truck traffic, water supply and water quality, and biological resources, including fuel source areas and forest resources.

Tahoe Regional Plan Update EIS, Lake Tahoe Basin, CA and NV

Tahoe Regional Planning Agency **Production Specialist**

The TRPA undertook the first major update to the Tahoe Basin Regional Plan since 1987. An important focus of the update was to revitalize community centers within the Basin through implementation of redevelopment incentives, which would result in compact development, enhanced transportation systems, transfer of coverage and development out of stream zones and other sensitive lands, promotion of non-motorized trails, and other features. TRPA's goal was to accelerate environmental carrying capacity threshold attainment through specific revisions to goals, policies, and Code provisions to incentivize redevelopment, promote compact mixed-use projects, and create walkable communities. The update process has undergone extensive community engagement, discussions between California and Nevada, and detailed environmental review. Ascent led the preparation of the EIS for the Regional Plan Update, which was adopted on December 12, 2012.

Tahoe Transportation District Regional Transportation Plan (RTP) and Sustainable Communities Strategy (SCS) EIR/EIS

Tahoe Metropolitan Planning Organization **Production Specialist**

Ascent Environmental worked with the Tahoe Metropolitan Planning Organization (TMPO) to prepare a program-level EIR/EIS for the Tahoe RTP and SCS. The TRPA and TMPO jointly updated the Tahoe Basin's RTP, in conjunction with an update of the Tahoe Regional Plan. The RTP/SCS includes the policies, investments, and funding strategies that will shape the region's transportation system over the next 25 years. The RTP will also serve as the Transportation Plan required by the Tahoe Compact as part of the TRPA Regional Plan update. Finally, the plan meets the challenge of California's Senate Bill 375 by presenting an integrated set of land use plans and transportation investments that will allow the region to achieve state targets for reducing greenhouse gas emissions by 2035. Ascent prepared the EIR/EIS, which was certified in December 2012. The RTP/SCS has been approved and is being implemented.

Edgewood Hotel and Golf Course Realignment, Lake Tahoe, Nevada

Tahoe Regional Planning Agency **Production Specialist**

The Edgewood Hotel and Golf Course Realignment Project involves redevelopment of a portion of the Edgewood Golf Course adjacent to Lake Tahoe in Stateline, Nevada into an expanded resort facility. A proposed new hotel, spa and wellness center, restaurant, banquet and meeting space would be concentrated on approximately 10 acres of land located entirely within the PAS 070A Special Area #1 (Tourist Area). The proposed project would include a new 194-unit hotel complex with a full-service spa and wellness center, restaurant and bar, and banquet and meeting space as well as accessory uses on undeveloped higher capability lands at the Edgewood Golf Course. The project also includes several water quality improvement features aimed at contributing to achievement of water quality threshold standards. Ascent prepared the EIS on behalf of TRPA for this project pursuant to the Tahoe Regional Planning Compact and the TRPA Code of Ordinances. Key issues include land coverage, scenic quality, water quality, traffic, air quality, and noise. The EIS was certified and the project has been approved.

VICKI KRETSINGER GRABERT

Principal Hydrologist
LSCE President

More than 29 years experience in groundwater quality monitoring and resource management, including design of monitoring networks and programs, soil and groundwater remediation, application of environmental regulations, long-term water quality monitoring and protection programs, and groundwater resource assessments. She has an M.S. in water science (with an emphasis on groundwater hydrology and water quality) from the University of California, Davis. She specializes in the understanding of contaminant transport and fate in hydrologic systems and the potential implication of the presence of natural or man-made contaminants. She also specializes in geochemical relationships and their correlation with groundwater flow, including mass transfer processes and migration and accumulation mechanisms occurring along groundwater flow paths and the occurrence of natural constituents such as arsenic and chromium. She has designed, managed, and administered installation and operation of monitoring programs for groundwater resource characterizations and contaminated sites. She has managed county and basin-wide groundwater monitoring programs (and accompanying data management systems, data QA/QC procedures and analysis of groundwater conditions) developed for numerous areas, including all of Napa County, all of Yolo County, northern Solano County, Soquel-Aptos, Pajaro Valley, Rancho San Carlos, Cache Creek, Placer County, Eastern Sacramento County, Mendota, and the Glenn-Colusa Irrigation District. She has managed groundwater management plans and/or water supply assessments for cities and/or water purveyors in Sonoma, Solano, Yuba, and Sutter Counties that comprehensively evaluate subsurface hydrogeologic conditions to fulfill requirements of Senate Bill 610 (and related bill SB 221). She has also managed preparation of groundwater source assessments prepared in support of urban water management plans. She managed technical groundwater work as part of the LWA/LSCE/Systech/Newfields consulting team that designed and implemented the Salt and Nitrate Sources Pilot Implementation Study, which has been a key initial step in the effort by the Central Valley Salinity Coalition toward the development of a Basin Plan amendment to address the issue of salt and nutrient management in California's Central Valley. She is the groundwater leader for a six-firm team effort in the preparation of the Phase 1 Initial Conceptual Model for the Central Valley Salt and Nitrate Management Plan.

She is the Founding President of the Groundwater Resources Association of California (GRA) and a member of the Board of Directors since 1992; member of the University of California Center for Water Resources Center Advisory Council (14 years); Board Member and Past Chair of the Association of Ground Water Scientists and Engineers (Division of the National Ground Water Association (NGWA); 1998-2007). She served as NGWA's Vice President (2004-2005) and National Ground Water Research and Educational Foundation (NGWREF) board member (2004-2005). She is a co-editor of a semi-annual themed column in NGWA's *Ground Water* Journal. She has been a member of the International Association of Hydrogeologists (IAH) since 1992, and she now serves as a Director on the IAH US National Chapter Executive Committee. In 2010, she planned and organized the launch of a new Contemporary Groundwater Issues Council on behalf of GRA. The Council consists of nearly three dozen local, state, national, and international distinguished executives and leaders who are providing their input on the most pressing information, education and programming needs to address California's groundwater challenges. She is a co-leader of the California Water Plan Update 2013 Groundwater Caucus.

BARBARA DALGISH, P.G.

Project Hydrogeologist

LSCE

More than 10 years of professional experience including seven years in groundwater consulting with Luhdorff and Scalmanini Consulting Engineers and three years as a hydrologist for the U.S. Geological Survey. Experience includes development and construction of site specific and regional groundwater flow models; investigation and assessment of regional geologic and hydrologic conditions for groundwater resource management programs; collection and evaluation of soil, surface water, and groundwater quality; aquifer parameter estimation.

She has an M.S. degree in Hydrologic Sciences from the University of California, Davis and a B.A. degree in Geology from Hamilton College, Clinton, New York. She is registered in the State of California as a Professional Geologist (P.G.). Her experience in water supply involves conducting geologic and hydrogeologic investigations for ground water development; delineation of the spatial extent of aquifers; lithologic correlation of well logs, preparation of geologic cross-sections, and mapping of subsurface features; oversight over well/testhole drilling and abandonment operations; geologic logging of drill cuttings; creation of water level contour maps. Her experience with monitoring and analysis include the design, implementation, and administration of ground water and surface water monitoring programs in the context of waste discharge requirements and groundwater protection. In terms of groundwater modeling, she has experience with the development and utilization of numerical and analytic element models on various platforms for water supply, contamination, and groundwater protection projects. Her expertise extends to hydrogeologic aquifer parameter estimations, including performing and interpreting various aquifer tests, slug tests, diffusivity analyses (passive monitoring), falling head tests, seepage meter tests, and horizontal flowmeter tests. She also has experience working on Drinking Water Source Assessment Protection Programs, in which her duties include the preparation of drinking water source assessment program documents for several public water systems in California. This work includes the assessment of potential hazards within calculated wellhead protection zones and the reporting of these hazards in program documents for agency and client use in compliance with the Department of Public Health. She also has expertise in database and GIS management, including the creation and maintenance of several water quality and water level databases including well information, lithology information, precipitation, streamflow, and geophysical information. For GIS management, her expertise includes spatial interpretations, geostatistical analyses, and map production using GIS technology. She also has experience surveying, which has involved performing wellhead surveys for latitude, longitude, and elevation data acquisition. She also has extensive experience in the area of research, including research methodology, model conceptualization, has been a speaker and presenter at several conferences in the United States of America, and also has published professional papers.

She is a member of the following professional groups: National Ground Water Association – Association of Ground Water Scientists and Engineers; Groundwater Resources Association of California; and the Geological Society of America.

REID J. BRYSON

Staff Hydrologist

LSCE

More than 7 years of professional experience in surface water and groundwater investigations in Northern California. His relevant experience includes simulated rainfall-runoff modeling, solute transport modeling, statistical analyses of hydrologic data, land use analysis and mapping, spatial analysis of groundwater monitoring, and database development.

He has an M.S. degree in Hydrologic Sciences from the University of California, Davis, and a B.S. degree in Environmental Science and Geographic Information Systems from Samford University, Birmingham, Alabama. His experience includes assisting in the development of an updated hydrogeologic characterization of Napa Valley through the interpretation of borehole lithology and well yield data from drillers' logs. Deliverables for that project included eight geologic cross sections, an alluvium isopach map, and a map of pre-alluvium subcrop geology. He has reviewed current and historic groundwater monitoring networks in Napa County to assess spatial and temporal data coverage relative to monitoring program objectives. He has also created database queries to determine the availability of groundwater level data and well construction information, evaluated groundwater level data and well construction information in order to locate wells relative to aquifer units. He has processed monitoring data and mapped monthly groundwater levels at 18 San Joaquin Valley dairies for Phase 1 of the Central Valley Dairy Representative Monitoring Program. He has also experience updating spatial land use data for an evaluation of groundwater demands in Northern California, which involved consulting prior land use maps produced by the CA Department of Water Resources, normalized difference vegetation index data, and aerial photographs to identify parcel-scale land use changes. He has led the implementation of 64 simulated rainfall trials in beef cattle feedlot pens to test the transport potential of steroid hormones in runoff. For this project he has performed mass balance analyses for water, chloride, and steroid hormones, and used MATLAB to model 1-D solute transport with a modified advection-diffusion equation. He has performed statistical analyses on commercial beef feedlot wastewater data to assess the performance of a Vegetated Treatment System with respect to the attenuation of chloride, dissolved organic carbon, and steroid hormone concentrations in runoff. He has evaluated surface water quality in an estuarine setting through monitoring network design, data collection, and development of a relational database to assess spatial and temporal variations in temperature, salinity, total dissolved solids, and dissolved oxygen. He has performed a spatial analysis of field-scale land uses over 50 years across a 300 square mile watershed to assess the impact of land management practices on plant community succession, which involved georectified digital orthophoto quadrangles, ground-truthed LANDSAT data, and interpreted land use from both datasets. He has also performed geomorphology surveys including channel cross sections, longitudinal thalweg profiles, and streambed particle size classifications as part of an evaluation of logging road decommissioning on sediment transport to adjacent stream channels.

He is affiliated with the following professional groups: California Water and Environmental Modeling Forum; and the Groundwater Resources Association of California.

LISA A. LAVAGNINO

Staff Hydrologist

LSCE

More than 9 years of professional experience in geology, groundwater, and geographic information systems (GIS). Her experience includes several aspects of hydrogeologic investigation and characterization including: organizing, maintaining, and reporting spatial and temporal data using databases and specialized groundwater software; performing well and aquifer testing and interpreting results; conducting field surveys; and assisting in the formulation and reporting of a groundwater budget through the accounting of metered water use and determination of unmetered water use.

She has a B.S. degree in Geology from the University of California, Davis, and is registered in the State of California as a Geologist-In-Training Her experience in database and GIS management includes designing, building, and maintaining relational and GIS databases containing well information and associated observational data, including those data related to distribution systems, surface water, landuse, geology, and corresponding physical and political entities. She also manages the development of vector and raster datasets with attribute information and necessary topological relationships. Database applications that she is fluent in include storing, analysis and reporting of data to supervisory boards, water purveyors, private industries, agricultural entities, and jurisdictional proceedings of the investigation and monitoring of groundwater resources. Her experience includes the creation of customized tools to automate the preparation of graphs and reports and facilitate the analysis of trends in well efficiency, water levels and water quality; the coordination of data input from in-house monitoring equipment and aquifer testing, public agencies, private entities, and water quality laboratories; and the creation of maps for reports and posters to visually demonstrate results and findings of analysis. Her experience in monitoring and analysis involve participating in the design, implementation, and administration of groundwater and surface water monitoring programs including installation and maintenance of monitoring equipment and collection of the data. She conducts hydrogeologic investigations through creation of water level contour maps, the interpretation of well log descriptions, and construction of geologic cross-sections. She calculates aquifer properties from construction and aquifer testing results, and characterizes groundwater wells based on construction properties and aquifer conditions. She has experience with surveying and field reconnaissance including conducting field surveys of groundwater wells, streambed geometries and spring configurations, and water system distribution components for geographic position and elevation relative to standard datum. She also has experience with remote sensing applications in which she processes and visually interprets multi-band satellite imagery and color-infrared aerial photographs through the calculation of vegetation indices for the determination of quantity and spatial extent of agricultural landuse types as a component of the groundwater budget. She has experience with well construction and pump test analysis, providing onsite supervision of drilling, construction, and pump testing activities. Conduct geologic logging of drill cuttings in sedimentary and hard rock settings. Assist in multiple-well pump test for determination of well and aquifer properties.

She is affiliated with the professional group Groundwater Resources Association of California.

A.SCOTT LEWIS, P.G.

Senior Geologist

LSCE

More than 16 years of professional experience in water resources and groundwater development projects including site evaluation and exploration, hydrogeologic assessments, monitoring well and production well design, well construction and testing oversight, water well rehabilitation, design and implementation of groundwater monitoring networks, and overall project management. Mr. Lewis specializes in the design, construction, testing, and evaluation of monitoring and municipal water well projects and over one-hundred exploration programs throughout California. Representative projects include municipal wells for San Jose Water Company, City of Merced, City of Winters, Sacramento County, City of Roseville, Sacramento Suburban Water District, Sacramento Area Flood Control Agency, California Water Service Company, and the Marina Coast Water District.

He has a B.S. degree in Geology from California State University, Sacramento. He is registered in the State of California as a Professional Geologist (P.G.). His experience in hydrogeologic investigations includes performing and supervising hydrogeologic investigations for water supply projects and recommending locations and depths for exploratory drilling to collect zone specific geologic, water quality, and water level data. He has supervised test hole drilling to characterize hydrogeologic conditions used to design and construct new monitoring wells and new municipal water supply wells. His experience in well design includes designing wells based on analysis of formation samples, electric log interpretation, water quality analysis, aquifer properties, anticipated well yield, and anticipated pumping regime. He has selected materials to construct hydraulically efficient and sand free wells, determined seal placements to maximize protection from possible sources of contamination and/or zones of poor water quality. He has been involved in the procurement of permits related to well construction, discharge permitting, SWPPP, and well use permitting. His experience in well construction oversight involves: performing and supervising inspections to ensure the project is managed and constructed according to project specifications and accepted industry practice; inspection of materials, drilling fluid properties, drilling and well construction; direction and oversight of well development and testing; and interpretation of pumping tests to determine well yield and aquifer properties. His experience in water well rehabilitation includes evaluating well and pumping plant performance and making recommendations for well rehabilitation and/or repair, and equipment replacement. He has performed oversight and retesting of wells after recommended programs were completed. His experience in monitoring programs involves the establishment and administration of water level and water quality groundwater monitoring programs, and the installation and supervision of dedicated groundwater monitoring equipment, retrieval of data, and data analysis.

He is affiliated with the professional group Groundwater Resources Association of California.

Appendix F

Middle Green Valley Project
Project Description of Water Supply
Options C, C1, and C2

APPENDIX F

The following text below, describing Water Supply Option C, C1, and C2, is added to Section 2.4.5 of the Revised Recirculated DEIR and is to be added to Section 4.3 of the Specific Plan. (Bracketed internal cross references to figures in the Revised Recirculated DEIR are added only to the Revised Recirculated DEIR.)

To provide water service to the Plan Area, a third option is Option C: surface water supplied by SID and treated to potable (Title 22) levels at the City of Fairfield treatment plants.

(3) *Water Supply Option C (SID Surface Water)* would require that the Solano Irrigation District (SID) seek approval of a Petition for Change in Place of Use to encompass the entire Specific Plan development area and then annex the Solano Project Place of Use area into SID's service area and serve all Specific Plan domestic uses with SID surface water [Figure 2.12, Revised Recirculated DEIR]. Consistent with current conditions, surface water from SID and groundwater would continue to be used to serve existing agriculture and ag-residential uses. As with Options A and B, recycled water from the project would be used to serve new landscaped areas, and future agriculture and ag-residential uses under the Specific Plan would be served non-potable water by SID.

Because SID does not have water treatment facilities, SID surface water would be treated at the City of Fairfield treatment plant(s) to meet safe drinking water standards for domestic use. There is existing infrastructure that provides Solano Project water to the City. This infrastructure would be sufficient to handle the SID water for the Specific Plan; additional pipeline construction to transmit SID surface water to the City's water treatment facilities would not be necessary. Fairfield has indicated that the Specific Plan area would most likely receive water from the Waterman Water Treatment Plant; however, once the City completes its cross-town transmission pipeline connecting the North Bay Regional Water Treatment Plant to Nelson Hill Reservoir, the project could also receive water from North Bay Regional Plant (which treats water from Lake Berryessa and the Delta), in which case the water supply would be a blend from the two treatment plants. The Waterman Treatment Plant has a capacity of 30 mgd and the North Bay Regional Treatment Plant has a capacity of 40 million gallons per day (mgd), split 2/3 and 1/3 between Fairfield and Vacaville, respectively. The portion of that capacity belonging to Fairfield is 26.7 mgd. The current peak-day demand for Fairfield is approximately 32 mgd; therefore, with a total capacity to treat 56.7 mgd, the City has capacity to treat SID water for the project without the need for improvements at either treatment plant. After treatment, the potable water would be delivered to the Specific Plan development areas for domestic use via a proposed connection to the City of Fairfield's existing 24-inch water main "flange" at the corner of Green Valley Road and East Ridge Road near the southeast corner of the Plan Area. As under Option A, the proposed water supply infrastructure system would consist of approximately nine miles of onsite pipeline and 500,000 gallons of onsite storage (for fire hydrants and sprinklers) in two water storage tanks at elevation. Under Option C, the water system would be overseen by SID (rather than a County Services Area [CSA]).

SID's service area and the Solano Project Place of Use do not cover the entire 1,905-acre Specific Plan area [Figure 2.12, Revised Recirculated DEIR]. Therefore, water service to the entire Specific Plan area (or Specific Plan development areas outside of the current service area and Solano Project Place of Use) by SID would require approval by the State Water Resources Control Board (SWRCB) of a Petition for Change in Place of Use to encompass the Specific Plan area, and then annexation of this area by SID to include it in its service area. Approval from the Solano County Local Agency Formation

Commission (LAFCO) would be required for SID to change its service area boundary (to annex in the full Solano Project Place of Use).

If the County determines that having some groundwater supply infrastructure in place may be prudent in order to provide an appropriate minimal margin of engineered redundancy to guard against any residual risk of reduction in surface supplies occurring in the event of a prolonged drought, the County may require that subdivision map approval be conditioned on design and implementation of portions of the groundwater supply infrastructure. Such infrastructure would be idle/unused other than as a substitute supply in prolonged drought conditions.

To address potential uncertainty with regard to the approvals needed from the SWRCB and Solano County LAFCO to allow SID to serve water to the entire Specific Plan area, two variations of Option C are proposed for that portion of the Specific Plan area outside the SID service area boundary: Option C1 contemplates use of groundwater to serve these residences, and Option C2 contemplates use of municipal water from the City of Fairfield.

i.Water Supply Option C1 (SID Surface Water and Onsite Groundwater):
If the process to obtain approval for a Petition for Change in Place of Use is lengthy, or if the approval is not obtained, SID could annex the Solano Project Place of Use into its service area. In this case, SID would supply potable water to proposed residences within the existing Solano Project Place of Use. The units located outside the Solano Project Place of Use boundary would be served by groundwater. This would require one or more wells, with treatment to potable Title 22 levels by a small facility at the wellhead(s), then connected to the SID infrastructure at the nearest point where it would be blended with the treated SID surface water.

If SID experiences any problem with annexation of the Solano Project Place of Use, the SID service area would remain as it is and all units outside the current SID service area would be serviced by onsite groundwater wells. The water would be treated to potable Title 22 levels at the well, and then connected to the SID infrastructure at the nearest point, where it would be blended with the treated SID surface water. As under Option C, the remainder of the Specific Plan area within the SID service area would be served by surface water from SID for domestic uses; SID and groundwater would continue to supply non-potable water for existing agricultural and ag-residential uses; recycled water from the project would be used to serve landscaped areas; and future agriculture and ag-residential uses under the Specific Plan would be served non-potable water by SID.

ii. Water Supply Option C2 (SID Surface Water and City of Fairfield Municipal Connection)
Under Option C2, the residential units outside the Solano Project Place of Use boundary or all residential units proposed outside of the current SID service area would receive domestic water from the City of Fairfield. As under Option C, the remainder of the Specific Plan area within the SID service area would be served by surface water from SID for domestic uses; SID and groundwater would continue to supply non-potable water for existing agricultural and ag-residential uses; recycled water from the project would be used to serve landscaped areas; and future agriculture and ag-residential uses under the Specific Plan would be served non-potable water by SID.