From: Suzanne Fiedler
To: BoardComment
Cc: Kitty Connolly
Subject: Proposed Boardwalk in Fiscalini
Date: Tuesday, April 9, 2024 11:43:48 AM

Hello Haley,

This recommendation is intended for the April 11th meeting of CCSD.

I'm writing in regard to the proposed boardwalk to connect the bluff walk to the Marlborough service road at the south end of the ranch. This is a frequently used cutover which seems to accumulate a significant amount of runoff from the hills above after the rains and a few weeks afterward. The trailhead from the service road remains wet and muddy for a while. In January of 2023. I slipped at that spot resulting in a minor fracture to my ankle and slight damage to a tendon. Physical therapy was required and the healing is now complete.

I highly recommend the construction of a boardwalk on that trail to eliminate any further accidents due to slips and falls.

Thank you for your consideration of this recommendation.

Suzanne Fiedler

From: Lisa Weseman
To: BoardComment
Subject: Public Comment - Don"t Sue Our Schools!
Date: Thursday, April 11, 2024 11:40:10 AM

I strongly urge the CCSD Board to work toward an agreement with CUSD regarding the lease agreement for water access on school property.

CUSD has negotiated in good faith, addressing CCSD's concerns by dramating lowering the rate and increasing length of contract, even offering to go up to 99 years.

Cambria is a special town and we believe our leaders can work together to find a solution that benefits everyone.

Many parents are unable to attend today's meeting due to a conflicting school activity, but we are engaged and concerned about this issue on behalf of our children and our schools.

We urge CCSD to do the right thing and avoid engaging in costly and unnecessary litigation that will only hurt Cambrians.

Sincerely,
Lisa Weseman
Cambria Parent & Homeowner

From: Melissa Avina
To: BoardComment
Subject: Public Comment
Date: Thursday, April 11, 2024 9:36:44 AM

Hello,

My name is Melissa. I am a parent with children attending Coast Unified School District. My son, who is a sophomore, attends Coast Union High School. I am writing to you today because of the information I have read about the CCSD taking two water wells, one of which is the sole water source for the grass fields surrounding the high school. This water supply is used for its fields. These fields are used daily by students. One of them is my son. I ask that you reconsider your decision and look for other areas in Cambria. I have two other children attending Coast Union High School in the future, and I hope they will still be able to enjoy the Coast Union High School as it is. Thank you

-Melissa Avina

Sent from my iPhone

From: JAMES TOWNSEND
To: BoardComment
Subject: April 11, 2024 CCSD Board Meeting Agenda Item 6A Public Comment
Date: Thursday, April 11, 2024 10:04:55 AM

Haley,
I am really sorry that I won't be able to attend today's board meeting in person, please provide my comments below at the meeting:
President Gray and Members of the Board:
I am writing to support CCSD's efforts to secure permanent land tenure for the SR4 well site and its associated facilities. The Board has a responsibility to maintain unfettered access to its critical infrastructure, and it appears that today's action, the passing of a resolution of need and necessity is required to meet that responsibility. It is, of course, unfortunate that the school district has refused to negotiate permanent access rights for CCSD, preferring to continue to extract usurious annual payments and threatening to deny CCSD access to the SR4 well site.
It is also clear that the school district's notion of a "fair" annual compensation for use of the site is essentially "as much as we can get." The school district's original "ask" for a lease renewal was for $80,000 per year, later reduced to $26,000 per year with CPI increases. I am unaware of any appraisal or market data that would support either of those numbers. CCSD cannot remain in a situation where access to its critical infrastructure depends on the whims of the school district.
The eminent domain process is used every day by public agencies to acquire property for roads, bridges, and other public infrastructure. It requires the payment of "just compensation" or fair market value, for any property acquired. The previous CCSD Boards who negotiated the original agreements with the school district bungled the job, as the ratepayers of CCSD appear to have paid the fair market value for the well site many times over. The Board has a fiduciary responsibility to not continue to overpay for this tiny piece of school district property that, while providing no utility to the high school, is a critical water source for Cambria.
We can all agree that it's unfortunate that it has become necessary to take this step to protect Cambria's water supply. Hopefully. this resolution of need and necessity will encourage the school board to take action to resolve the matter without expensive litigation. But if litigation is required to protect unfettered access to CCSD's critical infrastructure, then that's the course CCSD should take.
Anyone paying attention knows that I am not shy about criticizing CCSD policies and actions when I think it's appropriate. But the staff and counsel got this one right. The Board should move forward promptly to acquire the well site for its full fair market value, and not kick this particular can any further down the road.
Thank you for your service!
Jim Townsend
Romney Drive, Cambria

From: donald [redacted]
To: BoardComment
Subject: Re: COMMENTS ON AGENDA ITEM 6A
Date: Monday, April 8, 2024 3:11:01 PM
Attachments: image001.jpg

Thank you, Haley,

I found that I left out something in the copy I sent you. Could you please replace my previous comments with this correct version?

Donald

President Gray, Vice President Scott, and members of the board:

I do not find the dispute between the CCSD and CUSD coherent. What started as perhaps a win-win for both districts, has turned into what may be a lose-lose for the community at large…with attorneys, consultants, and miscellaneous costs on both sides taking the spoils.

Who understands that it's THE COMMUNITY AT LARGE that is PAYING THE COSTS THAT BOTH SIDES ARE INCURRING in this dispute? It's a double-whammy and a lose-lose for all of us.

Correct me if I'm wrong, but I believe that what the CCSD originally requested of the CUSD was eventually, after some volleying back and forth, not only met by the CUSD, but sweetened in the CCSD's favor.

However, by then the CCSD had become determined to own the land, not lease it. And that has opened this can of worms.
Who advised this change of policy/strategy…and why?

As far as the community at large is concerned, this conflict is not one sovereign agency against another; it's more like one's liver badly infecting one's kidneys. It's created two adversaries, rather than two partners, in resolving what is, in fact, a 'family' dispute.
And in the end, who truly wins?

We, the public, deserve answers to these questions.

Donald Archer,
Cambria

Please enter these comments into the public record

From: BoardComment <boardcomment@cambriacsd.org>
Sent: Monday, April 8, 2024 12:21 PM
To: donald [redacted]>
Cc: Matthew McElhenie <mmcelhenie@cambriacsd.org>; James Green <jgreen@cambriacsd.org>
Subject: RE: COMMENTS ON AGENDA ITEM 6A

Hi Donald,

I received your written public comment.

Thank you,

Haley Dodson
Confidential Administrative Assistant
Cambria Community Services District

Phone: 805-927-6235
Email: hdodson@cambriacsd.org

1316 Tamsen Street, Suite 201
PO Box 65
Cambria, CA 93428

www.cambriacsd.org

From: donald [redacted]>
Sent: Monday, April 8, 2024 11:53 AM
To: BoardComment <boardcomment@cambriacsd.org>
Subject: COMMENTS ON AGENDA ITEM 6A

President Gray, Vice President Scott, and members of the board:

I do not find the dispute between the CCSD and CUSD coherent. What started as perhaps a win-win for both districts, has turned into what may be a lose-lose for the community-at-large…with attorneys, consultants, and miscellaneous costs on both sides taking the spoils.

Correct me if I'm wrong, but I believe that what the CCSD originally requested of the CUSD was eventually, after some volleying back and forth, not only met by the CUSD, but sweetened in CCSD's favor
.
However, by then the CCSD had become determined to own the land, not lease it. And that has opened this can of worms.

Who advised this change of policy/strategy…and why?

As far as the community at large is concerned, this conflict is not one sovereign agency against another; it's more like one's liver badly infecting one's kidneys. It's created two adversaries, rather than two partners, in resolving what is, in fact, a 'family' dispute.

And in the end, who truly wins?

We, the public, deserve answers to these questions.

Donald Archer,
Cambria

Please enter these comments into the public record

From: BoardComment
To: [redacted]
Subject: RE: GENERAL PUBLIC COMMENT
Date: Monday, April 1, 2024 5:47:00 PM
Attachments: image001.jpg

Thank you.

Haley Dodson
Confidential Administrative Assistant
Cambria Community Services District

Phone: 805-927-6235
Email: hdodson@cambriacsd.org

1316 Tamsen Street, Suite 201
PO Box 65
Cambria, CA 93428

www.cambriacsd.org

From: donald [redacted]
Sent: Monday, April 1, 2024 12:25 PM
To: BoardComment <boardcomment@cambriacsd.org>
Subject: Re: GENERAL PUBLIC COMMENT

Thanks for the heads up, Haley,

I've done some editing, after your comments, and I think this version is better in all respects. Could you replace my first draft with this? I may be able to attend the meeting and present It myself.

Here's the final:

President Gray, Vice President Scott, and members of the Board:

I recently sent each board member, and the General Manager as well, the following suggestion (here condensed):

‘It would be extremely helpful to have a clear, concise, easy-to-comprehend district report on the progress, or lack thereof, of the district’s *major* projects with just the salient points, dates, and deadlines…bulleted for clarity and emphasis. This could be included as a 1-page insert in the CCSD bi-monthly billing statement mailed to rate-payers.’

The information included would pertain *ONLY* to the status of the *MAJOR* projects the CCSD undertakes to provide the community with essential, life-sustaining services: water treatment, delivery, and storage; and wastewater collection, transmission, and treatment…i.e., replacing the main water line, replacing the Stuart Street tanks, updates to the Wastewater Treatment Plant, EWS permitting, and other essential infrastructure issues.

Ideally, *the main message and points should be made to be digested at a glance*.

Some directors regarded my request as redundant with information already available from the district and commented that it would be wasteful of paper and staff time.

I respectfully disagree.

When I converse about CCSD issues with my neighbors, I am dismayed by the general public’s lack of knowledge of the CCSD and its projects. That’s why I made this suggestion.

It’s not easy to navigate and find this information readily, if at all, on the CCSD website.   And it is not presented *concisely*. I believe such information should be quick and easy to access.

The reason I have suggested a paper insert in the billing is that while everyone in the community may not have access to the internet, to email, nor to the General Manager's letter, every CCSD customer receives a bi-monthly statement. And, unlike these other information conduits, it can't be as easily overlooked or as difficult to find.

With something as important as creating a well-informed and engaged public, I don't think including a 1-page insert is a waste of resources or a waste of staff time but I'm open to any workable and efficient alternatives if they make this information easily available and easy to digest.

Finally, I believe these suggestions are important enough to be included and considered for the future board agenda.

Thank you,

Donald Archer

P.S.: Please include these comments in the public record.

From: BoardComment <boardcomment@cambriacsd.org>
Sent: Monday, April 1, 2024 7:55 AM
To: donald [redacted]
Cc: Matthew McElhenie <mmcelhenie@cambriacsd.org>; Tom Gray <tgray@cambriacsd.org>
Subject: RE: GENERAL PUBLIC COMMENT

Good morning, Donald,

I received your written public comment, and I may not be able to finish reading it due to the length. Written and oral comments are only allowed three minutes.

Thank you,

Haley Dodson
Confidential Administrative Assistant
Cambria Community Services District

Phone: 805-927-6235
Email: hdodson@cambriacsd.org

1316 Tamsen Street, Suite 201
PO Box 65
Cambria, CA 93428

www.cambriacsd.org

From: donald [redacted]
Sent: Sunday, March 31, 2024 12:30 PM
To: BoardComment <boardcomment@cambriacsd.org>
Subject: GENERAL PUBLIC COMMENT

President Gray, Vice President Scott, and members of the Board:

I recently sent each board member, and the General Manager as well, the following suggestion (here condensed):

‘It would be extremely helpful to have a clear, concise, easy-to-comprehend district report on the progress, or lack thereof, of the district's *major* projects with just the salient points, dates, and deadlines…bulleted for clarity and emphasis. This could be included as a 1-page insert in the CCSD bi-monthly billing statement mailed to rate-payers.’

The information included would pertain ***ONLY*** to the status of the ***MAJOR*** projects the CCSD undertakes to provide the community with essential, life-sustaining services: water treatment, delivery, and storage; and wastewater collection, transmission, and treatment…i.e., replacing the main water line, replacing the Stuart Street tanks, updates to the Wastewater Treatment Plant, EWS permitting, and other essential infrastructure issues.

Ideally, *the main message and points should be made to be digested at a glance*.

While, Vice President Scott and Director Dean were positive and open to my suggestions, President Gray, Director Thomas, along with General Manager McElhenie all regarded my request as redundant with what is already readily available from the district…on its website as well as in the ‘Letter from the General Manager. These members unanimously expressed the opinion that the request would be wasteful of paper and staff time.

I respectfully disagree.

Should you survey your neighbors, as I have done in my own neighborhood, you might be as dismayed, as I have been, by the general public’s lack of knowledge of the CCSD and its projects as well as by the public’s lack of engagement. That’s why I made this suggestion.

Contrary to the view of some board members and staff, the CCSD website is not easy to navigate to access this information. I think such information should be quick and easy to access. It currently is not.

And while I appreciate the GM’s attempt to communicate with the community, I don’t find the content or format of his ‘Letter from the

General Manager' easy to read or digest. Nor do I consider 7-12 pages of prose concise. The 'Letter' often repeats previous messages and reads like the minutes from a board meeting…which *can* be easily found online.

If *I* find getting specific information unnecessarily difficult, I can only imagine how less engaged community members might find the task.

I wonder what percentage of the community visits the CCSD website and what percentage receives, looks at, and digests the 'Letter from the General Manager.'

The reason I have suggested a paper insert in the billing is that while everyone in the community may not have access to the internet, nor to email, every CCSD customer receives a bi-monthly statement. And, unlike the other information conduits suggested, it can't be as easily overlooked or as difficult to find.

With something as important as creating a well-informed and engaged public, I don't think including a 1-page insert is a waste of resources or a waste of staff time but I'm open to any workable and efficient alternatives if they make this information easily available and easy to digest.

I believe making these suggestions would not only help create an informed community, it would also assist the board, administration, and staff in establishing a clear focus on definite time schedules and phase deadlines that have to be met so that the progress or delay of each major project can be evaluated.

Finally, I believe these suggestions are important enough to be included and considered for future board agendas.

Thank you for your attention,

Donald Archer

P.S.: Please include these comments in the public record.

From:	BoardComment
To:	"Eugene Blanck"
Cc:	Matthew McElhenie; James Green
Subject:	RE: Please read for SR4 eminent domain item (s) April 11, 2024
Date:	Wednesday, April 10, 2024 1:49:00 PM

Hi Eugene,

I received your written public comment.

Haley Dodson
Confidential Administrative Assistant
Cambria Community Services District

Phone: 805-927-6235
Email: hdodson@cambriacsd.org

1316 Tamsen Street, Suite 201
PO Box 65
Cambria, CA 93428

www.cambriacsd.org

From: Eugene Blanck [redacted]
Sent: Wednesday, April 10, 2024 1:38 PM
To: BoardComment <boardcomment@cambriacsd.org>
Subject: Re: Please read for SR4 eminent domain item (s) April 11, 2024

In 1996 it was "temporary", changing that was NOT in the spirit of the original agreement.

Sent from my iPhone

> On Apr 10, 2024, at 1:35 PM, Eugene Blanck <lblanck@icloud.com> wrote:
>
> Sent from my iPhone
>
> Begin forwarded message:

From: BoardComment <boardcomment@cambriacsd.org>
Date: April 10, 2024 at 12:55:01 PM PDT
To: Eugene Blanck [redacted]
Cc: Eugene Blanck [redacted], Matthew McElhenie <mmcelhenie@cambriacsd.org>, James Green <jgreen@cambriacsd.org>
Subject: RE: Please read for SR4 eminent domain item (s) April 11, 2024

Hi Eugene,

I received your written public comment.

Haley Dodson
Confidential Administrative Assistant
Cambria Community Services District

Phone: 805-927-6235
Email: hdodson@cambriacsd.org

1316 Tamsen Street, Suite 201
PO Box 65
Cambria, CA 93428

www.cambriacsd.org

-----Original Message-----
From: Eugene Blanck <lblanck@icloud.com>
Sent: Wednesday, April 10, 2024 12:45 PM
To: BoardComment <boardcomment@cambriacsd.org>
Cc: Eugene Blanck [redacted]
Subject: Please read for SR4 eminent domain item (s) April 11, 2024

I was a CCSD Board member in 1996 when pollution from the

Chevron station temporarily closed Santa Rosa (SR) creek well 1 and 3 and we asked the high school to install a temporary emergency well there (SR4) to get us through a seasonal crisis. The CCSD Board at that time did NOT want to threaten Santa Rosa creek rancher/farmer water rights and only asked for a part-time temporary emergency well.

Several years ago, the California Central Coast Regional Water Quality Control Board clean closed the Chevron leak after remedial action, making SR 1 and 3 available to use to pump Cambria's water supply again. The CCSD should rework those wells after last years flooding and raise the well heads on them and use them. This is a better situation than having CCSD staff lingering on high school grounds.

This CCSD Board is off target of the spirit of neighbor helping neighbor cooperation that allowed SR 4 to be installed on a temporary emergency basis.

Sincerely,
Lou Blanck
CA Pro Geophysicist
CA Pro Geologist
CA Cert Engineering Geologist
CA Cert Hydrogeologist
Sent from my iPhone

From:	Streamline
To:	BoardComment
Subject:	New form submission received: Written Public Comment
Date:	Thursday, March 28, 2024 4:22:48 PM

Logo used for headers

Written Public Comment

First Name:	Fanny
Last Name:	Arenas
Address:	[redacted] San Luis Obispo, [redacted]
Email:	[redacted]
	Dear Esteemed Board Members, I am writing to you on behalf of Meals That Connect, an organization dedicated to providing essential nutrition and fostering community among seniors in San Luis Obispo County. It is with a heavy heart that I bring to your attention the precarious situation facing our Cambria program. Our meals do so much more than merely nourish; they serve as a lifeline

Written Public Comment:	for many seniors, offering not only sustenance but also vital connections and companionship. However, the viability of our Cambria program is currently under threat due to low attendance in our dining area. The primary challenge we face in Cambria is our geographical location, which poses significant barriers for seniors to access our services. Many of our elderly residents are unable to travel the distance to our dining rooms, leaving them isolated and without the critical support we provide. We are currently sharing a very small space with Cambria Community Presbyterian on Yorkshire Drive. We believe that every senior in our community deserves access to nutritious meals and the opportunity to engage in social interactions that can combat loneliness and improve their overall well-being. That is why we are appealing to you today for assistance in preserving our Cambria program. We humbly request your consideration in allowing us to utilize the Veterans Hall as a venue for our meals in Cambria. This centrally located facility would vastly improve accessibility for seniors in the area, ensuring that they can benefit from our services without the hindrance of distance. Furthermore, by relocating to the Veterans Hall, we would have the opportunity to reach out to more seniors who may be currently underserved due to transportation limitations. This move aligns with our mission to serve the entire community inclusively and compassionately. We are eager to discuss this matter further with you and explore how we can work together to find a sustainable solution that ensures the continuation of Meals That Connect in Cambria. The well-being of our senior population is at stake, and we cannot afford to let them down. Thank you for your attention to this urgent matter. We remain hopeful that with your support, we can overcome the challenges facing our Cambria program and continue to make a positive impact on the lives of our beloved seniors. Sincerely, Fanny Arenas Program Manager Meals That Connect
Written Comment to be read at::	PROS Committee Meeting
Written Comment to be read at::	Board Meeting

Reply / Manage

From: Lauren Younger
To: BoardComment
Subject: water dispute
Date: Tuesday, April 9, 2024 5:13:33 PM

Just think for a minute. If the CCSD did not have the ability to threaten using eminent domaine, how would you
proceed in this dispute? Do that. Don't let it escalate to legal action.

From: Suzanne Fiedler
To: BoardComment
Cc: Kitty Connolly
Subject: Proposed Boardwalk in Fiscalini
Date: Tuesday, April 9, 2024 11:43:48 AM

Hello Haley,

This recommendation is intended for the April 11th meeting of CCSD.

I'm writing in regard to the proposed boardwalk to connect the bluff walk to the Marlborough service road at the south end of the ranch. This is a frequently used cutover which seems to accumulate a significant amount of runoff from the hills above after the rains and a few weeks afterward. The trailhead from the service road remains wet and muddy for a while. In January of 2023. I slipped at that spot resulting in a minor fracture to my ankle and slight damage to a tendon. Physical therapy was required and the healing is now complete.

I highly recommend the construction of a boardwalk on that trail to eliminate any further accidents due to slips and falls.

Thank you for your consideration of this recommendation.

Suzanne Fiedler

From: [redacted]
To: BoardComment
Subject: Wells @ CUHS
Date: Saturday, April 6, 2024 11:32:59 AM

To: board of directors

I strongly urge you to continue to have those wells serve the needs of the high school. Sports and subsequently athletic fields are important to the well rounded education being offered at this facility. The benefits of participating in sports for children, is far more important than the use the ccsd has planned for this amount of water.

Michele Novoa

Sent from my Galaxy

Haley Dodson

From: Markham, Benjamin <bmarkham@bhfs.com>
Sent: Wednesday, April 10, 2024 8:04 PM
To: BoardComment
Cc: Guillen, Christopher R.; Slater, Scott; Scott Smith; Matthew McElhenie; Fenstermacher, Alan; tcarmel@carnaclaw.com ; Jill Southern
Subject: April 11, 2024 Board of Directors Meeting - Agenda Item No. 6A - CUSD letter in opposition to adoption of RON
Attachments: 2024.04.10 Coast Letter to CCSD re Opposition to RON(28029135.2)(28044466.1).pdf; 2024.04.10 Letter- Dwayne Oberhoff(28044436.1).pdf

To whom it may concern,

Attached is a letter submitted on behalf of Coast Unified School District, in regards to Item No. 6A for the Board of Directors April 11, 2024 meeting. The exhibits to the letter can be found in the following sharefile link:
https://bhfs.sharefile.com/public/share/web-s74c577f13c24482d95205a318fc5f3c9

We are also including a letter submitted on behalf of Dwayne Oberhoff, Senior Project Biologist at Ecological Assets Management, LLC.

Please confirm receipt and provide confirmation that both the letters and the exhibits will be downloaded and included in the record for this proceeding.

Benjamin J. Markham
Brownstein Hyatt Farber Schreck, LLP
1021 Anacapa Street, 2nd Floor
Santa Barbara, CA 93101
805.882.1429 tel
bmarkham@bhfs.com

Brownstein - we're all in.

Board of Directors
Cambria Community Services District
1316 Tamsen Street, Suite 201
Cambria, CA 93428

EAM
Ecological Assets
Management, LLC

April 10, 2024

Subject: *Occurrences of Special-status Biological Resources in the Immediate Vicinity of 2950 Santa Rosa Creek Road (APN 013-081-075), Cambria, San Luis Obispo County, California*

Cambria and its surrounding areas are known to possess a wide diversity of ecological conditions that support a large number of special-status plant and animal species, and sensitive habitats. This is easily seen in a query of the California Natural Diversity Database (CNDDB) for the general Cambria area. The 2.39-acre Subject Property that is identified in item 6a of the Cambria Services District's Thursday, April 11, 2024, agenda for the Regular Board of Directors Meeting is located immediately adjacent to and includes a portion of Santa Rosa Creek, which includes the riparian habitats and aquatic portions of the creek. Santa Rosa Creek and the surrounding areas provide habitat for numerous species considered as "special-status" or "species at risk" by the U.S. Fish and Wildlife, National Marine Fisheries Service, and the California Department of Fish and Wildlife. A review of the 2.39-acre Subject Property in the CNDDB resulted in eleven (11) occurrences of ten (10) different special-status species (refer to Table 1 and Exhibit A). In my experience, this is an unusually high number of occurrences for one location. These include species listed as endangered, threatened, and proposed threatened by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service; endangered by the State of California; and numerous plants and animals ranked as Rare or Species of Special Concern, respectively, by the California Department of Fish and Wildlife. In addition, Santa Rosa Creek, including the surrounding riparian habitats and aquatic portions of the creek, has been designated by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service as critical habitat (i.e. habitat needed to support recovery of listed species) for two (2) species, California red-legged frog (*Rana draytonii*) and steelhead (*Oncorhynchus mykiss irideus* pop. 9), respectively. In addition, the U.S. Fish and Wildlife Service has also recently designated the western pond turtle (*Actinemys marmorata*) as a Proposed Threatened species, which has also been identified as occurring within Santa Rosa Creek.

Any work or construction within the 2.39-acre Subject Property has a potential to result in direct and/or indirect impacts to special-status species. Exhibit 4 to the proposed Resolution of Necessity in Agenda item 6a provides for "*construction, placement, operation, and maintenance of a paved roadway for use by heavy trucks and other vehicles*…" Exhibit 4 also purports to grant a right "*to remove obstructions, structures and/or other improvements, as well as to trim and remove landscaping, trees and other vegetation, over, above, on, under, in, across, along and through the Easement Area*." It should be noted that both California red-legged frog and western pond turtle will utilize upland habitats away from their aquatic habitats and could be present in work areas located on the Subject Property. Based on the proposed allowed activities, and the ecology of these two special-status species, direct impacts could occur. In addition, indirect impacts to special-status species could occur from the proposed activities. This includes equipment operation disrupting birds nesting in the adjacent riparian

PO Box 6840, Los Osos, CA 93412 | 805.440.6137
http://www.ecologicalmgmt.com | dwayne@ecologicalmgmt.com

Table 1: CNDDB Results of Special-Status Species Occurrences from Immediate Area Surrounding Subject Property.

Scientific Name	Common Name	Federal Status	Critical Habitat Present	State Status	CA Rare Plant Rank*	CDFW Status**
Rana boylii pop. 6	foothill yellow-legged frog - south coast DPS	Endangered	-	Endangered	-	-
Rana draytonii	California red-legged frog	Threatened	Yes	None	-	SSC
Oncorhynchus mykiss irideus pop. 9	steelhead - south-central California coast DPS	Threatened	Yes	None	-	SSC
Arctostaphylos cruzensis	Arroyo de la Cruz manzanita	None	-	None	1B.2	-
Calystegia subacaulis ssp. episcopalis	Cambria morning-glory	None	-	None	4.2	-
Horkelia cuneata var. sericea	Kellogg's horkelia	None	-	None	1B.1	-
Monolopia gracilens	woodland woollythreads	None	-	None	1B.2	-
Pinus radiata	Monterey pine	None	-	None	1B.1	-
Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	None	-	None	1B.2	-
Actinemys marmorata	western pond turtle	Proposed Threatened	-	None	-	SSC

***California Rare Plant Rank:**
Rank: 1B = rare, threatened, or endangered in California and elsewhere; 4 = a watch list plants of limited distribution
Threat Codes: 1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); .2 = Fairly endangered in California (20-80% occurrences threatened)
****CDFW:**
SSC= Species of Special Concern

habitats, or soil/sediment entering Santa Rosa Creek from the lack or poor implementation of sediment and erosion control measures

To fully assess potential impacts to special-status species from this action, a Biological Resources Assessment should be prepared by a County-approved biologist. The final Assessment should be provided to the U.S Fish and Wildlife, National Marine Fisheries Service, and the California Department of Fish and Wildlife for their review and comments.

Sincerely,

Dwayne Oberhoff

Dwayne Oberhoff
Senior Project Biologist

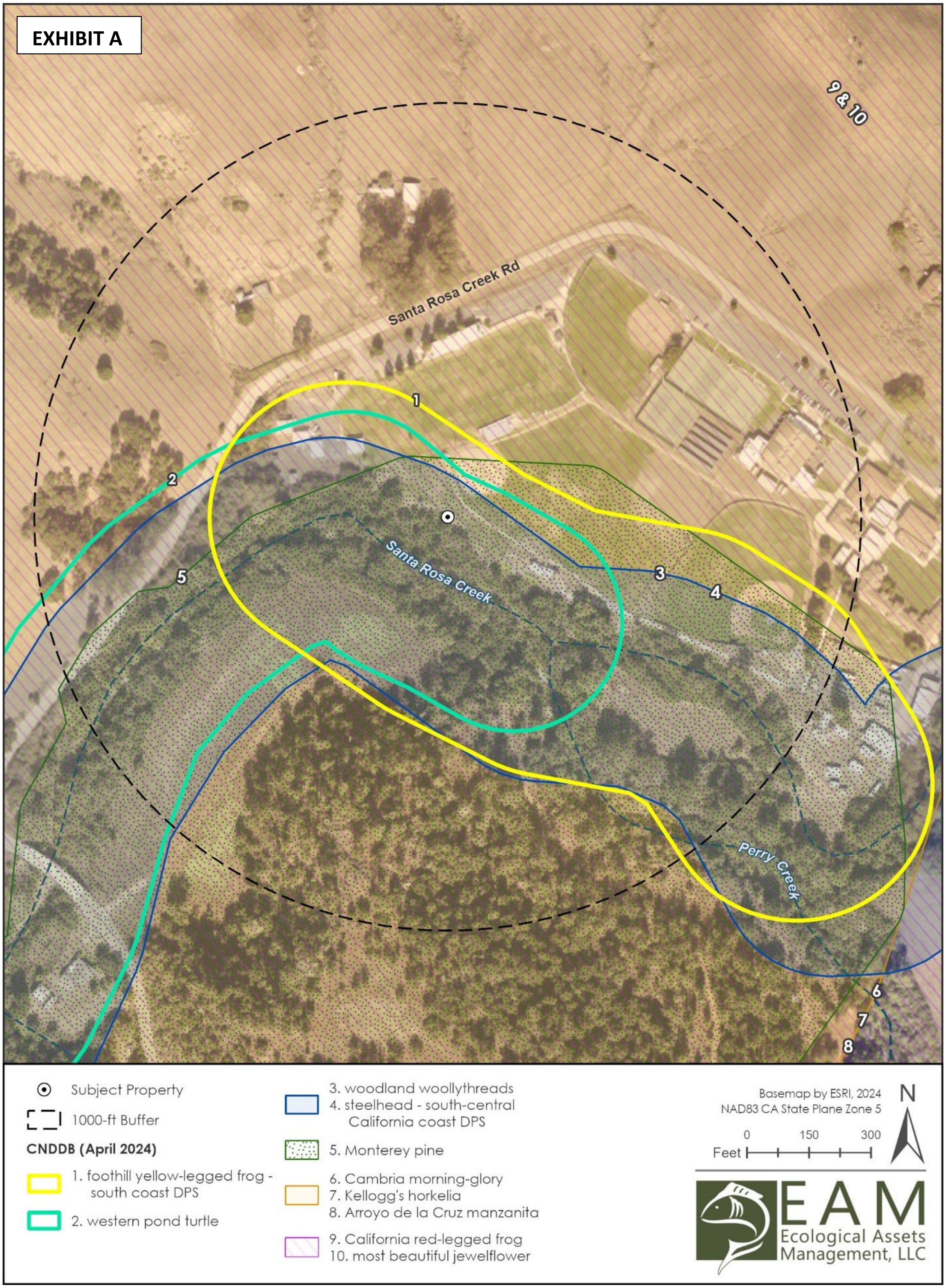
EXHIBIT A
9 & 10
Santa Rosa Creek Rd
1
2
5
3
4
Santa Rosa Creek
Perry Creek
6
7
8
Subject Property
1000-ft Buffer
CNDDB (April 2024)
1. foothill yellow-legged frog - south coast DPS
2. western pond turtle
3. woodland woollythreads
4. steelhead - south-central California coast DPS
5. Monterey pine
6. Cambria morning-glory
7. Kellogg's horkelia
8. Arroyo de la Cruz manzanita
9. California red-legged frog
10. most beautiful jewelflower
Basemap by ESRI, 2024
NAD83 CA State Plane Zone 5
0
150
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Feet
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April 10, 2024

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TRANSMITTED VIA EMAIL

Board of Directors
Cambria Community Services District
Board of Directors
P.O. Box 65
Cambria CA 93428

RE: Agenda Item No. 6A—Consideration of Action on Resolution 07-2024—a Resolution Finding and Determining the Public Interest and Necessity for Acquiring and Authorizing the Condemnation of a Portion of Certain Real Property Generally Located at 2950 Santa Rosa Creek Road (APN 013-081-075) for the Purposes of Continuing Operation OF an Existing Potable Water Well, Treatment Plant and Related Facilities

Dear President Gray and Honorable Members of the Board of Directors:

This firm represents Coast Unified School District ("Coast"), the fee title owner of Assessor's Parcel Number 013-081-075, a 39.8 acre parcel in San Luis Obispo County ("Larger Parcel"). Cambria Community Services District ("CCSD") proposes to adopt a Resolution of Necessity ("RON") to condemn an approximately 2.39 acre portion of the Larger Parcel, along with access, road, and pipeline easements across the Parcel ("Subject Property"). The Subject Property is improved by two active water wells, a water treatment plant, water tanks, and pipelines, all of which are owned by Coast. We submit this letter to express Coast's opposition to the requested RON as CCSD cannot establish the right to take the Subject Property and has not conducted the necessary environmental review for the RON. We write to urge you to deny the RON and negotiate with Coast in good faith regarding CCSD's desired use of the Subject Property.

I. Background

Coast has a long history of helping CCSD in its time of need. As early as 1976, CCSD experienced an emergency water shortage and requested permission to use water from Coast's property. Coast agreed to allow CCSD to temporarily use its irrigation well and CCSD agreed to assume responsibility for damage to the well as a result of its use. (Agreement between Coast and CCSD dated August 16, 1976 attached as **Exhibit A**.) Sometime in 1978, Coast's irrigation well began to pump an increased amount of sand due to excessive use put on the well system during CCSD's water shortage emergency. (Letter from Coast Joint Union High School to Mr. Howard Main of CCSD, dated December 14, 1978, attached as **Exhibit B**.) Attempts at repairing the well were unsuccessful and Coast was forced to construct a new irrigation well, at its own expense. CCSD did not assist (e.g., financially, staff support, etc.) in construction of the new well despite the fact that CCSD's excessive use contributed to the well's destruction. The replacement irrigation well is known as "23R" and remains Coast's sole source of irrigation water for its recreational fields.

In 2000, CCSD detected a "plume" of methyl-tertiary-butyl ether ("MTBE") contaminating its Santa Rosa Creek wells SR1 and SR3 (collectively, the "Santa Rosa Creek wells"). In response to the MTBE plume, the California Regional Water Control Board issued Cleanup or Abatement Order No. 00-28, requiring that an alternative water supply be identified and secured by September 1, 2000. (Cleanup or Abatement Order No. 00-28, April 17, 2000, attached as **Exhibit C.**) Consequently, CCSD approached Coast seeking to establish an alternative point of diversion on Coast's property.

Under no obligation but wishing to be a good community partner, Coast executed an agreement on December 14, 2000 to allow CCSD to drill Well SR4 on its property and granted CCSD certain easements to access and use Well SR4 and its associated infrastructure in exchange for compensation and subject to certain limitations ("2000 Agreement," attached as **Exhibit D**). Under the terms of the 2000 Agreement, CCSD was obligated to pay Coast the sum of $26,000 per fiscal year for the first ten years of the agreement, or until the MTBE plume was remediated. If the MTBE plume had not been remediated after year ten, the Parties agreed to renegotiate the annual compensation to be paid thereafter until the MTBE plume was remediated.

The 2000 Agreement was extended twice and the parties renegotiated a new agreement dated September 27, 2012 ("2012 Agreement", attached as **Exhibit E**). The terms of the 2012 Agreement were largely similar to the 2000 Agreement except CCSD agreed to an initial compensation payment of $34,592, to be increased annually based upon a Consumer Price Index factor. The term of the 2012 Agreement was set to expire on September 27, 2022, but, CCSD requested, and Coast agreed to, several extensions to the Agreement so the parties could enter into negotiations for a new agreement. Around March 2023, Coast agreed to a six month extension of the 2012 Agreement at an agreed rate of $46,000 per year until September 30, 2023.

Meanwhile, the MTBE plume that necessitated the use of the SR4 well was remediated. (SWRCB Central Coast Region, Staff Report for September 4-5, 2008, attached as **Exhibit F** ["[o]n May 18, 2004, the Central Coast Water Board's Executive Officer rescinded Cleanup or Abatement Order (CAO) No. 00-28."]; see also Letter from CCSD to Coast dated November 27, 2023, attached as **Exhibit G,** ["although the MTBE plume emergency is no longer an issue, the water emergencies in Cambria have not ended."].)

Despite CCSD no longer needing access to the SR4 well, Coast continued in its good-faith negotiations to permit CCSD's continued use of Well SR4. Around mid to late 2023, the Parties, however, came to an impasse regarding the terms of the new contract. In an attempt to compromise, Coast offered a new contract for $26,000 per year for either 10 years or 99 years, excluding CPI increases. This would mitigate CCSD's concerns regarding both price (a $20,000 discount from prior rate of $46,000) and CCSD's concerns regarding the temporary nature of the lease agreements (99 year term with no CPI increases). Despite Coast's best efforts to compromise and find an equitable solution, CCSD refused to negotiate a new agreement and the latest extension to the 2012 Agreement expired on September 30, 2023.

Rather than negotiate a new contract, CCSD has initiated the preliminary steps necessary to take the Subject Property in condemnation, including making an offer to purchase and requesting this Board adopt a RON. Notably, the Subject Property contains significant improvements, all of which are owned by Coast—the water treatment facility, Well SR4, Well 23R. CCSD claims that it owns the water treatment facility and Well SR4, but the well driller's report for Well SR4 and the 2012 Agreement make clear that is not the case. (Water Well Completion Report for Well SR4 attached as **Exhibit H,** Appendix A- Well Completion Report no. 782377 [Owner of record is listed as "Coast Union High School"]; **Exhibit E** [2012 Agreement], Section 5 ["If the Parties do not renew or extend this Agreement, CCSD shall cease use of Well SR4 . . . [i]f the parties do not enter into any such renewal or extension, [Coast] may use Well SR4 and all associated water pipelines in any manner [Coast] considers appropriate . . . ."].)

II. The Board of Directors Cannot Make the Findings To Adopt the RON

To adopt the RON, the Board must make the following findings: (1) the public interest and necessity require the project for which the Subject Property is being acquired; (2) the project is planned or located in the manner that will be most compatible with the greatest public good and the least private injury; (3) the Subject Property is necessary for the project; and (4) the offer under Gov. Code §7267.2 has been made or the owner cannot be located with reasonable diligence. (Code Civ. Proc., § 1245.230(c)(1)-(4).) Because the Subject Property is owned by Coast, a public agency, the Board must also find that CCSD will put the Subject Property to a more necessary public use than Coast's current use of the Property. (Code. Civ. Proc. § 1240.610.) Finally, prior to adopting the RON, the Board must comply with the California Environmental Quality Act. (*City of Stockton v Marina Towers LLC* (2009) 171 Cal.App.4th 93, 108.) As explained further below, the Board cannot make these findings.

A. Public Interest and Necessity Do Not Require the Project

Subdivision (a) prevents the taking of property by eminent domain unless the public interest and necessity require the project. Coast does not deny that providing domestic water to the community of Cambria is in the public interest. In fact, Coast has repeatedly come to the aid of CCSD, sometimes at great cost, to help CCSD with these objectives. However, inasmuch as the "project" is to acquire 2.39 acres of Coast's Larger Parcel in fee, Coast contends the public interest and necessity do not require this project for four primary reasons:

- CCSD already has adequate alternative points of diversion to exercise its appropriative rights to Santa Rosa Creek through Wells SR1 and SR3. CCSD also fails to explain why other locations along Santa Rosa Creek could not be acquired to access its water rights.

- There is no explanation in the Staff Report or the RON regarding why the Property is being sought in fee. There is nothing in the described objectives of the RON that could not be similarly accomplished with a permanent easement or some other mechanism that would not involve transfer in fee title of a portion of the Larger Parcel.

- The 2.39 acre Property sought to be condemned is significantly larger than the area previously leased to CCSD to operate Well SR4 for the last 23 years and it also includes Coast's 23R irrigation well. The Staff Report and RON provide no reasoning for this expanded footprint nor does it explain why the public interest or necessity requires this larger area when CCSD has been operating SR4 for 23 years on an area that only measures approximately 7,600 square feet.

- Coast is willing and ready to negotiate a reasonable, mutually-beneficial long-term lease agreement to allow CCSD to continue to use Well SR4, rendering the condemnation action unnecessary.

1. Alternative Points of Diversion (SR1 and SR3) Are Sufficient To Provide CCSD Access To Its Water Supply

The 2000 Agreement was predicated on a MTBE contamination event which affected SR1 and SR3, and necessitated installation of SR4 on an emergency basis to provide an alternative point of diversion. (**Exhibit D** [2000 Agreement]**,** Recital M ["the establishment and use of the Alternative Point of Diversion is intended only as an interim measure until the MTBE plume is remediated."].) According to General Manager of CCSD, Matthew McElhenie, "although the MTBE plume emergency is no longer an issue, the water emergencies in Cambria have not ended." (Letter from CCSD to Coast dated November 27, 2023, attached as **Exhibit G.**)

In 2014, in response to emergency water shortage conditions, CCSD restored Well SR-3 allowing CCSD to "access deeper aquifer water, *which Well SR-4 could not pump*." (Emphasis Added) (CCSD, Appendix I to Urban Water Management Plan, Groundwater Management Plan, November 19, 2015, p. 8, attached as **Exhibit I.**) This is in direct contradiction to the RON's findings that "as an upstream well, the SR4 well is much more effective and reliable than the District's downstream wells. (RON, p. 1.) According to CCSD's *own* water management plan, the SR3 well is more effective than the SR4 well.

As part of the same emergency response to water shortage conditions, CCSD apparently converted well SR-1 to a non-potable irrigation supply well for an unexplained reason. (**Exhibit I,** p. 8.) However, CCSD could re-convert SR-1 to potable water use for less than the cost of pursuing eminent domain of Coast's Property.

The RON states acquisition of Well SR4 has become even more important because Well SR3 is "currently offline for treatment process upgrades." (Attachment A to Staff Report Item 6.A, Resolution No. 07-20204 ["RON"], p. 2.) No details are provided regarding when the well would return to operations. Nothing in the Staff Report or RON indicate that SR1 could not be converted to potable use and utilized until SR3 is brought back online. Instead the RON emphasizes that "[a]s an upstream well, the SR4 well is much more effective and reliable than [CCSD's] downstream wells." (RON, p. 1.) As already demonstrated, CCSD's own water management plan shows this to be false, but even if it were true, increased effectiveness and reliability does not mean CCSD *needs* SR4. Rather, it means CCSD would *prefer* to own SR4. However, CCSD's preference is irrelevant in determining whether condemnation of the Subject Property is *necessary*.

CCSD cites the 2012 Agreement in an unsuccessful attempt to show that Coast agreed the SR4 Well is, and always will be, an essential piece of CCSD infrastructure. The RON incorrectly states that by signing the 2012 Agreement, Coast "concurred that the SR4 well provides a critical domestic water source for the community of Cambria . . . ." (RON, p. 1.) This is incorrect. The recitals in the 2012 Agreement cited by CCSD were predicated on the MTBE plume, which have since been cured. (See **Exhibit D** [2000 Agreement]**,** Recital C, incorporated into Recital A of the 2012 Agreement, **Exhibit E.**) Recital M of the 2012 Agreement merely acknowledged that domestic water is a critical resource for the community of Cambria and SR4 is the source of that supply *in the absence of the downstream wells, SR1 and SR3*. However, as explained by Matthew McElhenie, the MTBE plume has since been remediated.

The RON goes on to state that the 2012 Agreement "further provided that the SR4 well is CCSD's primary Santa Rosa Creek water supply source; i.e., the source from which CCSD will always initially extract water for its Santa Rosa Creek water supply needs. As an upstream well, the SR4 well is much more effective and reliable than the District's downstream wells." This language must be understood in the context of the Agreement. Both the 2000 and the 2012 Agreements contained provisions that provide that in the event of a short-term area wide emergency or if either of Coast's or CCSD's respective wells are damaged then the affected entity could extract water from the other entity's "primary water supply." (**Exhibit D** [2000 Agreement], p. 3; **Exhibit E** [2012 Agreement], Section 3.) CCSD presents the citation out of context to suggest that Coast was acknowledging that SR4 is CCSD's "primary" water supply for all time. Neither the 2000 or the 2012 Agreements support this proposition. There is no evidence provided that CCSD must always initially extract water from SR4 for its Santa Rosa Creek water supply needs. Prior to the installation of SR4, CCSD's entire Santa Rosa Creek water supply needs were met by the downstream wells, SR1 and SR3. In fact, the State Water Resources Control Board reduced the Santa Rosa Creek diversion allocation from 518 AFY to 218 AFY, based on the amount of water diverted to beneficial use by CCSD. (See **Exhibit E** [2012 Agreement], Recital B [referencing a "permit" from SWRCB allowing for diversion of 518 AFY in 2012]; see License 13917, priority date of June 8, 1984, and issue date of March 14, 2019, attached as **Exhibit J** [allowing diversion up to 218 AFY as of 2019].) The current Santa Rosa Creek water supply license allowing diversion up to 218 AFY can be handled by SR1 and SR3.

Finally, CCSD provides no evidence to suggest that it has explored acquisition of other upstream property to drill a well. It is unclear why CCSD needs the Subject Property other than for convenience purposes.

The public interest and necessity do not require the project because CCSD already has adequate alternative points of diversion to exercise its appropriative rights to Santa Rosa Creek through Wells SR1 and SR3.

2. The Public Interest and Necessity Do Not Require a Fee Interest in the Property

The "project" is not clearly defined by the RON. If the "project" is to provide domestic water supply to the community of Cambria than such objectives can be accomplished without taking the Property in fee. If the "project" is to take the Subject Property in fee and to interfere with Coast's exercise of its superior water rights (as explained below), then the public interest and necessity do not require such a project.

The RON states that the purpose of the condemnation is to ensure (1) the SR4 water is preserved and available to CCSD and the people of Cambria in perpetuity, (2) to protect ratepayers from Coast's demands, (3) improve existing conditions such that CCSD's to the well facilities will be secured and separated from Coast, while resulting in less interference with Coast's uses by building a shorter and safer access road "located on an [unused] area of the Larger Parcel." (RON, p. 3.)

The RON does not explain why CCSD needs to take the Property in fee to meet these stated objectives. Assuming *arguendo* CCSD is unwilling to negotiate an agreement, which it is not as discussed above, it should seek to condemn an easement in perpetuity rather than taking 2.39 acres, including 1.6 acres of riparian frontage, in fee.

This Board cannot make a finding that the public interest and necessity require the project take a fee interest in Coast's Property.

3. The Public Interest and Necessity Do Not Require an Enlargement of the Take Area

CCSD has had a leasehold interest in the SR4 Well site, measuring approximately 7,600 square feet to operate the SR4 Well for the last 23 years. (**Exhibit E** [2012 Agreement], Attachments 2a-8b.) The RON describes the Property sought to be taken as 2.39 acres. (RON, p. 3.) The 2.22 acre expanded riparian area described in the RON and sought to be condemned is obviously unnecessary for operation of the SR4 Well, and neither the Staff Report or the RON sufficiently address the need for condemnation of the significantly expanded area. It is worth noting that the area sought to be condemned includes Coast's 23R irrigation well. The 23R well is Coast's only access to its superior water rights and has provided irrigation water to the high school since the 1970s. (This is discussed in further detail below at Section III.C.)

The public interest and necessity do not require an unnecessary enlargement of the take area beyond what is required to operate the SR4 Well, nor does the public interest or necessity require CCSD taking the property on which Coast's well is located. Assuming *arguendo* CCSD can establish the right to take, the property sought to be condemned should not be larger than what has historically been necessary to operate the SR4 Well, approximately 7,600 sq. ft.

4. Condemnation Is Unnecessary and Contrary To the Public Interest as Coast Is Willing To Negotiate a Mutually-Agreeable Solution

Condemnation of the Property is not in the public interest. The public interest of providing water and related services to the City of Cambria has already been successfully served for nearly two decades under the 2000 Agreement and later the 2012 Agreement. Condemnation of the Property will not increase the water available to CCSD, which is limited by the terms of its License with the State Water Resources Control Board to divert 218 AFY. (**Exhibit J**.) The cost to condemn the Subject Property, including costs to prosecute an eminent domain action and the cost to fairly compensate Coast pursuant to the United States and California Constitutions, will far outweigh the cost to negotiate a new contract on mutually agreeable terms, which Coast is willing to do. Therefore, condemnation of the Subject Property will increase costs without providing a greater public benefit and is contrary to the public interest.

B. The Project Is Not Planned or Located in the Manner That Will be Most Compatible With the Greatest Public Good and the Least Private Injury

Subdivision (b) prevents the taking of property by eminent domain unless the proposed project is planned or located in the manner that will be most compatible with the greatest public good and the least private injury. This limitation, which involves essentially a comparison between two or more sites, has also been described as "the necessity for adopting a particular plan" for a given public improvement. (*People v. Chevalier* (1959) 52 Cal.2d 299, 307.) For all the reasons described in Section A above, the project is not planned or located in the manner that will be most compatible with the greatest public good and the least private injury.

As described above, CCSD has the option of utilizing its appropriative right to Santa Rosa Creek through Wells SR1 and SR3, which are no longer affected by the MTBE plume. Those wells could be used immediately without any need for Well SR4. Even if the condemnation action is successful, which Coast asserts it will not be, the cost and time necessary to procure the Subject Property through eminent domain would be substantial and therefore is not compatible with the greatest public good when a litigation cost-free option is readily available.

Coast has a superior water right which may be potentially disturbed through the proposed condemnation. Coast's Larger Parcel is riparian, or abutting, Santa Rosa Creek, or overlying the underlying groundwater basin. In California, the owner of real property abutting or contiguous to a watercourse or overlying a groundwater basin has a corresponding right to divert water from the water source on riparian or overlying land. Coast exercises this superior right via the 23R Well, which has provided irrigation water to the grass sports fields and grass areas between the school buildings since 1979 for the benefit of students and the community.

By contrast, CCSD is considered to hold an "appropriative" water right based on historical diversion of Santa Rosa Creek, memorialized in a license issued by the State Water Resources Control Board which allows a maximum of 218 AF per year to be diverted from approved points of diversion: Wells SR1, SR3, and SR4. (See License 13917, priority date of June 8, 1984, and issue date of March 14, 2019, attached as **Exhibit J**.)

Coast's right is a superior right as compared to all appropriators. (See *In re Waters of Long Valley Creek Stream System* (1979) 25 Cal.3d 339; see also *Katz v. Walkinshaw* (1902) 141 Cal. 116, 135-36.) In the event of shortage of supply, Coast is entitled to fulfill its needs before CCSD may do so. (*City of Barstow v. Mojave Water Agency* (2000) 23 Cal. 4th 1224, 1241.) Both the 2000 and the 2012 Agreements contained express non-interference provisions which protected the 23R Well from CCSD over-pumping in times of shortage. (**Exhibit D** [2000 Agreement], Section 4; **Exhibit E** [2012 Agreement], Section 4.)

Now, CCSD is threatening to condemn the Subject Property, which includes "0.78 acres of usable land, and 1.61 acres of creek woodland that will remain entirely undisturbed." In addition to Well SR4, the Property also contains Well 23R. The Property's 1.61 acres of "creek woodland" is the only riparian portion of the Larger Parcel which CCSD believes to be suitable for a well siting. (See Section 3 of the Water Well Completion Report for Well SR4, prepared for CCSD, January 2001, attached as **Exhibit H** [describing three test holes deemed to be unsuitable for a well, one northeast of SR4 on Coast's Larger Parcel, and two drilled on the other side of the creek bed].)

CCSD proposes to grant Coast an easement to "use, access and maintain" the 23R Well. However, without the contractual protections previously provided by the 2000 and 2012 Agreements, Coast is left to merely hope that CCSD's use of Well SR4 will not cause damage to Well 23R, just as CCSD's over-pumping destroyed Coast's original irrigation well in 1978. If a new irrigation well is necessary in the future for any reason, Coast will not have access to its own 1.61 acre riparian frontage where it might have otherwise been able to install a new well and access its priority riparian water right.

In sum, the project is not planned or located in a manner that will be most compatible with the greatest public good and will inflict significant damage to Coast, a public school district.

C. The Property Sought To Be Acquired Is Not Necessary for the Project

Subdivision (c) prevents the taking of property by eminent domain unless the property or interest therein sought to be acquired is necessary for the proposed project. For all the reasons described in Sections A and B above, the Subject Property sought to be acquired is not necessary for the project.

As a preliminary matter, Coast objects to CCSD's characterization of the condemnation as being necessary because "CCSD has already paid [Coast] many times what the Subject Property is worth." (RON, p. 6.) This is a fundamental mischaracterization of the parties historical relationship. When CCSD needed help due to a contamination event that affected their Santa Rosa Creek wells, Coast not only allowed CCSD to install a temporary Alternative Point of Diversion upstream, but continued to permit CCSD to use this Alternative Point of Diversion for many years. The parties freely entered into the 2000 and 2012 Agreements on mutually agreeable terms which provided CCSD with substantial benefits, including use of Well SR4 and avoiding the necessity to purchase alternative property to install a well. To retroactively characterize these agreements as being somehow coercive or excessive is disingenuous and incorrect.

Furthermore, the RON and Staff Report fail to address the expanded 2.22 acre riparian zone, in excess of the 7,600 sq. ft. area which was previously leased to CCSD for operation of SR4. CCSD has never made clear why an area greater than what is described in either the 2000 or 2012 Agreement is necessary for operation of Well SR4 and appurtenant pipelines. Given that Well SR4 has been operated successfully for nearly two decades under the 2000 and 2012 Agreements, the additional 2.22 acres of riparian creek woodland is not "necessary for the project."

Additionally, the Subject Property sought to be condemned in fee includes Coast's 23R irrigation well, this is the only access point that Coast presently has to exercise its water rights. The proposed Grant Deed claims that the 23R Well is still "owned" by Coast, while CCSD would own the underlying property and grant Coast an easement to "use, access and maintain" the 23R Well. (Exhibit 1 to RON, Grant Deed.) However, compensation is paid in condemnation cases for the value of the real property taken (Code Civ. Proc., § 1263.310) *and* "all improvements pertaining to the realty" (Code Civ. Proc., § 1263.210). Improvements are defined by Code Civil Procedure section 1263.205, which states that improvements include "any machinery or equipment installed for use on property taken by eminent domain" that cannot be removed without substantial economic loss or substantial damage to the realty. Based on this definition, CCSD is seemingly taking Coast's 23R irrigation well. The 23R Irrigation Well is not necessary for the Project and that entire area should be removed from the Property sought to be taken.

D. The Offer To Purchase Was Based on False Assumptions and Undervalued the Property

Code of Civil Procedure section 1245.230 requires a finding that an offer was made pursuant to Government Code section 7267.2. On November 27, 2023, CCSD sent Coast a letter with an enclosed Statement of Basis for Just Compensation ("Statement of Compensation") and an offer to purchase the property and related improvements for $151,507. (Staff Report, Attachment B.) Coast objects to the valuation of the Property proffered in the Statement of Compensation. Coast is still working to determine the extent to which the Statement of Compensation undervalued the land, pipeline easements and access easements and reserves the right to challenge the Statement of Compensation on this and any other basis. Additionally, the Statement of Compensation failed to account for vital improvements to the Property, namely the water treatment facility, Well

SR4 and the 23R irrigation well. The RON claims CCSD already owns the SR4 Well facilities but does not own the underlying real property. (RON, p. 3.) This is incorrect as discussed above. Therefore, the cost of the two functioning wells and the water treatment facility should be included in the Statement of Compensation. Absent their inclusion, Coast is left to guess at the true extent at which CCSD intends to take the Property. Moreover, the amount of just compensation owed to Coast cannot be determined unless the extent of the taking is described.

E. Condemnation of the Subject Property Is Not a "More Necessary Public Use" Within the Meaning of Code of Civil Procedure Section 1240.610

Code of Civil Procedure section 1240.610 also provides the power of eminent domain may be exercised if it is established that the use for which the Subject Property is sought to be taken is a more necessary public use than the use for which the Subject Property is currently appropriated.

The RON states that "[C]oast currently has no use for the Subject Property which is nearly entirely occupied by the existing CCSD Well Facilities." (RON, pg. 7.) This is incorrect. Coast uses the Subject Property for water extraction from Well 23R, and has historically leased a portion of the Subject Property to CCSD to supply domestic water to the community of Cambria. This is not "no use."

CCSD argues that it has already been using the Subject Property to supply water from Well SR4 under the 2000 and 2012 Agreements, and therefore "it is CCSD, not [Coast] that is currently appropriating the Subject Property to a public use pursuant to Code of Civil Procedure sections 1240.610 and 1240.660." (Letter from CCSD to Coast re: Notice of Intent to Adopt Resolution of Necessity, dated March 21, 2024, Attachment H to the Staff Report.) As explained above, Well SR4 is owned by Coast and not CCSD. Coast permitted CCSD to operate Well SR4, first in the 2000 Agreement and again with the 2012 Agreement, including all related contract extensions. According to Code of Civil Procedure section 1240.660, "[w]here property has been appropriated to public use by a local public by a local public entity, the use thereof by the local public entity is presumed to be a more necessary use than any use to which such property might be put by any other local public entity." Furthermore, CCSD is not proposing a different or *more necessary* public use. Rather, CCSD is proposing an identical public use, but would prefer to own the underlying land and water wells in fee. However, this is not sufficient to satisfy the "more necessary public use" language of section 1240.610. With regards to the 2.2 acre expanded riparian area, CCSD has not established why those areas are necessary at all (see Section III.A.3 above), much less how they might constitute a "more necessary public use."

III. The CCSD Would Violated CEQA By Adopting the RON

Compliance with the California Environmental Quality Act (CEQA) (Pub. Res. Code, §§ 21000-21189.70.10) is mandatory before a public entity may condemn property for a proposed project. Accordingly, the RON is required to make a finding that environmental impacts have been adequately reviewed under CEQA. (*City of Stockton v Marina Towers LLC* (2009) 171 Cal.App.4th 93, 108; see also 14 Cal Code Regs §15004(b)(1).)

A letter submitted to this board by Dwayne Oberhoff, Senior Project Biologist at Ecological Assets Management, LLC, describe the diversity of special status plant and animal species and sensitive habitats in the vicinity of the proposed project. (Letter from Dwayne Oberhoff, Senior Project Biologist, Ecological Assets Management, LLC, dated April 10, 2024, attached as **Exhibit K,** "Biological Impact Letter.") According to the Biological Impact Letter, "Santa Rosa Creek and the surrounding areas provide habitat for numerous species considered as 'special-status' or 'species at risk' by the U.S Fish and Wildlife, National Marine Fisheries Service, and the California Department of Fish and Wildlife." (*Id.*) The Biological Impact Letter confirm the presence of 10 different special status-species. (Species are listed out in full in **Exhibit K.**) The U.S. Fish and Wildlife Service and the National Marine Fisheries Service have designated the proposed project site as "critical habitat" (i.e., habitat needed to support recovery of listed species) for the California red-legged from and steelhead. (*Id.*)

The RON entirely fails to address the potential impacts to the species identified in the Biological Impact Letter. Instead, the RON relies on several exemptions and find that because these exemptions apply, CEQA review is not required. Specifically, the RON claims that the proposed project (or components thereof) qualifies for the following exemptions: (1) The "common sense" exemption; (2) The statutory exemption for installation of new pipeline; and (3) Various categorical exemptions including the Class 1 (Existing Facilities; CEQA Guidelines § 15301), Class 2 (Replacement or Reconstruction; CEQA Guidelines § 15302), Class 3 (New Construction of Small Structures; CEQA Guidelines § 15303), Class 4 (Minor Alterations to Land; CEQA Guidelines § 15304), Class 15 (Minor Land Divisions; CEQA Guidelines § 15315) and Class 32 (Infill; CEQA Guidelines § 15332) exemptions.

As discussed in more detail below, these exemptions are inapplicable, do not cover the whole of the project, and, moreover, several exceptions to the categorical exemptions apply here given the Property's location directly adjacent to a sensitive habitat.

a. Common Sense Exemption

The RON states that "minor construction activities" such as creation of an access road are exempt under the so-called "common sense" exemption because there is no possibility the acquisition of the Property would have a significant impact on the environment. (RON, p. 5, citing 14 Cal. Code Regs., § 15061(b)(3).)

The common sense exemption may only be relied upon if "it can be seen **with certainty** that there is **no possibility** that the activity in question may have a significant effect on the environment." (14 Cal. Code Regs., § 15061(b)(3) [emphasis added].) The common sense exemption was adopted to guard against the possibility that an "obviously exempt" type of project might be required needlessly to comply with CEQA. (*Myers v. Board of Supervisors* (1976) 58 Cal.App.3d 413, 425.) Importantly, the lead agency has the burden of demonstrating that this exemption applies. (*Muzzy Ranch Co. v. Solano County Airport Land Use Comm'n* (2007) 41 Cal.4th 372, 386.)

Here, the exact opposite is true. As noted above, the Property on which the project is being carried out is immediately adjacent to an area listed by the U.S. Fish and Wildlife Service as a Critical Habitat for both red-legged frog and steelhead. Accordingly, not only is the project not "obviously exempt," it is actually very likely that the project *will* result in a significant impact to biological resources absent further environmental review and potentially mitigation measures. Therefore, because there is a "possibility that the activity in question may have a significant effect on the environment," the common sense exemption does not apply to the project.

b. Statutory Exemption

The RON next relies on CEQA Guidelines 15282(k) which exempts from CEQA the "installation of new pipeline." This exemption, however, does not cover the whole of the project—which includes acquisition of the Property and construction of an access road. Accordingly, because this statutory exemption only includes the installation of a new pipeline, and the remainder of the project does not fall within an exemption, reliance on it here is improper.

c. Categorical Exemptions

The RON also claims acquisition of the Property and construction of a new access road are categorically exempt from CEQA under the Class 1 (Existing Facilities; CEQA Guidelines § 15301), Class 2 (Replacement or Reconstruction; CEQA Guidelines § 15302), Class 3 (New Construction of Small Structures; CEQA Guidelines § 15303), Class 4 (Minor Alterations to Land; CEQA Guidelines § 15304), Class 15 (Minor Land Divisions; CEQA Guidelines § 15315) and Class 32 (Infill; CEQA Guidelines § 15332) categorical exemptions. (RON p. 5.) As discussed in more detail below, several of these exemptions are explicitly inapplicable. Furthermore, the exemptions must be denied because there is a reasonable possibility of a significant effect on the environment due to unusual circumstances and, with respect to the claimed Class 3 and 4 exemptions, because the project will have impacts on a uniquely sensitive environment. (14 Cal. Code Regs., § 15300.2.)

An agency may not categorically exempt a project from CEQA if one of the exceptions listed in CEQA Guidelines section 15300.2 applies. One exception applies "where there is a reasonable possibility that the activity will have a significant impact on the environment due to unusual circumstances." (14 Cal. Code Regs., § 15300.2(c).) There are two ways to satisfy this test: (1) "evidence that the project will have a significant environmental effect," or (2) "showing that the project has some feature that distinguishes it from others in the exempt class, such as its size or location. . . . [and] a reasonable possibility of a significant effect due to that unusual circumstance. (*Berkeley Hillside Preservation v. City of Berkeley* (2015) 60 Cal.4th 1086, 1105.)

Under the first test, the evidence that the construction of an access road in an environmentally sensitive habitat will directly and indirectly impact the surrounding environment goes meets this standard. Construction of the access road would result in an "ornamental grass lawn being replaced by a paved road." (RON, p. 11.) Furthermore, as discussed above, the Property is directly adjacent to Santa Rosa Creek which supplies domestic water to the City of Cambria and is listed by the US Fish and Wildlife Service as Critical Habitat for both red-legged frog and steelhead. (California Department of Fish and Game, Santa Rosa Creek Watershed Management Plan, attached as **Exhibit L.**) Accordingly, the proposed project likely will adversely impact sensitive resources. (See Kostka & Zischke, Practice Under the California Environmental Quality Act (Cont.Ed.Bar 2d ed. 2022) § 5.74, p.5-70 ["Any impact on a resource in a sensitive environment ordinarily would give rise to a reasonable possibility of a significant impact due to unusual circumstances"].)

Under the second test, the proximity of the Project to a sensitive environmental resource constitutes unusual circumstances. (See *Azusa Land Reclamation Co. v. Main San Gabriel Basin Watermaster*, 52 Cal.App.4th 1165, 1208 [unusual circumstance and environmental risk existed due to project in environmentally sensitive location, risk of impacts to groundwater]; *Lewis v. Seventeenth Dist. Agricultural Assn.* (1985) 165 Cal.App.3d 823, 829 ["no question of the existence of unusual circumstances" where residential areas adjacent to a racetrack].) As stated above, the Property is directly adjacent to Santa Rosa Creek which is both a source of domestic water and a sensitive environmental habitat. In fact, as stated in the Biological Impact Letter, the Santa Rosa Creek is home to an unusually high amount of sensitive species. (**Exhibit K,** p. 1.) By the same token, there is a reasonable possibility of significant adverse impacts on those unusual circumstances/resources precisely because they are sensitive, surround the Project area, and are likely to be impacted by the project. (**Exhibit K,** [describing how "any work or construction within the 2.39-acre Subject Property" may result in direct or indirect impacts to special-status species.]; Guidelines, § 15301 ["The key consideration is whether the project involves negligible or no expansion of use"].) For the foregoing reasons, the project may not qualify for *any* categorical exemption because there is a reasonable possibility that the activity will have a significant impact on the environment due to unusual circumstances.

CEQA also provides that Class 3 and Class 4 exemptions do not apply if the property may have an impact on an environmental resource of "hazardous or critical concern where designated, precisely mapped, and officially adopted pursuant to law by federal, state, or local agencies." (14 Cal. Code Regs., § 1500.2(a).) Here, the Santa Rosa Creek is listed by the US Fish and Wildlife Service as Critical Habitat for both red-legged frog and steelhead and thus is an environmental resource of critical concern within the meaning of section 15300.2(a). (**Exhibit K,** p. 1.) Construction of an access road, including use of heavy machinery, paving, installation of fencing, etc., in proximity to Santa Rosa Creek may create biological impacts through erosion, stormwater runoff, fugitive dust, or any other number of direct or collateral impacts. Accordingly, the RON may not rely on Class 3 or Class 4 categorical exemptions for the proposed project.

Finally, even if the above exceptions did not apply, the categorical exemptions relied upon are explicitly inapplicable to the project—and specifically the project's proposed construction of a new access road on the Property. For instance, Class 1 and Class 2 exemptions require existing facilities or structures that are being altered or replaced. (14 Cal. Code Regs., §§ 15301, 15302.) Here, the access road being proposed would be entirely new paved road and thus is not covered by these exemptions. The Class 3 exemption only applies to construction of *small* facilities such as "street improvements, of reasonable length." (14 Cal. Code Regs., § 15303.) Here, the project proposes a 330 foot access road near environmentally sensitive habitat, not a minor improvement, and thus the Class 3 exemption is inapplicable. The Class 4 exemption is also not applicable as the new road is not a minor alteration, but rather constitutes significant new construction. (14 Cal Code Regs., §15304.) The Class 15 exemption, which covers minor land divisions, is inapplicable to the construction of a new access road in close proximity to the Santa Rosa Creek. (14 Cal Code Regs., § 15315.) Finally, the Class 32 exemption only applies if the proposed development is on a site substantially surrounded by urban uses and has no value as habitat for endangered, rare or threatened species. (14 Cal Code Regs., §15332.) Here, the Property is primarily surrounded by rural, agriculturally-zoned parcels and, moreover, has a demonstrated value as habitat for endangered and threatened species as discussed above. Accordingly, the Class 32 exemption does not apply to the proposed project. For the above reasons, the common sense and categorical exemptions listed do not apply to the project as proposed and, moreover, the categorical exemptions cannot be approved given that several exceptions apply.

For all of the reasons discussed above, CCSD should refuse to adopt the proposed RON and direct staff to reengage with Coast in good faith negotiations to resolve this dispute.

Sincerely,

Christopher R. Guillen

AGREEMENT

This Agreement, entered into this day of August 16, 1976, by and between CAMBRIA COUNTY WATER DISTRICT and COAST JOINT UNION HIGH SCHOOL DISTRICT as follows:

WHEREAS, CAMBRIA COUNTY WATER DISTRICT has an emergency water shortage in said District, and

WHEREAS, COAST JOINT UNION HIGH SCHOOL DISTRICT has temporarily excess water which it is willing to make available on a temporary basis to CAMBRIA COUNTY WATER DISTRICT, and

WHEREAS, CAMBRIA COUNTY WATER DISTRICT is willing to accept such water on a purely temporary basis, and

WHEREAS, it is in the public interest that CAMBRIA COUNTY WATER DISTRICT and COAST JOINT UNION HIGH SCHOOL DISTRICT enter into an Agreement to consummate the above;

NOW THEREFORE, CAMBRIA COUNTY WATER DISTRICT (hereinafter called "WATER DISTRICT"), and COAST JOINT UNION HIGH SCHOOL DISTRICT (hereinafter called "HIGH SCHOOL"), in consideration of the mutual covenants, conditions, promises and agreements, hereby mutually covenant and agree as follows:

1. That the recitals set forth hereinabove are true, correct and valid.

2. HIGH SCHOOL hereby agrees to allow on a temporary basis, WATER DISTRICT to operate the HIGH SCHOOL water well, pump and distribution facilities for 12 or more continuous hours daily for the purpose of securing and conveying groundwater to the WATER DISTRICT'S existing well field, providing however, that such water operation shall not interfere with HIGH SCHOOL's use of the same in HIGH SCHOOL'S judgement.

3. WATER DISTRICT hereby agrees to pay the HIGH SCHOOL for all power costs associated with WATER DISTRICT'S operation of the HIGH SCHOOL'S water facilities. WATER DISTRICT further agrees to pay for any damage to the HIGH SCHOOL'S facilities incurred as a result of WATER DISTRICT'S operations hereunder.

4. It is understood and agreed that this temporary use shall continue until the rains of 1976-77 winter raise the groundwater level at WATER DISTRICT'S wells to a satisfactory level in the judgement of WATER DISTRICT.

5. This Agreement and the furnishing of water hereunder does not and shall not confer upon WATER DISTRICT any vested or permanent rights, title or interest in or to said water or any part thereof, or in or to any of HIGH SCHOOL'S facilities or property.

6. WATER DISTRICT hereby agrees to, and shall, defend, indemnify and save harmless HIGH SCHOOL and its officers, agents and employees, from and against any and all claims, demands, liability costs, expenses, damages, causes of action and judgements, in any manner arising out of this Agreement or out of the performance or attempted performance of the provisions hereof, including but not limited to any act or ommission to act on the part of WATER DISTRICT or its employees or agents or independent contractors directly responsible to WATER DISTRICT.

7. This Agreement shall automatically terminate on May 1, 1977, notwithstanding any other provision hereof.

8. All payments by WATER DISTRICT to HIGH SCHOOL for power costs hereunder, shall be billed by HIGH SCHOOL to WATER DISTRICT within the first 15 days of each month for the previous month; and WATER DISTRICT shall pay HIGH SCHOOL therefor within 15 days after receiving each such bill.

9. All payments by WATER DISTRICT to HIGH SCHOOL for any damages referred to hereinabove in Paragraph 3, shall be paid within 15 days of the receipt from HIGH SCHOOL of a bill therefore.

IN WITNESS WHEREOF, WATER DISTRICT and HIGH SCHOOL have executed this Agreement on the day and year first hereinabove set forth.

CAMBRIA COUNTY WATER DISTRICT

BY: Leon Berlagar

Secretary/Manager
TITLE

COAST JOINT UNION HIGH SCHOOL DISTRICT

BY: James J. Bufdell

District Superintendent
TITLE

COAST JOINT UNION HIGH SCHOOL DISTRICT

BOARD OF TRUSTEES
Special Meeting
August 16, 1976
Coast Joint Union High School
8:00 p.m.

MINUTES

The meeting was called to order by President Bruce Selkirk at 8:00 p.m. CALL TO ORDER

The Pledge of Allegiance was recited by all persons present at the meeting. PLEDGE OF ALLEGIANCE

Roll Call indicated the following:

Members Present: Mr. Gowdy, Mr. Randal Jackson, Mr. Thomas Jackson and Mr. Bruce Selkirk

Members Absent: Mrs. Carolyn Connelly

Staff Members Present: James Buddell and Marion Serrano

Guests Present: Leon Bordegaray, Donald Lemon, Walt Sterling, William Atkinson, Jim Greathouse, Mr. and Mrs. Ed Neary and Cathy Campbell.

Mr. Thomas Jackson moved and Mr. Gowdy seconded the motion for the adoption of the agenda. AGENDA

Due to the fact the water table has dropped to a dangerous low making two of the water well fields inoperable and the remaining water well field near depletion, the Cambria Water District Board of Directors have requested use of school water until the first rains of the 1976-77 winter season and the water level is restored. REQUEST FOR USE OF SCHOOL WATER BY CAMBRIA WATER DISTRICT

After discussion, Mr. Gowdy moved and Mr. Thomas Jackson seconded the following proposal submitted to the Coast Joint Union High School Board of Trustees by the Cambria Water District:

AGREEMENT

This Agreement, entered into this day of August 16, 1976, by and between CAMBRIA COUNTY WATER DISTRICT and COAST JOINT UNION HIGH SCHOOL DISTRICT as follows:

WHEREAS, CAMBRIA COUNTY WATER DISTRICT has an emergency water shortage in said District, and

WHEREAS, COAST JOINT UNION HIGH SCHOOL DISTRICT has temporarily excess water which it is willing to make available on a temporary basis to CAMBRIA COUNTY WATER DISTRICT, and

WHEREAS, CAMBRIA COUNTY WATER DISTRICT is willing to accept such water on a purely temporary basis, and

WHEREAS, it is in the public interest that CAMBRIA COUNTY WATER DISTRICT and COAST JOINT UNION HIGH SCHOOL DISTRICT enter into an Agreement to consummate the above;

NOW THEREFORE, CAMBRIA WATER DISTRICT (hereinafter called "WATER DISTRICT"), and COAST JOINT UNION HIGH SCHOOL DISTRICT (hereinafter called "HIGH SCHOOL"), in consideration of the mutual covenants, conditions, promises and agreements, hereby mutually covenant and agree as follows:

1. That the recitals set forth hereinabove are true, correct and valid.

2. HIGH SCHOOL hereby agrees to allow on a temporary basis, WATER DISTRICT to operate the HIGH SCHOOL water well, pump and distribution facilities for 12 or more continuous hours daily for the purpose of securing and conveying groundwater to the WATER DISTRICT'S existing well field, providing however, that such water operation shall not interfere with HIGH SCHOOL'S use of the same in HIGH SCHOOL'S judgement.

3. WATER DISTRICT hereby agrees to pay the HIGH SCHOOL for all power costs associated with WATER DISTRICT'S operation of the HIGH SCHOOL'S WATER facilities. WATER DISTRICT further agrees to pay for any damage to the HIGH SCHOOL'S facilities incurred as a result of WATER DISTRICT'S operations hereunder.

4. It is understood and agreed that this temporary use shall continue until the rains of 1976-77 winter raise the groundwater level at WATER DISTRICT's wells to a satisfactory level in the judgement of WATER DISTRICT.

5. This Agreement and the furnishing of water hereunder does not and shall not confer upon WATER DISTRICT any vested or permanent rights, title or interest in or to said water or any part thereof, or in or to any of HIGH SCHOOL'S facilities or property.

6. WATER DISTRICT hereby agrees to, and shall defend, indemnify and save harmless HIGH SCHOOL and its officers, agents and employees, from and against any and all claims, demands, liability costs, expenses, damages, causes of action and judgements, in any manner arising out of this agreement or out of the performance or attempted performance of the provisions hereof, including but not limited to any act or ommission to act on the part of WATER DISTRICT or its employees or agents or independent contractors directly responsible to WATER DISTRICT.

7. This Agreement shall automatically terminate on May 1, 1977, notwithstanding any other provisions hereof.

8. All payments by WATER DISTRICT to HIGH SCHOOL for power costs hereunder, shall be billed by HIGH SCHOOL to WATER DISTRICT within the first 15 days of each month for the previous month; and WATER DISTRICT shall pay HIGH SCHOOL therefor within 15 days after receiving each such bill.

9. All payments by WATER DISTRICT to HIGH SCHOOL for any damages referred to hereinabove in Paragraph 3, shall be paid within 15 days of receipt from HIGH SCHOOL of a bill therefore.

IN WITNESS WHEREOF, WATER DISTRICT and HIGH SCHOOL have executed this Agreement on the day and year first hereinabove set forth.

CAMBRIA COUNTY WATER DISTRICT

BY: sg/ LEON BORDEGARAY

Secretary/Manager
TITLE

COAST JOINT UNION HIGH SCHOOL DISTRICT

BY: sg/ JAMES J. BUDDELL

District Superintendent
TITLE

The above motion will be ratified by the Board of Trustees at their next regular meeting on September 13, 1976.

The meeting was adjourned at 9:54 p.m. ADJOURNMENT

Respectfully submitted.

James J. Buddell
Secretary

SUPERINTENDENT'S COMMENTS AND INFORMATION ON AGENDA ITEMS FOR July 12, 1976 MEETING.

ROUTINE MATTERS:

a. Recommend approval of the minutes with corrections if necessary.
b. Recommend ratification of warrant listing.
c. Recommend ratification of the financial statements.

OLD BUSINESS:

a. The Preliminary Budget has been corrected with the final figures as presented by the County, and I will point out these changes at the Board meeting since I do not have the necessary information at this writing. However, with any corrections you may make at this meeting, I would like you to adopt the budget as the Publication Budget, prior to the final adoption in August.

b. There was only one bidder for permission to drill a well on school property, and the Taylor borthers paid $1.00 to seal this bid. I recommend you accept their bid.

c. I have had a telephone call from Greg Morris, of Morris and Dee, indicating our liability insurance will increase appreciable as a result of the bus accident in northern California. Mr. Morris is currently searching for ways to reduce this increase, and he will be at our August meeting, prior to the adoption of the final budget to talk with you concerning the reasons for the increase and available alternatives.

d. At our last Board meeting questions were raised by the Board as to the student survey conducted earlier this year. Miss Silvius is here, and perhaps she can field your questions.

e. Recommend adoption of the bus safety policy, which had its first reading last month.

f. Does the board wish to actively recruit state-wide for an architect who meets the criteria as established by Mr. Steinmann? Does the Board wish to retain Mr. Steinmann as our architect for the future? What is your pleasure?

NEW BUSINESS:

a. Presently, certificated staff members are paid September 1 (in advance) and are issued their last check of the year on August 1. There are only two or three counties in California using this procedure, and many school superintendents (of which I am one) have repeatedly pointed out that paying in advance causes a liability on the district should a teacher die on September 3, after receiving his check on September 1.

A couple of years ago a superintendents' committee recommended we change this procedure so that certificated employees were paid their first check of the new year on October 1 and the last check of the year on September 1. Teachers in the San Luis Coastal School District caused such a furor about the committee's recommendation that Billy Watson, County Superintendent of Schools at the time, tabled the whole study.

The County is presently ready to transfer payroll to data processing and, once again, it has been recommended by the study committee that we adopt the October 1 payment in order to facilitate the computer program, as well as being the reasonable way to pay certificated staff

The County Board of Education, remembering the uproar created by the San Luis Coastal teachers, is leery about giving approval. However, local board approval must be given by July 15 in order to impliment the plan. Please read the material included in the board book. It is my recommendation that you give the proposal a positive vote and allow the teachers to phase this in by using one of the methods suggested by the County Office so that we will be on track in 1977, and teachers will have time to save money for the "dry" period.

b. Prior to the close of school, the Eligibility Committee had their recommendations approved by the entire staff regarding athletic eligibility. Their proposal is presented in the board book, and unless you have corrections or additions, I recommend it be adopted.

c. Miss Plaisted has written to you, through me, a memo regarding track. Her estimates as to cost are highly unsophisticated since there are no transportation expenses nor has she considered the fact that our students do not compete well because we have no track, and being constant loosers is detrimental to the athletes' attitude.

We are competing in the league which CIF recommends, and none of the schools in this league have a track program. Therefore, should we participate in track, costs are much higher than if we were paying to compete within our league. I recommend you delay action on establishing track as a major sport until proper facilities are available or other schools in the Tri-County League participate.

d. A summer Judo program is being sponsored by the YMCA. They are charging each participate $16.00 and providing an instructor.

They have requested use of our gym and, in accordance with board policy, it is necessary for me to charge for use since participants are paying a fee in order to wrestle.

Since this is a non-profit organization and its goals are to improve our youth, I am suggesting that you consider waiving the fee for the YMCA. A representative of the Y is here to answer any questions.

e. Linda Silvius is highly enthusiastic, as were our student leaders, over an experience they enjoyed at Leadership Camp. Miss Silvius wishes to propose that Coast have a leadership camp for all ASB and club officers during the first part of September. David West, ASB President, will make this presentation.

<u>PERSONNEL:</u>

a. Richard Johnson's letter of resignation has been submitted to me, and he did so prior to July 1. Therefore, I am recommending your acceptance with regrets.

We are currently recruiting his replacement in all State Universities and Colleges and will keep you informed.

Dick Cate and Mabel Adams are requesting a half-time secretary for the Counseling Office due to reasons indicated in the request.

Should you feel these reasons are valid, may I recommend to you that Mary Andresen be assigned half-time to the Counseling Office to assist Mabel Adams and half-time with Marion Serrano. Her salary has been budgeted to accommodate this request should it be granted.

c. Recommend you employ Christine Marie Pearson as an as-needed substitute.

d. After our last Board Meeting, you may have had the opportunity to consider whether or not an administrative assistant is feasible at this time.

INFORMATION AND REPORTS:

a. All the correspondence from the East Sierra League has been included in the Board Book and at this point we are still at loose ends since Tom Byrnes, of the Southern Section CIF, promised to plead our case at the State level but has not been able to accomplish this at this time.

b. Nat Vincent has prepared a booklet of statistics to help motivate young athletes. Thought you would enjoy going over the materials and seeing a job well done.

c. I have received a Management Action Paper from the Association of California School Administrators regarding the Rodda Act, which reflects the role of the Board of Trustees. I hope that this will be read in-depth by Board members, and some direction will be given the Superintendent at the next meeting as to whether you would like to adopt such a policy.

Obviously, the policy is to clarify the Board's role in militant school districts. Since we have maintained excellent personnel relations with both the classified and certificated staff, it is my judgement that such a policy may be an irritant to the current staff. However, I would trust your judgement in this matter.

d. The June inspection report on the unfinished student project, the new administration building, is included for your information.

e. The State of California has finally approved the new art classroom. There will be no further expense in this area in the future.

f. A letter from concerned citizens was written regarding their point of view in relation to the Fine Arts Building.

FUTURE BUSINESS:

It will be necessary to move the August 8 meeting to August 2 due to State law demanding that the final budget receive approval prior to August 8, 1975.

COAST JOINT UNION HIGH SCHOOL DISTRICT
BOARD OF TRUSTEES
Regular Meeting
July 12, 1976
Coast Joint Union High School

MINUTES

The meeting was called to order by President Bruce Selkirk at 8;00 p.m. CALL TO ORDER

The Pledge of Allegiance was recited by all persons present at the meeting. PLEDGE OF ALLEGIANCE

Roll Call indicated the following: ROLL CALL

Members Present: Mrs. Connelly, Mr. Gowdy, Mr. Randal Jackson Mr. Thomas Jackson and Mr. Selkirk

Staff Members Present: James Buddell and Marion Serrano

Guests present: Connie McCauley, Belva Souza, Sanrda Marciel, Kathy Souza Lori Marciel, Susie White, Walt Sterling. Michael Doroski, Pat Tierney, Tom Tierney, Linda Silvius, Mary Andresen, Pat Bergmueller, Jo Werts, Merry Peterson, Jim Peterson, R.A. Wallace, Eleanor Garcia, Alec Garcia, and Mr. and Mrs. Wall

M Thomas Jackson moved and Mr. Gowdy seconded the motion to approve the the agenda with the correction noted that the next meeting will be held in Cayucos rather than Cambria. The motion carried unanimously. AGENDA

Mr Gowdy moved and Mr. Thomas Jackson seconded the motion for the approval of the minutes of the previous meeting The motion carried unanimously. MINUTES

Mr Randal Jackson moved and Mr. Thomas Jackson seconded the motion for approval and ratification of the warrant listings. The motion carried unanimously. WARRANT LISTS

Mrs Connelly moved and Mr. Randal Jackson seconded the motion to accept the financial statements. The motion carried unanimously. FINANCIAL STATEMENTS

Mr. Randal Jackson moved and Mr. Thomas Jackson seconded the motion to adoption the Publication Budget for 1976-77. The motion carried unanimously. PUBLICATION BUDGET

Mr. Randal Jackson moved and Mr. Gowdy seconded the motion to accept the Taylor Brothers' bid for drilling a water well on school property including a stipulation that the bidders agree to the use of the water for a period of fifteen years, at which time the right for further use will be renegotiated. The motion carried unanimously. WATER WELL

David West, Student Body President, presented the results of the student survey to the board, indicating that the results as published in the minutes of the May 17 board meeting were incomplete. A copy of the complete tally of the survey will be made available to board members. STUDENT SURV

Mrs. Connelly moved and Mr. Thomas Jackson seconded the motion to adopt the school bus safety policy as presented. The motion carried unanimously. SCHOOL BUS SAFETY POLICY

Following some discussion, Mr. Gowdy moved and Mr. Randal Jackson seconded the motion to invite Mr. Kurt Steinmann (local architect from Cayucos) to attend the next board meeting to discuss contracting with him for a proposed school building, pending information concerning his interest, ability and fees for such work. The motion carried unanimously. ARCHITECT

It was moved by Mr. Thomas Jackson and seconded by Mr. Gowdy to indicate to the County Superintendent of Schools the Coast Joint Union High School Board of Trustees concur with the recommendation for a change in service regarding pay schedule for personnel (to discontinue advanced pay for teachers). The motion carried unanimously. PERSONNEL PAY

Mr. Thomas Jackson moved and Mr. Randal Jackson seconded the motion to adopt the Eligibility Committees' recommendations concerning athletic eligibility. The motion carried unanimously. ATHLETIC ELIGIBILITY

Jan Plaisted's request for track to be included in the sports program was taken under advisement by the board. The matter will be discussed further. TRACK

Since there was no representative from the YMCA present to discuss use of school facilities, the matter was tabled. USE OF SCHOOL FACILITIES

David West, Student Body President, presented a brief resume of the National Student Leadership Institute in LaHonda (which ASB officers attended this year). David was so enthusiastic about this conference that he requested Board approval for a similar conference to be held on the high school campus for all class and club officers. Although board approval was not given at this time, it was indicated that Miss Silvius should contact the conference consultants to determine when they would be available to come to Cambria. STUDENT LEADERSHIP CONFERENCE

Mr. Thomas Jackson moved and Mr. Gowdy seconded the motion to accept the resignation of Richard Johnson, science teacher. The motion carried unanimously. PERSONNEL

Mr. Randal Jackson moved and Mr. Thomas Jackson seconded the motion to approve the request for part-time help in the counseling office. The motion carried unanimously.

Mrs. Connelly moved and Mr. Gowdy seconded the motion to employ Christine Pearson as an as-needed substitute.

Mr. Denis deClercq was named to assist the superintendent with and attendance problems.

Mr. Walter Sterling, President of the Cambria Rotary Club, informed the board that the Rotary Club will be presenting the Booster Club with $1,000 for their lighting project. This money was made available as a result of the Medieval Faire held during the Memorial Day weekend. Mr. Sterling asked for board approval for use of the school facilities for the Medieval Faire to be held next year. Although action could not be taken by the board, the matter will be placed on the agenda for the next meeting MEDIEVAL FAIRE

Information was presented to the Board indicating there is a good chance Coast High would not be in the East Sierra League in the fall of 1977. It may be necessary for us to petition the C.I.F. to join the Tri-County League for 8-man football. Advanges would be: 1. We would be in the same league affiliation as our other sports. 2. There would be less travel time away from school. 3. With three less boys, the cost of equipment would be less, and it would put us in good shape for three years. 4. Most of the schools in the Tri-County League play on lighted fields, so our new lighted stadium would be welcomed by the league. 5. Playing closer schools would bring more visitors; therefore, there would be a bigger gate to attract more funds for the student body (which would justify our new elevated stands).	LEAGUE FOOTBALL
Information concerning the fole of school boards under the Rodda Act was given to the board with the superintendent asking for reaction at the next board meeting.	RODDA ACT
The June inspection report on the administrative building was presented to the board along with notification from the State of California that approval has been given on the new art classroom completed by the Construction Technology class.	CORRESPONDENCE
Mr. Nott, representing the certificated staff of Coast High School, presented recommendations from the teachers: 1. Open Campus - 10-No; 2-Yes (do not feel that some of the students have demonstrated their ability to handle a privilege of this type). 2. Hiring a Vice-principal ~~- 7-No; 5-Yes~~ Recommended 3. Designated smoking area on campus - 9-No; 5-Yes (some members of the faculty have changed their minds; but a majority still oppose a smoking area on campus) 4. Several of the teachers would like the board to authorize deduction for deferred compensation through the SESLOC Credit Union. This item will be included on the August agenda for discussion. 5. The staff expressed their appreciation to the board for their decision on the proposed building to be added to the campus and thanked the board for permitting them to voice their opinions on the future growth of the school. 6. The staff looks forward to meeting with the board at least once each year to explain programs and answer questions from both the board members and interested parents.	CERTIFICATED STAFF RECOMMENDATIONS
It was pointed out that the date of the August meeting has been changed from August 8 to August 2 due to State law requiring the final budget be appoved prior to August 8.	DATE OF NEXT MEETING
The meeting was adjourned at 10:15 p.m.	ADJOURNMENT

Respectfully submitted,

James J. Buddell, Secretary

June 11, 1976

Board of Trustees
Coast Joint Union High School District
Cambria, CA 93428

Dear Sirs:

We wish to submit a bid of $1.00 for the purpose of drilling a water well on school property for agricultural purposes only.

As part of this bid, we:

1. Agree to allow the school district to use this well as a standby well should the school district well fail to operate.

2. We will agree to stop pumping should the water level of the school district well drop below a reasonable depth, and we will not begin pumping again until a reasonable water level is again reached by the school district well.

3. We expect, as a result of our bid, to have permission to drill our well on school property and have an easement for transportation purposes to our property, which is adjacent to the site for a period of fifteen years

4. We also expect to have an easement to hook power to our water well in order that it may become operable.

As along-time tax payers of Cambria, we wish to express our gratitude to the Board for their consideration of our request and giving us the opportunity to bid for this water.

Sincerely,

Leslie A Taylor   John W Taylor

CAMBRIA COUNTY WATER DISTRICT

OFFICE: BRIDGE & CENTER STS. CAMBRIA, CALIF. 93428 POST OFFICE BOX 65

PHONE 805 927-4638

Bd Book

September 23, 1976

Mr. James J. Buddell
District Superintendent
Coast Joint Union High School
RR1, Box 100
Cambria, California 93428

Dear Jim;

Enclosed please find an executed copy of the addendum to the Agreement between Coast Joint Union High School and the Cambria County Water District.

On behalf of the Board and myself, I would again like to express our appreciation for the consideration that the District received during our water problem. The cooperation of your Board and yourself in implementing this program is very much appreciated and we can't thank you enough.

The oversite on this section 10 of the addendum was, I'm afraid, more my fault than anyone elses, so my apologies are hereby offered. (Be sure you accept them!)

Thanks again.

Very truly yours,
CAMBRIA COUNTY WATER DISTRICT

Leon

Leon Bordegaray
Secretary/Manager

LB/ldc

Enc: 2

Ford ✓

AGREEMENT

This Agreement, entered into this day of August 16, 1976, by and between CAMBRIA COUNTY WATER DISTRICT and COAST JOINT UNION HIGH SCHOOL DISTRICT as follows:

WHEREAS, CAMBRIA COUNTY WATER DISTRICT has an emergency water shortage in said District, and

WHEREAS, COAST JOINT UNION HIGH SCHOOL DISTRICT has temporarily excess water which it is willing to make available on a temporary basis to CAMBRIA COUNTY WATER DISTRICT, and

WHEREAS, CAMBRIA COUNTY WATER DISTRICT is willing to accept such water on a purely temporary basis, and

WHEREAS, it is in the public interest that CAMBRIA COUNTY WATER DISTRICT and COAST JOINT UNION HIGH SCHOOL DISTRICT enter into an Agreement to consummate the above;

NOW THEREFORE, CAMBRIA COUNTY WATER DISTRICT (hereinafter called "WATER DISTRICT"), and COAST JOINT UNION HIGH SCHOOL DISTRICT (hereinafter called "HIGH SCHOOL"), in consideration of the mutual covenants, conditions, promises and agreements, hereby mutually covenant and agree as follows:

1. That the recitals set forth hereinabove are true, correct and valid.

2. HIGH SCHOOL hereby agrees to allow on a temporary basis, WATER DISTRICT to operate the HIGH SCHOOL water well, pump and distribution facilities for 12 or more continuous hours daily for the purpose of securing and conveying groundwater to the WATER DISTRICT'S existing well field, providing however, that such water operation shall not interfere with HIGH SCHOOL's use of the same in HIGH SCHOOL'S judgement.

3. WATER DISTRICT hereby agrees to pay the HIGH SCHOOL for all power costs associated with WATER DISTRICT'S operation of the HIGH SCHOOL'S water facilities. WATER DISTRICT further agrees to pay for any damage to the HIGH SCHOOL'S facilities incurred as a result of WATER DISTRICT'S operations hereunder.

4. It is understood and agreed that this temporary use shall continue until the rains of 1976-77 winter raise the groundwater level at WATER DISTRICT'S wells to a satisfactory level in the judgement of WATER DISTRICT.

5. This Agreement and the furnishing of water hereunder does not and shall not confer upon WATER DISTRICT any vested or permanent rights, title or interest in or to said water or any part thereof, or in or to any of HIGH SCHOOL'S facilities or property.

6. WATER DISTRICT hereby agrees to, and shall, defend, indemnify and save harmless HIGH SCHOOL and its officers, agents and employees, from and against any and all claims, demands, liability costs, expenses, damages, causes of action and judgements, in any manner arising out of this Agreement or out of the performance or attempted performance of the provisions hereof, including but not limited to any act or ommission to act on the part of WATER DISTRICT or its employees or agents or independent contractors directly responsible to WATER DISTRICT.

7. This Agreement shall automatically terminate on May 1, 1977, notwithstanding any other provision hereof.

8. All payments by WATER DISTRICT to HIGH SCHOOL for power costs hereunder, shall be billed by HIGH SCHOOL to WATER DISTRICT within the first 15 days of each month for the previous month; and WATER DISTRICT shall pay HIGH SCHOOL therefor within 15 days after receiving each such bill.

9. All payments by WATER DISTRICT to HIGH SCHOOL for any damages referred to hereinabove in Paragraph 3, shall be paid within 15 days of the receipt from HIGH SCHOOL of a bill therefore.

IN WITNESS WHEREOF, WATER DISTRICT and HIGH SCHOOL have executed this Agreement on the day and year first hereinabove set forth.

CAMBRIA COUNTY WATER DISTRICT

BY: Leon Bealegar

Secretary/Manager
TITLE

COAST JOINT UNION HIGH SCHOOL DISTRICT

BY: James J Buddell

District Superintendent
TITLE

ELEMENTARY
SCHOOL DISTRICTS
INCLUDED IN CJUHS DISTRICT
CAMBRIA UNION
CAYUCOS, FAIRVIEW
PACIFIC VALLEY

Coast Joint Union High School
RR 1, BOX 100
CAMBRIA, CALIFORNIA 93428
TELEPHONE 805 927-4567

JAMES J. BUDDELL
DISTRICT SUPERINTENDENT
AND PRINCIPAL

September 16, 1976

Mr. Leon Bordegaray
Water District Manager
Cambria Water District
PO Box 65
Cambria, CA 93428

Dear Leon:

Coast Joint Union High School District Trustees tabled action on our agreement as presented by your office at our last regular meeting on Monday, September 13, 1976.

The reason for their action was that they had the understanding that in our joint board meeting it was agreed that at some time in the future, when the water district is able to make new wells available, the water district would subsidize (in part) the cost of connecting the high school to the water district.

In our subsequent conversation, you suggested I prepare an addendum to the contract with your board. Please see addendum attached and advise me as to its acceptability.

Sincerely,

James J. Buddell
District Superintendent

JJB/ms

ADDENDUM TO AGREEMENT BETWEEN COAST JOINT UNION HIGH SCHOOL DISTRICT AND THE CAMBRIA COUNTY WATER DISTRICT.

NOW THEREFORE, CAMBRIA COUNTY WATER DISTRICT (hereinafter called "WATER DISTRICT"), and COAST JOINT UNION HIGH SCHOOL DISTRICT (hereinafter called "HIGH SCHOOL"), in consideration of the mutual covenants, conditions, promises and agreements, hereby mutually covenant and agree as follows:

10. That the Water District hereby agrees to subsidize (in part) costs of making water available to the High School District when and if a new source of water is developed within the district.

CAMBRIA COUNTY WATER DISTRICT

by: Leon Bonlegaro

Secretary/Manager
TITLE

COAST JOINT UNION HIGH SCHOOL DISTRICT

by: James J. Buttell

District Superintendent
TITLE

ELEMENTARY
SCHOOL DISTRICTS
INCLUDED IN CJUHS DISTRICT
CAMBRIA UNION
CAYUCOS, FAIRVIEW
PACIFIC VALLEY

Coast Joint Union High School
RR 1, BOX 100
CAMBRIA, CALIFORNIA 93428
TELEPHONE 805 927-3889
772-3887

JAMES R. BROWN
DISTRICT SUPERINTENDENT
AND PRINCIPAL

December 14, 1978

Mr. Howard Main
Cambria Community Service District
Bridge and Center Streets
Cambria, CA 93428

Dear Howard:

This is to acquaint the Cambria Community Service District with a growing problem that Coast High School is having with its well system.

Over the last year the well has been pumping a gradually increasing amount of sand. This sand is beginning to clog our plumbing system.

Several people have offered opinions as to the cause of the problem. But the general consensus is that a cave-in has occurred, the cause of which was the excessive use put on the well system during Cambria's emergency water shortage. The most recent opinion we received is from the Floyd Wells Company located in Santa Maria.

To resolve the problem on a temporary basis, we are arranging to flush our plumbing system once a week. Hopefully, this will keep the system fairly clear until the end of the year. This may work but a more long-term solution will have to be achieved, sometime in the near future.

We are probably looking at some major repair work to be done on the well next summer. This will minimally include cleaning out the existing well and repairing some casings. It could potentially involve construction of a new well.

Our contractural agreement with the Cambria Community Services District provides that the CCSD will assume responsibility for any damage to the well as a result of its use by the CCSD. Since there will be costs associated both with our short and long-term solutions, I want to inform you at this time of what may be expected.

I suspect it will be necessary for us to confer directly on this matter. Although I will be out of town until January 2, I would be happy to meet after that time. We can then discuss this matter and, hopefully, reach a solution. We would, of course, be glad to have anyone of your choosing analyze our problems and suggest possible solutions.

Sincerely,

James R. Brown
Superintendent/Principal

JRB/ms

ELEMENTARY
SCHOOL DISTRICTS
INCLUDED IN CJUHS DISTRICT
CAMBRIA UNION
CAYUCOS, FAIRVIEW
PACIFIC VALLEY

Coast Joint Union High School

RR 1, BOX 100
CAMBRIA, CALIFORNIA 93428
TELEPHONE 805 927-3889
772-3887

JAMES R. BROWN
DISTRICT SUPERINTENDENT
AND PRINCIPAL

February 15, 1979

Mr. Howard Main
Cambria Community Service District
Bridge and Center Streets
Cambria, CA 93428

Dear Howard:

This is to confirm my request to speak to the Community Service District Board on March 19, 1979.

At this meeting I plan to ask the Board to assume some or all of the financial burden which has been placed upon our school district by the damage to our well.

The basis for this request is an existing agreement between the C.S.D. and the Coast Joint Union High School District which provided for use of our school well by the C.S.D. during the drought period. It is the position of our Board of Trustees that the terms of this agreement and the willingness of our District to help the community during a crisis period warrant the C.S.D.'s honoring our request.

The Board has authorized me to proceed with resolving our well difficulties here at school. At this point we are looking toward construction of a new well. By the March 19 meeting I shall be able to present a full report on costs that have been incurred.

Thank you for your cooperation. I shall look forward to addressing the C.S.D. on March 19.

Sincerely,

James R. Brown
Superintendent/Principal

JRB/ms

ELEMENTARY
SCHOOL DISTRICTS
INCLUDED IN CJUHS DISTRICT
CAMBRIA UNION
CAYUCOS, FAIRVIEW
PACIFIC VALLEY

Coast Joint Union High School
RR 1, BOX 100
CAMBRIA, CALIFORNIA 93428
TELEPHONE 805 927-3889
772-3887

JAMES R. BROWN
DISTRICT SUPERINTENDENT
AND PRINCIPAL

March 19, 1979

Board of Directors
Cambria Community Service District
PO Box
Cambria, CA 93428

Gentlemen:

The purpose of this letter is two-fold. The first is to request financial assistance from the CSD for well repair and construction at Coast High School. The second is to request that the CSD establish lower water use rates for Cambria's two public school districts. I'd like to offer a few points of information relating to each of these requests.

I. Request for Financial Assistance on Well Repair and Construction

On August 16, 1976, the Coast Joint Union High School District and the CSD signed an agreement permitting the CSD to use, at no charge, water from the school well for the town of Cambria. This agreement was necessitated by the emergency drought conditions which were in existence at the time.

The agreement, a copy of which is enclosed, permitted free use of the well by the town in exchange for a commitment by the CSD to pay for any damages incurred. The CSD also agreed to extend a water line to the school some time in the future.

CSD then used the well for a period of fourteen months. After that the condition of the well steadily worsened. Gradually more sand and dirt began to be pumped, a development which intensified after last year's flooding.

Last month the district attempted to repair the well and established a contract with the Miller Drilling Company in Templeton. Approximately $2,200 was expended before it became apparent further repair work was futile. In addition, new bowls had to be ordered which raised the cost another $2,000, but these can be used for the pumping equipment in the new well.

Construction on this new well has now begun. Estimated costs including permits and the work by Miller Drilling and the Coast High School maintenance staff are approximately $5,000.

The District will be unable to pay the total costs of all this work. Consequently, it is our hope that the CSD will help defray these costs through the passing of a resolution authorizing a transfer of funds to the high school. Because of the school's severe financial condition, whatever share of the total costs could be provided would be appreciated. However, the District is hopeful that the CSD will be able to pay at least half of the repair and construction costs (approximately $4,000 - $5,000).

II. Request for Different Rate Structure

In a year or two the high school will be using CSD water for domestic purposes. Of course, the Cambria Elementary School District already uses CSD water.

Under present circumstances, costs for use of this water are high. Despite this, the development of new safety and health standards governing water use necessitates the high school district ultimately hooking up to the town water system. The well will be retained for irrigation purposes only.

Therefore, the high school district would like to join with the elementary district in requesting that a lower rate structure be established to govern use of CSD water by other public agencies. All districts are supported by the public tax dollar, and it would seem to be of benefit for one to support the other. Also, money saved by the school districts could go to the maintenance of important academic programs.

In conclusion, I would like to thank Mr. Main and the CSD Board for consideration of our requests. The Board of Education of Coast Joint Union High School District and I are confident that a fair and equitable solution to all parties concerned can be achieved.

Sincerely,

James R Brown

James R. Brown
Superintendent/Principal

JRB/ms

Enclosure

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION
81 Higuera Street, Suite 200
San Luis Obispo, California 93401-5427

CLEANUP OR ABATEMENT ORDER NO. 00-28

Concerning

Chevron Products Company
1300 Beach Boulevard
La Habra, CA 90632-2833

The California Regional Water Quality Control Board, Central Coast Region (hereafter Board) finds:

1. Chevron Products Company (hereafter Chevron), operated Chevron Service Station #9-0919 located at 2194 Main Street, Cambria (hereafter Property) where it discharged or caused or permitted petroleum products to be discharged to soil and ground water. Chevron operated the Property in 1993 when an unauthorized release of petroleum products was discovered to be discharged to the subsurface environment. Chevron's discharge to soil and ground water included the fuel additive methyl-tertiary-butyl-ether (MTBE).

2. A groundwater assessment report prepared by SECOR International, Inc. dated February 17, 2000 indicates that the maximum concentration of MTBE discharged to ground water is 25,000 micrograms per liter (µg/L). The Water Quality Control Plan, Central Coast Region (Basin Plan) provides that "Wastes discharged to ground waters shall be free of toxic substances in excess of accepted drinking water standards; taste, odor, or color producing substances…." (Basin Plan p. V-10.) Concentrations of MTBE in excess of 5 µg/L in drinking water supplies cause offensive tastes and odors making the water unsuitable for drinking. The Department of Health Services has established a secondary maximum contaminant level of 5 µg/l and a health-based advisory level (Drinking Water Action Level) of 13 µg/L.

3. Pursuant to Chapter 2 of the Basin Plan, present and potential beneficial uses of ground water beneath the site and vicinity areas include domestic and municipal supply, agricultural water supply, and industrial use.

4. Chevron's discharge to ground water is within 700 feet of Cambria Community Service District Wells (CCSD) Nos. 1 and 3 which provide approximately 1/2 of the Community of Cambria's drinking water supply. If ground water is pumped from these threatened CCSD wells, petroleum hydrocarbon contaminants, including MTBE will likely be drawn into these wells and contaminate the Community of Cambria's water supply.

5. Chevron is responsible for contaminants discharged on-site and for the contaminant clean-up. This order is intended to direct the above named parties to provide an alternate source of water for the Community of Cambria during Chevron's investigation and cleanup of the site.

6. This enforcement action is being taken for the protection of the environment and as such is exempt from the provisions of the California Environmental Quality Act (Public Resources Code Section 21000, et seq.) in accordance with Sections 15307 and 15308, Chapter 3, Title 14, California Code of Regulations.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the Porter-Cologne Water Quality Control Act, Chevron its successors, agents, or assigns, shall provide an alternate water supply for the Community of Cambria as follows:

1. Immediately take all actions necessary to identify and secure an alternative water supply for the Community of Cambria by September 1, 2000 in the quantity required by this Order.

2. By September 1, 2000, provide the Community of Cambria with a potable water supply equal in quantity to water pumped from CCSD Well Nos. 1 and 3. Chevron shall provide the Community of Cambria this alternative water supply during Chevron's investigation and cleanup of petroleum hydrocarbon contamination in the subsurface environment.

3. Beginning on May 1, 2000 and the first day of each month thereafter unless compliance with this order is complete, submit to the Regional Board a progress report documenting all efforts Chevron is taking to provide the required alternative water supply and a final report to document that the required alternative water supply is in place.

All technical and monitoring reports (including progress and final reports) required in conjunction with this order are required pursuant to Section 13267 of the Porter-Cologne Water Quality Control Act and shall include a statement by the Discharger certifying under penalty of perjury under the laws of the State of California that the report is true, complete, and accurate. Hydrogeological reports and plans shall be prepared by, or under the direct supervision of, and signed and stamped by a Registered Geologist and or an appropriately Registered Engineer.

FAILURE TO COMPLY WITH THE PROVISIONS OF THIS ORDER MAY SUBJECT YOU TO FURTHER ENFORCEMENT ACTION, INCLUDING BUT NOT LIMITED TO, ASSESSMENT OF CIVIL LIABILITY UNDER SECTIONS 13268 AND 13350 OF THE PORTER-COLOGNE WATER QUALITY CONTROL ACT AND REFERRAL TO THE DISTRICT ATTORNEY OR ATTORNEY GENERAL FOR INJUNCTIVE RELIEF AND CIVIL OR CRIMINAL LIABILITY.

for Roger W. Briggs, Executive Officer

4-17-00
Date:

ICB\USA\Sheila\Cambria\2914 Main\Chevron\CAO2000-028

RECORDING REQUESTED BY AND WHEN RECORDED MAIL TO:

Cambria Community Services District
Attn: General Manager
P.O. Box 65
Cambria, California 93428

Doc No: 2000-076811 Rpt No: 00099402

Official Records
San Luis Obispo Co.
Julie L. Rodewald
Recorder
Dec 27, 2000
Time: 09:26

[30]

NF -1 0.00

TOTAL 0.00

AGREEMENT FOR ALTERNATIVE POINT OF WATER DIVERSION AT COAST UNION HIGH SCHOOL

This Agreement (the "Agreement") is made and entered into in the County of San Luis Obispo, State of California, on December 14, 2000, by and between the CAMBRIA COMMUNITY SERVICES DISTRICT, a political corporation of the State of California, hereinafter referred to as "CCSD," and COAST UNIFIED SCHOOL DISTRICT, hereinafter referred to as "CUSD," collectively "the Parties."

RECITALS

This Agreement is entered into on the basis of the following facts, understandings, and intentions of the Parties:

A. Pursuant to the California State Water Resources Control Board's ("CSWRCB") Decision 1624, CCSD has been issued a permit to appropriate unappropriated water from the Santa Rosa Creek underflow, in a maximum amount not to exceed 518 acre-feet per calendar year;

B. Santa Rosa Creek wells SR1 (27S. 8E. 26D-1) and SR3 (27S. 8E. 26C-5) (collectively the "Santa Rosa Creek wells") provide critical domestic water sources for the community of Cambria, including for drinking, firefighting and drought purposes;

C. Ground water monitoring wells located approximately 200 feet from Santa Rosa Creek and approximately 400 feet from the existing Santa Rosa Creek wells have detected the presence of methyl tertiary-butyl ether (MTBE), a fuel additive and animal carcinogen with the potential to cause cancer in humans, tertiary-butyl alcohol (TBA), Benzene and other hydrocarbons (collectively "MTBE plume");

D. The Santa Rosa Creek wells cannot be used for drinking, firefighting or other purposes until the MTBE plume is remediated, because the pumping of said wells may draw the MTBE plume into those wells and detrimentally affect water quality;

E. The inability to use the Santa Rosa Creek wells for drinking, firefighting or other purposes constitutes an emergency situation and poses a threat to life, health, property and the provision of essential public services;

F. In response to the detection of the MTBE plume, the California Regional Water Quality Control Board ("CRWQCB") issued Cleanup or Abatement Order No. 00-28, requiring that an alternative water supply be identified and secured by September 1, 2000;

G. Because of CCSD's inability to use the Santa Rosa Creek wells, CCSD desires to establish, upgradient from the Santa Rosa Creek wells and the MTBE plume, an alternative location from which to appropriate water from the Santa Rosa Creek underflow ("Alternative Point of Diversion"), on the area adjacent to the athletic fields of Coast Union High School (the "Site"), owned by CUSD and located at 2950 Santa Rosa Creek Road, Cambria, California;

H. Through the Alternative Point of Diversion, CCSD seeks only to access and use the water which it is entitled to appropriate from the Santa Rosa Creek underflow pursuant to its permit from CSWRCB, and does not intend to appropriate any water additional to the amount which it is entitled to appropriate pursuant to such permit and subject to the terms and limitations of this Agreement;

I. CCSD has filed a Petition for Temporary Urgency Change in Point of Diversion with CSWRCB;

J. CCSD intends to establish the Alternative Point of Diversion by drilling a municipal water supply well on the Site designated as well SR4 ("Well SR4"), providing for the treatment of water pumped from such well, transporting such water into CCSD's water distribution system, and connecting CUSD's Leffingwell Continuation High School ("Leffingwell Campus"), located at 2820 Santa Rosa Creek Road, Cambria, California, to CCSD's sewer system;

K. As part of the Alternative Point of Diversion, the Leffingwell Campus' connection to CCSD's sewer system is required because the only available route for the pipelines transporting the treated water into CCSD's water distribution system is presently occupied by the leach field, and the necessity of abandoning the septic system and associated leach field in order to maintain the integrity of such water;

L. CCSD shall not interfere with or affect the abilities and/or rights of CUSD to extract water from any wells located on Coast Union High School or CUSD property; and

M. The establishment and use of the Alternative Point of Diversion is intended only as an interim measure until the MTBE plume is remediated.

NOW, THEREFORE, in consideration of the recitals set forth above and the covenants, conditions, promises and agreements contained herein, CCSD and CUSD mutually agree as follows:

TERMS AND CONDITIONS

1. Recitals. The recitals set forth above are true.

2. Scope of Agreement.
   (a) CUSD hereby agrees to allow CCSD to perform the acts necessary to establish the Alternative Point of Diversion on the Site, which acts are described generally as follows and more particularly described in the project description attached as EXHIBIT A and incorporated herein by reference ("Project Description"):
   (i) Drilling of Well SR4 and operation, prompt repair and maintenance of said well;

(ii) Construction of water treatment plant ("Treatment Plant") to treat water extracted from Well SR4 for iron and manganese and to disinfect the water to meet all other requirements of the Department of Health Services, and operation, prompt repair and maintenance of said Treatment Plant;

(iii) Installation, operation, prompt repair and maintenance of water pipelines connecting Well SR4 to the Treatment Plant;

(iv) Installation, operation, prompt repair and maintenance of water pipelines connecting the Treatment Plant to CCSD's water distribution system;

(v) Installation of sewer pipeline connecting the existing sewage disposal system of CUSD's Leffingwell Campus to CCSD's sewer system;

(vi) Resurfacing, use, prompt repair and maintenance of the existing roadway for access between the maintenance yard on the Site and the Treatment Plant, as set forth in Section IV of the Project Description;

(vii) Use of any existing roadways for access between Santa Rosa Creek Road and the maintenance yard on the Site, which roadways have been designated by CUSD for use by CCSD; and

(viii) Use, prompt repair and maintenance of a roadway for access between the Treatment Plant and Well SR4.

(b) CUSD hereby agrees to grant CCSD an easement to access and use the water from Well SR4 which CCSD is entitled to appropriate from the Santa Rosa Creek underflow pursuant to its permit from CSWRCB, and to grant all secondary easements necessary for the use and enjoyment of said easement, which easement and secondary easements are set forth in the easement agreement attached as EXHIBIT B and incorporated herein by reference ("Easement Agreement"). CCSD agrees that its access to the Site shall be limited to the easement and secondary easements as set forth in the Easement Agreement, except in emergency circumstances upon notification to and approval by CUSD, which approval shall not be unreasonably withheld.

(c) In connection with the acts performed by CCSD described in subdivision (a) above, CCSD hereby agrees to fulfill all additional requirements and conditions set forth in the Project Description.

3. Primary Water Supply Source; Joint Use of Wells: Limitation on Easement

(a) Coast Union High School's ("CUHS") irrigation well, located on the Site and designated as well 23R-2 (27S. 8E. 23R-2; "Well 23R-2"), is CUHS's primary water supply source, *i.e.*, the source from which CUHS will always initially extract water for its irrigation needs. Likewise, Well SR4, which is being constructed pursuant to this Agreement, is CCSD's primary Santa Rosa Creek water supply source, *i.e.*, the source from which CCSD will always initially extract water for its Santa Rosa Creek water supply needs.

(b) CUSD and CCSD hereby agree that in the case of a short-term area wide emergency situation (i.e., natural disaster, wildfire) or if either CUHS or CCSD's well and/or related equipment function improperly so that water cannot be extracted from such well, the affected entity shall contact and consult the other entity for permission to extract water from that entity's primary water supply source subject to the limitations set forth in Paragraph 4 below.

(c) At no additional cost to CUSD, CCSD shall install valves and piping to allow CUSD and CCSD to extract water from Well SR4 and Well 23R-2.

4. Limitation on Extraction of Water. CCSD's use of water from Well SR4 and from Well 23R-2 is subject to the following limitations:

(a) CCSD shall install and maintain a meter on Well SR4 to measure the amount of water taken from Well SR4. CUSD shall have access to Well SR4 for the purposes of inspecting the meter on that well.
(b) CCSD shall monitor the level of water in Well SR4 and Well 23R-2 on a semi-monthly basis, maintain records of that monitoring and provide CUSD with copies of such monitoring records.
(c) Should the level of water in Well 23R-2 measure 10 feet above sea level or less, CCSD will notify CUSD immediately and initiate communications with CUSD to discuss limiting or ceasing CCSD's pumping from Well SR4 or, if applicable, Well 23R-2. In addition, CCSD will begin daily monitoring of the water levels of both Well SR4 and Well 23R-2 and provide CUSD with copies of the monitoring records.
(d) Should the level in Well 23R-2 measure sea level (0 feet) after being shut down for a period of two (2) hours, or should air be pumped from Well 23R-2, CCSD will cease pumping from Well SR4 immediately. Should the water level in Well 23R-2 return to 10 feet above sea level, CCSD may resume operation of Well SR4 under the limitations stated in subsections (c) and (d) of this Paragraph.

5. Soil and Water Conditions.
(a) To the actual knowledge of CUSD, CUSD has not received notice or other communication concerning any alleged violation of any federal, state or local laws in connection with the quality or condition of the soil or water on the Site, nor notice or other communication concerning any alleged liability in connection with the quality or condition of the soil or water on the Site, including threatened or pending writs, injunctions, decrees, orders, judgments, lawsuits, claims, proceedings, citations, directives, summons or investigations.
(b) CUSD has not represented or guaranteed the current quality or condition of the soil or water on the Site. CCSD accepts the site as it currently exists. In addition, CUSD has not guaranteed that a certain quality level of water or soil will be maintained in the future. CUSD advises CCSD to conduct its own investigation of the conditions. CUSD will make the site available for CCSD to conduct its own investigation of the conditions, should it choose to do so.

6. Exemption from CEQA. CCSD represents that the work to be performed pursuant to this Agreement is exempt from the requirements of the California Environmental Quality Act ("CEQA") pursuant to Public Resources Code Section 21080(b)(4) and CEQA Guidelines Section 15269(c) because the work is necessary to prevent an emergency. An emergency situation currently exists as set forth above in the Recitals of this Agreement.

7. Term of Agreement; Option to Renew; Responsibilities upon Expiration of Agreement. This Agreement shall be effective from the date of execution of this Agreement until the date that the MTBE plume is remediated, as evidenced by issuance of a No Further Action letter by CRWQCB regarding remediation of groundwater contamination, or June 30, 2010, whichever occurs first. After the MTBE plume is remediated, or June 30, 2010, whichever occurs first, the Parties shall have the option to renew the easement and secondary easements granted to CCSD by CUSD pursuant to this Agreement. The terms and conditions of such renewal shall be governed by a separate and independent agreement to be negotiated and executed by the Parties prior to the expiration of this Agreement. If the Parties do not enter into any such subsequent agreement, CCSD shall cease use of Well SR4 and all associated water pipelines and, at its sole expense, shall remove the Treatment Plant and restore the surface area to its condition prior to the execution of this Agreement. If the parties do not enter into any such subsequent agreement, CUSD may use Well SR4 and all associated water pipelines in any manner CUSD considers appropriate.

8. Compensation. CCSD hereby agrees to compensate CUSD as follows:
   (a) Within thirty (30) days after execution of this Agreement, CCSD shall pay CUSD the sum of Thirty-Two Thousand Dollars ($32,000.00) for the first fiscal year (July 1, 2000 through June 30, 2001) of this Agreement, which includes the easement for access and use of water from Well SR4 and the secondary easements for construction of the improvements set forth in Paragraph 2(a) of this Agreement and for access to the Site for operation, maintenance and repair of such improvements.
   (b) For years two through ten after the execution of this Agreement or until the MTBE plume is remediated, CCSD shall pay CUSD the sum of Twenty Six Thousand Dollars ($26,000.00) per fiscal year, which includes the easement for access and use of water from Well SR4 and the secondary easements for access to the Site for operation, maintenance and repair of the improvements. CCSD shall deliver payment to CUSD no later than July 15 of each year. If the plume is remediated after July 1 of any year, the compensation paid for that fiscal year shall be prorated on a monthly basis.
   (c) If the MTBE plume has not been remediated after year ten after the execution of this Agreement, the Parties, in good faith, shall renegotiate the annual compensation to be paid thereafter for each fiscal year until the MTBE plume is remediated.

9. Default/Dispute Resolution. In the event of default by either party to this Agreement in the performance of any of the terms, covenants and conditions herein, the nondefaulting party shall give written notice to the defaulting party of such default. In the event that the defaulting party does not commence or complete the actions necessary to cure such default within thirty (30) days after such notice is postmarked or personally served on the defaulting party, the Parties shall meet together, face to face, to discuss any issues regarding the default. If, in the opinion of the non-defaulting party, the default is not cured within sixty (60) days after written notice of such default is postmarked or personally served on the defaulting party, the Parties shall submit the dispute to a mediator. The Parties shall select a mediator from the list of certified civil mediators who are located in San Luis Obispo County. If the Parties cannot agree on a mediator, mediation shall be waived. After selection of the mediator, a mediation conference shall be scheduled as soon thereafter as possible and both parties shall fully and completely present their positions at mediation and shall mediate in good faith. All of the rules applicable to court ordered mediation shall apply to the mediation.

10. Construction Contracts.
   (a) CCSD shall provide all construction contracts for the improvements made pursuant to this Agreement to CUSD for review and comment prior to the execution of such contracts.
   (b) CCSD shall require all contractors to whom construction contracts are awarded by CCSD ("Construction Contractors") to carry general liability insurance and worker's compensation insurance.
   (c) CCSD shall require all Construction Contractors to comply with all applicable laws and regulations in constructing the improvements pursuant to this Agreement, including notification of all digging and trenching on the Site.

11. Maintenance and Repairs. After completion of construction of all of the improvements pursuant to this Agreement, CCSD hereby agrees to maintain such improvements in good condition and to repair such improvements as necessary, including emergency repairs of equipment.

12. Indemnification. CCSD hereby agrees to indemnify, defend, assume all liability for and hold harmless CUSD and its officers, employees, agents and representatives from all actions, claims, penalties, obligations, liabilities, damages, judgments, personal injuries, costs or expenses, in any manner arising out of this Agreement or the performance or

attempted performance of the provisions hereof, including but not limited to any act or omission on the part of CCSD or its officers, employees, agents or representatives, except to the extent attributable to the negligence or willful misconduct of CUSD or its officers, employees, agents or representatives.

13. Nonassignability. The Parties shall not permit any right or privilege granted under this Agreement to be exercised by another, nor shall this Agreement or any right or privilege granted thereunder be in whole or in part sold, transferred, leased, assigned, disposed of or alienated. Any purported assignment of this Agreement or any interest in this Agreement shall be void and of no effect.

14. Inspection. CUSD and its representatives, employees, agents or independent contractors may enter and inspect the Site or any portion thereof or any improvements constructed, maintained, or operated pursuant to this Agreement at any time to verify CCSD's compliance with the terms and conditions of this Agreement.

15. Integration. This Agreement, including Exhibit A (Project Description) and Exhibit B (Easement Agreement), constitutes a single, integrated written contract expressing the entire agreement of the Parties relative to the subject matter hereof and all prior and contemporaneous discussions and negotiations have been and are merged and integrated into, and are superseded by, this Agreement. Thus, no covenants, agreements, representations, or warranties of any kind whatsoever, whether express or implied in law or fact, have been made by any party hereto, except as specifically set forth in this Agreement.

16. Miscellaneous Terms. The Parties hereto represent, warrant and agree as follows:
    (a) Each party has read the Agreement carefully, knows and understands the contents thereof, and has made such investigation of the facts pertaining to this Agreement and of all matters pertaining hereto as it deems necessary or desirable.
    (b) The terms of this Agreement are contractual, not a mere recital, and are the result of negotiations between the parties.
    (c) Each party agrees that such party will not take any action which would interfere with the performance of this Agreement by the other party hereto or which would adversely affect the rights provided for herein.
    (d) Whenever the context so requires, the singular number shall include the plural number, and vice versa.
    (e) Captions and paragraphs headings used herein are for convenience only. They are not a part of this Agreement and shall not be used in construing this Agreement.

17. Modifications. No modification, amendment or waiver of any of the provisions contained in this Agreement, or any future representation, promise or condition in connection with the subject matter of this Agreement, shall be binding upon any party hereto unless made in writing and signed by such party.

18. Execution in Counterparts. This Agreement may be executed and delivered in any number of counterparts or copies ("counterpart") by the parties hereto. When each party has signed and delivered at least one counterpart to the other party hereto, each counterpart shall be deemed an original and, taken together, shall constitute one and the same Agreement, which shall be binding and effective as to the parties hereto.

19. Authority to Execute. Each party executing this Agreement further represents and warrants that the execution of this Agreement has been duly authorized by its board or governing body and that each has the full right and authority to enter into and perform this Agreement on behalf of the party for whom each has signed and the full right and

authority to bind fully said party to the terms and obligations (including, without limitation, the representations and warranties set forth herein) of this Agreement.

20. Governing Law. This Agreement shall be construed and enforced in accordance with the laws of the State of California where it is deemed to have been executed and delivered.

IN WITNESS WHEREOF, CAMBRIA COMMUNITY SERVICES DISTRICT and COAST UNIFIED SCHOOL DISTRICT have executed this Agreement on the day and year hereinabove set forth.

CAMBRIA COMMUNITY SERVICES DISTRICT

By Kenneth C. Topping
Kenneth C. Topping, General Manager

COAST UNIFIED SCHOOL DISTRICT

By Pamela A. Martens
Pamela A. Martens, Superintendent

APPROVED AS TO FORM:

CAMBRIA COMMUNITY SERVICES DISTRICT

By Margaret Moore Sohagi
Margaret Moore Sohagi, District Counsel

LOZANO SMITH

By______________________________
Christine A. Goodrich, Attorneys for
COAST UNIFIED SCHOOL DISTRICT

EXHIBIT A
PROJECT DESCRIPTION

I. Drill, develop, test, equip, operate and maintain one municipal water supply well:

A. Specifications of above-ground well appurtenances to be subject to approval by CCSD and CUSD. All above-ground appurtenances will be contained within a secure enclosure.

II. Construct, test, operate and maintain one water treatment plant including two water tanks, one pressure filter vessel, appurtenant pumps, valves, piping and controls, one masonry building containing plant control devices and chemical storage and feed systems, and a chain link perimeter fence with gates:

A. Tanks and filter vessel will not exceed thirteen feet above grade at any point.

B. The building shall not exceed fifteen feet above grade at any point.

C. The perimeter fence shall be eight feet high.

D. Building roofing materials and exterior wall and trim paint shall be as specified by CUSD.

E. Screen planting outside the perimeter fence shall be provided:

1. Planter area shall be 12"–18" wide contained by a 2" x 4" redwood header and covered with 2" of bark.
2. A drip irrigation system shall be installed with the irrigation system controller located at the treatment plant.
3. Plant materials and soil amendments shall be as specified by CUSD.
4. Maintenance of the planted area shall be the responsibility of CCSD.

F. The existing school irrigation well site fencing is to be removed and the electrical control panel relocated to the wall of the new building. The new perimeter fence will enclose and secure by locking the treatment plant and irrigation well. A chain link construction security fence will be installed prior to removal of the existing school irrigation well site fencing, and will be removed only after installation of the new perimeter fence, to insure continuous fencing of the area. CCSD will provide CUSD with the keys/code to allow CUSD access to the treatment plant and irrigation well.

G. Piping and valves allowing for use by CUSD and CCSD of CUSD and CCSD's wells will be constructed by CCSD at its cost.

H. All parts of the existing turf irrigation system conflicting with the new treatment plant, well, or access road shall be relocated by CCSD.

I. CCSD will perform all regulatory responsibilities pertaining to the storage of hazardous materials, including, but not limited to, compliance with California Health and Safety Code Section 25503.5 regarding implementation of a business plan for emergency response to a release of hazardous materials. CCSD will limit the chemicals on the site to those permitted by its business plan.

III. Construct, test, operate and maintain underground pipelines between the well and treatment plant and between the treatment plant and Santa Rosa Creek Road:

A. All pipelines shall be at least 24 inches below grade.

B. Trench backfill in turf areas shall be sand compacted to 90% up to 12" below finish grade and native soil compacted to 90% in the top 12". Trench backfill in road or hard surfaced areas shall be sand compacted to 90% up to 18" below subgrade and to 95% up to subgrade.

C. Restoration of all disturbed surfaces shall be as specified by CUSD.

1. Restoration of turf areas shall be sod of the type specified by CUSD with soil amendments as specified by CUSD. Restoration of all other areas shall be of the same type as disturbed with approval of CUSD.

D. CCSD will contact CUSD to schedule the connection of the pipeline between the treatment plant and Santa Rosa Creek Road at such a time as not to disrupt the continuous water operation to the Coast Union High School and/or Leffingwell campuses.

IV. Resurface and maintain the existing roadway for operation, repair and maintenance access from the Coast Union High School maintenance yard to the treatment plant:

A. The roadway shall be 12 feet wide, surfaced with aggregate base.

1. Subgrade shall be scarified to a depth of at least 6 inches and recompacted to 95%.
2. Surfacing shall be 6 inches of compacted Class 2 Aggregate Base.
3. Surfacing shall be contained on both sides with a 2" x 6" redwood header.
4. Maintenance and repair of the roadway shall be the responsibility of CCSD.

V. Use of any existing roadways from Santa Rosa Creek Road to and through the Coast Union High School maintenance yard for operation, repair and maintenance access. CCSD shall use only those roadways which have been designated by CUSD for use by CCSD.

VI. Construct a sewer lateral to connect the existing Leffingwell campus sewage disposal system to a new public sewer to be constructed on Santa Rosa Creek Road.

A. Trench backfill and restoration of disturbed surfaces shall be as specified under Item III above.

B. Maintenance and repair of the sewer lateral on CUSD property shall be the responsibility of CUSD.

C. Proper abandonment of the existing septic tank and leach field shall be the responsibility of CCSD.

VII. Use, repair and maintain a roadway for operation, repair and maintenance access from the treatment plant to the well.

A. Maintenance and repair of the roadway shall be the responsibility of CCSD.

EXHIBIT B

EASEMENT AGREEMENT

This Easement Agreement (the "Easement Agreement") is made and entered into in the County of San Luis Obispo, State of California, on December 14, 2000, by and between COAST UNIFIED SCHOOL DISTRICT, hereinafter referred to as "GRANTOR" or "CUSD," and CAMBRIA COMMUNITY SERVICES DISTRICT, a political corporation of the State of California, hereinafter referred to as "GRANTEE " or "CCSD," collectively "the Parties."

RECITALS

A. GRANTOR is the owner of certain real property situated in the Community of Cambria, County of San Luis Obispo, California (hereinafter referred to as the "Servient Tenement"), and more particularly described in Attachment 1, which is attached to this Easement Agreement and hereby incorporated by reference.

B. GRANTEE desires to acquire certain rights in the Servient Tenement.

NOW, THEREFORE, in consideration of the recitals set forth above and the covenants, conditions, promises and agreements contained herein, the parties mutually agree as follows:

1. Character of Easement. The easement granted in this Easement Agreement is in gross.

2. Description of Easement. The easement granted in this Easement Agreement is an easement allowing CCSD to access and use the 518 acre-feet of unappropriated water per calendar year which it is entitled to appropriate from the Santa Rosa Creek underflow pursuant to its permit (Decision No. 1624) from the California State Water Resources Control Board ("CSWRCB"), the grant of CCSD's Petition for Temporary Urgency Change in Point of Diversion by CSWRCB, and subject to the limitations of the "Agreement for Alternative Point of Water Diversion at Coast Union High School" (the "Agreement") through the municipal water supply well designated as well SR4 ("Well SR4") and constructed pursuant to the Agreement, to which this Easement Agreement is attached as Exhibit B. Well SR4 is located on a portion of the Servient Tenement described in Attachment 2a and depicted in Attachment 2b, which are attached to this Easement Agreement and hereby incorporated by reference. This easement for access and use of water from Well SR4 is subject to the following limitations:
   (a) CCSD shall install and maintain a meter on Well SR4 to measure the amount of water taken from Well SR4. CUSD shall have access to Well SR4 for the purposes of inspecting the meter on that well.
   (b) CCSD shall monitor the level of water in Well SR4 and Coast Union High School's ("CUHS") irrigation well located on the Servient Tenement and designated as well 23R-2 (27S. 8E. 23R-2; "Well 23R-2") on a semi-monthly basis, maintain records of that monitoring and provide CUSD with copies of such monitoring records.
   (c) Should the level of water in Well 23R-2 measure 10 feet above sea level or less, CCSD will notify CUSD immediately and initiate communications with CUSD to discuss limiting or ceasing pumping from Well SR4 or, if applicable, Well 23R-2. In addition, CCSD will begin daily monitoring of the water levels of both Well SR4 and Well 23R-2 and provide CUSD with copies of the monitoring records.
   (d) Should the level in Well 23R-2 measure sea level (0 feet) after being shut down for a period of two (2) hours, or should air be pumped from Well 23R-2, CCSD will cease pumping from Well SR4 immediately. Should the water level in Well 23R-2 return to

10 feet above sea level, CCSD may resume operation of Well SR4 under the limitations stated in subsections (c) and (d) of this Paragraph.

3. Secondary Easements. The easement granted in this Easement Agreement also includes the incidental rights to use the Servient Tenement which are necessary for the use and enjoyment of the easement, provided that GRANTEE exercises such rights at GRANTEE's own cost and expense, and only in connection with the easement and only for as long as is necessary for the use and enjoyment of the easement. In exercising these rights, GRANTEE must use reasonable care and may not unreasonably increase the burden on the Servient Tenement. The incidental rights included as part of the easement granted in this Easement Agreement are as follows:
   (a) Drilling of Well SR4 and operation, repair and maintenance of said well, located on a portion of the Servient Tenement described in Attachment 2a and depicted in Attachment 2b.
   (b) Construction of water treatment plant ("Treatment Plant") to treat water extracted from Well SR4 for iron and manganese and to meet all other requirements of the Department of Health Services, and operation, repair and maintenance of said Treatment Plant, located on a portion of the Servient Tenement described in Attachment 3a and depicted in Attachment 3b, which are attached to this Easement Agreement and hereby incorporated by reference.
   (c) Installation of underground water pipelines and electrical conduits and wires between Well SR4 and the Treatment Plant, and operation, repair and maintenance of said pipelines, located on a portion of the Servient Tenement described in Attachment 4a and depicted in Attachment 4b, which are attached to this Easement Agreement and hereby incorporated by reference.
   (d) Installation of underground water pipelines between the Treatment Plant and GRANTEE's water main located along Santa Rosa Creek Road, and operation, repair and maintenance of said pipelines, located on a portion of the Servient Tenement described in Attachment 5a and depicted in Attachment 5b, which are attached to this Easement Agreement and hereby incorporated by reference.
   (e) Installation of underground sewer pipeline connecting the existing sewage disposal system of Leffingwell Continuation High School, located at 2820 Santa Rosa Creek Road, to GRANTEE's sewer main located along Santa Rosa Creek Road, located on a portion of the Servient Tenement described in Attachment 6a and depicted in Attachment 6b, which are attached to this Easement Agreement and hereby incorporated by reference.
   (f) Resurfacing of the existing roadway for access between Coast Union High School's maintenance yard and the Treatment Plant, and use, repair and maintenance of said roadway, as set forth in Exhibit A, Section IV of the Agreement, and located on a portion of the Servient Tenement described in Attachment 7a and depicted in Attachment 7b, which are attached to this Easement Agreement and hereby incorporated by reference.
   (g) Use of any existing roadways for access between Santa Rosa Creek Road and Coast Union High School's maintenance yard, which roadways have been designated by GRANTOR for use by GRANTEE, and located on the Servient Tenement.
   (h) Use, repair and maintenance of a roadway for access between the Treatment Plant and Well SR4, located on a portion of the Servient Tenement described in Attachment 8a and depicted in Attachment 8b, which are attached to this Easement Agreement and hereby incorporated by reference.

4. Access to Servient Tenement. GRANTEE agrees that its access to the Servient Tenement shall be limited to the location of the easement and secondary easements as provided in Paragraphs 2 and 3 of this Easement Agreement, except in emergency circumstances upon

notification to and approval by GRANTOR, whose approval shall not be unreasonably withheld.

5. Term of Easement. The easement granted in this Easement Agreement shall terminate on the date that the MTBE plume is remediated, as evidenced by issuance of a No Further Action letter by the California Regional Water Quality Control Board regarding remediation of groundwater contamination, or June 30, 2010, whichever occurs first. After the MTBE plume is remediated or June 30, 2010, whichever occurs first, GRANTOR and GRANTEE shall have the option to negotiate a renewal of the easement and secondary easements granted by GRANTOR pursuant to this Easement Agreement. The terms and conditions of such renewal shall be governed by a separate and independent agreement to be negotiated and executed by GRANTOR and GRANTEE prior to the expiration of this Agreement. If GRANTOR and GRANTEE do not enter into any such subsequent agreement, GRANTEE shall cease use of Well SR4 and all associated water pipelines and, at its sole expense, shall remove the Treatment Plant and restore the surface area to its condition prior to the execution of the Agreement. If GRANTOR and GRANTEE do not enter into any such subsequent agreement, GRANTOR may use Well SR4 and all associated water pipelines in any manner GRANTOR considers appropriate.

6. Exclusive Easement. GRANTEE's use of the easement for access and use of the water granted in this Easement Agreement shall be exclusive, except as otherwise set forth herein. GRANTOR shall not grant or assign to others any right to access and use water through Well SR4 during the term of the Agreement. GRANTOR retains the right to use the Servient Tenement in any manner that is consistent with GRANTEE's use and enjoyment of the easement and as otherwise set forth herein.

7. Nonassignability. This Easement Agreement shall not be assigned. Any purported assignment of this Easement Agreement or of any interest in this Easement Agreement shall be void and of no effect.

8. Binding Effect. This Easement Agreement shall be binding upon and inure to the benefit of GRANTOR and GRANTEE and their respective heirs, legal representatives and successors.

IN WITNESS WHEREOF, CAMBRIA COMMUNITY SERVICES DISTRICT and COAST UNIFIED SCHOOL DISTRICT have executed this Easement Agreement on the day and year hereinabove set forth.

CAMBRIA COMMUNITY SERVICES DISTRICT

By Kenneth C Topping
Kenneth C. Topping, General Manager

COAST UNIFIED SCHOOL DISTRICT

By Pamela A. Martens
Pamela A. Martens, Superintendent

APPROVED AS TO FORM:

CAMBRIA COMMUNITY SERVICES DISTRICT

By Margaret M Sohagi
Margaret Moore Sohagi, District Counsel

LOZANO SMITH

By______________________________
Christine A. Goodrich, Attorneys for
COAST UNIFIED SCHOOL DISTRICT

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CERTIFICATE OF ACCEPTANCE
(Government Code § 27281)

This is to certify that the easements conveyed by the Agreement for Alternative Point of Water Diversion at Coast Union High School dated December 14, 2000, from the Coast Unified School District to the Cambria Community Services District ("the District"), a special district, is hereby accepted by the action of the District Board on November 16, 2000, and the grantee consents to recordation thereof.

Dated: 12-14-00

By Kenneth C. Topping
Kenneth C. Topping
General Manager
Cambria Community Services District

ATTACHMENT 2a

LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

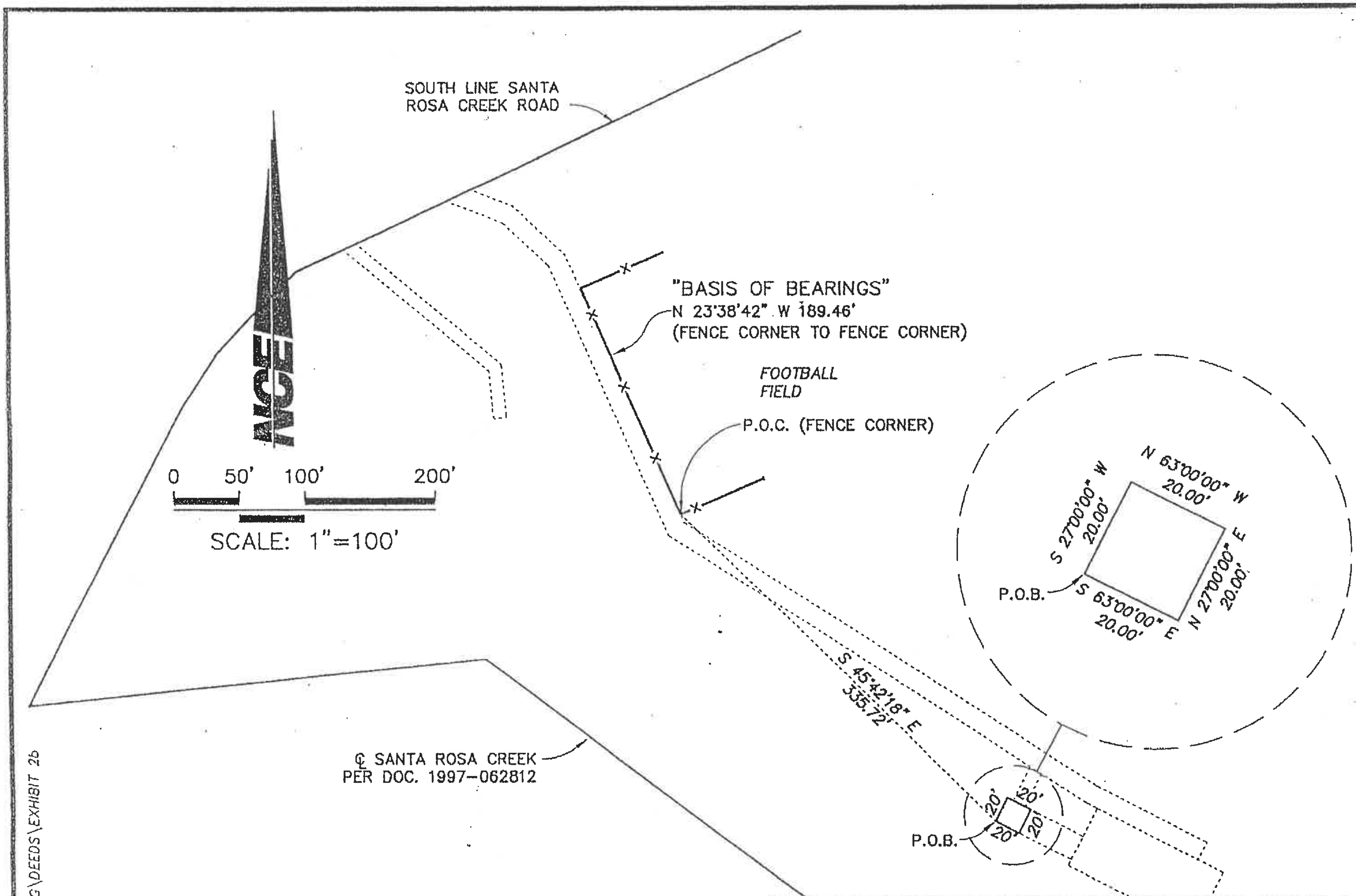
COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 45°42'18" EAST, 335.72 FEET **TO THE POINT OF BEGINNING;** THENCE SOUTH 63°00'00" EAST, 20.00 FEET; THENCE NORTH 27°00'00" EAST, 20.00 FEET; THENCE NORTH 63°00'00" WEST, 20.00 FEET; THENCE SOUTH 27°00'00" WEST, 20.00 FEET **TO THE POINT OF BEGINNING.**

SEE ATTACHMENT 2b ATTACHED HERETO AND MADE A PART HEREOF.

12-5-00

JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA



ATTACHMENT 2b

NCE NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

ATTACHMENT 3a
LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 54°44'23" EAST, 389.20 FEET **TO THE POINT OF BEGINNING;** THENCE SOUTH 63°00'00" EAST, 108.05 FEET; THENCE SOUTH 27°00'00" WEST, 48.96 FEET; THENCE NORTH 63°00'00" WEST, 108.05 FEET; THENCE NORTH 27°00'00" EAST; 48.96 FEET **TO THE POINT OF BEGINNING.**

SEE ATTACHMENT 3b ATTACHED HERETO AND MADE A PART HEREOF.

John R. Sanders 12.5.00

JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA

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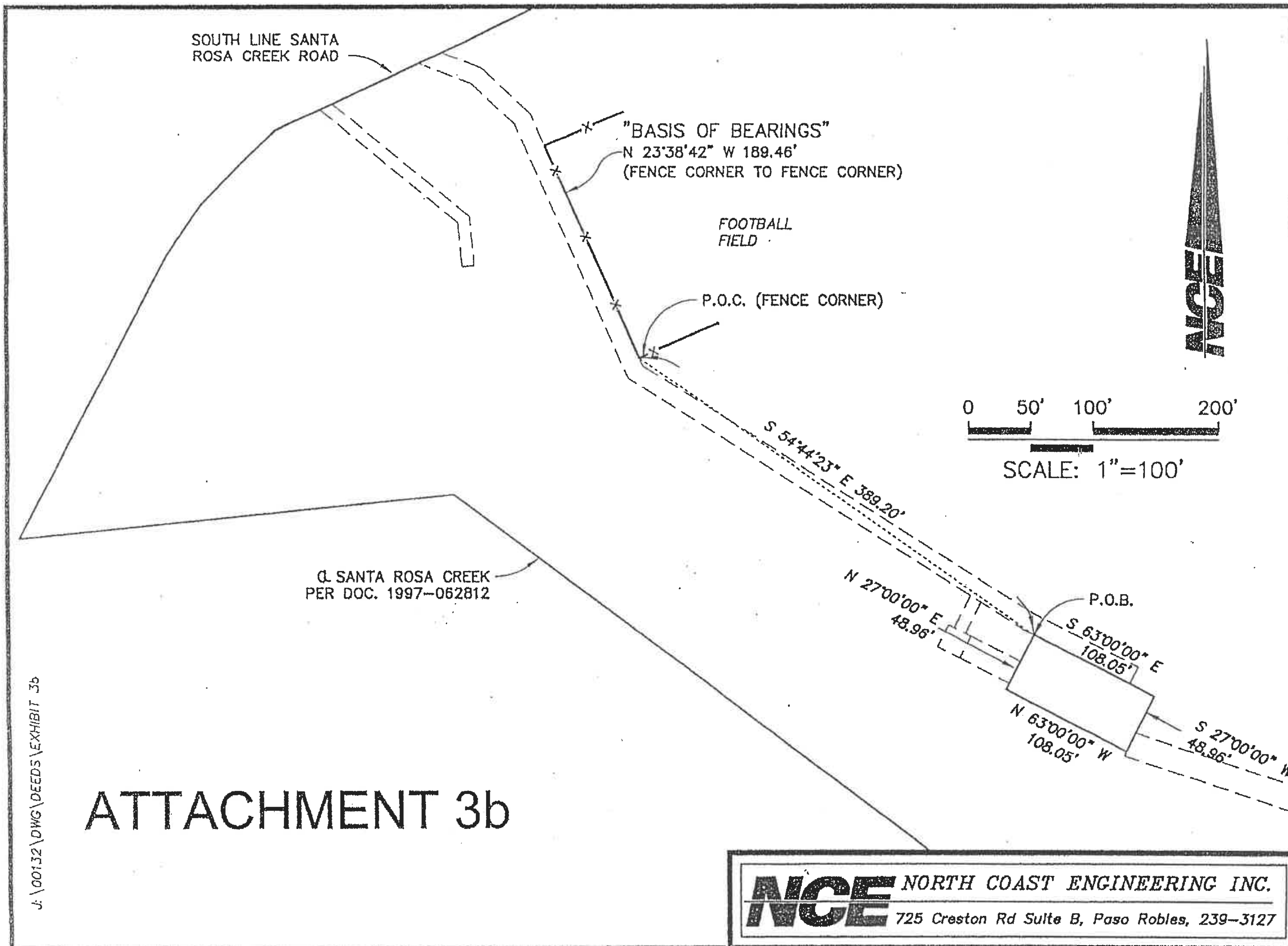
November 16, 2000



ATTACHMENT 3b

NCE NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

ATTACHMENT 4a

LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 49°13'32" EAST, 335.18 FEET **TO THE POINT OF BEGINNING;** THENCE SOUTH 63°00'00" EAST, 10.00 FEET; THENCE NORTH 27°00'00" EAST, 27.88 FEET; THENCE NORTH 57°23'42" WEST; 10.05 FEET; THENCE SOUTH 27°00'00" WEST, 28.86 FEET **TO THE POINT OF BEGINNING.**

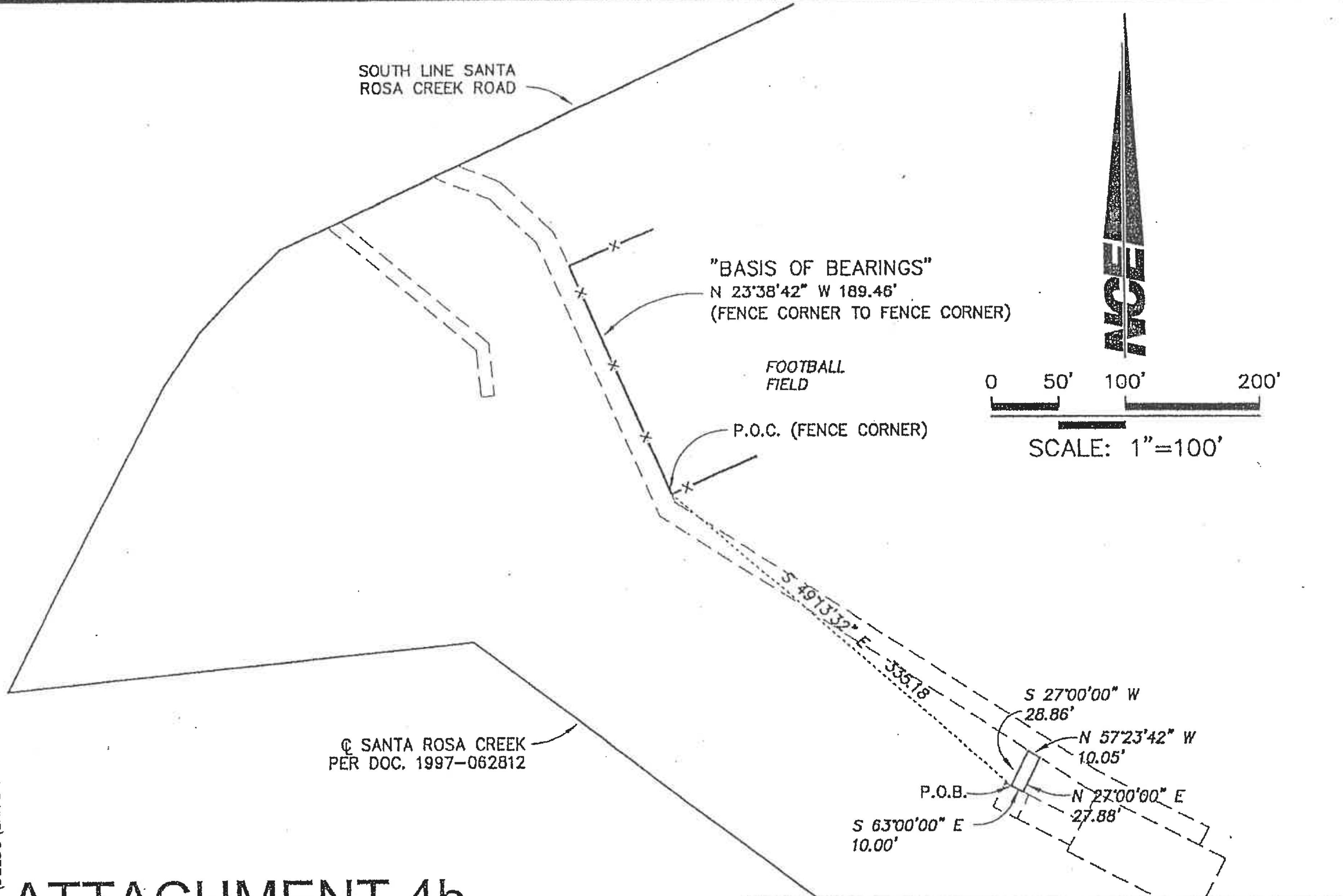
SEE ATTACHMENT 4b ATTACHED HERETO AND MADE A PART HEREOF.

12-5-00

JOHN R. SANDERS DATE

L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA



ATTACHMENT 4b

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NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

ATTACHMENT 5a
LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

AN EASEMENT 15 FEET IN WIDTH, LYING NORTHEASTERLY OF THE FOLLOWING DESCRIBED LINE:

COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 56°14'02" EAST, 474.64 FEET TO **THE POINT OF BEGINNING**; THENCE NORTH 63°00'00" WEST, 95.13 FEET; THENCE NORTH 57°23'42" WEST, 378.57 FEET; THENCE, NORTH 23°38'42" WEST, 226.86 FEET; THENCE NORTH 46°08'42" WEST, 49.04 FEET; THENCE NORTH 68°38'42" WEST, 46.19 FEET MORE OR LESS TO A POINT ON THE SOUTHERLY LINE OF SANTA ROSA CREEK ROAD AND THE TERMINUS OF THIS DESCRIPTION.

SEE ATTACHMENT 5b ATTACHED HERETO AND MADE A PART HEREOF.

John R. Sanders 12-5-00

JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA

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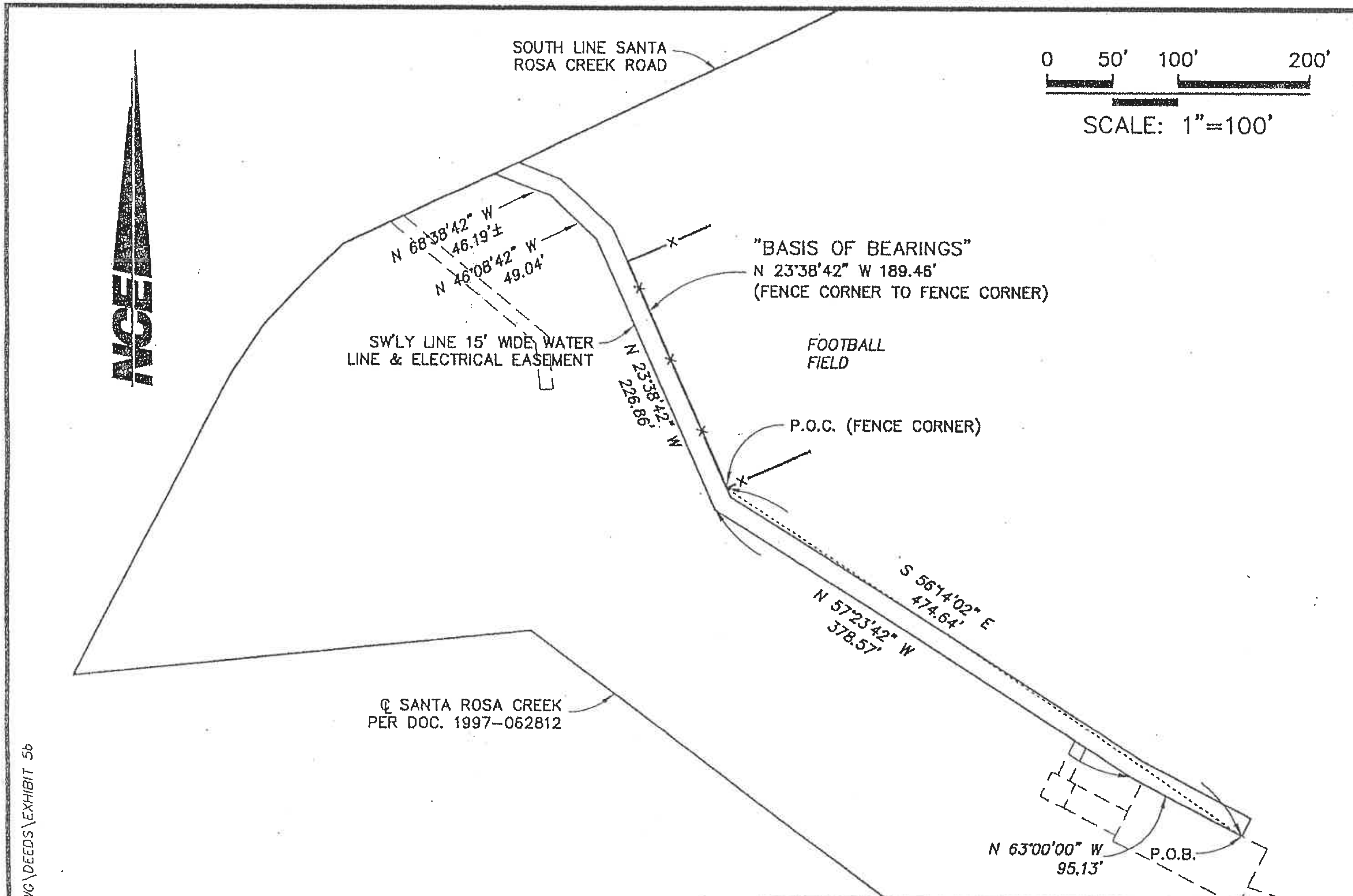
November 16, 2000



ATTACHMENT 5b

NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

ATTACHMENT 6a

LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

AN EASEMENT 10 FEET IN WIDTH, LYING 5 FEET ON EITHER SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE NORTH 61°35'39" WEST, 157.15 FEET TO **THE POINT OF BEGINNING**; THENCE NORTH 5°19'15" WEST, 38.26 FEET; THENCE NORTH 50°01'22" WEST, 145.64 FEET MORE OR LESS TO A POINT ON THE SOUTHERLY LINE OF SANTA ROSA CREEK ROAD AND THE TERMINUS OF THIS DESCRIPTION.

SEE ATTACHMENT 6b ATTACHED HERETO AND MADE A PART HEREOF.

12-5-00

JOHN R. SANDERS DATE

L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR

JOHN R. SANDERS

EXP. 6-30-04

No. 5812

STATE OF CALIFORNIA

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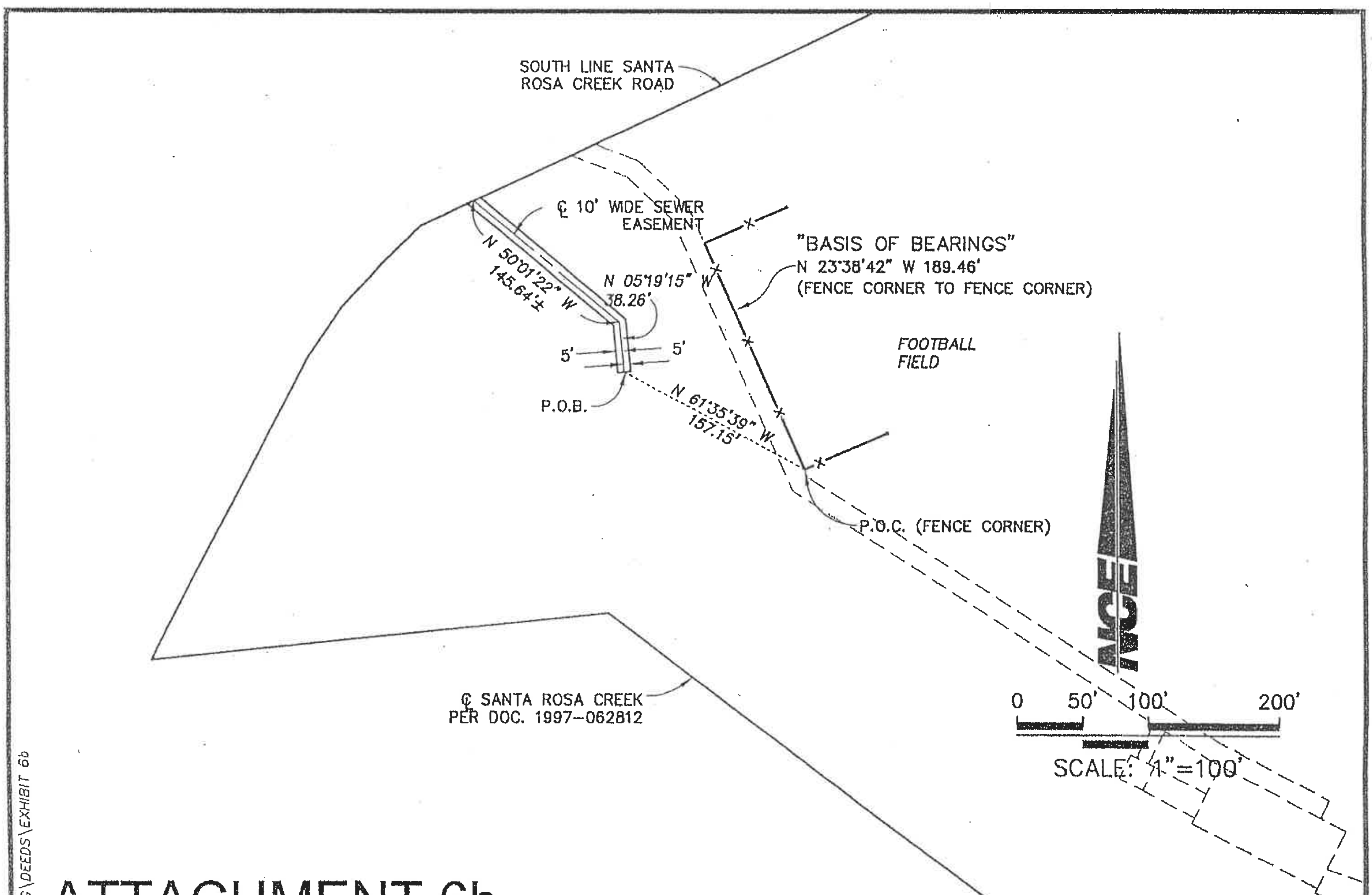
November 16, 2000



ATTACHMENT 6b

NCE NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

ATTACHMENT 7a
LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

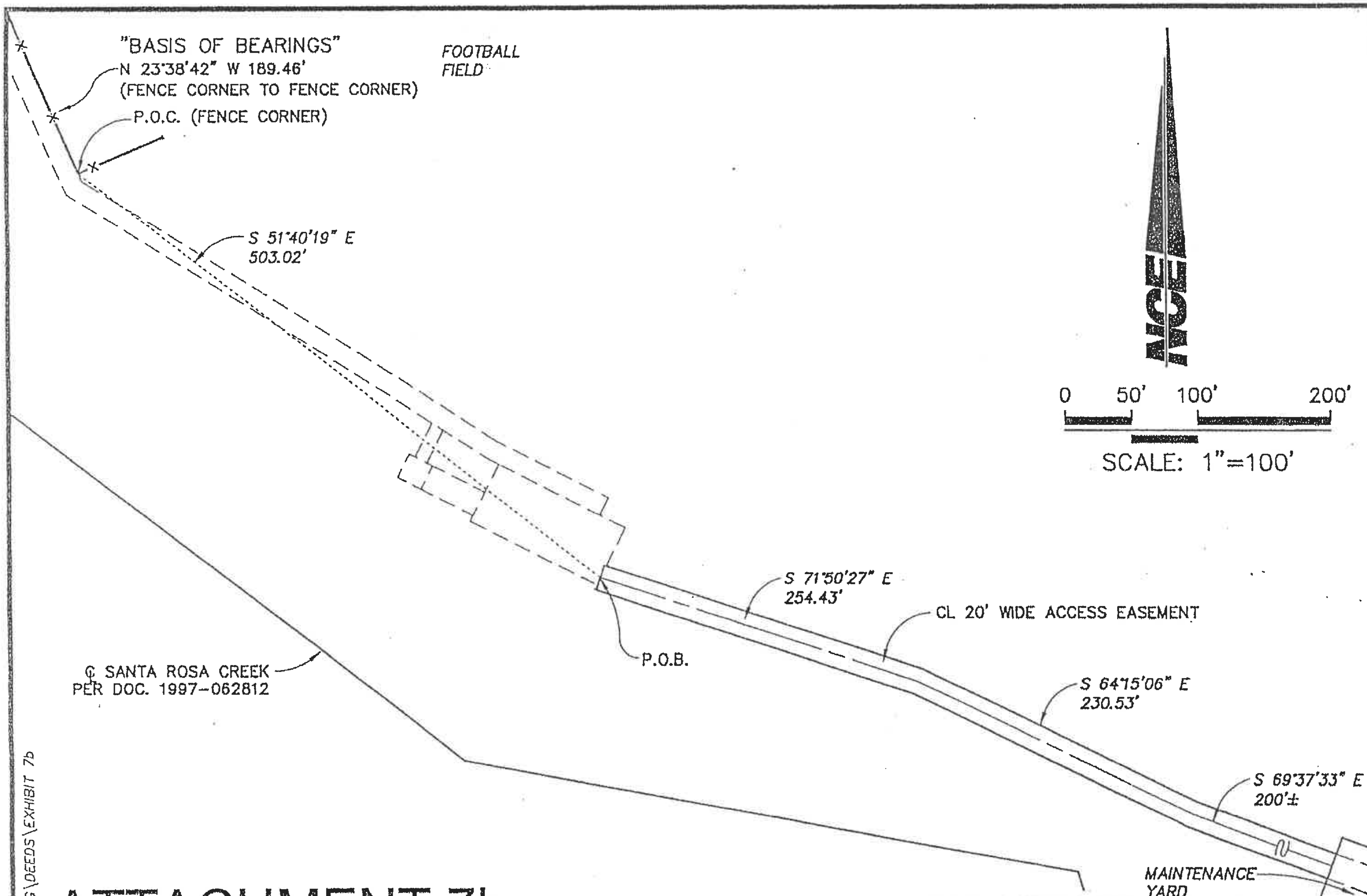
AN EASEMENT 20 FEET IN WIDTH, LYING 10 FEET ON EITHER SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 51°40'19" EAST, 503.02 FEET TO **THE POINT OF BEGINNING**; THENCE ALONG THE EXISTING GRAVEL ROAD SOUTH 71°50'27" EAST, 254.43 FEET; THENCE SOUTH 64°15'06" EAST, 230.53 FEET; THENCE SOUTH 69°37'33" EAST, 200 FEET, MORE OR LESS TO THE EXISTING MAINTENANCE YARD AND THE TERMINUS OF THIS DESCRIPTION.

SEE ATTACHMENT 7b ATTACHED HERETO AND MADE A PART HEREOF.

John R. Sanders 12-5-00
JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA



ATTACHMENT 7b

NCE NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

J:\00132\DWG\DEEDS\EXHIBIT 7b

ATTACHMENT 8a
LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

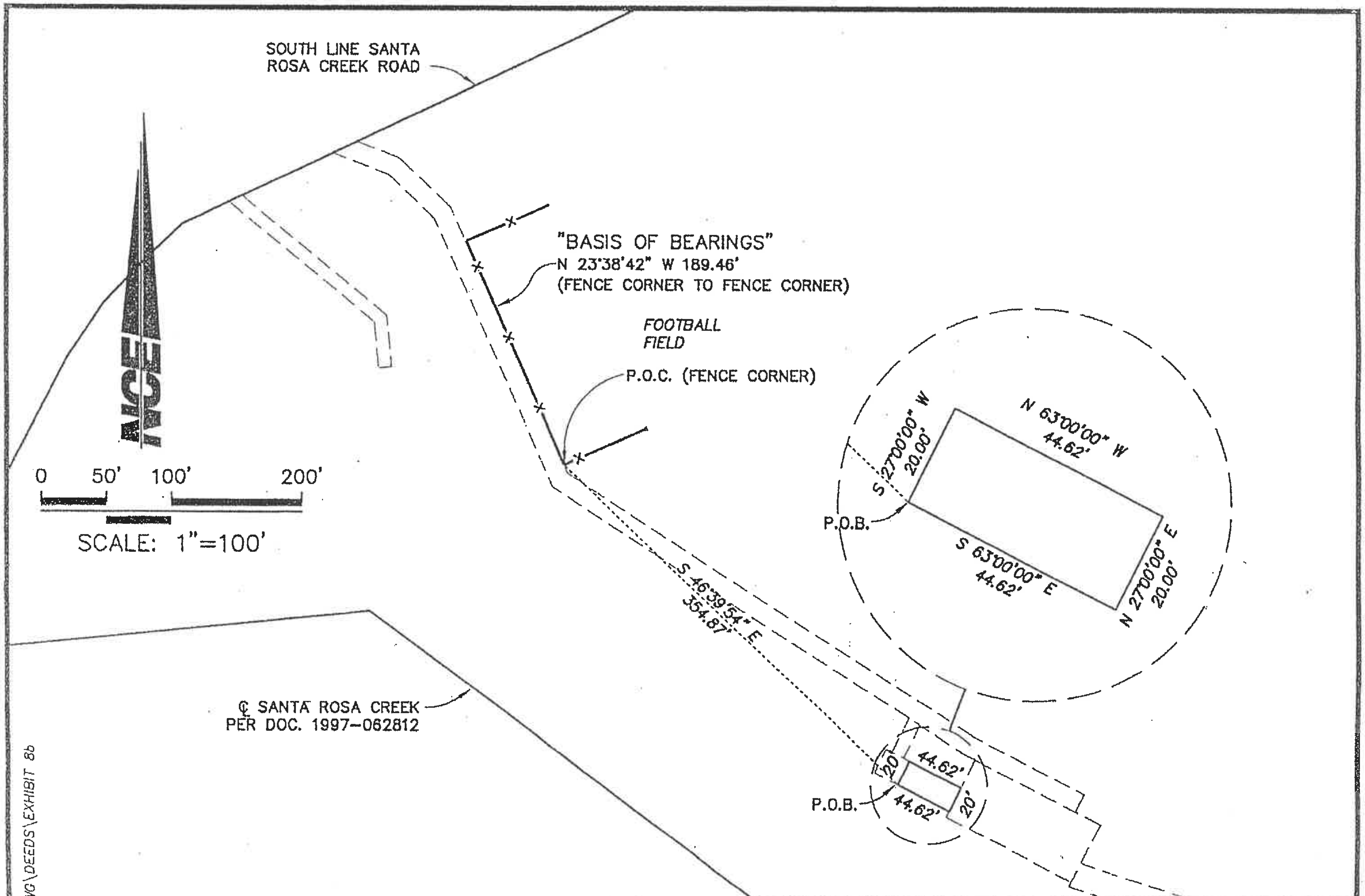
COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 46°39'54" EAST, 354.87 FEET **TO THE POINT OF BEGINNING;** THENCE SOUTH 63°00'00" EAST, 44.62 FEET; THENCE NORTH 27°00'00" EAST, 20.00 FEET; THENCE NORTH 63°00'00" WEST, 44.62 FEET; THENCE SOUTH 27°00'00" WEST; 20.00 FEET **TO THE POINT OF BEGINNING.**

SEE ATTACHMENT 8b ATTACHED HERETO AND MADE A PART HEREOF.

John R. Sanders 12-05-00
JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA

I:\00132\Document\Legal - Exhibit 8a.doc
November 16, 2000



ATTACHMENT 8b

NCE NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California }
County of San Luis Obispo } ss.

On Dec 6-00 before me, Laura C. Darling, notary public
Date — Name and Title of Officer (e.g., "Jane Doe, Notary Public")

personally appeared Kenneth C. Topping,
Name(s) of Signer(s)

☒ personally known to me
☐ proved to me on the basis of satisfactory evidence

to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

✓

Place Notary Seal Above

WITNESS my hand and official seal.

Laura C. Darling
Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Agreement

Document Date: 12.14.00 Number of Pages: 29

Signer(s) Other Than Named Above: ______

Capacity(ies) Claimed by Signer

Signer's Name: ______

☐ Individual
☐ Corporate Officer — Title(s): ______
☐ Partner — ☐ Limited ☐ General
☐ Attorney in Fact
☐ Trustee
☐ Guardian or Conservator
☐ Other: ______

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

Signer Is Representing: Cambria Community Services

CALIFORNIA ALL-PURPOSE ACKNOWLEDGMENT

State of California
County of San Luis Obispo } ss.

On Dec 6, 2000 (Date), before me, Laura C. Darling Notary Public (Name and Title of Officer (e.g., "Jane Doe, Notary Public")) personally appeared Pamela A. Martens (Name(s) of Signer(s)),

☐ personally known to me
☒ proved to me on the basis of satisfactory evidence

to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

LAURA C. DARLING
Commission # 1182240
Notary Public - California
San Luis Obispo County
My Comm. Expires May 2, 2002

Place Notary Seal Above

WITNESS my hand and official seal.

Laura C. Darling
Signature of Notary Public

OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

Description of Attached Document

Title or Type of Document: Agreement

Document Date: 12-14-00 Number of Pages: ~~#~~ 29 lcd

Signer(s) Other Than Named Above:

Capacity(ies) Claimed by Signer

Signer's Name:

- ☐ Individual
- ☐ Corporate Officer — Title(s):
- ☐ Partner — ☐ Limited ☐ General
- ☐ Attorney in Fact
- ☐ Trustee
- ☐ Guardian or Conservator
- ☐ Other:

Signer Is Representing: Coast Unified School District

RIGHT THUMBPRINT OF SIGNER
Top of thumb here

END OF DOCUMENT

RECORDING REQUESTED BY AND WHEN RECORDED RETURN TO:

Cambria Community Services District
Attn: District Clerk
PO Box 65
Cambria, CA 93428

(NO RECORDING FEE – EXEMPT – PUBLIC AGENCY)

AGREEMENT FOR USE OF WELL SR4 AT COAST UNION HIGH SCHOOL AND GRANT OF RELATED EASEMENTS

This Agreement For Use of Well SR4 at Coast Union High School, (the "Agreement") is made and entered into in the County of San Luis Obispo, State of California, on September 27, 2012, by and between the CAMBRIA COMMUNITY SERVICES DISTRICT, a political corporation of the State of California, hereinafter referred to as "CCSD," and COAST UNIFIED SCHOOL' DISTRICT, hereinafter referred to as "CUSD" collectively "the Parties."

RECITALS

This Agreement is entered into on the basis of the following facts, understandings, and intentions of the Parties:

A. On December 14, 2000 CCSD and CUSD entered into an Agreement for Alternative Point of Water Diversion at Coast Union High School (the "Prior Agreement"),

B. The purpose of the Prior Agreement was to provide an alternative location, upgradient from CCSD's Santa Rosa Creek wells, so that CCSD can appropriate water from the Santa Rosa Creek underflow in accordance with the permit issued by the California State Water Resource Control Board ("CSWRCB"), in a maximum amount not to exceed 518 acre-feet per calendar year;

C. Pursuant to the Prior Agreement, Well SR4 was installed on the area adjacent to the athletic fields of Coast Union High School (the "Site"), owned by CUSD and located at 2950 Santa Rosa Creek Road, Cambria, California;

D. Well SR4 provides a critical domestic water source for the community of Cambria, including for drinking, firefighting and other purposes;

E. Given the importance of Well SR4 as a domestic water source for drinking, firefighting and other purposes, CCSD and CSUD desire to enter into a new Agreement in order to continue to provide this critical resource to the citizens of Cambria in order to protect life, health, property and the provision of essential public services;

F. The Prior Agreement has been extended twice, and while the second extension technically expired on June 30th 2012, the parties have been actively negotiating in good faith to enter into a new agreement and intend that this Agreement shall be deemed to have been in full force and effect since the expiration of such extension in order to address any issues regarding a potential gap between the expiration and the approval of this Agreement

NOW, THEREFORE, in consideration of the recitals set forth above and the covenants, conditions, promises and agreements contained herein, CCSD and CUSD mutually agree as follows:

TERMS AND CONDITIONS

1. Recitals. The recitals set forth above are true and correct and incorporated herein by this reference.

2. Scope of Agreement.

(a) CUSD hereby agrees to allow CCSD to perform the acts necessary to continue to utilize Well SR4 on the Site, which acts are described generally as follows:

(i) Operation of Well SR4 and prompt repair and maintenance of said well;

(ii) Operation of the water treatment plant ("Treatment Plant") to treat water extracted from Well SR4 for iron and manganese and disinfect the water to meet all other requirements of the Department of Health Services, and prompt repair and maintenance of said Treatment Plant;

(iii) Prompt repair and maintenance of water pipelines connecting Well SR4 to the Treatment Plant;

(iv) Operation, prompt repair and maintenance of water pipelines connecting the Treatment Plant to CCSD's water distribution system;

(vi) Use, prompt repair and maintenance of the existing roadway for access between the maintenance yard on the Site and the Treatment Plant, as set forth in Section IV. of the Project Description;

(vii) Use of any existing roadways for access between Santa Rosa Creek Road and the maintenance yard on the Site, which roadways have been designated by CUSD for use by CCSD; and

(viii) Use, prompt repair and maintenance of a roadway for access between the Treatment Plant and Well SR4.

(b) CUSD hereby agrees to renew the easements previously granted to CCSD in the Prior Agreement for access to and use of the water from Well SR4 and to renew the grant of all secondary easements necessary for the use and enjoyment of said Well SR4, as further set forth in Exhibit "A", which Exhibit is attached hereto and made part of this Agreement as if fully set forth herein.

3. Primary Water Supply Source; Joint Use of Wells; Limitation on Easement

(a) Coast Union High School's ("CUHS") irrigation well, located on the Site and designated as well 23R-2 (27S. 8E. 23R-2; "Well 23R-2"), is CUHS's primary water supply source, *i.e.,* the source from which CUHS will always initially extract water for its irrigation needs. Likewise, Well SR4, which is being operated and maintained pursuant to this Agreement, is CCSD's primary Santa Rosa Creek water supply source, *i.e.,* the source from which CCSD will always initially extract water for its Santa Rosa Creek water supply needs.

(b) CUSD and CCSD hereby agree that in the case of a short-term area wide emergency situation (i.e., natural disaster, wildfire) or if either CUHS or CCSD's well and/or related equipment function improperly so that water cannot be extracted from such well, the affected entity shall contact and consult the other entity for permission to extract water from that entity's primary water supply source, subject to the limitations set forth in Paragraph 4 below.

4. Limitation on Extraction of Water. CCSD's use of water from Well SR4 and from Well 23R-2 is subject to the following limitations:

(a) CCSD has installed and shall continue to maintain a meter on Well SR4 to measure the amount of water taken from Well SR4. CUSD shall have access to Well SR4 for the purposes of inspecting the meter on that well.

(b) CCSD shall monitor the level of water in Well SR4 and Well 23R-2 on a semi-monthly basis, maintain records of that monitoring and provide CUSD with copies of such monitoring records.

(c) Should the level of water in Well 23R-2 measure 10 feet above sea level or less, CCSD will notify CUSD immediately and initiate communications with CUSD to discuss limiting or ceasing CCSD's pumping from Well SR4 or, if applicable, Well 23R-2. In addition, CCSD will begin daily monitoring of the water levels of both Well SR4 and Well 23R-2 and provide CUSD with copies of the monitoring records.

(d) Should the level in Well 23R-2 measure sea level (0 feet) after being shut down for a period of two (2) hours, or should air be pumped from Well 23R-2, CCSD will cease pumping from Well SR4 immediately. Should the water level in Well 23R-2 return to 10 feet above sea level, CCSD may resume operation of Well SR4 under the limitations stated in subsections (c) and (d) of this Paragraph.

5. Term of Agreement; Responsibilities upon Expiration of Agreement.

This Agreement shall be effective from the date of execution of this Agreement until September 27, 2022. If the Parties do not renew or extend this Agreement, CCSD shall cease use of Well SR4 and all associated water pipelines and, at its sole expense, shall remove the Treatment Plant and restore the surface area to its previous condition prior to use by CCSD. If the parties do not enter into any such renewal or extension, CUSD may use Well SR4 and all associated water pipelines in any manner CUSD considers appropriate, provided, however, that CUSD agrees to indemnify and hold harmless CCSD from any and all claims related to such use and assume all liability of whatever nature that arise from its use of the well and pipelines.

The parties intend that this Agreement shall be deemed to have been in full force and effect for any and all purposes since the expiration of the extensions of the Prior

Agreement.

6. Compensation.

CCSD hereby agrees to compensate CUSD as follows:

The CCSD's initial annual payment to the CUSD under this Agreement shall the sum of Thirty Four Thousand Five Hundred and Ninety-Two Dollars ($34,592), which includes the easement for access and use of water from Well SR4 and the secondary easements for access to the Site for operation, maintenance and repair of the improvements. This sum shall be increased annually based upon the average of the San Francisco MSA CPI and the Los Angeles MSA CPI, however, the annual CPI increase shall not exceed four percent (4%). CCSD shall deliver payment to CUSD no later than July 15 of each year.

CCSD also agrees to provide CUSD the following additional services:

(1) CCSD agrees to provide CUSD with the use of non-potable water at the Santa Lucia Middle School in Cambria, California for the athletic fields without charge. If the withdrawal of said non potable water has a direct impact on the gradient requirements regarding the CCSD'S Wastewater Discharge Ponds and the San Simeon Potable Water Well Field, CCSD will cease providing the CUSD with non potable water until the gradient between the Wastewater Discharge Ponds and the San Simeon Potable Well Fields return to a manageable level.

(2) CCSD agrees to conduct a water audit for CUSD in order to assist in determining manners in which to conserve CUSD water, and agrees to assist CUSD with the replacement of equipment as detailed in a separate agreement between the parties.

7. Default/Dispute Resolution.

In the event of default by either party to this Agreement in the performance of any of the terms, covenants and conditions herein, the nondefaulting party shall give written notice to the defaulting party of such default. In the event that the defaulting party does not commence or complete the actions necessary to cure such default within thirty (30) days after such notice is postmarked or personally served on the defaulting party, the Parties shall meet together, face to face, to discuss any issues regarding the default. If, in the opinion of the non-defaulting party, the default is not cured within sixty (60) days after written notice of such default is postmarked or personally served on the defaulting party, the Parties shall submit the dispute to a mediator. The Parties shall select a mediator from the list of certified civil mediators who are located in San Luis Obispo County. If the Parties cannot agree on a mediator, mediation shall be waived. After selection of the mediator, a mediation conference shall be scheduled as soon thereafter as possible and both parties shall fully and completely present their positions at mediation and shall mediate in good faith. All of the rules applicable to court ordered mediation shall apply to the mediation.

8. Maintenance and Repairs.

CCSD hereby agrees to maintain all improvements in good condition and to repair such improvements as necessary, including emergency repairs of equipment.

9. Indemnification.

CCSD hereby agrees to indemnify, defend, assume all liability for and hold harmless CUSD and its officers, employees, agents and representatives from all actions, claims, penalties, obligations, liabilities, damages, judgments, personal injuries, costs or expenses, in any manner arising out of this Agreement or the performance or attempted performance of the provisions hereof, including but not limited to any act or omission on the part of CCSD or its officers, employees, agents or representatives, except to the extent attributable to the negligence or willful misconduct of CUSD or its officers, employees, agents or representatives.

10. Nonassignability.

The Parties shall not permit any right or privilege granted under this Agreement to be exercised by another, nor shall this Agreement or any right or privilege granted there under be in whole or in part sold, transferred, leased, assigned, disposed of or alienated. Any purported assignment of this Agreement or any interest in this Agreement shall be void and of no effect.

11. Inspection.

CUSD and its representatives, employees, agents or independent contractors may enter and inspect the Site or any portion thereof or any improvements constructed, maintained, or operated pursuant to this Agreement at any time to verify CCSD's compliance with the terms and conditions of this Agreement.

12. Integration.

This Agreement constitutes a single, integrated written contract expressing the entire agreement of the Parties relative to the subject matter hereof and all prior and contemporaneous discussions and negotiations have been and are merged and integrated into, and are superseded by, this Agreement. Thus, no covenants, agreements, representations, or warranties of any kind whatsoever, whether express or implied in law or fact, have been made by any party hereto, except as specifically set forth in this Agreement.

13. Miscellaneous Terms.

The Parties hereto represent, warrant and agree as follows:

(a) Each party has read the Agreement carefully, knows and understands the contents thereof, and has made such investigation of the facts pertaining to this Agreement and of all matters pertaining hereto as it deems necessary or desirable.

(b) The terms of this Agreement are contractual, not a mere recital, and are the result of negotiations between the parties.

(c) Each party agrees that such party will not take any action which would interfere with the performance of this Agreement by the other party hereto or which would adversely affect the rights provided for herein.

(d) Whenever the context so requires, the singular number shall include the plural number, and vice versa.

(e) Captions and paragraphs headings used herein are for convenience only. They are not a part of this Agreement and shall not be used in construing this Agreement.

14. Modifications.

No modification, amendment or waiver of any of the provisions contained in this Agreement, or any future representation, promise or condition in connection with the subject matter of this Agreement, shall be binding upon any party hereto unless made in writing and signed by such party.

15. Execution in Counterparts.

This Agreement may be executed and delivered in any number of counterparts or copies ("counterpart") by the parties hereto. When each party has signed and delivered at least one counterpart to the other party hereto, each counterpart shall be deemed an original and, taken together, shall constitute one and the same Agreement, which shall be binding and effective as to the parties hereto.

16. Authority to Execute.

Each party executing this Agreement further represents and warrants that the execution of this Agreement has been duly authorized by its board or governing body and that each has the full right and authority to enter into and perform this Agreement on behalf of the party for whom each has signed and the full right and authority to bind fully said party to the terms and obligations (including, without limitation, the representations and warranties set forth herein) of this Agreement.

17. Governing Law.

This Agreement shall be construed and enforced in accordance with the laws of the State of California where it is deemed to have been executed and delivered.

IN WITNESS WHEREOF, CAMBRIA COMMUNITY SERVICES DISTRICT and COAST UNIFIED SCHOOL DISTRICT have executed this Agreement on the day and year hereinabove set forth.

CAMBRIA COMMUNITY SERVICES DISTRICT

By ____________________
~~Jerome D. Gruber~~, ~~General Manager~~
Allan S. MacKinnon, Board President, CCSD

COAST UNIFIED SCHOOL DISTRICT

By ____________________
Chris Adams, Superintendent

APPROVED AS TO FORM:

CAMBRIA COMMUNITY SERVICES DISTRICT

By ____________________ for
Timothy Carmel, District Counsel

By ____________________
Shauna Cunningham, District Counsel
Kronick, Moskovitz, Tiedemann & Girard

CAMBRIA COMMUNITY SERVICES DISTRICT

By__________________________________
Jerome D. Gruber, General Manager

COAST UNIFIED SCHOOL DISTRICT

By__________________________________
Chris Adams, Superintendent

APPROVED AS TO FORM:

CAMBRIA COMMUNITY SERVICES DISTRICT

By__________________________________
Timothy J. Carmel, District Counsel

COAST UNIFIED SCHOOL DISTRICT

Kronick, Moskovitz, Tiedemann & Girard, District Counsel

By__________________________________
Shauna Cunningham

EXHIBIT A

EASEMENT AGREEMENT

This Easement Agreement (the "Easement Agreement") is made and entered into in the County of San Luis Obispo, State of California, on September 27, 2012, by and between COAST UNIFIED SCHOOL DISTRICT, hereinafter referred to as "GRANTOR" or "CUSD," and CAMBRIA COMMUNITY SERVICES DISTRICT, a political corporation of the State of California, hereinafter referred to as "GRANTEE" or "CCSD," collectively, "the Parties."

RECITALS

A. GRANTOR is the owner of certain real property situated in the Community of Cambria, County of San Luis Obispo, California (hereinafter referred to as the "Servient Tenement"), as generally described on Attachment 1, which is attached to this Easement Agreement and hereby incorporated by reference.

B. GRANTEE desires to acquire certain rights in Servient Tenement.

NOW, THEREFORE, in consideration of the recitals set forth above and the covenants, conditions, promises and agreements contained herein, the parties mutually agree as follows:

1. Character of Easement. The easement granted in this Easement Agreement is in gross.

2. Description of Easement. The easement granted in this Easement Agreement is an easement allowing CCSD to access and use the 518 acre-feet of unappropriated water per calendar year which it is entitled to appropriate from the Santa Rosa Creek underflow pursuant to its permit (Decision No. 1624) from the California State Water Resources Control Board ("CSWRCB"), the grant of CCSD's petition for Temporary Urgency Change in Point of Diversion by CSWRCB, and subject to the limitations of the "Agreement for Alternative Point of Water Diversion at Coast Union High School" (the Agreement") through the municipal water supply well designated as well SR4 ("Well SR4") and constructed pursuant to the Agreement, to which this Easement Agreement is attached as Exhibit B. Well SR4 is located on a portion of the Servient Tenement described in Attachment 2a and depicted in Attachment 2b, which are attached to this Easement Agreement and hereby incorporated by reference. This easement for access and use of water from Well SR4 is subject to the following limitations:

(a) CCSD shall install and maintain a meter on Well SR4 to measure the amount of water taken from Well SR4. CUSD shall have access to Well SR4 for the purposes of inspecting the meter on that well.

(b) CCSD shall monitor the level of water in Well SR4 and Coast Union High School's ("CUHS") irrigation well located on the Servient Tenement and designated as well 23R-2 (27S. 8E. 23R-2; "Well 23R-2") on a semi-monthly basis, maintain records of that monitoring and provide CUSD with copies of such monitoring records.

(c) Should the level of water in Well 23R-2 measure 10 feet above sea level or less, CCSD will notify CUSD immediately and initiate communications with CUSD to discuss limiting or ceasing pumping from Well SR4 or, if applicable, Well 23R-2. In addition, CCSD will begin daily monitoring of the water levels of both Well SR4 and Well 23R-2 and provide CUSD with copies of the monitoring records.

(d) Should the level in Well 23R-2 measure sea level (0 feet) after being shut down for a period of two (2) hours, or should air be pumped from Well 23R-2, CCSD will cease pumping from Well SR4 immediately. Should the water level in Well 23R-2 return to 10 feet above sea level, CCSD may resume operation of Well SR4 under the limitations stated in subsections (c) and (d) of this Paragraph.

3. <u>Secondary Easements</u>. The easement granted in this Easement Agreement also includes the incidental rights to use the Servient Tenement which are necessary for the use and enjoyment of the easement, provided that GRANTEE exercises such rights at GRANTEE's own cost and expense, and only in connection with the easement and only for as long as is necessary for the use and enjoyment of the easement. In exercising these rights, GRANTEE must use reasonable care and may not unreasonable increase the burden on the Servient Tenement. The incidental rights included as part of the easement granted in this Easement Agreement are as follows:

(a) Drilling of Well SR4 and operation, repair and maintenance of said well, located on a portion of the Servient Tenement described in Attachment 2a and depicted in Attachment 2b.

(b) Construction of water treatment plant ("Treatment Plant") to treat water extracted from Well SR4 for iron and manganese and to meet all other requirements of the Department of Health services, and operation, repair and maintenance of said Treatment Plant, located on a portion of the Servient Tenement described in Attachment 3a and depicted in

Attachment 3b, which are attached to this Easement Agreement and hereby incorporated by reference.

(c) Installation of underground water pipelines and electrical conduits and wires between Well SR4 and the Treatment Plant, and operation, repair and maintenance of said pipelines, located on a portion of the Servient Tenement described in Attachment 4a and depicted in Attachment 4b, which are attached to this Easement Agreement and hereby incorporated by reference.

(d) Installation of underground water pipelines between the Treatment Plant and GRANTEE's water main located along Santa Rosa Creek Road, and operation, repair and maintenance of said pipelines, located on a portion of the Servient Tenement described in Attachment 5a and depicted in Attachment 5b, which are attached to this Easement Agreement and hereby incorporated by reference.

(e) Installation of underground sewer pipeline connecting the existing sewage disposal system of Leffingwell Continuation High School, located at 2820 Santa Rosa Creek Road, to GRANTEE's sewer main located along Santa Rosa Creek Road, located on a portion of the Servient Tenement described in Attachment 6a and depicted in Attachment 6b, which are attached to this Easement Agreement and hereby incorporated by reference.

(f) Resurfacing of the existing roadway for access between Coast Union High School's maintenance yard and the Treatment Plant, and use, repair and maintenance of said roadway, as set forth in Exhibit A, Section IV of the Agreement, and located on a portion of the Servient tenement described in Attachment 7a and depicted in Attachment 7b, which are attached to this Easement Agreement and hereby incorporated by reference.

(g) Use of any existing roadways for access between Santa Rosa Creek Road and Coast Union High School's maintenance yard, which roadways have been designated by GRANTOR for use by GRANTEE, and located on the Servient Tenement.

(h) Use, repair and maintenance of a roadway for access between the Treatment Plant and Well SR4, located on a portion of the Servient Tenement described in Attachment 8a and depicted in Attachment 8b, which are attached to this Easement Agreement and hereby incorporated by reference.

4. Access to Servient Tenement. GRANTEE agrees that its access to the Servient Tenement shall be limited to the location of the easement and secondary easements as provided in Paragraphs 2 and 3 of this Easement Agreement, except in emergency circumstances upon notification to and approval by GRANTOR, whose approval shall not be unreasonably withheld.

5. Term of Easement. The term of the easements granted in this Easement Agreement shall coincide with the term of the Agreement for use of Well SR4 at Coast Union High School and Easements between the GRANTOR and GRANTEE.

6. Exclusive Easement. GRANTEE's use of the easement for access and use of the water granted in this Easement Agreement shall be exclusive, except as otherwise set forth herein. GRANTOR shall not grant or assign to others any right to access and use water through Well SR4 during the term of the Agreement. GRANTOR retains the right to use the Servient Tenement in any manner that is consistent with GRANTEE's use and enjoyment of the easement and as otherwise set forth herein.

7. Nonassignability. This Easement Agreement shall not be assigned. Any purported assignment of this Easement Agreement or of any interest in this Easement Agreement shall be void and of no effect.

8. Binding Effect. This Easement Agreement shall be binding upon and inure to the benefit of GRANTOR and GRANTEE and their respective heirs, legal representatives and successors.

IN WITNESS WHEREOF, CAMBRIA COMMUNITY SERVICES DISTRICT and COAST UNIFIED SCHOOL DISTRICT have executed this Easement Agreement on the day and year hereinabove set forth.

ATTACHMENT 1

Property commonly known as 2950 Santa Rosa Creek Road, Cambria, CA 93428.

ATTACHMENT 2a
LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

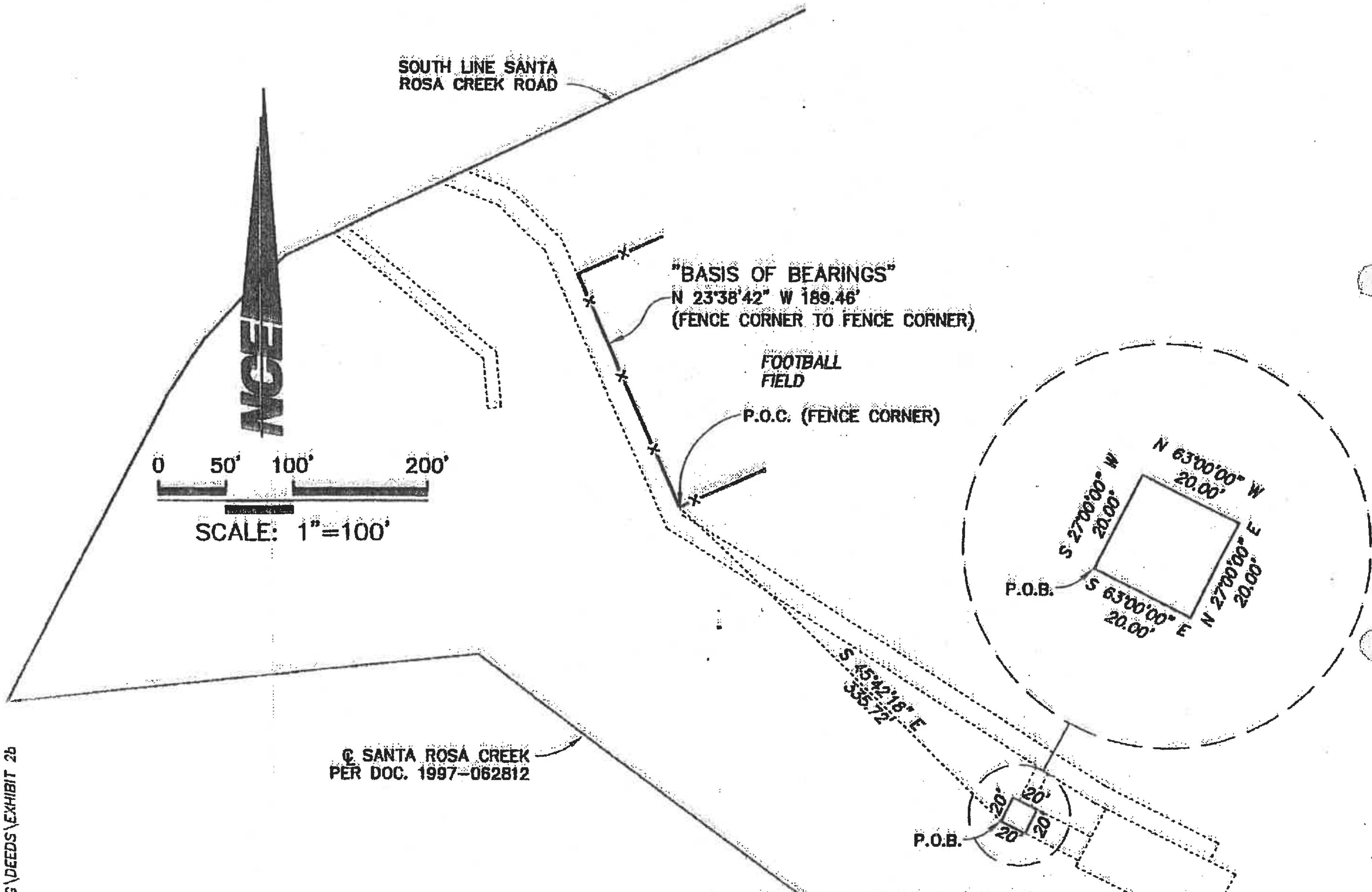
COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 45°42'18" EAST, 335.72 FEET **TO THE POINT OF BEGINNING;** THENCE SOUTH 63°00'00" EAST, 20.00 FEET; THENCE NORTH 27°00'00" EAST, 20.00 FEET; THENCE NORTH 63°00'00" WEST, 20.00 FEET; THENCE SOUTH 27°00'00" WEST, 20.00 FEET **TO THE POINT OF BEGINNING.**

SEE ATTACHMENT 2b ATTACHED HERETO AND MADE A PART HEREOF.

John R. Sanders 11-21-00
JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA

I:\00132\Document\Legal - Well Easement.doc
November 16, 2000



ATTACHMENT 2b

NCE NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

ATTACHMENT 3a

LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 54°44'23" EAST, 389.20 FEET **TO THE POINT OF BEGINNING;** THENCE SOUTH 63°00'00" EAST, 108.05 FEET; THENCE SOUTH 27°00'00" WEST, 48.96 FEET; THENCE NORTH 63°00'00" WEST, 108.05 FEET; THENCE NORTH 27°00'00" EAST, 48.96 FEET **TO THE POINT OF BEGINNING.**

SEE ATTACHMENT 3b ATTACHED HERETO AND MADE A PART HEREOF.

John R. Sanders 11-21-00
JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA

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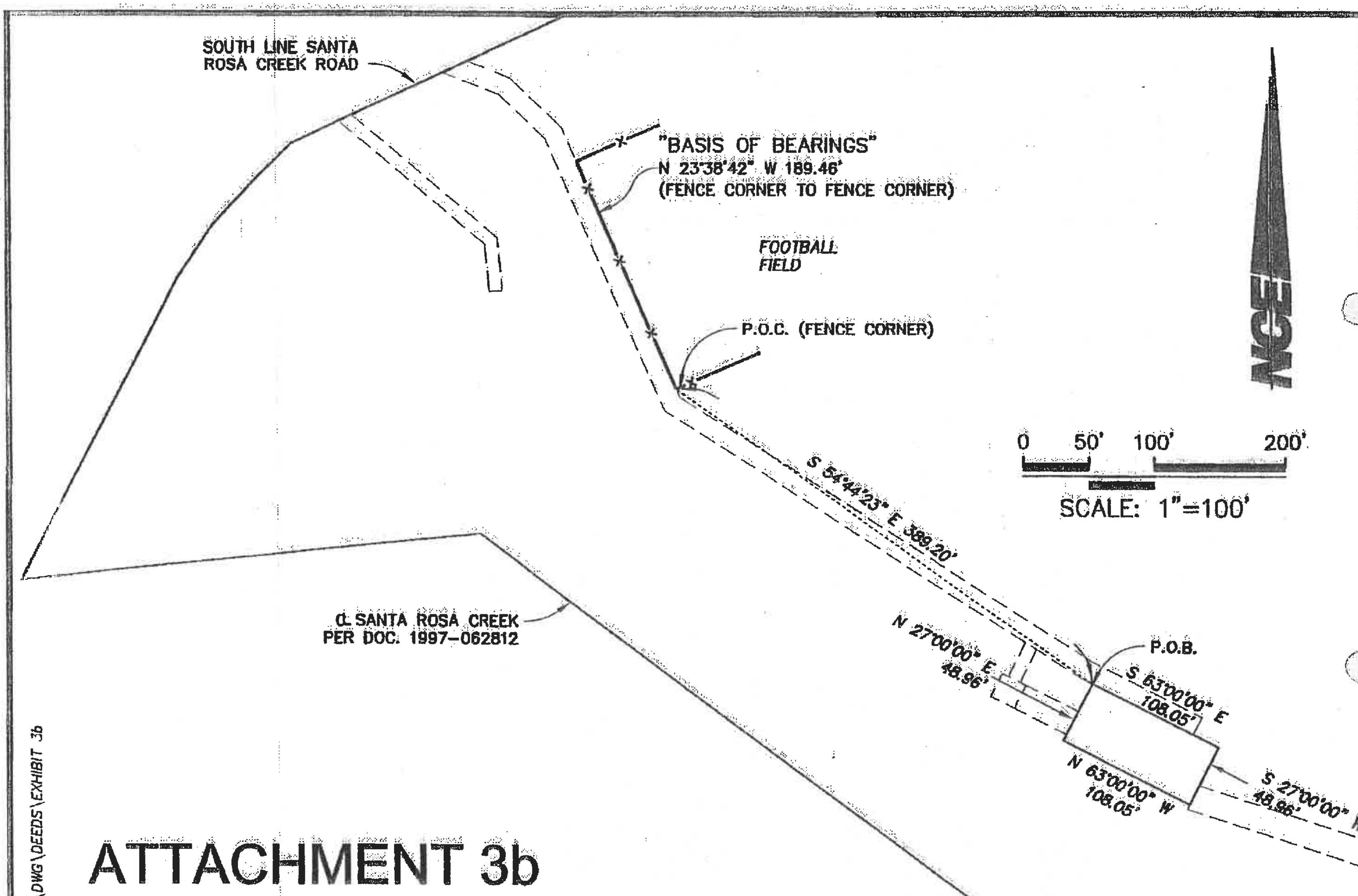
November 16, 2000

ATTACHMENT 3b



NCE NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

J:\00132\DWG\DEEDS\EXHIBIT 3b

ATTACHMENT 4a

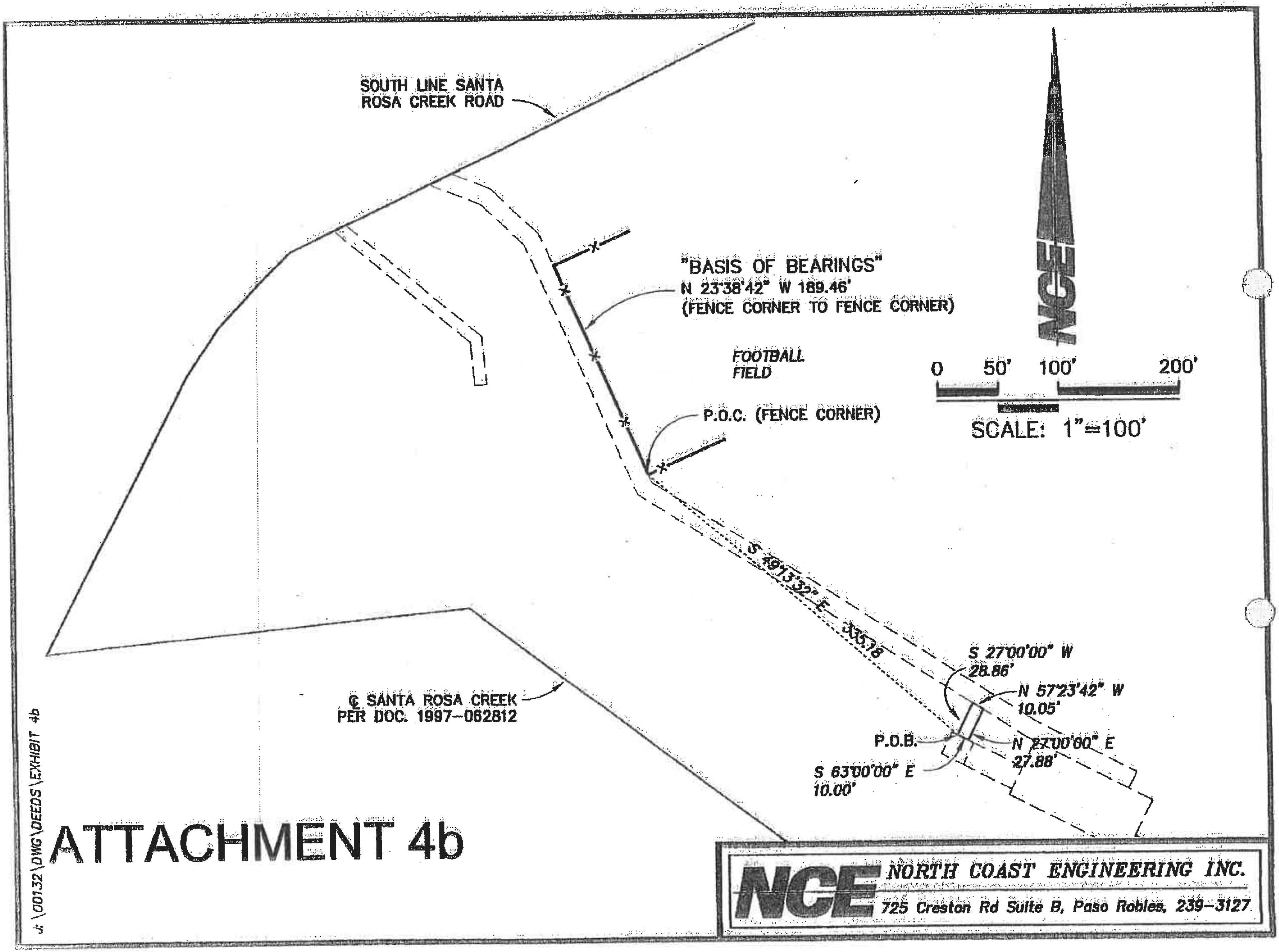
LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 49°13'32" EAST, 335.18 FEET **TO THE POINT OF BEGINNING;** THENCE SOUTH 63°00'00" EAST, 10.00 FEET; THENCE NORTH 27°00'00" EAST, 27.88 FEET; THENCE NORTH 57°23'42" WEST, 10.05 FEET; THENCE SOUTH 27°00'00" WEST, 28.86 FEET **TO THE POINT OF BEGINNING.**

SEE ATTACHMENT 4b ATTACHED HERETO AND MADE A PART HEREOF.

JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004



ATTACHMENT 4b

ATTACHMENT 5a
LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

AN EASEMENT 15 FEET IN WIDTH, LYING NORTHEASTERLY OF THE FOLLOWING DESCRIBED LINE:

COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 56°14'02" EAST, 474.64 FEET TO **THE POINT OF BEGINNING**; THENCE NORTH 63°00'00" WEST, 95.13 FEET; THENCE NORTH 57°23'42" WEST, 378.57 FEET; THENCE, NORTH 23°38'42" WEST, 226.86 FEET; THENCE NORTH 46°08'42" WEST, 49.04 FEET; THENCE NORTH 68°38'42" WEST, 46.19 FEET MORE OR LESS TO A POINT ON THE SOUTHERLY LINE OF SANTA ROSA CREEK ROAD AND THE TERMINUS OF THIS DESCRIPTION.

SEE ATTACHMENT 5b ATTACHED HERETO AND MADE A PART HEREOF.

John R. Sanders 11-21-00
JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA

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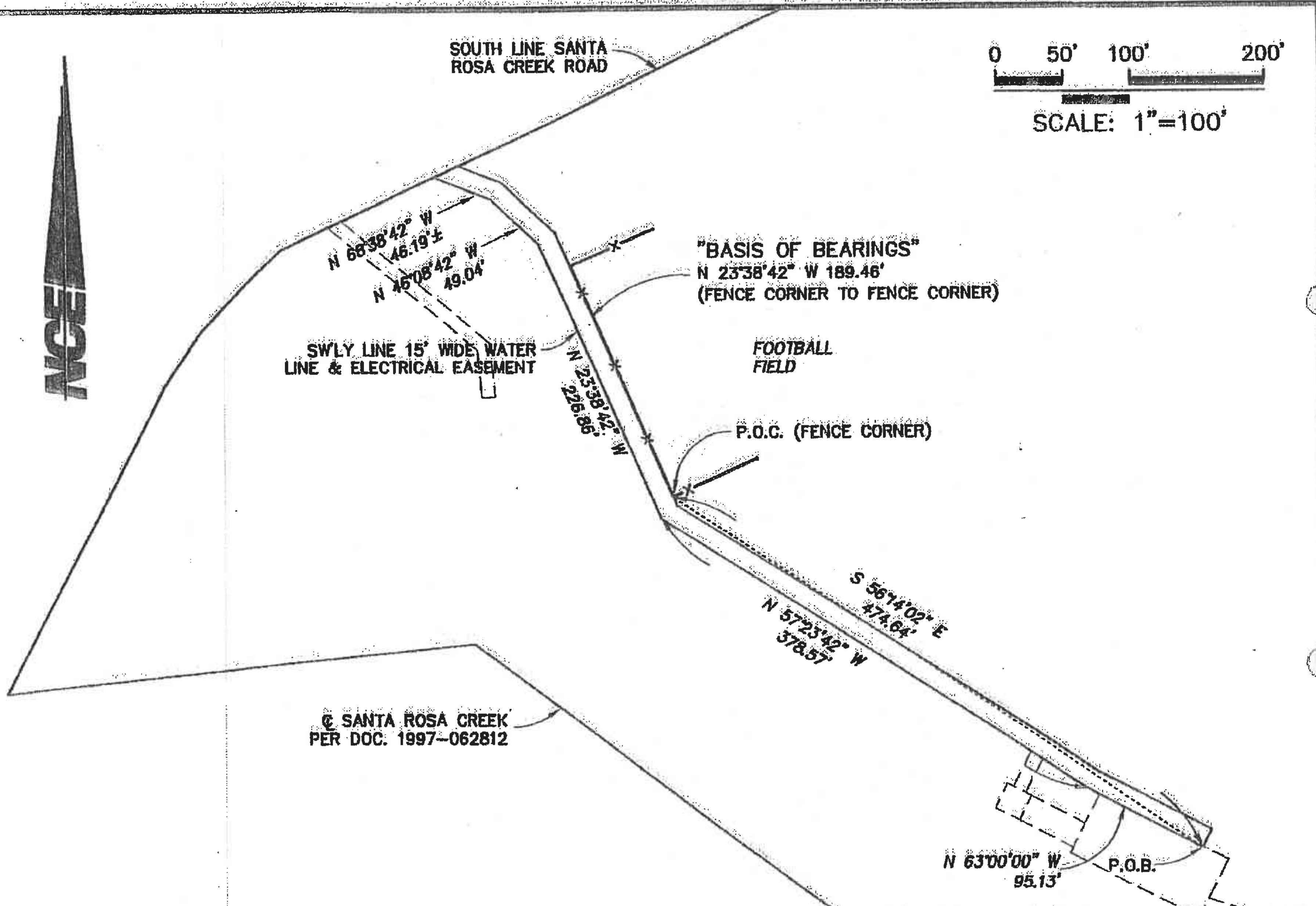
November 16, 2000



ATTACHMENT 5b

NCE NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

J:\00132\DWG\DEEDS\EXHIBIT 5b

ATTACHMENT 6a

LEGAL DESCRIPTION

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AN EASEMENT 10 FEET IN WIDTH, LYING 5 FEET ON EITHER SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE NORTH 61°35'39" WEST, 157.15 FEET TO THE **POINT OF BEGINNING**; THENCE NORTH 5°19'15" WEST, 38.26 FEET; THENCE NORTH 50°01'22" WEST, 145.64 FEET MORE OR LESS TO A POINT ON THE SOUTHERLY LINE OF SANTA ROSA CREEK ROAD AND THE TERMINUS OF THIS DESCRIPTION.

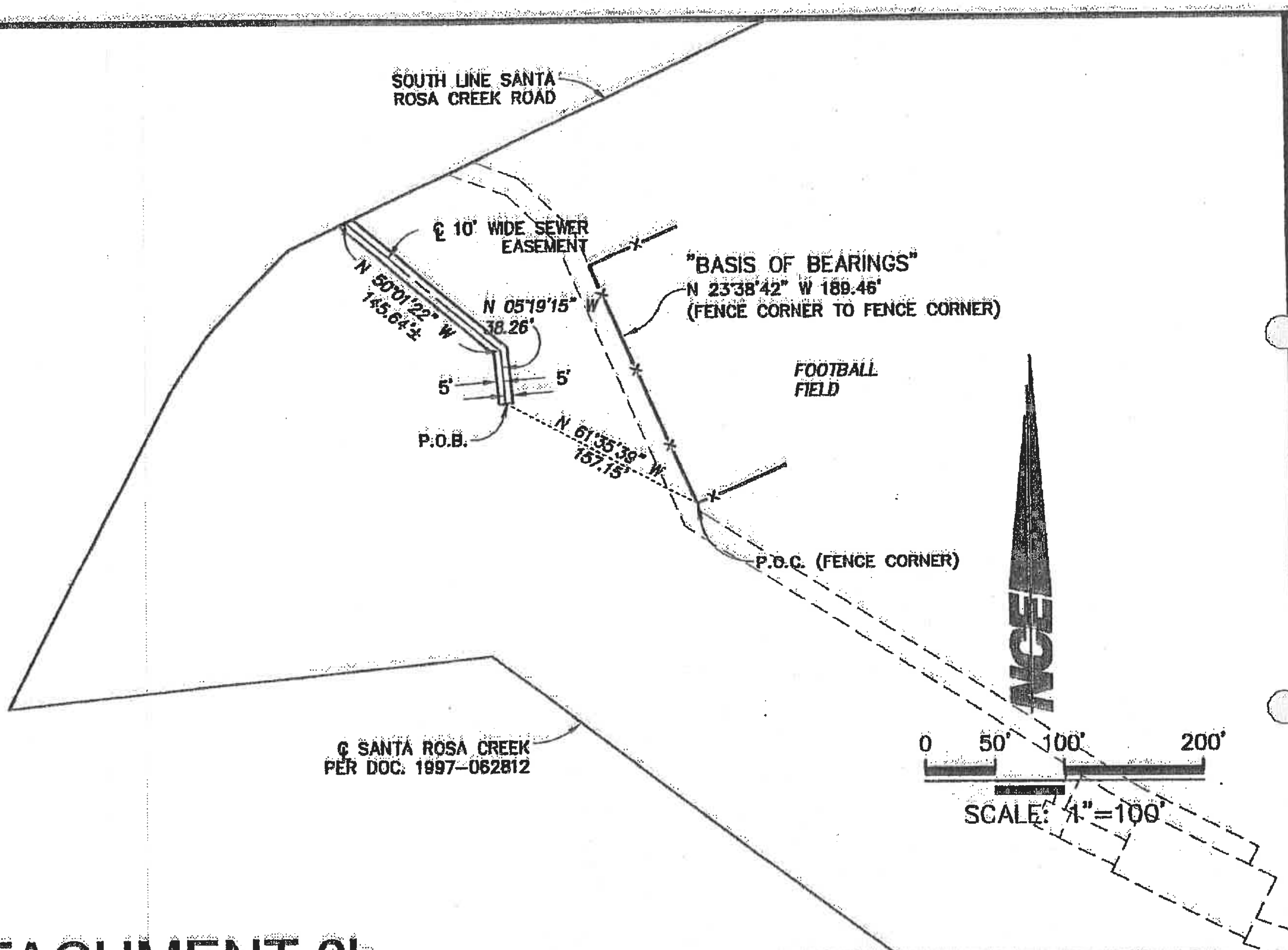
SEE ATTACHMENT 6b ATTACHED HERETO AND MADE A PART HEREOF.

11-21-00

JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA

ATTACHMENT 6b



NCE NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

J:\00132\DWG\DEEDS\EXHIBIT 6b

ATTACHMENT 7a
LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

AN EASEMENT 20 FEET IN WIDTH, LYING 10 FEET ON EITHER SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

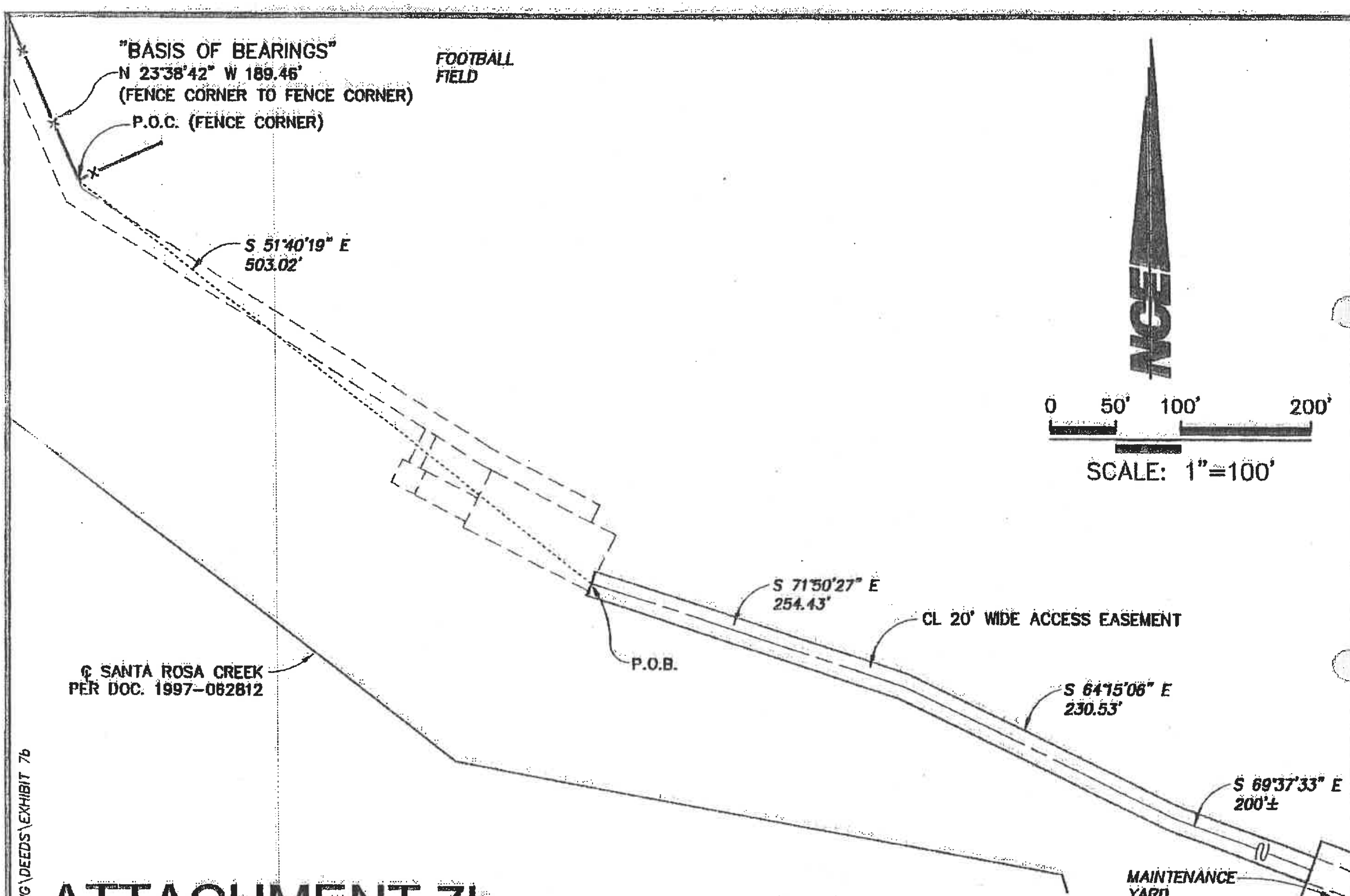
COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 51°40'19" EAST, 503.02 FEET TO **THE POINT OF BEGINNING**; THENCE ALONG THE EXISTING GRAVEL ROAD SOUTH 71°50'27" EAST, 254.43 FEET; THENCE SOUTH 64°15'06" EAST, 230.53 FEET; THENCE SOUTH 69°37'33" EAST, 200 FEET, MORE OR LESS TO THE EXISTING MAINTENANCE YARD AND THE TERMINUS OF THIS DESCRIPTION.

SEE ATTACHMENT 7b ATTACHED HERETO AND MADE A PART HEREOF.

John R. Sanders 11-21-00

JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA



ATTACHMENT 7b

NCE NORTH COAST ENGINEERING INC.
725 Creston Rd Suite B, Paso Robles, 239-3127

ATTACHMENT 8a
LEGAL DESCRIPTION

BEING A PORTION OF SECTIONS 23 AND 24, TOWNSHIP 27 SOUTH, RANGE 8 EAST, MOUNT DIABLO BASE AND MERIDIAN IN THE COUNTY OF SAN LUIS OBISPO, STATE OF CALIFORNIA AS DESCRIBED IN THE DEED RECORDED NOVEMBER 4, 1997, AS DOCUMENT 1997-062812 OF OFFICIAL RECORDS, IN THE OFFICE OF THE COUNTY RECORDER OF SAID COUNTY, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

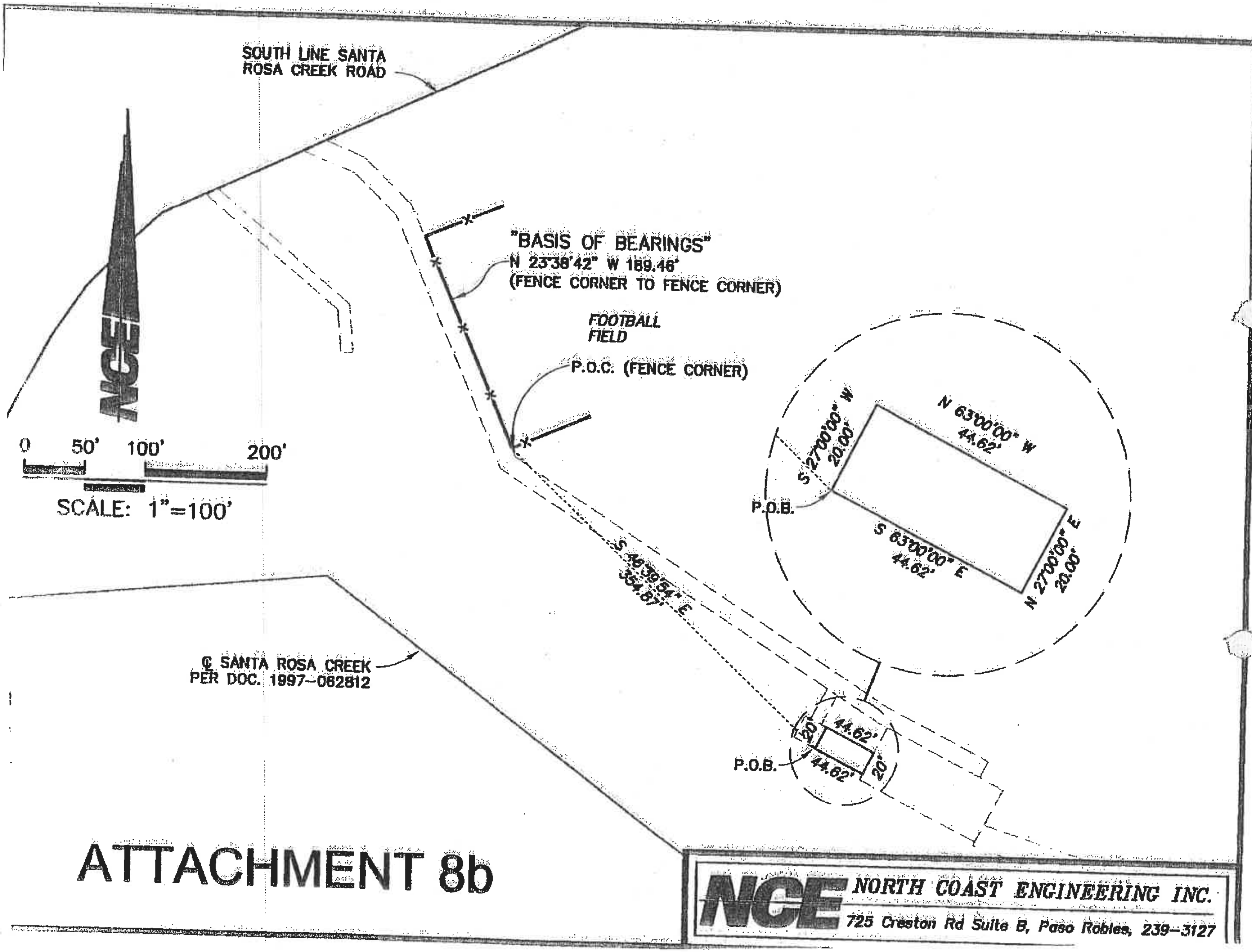
COMMENCING AT THE SOUTHWESTERLY FENCE CORNER OF THE FENCE AROUND THE FOOTBALL FIELD (THE WESTERLY LINE OF SAID FENCE BEING THE BASIS OF BEARING FOR THIS DESCRIPTION); THENCE SOUTH 46°39'54" EAST, 354.87 FEET **TO THE POINT OF BEGINNING;** THENCE SOUTH 63°00'00" EAST, 44.62 FEET; THENCE NORTH 27°00'00" EAST, 20.00 FEET; THENCE NORTH 63°00'00" WEST, 44.62 FEET; THENCE SOUTH 27°00'00" WEST, 20.00 FEET **TO THE POINT OF BEGINNING.**

SEE ATTACHMENT 8b ATTACHED HERETO AND MADE A PART HEREOF.

11-21-00

JOHN R. SANDERS DATE
L.S. 5812 EXP. 6/30/2004

LICENSED LAND SURVEYOR
JOHN R. SANDERS
EXP. 6-30-04
No. 5812
STATE OF CALIFORNIA



ATTACHMENT 8b

STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING SEPTEMBER 4-5 2008

ITEM NUMBER: **14**

SUBJECT: **Cleanup Cases**

DISCUSSION

Underground Storage Tank Program & MTBE Cases

New information for this report in italics

Water Board staff members are working on numerous petroleum underground storage tank (UST) cleanup cases involving methyl tertiary-butyl ether (MTBE). Four high profile or "worst case" problems are discussed below. Also attached to this report is a list of sites with MTBE in groundwater that gives an overall perspective of the region-wide problem. The attachment shows maximum MTBE concentrations reported in the first two quarters of 2008.

Chevron Service Station, 2194 Main Street, Cambria, San Luis Obispo County [John Mijares 805/549-3696]

Chevron Cambria service station, located on the corner of Main Street and Burton Drive in Cambria, has been a Central Coast Regional Water Quality Control Board (Central Coast Water Board) lead groundwater investigation and cleanup case since December 1993. In 1995 Chevron Products Company commissioned the removal of an underground storage tank (UST) system and transferred ownership of the service station to an independent owner/operator who installed a new UST system.

Chevron is cleaning up a petroleum hydrocarbon discharge, including the fuel additive methyl tertiary-butyl ether (MTBE), from the original UST system. The discharge threatened groundwater in Cambria Community Service District (CCSD) Wells No. 1 and 3, which provide supplemental water to the community of Cambria.

As part of interim corrective action beginning in May 2000, Chevron continuously pumped MTBE-contaminated water from four onsite wells. Currently, there are 15 shallow groundwater extraction wells. Beginning in November 2000, Chevron began full operation of groundwater extraction and high-vacuum, dual-phase extraction systems. Both systems operate continuously, except for periodic system upgrade, mechanical breakdowns, and system maintenance activities. Extracted and treated groundwater is stored in an onsite, 15,000-gallon tank until it is trucked offsite for disposal at the Santa Maria Wastewater Treatment Plant.

During a November 2001 technical work group meeting with Central Coast Water Board staff, CCSD representatives, and Chevron representatives, the CCSD indicated the new temporary high school well had been connected to the Cambria municipal drinking water supply. The CCSD needs the high school well as an alternative water supply. The CCSD installed a wellhead treatment system on their Santa Rosa Creek wells which will enable well use in the event of an emergency. The Santa Rosa Creek Wells have not been impacted with MTBE.

On May 18, 2004, the Central Coast Water Board's Executive Officer rescinded Cleanup or Abatement Order (CAO) No. 00-28. The CAO required Chevron to provide CCSD with alternative water supply due to loss of CCSD's Well Nos. 1 and 3. The settlement agreement between CCSD and Chevron explicitly resolves all of CCSD's claims against Chevron, including claims for an alternative water supply.

<u>Since the Last Staff Report:</u>

The Second Quarter 2008 Groundwater Monitoring and Remediation Status Report indicates the following:

- *Monitoring wells within the plume boundaries continue to exhibit MTBE and tertiary butyl alcohol (TBA) concentrations exceeding the cleanup goals of 5 micrograms per liter (µg/L)and) 12 µg/L, respectively; however, current concentrations have decreased significantly compared to historical maximum values. The second quarter 2008 MTBE and TBA maximum concentrations detected in piezometric well P-11 were 1,200 µg/L and 5,000 µg/L, respectively. Historically, maximum concentrations of MTBE and TBA in were as high as 5,500 µg/L and 8,800 µg/L, respectively. Shallow-zone MTBE and TBA isoconcentration maps are shown on Attachments 1 and 2, respectively.*
- *Monitoring wells historically located beyond the plume boundaries continue to be free of detectable concentrations of MTBE.*
- *Concentrations of petroleum hydrocarbons and fuel oxygenates were below reporting limits in all groundwater samples collected from the northern bank of Santa Rosa Creek (three sampling stations) during this quarter.*
- *Concentrations of petroleum hydrocarbons and fuel oxygenates were below reporting limits in all surface water samples collected from Santa Rosa Creek (three sampling stations) during this quarter.*
- *The high-vacuum, dual phase extraction (HVDPE) system operated during the reporting quarter. The HVDPE system has extracted and treated approximately 4,937 pounds of vapor phase petroleum hydrocarbons (TPHg) and 189 pounds of vapor phase MTBE between January 26, 2001 and June 9, 2008.*
- *The groundwater extraction and treatment (GWET) system also operated during the reporting quarter. The GWET system and the HVDPE system extracted and treated approximately 140,000 gallons of groundwater during the reporting quarter, which were disposed at the City of Santa Maria wastewater plant.*
- *In March 2008, SECOR conducted a Phase 2 pilot study to evaluate the feasibility of stimulating in-situ biodegradation by infiltrating aerated groundwater via existing remediation wells. Effluent from the GWET system was aerated in a small tank until saturated with oxygen then released to selected onsite wells. Results of the Phase 2 pilot study confirmed the positive results observed during the initial pilot study, and demonstrate that the infiltration of oxygenated water to the subsurface decreased concentrations of petroleum hydrocarbons, MTBE, and TBA, indicating enhanced biodegradation under aerobic conditions. On July 9, 2008, Central Coast Water Board staff approved Chevron's proposed full-scale implementation of this remediation strategy. Once implemented and evaluated, staff will include the progress of remediation in this report.*

Attachment 1: Shallow Zone Groundwater MTBE Isoconcentrations May 2007

Attachment 2: Shallow Zone Groundwater TBA Isoconcentrations May 2007

California Water Service Company Supply Wells, Pajaro Street and Bridge Street, Salinas, Monterey County [John Goni 805/542-4628]

In February 2002, Central Coast Water Board staff was notified by California Water Service Company in Salinas (CWSC), that monitoring indicated MTBE in two domestic supply wells in the Salinas area. Central Coast Water Board staff's review of known leaking underground tank cases near the wells found no active cases with high concentrations of MTBE in the area. Further investigation revealed a gasoline distributor (with 100,000 gallons of fuel product storage) close to the well, but a subsequent site investigation showed no evidence of a fuel release to underlying groundwater. Staff continued their investigation and directed other permitted underground tank facilities without previously reported leaks to perform groundwater investigations. These investigations failed to find a release of MTBE of significant size to account for the contaminant in the supply wells.

Surface water samples from the Salinas Reclamation Ditch near the CWSC supply wells showed no gasoline constituents or MTBE. A joint investigation by the Monterey County Health Department, Division of Environmental Health (MCEHD) and Central Coast Water Board staff concluded former packing houses in this area are not likely the source of MTBE contamination because (1) tank sizes were small, (2) the dates of tank closures precedes significant use of MTBE, and (3) hydrocarbons were not found in soil beneath the removed tanks.

Central Coast Water Board staff continued to coordinate the investigation with other agencies in search of the source of MTBE. A review of the State Water Resources Control Board's implementation of enhanced leak detection testing requirements for all underground tank facilities within 1000 feet of water supply wells did not identify any new potential sources of MTBE. The MCEHD agreed to increase inspections of all nearby permitted underground and aboveground tank facilities to ensure compliance and found no operational violations. The Monterey County Water Resources Agency (Agency) performed additional groundwater analytical testing at nearby production wells up- and crossgradient of the CWSC wells but did not detect any MTBE. CWSC information and Central Coast Water Board staff inspections confirmed that gasoline has not been stored at CWSC supply well locations. CWSC performed depth discrete sampling of Well Station 13-02 in December 2004. The sampling results indicate that the shallower/180-foot aquifer contains the highest concentrations of MTBE (67 ug/L).

In an effort to expand the investigation, Central Coast Water Board staff assisted the Agency in applying to the State Water Resources Control Board (State Water Board) for Cleanup and Abatement Account money to fund additional groundwater sampling. The State Water Board approved the allocation of cleanup and abatement funds to perform additional investigation and recently approved the contract between the Central Coast Water Board and the Agency. On December 13, 2007, the Agency hosted a well site visit and informational meeting for prospective consultants. Approximately 25 representatives of potential responsible parties and 14 consulting firms were present. As a result of the informational meeting, the Agency received and evaluated seven conceptual proposals for the investigation. The Agency mailed a scope of work for performing the investigation on February 29, 2008, using ideas from the seven conceptual proposals. The Agency received final bids on April 3, and finished their review and selection process on April 24.

Since the Last Staff Report:

The Agency executed a contract for the investigation in early May. Central Coast Water Board staff attended a project kick-off meeting and field trip on May 24. The consultant, Todd Engineers, is currently gathering site background information, consolidating information into a GIS compatible format and calculating the MTBE mass removed by the pumping of the California Water Service Company water supply wells. The next phase is groundwater characterization to determine the MTBE vertical distribution, flow, and gradient near the affected water supply wells. Characterization will include installing monitoring wells on the site of the California Water Service Company water supply wells.

Camp Evers Combined Site (Four Gasoline Service Stations) Mount Hermon Road and Scotts Valley Drive, Scotts Valley, Santa Cruz County [Wei Liu 805/ 542-4648]

Petroleum hydrocarbons including benzene, 1,2-dichloroethane (1,2-DCA) and MTBE were first detected in groundwater beneath the Tosco, Shell, BP, and Chevron service stations located at the intersection of Mount Hermon Road and Scotts Valley Drive in the mid-1990s. Previous onsite corrective actions at the Tosco, Shell, and BP sites included soil vapor extraction, air sparging, dual phase extraction, and/or groundwater extraction to remediate the MTBE plume. Chevron has continued remediation of the benzene plume. The onsite corrective actions have successfully removed MTBE and other gasoline constituents from groundwater directly beneath the four service station sites and onsite remediation has been discontinued at all four sites.

An MTBE plume mass appears to have "detached" from the original plume, and migrated to a downgradient offsite location beneath the nearby King's Village Shopping Center. The historic maximum detected MTBE concentration was 38,300 micrograms per liter (µg/L) in a May 1999 monitoring event. In addition, both benzene and MTBE have been detected in the adjacent Manana Woods water supply well and this well was fitted with a wellhead treatment system to remove these contaminants.

The responsible parties installed a permanent groundwater pumping and treatment system at the King's Village Shopping Center in November 2002, to remediate and hydraulically control the detached plume. Treated groundwater *was* discharged by way of the storm sewer system to surface water (ultimately Bean Creek) under a Central Coast Water Board General NPDES Permit for highly treated groundwater. The recently updated General NPDES Permit includes sampling requirements for various metals and other priority pollutants. In July 2007, effluent samples from the treatment system showed a zinc concentration which exceeded the General Permit effluent limit for zinc. The system has since been shutdown. Staff has worked with the dischargers to identify the cause of the elevated zinc effluent concentrations and to evaluate various options to ensure compliance with the new General Permit effluent limit. However, it appears the current treatment systems cannot meet the effluent limits for metals, as it was designed primarily for treating hydrocarbons. In addition, metals occur naturally in the area and are present in some parts of the treatment system itself.

Staff recommended the responsible parties apply for a permit to discharge highly treated groundwater to City of Scotts Valley's sanitary sewer system, which allows higher metal effluent limits while maintaining equally stringent limits for petroleum hydrocarbons. In December 2007, the dischargers applied for and received a discharge permit from the City of Scotts Valley for discharging highly treated groundwater to its sanitary sewer system. The responsible parties re-started the treatment system in March 2008, with treated groundwater currently discharging to the sanitary sewer system.

Since the Last Staff Report:

First Quarter 2008 groundwater sample results indicate maximum MTBE concentrations of 26 µg/L in onsite monitoring well (Tosco's) RW-2, and 120 µg/L in offsite monitoring well CEMW-9 which is located upgradient of groundwater extraction well CEEW-1 (see Attachment 3 for well locations). A maximum concentration of 1,300 µg/L TBA was detected in offsite monitoring well CEMW-16. MTBE concentrations in downgradient offsite well CEMW-6, which historically had the highest MTBE concentrations, have been reduced from a maximum of 38,300 µg/L in May 1999 to 1.0 µg/L in February 2008. In addition, MTBE concentrations in downgradient offsite well CEMW-16, which is near the groundwater pumping and treatment system, were reduced from 4,710 µg/L in January 2001 to 3.3 µg/L in February 2008. Wells CEMW-6 and CEMW-16 are located upgradient of groundwater extraction well CEEW-1.

The downgradient offsite remediation system has removed approximately 23.7 million gallons of water, 340.4 pounds (lbs) of TPH, 11.4 lbs of benzene, 66.7 lbs of MTBE, and 28 lbs of TBA since November 26, 2002.

Attachment 3: Well Location Map

Quik Stop Market No. 78, 5505 Soquel Drive, Soquel, Santa Cruz County [Tom Sayles 805-542-4640]

Quik Stop Market No. 78 (Quik Stop) is an operating gasoline service station located on the corner of Soquel Drive and Hardin Way in Soquel. The site has been a Regional Board-lead groundwater investigation and cleanup case since June 1999.

A permanent dual-phase (soil vapor and groundwater) treatment system has been operating at the site since July 5, 2002. Treated groundwater is discharged to the sanitary sewer under a County of Santa Cruz Permit (No. 00002829) and a catalytic oxidizer treatment system operates under a Monterey Bay Unified Air Pollution Control District permit (No. 11054).

The responsible party installed three additional vapor extraction wells in December 2003 to enhance cleanup system effectiveness. In addition, the responsible party converted one on-site monitoring well into a 4-inch diameter well to enhance groundwater extraction efficiency. The highest historic concentration of MTBE was 230,000 □g/L in monitoring well MW-4 (near the source area) on March 2, 2000.

Since the Last Staff Report:

Second Quarter 2008 monitoring samples showed a maximum concentration of 420 □g/L MTBE in onsite monitoring well MW-4R. Samples also showed a maximum concentration of 2,400 □g/L TBA in onsite extraction well RW-2. The MTBE and TBA concentrations are highest near the fuel tank complex, which is consistent with past quarters. Quik Stop is sampling Nobel Creek at four down gradient locations. Quick sampled the creek on April 4 and June 5, 2008. All creek samples were below detection limits for MTBE and TBA.

Groundwater extraction pumps continue to operate in extraction wells RW-2, RW-3, and MW-4R and cleanup is ongoing.

The remediation system has removed approximately 850,012 gallons of water, 929.78 pounds of MTBE, and 246.89 pounds of TBA since system start up in April 2001.

Regionwide MTBE List

The Regionwide MTBE Listing and High Priority Sites list is included as Attachment 4. The list shows site names and addresses as well as the priority listing (Rank A, B, or C) based on State Board MTBE guidelines. Staff has required accelerated cleanup at some higher priority Rank A sites. We require interim cleanup action as soon as technically feasible until full-scale cleanup activity can begin. MTBE cleanup goals are typically set at the secondary maximum contaminant level (MCL) for drinking water of 5 micrograms per liter (μg/L), which is a taste and odor threshold. The primary MCL, based on threat to public health, is 13 μg/L.

CAMBRIA COMMUNITY SERVICES DISTRICT

Physical address: 1316 Tamsen Street, Suite 201, Cambria, CA 93428
Mailing address: P.O. Box 65 • Cambria, CA 93428
Telephone (805) 927-6223 • Facsimile (805) 927-5584

November 27, 2023

Mr. Smith,

I hope this finds you well. Please take the time to read this email before moving on to the attachments.

First and foremost, thank you for your patience while our District Board of Directors and staff reviewed your most recent proposal regarding the SR4 Well lease agreement and several of the student safety concerns brought to light by your Board of Trustees regarding the current access easement to the well site. These concerns are valid and should be addressed as soon as possible. As suggested by your Board, creating a new access easement would minimize the impact on the school and student safety. This remedy has been discussed not only by CCSD staff but also with the CCSD Board, and we support it wholeheartedly.

The Board has discussed the potential new access easement and the two proposals for either 10-year or 99-year lease terms. While the CUSD's continued efforts in lowering the proposed annual lease payment amount is greatly appreciated, the need and duty to appraise the property's value before making a decision on any fiscal level was clearly recognized. That appraisal has now been completed, and, as set forth in the attached appraisal report, the property and related easements are valued at $151,507.

The need for the SR4 Well was rooted in the MTBE plume emergency in 2000. It was and continues to be essential to providing water to the Cambria community, and the CCSD owes the CUSD a debt of gratitude. Unfortunately, although the MTBE plume emergency is no longer an issue, the water emergencies in Cambria have not ended. In fact, they continue to rise year after year. The SR4 Well has become a critical part of CCSD's water supply portfolio, so much so that it would be irresponsible not to secure access to and use of the well in perpetuity.

Accordingly, the CCSD cannot continue entering into lease agreements that have to be periodically renegotiated and which will cost the ratepayers far more than the fair market value of the property and easements in question. In the last 20 years, the District has paid more than $750,000 in lease payments and the Board is now being asked to consider an estimated commitment of $260,000 over ten years or just over $2.5 million for a 99-year term. The District cannot legally or morally continue to overpay for access to and use of the SR4 Well, which, again, is a critical part of the CCSD water portfolio that cannot be abandoned. It is our goal to negotiate a permanent solution that will protect your students' safety and serve our community's water needs. Let me assure you that the CCSD wants to avoid engaging in a lengthy and costly legal battle to acquire the property through condemnation, and I am sure your attorneys have advised you of the costs to the CUSD and likely outcomes. Thus, we sincerely hope you will consider the property sale in the attached proposal. Feel free to reach out to me anytime with any questions.

Sincerely,

Matthew McElhenie

Matthew McElhenie
General Manager

Karen Dean

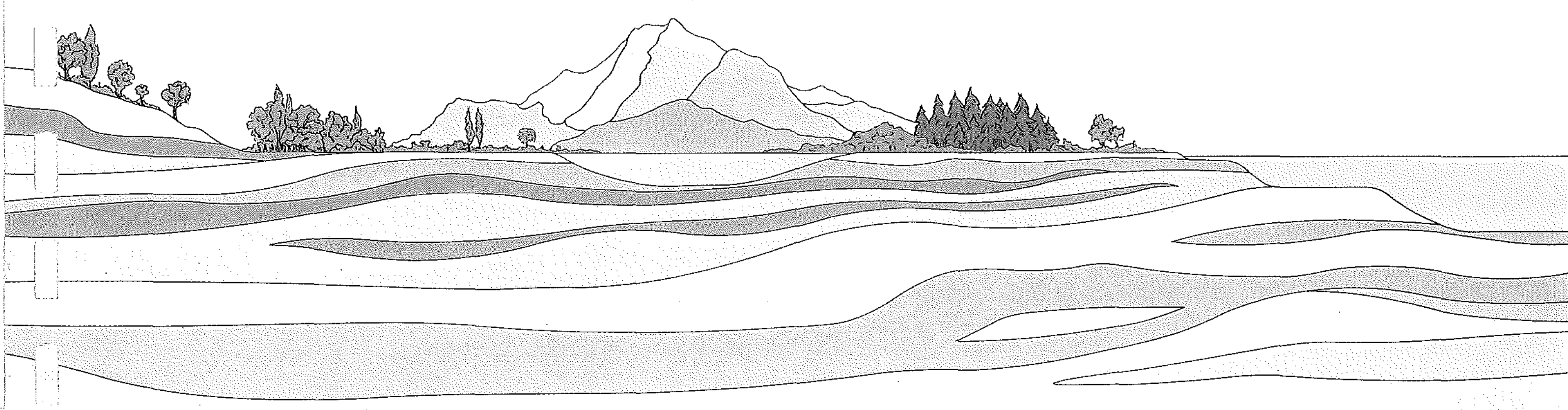
Karen Dean
Board President

FUGRO WEST, INC.

WATER WELL COMPLETION REPORT
FOR
CAMBRIA COMMUNITY SERVICES DISTRICT
WELL SR4

PREPARED FOR:
CAMBRIA COMMUNITY SERVICES DISTRICT

JANUARY, 2001



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FUGRO WEST, INC.

1012 Pacific Street, Suite B-1
San Luis Obispo, California 93401
Tel: (805) 542-0797
Fax: (805) 542-9311

January 16, 2001
Project No. 99-71-0424

Cambria Community Services District
Post Office Box 65
Cambria, California 93428

Attention: *Mr. Kenneth Topping*
Mr. Robert Hamilton

Water Well Completion Report for Well SR4
Cambria Community Services District, Cambria, California

Gentlemen:

Fugro is pleased to submit this final summary report of the drilling, construction, and testing of the new Cambria Community Services District Well SR4. The report documents the procedures used in drilling the new well, and summarizes the results of the pumping tests.

If you have any questions, please feel free to call me at the San Luis Obispo office at (805) 542-0797.

Sincerely,

FUGRO WEST, INC.

Paul A. Sorensen

Paul A. Sorensen
California Registered Geologist No. 5154
Certified Hydrogeologist No. 154

TABLE OF CONTENTS

AQUIFER TEST DATA SHEETS

FIGURES

APPENDICES

WATER WELL COMPLETION REPORT
CCSD WELL SR4
CAMBRIA COMMUNITY SERVICES DISTRICT

1. INTRODUCTION

Presented in this report is a summary of the construction, completion, and testing of Cambria Community Services District's Well SR4, located on the Coast Union High School campus north of Santa Rosa Creek, Cambria, California (Figure 1). The Well SR4 well site was the fourth test hole drilled as part of the overall drilling exploration program. Test holes 1-3 were drilled and tested from October 2-25, 2000. Test hole 3 was completed as monitoring well SRM1. Well SR4 (test hole 4) was drilled, developed, and tested from November 1-9, 2000. This report documents the exploration program, drilling operations, well construction, development procedures, and aquifer and well production testing.

The exploration drilling program and water well construction and testing was performed by Filipponi & Thompson Drilling Company of Atascadero, California. Plans and specifications were prepared by Fugro West, Inc., of San Luis Obispo, California. Throughout the work, Fugro documented contractor compliance with the specifications and acted as the District's representative at the construction site during drilling, development, and testing.

This report includes text, tables, and figures documenting the drilling and testing program. The report also includes appendices consisting of the DWR Well Completion Reports of wells SR4 and SRM1 as well as the nearby High School well (Appendix A – DWR Well Completion Reports), electric geophysical logs of the two completed wells (Appendix B – Geophysical Logs), and the water quality analysis of Well SR4 (Appendix C – Water Quality Analysis).

Well SR4 was drilled to provide a supplemental water supply from the Santa Rosa Creek underflow. It is intended to replace, at least temporarily, Well SR3, which is located approximately 1.5 miles downstream from Well SR4. Pumping of Well SR3 has been discontinued while a nearby MTBE contamination is investigated.

2. EXPLORATORY DRILLING

2.1 TEST HOLE #1.

Test Hole #1 was drilled at the site shown on Figure 1. On October 2, 2000, Test Hole #1 was drilled to a total depth of 110 feet. The exploratory drilling encountered clay from the surface to 70 feet. Further drilling encountered mostly clay with some gravel from 70 to 90 feet. Consolidated bedrock, which underlies the alluvial aquifer and represents the base of the water-producing zone, was encountered at 90 feet below ground surface. Following inspection of the cuttings, review of the thickness of the aquifer, and analysis of the electric log, the decision was made not to complete the boring as a production well.

2.2 TEST HOLE #2.

Test Hole #2 was located on the low alluvial bench shown on Figure 1 (Santa Rosa Creek does not run as shown on the map; the creek actually runs southerly of the test hole drilling sites, up against the southerly bank). The test hole was drilled on October 3, 2000 to a depth of 140 feet. One to two foot thick interlayered gravelly clay and clayey gravel layers were encountered in the boring from 20 to 60 feet. At a depth of 60 to 101 feet below ground surface, dark gray clayey gravel was encountered. From 101 to 116 feet, sandy gravel was found. Consolidated bedrock at 116 feet formed the base of the alluvial aquifer and further drilling ended. Although the results of Test Hole #2 appeared to be much better than Test Hole #1, based on inspection of the cuttings, depth to bedrock, the size of the gravel in the bottom 15 feet of the aquifer, and analysis of the electric log, it was decided to drill an additional exploratory boring before deciding on the site to construct the well.

2.3 TEST HOLE #3 (WELL SRM1)

Test Hole #3 was drilled on the eastern portion of the shallow alluvial bench, at the site shown on Figure 1. Test Hole #3 had a similar distribution of clay and gravel layers, however the basal gravel layer consisted of larger gravel and cobbles than was seen in Test Hole #2, so the decision was made to complete the boring as a production well. The well was constructed with 12-inch diameter PVC casing, with blank casing from 0 to 70 feet below ground surface (bgs), 0.060-inch slotted well screen from 70-120 feet (see Appendix A). A copy of the DWR Well Completion Report is provided in Appendix A and a copy of the geophysical electric log is provided in Appendix B.

Following normal well development procedures, initial pumping tests indicated that the well would only produce about 15-20 gallons per minute (gpm). In an attempt to increase production from the well, considerable additional well development procedures were tried, including high velocity jetting, chemical treatment using sodium acid pyrophosphate, a second chemical treatment using a prescribed mud and clay dispersant, and extensive surging and swabbing. Further testing of the well suggested that the well was capable of producing a maximum of 40 to 45 gpm, so plans were made to drill another site.

3. WELL SR4 DRILLING OPERATIONS

3.1 TEST HOLE DRILLING.

Test Hole #4 (SR4) was drilled on November 1, 2000, at the site shown on Figure 1. Although the test hole site is closer to the High School well than was originally desired, it was located at this site to try to maximize the success of the boring. The test hole was drilled to a depth of 140 feet bgs. A lithologic log of the cuttings, together with the well completion diagram, is presented in Figure 2. A copy of the DWR Well Completion Report is provided in Appendix A. A copy of the electric log is included in Appendix B.

Following running of the geophysical electric log and designing the casing schedule, the pilot hole was reamed to a 20-inch diameter hole from ground surface to the total designed well depth of 130 feet.

4. WELL COMPLETION

The well was completed to a depth of 130 feet. An as-built record drawing of the well is shown on Figure 2. The casing used in the well consisted of 12-inch diameter, SDR 21, ASTM F-480 PVC pipe. The well was constructed with blank pipe from ground surface to 80 feet below ground surface (bgs) and PVC well screen from 80 to 130 feet (bgs).

Before the casing was installed, a 2 ½-inch diameter PVC gravel tremie tube was lowered into the well to a depth of 60 feet bgs. This tube is permanently available for contact with the annular gravel envelope.

4.1 WELL SCREEN.

Due to screen availability constraints, multiple well screen slot sizes of 0.040-inch were installed from 80-90 feet bgs and 120-130 feet bgs; screen with 0.060-inch slots was installed in the highest producing zone from 90-120 feet bgs. With a 0.060-inch slot size, the screen has an open area of approximately 31.68 square inches of open area per linear foot. With a 0.040-inch slot size, the screen has an open area of approximately 22.56 square inches of open area per linear foot.

4.2 GRAVEL PACK.

Upon casing installation, the annular space between the casing and the borehole was filled with an approved gravel filter pack up to a depth of 52 feet bgs. The gravel pack was manufactured and processed by RMC Lonestar and consists of a 6 x 16 gradation of Lonestar Medium Aquarium. The slot size and gravel pack gradation was specially selected and engineered to match the size of the formation materials, the slot size, and the gravel pack gradation. During gravel placement, 100 pounds of Sodium Acid Pyrophosphate (SAPP) were mixed with the gravel pack to break down the remnant mud in the well and aid in well development.

4.3 SANITARY SEAL.

Following casing and gravel pack installation, the well annulus was then grouted from 52 feet to the surface to form the sanitary seal. The concrete sanitary seal, consisting of a 10-sack mixture with 3/8-inch aggregate, was pumped from the base of the sealed interval to the ground surface by tremie, and witnessed by a representative of San Luis Obispo County Environmental Health Services. The placement of the seal was performed in accordance with and meets minimum State and County requirements.

5. CHEMICAL AND MECHANICAL WELL DEVELOPMENT

After allowing the cement sanitary seal to set overnight, initial well development efforts consisted of airjetting the well to displace the downhole water with fresh formation water. The SAPP placed in the well during gravel packing was removed, along with remnant mud and drilling materials. Airjetting began at the top of the perforated interval, and proceeded incrementally to the bottom of the screened section. Each section of well screen was developed until the produced water was clear and free of formation sand, drilling mud, and other material. During airjetting, the well produced more than 500 gpm from the bottom of the well.

5.1 DEVELOPMENT BY PUMPING

Following the chemical and mechanical development work, the contractor mobilized a pump rig and installed a temporary submersible pump in the well. Initial pumping began at a rate of approximately 100 gpm, and continued incrementally up to a rate of slightly more than 480 gpm, which was the maximum pumping capability of the pump, not the aquifer or well. The produced water was initially slightly grayish tan from remnant bentonite clay (drilling mud), but within an hour of pumping, the produced water was clear of color and formational sand and silt.

6. AQUIFER TESTING

The aquifer and production pumping tests were conducted from November 7 through November 9, 1999. The tests included a 4-hour step drawdown test, a 24-hour constant discharge test, and a 2-hour recovery test.

6.1 STEP DRAWDOWN TEST.

The step drawdown test is a tool for examining the performance of a well by analyzing the components of laminar flow versus turbulent flow into the well casing. When laminar flow conditions exist in the aquifer, then drawdown is directly proportional to the pumping rate. When turbulent flow occurs, the specific capacity, that is, the ratio of discharge to drawdown, declines. By analyzing the specific capacity of a well at different discharge rates, judgments can be made concerning the optimum pumping rate and pump-setting depths.

In a step drawdown test, the well is pumped at several successively higher pumping rates and the drawdown for each rate, or step, is recorded. The step test for the SR4 well was started at a pumping rate of 175 gpm, with incremental rate increases of 75 gpm every hour thereafter. The maximum flow rate attained during the 4-hour (4 steps) test was 400 gpm. The results of the test are recorded on the Aquifer Test Data Sheet presented as Table 1, and shown graphically on Figures 3 and 4.

As shown on Table 1, the initial standing water level in the well was 29 feet below ground surface. At the maximum discharge rate of 400 gpm, the well had 31 feet of drawdown, resulting in a specific capacity of 12.7 gpm/ft of drawdown. The average specific capacity of the well throughout the test was 14.1 gpm/ft of drawdown (Figure 3). As shown by the trend of the curve on Figure 3, there was a slight decrease in specific capacity of the well, representing a loss of efficiency between 325 gpm and 400 gpm.

6.2 CONSTANT DISCHARGE TEST.

The constant discharge test is the primary tool for determining the performance characteristics of a well and the hydraulic parameters of the aquifer. The test consisted of pumping the well at a constant, specified discharge rate and recording the drawdown (pumping water level minus standing water level) in the well.

The 24-hour test was conducted at an average rate of 410 gpm. As shown on the Aquifer Test Data Sheet (Table 2), the pumping water level in the well and the flow rate were monitored and recorded periodically in the pumping well. These data have been tabulated and presented on Table 2 and the drawdown data shown graphically on Figure 5.

Figure 5 graphically represents the results of the pumping test. The drawdown curve shows that within 4 to 5 hours of pumping, the shape of the drawdown curve began to flatten out, indicating that the pumping depression caused by pumping the well began to reach the stabilizing effect of the creek recharge.

As shown on Table 2 and Figure 5, the water level in the well at the end of the 24-hour test was 65.5 feet bgs, which is 15 feet above the level of the uppermost perforations. Given a specific capacity of 12 gpm/ft of drawdown, and a standing water level of approximately 30 feet bgs, the pumping test data suggests that Well SR4 is capable of producing 500 gpm or more on a short-term basis (24 hours or less) without causing the pumping water level to drop below the level of the uppermost perforations. Theoretically, the well could produce 600 gpm for short-term pumping periods, however, given the proximity of the High School well and the overall demands on the aquifer in the vicinity of the well, it is unlikely that the well could continue to operate at that rate. A more reasonable operational production rate is 500 gpm.

Table 3 and Figure 6 show the measured water level in the High School well, located 143 feet from Well SR4. The data shows that the 24-hour pumping test on Well SR4 caused 19.6 feet of drawdown in the High School well.

6.3 RECOVERY TEST.

Following termination of the constant discharge test, the recovering water levels in both Well SR4 and the High School well were monitored and recorded for a period of two hours. Recovery test data is useful to monitor whether the pumping test resulted in aquifer mining or overstressing, and often proves to be the most reliable data for calculating aquifer hydraulic characteristics.

The recovery data for the wells are shown on the attached Aquifer Test Data Sheets (Tables 4 and 5), and Figures 7 and 8. Theoretically, in an ideal aquifer, it should take the same amount of time for the water level to recover in a well as was required to pump out. The graphical representation of the results of the test shows that full recovery in Well SR4 would be expected in the same time period as the time of pumping (Figure 7), which suggests that the aquifer was not overstressed and mining did not occur at the 410 gpm discharge rate. This conclusion is further supported by the recovery curve of the High School well, which shows that full recovery could be expected in a shorter period than the period of stress (Figure 8).

6.4 SAND PRODUCTION MONITORING.

During the development by pumping period and throughout the various pumping tests, sand production was constantly monitored through use of a Rossum Centrifugal Sand Sampler. At the start of the constant discharge test, the well produced 0.2 ppm sand, declining rapidly to virtually no detectable sand production within 90 minutes of start-up.

As measured against the standard sand content determined by averaging the results of samples collected 5 minutes after the start of the test, after 1/4 of the total test, after 1/2 of the time, after 3/4 of the elapsed time, and at the end of the test, the new well produced less than 0.05 ppm sand. The EPA standard for municipal wells is 5.0 ppm.

6.5 WATER QUALITY ANALYSIS.

Before termination of the aquifer pumping test, water samples were collected by District personnel for water quality analysis (Appendix C). The results of the analysis indicate that the water is of very good quality, with no analytes exceeding the Maximum Contaminant Level (MCL) for Primary Drinking Standards. Analytes of note include Total Dissolved Solids with a concentration of 660 mg/L, chloride concentration of 33 mg/L, and sulfates of 120 mg/L. Nitrates and iron were not detected in the water. The only constituent that exceeded the Secondary Drinking Water Standard MCL is manganese, with a MCL of 0.05 mg/L and a detected concentration of 0.55 mg/L. It is our understanding that an iron and manganese filter station is planned for the well head, which will reduce the manganese level to acceptable concentrations.

7. RESULTS AND CONCLUSIONS

- The Cambria Community Services District SR4 well was drilled, constructed, and tested from November 1, 2000 to November 9, 2000. The well was drilled and constructed by Filipponi and Thompson Drilling Company of Atascadero, California.

- The results of the pumping test shows that Well SR4 is capable of producing 500 gpm on an operational pumping schedule, if Well SR4 and the High School well are not operated simultaneously. A reasonable operating schedule would be to operate Well SR4 at 400 to 500 gpm for 8 to 12 hours during the daytime period, with the High School well operating at 300 to 325 gpm for 8 hours during the night for irrigation demands.

- If the wells are operated simultaneously in emergency conditions, total production from the two wells could be expected to be in the range of 600 to 650 gpm.

- The well should be disinfected and sampled for bacteria after the permanent pump is installed, and before the well is put into service.

- Pertinent well information is summarized below:

	SR4 Well
Total Well Depth	130 feet
Casing Diameter and Type	12 inch, PVC
Slot Size and Construction Details	0 – 80 ft Blank 80 –90 ft 0.040" slots 90 – 120 ft 0.060" slots 120 –130 ft 0.040" slots
Gravel Pack Gradation	Lonestar 6 x 16
Sanitary Seal Depth	52 ft
Operational Production Rate	500 gpm (if used independently of the High School well) 350 to 400 gpm (if used in conjunction with the High School well)
Specific Capacity @ Prod. Rate	12.0 to 14.0 gpm/ft
Aquifer Transmissivity	20,000 gpd/ft
Standing Water Level (11/00)	32 feet (Nov 00)

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TABLES

CCSD Well SR4

AQUIFER TEST DATA SHEET

Date of Test: 7-Nov-00

Step Drawdown Test

	Observer:			**Filipponi & Thompson Drilling**		
	Step Intervals:			**1**	**hr**	
	WL Meas Device:			**Sounder**		
	LSD Elev:			**82**	**ft MSL**	
	Meas Pt Elev:				**ft above LSD**	
Obsv Date & Time	**Elapsed Time (min)**	**Discharge (gpm)**	**Drawdown (feet)**	**Depth to Water (ft < LSD)**	**WL Elev (ft MSL)**	**Specific Capacity (gpm/ft)**
7-Nov-00 8:40 AM	**0**	**0**	**0**	**29**	**53**	**-----**
7-Nov-00 8:42 AM	2	175	7	36	46	25.4
7-Nov-00 8:45 AM	5	175	8	37	45	20.8
7-Nov-00 8:50 AM	10	175	9	38	44	19.4
7-Nov-00 8:55 AM	15	175	10	39	44	18.4
7-Nov-00 9:00 AM	20	175	10	39	43	17.7
7-Nov-00 9:10 AM	30	175	11	40	43	16.7
7-Nov-00 9:25 AM	45	175	11	40	42	15.8
7-Nov-00 9:40 AM	**60**	**175**	**12**	**41**	**42**	**15.2**
7-Nov-00 9:42 AM	62	250	15	44	38	16.9
7-Nov-00 9:45 AM	65	250	15	44	38	16.4
7-Nov-00 9:50 AM	70	250	16	45	37	16.0
7-Nov-00 9:55 AM	75	250	16	45	37	15.7
7-Nov-00 10:00 AM	80	250	16	45	37	15.5
7-Nov-00 10:10 AM	90	250	17	46	37	15.2
7-Nov-00 10:25 AM	105	250	17	46	36	14.7
7-Nov-00 10:40 AM	**120**	**250**	**17**	**46**	**36**	**14.4**
7-Nov-00 10:42 AM	122	325	20	49	33	16.0
7-Nov-00 10:45 AM	125	325	21	50	32	15.6
7-Nov-00 10:50 AM	130	325	21	50	32	15.3
7-Nov-00 10:55 AM	135	325	22	51	32	15.1
7-Nov-00 11:00 AM	140	325	22	51	31	15.0
7-Nov-00 11:10 AM	150	325	22	51	31	14.6
7-Nov-00 11:25 AM	165	325	23	52	30	14.4
7-Nov-00 11:40 AM	**180**	**325**	**23**	**52**	**30**	**14.2**
7-Nov-00 11:42 AM	182	400	28	57	25	14.3
7-Nov-00 11:45 AM	185	400	29	58	24	13.8
7-Nov-00 11:50 AM	190	400	30	59	23	13.5
7-Nov-00 11:55 AM	195	400	30	59	23	13.4
7-Nov-00 12:00 PM	200	400	30	59	23	13.3
7-Nov-00 12:10 PM	210	400	31	60	23	13.1
7-Nov-00 12:25 PM	225	400	31	60	22	12.9
7-Nov-00 12:40 PM	**240**	**400**	**31**	**60**	**22**	**12.7**

TABLE 1

CCSD Well SR4 — Aquifer Test Data Sheet

Date of Test: 8-Nov-00

Constant Discharge Test, Q = 410 gpm

Observer:	F&T Drilling
Pumping Duration:	24 hrs
WL Meas Device:	Sounder
LSD Elev:	82 ft MSL
Meas Pt Elev:	0

Obsv Date & Time	Elapsed Time (min)	Drawdown (feet)	Depth to Water (ft < LSD)	WL Elev (ft MSL)
8-Nov-00 9:03 AM	0.00	0.0	32.0	50.0
8-Nov-00 9:05 AM	2.00	15.6	47.6	34.4
8-Nov-00 9:08 AM	5.00	19.6	51.6	30.4
8-Nov-00 9:13 AM	10.00	21.8	53.8	28.2
8-Nov-00 9:18 AM	15.00	23.2	55.2	26.8
8-Nov-00 9:23 AM	20.00	24.0	56.0	26.0
8-Nov-00 9:33 AM	30.00	25.1	57.1	24.9
8-Nov-00 9:48 AM	45.00	26.2	58.2	23.8
8-Nov-00 10:03 AM	60.00	27.0	59.0	23.0
8-Nov-00 10:33 AM	90.00	28.2	60.2	21.8
8-Nov-00 11:03 AM	120.00	28.9	60.9	21.1
8-Nov-00 12:03 PM	180.00	29.9	61.9	20.1
8-Nov-00 1:03 PM	240.00	30.6	62.6	19.4
8-Nov-00 2:03 PM	300.00	31.0	63.0	19.0
8-Nov-00 3:03 PM	360.00	31.4	63.4	18.6
8-Nov-00 4:03 PM	420.00	31.8	63.8	18.2
8-Nov-00 5:03 PM	480.00	32.0	64.0	18.0
8-Nov-00 6:03 PM	540.00	32.2	64.2	17.8
8-Nov-00 7:03 PM	600.00	32.3	64.3	17.7
8-Nov-00 8:03 PM	660.00	32.5	64.5	17.5
8-Nov-00 9:03 PM	720.00	32.6	64.6	17.4
8-Nov-00 10:03 PM	780.00	32.7	64.7	17.3
9-Nov-00 12:03 AM	900.00	33.0	65.0	17.0
9-Nov-00 3:03 AM	1080.00	33.2	65.2	16.8
9-Nov-00 6:03 AM	1260.00	33.4	65.4	16.6
9-Nov-00 7:03 AM	1320.00	33.5	65.5	16.5
9-Nov-00 8:03 AM	1380.00	33.5	65.5	16.5
9-Nov-00 9:03 AM	1440.00	33.5	65.5	16.5

TABLE 2

CCSD Well SR4 Constant Discharge Test

High School Observation Well Data

Date of Test: 11/8 thru 11/9/2000

CCSD Well SR4 Pumped at 410 GPM

Observer: F&T Drilling
WL Meas Device: Hermit Datalogger

Distance from H.S. Well to SR4 = 143 feet

Obsv Date & Time	Elapsed Time (min)	Elapsed Time (days)	High School Well Depth to Water (ft < LSD)	High School Well Drawdown (ft)
8-Nov-00 9:03 AM	0	0	31.81	0.0
8-Nov-00 9:13 AM	10	0.01	39.11	7.11
8-Nov-00 9:23 AM	20	0.01	41.06	9.06
8-Nov-00 9:33 AM	30	0.02	42.23	10.23
8-Nov-00 9:43 AM	40	0.03	43.06	11.06
8-Nov-00 9:53 AM	50	0.03	43.74	11.74
8-Nov-00 10:03 AM	60	0.04	44.27	12.27
8-Nov-00 10:13 AM	70	0.05	44.74	12.74
8-Nov-00 10:23 AM	80	0.06	45.15	13.15
8-Nov-00 10:33 AM	90	0.06	45.51	13.51
8-Nov-00 10:43 AM	100	0.07	45.83	13.83
8-Nov-00 10:53 AM	110	0.08	46.13	14.13
8-Nov-00 11:03 AM	120	0.08	46.38	14.38
8-Nov-00 11:13 AM	130	0.09	46.62	14.62
8-Nov-00 11:23 AM	140	0.10	46.84	14.84
8-Nov-00 11:33 AM	150	0.10	47.04	15.04
8-Nov-00 11:43 AM	160	0.11	47.23	15.23
8-Nov-00 11:53 AM	170	0.12	47.39	15.39
8-Nov-00 12:03 PM	180	0.13	47.54	15.54
8-Nov-00 12:13 PM	190	0.13	47.70	15.70
8-Nov-00 12:23 PM	200	0.14	47.84	15.84
8-Nov-00 12:33 PM	210	0.15	47.97	15.97
8-Nov-00 12:43 PM	220	0.15	48.09	16.09
8-Nov-00 12:53 PM	230	0.16	48.20	16.20
8-Nov-00 1:03 PM	240	0.17	48.31	16.31
8-Nov-00 1:13 PM	250	0.17	48.42	16.42
8-Nov-00 1:23 PM	260	0.18	48.52	16.52
8-Nov-00 1:33 PM	270	0.19	48.61	16.61
8-Nov-00 1:43 PM	280	0.19	48.69	16.69
8-Nov-00 1:53 PM	290	0.20	48.77	16.77
8-Nov-00 2:03 PM	300	0.21	48.87	16.87
8-Nov-00 2:13 PM	310	0.22	48.94	16.94
8-Nov-00 2:23 PM	320	0.22	49.02	17.02
8-Nov-00 2:33 PM	330	0.23	49.09	17.09
8-Nov-00 2:43 PM	340	0.24	49.16	17.16
8-Nov-00 2:53 PM	350	0.24	49.23	17.23
8-Nov-00 3:03 PM	360	0.25	49.29	17.29
8-Nov-00 3:13 PM	370	0.26	49.35	17.35
8-Nov-00 3:23 PM	380	0.26	49.42	17.42
8-Nov-00 3:33 PM	390	0.27	49.46	17.46

TABLE 3

Obsv Date & Time	Elapsed Time (min)	Elapsed Time (days)	High School Well Depth to Water (ft < LSD)	High School Well Drawdown (ft)
8-Nov-00 3:43 PM	400	0.28	49.53	17.53
8-Nov-00 3:53 PM	410	0.28	49.57	17.57
8-Nov-00 4:03 PM	420	0.29	49.62	17.62
8-Nov-00 4:13 PM	430	0.30	49.67	17.67
8-Nov-00 4:23 PM	440	0.31	49.71	17.71
8-Nov-00 4:33 PM	450	0.31	49.78	17.78
8-Nov-00 4:43 PM	460	0.32	49.81	17.81
8-Nov-00 4:53 PM	470	0.33	49.86	17.86
8-Nov-00 5:03 PM	480	0.33	49.89	17.89
8-Nov-00 5:13 PM	490	0.34	49.94	17.94
8-Nov-00 5:23 PM	500	0.35	49.97	17.97
8-Nov-00 5:33 PM	510	0.35	50.01	18.01
8-Nov-00 5:43 PM	520	0.36	50.05	18.05
8-Nov-00 5:53 PM	530	0.37	50.09	18.09
8-Nov-00 6:03 PM	540	0.38	50.11	18.11
8-Nov-00 6:13 PM	550	0.38	50.15	18.15
8-Nov-00 6:23 PM	560	0.39	50.19	18.19
8-Nov-00 6:33 PM	570	0.40	50.22	18.22
8-Nov-00 6:43 PM	580	0.40	50.23	18.23
8-Nov-00 6:53 PM	590	0.41	50.27	18.27
8-Nov-00 7:03 PM	600	0.42	50.30	18.30
8-Nov-00 7:13 PM	610	0.42	50.33	18.33
8-Nov-00 7:23 PM	620	0.43	50.36	18.36
8-Nov-00 7:33 PM	630	0.44	50.39	18.39
8-Nov-00 7:43 PM	640	0.44	50.42	18.42
8-Nov-00 7:53 PM	650	0.45	50.45	18.45
8-Nov-00 8:03 PM	660	0.46	50.47	18.47
8-Nov-00 8:13 PM	670	0.47	50.50	18.50
8-Nov-00 8:23 PM	680	0.47	50.53	18.53
8-Nov-00 8:33 PM	690	0.48	50.55	18.55
8-Nov-00 8:43 PM	700	0.49	50.58	18.58
8-Nov-00 8:53 PM	710	0.49	50.60	18.60
8-Nov-00 9:03 PM	720	0.50	50.63	18.63
8-Nov-00 9:13 PM	730	0.51	50.64	18.64
8-Nov-00 9:23 PM	740	0.51	50.66	18.66
8-Nov-00 9:33 PM	750	0.52	50.69	18.69
8-Nov-00 9:43 PM	760	0.53	50.71	18.71
8-Nov-00 9:53 PM	770	0.53	50.72	18.72
8-Nov-00 10:03 PM	780	0.54	50.75	18.75
8-Nov-00 10:13 PM	790	0.55	50.78	18.78
8-Nov-00 10:23 PM	800	0.56	50.80	18.80
8-Nov-00 10:33 PM	810	0.56	50.82	18.82
8-Nov-00 10:43 PM	820	0.57	50.85	18.85
8-Nov-00 10:53 PM	830	0.58	50.85	18.85
8-Nov-00 11:03 PM	840	0.58	50.88	18.88
8-Nov-00 11:13 PM	850	0.59	50.89	18.89
8-Nov-00 11:23 PM	860	0.60	50.91	18.91
8-Nov-00 11:33 PM	870	0.60	50.93	18.93
8-Nov-00 11:43 PM	880	0.61	50.94	18.94
8-Nov-00 11:53 PM	890	0.62	50.96	18.96
9-Nov-00 12:03 AM	900	0.63	50.97	18.97
9-Nov-00 12:13 AM	910	0.63	50.99	18.99
9-Nov-00 12:23 AM	920	0.64	51.00	19.00
9-Nov-00 12:33 AM	930	0.65	51.02	19.02
9-Nov-00 12:43 AM	940	0.65	51.04	19.04

TABLE 3 (cont.)

Obsv Date & Time	Elapsed Time (min)	Elapsed Time (days)	High School Well Depth to Water (ft < LSD)	High School Well Drawdown (ft)
9-Nov-00 12:53 AM	950	0.66	51.05	19.05
9-Nov-00 1:03 AM	960	0.67	51.07	19.07
9-Nov-00 1:13 AM	970	0.67	51.07	19.07
9-Nov-00 1:23 AM	980	0.68	51.08	19.08
9-Nov-00 1:33 AM	990	0.69	51.11	19.11
9-Nov-00 1:43 AM	1000	0.69	51.13	19.13
9-Nov-00 1:53 AM	1010	0.70	51.13	19.13
9-Nov-00 2:03 AM	1020	0.71	51.15	19.15
9-Nov-00 2:13 AM	1030	0.72	51.16	19.16
9-Nov-00 2:23 AM	1040	0.72	51.18	19.18
9-Nov-00 2:33 AM	1050	0.73	51.19	19.19
9-Nov-00 2:43 AM	1060	0.74	51.21	19.21
9-Nov-00 2:53 AM	1070	0.74	51.21	19.21
9-Nov-00 3:03 AM	1080	0.75	51.22	19.22
9-Nov-00 3:13 AM	1090	0.76	51.24	19.24
9-Nov-00 3:23 AM	1100	0.76	51.26	19.26
9-Nov-00 3:33 AM	1110	0.77	51.27	19.27
9-Nov-00 3:43 AM	1120	0.78	51.27	19.27
9-Nov-00 3:53 AM	1130	0.78	51.29	19.29
9-Nov-00 4:03 AM	1140	0.79	51.30	19.30
9-Nov-00 4:13 AM	1150	0.80	51.32	19.32
9-Nov-00 4:23 AM	1160	0.81	51.33	19.33
9-Nov-00 4:33 AM	1170	0.81	51.35	19.35
9-Nov-00 4:43 AM	1180	0.82	51.35	19.35
9-Nov-00 4:53 AM	1190	0.83	51.37	19.37
9-Nov-00 5:03 AM	1200	0.83	51.38	19.38
9-Nov-00 5:13 AM	1210	0.84	51.38	19.38
9-Nov-00 5:23 AM	1220	0.85	51.40	19.40
9-Nov-00 5:33 AM	1230	0.85	51.41	19.41
9-Nov-00 5:43 AM	1240	0.86	51.43	19.43
9-Nov-00 5:53 AM	1250	0.87	51.43	19.43
9-Nov-00 6:03 AM	1260	0.88	51.45	19.45
9-Nov-00 6:13 AM	1270	0.88	51.46	19.46
9-Nov-00 6:23 AM	1280	0.89	51.46	19.46
9-Nov-00 6:33 AM	1290	0.90	51.48	19.48
9-Nov-00 6:43 AM	1300	0.90	51.49	19.49
9-Nov-00 6:53 AM	1310	0.91	51.51	19.51
9-Nov-00 7:03 AM	1320	0.92	51.51	19.51
9-Nov-00 7:13 AM	1330	0.92	51.51	19.51
9-Nov-00 7:23 AM	1340	0.93	51.52	19.52
9-Nov-00 7:33 AM	1350	0.94	51.54	19.54
9-Nov-00 7:43 AM	1360	0.94	51.55	19.55
9-Nov-00 7:53 AM	1370	0.95	51.55	19.55
9-Nov-00 8:03 AM	1380	0.96	51.57	19.57
9-Nov-00 8:13 AM	1390	0.97	51.57	19.57
9-Nov-00 8:23 AM	1400	0.97	51.59	19.59
9-Nov-00 8:33 AM	1410	0.98	51.60	19.60
9-Nov-00 8:43 AM	1420	0.99	51.60	19.60
9-Nov-00 8:53 AM	1430	0.99	51.63	19.63
9-Nov-00 9:03 AM	1440	1.00	51.62	19.62

TABLE 3 (cont.)

CCSD Well SR4 **AQUIFER TEST DATA SHEET**

Date of Test: 9-Nov-00

Recovery Test

	Observer:	**F&T Drilling**	
	Pumping Duration	**24**	**hr**
	WL Meas Device:	**Sounder**	
	LSD Elev:	**82**	**ft MSL**
Original Static Water Level, start of constant Q test:		**32**	**ft below LSD**
	Start Time of Recovery Test:	**9:03 AM**	

Obsv Date & Time	Elapsed Time Since Test Started (min) (t)	Elapsed Time Since Test Ended (min) (t')	t/t'	Residual Drawdown (feet) (s')	Depth to Water (ft < LSD)	WL Elev (ft MSL)
9-Nov-00 9:03 AM	1440.00	0.00	-----	33.5	65.5	16.5
9-Nov-00 9:05 AM	1442.00	2.00	721.0	19.7	51.7	30.3
9-Nov-00 9:08 AM	1445.00	5.00	289.0	14.0	46.0	36.0
9-Nov-00 9:13 AM	1450.00	10.00	145.0	12.0	44.0	38.0
9-Nov-00 9:18 AM	1455.00	15.00	97.0	10.9	42.9	39.1
9-Nov-00 9:23 AM	1460.00	20.00	73.0	10.1	42.1	39.9
9-Nov-00 9:28 AM	1465.00	25.00	58.6	9.5	41.5	40.5
9-Nov-00 9:33 AM	1470.00	30.00	49.0	8.9	40.9	41.1
9-Nov-00 9:43 AM	1480.00	40.00	37.0	8.2	40.2	41.8
9-Nov-00 9:53 AM	1490.00	50.00	29.8	7.5	39.5	42.5
9-Nov-00 10:03 AM	1500.00	60.00	25.0	9.8	41.8	40.2
9-Nov-00 10:13 AM	1510.00	70.00	21.6	9.3	41.3	40.7
9-Nov-00 10:23 AM	1520.00	80.00	19.0	5.7	37.7	44.3
9-Nov-00 10:33 AM	1530.00	90.00	17.0	6.5	38.5	43.5
9-Nov-00 10:43 AM	1540.00	100.00	15.4	8.2	40.2	41.8
9-Nov-00 10:53 AM	1550.00	110.00	14.1	7.8	39.8	42.2
9-Nov-00 11:03 AM	1560.00	120.00	13.0	7.7	39.7	42.3

TABLE 4

CCSD Well SR4
Observation Well Data

AQUIFER TEST DATA SHEET

Date of Test: 9-Nov-00

Recovery Test

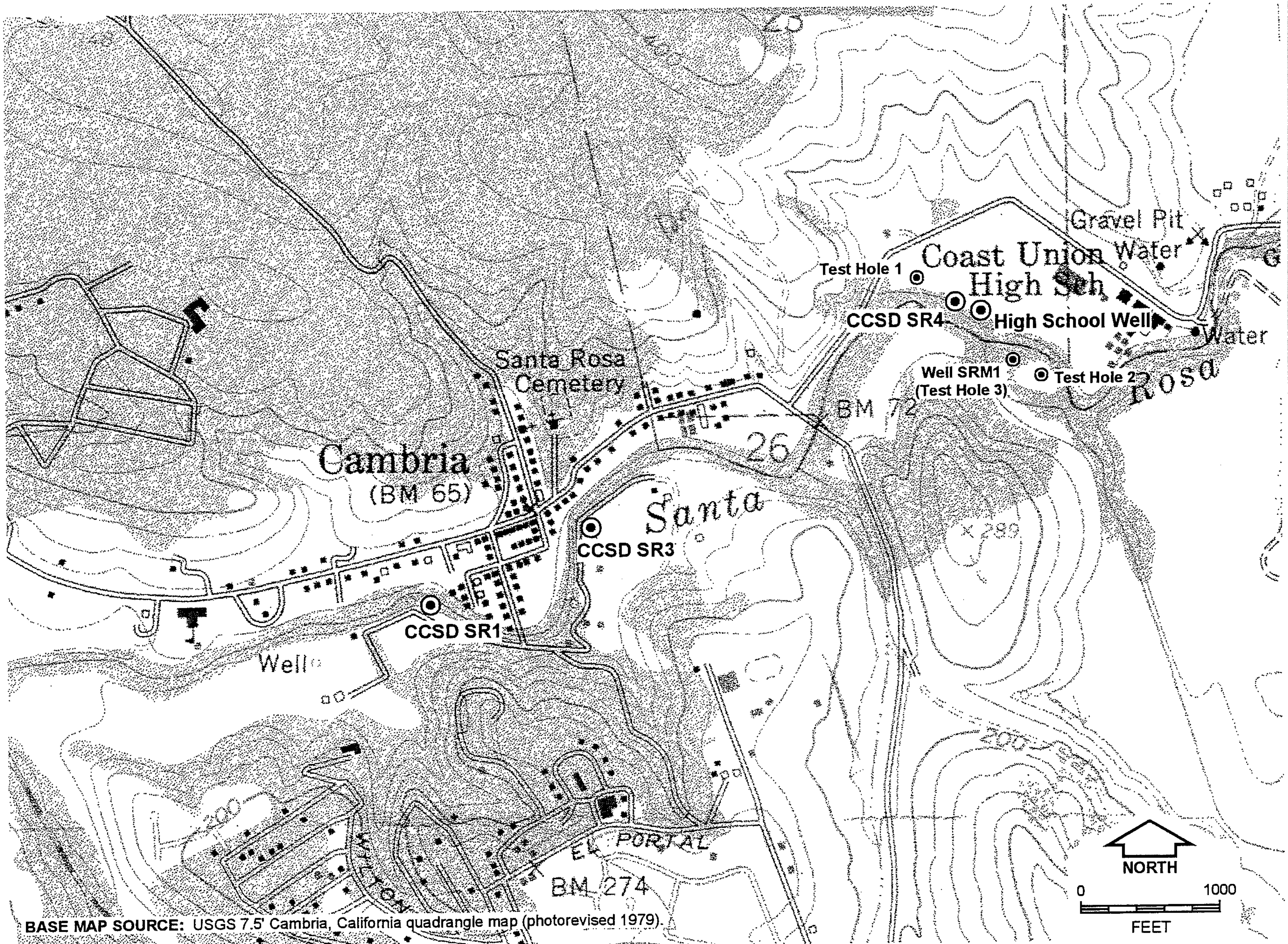
Observer:	F&T Drilling	
Pumping Duration	24	hr
WL Meas Device:	Fugro Datalogger	
LSD Elev:	82	ft MSL
Original Static Water Level, start of constant Q test:	31.8	ft below LSD
Start Time of Recovery Test:	9:03 AM	

Obsv Date & Time	Elapsed Time Since Test Started (min) (t)	Elapsed Time Since Test Ended (min) (t')	t/t'	Residual Drawdown (feet) (s')	Depth to Water (ft < LSD)	WL Elev (ft MSL)
9-Nov-00 9:03 AM	1440.00	0.00	-----	19.6	51.4	30.6
9-Nov-00 9:13 AM	1450.00	10.00	145.0	12.4	44.2	37.8
9-Nov-00 9:23 AM	1460.00	20.00	73.0	10.6	42.4	39.6
9-Nov-00 9:33 AM	1470.00	30.00	49.0	9.5	41.3	40.7
9-Nov-00 9:43 AM	1480.00	40.00	37.0	8.6	40.4	41.6
9-Nov-00 9:53 AM	1490.00	50.00	29.8	7.9	39.7	42.3
9-Nov-00 10:03 AM	1500.00	60.00	25.0	7.3	39.2	42.8
9-Nov-00 10:13 AM	1510.00	70.00	21.6	6.8	38.6	43.4
9-Nov-00 10:23 AM	1520.00	80.00	19.0	6.4	38.2	43.8
9-Nov-00 10:33 AM	1530.00	90.00	17.0	6.0	37.8	44.2
9-Nov-00 10:43 AM	1540.00	100.00	15.4	5.6	37.4	44.6
9-Nov-00 10:53 AM	1550.00	110.00	14.1	5.3	37.1	44.9

TABLE 5

FIGURES

99710424.chv/wellloc.dsf

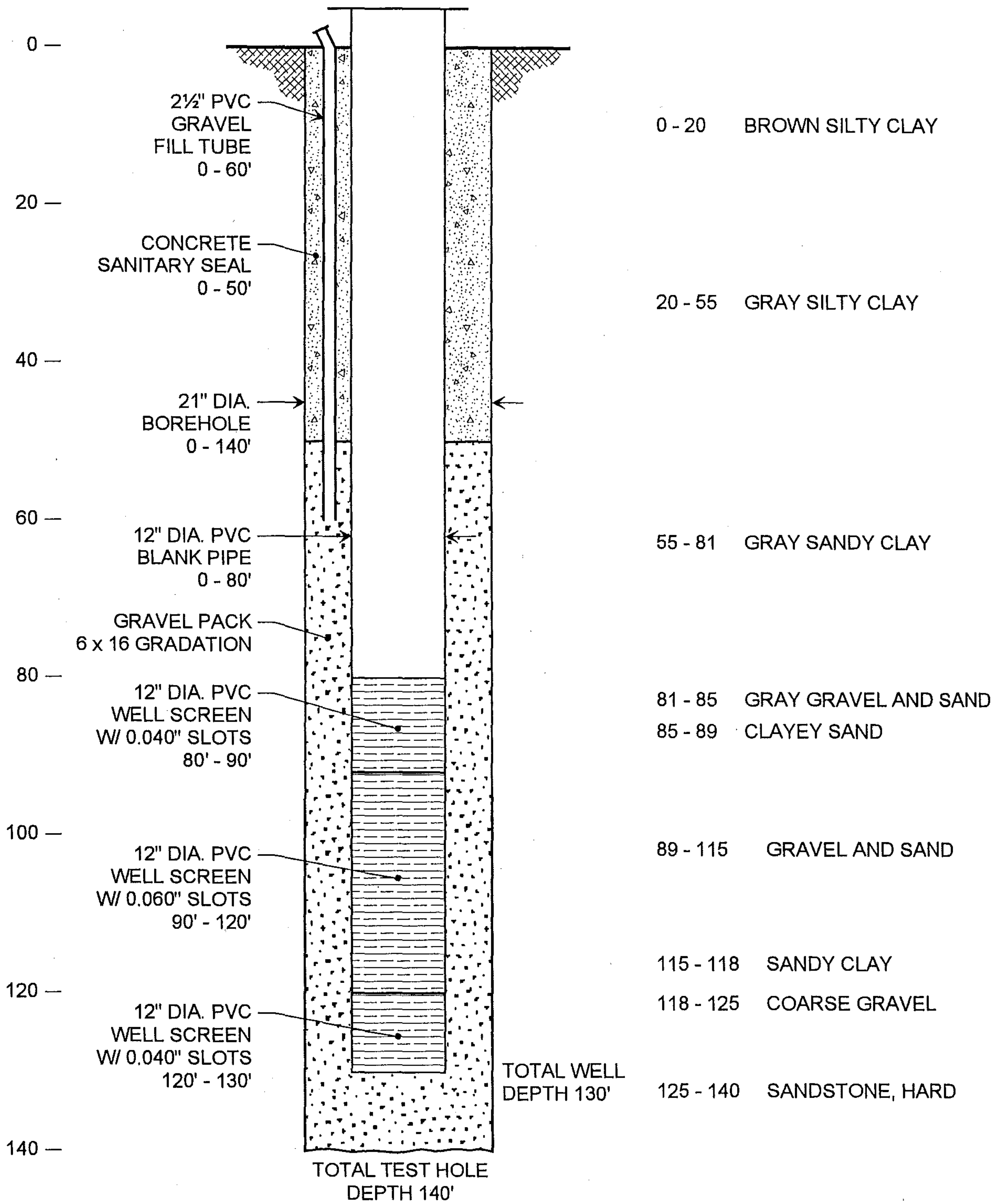


BASE MAP SOURCE: USGS 7.5' Cambria, California quadrangle map (photorevised 1979).

LOCATION MAP
Well SR4
Cambria Community Services District

FIGURE 1

Cambria Community Services District
January 2001, (99-71-0424)



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WELL SR4
Cambria Community Services District

FIGURE 2

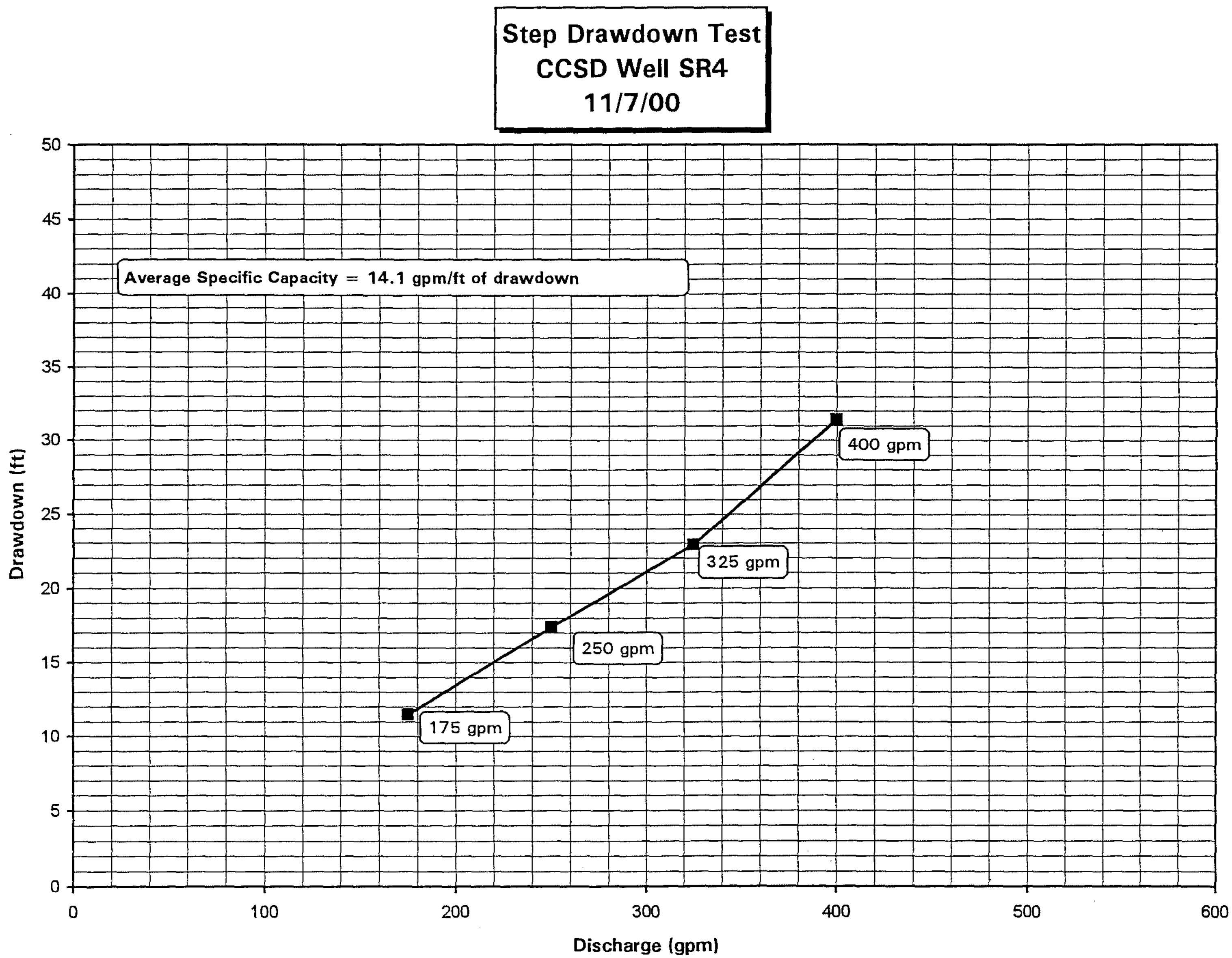


FIGURE 3

Cambria Community Services District
January 2001, (99-71-0424)

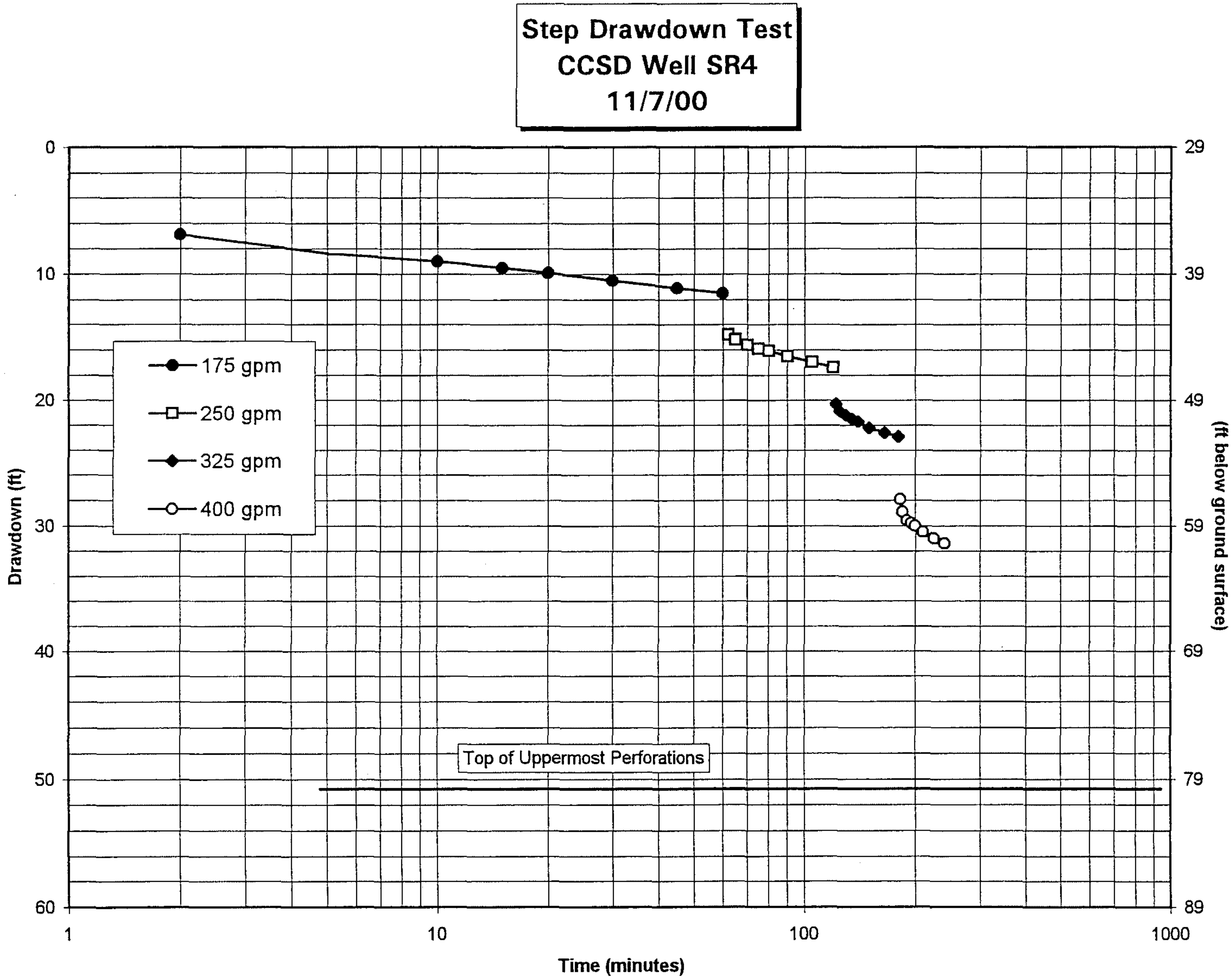


FIGURE 4

Cambria Community Services District
January 2001, (99-71-0424)

FUGRO

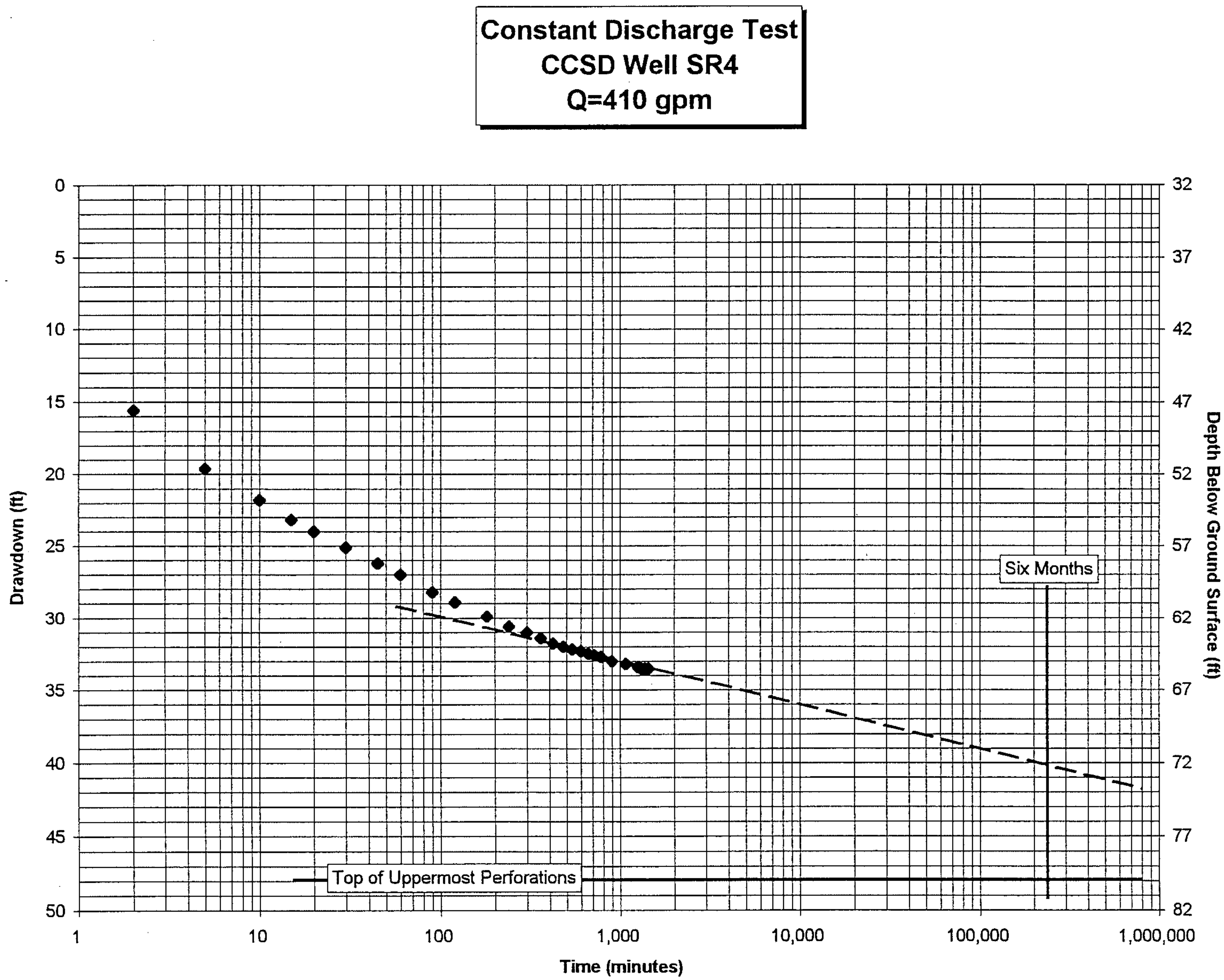


FIGURE 5

Cambria Community Services District
January 2001, (99-71-0424)

Well 4 Aquifer Test.xls, HS Well Obs T-DD Curve

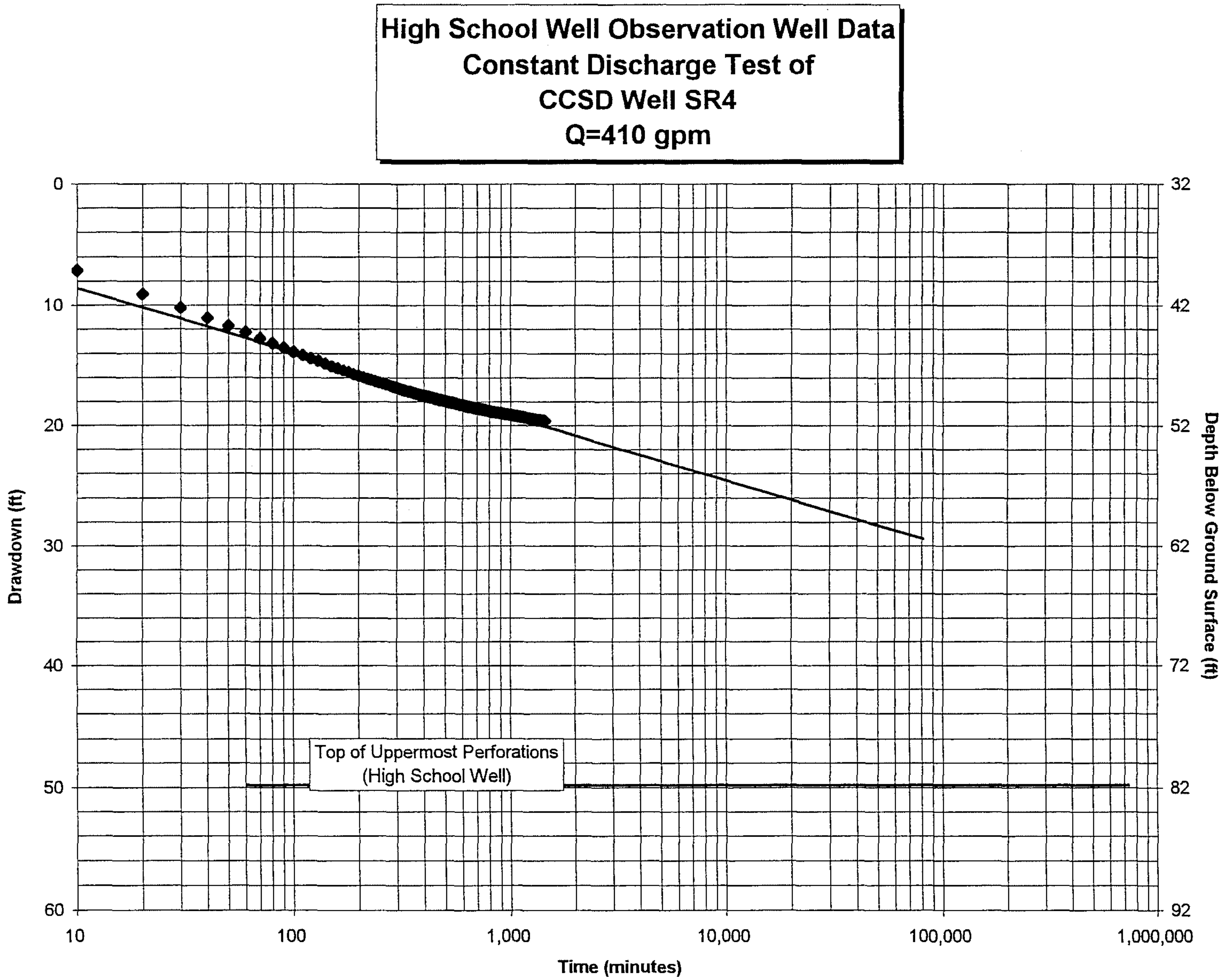


FIGURE 6

Cambria Community Services District
January 2001, (99-71-0424)

FUGRO

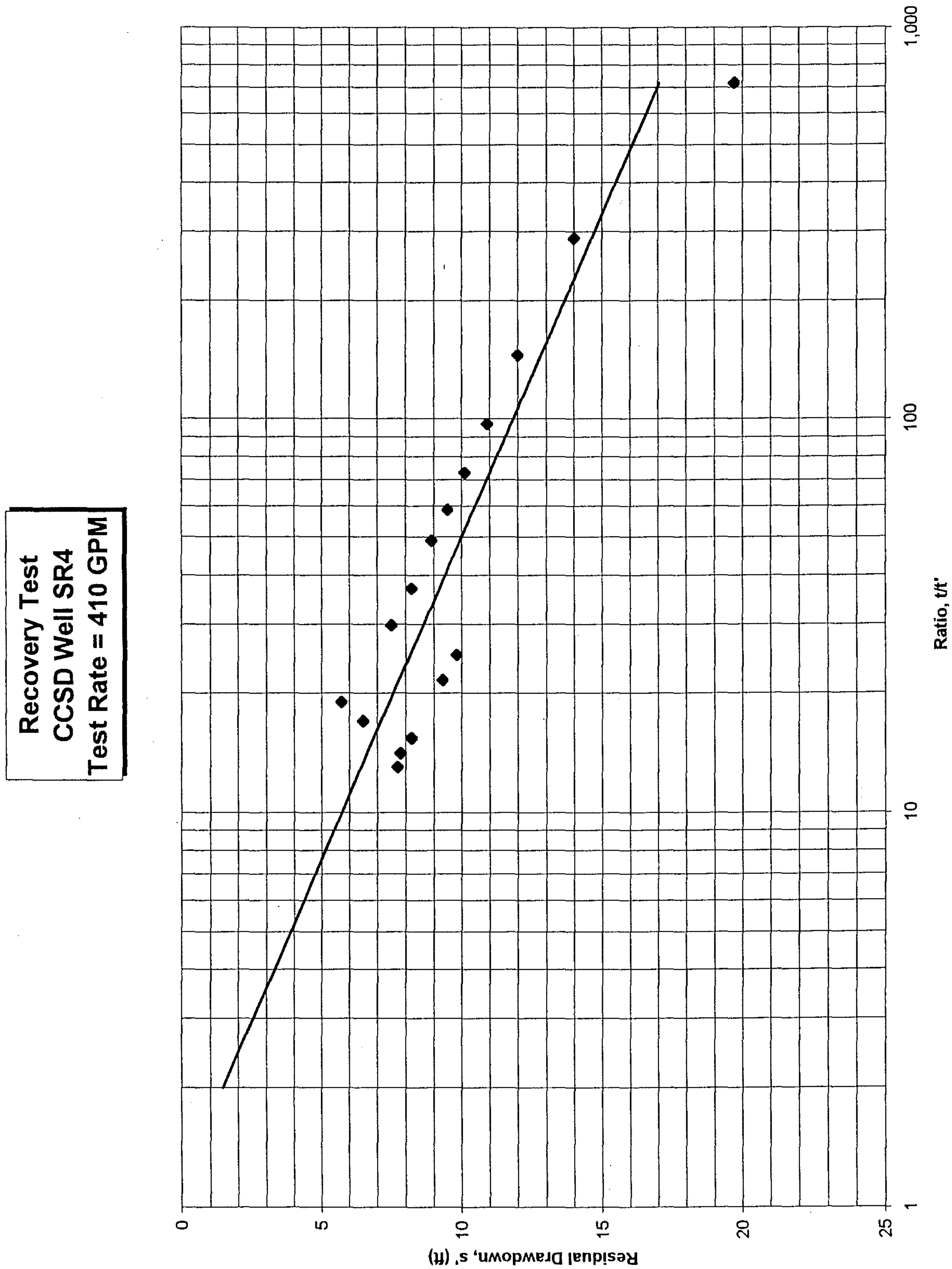

Recovery Test
CCSD Well SR4
Test Rate = 410 GPM
Ratio, t/t'
Residual Drawdown, s' (ft)
1
10
100
1,000
0
5
10
15
20
25

FIGURE 7

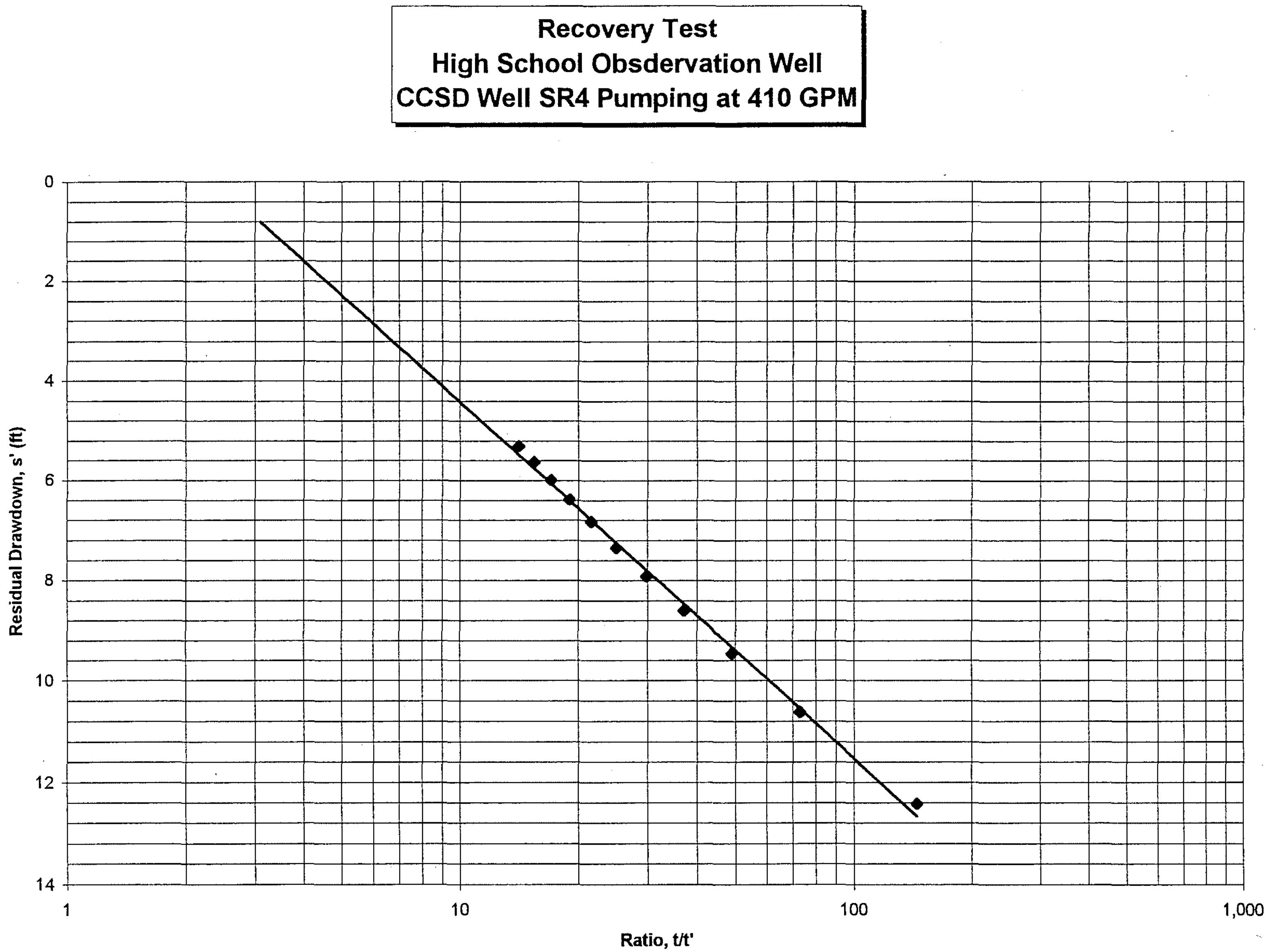


FIGURE 8

Cambria Community Services District
January 2001, (99-71-0424)

FUGRO

APPENDIX A

State of California
Well Completion Report

and

Well Construction Diagrams
Well SRM1 and High School Well

File [redacted]LL

Page 1 of 1

STATE OF CALIFORNIA

COMPLETION REPORT

Refer to Instruction Pamphlet

No. **782377**

[redacted] USE ONLY — DO NOT FILL IN

STATE WELL NO./STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

Owner's Well No. ~~D#2~~ SR4

Date Work Began 11/1/00, Ended 11/3/00

Local Permit Agency San Luis Obispo

Permit No. 2000-E-075 Permit Date 11/1/00

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID Bentonite

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	3	TOP SOIL
3	30	BROWN SILTY STICKY CLAY
30	55	GREEN SILTY STICKY CLAY
55	81	GREY GREEN SILTY CLAY
81	85	FINE SAND SMALL GRAVEL
85	89	GREY SILTY CLAY
89	115	SAND & GRAVEL
115	118	GREY CLAY
118	125	SAND & GRAVEL
125	140	GREY SANDSTONE
		Air Lift Test is only approximate. A Test Pump is recommended for an accurate account.

TOTAL DEPTH OF BORING 140 (Feet)

TOTAL DEPTH OF COMPLETED WELL 130 (Feet)

WELL OWNER

Name Coast Union High School

Mailing Address P.O. Box 65

Cambria CA 93428

CITY STATE ZIP

WELL LOCATION

Address 2950 Santa Rosa Creek Rd

City Cambria CA

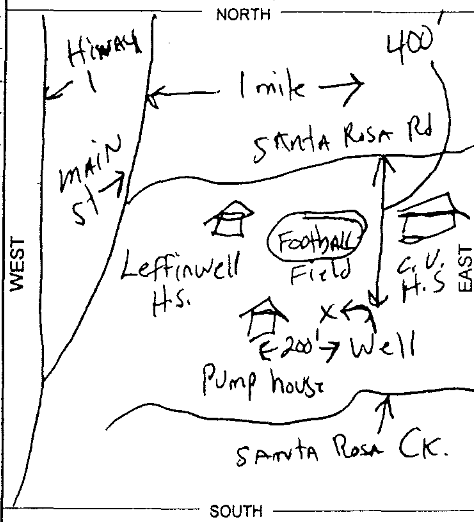
County San Luis Obispo

APN Book 013 Page 081 Parcel 045

Township 27 S Range 8 E Section 26

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC

LOCATION SKETCH



Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR

— Deepen

— Other (Specify)

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY

✓ Domestic ✓ Public

✓ Irrigation ___ Industrial

MONITORING ___

TEST WELL ___

CATHODIC PROTECTION ___

HEAT EXCHANGE ___

DIRECT PUSH ___

INJECTION ___

VAPOR EXTRACTION ___

SPARGING ___

REMEDIATION ___

OTHER (SPECIFY) ✓ Municipal

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

1

DEPTH OF STATIC WATER LEVEL 30 (Ft.) & DATE MEASURED 11/3/00

ESTIMATED YIELD * 500 (GPM) & TEST TYPE Air Lift

TEST LENGTH 2 1/2 (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	80	20	✓				PVC	12	SDR 21	
80	130	20		✓			PVC	12	SDR 21	.040

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	52	✓			
52	130			✓	Monterey Mix (big sand)

ATTACHMENTS (✓)

— Geologic Log

— Well Construction Diagram

— Geophysical Log(s)

— Soil/Water Chemical Analysis

— Other

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME FILIPPONI & THOMPSON DRILLING

(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

ADDRESS P.O. BOX 845 ATASCADERO CA 93423

CITY STATE ZIP

Signed [signature] 11/10/00 432680

WELL DRILLER/AUTHORIZED REPRESENTATIVE DATE SIGNED C-57 LICENSE NUMBER

DWR 188 REV 11-97

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM

ORIGINAL
File wi[redacted]LL

Page 1 of 1

STATE OF CALIFORNIA

COMPLETION REPORT

Refer to Instruction Pamphlet

No. 782376

[redacted]

STATE WELL NO./STATION NO.

LATITUDE | LONGITUDE

APN/TRS/OTHER

Owner's Well No. ~~SR4-CH~~ SRM1

Date Work Began 10/2/00, Ended 10/6/00

Local Permit Agency San Luis Obispo

Permit No. 2000-E-074 Permit Date 9/27/00

GEOLOGIC LOG

ORIENTATION (✓) ✓ VERTICAL ___ HORIZONTAL ___ ANGLE ___ (SPECIFY)

DRILLING METHOD ROTARY FLUID Bentonite

DEPTH FROM SURFACE Ft.	to Ft.	DESCRIPTION *Describe material, grain, size, color, etc.*
0	4	TOP SOIL
4	37	SAND & GRAVEL
37	46	GREY CLAY
46	99	GREY SANDY CLAY
99	114	SAND & GRAVEL
114	130	GREY SANDSTONE
		Air Lift Test is only approximate. A Test Pump is recommended for an accurate account.

TOTAL DEPTH OF BORING 130 (Feet)

TOTAL DEPTH OF COMPLETED WELL 120 (Feet)

WELL OWNER

Name Coast Union High School

Mailing Address P.O. Box 65

Cambria CA 93428

CITY STATE ZIP

WELL LOCATION

Address 2950 Santa Rosa Creek Rd

City Cambria CA

County San Luis Obispo

APN Book 013 Page 081 Parcel 045

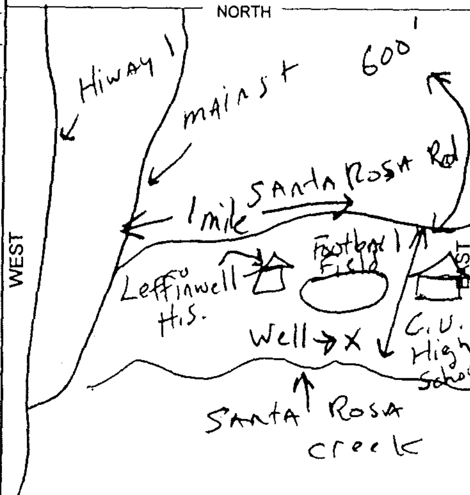
Township 27 S Range 8 E Section 26

Latitude ___ DEG. MIN. SEC. Longitude ___ DEG. MIN. SEC

LOCATION SKETCH

NORTH

WEST



SOUTH

Illustrate or Describe Distance of Well from Roads, Buildings, Fences, Rivers, etc. and attach a map. Use additional paper if necessary. PLEASE BE ACCURATE & COMPLETE.

ACTIVITY (✓)

✓ NEW WELL

MODIFICATION/REPAIR
— Deepen
— Other (Specify)

— DESTROY (Describe Procedures and Materials Under "GEOLOGIC LOG")

PLANNED USES (✓)

WATER SUPPLY
— Domestic — Public
✓ Irrigation — Industrial

MONITORING ...
TEST WELL ...
CATHODIC PROTECTION ...
HEAT EXCHANGE ...
DIRECT PUSH ...
INJECTION ...
VAPOR EXTRACTION ...
SPARGING ...
REMEDIATION ...
OTHER (SPECIFY) ...

WATER LEVEL & YIELD OF COMPLETED WELL

DEPTH TO FIRST WATER ___ (Ft.) BELOW SURFACE

DEPTH OF STATIC WATER LEVEL 45 (Ft.) & DATE MEASURED 10/6/00

ESTIMATED YIELD * 20 (GPM) & TEST TYPE Air Lift

TEST LENGTH 5 1/2 (Hrs.) TOTAL DRAWDOWN ___ (Ft.)

May not be representative of a well's long-term yield.

CASING (S)

DEPTH FROM SURFACE Ft.	to Ft.	BORE-HOLE DIA. (Inches)	BLANK	SCREEN	CON-DUCTOR	FILL PIPE	MATERIAL / GRADE	INTERNAL DIAMETER (Inches)	GAUGE OR WALL THICKNESS	SLOT SIZE IF ANY (Inches)
0	70	20	✓				PVC	12	SDR 21	
70	120	20		✓			PVC	12	SDR 21	.040

ANNULAR MATERIAL

DEPTH FROM SURFACE Ft.	to Ft.	CE-MENT (✓)	BEN-TONITE (✓)	FILL (✓)	FILTER PACK (TYPE/SIZE)
0	54	✓			
54	120			✓	Monterey Mix

ATTACHMENTS (✓)

— Geologic Log
— Well Construction Diagram
— Geophysical Log(s)
— Soil/Water Chemical Analysis
— Other ___

ATTACH ADDITIONAL INFORMATION, IF IT EXISTS.

CERTIFICATION STATEMENT

I, the undersigned, certify that this report is complete and accurate to the best of my knowledge and belief.

NAME FILIPPONI & THOMPSON DRILLING
(PERSON, FIRM, OR CORPORATION) (TYPED OR PRINTED)

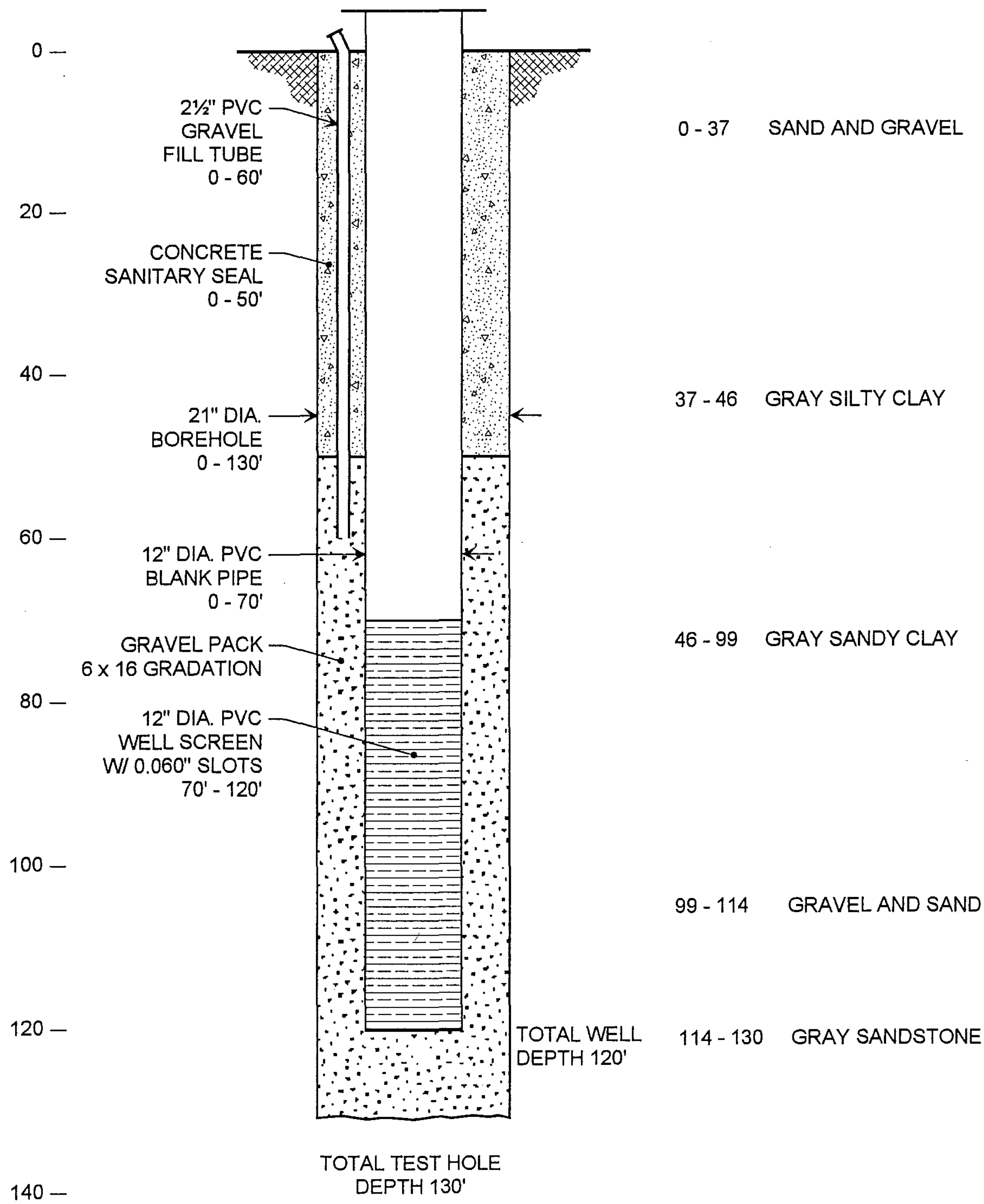
ADDRESS P.O. BOX 845 ATASCADERO CA 93423
CITY STATE ZIP

Signed Ned Witt Thompson
WELL DRILLER/AUTHORIZED REPRESENTATIVE

11/10/00 DATE SIGNED

432680 C-57 LICENSE NUMBER

IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM



WELL SRM1
Cambria Community Services District

HIGH SCHOOL WELL

DUPLICATE
Driller's Copy

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES

WATER WELL DRILLERS REPORT

Do not fill in

No. 07926

State Well No.
Other Well No.

Notice of Intent No.
Local Permit No. or Date

(1) OWNER: Name Coast Union High School
Address R.R. 1 Box 100
City Cambria, CA. 93428 Zip

(2) LOCATION OF WELL (See instructions):
County SLO Owner's Well Number
Well address if different from above
Township 27S Range 8E Section 23
Distance from cities, roads, railroads, fences, etc.
In Field west of School

WELL LOCATION SKETCH

(3) TYPE OF WORK:
New Well ☒ Deepening ☐
Reconstruction ☐
Reconditioning ☐
Horizontal Well ☐
Destruction ☐ (Describe destruction materials and procedures in Item 12)

(4) PROPOSED USE:
Domestic ☐
Irrigation ☐
Industrial ☐
Test Well ☐
Stock ☐
Municipal ☒ XX
Other ☐

(5) EQUIPMENT:
Rotary ☒ Reverse ☐
Cable ☐ Air ☐
Other ☐ Bucket ☐

(6) GRAVEL PACK:
Yes ☒ XX No ☐ Size bye
Diameter of bore 15"
Packed from 50 to 130 ft.

(7) CASING INSTALLED:
Steel ☒ XX Plastic ☐ Concrete ☐

(8) PERFORATIONS:
Type of perforation or size of screen 1/16" Full Flow

From ft.	To ft.	Dia. in.	Gage or Wall	From ft.	To ft.	Slot size
0	130	10 3/4"				
			.410	0	82	Blank
				82	130	Perf.

(9) WELL SEAL:
Was surface sanitary seal provided? Yes ☒ XX No ☐ If yes, to depth 50 ft.
Were strata sealed against pollution? Yes ☐ No ☐ Interval ft.
Method of sealing Cement

(10) WATER LEVELS:
Depth of first water, if known 35' ft.
Standing level after well completion 35' ft.

(11) WELL TESTS:
Was well test made? Yes ☐ No ☐ If yes, by whom? Bail Test: 50 gpm at 70'
Type of test Pump ☐ Bailer ☐ Air lift ☐ Blow Test: 200 gpm
Depth to water at start of test ft. At end of test ft
Discharge gal/min after hours Water temperature
Chemical analysis made? Yes ☐ No ☐ If yes, by whom?
Was electric log made? Yes ☐ No ☐ If yes, attach copy to this report

(12) WELL LOG: Total depth 130 ft. Depth of completed well 130 ft.

from ft.	to ft.	Formation (Describe by color, character, size or material)
0	22	Top Soil
22	40	Coarse Sand & Gravel
40	70	Sandy Blue Clay
70	78	Fine Sand & Clay
78	90	Sand - some Clay
90	122	Coarse Sand & Gravel
122	130	Hard Sandstone

NOTE: Any person removing the cap from this well other than Miller Drilling Co. or aurhorized contractor approved by us will void all structural warranties.

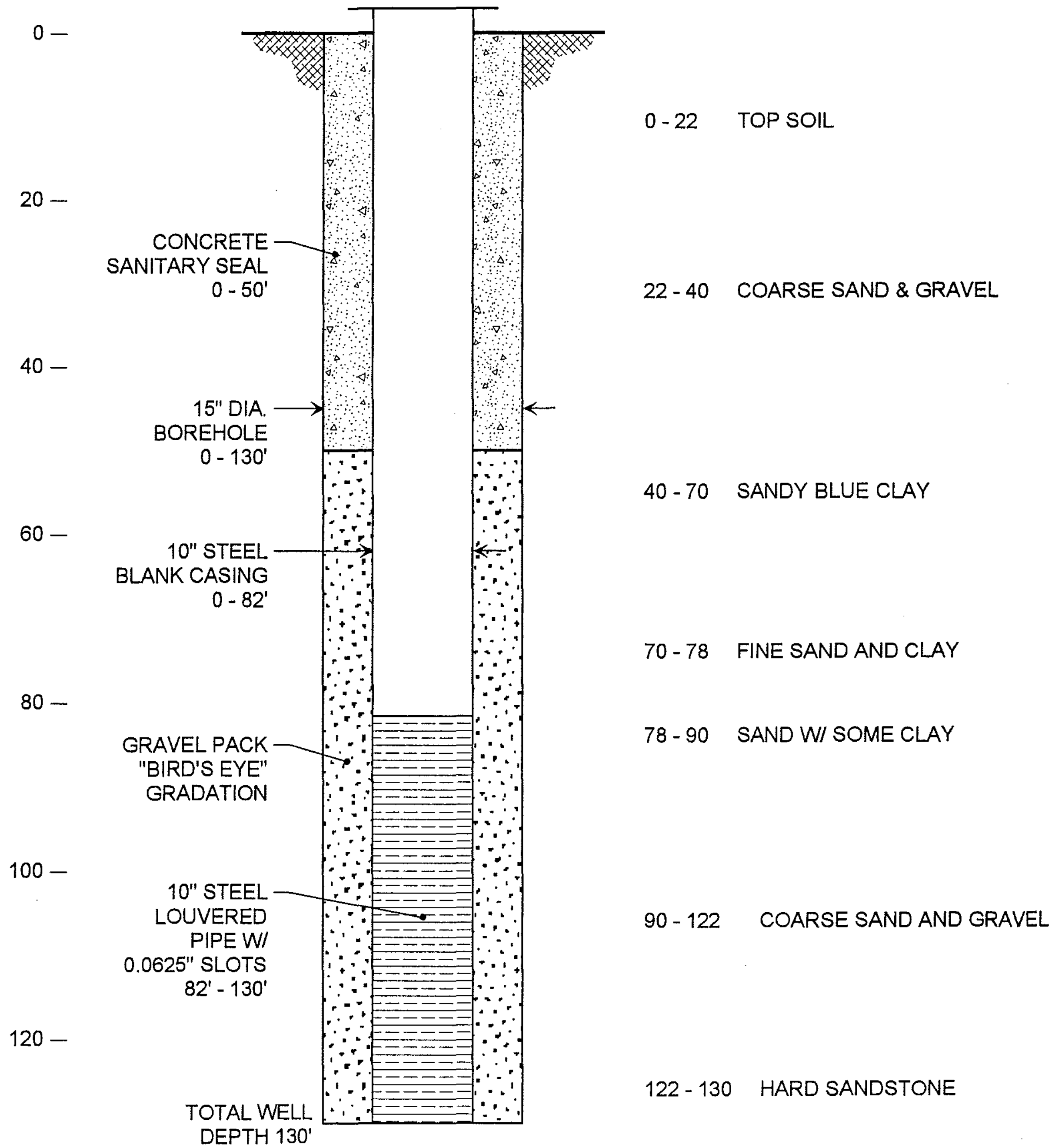
Work started 4/2/79 19 Completed 4/5/79 19

WELL DRILLER'S STATEMENT:
This well was drilled under my jurisdiction and this report is true to the best of my knowledge and belief.

SIGNED
(Well Driller)

NAME Miller Drilling Co.
(Person, firm, or corporation) (Typed or printed)
Address 501 No. Main St.
City Templeton, CA. 93465 Zip
License No. 324634 Date of this report 4/23/79

DWR 188 (REV. 7-76) IF ADDITIONAL SPACE IS NEEDED, USE NEXT CONSECUTIVELY NUMBERED FORM 43814-950 7-76 50M QUAD OSP



NOTE: Lithologic log and well construction details from DWR Water Well Completion Report, Miller Drilling, 4/23/79.

9971 0424well.dsf.p2

HIGH SCHOOL WELL
Cambria Community Services District

APPENDIX B

Geophysical Logs
Wells SR4 and SRM1

welenco

ELECTRIC LOG

FILING NO.	COMPANY FILIPPONI & THOMPSON	
	WELL SANTA ROSA WELL #4 Well SRM1	
	FIELD CAMBRIA	
	COUNTY S.L. OBISPO STATE CALIFORNIA	
JOB NO. 32985	LOCATION: CAMBRIA HIGH SCHOOL SEC TWP RGE	OTHER SERV. NONE
Permanent Datum: GROUND LEVEL Elev:		K.B.
Log Measured From G.L. 0 Ft Above Perm Datum		D.F.
Drilling Measured From GROUND LEVEL		G.L.

Date	10-03-2000		
Run No.	ONE		
Depth - Driller	140'		
Depth - Logger	140'		
Btm. Log Inter.	139'		
Top Log Inter.	22'		
Casing-Driller	NA at		
Casing-Logger	at		
Bit Size	9 7/8		
Type Fluid In Hole	BENTONITE		
Dens. | Visc.			
pH Fluid Loss	N/A | N/A ml		
Source of Sample	TANK		
Rm at Meas.Temp	8.2 at 75 F		
Rmf at Meas.Temp	8.0 at 75 F		
Rmc at Meas.Temp	N/A at F		
Source:Rmf Rmc	MEAS		
Rm at BHT	N/A at F		
Time Since Circ.	1 HOUR		
Max. Rec. Temp.	N/A F		
Equip | Location	L-15 | BFL		
Recorded By	L. HOCK		
Witnessed By	MILT		

Fold Here This Heading and Log Conform To API RP 31

Changes in Mud Type or Additional Samples

Date | Sample No.		
Depth-Driller		
Type Fluid in Hole		
Dens. | Visc.		
ph | Fluid Loss	ml	ml
Source of Sample		
Rm at Meas. Temp.	at F	at F
Rmf at Meas. Temp.	at F	at F
Rmc at Meas. Temp.	at F	at F
Source: Rmf | Rmc		
Rm at BHT	at F	at F
Rmf at BHT	at F	at F
Rmc at BHT	at F	at F

Scale Changes

Type Log	Depth	Scale Up Hole	Scale Down Hole

Equipment Data

Run No.	Tool Type	PadType	Tool Pos	Other
ONE	ELECTRIC		FREE	

REMARKS:

WELL DRILLED BY:
DRILLER:

RESISTANCE ohms — SINGLE POINT Detail Curve

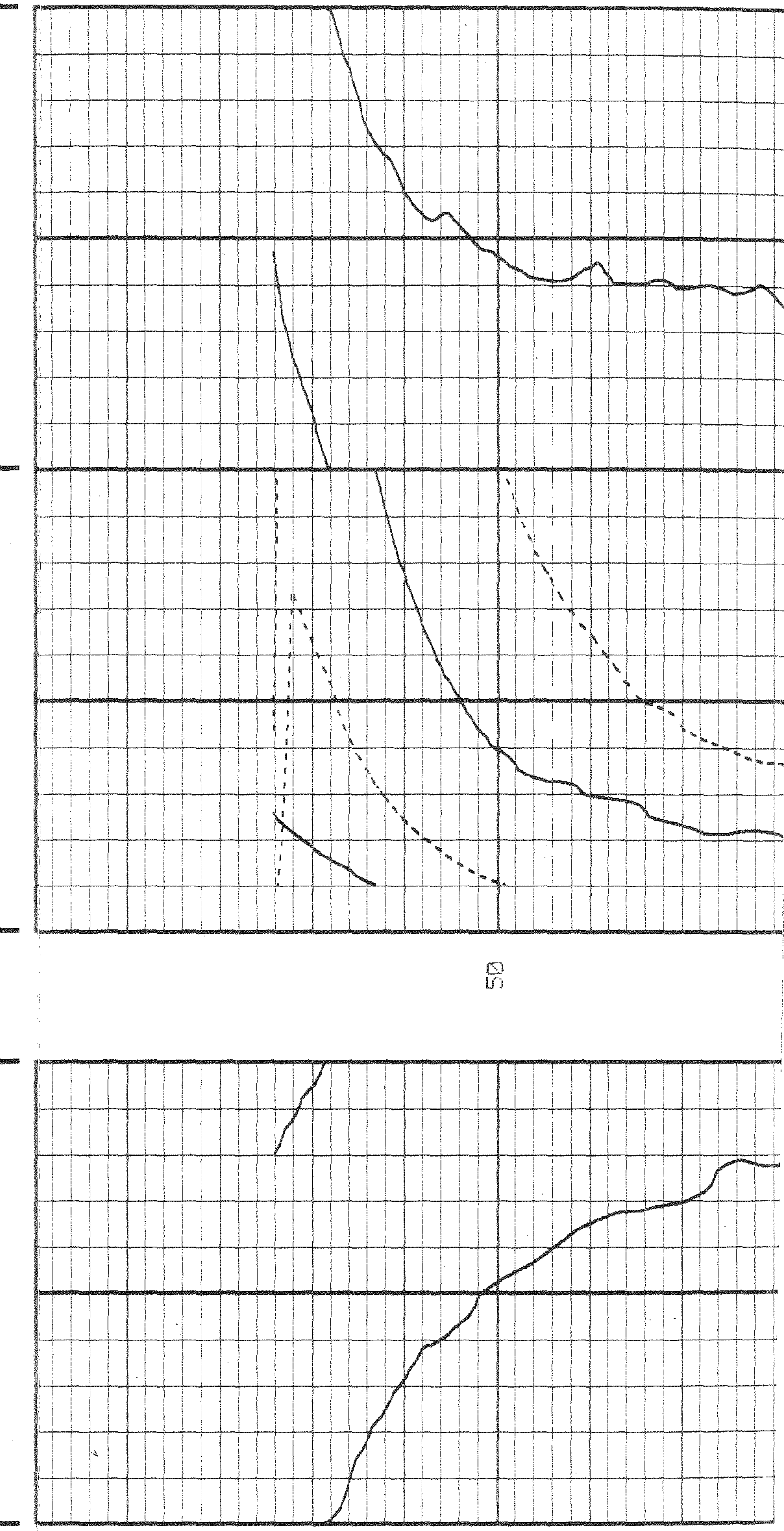
RESISTIVITY ohmmeters2 /meter

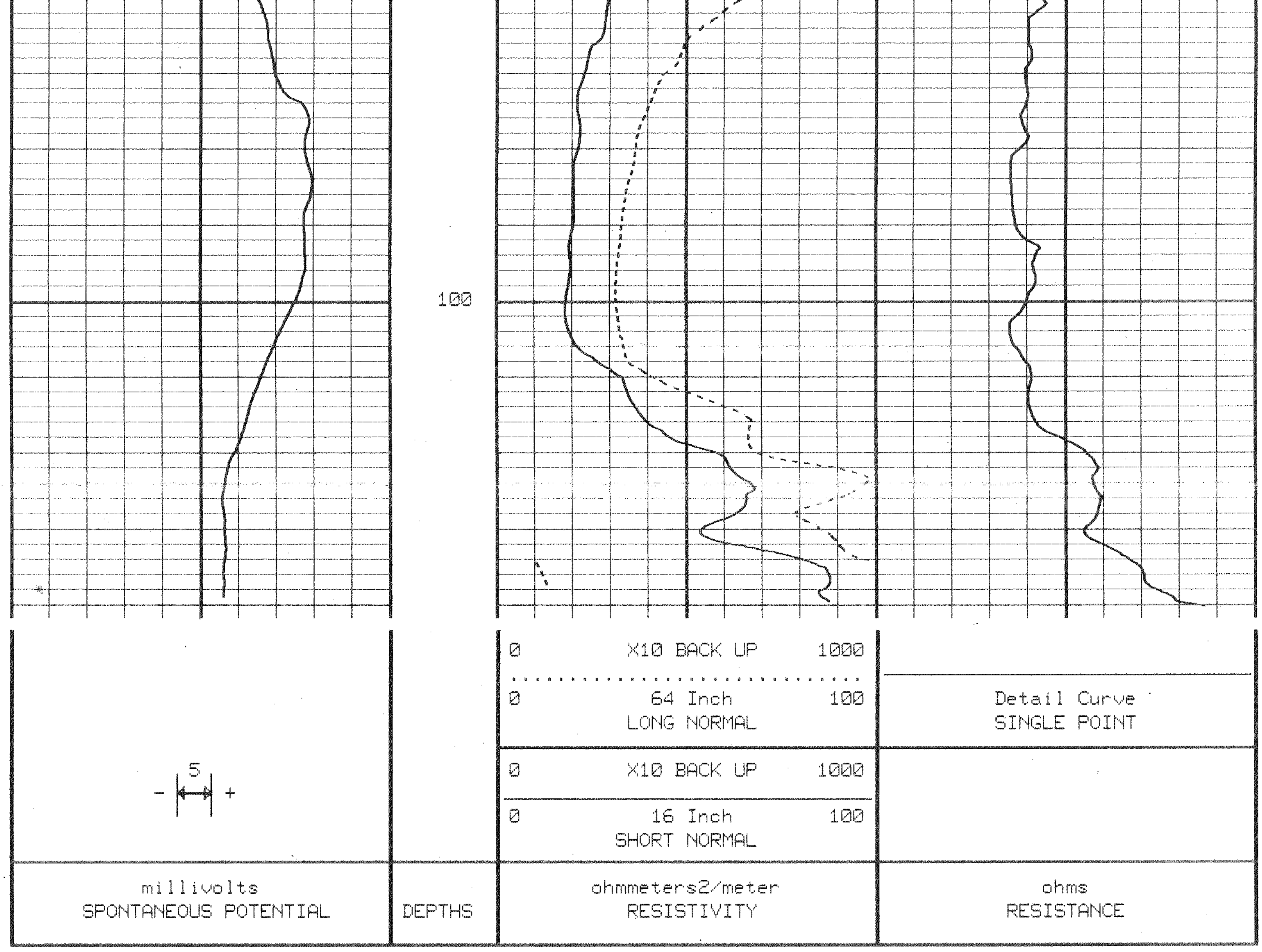
SHORT NORMAL 16 Inch 0 100
X10 BACK UP 0 1000
LONG NORMAL 64 Inch 0 100
X10 BACK UP 0 1000

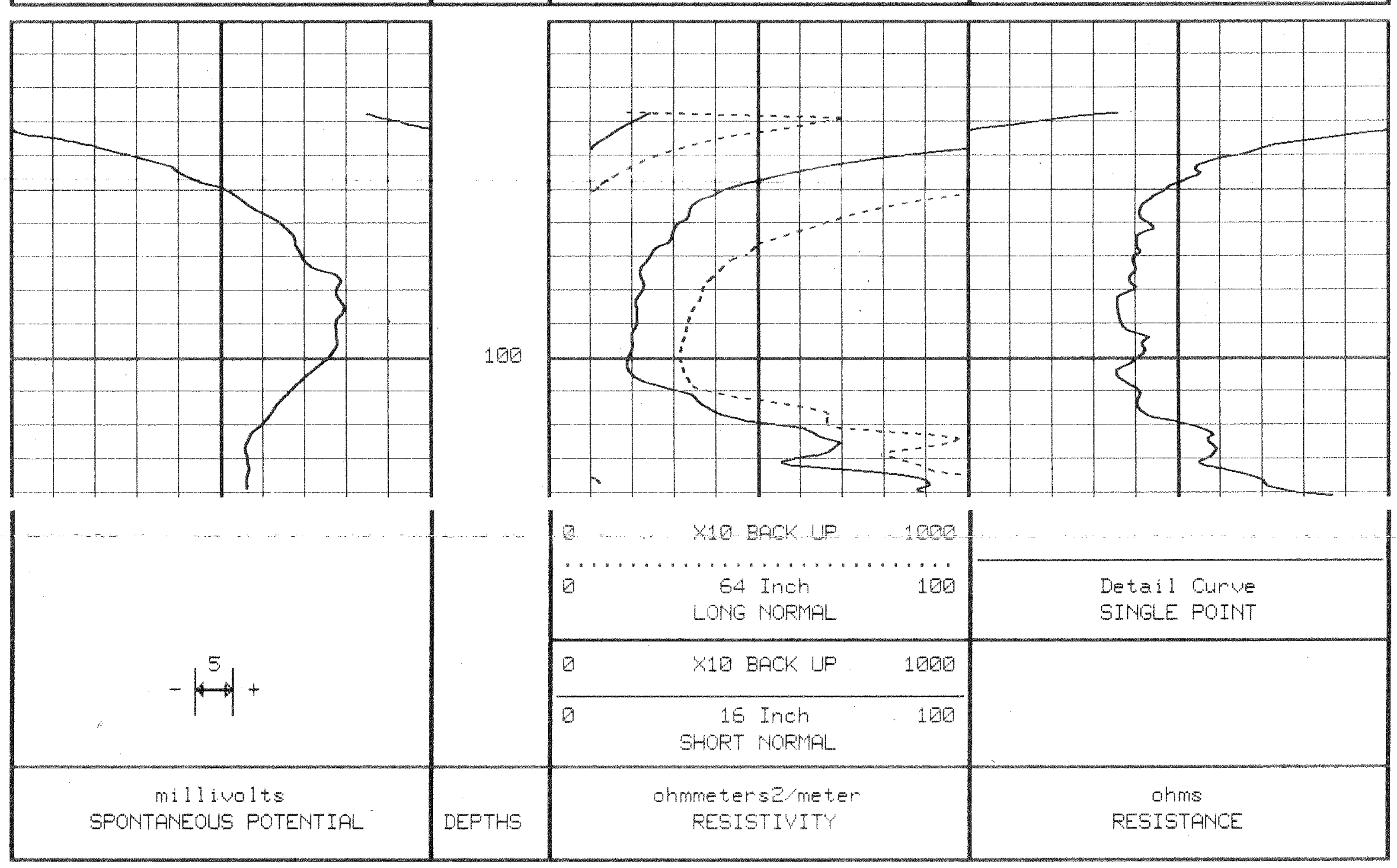
DEPTHS

SPONTANEOUS POTENTIAL millivolts

\- + 5




100
0 X10 BACK UP 1000
0 64 Inch 100
LONG NORMAL
0 X10 BACK UP 1000
0 16 Inch 100
SHORT NORMAL
Detail Curve
SINGLE POINT
5
- +
millivolts
SPONTANEOUS POTENTIAL
DEPTHS
ohmmeters2/meter
RESISTIVITY
ohms
RESISTANCE


100
0 X10 BACK UP 1000
0 64 Inch 100
LONG NORMAL
0 X10 BACK UP 1000
0 16 Inch 100
SHORT NORMAL
Detail Curve
SINGLE POINT
5
- +
millivolts
SPONTANEOUS POTENTIAL
DEPTHS
ohmmeters2/meter
RESISTIVITY
ohms
RESISTANCE

welenco

ELECTRIC LOG

FILING NO.	COMPANY	FILIPPONI & THOMPSON
	WELL	SANTA ROSA 4A Well SR4
	FIELD	CAMBRIA
	COUNTY	SAN LUIS OBISPO STATE CALIFORNIA
	LOCATION: NEAR CAMBRIA HIGH SCHOOL OFF SANTA ROSA RD.	OTHER SERV: NONE
JOB NO. 33586	SEC ___ TWP ___ RGE ___	

Permanent Datum: GROUND LEVEL Elev: N/A	K.B.
Log Measured From G.L. 0 Ft Above Perm Datum	D.F.
Drilling Measured From GROUND LEVEL	G.L.

Date	11-01-2000	- -	- -
Run No.	ONE		
Depth - Driller	140'		
Depth - Logger	141'		
Btm. Log Inter.	140'		
Top Log Inter.	0'		
Casing-Driller	N/A at	at	at
Casing-Logger	N/A at	at	at
Bit Size	9 7/8		
Type Fluid In Hole	BENTONITE		
Dens. | Visc.	N/A | N/A	|	|
pH Fluid Loss	N/A | N/A ml	ml	ml
Source of Sample	TANK		
Rm at Meas.Temp	5.0 at 75 F	at F	at F
Rmf at Meas.Temp	4.6 at 75 F	at F	at F
Rmc at Meas.Temp	N/A at F	at F	at F
Source:Rmf Rmc	MEAS |	|	|
Rm at BHT	N/A at F	at F	at F
Time Since Circ.	20 MIN		
Max. Rec. Temp.	N/A F	F	F
Equip | Location	L-11 | BFL	|	|
Recorded By	DAN IHDE		
Witnessed By	P. SORENSEN	(FUGRO)	GARY

Fold Here

This Heading and Log Conform To API RP 31

Changes in Mud Type or Additional Samples

Date | Sample No.		
Depth-Driller		
Type Fluid in Hole		
Dens. | Visc.		
ph | Fluid Loss	ml	ml
Source of Sample		
Rm at Meas. Temp.	at F	at F
Rmf at Meas. Temp.	at F	at F
Rmc at Meas. Temp.	at F	at F
Source: Rmf | Rmc		
Rm at BHT	at F	at F
Rmf at BHT	at F	at F
Rmc at BHT	at F	at F

Scale Changes

Type Log	Depth	Scale Up Hole	Scale Down Hole

Equipment Data

Run No.	Tool Type	PadType	Tool Pos	Other
ONE	ELECTRIC		FREE	

REMARKS:

WELL DRILLED BY: FILIPPONI & THOMPSON DRILLING
DRILLER: GARY

RESISTANCE ohms

SINGLE POINT Detail Curve
X1 BACK-UP

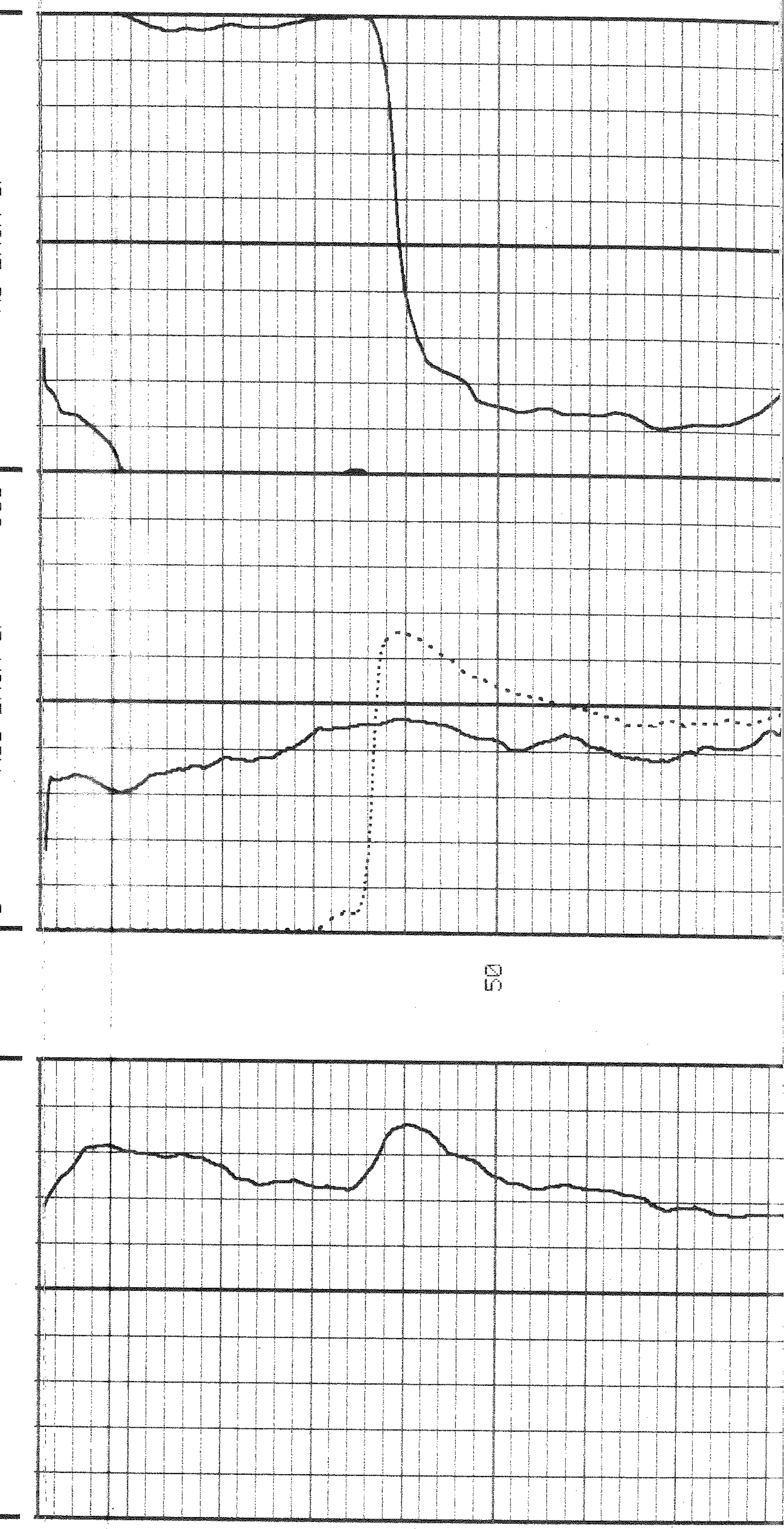
RESISTIVITY ohmmeters2 /meter

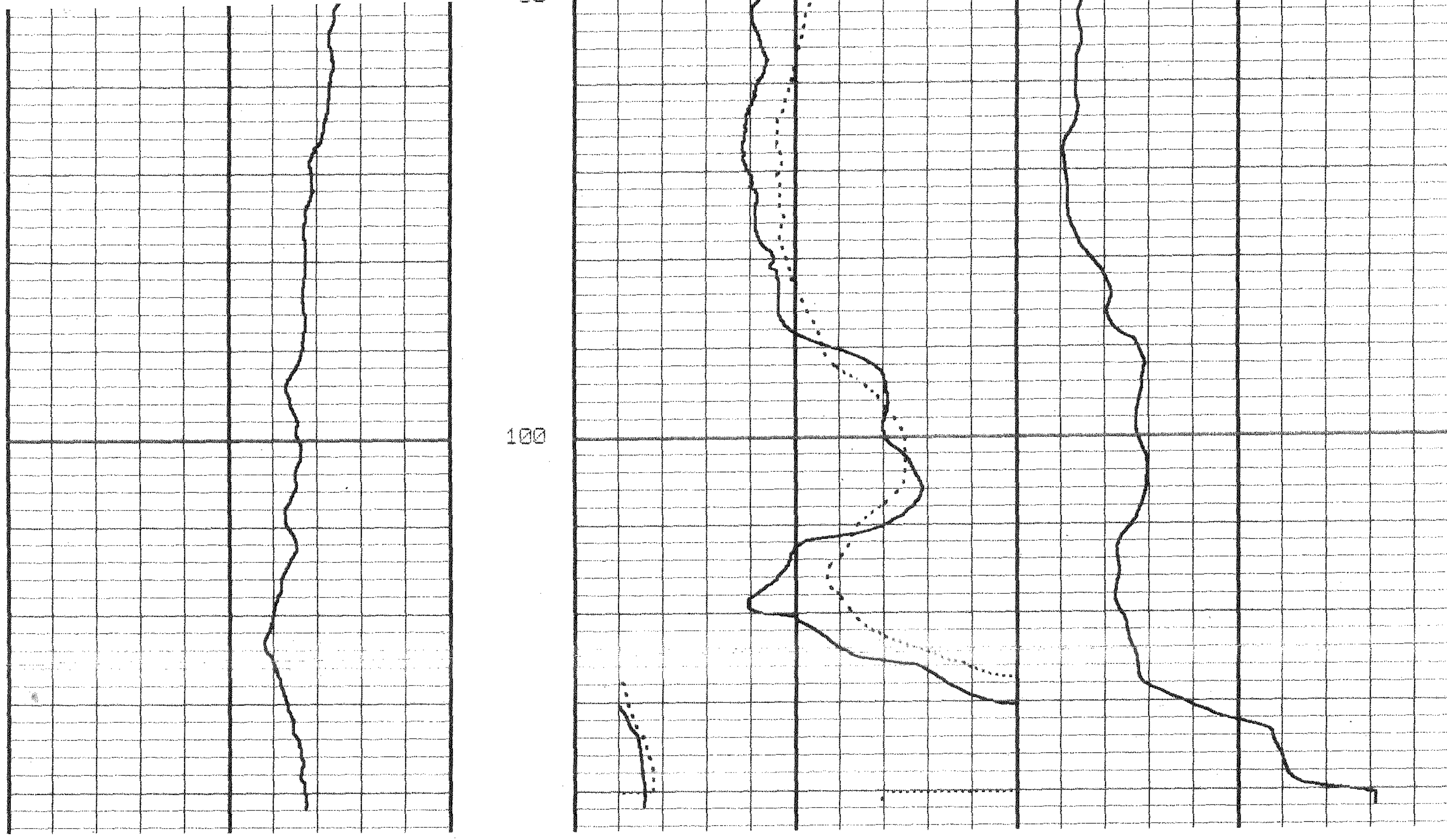
SHORT NORMAL 16 Inch	0	50
X10 BACK UP	0	500
LONG NORMAL 64 Inch	0	50
X10 BACK UP	0	500

DEPTHS

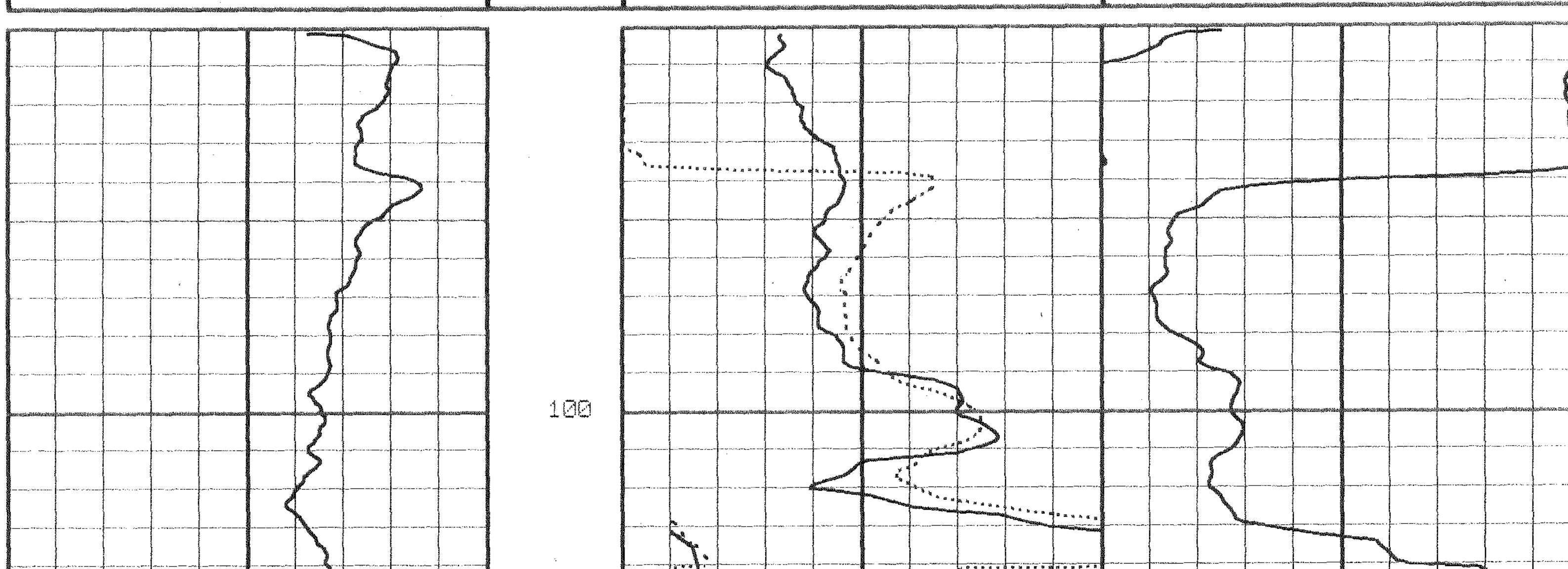
SPONTANEOUS POTENTIAL millivolts

- + 5





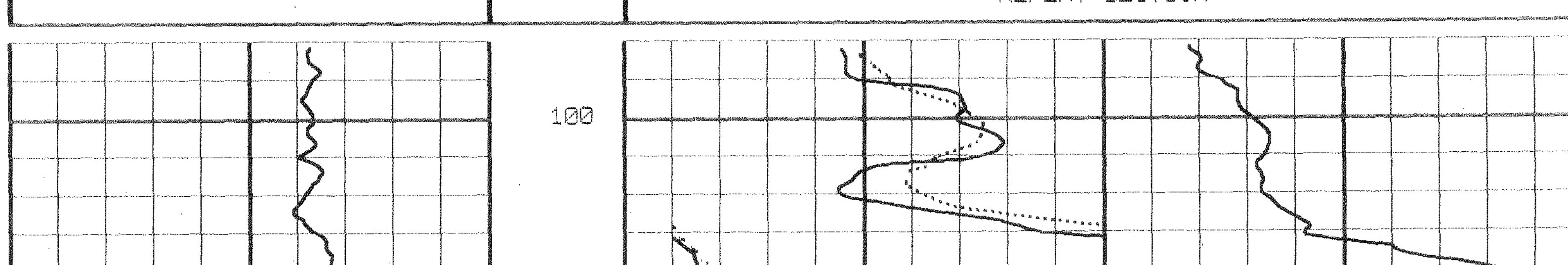
SPONTANEOUS POTENTIAL	DEPTHS	RESISTIVITY	RESISTANCE
- 5 +		0 X10 BACK UP 500 0 64 Inch LONG NORMAL 500 0 X10 BACK UP 500 0 16 Inch SHORT NORMAL 50	X1 BACK-UP Detail Curve SINGLE POINT
millivolts SPONTANEOUS POTENTIAL	DEPTHS	ohmmeters2/meter RESISTIVITY	ohms RESISTANCE



SPONTANEOUS POTENTIAL	DEPTHS	RESISTIVITY	RESISTANCE
- 5 +		0 X10 BACK UP 500 0 64 Inch LONG NORMAL 500 0 X10 BACK UP 500 0 16 Inch SHORT NORMAL 50	X1 BACK-UP Detail Curve SINGLE POINT
millivolts SPONTANEOUS POTENTIAL	DEPTHS	ohmmeters2/meter RESISTIVITY	ohms RESISTANCE

DEPTHS

REPEAT SECTION



SPONTANEOUS POTENTIAL	DEPTHS	RESISTIVITY	RESISTANCE
- 5 +		0 X10 BACK UP 500 0 64 Inch LONG NORMAL 500 0 X10 BACK UP 500 0 16 Inch SHORT NORMAL 50	X1 BACK-UP Detail Curve SINGLE POINT
millivolts SPONTANEOUS POTENTIAL	DEPTHS	ohmmeters2/meter RESISTIVITY	ohms RESISTANCE

APPENDIX C

Water Quality Analysis
Well SR4

CREEK ENVIRONMENTAL LABORATORIES, INC.
141 SUBURBAN ROAD, SUITE C-5 • SAN LUIS OBISPO, CA 93401 • (805) 545-9838 • FAX (805) 545-0107

Sean Grauel
Cambria C.S.D.
5500 Heath Lane
Cambria, CA 93428

Log Number: 00-C8203
Order: H3473
Project: CCSD Well # 4
Received: 11/09/00

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
CCSD # 4	Paul Sorensen (Fugro)	11/09/00@08:50	Drinking Water

ANALYTE	RESULT	* R.L.	UNITS	METHOD	ANALYZED
Total Alkalinity	520	2	mg/L	EPA 310.1	11/09/00
Chloride	33	1	mg/L	EPA 300.0	11/10/00
Total Cyanide	Not Detected	0.01	mg/L	EPA 335.2	11/14/00
Color	Not Detected	1	units	EPA 110.2	11/09/00
Electrical Conductance	1,200	1	umhos/cm	EPA 120.1	11/09/00
Fluoride	Not Detected	1	mg/L	EPA 300.0	11/10/00
MBAS (Anionic Surfactants)	Not Detected	0.05	mg/L	EPA 425.1	11/10/00
Nitrate as N	Not Detected	0.1	mg/L	EPA 300.0	11/10/00
Nitrate as NO3	Not Detected	0.4	mg/L	EPA 300.0	11/10/00
Nitrite as N	Not Detected	0.1	mg/L	EPA 300.0	11/10/00
Odor	Not Detected	1	TON	EPA 140.1	11/09/00
pH	7.5	0.1	units	EPA 150.1	11/09/00
Sulfate	120	0.5	mg/L	EPA 300.0	11/10/00
Total Dissolved Solids	750	10	mg/L	EPA 160.1	11/16/00
Turbidity	0.4	0.1	NTU	EPA 180.1	11/09/00
Silver	Not Detected	0.01	mg/L	EPA 200.7	11/20/00
Aluminum	Not Detected	0.05	mg/L	EPA 200.7	11/20/00
Arsenic	Not Detected	0.002	mg/L	EPA 200.9	11/14/00
Barium	0.22	0.1	mg/L	EPA 200.7	11/20/00
Beryllium	Not Detected	0.001	mg/L	EPA 200.7	11/20/00
Calcium	110	0.03	mg/L	EPA 200.7	11/20/00
Hardness	660	1	mg/L CaCO3	EPA 200.7	11/20/00
Cadmium	Not Detected	0.001	mg/L	EPA 200.9	11/15/00
Chromium	Not Detected	0.01	mg/L	EPA 200.7	11/20/00
Copper	Not Detected	0.05	mg/L	EPA 200.7	11/20/00
Iron	Not Detected	0.1	mg/L	EPA 200.7	11/20/00
Potassium	1.1	0.1	mg/L	EPA 200.7	11/20/00
Magnesium	92	0.03	mg/L	EPA 200.7	11/20/00
Manganese	0.55	0.03	mg/L	EPA 200.7	11/20/00
Sodium	44	0.05	mg/L	EPA 200.7	11/20/00
Nickel	Not Detected	0.01	mg/L	EPA 200.7	11/20/00
Lead	Not Detected	0.005	mg/L	EPA 200.9	11/15/00
Antimony	Not Detected	0.006	mg/L	EPA 200.9	11/09/00
Selenium	Not Detected	0.005	mg/L	EPA 200.9	11/13/00
Thallium	Not Detected	0.001	mg/L	EPA 200.9	11/30/00

CREEK ENVIRONMENTAL LABORATORIES, INC.
141 SUBURBAN ROAD, SUITE C-5 • SAN LUIS OBISPO, CA 93401 • (805) 545-9838 • FAX (805) 545-0107

Sean Grauel
Cambria C.S.D.
5500 Heath Lane
Cambria, CA 93428

Log Number: 00-C8203
Order: H3473
Project: CCSD Well # 4
Received: 11/09/00

REPORT OF ANALYTICAL RESULTS

SAMPLE DESCRIPTION	SAMPLED BY	SAMPLED DATE @ TIME	MATRIX
CCSD # 4	Paul Sorensen (Fugro)	11/09/00@08:50	Drinking Water

ANALYTE	RESULT	* R.L.	UNITS	METHOD	ANALYZED
Zinc	0.094	0.05	mg/L	EPA 200.7	11/20/00

* R.L. - Reporting Limit. 'RESULTS' reported as "Not Detected" means not detected above R.L.

CREEK ENVIRONMENTAL LABORATORY

Lab Director, Orval Osborne

D-TEK Analytical Laboratories, Inc.

9020 Kenamar Drive, Suite 205
San Diego, CA 92121
(858) 566-4540 FAX (858) 566-4542

CREEK ENVIRONMENTAL LABORATORIES, INC.
141 Suburban Road, Suite C-5
San Luis Obispo, CA 93401

Attn: Mr. Orval Osborne

Date of Report:	12/5/00
Sampling Date:	11/9/00
Date Sample Received:	11/16/00
Date Analyzed:	November 22, 2000
Analyzed By:	JV
Units:	mg/l
Sample Type:	DW
Project Name:	H 3473
Log Number:	00-6159

ANALYSES RESULTS

Analysis	Prep/Analysis Method	Units	Log Number: Sample ID:	00-6159 GMGPI-CCSD #4; 8203
Mercury	EPA 245.1	mg/l		<0.001

Ellen Atienza
Operations Manager

Appendix I – Groundwater Management Plan

Cambria Community Services District
Groundwater Management Plan

November 19, 2015

Jerome D. Gruber, M.P.A.
General Manager

Robert C. Gresens, P.E.
District Engineer

THIS GROUNDWATER MANAGEMENT PLAN
HAS BEEN REVIEWED AND APPROVED BY:

Jerome D. Gruber, M.P.A., General Manager
Cambria Community Services District

ADOPTED BY CCSD BOARD, ORDINANCE 01-2015

ON November 19, 2015

PREPARED BY:
ROBERT C. GRESENS, P.E.
CCSD District Engineer

REGISTERED PROFESSIONAL ENGINEER
ROBERT CHARLES GRESENS
C 34018
Exp. 6-30-20
CIVIL
STATE OF CALIFORNIA

Table of Contents

Appendices

List of Tables

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Section 1 - Purpose and Background

This section describes the overall purpose of the groundwater management plan and provides related background information on the Cambria Community Services District's (CCSD's) water and wastewater facilities. Summaries are also provided on CCSD well operations, CCSD operating permits, past CCSD planning efforts that may directly or indirectly relate to groundwater management, a significant groundwater rights settlement agreement, and regional, countywide water planning coordination.

1.1 Purpose

The CCSD Groundwater Management Plan describes groundwater planning for the area's San Simeon Creek groundwater basin and Santa Rosa Creek groundwater basin. Each of these basins are within the north coast area of San Luis Obispo County. Figure 1-1 shows these two basins, which is from an earlier US Geological Survey report (98-4061). The reader is referred to USGS Report 98-4061 for a more detailed discussion on the hydrogeology, water quality, and water budgets of these two basins.

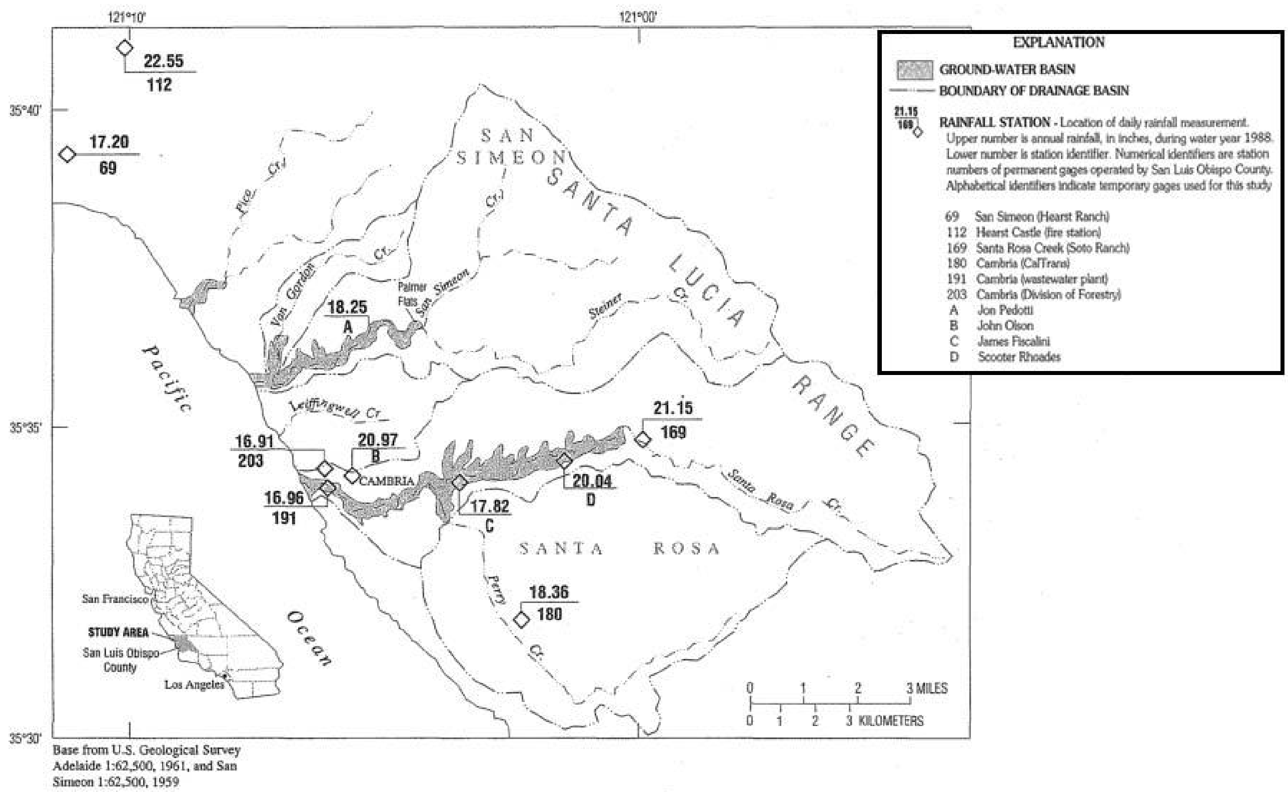


Figure 1. Locations of creeks, drainage-area boundaries, ground-water basins, and rainfall stations in the Cambria area, San Luis Obispo County, California—Continued.

From USGS Report 98-4061, "Hydrogeology, Water Quality, Water Budgets, and Simulated Responses to Hydrologic Changes in Santa Rosa and San Simeon Creek Ground-Water Basin, Yates & Van Konyenberg

Figure 1-1 – San Simeon Creek and Santa Rosa Creek Groundwater Basins

This planning effort is intended to bring the CCSD up to date and in compliance with the planning requirements described within California Water Code Sections 10753 through 10753.11. Plans complying with these water code sections are commonly referred to as AB 3030 plans, which are not to be confused with plans that will follow the state's more recent 2014 Sustainable Groundwater Management Act legislation.

The overall purpose of a Groundwater Management Plan is to work with basin stakeholders in maintaining a sustainable, reliable, and high-quality groundwater supply. Stakeholders include CCSD customers, the agricultural community, the environmental community, business groups and associations, as well as regulatory and resource agencies. The CCSD completed a San Simeon Creek Water Basin Management Program and Operations Manual in 1980, which was a precursor to the state's 1992 passage of Assembly Bill AB 3030, which resulted in updates to the California Water Code on Groundwater Management Plans. The CCSD's earlier water management program was in response to State Water Resources Control Board and California Coastal Commission permit conditions. Although driven by regulatory mandate, the earlier groundwater management program included several of the basic components of a groundwater management plan. To ensure compliance with the subsequent legislation and associated Water Code Sections, this current Groundwater Management Plan compiles information from that earlier program document, rearranges the information into a format that more clearly identifies the required components of a groundwater management plan, provides updates to incorporate subsequent changes to CCSD facilities, and includes mapping that shows areas of recharge within both the San Simeon Creek and Santa Rosa Creek watersheds.

1.2 Background

The CCSD obtains its water from groundwater wells within the lower reaches of the San Simeon Creek and Santa Rosa Creek Groundwater Basins (State Groundwater Basin ID Numbers 3-35 and 3-36, respectively). The San Simeon Creek aquifer wells have been the CCSD's primary water supply since they were installed in 1979. The San Simeon aquifer groundwater is also of better quality than the Santa Rosa aquifer primarily due the San Simeon aquifer having lower hardness and lower iron and manganese concentrations. The Santa Rosa Creek aquifer was the community's sole water source prior to installation of the San Simeon creek aquifer wells, and prior to the CCSD becoming the community's local water purveyor. During the mid-1970s and prior to the operation of the CCSD's San Simeon well field, localized areas along the lower Santa Rosa Creek channel experienced some land subsidence as well as seawater intrusion. The establishment of the San Simeon wells as the primary water source has lessened the municipal demand on the Santa Rosa Creek aquifer, which has stopped seawater intrusion and subsidence from recurring.

The CCSD also provides wastewater collection and treatment, with treated secondary wastewater effluent being pumped approximately 2.5 miles north of town to the CCSD's property located down gradient from its San Simeon Creek aquifer potable wells. During the late 1970s to 1994, treated secondary wastewater effluent was surface applied with sprayers onto the ground surface. This past practice was changed to using four percolation basins, which were completed during 1994. The percolated wastewater effluent in this area forms a groundwater mound, which helps slow freshwater flow towards the ocean while also preventing seawater from intruding inland. The percolation ponds are still used today for wastewater effluent discharge, with only one of the four ponds typically needing to be operated at any given time.

The CCSD originally operated its three *S*anta Rosa wells (aka, Wells SR-1, SR-2, and SR-3) along the lower portion of the Santa Rosa creek aquifer. Flood damage during 1995 resulted in the loss of Well SR-2, leaving the CCSD with Santa Rosa Wells SR-1 and SR-3. During 2000, the CCSD shut down its lower Santa Rosa wells in response to the discovery of an MTBE contamination plume from a nearby gas station. In response, the CCSD completed a new well (Well SR-4) and wellhead treatment facility behind the Coast Union High School athletic fields, which are farther up-gradient from the MTBE plume.

In response to exceptional drought conditions and an emergency water shortage in 2014, the CCSD restored operation of Santa Rosa Well SR-3, converted well SR-1 to a non-potable irrigation supply well, and completed an emergency water supply project on the CCSD's lower San Simeon Creek property. The restoration of Well SR-3 allowed the CCSD to access deeper aquifer water, which Well SR-4 could not pump. The Well SR-3 efforts included installing a new submersible well pump and rebuilding an iron and manganese removal filter plant, which had been inoperable since 2000. Well SR-1 was separated from the CCSD potable water distribution system and provided with a new submersible pump that discharges into non-potable water storage tanks, which are connected to filling stations located off of Rodeo Grounds Road in Cambria. The Well SR-1 water is used by local residents and landscapers to haul for irrigation.

The emergency water supply project on the CCSD's lower San Simeon Creek property extracts water from an existing well (State Well Number 27S/8E-9P7, aka Well 9P7) at the CCSD's treated wastewater effluent percolation ponds, treats the extracted water using a new advanced water treatment plant, and re-injects the treated water at the CCSD's San Simeon Creek aquifer's potable well field. The emergency water supply project was designed to meet the State's requirements for indirect potable reuse of recycled water. Its source water will vary depending upon the amount and timing of seasonal rainfall, and time of year. Typically, it will be a combination of percolated treated wastewater effluent, fresh groundwater, and dilute saltwater, with the latter coming from a deeper saltwater wedge of seawater. Figure 1-2 provides an overview of the emergency water supply project that was completed on the CCSD's lower San Simeon Creek Road property.

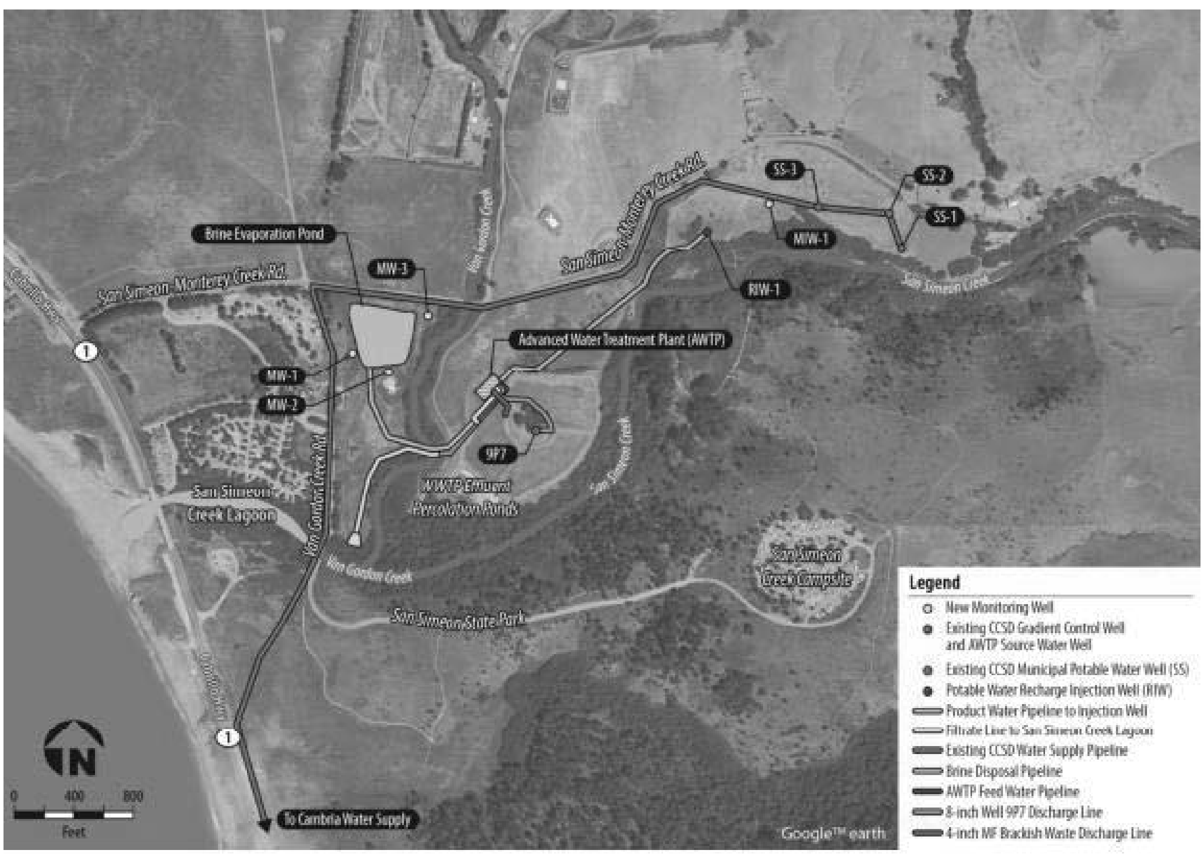


Figure 1-1: Project Overview

From Cambria Emergency Water Supply Project, Title 27 Report of Waste Discharge, Final, by CDM Smith, October 20, 2014.

Figure 1-2 – Overview of CCSD's San Simeon Creek Emergency Water Supply Project

1.3 Overview of CCSD Water Well Field Operations

The local groundwater aquifers are narrow and thin with relatively small storage, which results in late dry season drawdown and relatively rapid recharge after adequate seasonal rainfall occurs. During the beginning of the dry season, well levels drop gradually. Towards the later summer months and early fall months, the amount of storage per foot of drawdown decreases, which accelerates the rate of groundwater decline.

Besides the physical characteristics of the aquifers, there are key permitting conditions that effect how the CCSD may operate its well fields. A primary concern on the San Simeon Creek aquifer is the hydraulic gradient between the percolated mound of treated wastewater at its percolation ponds and the up-gradient potable wells. During the late dry season, and to avoid a negative gradient, which could allow percolated secondary wastewater effluent to flow towards the potable wells, the CCSD would need to use a gradient control well. The gradient control well would pump mounded groundwater from below the percolation ponds into the Van Gordon Creek, which would lower the groundwater table. Although effective at controlling the hydraulic gradient, this practice would essentially waste water as it is pumped into the creek and lost to the ocean. It would also lower the groundwater elevation at the San Simeon Creek production wells, which reduced remaining storage during the late dry season. The 2014-constructed emergency water supply project addresses these inefficiencies by capturing and restoring the water extracted from the percolation pond area to reuse it while maximizing groundwater elevation and storage at the up-gradient potable well field. To ensure protection of riparian habitat during its operation, the emergency water supply project includes a discharge of approximately 100 gallons per minute to the head of the San Simeon Creek lagoon to maintain surface water levels. This protective feature is further backed up by an adaptive management plan, with biological monitoring to ensure favorable conditions are being maintained.

Environmental protection is also a key operating concern associated with the Santa Rosa Creek aquifer wells. To address this concern, a key permit condition requires maintaining a minimum groundwater elevation of 3 feet above mean sea level at a monitoring well located southwest from the intersection of Santa Rosa Creek and the Windsor Boulevard Bridge (Monitoring Well WBE). During dry years, this monitoring well may approach the 3-foot minimum elevation during August to September. It was also found that operation of the nearby Shamel Park irrigation well, and tides, can further impact this monitoring well. When the 3-foot elevation condition occurs, the CCSD stops use of its Santa Rosa Creek aquifer wells (Wells SR-1, SR-3, and SR-4), and shifts all of its production to its San Simeon Creek wells.

The CCSD is also subject to meeting the state's surface water treatment rule (SWTR) due to its groundwater sources being under the influence of surface water. To meet these requirements, the CCSD does not operate its San Simeon Well SS-1 whenever surface flow within the San Simeon Creek occurs within 150 feet of the well. San Simeon Wells SS-2 and SS-3 are outside the SWTR's 150-foot boundary and can continue to operate when there is flow in the creek. The Santa Rosa wells SR-3 and SR-4 have well head treatment facilities, which allow them to operate while within the SWTR's 150-foot limit.

1.4 CCSD Water and Wastewater Operating Permits

Operation of the CCSD's water and wastewater facilities is regulated by a combination of permits. The State Water Resources Control Board (SWRCB, aka the California Water Board) has issued diversion permits to the CCSD, which condition how much water may be extracted from each aquifer. The California Department of Public Health (which became the Division of Drinking Water under the SWRCB following a July 1, 2014 reorganization), has issued operating permits to the CCSD that focus on protecting public health and meeting potable water quality requirements. The area's Regional Water Quality Control Board (RWQCB) has issued permits (Waste Discharge

Orders) that govern operation of the wastewater treatment plant and percolation ponds, as well as other related permits associated with the protection of surface water. Additionally, the California Coastal Commission has issued Coastal Development Permits on the CCSD's wastewater treatment plant and San Simeon Creek well field projects, which further condition and overlap those found in the diversion permits issued by the SWRCB.

The following table summarizes the primary permits regulating the CCSD water and wastewater operations.

Table 1-1 – Primary CCSD Water and Wastewater Operating Permits

Permit	Issuing Agency	Summary Description
Santa Rosa Creek Diversion Permit No. 20387	SWRCB	Originally issued to the CCSD on November 7, 1989. Diversions not to exceed 518 acre-feet/year (AFY), and 260 acre-feet (AF) from May 1 to October 31. Conditions include Endangered Species Act compliance and maintaining groundwater elevation at or above 3 feet near the lagoon area (Well WBE).[1]
San Simeon Creek Diversion Permit No. 17287	SWRCB	Filed on February 23, 1976. Diversions not to exceed 1,230 AFY. Subsequently amended to allow up to 370 AF during dry period, with dry period being between the time surface flow ceases at Palmer Flats gaging station and October 31. Conditions include maintaining water levels in the lower basin to maintain stream flow to the lagoon, and to maintain fish and riparian habitat[2].
Coastal Development Permit 428-10, which amended earlier permits 132-18 and 131-20.	California Coastal Commission	Issued on May 29, 1981. Limits the total combined extraction from the San Simeon Creek and Santa Rosa Creek aquifers to no more than 1,230 AFY. Conditions included requirement to development an operations and maintenance manual for a basin management program.
Drinking Water Permit No. 03-06-01P-001	Division of Drinking Water	Conditions included an emphasis on meeting the state's Surface Water Treatment Rule (SWTR) requirements. Permit update included Well SR-4 and its new wellhead treatment facility.
Wastewater Treatment Plant Operations Waste Discharge Order 01-100	RWQCB	Updated and adopted by RWQCB on December 7, 2001. Conditions operations of wastewater treatment plant and effluent percolation basins. Includes monitoring and reporting program requirements for wastewater treatment plant and percolation basins. Percolation basin monitoring requirements include local groundwater well monitoring.

The 2014 Completion of the Emergency Water Supply Project along the CCSD's lower San Simeon Creek property has also resulted in additional permits that further regulate its operation. Table 1-2 summarizes the Emergency Water Supply Project permits. In addition to these existing permits, the CCSD is in the process of obtaining a regular Coastal Development Permit (CDP) from the County on its emergency water supply project. The regular CDP is being completed in accordance with provisions of the San Luis Obispo County Coastal Zone Land Use Ordinance (Section 23.03.045), which allow for such subsequent regular CDP processing. To date, the CCSD has submitted a regular

[1] Application to extend permit 20387 was filed during October 2014. Continuation of the existing permit and conditions is subject to the SWRCB's review and approval process.
[2] Application to extend permit 17287 was filed during October 2014. Continuation of the existing permit and conditions is subject to the SWRCB's review and approval process.

CDP application to the County and is completing an Environmental Impact Report to ensure that the County's application completeness requirements are fully addressed.

Table 1-2 – Emergency Water Supply Project Permits

Permit	Issuing Agency	Summary Description
Emergency Coastal Development Permit (CDP) ZON2013-00589	San Luis Obispo County	Permit was effective May 15, 2014. Authorized construction and operation of emergency water supply project. Permit is valid until Stage 3 water shortage emergency has ended, or a regular CDP has been approved. (The CCSD is currently completing efforts to obtain a regular CDP).
Waste Discharge Requirements and Water Recycling Requirements. RWQCB Order No. R3-2014-0050	RWQCB	Permit was effective on November 14, 2014. Also referred to as a Title 22 permit. Permit includes concentration limits on water being re-injected into the San Simeon Creek aquifer. An accompanying Monitoring and Reporting Program No. R3-2014-0050 includes groundwater monitoring requirements.
Waste Discharge Requirements for RO Concentrate Evaporation Pond RWQCB Order No. R3-2014-0047	RWQCB	Permit was effective on November 14, 2014. Also referred to as a Title 27 permit. Describes protective requirements of evaporation pond and related monitoring to prevent ground-water or surface water contamination. An accompanying Monitoring and Reporting Program No. R3-2014-0047 includes groundwater monitoring requirements.
Low Threat Discharge of Water to Lagoon Monitoring and Reporting Program No. R3-2011-0223.	RWQCB	Modified on December 8, 2014. Covers monitoring and reporting of discharge of water to the San Simeon Creek lagoon, which is used to maintain surface water levels. Incorporates by reference a December 9, 2011 Draft Waste Discharge Requirements Order No. R3-2011-0223 (NPDES Permit CAG993001) for Discharges with Low Threat to Water Quality.

1.5 Geological Study and Modeling of the Santa Rosa Creek and San Simeon Creek Ground-Water Basins

The U.S. Geological Survey (USGS) completed study and modeling of the Santa Rosa and San Simeon Creek groundwater basins, which is reported in USGS Report 98-4061, entitled "Hydrogeology, Water Quality, Water Budgets, and Simulated Responses to Hydrologic Changes in Santa Rosa and San Simeon Creek Ground-Water Basins, San Luis Obispo County, California." This study found that the lower reaches of both creeks usually dry up in the summer, with base flow being more persistent in the Santa Rosa Creek. The modeling also found that a significant amount of dry season water level decline was not the result of pumping, but of natural drainage processes.

An annual water budget from the earlier USGS report was updated and incorporated into the CCSD's 2005 and 2010 Urban Water Management Plan Updates. The original USGS budget was based on the period of April 1988 through March 1989. This was adjusted slightly within the CCSD's 2005 and 2010 Urban Water Management Plan Updates to account for the CCSD's 1994 conversion of its wastewater effluent spray field operation to percolation ponds (with less evaporation). For convenient reference, the updated budget table is included here as Table 1-3.

Table 1-3 – Annual Water Budget Summary for the Santa Rosa and San Simeon Creek Basins

	Santa Rosa Basin			San Simeon Basin		
Budget Item	**Inflow**	**Outflow**	**Net Flow**	**Inflow**	**Outflow**	**Net Flow**
Rainfall Recharge	140	0	140	50	0	50
Creek Seepage	1,120	650	470	950	410	540
Subsurface Inflow and Outflow						
Onshore Boundaries	370	0	370	150	0	150
Ocean Boundary	0	60	-60	0	320	-320
Agricultural Water Use						
Pumpage	0	890	-570	0	450	-280
Irrigation-Return Flow	320	0		170	0	
Nonagricultural Water Use						
Municipal Pumpage	0	250		0	550	
Rural Pumpage	0	10		0	<10	
Wastewater Recharge			-240			-50
Percolation Ponds	0	0		500	0	
Septic Tanks	10	0		<10	0	
Irrigation-Return Flow	10	0		0	0	
Phreatophyte Transpiration	0	160	-160	0	30	-30
Total Net Flow			-50			+60

Notes:
a. All values rounded to the nearest 10 AFY. Positive net flow indicates flow into basin; negative net flow indicates flow out of basin.
b. From 1998 USGS report 98-4061, p.46, modified to show subsequent change from wastewater effluent spray field operation to percolation ponds.

As noted by its original USGS report authors, the water budget accuracy is not greater than two significant digits. Because of the time that has passed since the original USGS report was developed, as well as possible changes within the basins, an update to the annual water budget should be considered in future groundwater management plan updates. The long-term benefits of continued water conservation efforts and technological advancements should also be part of such future efforts. Therefore, the findings and recommendations of the CCSD's pending 2015 Urban Water Management Plan Update, which may include future water conservation measures and conservation program updates, should be assessed with relevant updates being incorporated into future groundwater management plan updates.

The modeling within the earlier USGS report had further analyzed several water resources management alternatives, including one that pumped approximately 270 acre-feet of water from the percolation pond area into recharge basins being proposed above the San Simeon Creek aquifer well field. This alternative was similar in nature to the 2014 constructed emergency water supply project. However, the 2014 project was smaller in scope and limited injecting water within the CCSD-owned property limits. Operating experience and related data from the CCSD's recently completed Emergency Water Supply Project could be used in assessing whether the earlier water budget modeling could be further adjusted (e.g., would creek seepage outflow decrease?, and if so, by how much?).

To abide by Title 22 requirements for indirect potable reuse of recycled water, the 2014-constructed Emergency Water Supply project included detailed geo-hydrological modeling. This modeling effort was primarily focused on determining the location of the project's injection well and related underground travel time achieved before the re-injected water would be pumped by the CCSD's existing potable well field pumps. Results of the modeling are summarized in a May 2014 CDM Smith report entitled "Cambria Emergency Water Supply Project, San Simeon Creek

Basin Groundwater Modeling Report." This report, in combination with subsequent tracer study efforts, found that a maximum extraction rate of 400 gallons per minute could be achieved from production wells SS-1 or SS-2 while meeting a minimum Title 22 requirement for a 60 day travel time. Water demands exceeding 400 gpm while the emergency water supply project is in operation, must be met from storage within the distribution system, or in combination with the operation of Santa Rosa Wells SR-4 or SR-3.

1.6 CCSD Baseline Water Supply Analysis Report

A December 9, 2000 Baseline Water Supply Analysis was an historically significant report that the CCSD commissioned to study groundwater supply and demand. This report used a regression analysis technique to develop a supply and demand model, which included estimating the duration of the upcoming dry season and remaining storage within the aquifers. The results of this model would then be used to support what level of conservation would be needed from CCSD customers. This report further documented updates to CCSD ordinances to permanently prohibit the waste of water within the CCSD water service area (Ordinance 4-2000) and the establishment of an emergency water conservation program with three stages. These ordinances were subsequently incorporated into the CCSD Municipal Code.

1.7 CCSD Long-Term Water Supply Planning

The CCSD has spent decades studying various long-term water supply alternatives including seasonal storage reservoirs, cross country transmission mains, and seawater desalination. The unincorporated CCSD service area is environmentally sensitive, within the Coastal Zone, and has much of the offshore area being within the Monterey Bay National Marine Sanctuary, as well as the more recently formed Cambria State Marine Park. Earlier attempts to expand the water supply stalled out due to a combination of factors, including the area's relatively remote location, environmental concerns, associated growth inducement concerns, and costs. The most current summary of long-term water supply planning can be found in a November 27, 2013 report by CDM Smith, which was administered by the U.S. Army Corps of Engineers, and entitled, "Cambria Water Supply Alternatives Engineering Technical Memorandum." This effort included a series of facilitated public workshops, which resulted in technical screening of numerous supply alternatives. Based on this work, a brackish water supply alternative along the lower San Simeon Creek aquifer was found to be the most technically feasible alternative.

Unlike the 2014-emergency water supply project, the longer term brackish alternative (aka Alternative 5 of the 2013 report) included injection wells farther up-gradient from the CCSD's property, which would allow highly treated and injected water to flow past neighboring agricultural wells. Because of concerns over potential risk due to the State's mandated 60-day travel time requirement, a separation has been preferred by the CCSD's agricultural neighbor, which would preclude such an approach. Therefore, the Army Corps was requested to revisit long-term supply Alternative 5 to determine whether it could be further modified to address the CCSD neighbor's concerns. Modifications to be investigated included adding a subterranean cutoff wall (aka a secant-style augured cutoff wall) on CCSD property down-gradient from the emergency supply project's injection well and near the location of an existing stream gauging station (San Luis Obispo County Sensor 718), which would be in combination with a future extraction well that would be placed to avoid having re-injected water pass the neighboring wells. Figure 1-3 illustrates this concept.

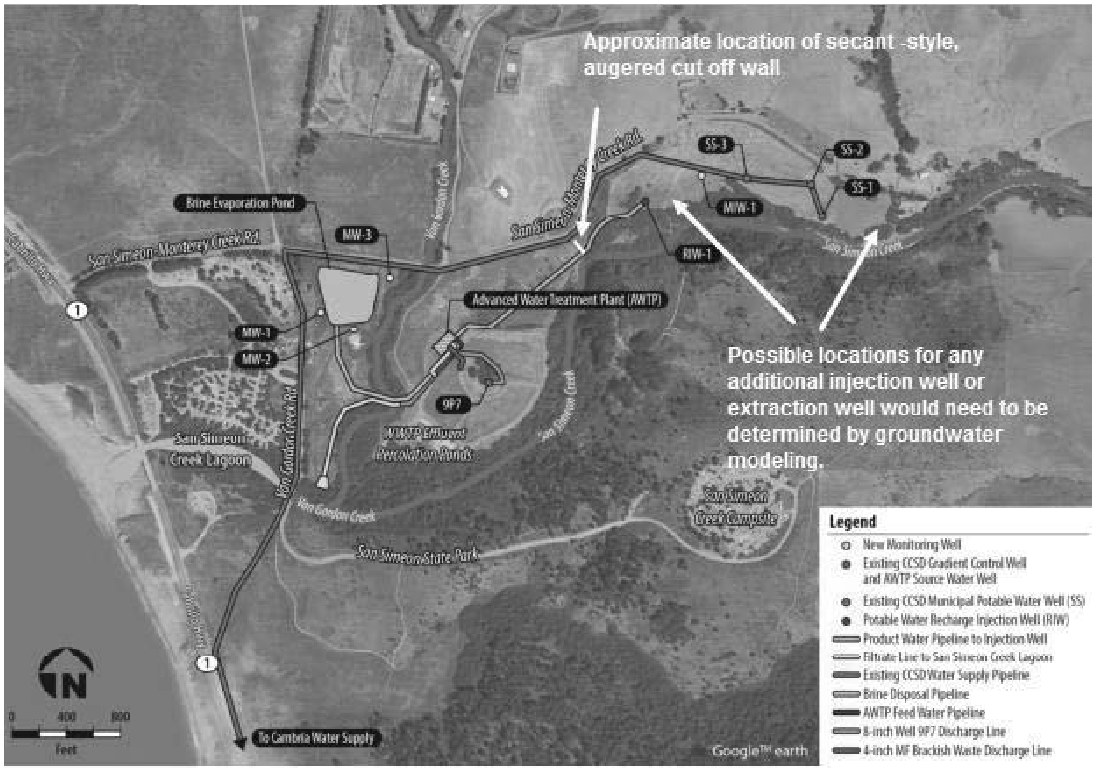


Figure 1-3 – Concept Associated with Pending Long-Term Water Supply Analyses

Besides the additional geo-hydrologic analyses that are needed to evaluate possible modifications to the earlier brackish water alternative (Alternative 5), additional analyses are needed to investigate alternative means to dispose of reverse osmosis reject water. The technical work on this subsequent analysis is currently on hold due to lack of federal funding. Once the technical support work is completed, and subject to these modifications being determined to be feasible, an updated long-term Alternative 5, along with the remaining screened alternatives, are to be analyzed as part of an ongoing environmental impact statement (EIS) analysis, which is currently under commission by the U.S. Army Corps of Engineers.

In addition to long-term potable water planning efforts, the CCSD is in the early process of improving its wastewater treatment plant. With the completion of its 2014 Emergency Water Supply project, the wastewater treatment plant has essentially become a water restoration plant as opposed to a treated wastewater disposal operation. As a result, more emphasis is being placed on the need for the existing plant to de-nitrify (to remove nitrates) from its effluent. This is because the CCSD's Emergency Water Supply project has a very low nitrate requirement (2.3 mg/l Nitrate expressed as N, or NO_3-N) based on the state's non-degradation policy (Porter-Cologne Act), which is well below the state's drinking water limit of 10 mg/l NO_3-N). Nitrate can also be a limiting nutrient in certain aquatic environments, which means its presence can promote the growth of aquatic plants and algae, which may not otherwise occur to the same extent. Such growth can create problems, particularly at night, by lowering the dissolved oxygen needed to support fish life. Associated with this concern, the RWQCB released a draft report during early 2015 entitled "Draft TMDL Project Report for Nitrate, Dissolved Oxygen, Sodium, and Chloride in San Simeon Watershed." This report includes draft target concentration limits for the San Simeon Creek lagoon water, which is located down gradient from the CCSD's treated effluent percolation basins. For nitrate, the report's draft target is 1.3 mg/l NO_3-N. For phosphorous, another limiting nutrient, the report's draft target limit is 0.05 mg/l – P. Future upgrades to the CCSD wastewater treatment plant will need to consider the RWQCB's final report recommendations as well as those of the emergency water supply project.

1.8 Water Rights Agreements

The CCSD has a water rights settlement agreement in place with its agricultural neighbor to the north of its San Simeon Creek well field and percolation pond property. This 2006 agreement allows for providing non-potable agricultural water to this ranch property from CCSD Well 9P2, which is located north of the CCSD's emergency water supply project's extraction well (9P7), and in the same general proximity as the treated wastewater effluent percolation ponds. The amount of non-potable water provided is subject to meeting specific terms of the agreement, and can be up to 183.5 acre-feet per year. This agreement also allows for providing up to 21.5 acre-feet per year of potable water to an existing residence and commercial establishment on this same ranch property, as well as a buffer area where non-potable is not allowed to be used.

Meeting the future agricultural demand called for in this agreement will be challenging in view of the environmental conditions and dry season diversion limits in the CCSD's permits. Future planning should therefore consider how the terms of this agreement could be met in view of these regulatory limitations. Such planning scenarios could include the establishment of agricultural storage ponds in combination with limiting CCSD supply deliveries during more ideal wet season periods and conditions.

1.9 Water Conservation

Water conservation has been a way of life in Cambria for many decades. The CCSD's conservation program includes mandated, as well as voluntary conservation measures. Mandated measures include the requirement to retrofit homes on resale, and businesses on changes of use or resale. Voluntary measures include rebates to customers for installing water conservation measures such as low flow toilets, low flow showerheads, hot water circulating pumps, and water efficient clothes washers.

During the early 1980s, the CCSD developed a demand offset program based on water conservation, which required the demand of any new water connection to be offset by conservation. This program is administered by maintaining a conservation points bank, which tracks completed conservation measures against the points needed for a new connections. The CCSD's most recent update to this program was completed by Maddaus Water Management, which is summarized within a February 28, 2013 Water Use Efficiency Plan report. This report included study of water use by various size residences, which resulted in modifying the number of conservation points needed to obtain a demand offset. Other specific updates since the 2013 report included lowering the maximum allowable flow for showerheads down to 1.5 gallons per minute maximum, and requiring that urinals not exceed 1/8 gallon per flush. The CCSD's water conservation measures are typically revisited as new water conservation measures evolve in the market place, and as part of the CCSD's Urban Water Management Plan updating process. Future updates may include review of newer point of use recycled (POUR) water systems (e.g., Nexus "eWater"), and dual plumbing of residences to separate gray and black water to further facilitate the implementation of POUR systems.

In response to the CCSD's current Stage 3 Water Shortage Emergency Declaration, Cambrians continued to excel at water conservation by having reduced their water use by over 35%.

1.10 Non-Potable Recycled Water Planning

The CCSD's lower San Simeon Creek emergency water project provides indirect potable reuse of recycled water. In addition, the CCSD has a plan that was completed in 2004 to guide the future use of recycled water for irrigation on landscaping. Approximately 65 acre-feet of future irrigation with recycled water has been estimated as part of the effort in developing the 2013 Technical Memorandum on Water Supply Alternatives. The non-potable irrigation water is planned for larger irrigators, including a future community park, the Cambria middle school, and Cambria elementary school. Future upgrades to the CCSD's wastewater treatment plant will consider these needs, as well as recycled water's potential use to recharge the lower Santa Rosa Creek aquifer during critical summer months.

1.11 Integrated Regional Water Management Planning and County Land Use Coordination

The CCSD is a signatory agency to the memorandum of understanding with the San Luis Obispo County Flood Control and Water Conservation District (County), which leads efforts to coordinate development and updating of a county-wide Integrated Regional Water Management (IRWM) plan. Cambria is located within the County's North Coast Regional Water Planning Area 2 of the IRWM. Key features and activities covered by the countywide IRWM planning process include:

- Describes the Region and its water management strategies
- Reviews the Region's water issues (e.g., supply, quality, storage, conveyance)
- Puts forward strategies to address solutions for those issues
- Suggests actions, programs, and capital projects to carry out those strategies
- Prioritizes and integrates those actions, programs, and capital projects
- Establishes metrics to measure and manage collected data to show the potential improvements, benefits, and impacts of the plan
- Provides a methodology to carry out those actions, programs and capital projects
- Monitors the plan's progress and makes adjustments when needed

Besides participation in the IRWM planning efforts, the CCSD actively attends the county's regular Water Resources Advisory Committee (WRAC) meetings, which reports to the County Board of Supervisors on water related concerns within the County. The county also follows a Resource Management System (RMS) reporting and evaluation process every two years as part of its Growth Management Ordinance. The RMS reporting includes collaboration with the CCSD and WRAC on the status and availability of water and wastewater services, which is considered by the County Board of Supervisors in setting allowable growth rates within the County.

Section 2 - Basin Management Objectives

The CCSD's 1980 Basin Management Program incorporated an historic, November 16, 1976 Resolution (Resolution 13-11-76), which was passed by the Cambria County Water District, the community's water purveyor prior to CCSD. This resolution entitled "Resolution Establishing Policy for San Simeon Basin Management Plan" included the following:

> WHEREAS: The Board recognizes that a basin management plan for the San Simeon Creek basin is necessary to prevent sea water intrusion, and mitigate environmental impacts on the fishery resources, supply facilities in the basin for up to 1230 acre-feet per year in accordance with water rights application No. 25002.
>
> NOW, THEREFORE, IT IS HEREBY RESOLVED, FOUND, AND DETERMINED AS FOLLOWS:
>
> The District will operate its water supply and waste water disposal facilities to serve the following functions:
>
> A. Maintain water levels in the lower basin in order to (1) sustain stream flow to the lagoon at the mouth of San Simeon Creek, and (2) prevent sea water intrusion. The objectives will be accomplished by return of waste water to the basin in accordance with Discharge Requirements of the Regional Water Quality Control Board.
>
> B. Maintain riparian vegetative growth along San Simeon Creek in the lower basin area in the event lowered ground water levels should cause damage to riparian vegetation. The District will provide irrigation facilities, within the Bonomi Ranch area owned by the District, where said damage occurs from depletion of soil moisture due to basin dewatering by District water wells."

In following the intent of the aforementioned resolution, while providing updating based on current facilities and permits, the following Basin Management Objectives are recommended.

2.1 Basin Management Objective 1

Monitor and Manage Water and Wastewater Facilities to Ensure Protection of the Area's Fishery and Riparian Habitat

Existing permit conditions require the CCSD to operate its well fields to maintain at least 3 feet of elevation at its Santa Rosa Creek monitoring well (WBE) and to maintain flow into the mouth of the San Simeon Creek lagoon. Each of these conditions have their own unique challenges, particularly during extended drought periods. To abide by these conditions, the CCSD will need to plan, budget, and develop a revenue stream to support the resources necessary to ensure compliance. Existing groundwater management efforts should be bolstered by the addition of remote sensing, as well as continued biological monitoring.

Currently, the CCSD has an adaptive management plan and associated biological monitoring in place to coincide with operation of its emergency water supply (EWS) project. A copy of this Adaptive Management Plan is being provided as Appendix E. The monitoring will be further augmented by the pending installation of remote measuring equipment, which is proposed for installation at the lower San Simeon State Campground pedestrian bridge, which spans the upper portion of the San Simeon Creek lagoon. The EWS project further includes a design feature that discharges 100 gallons per minute of flow into the mouth of the San Simeon Creek whenever the new system operates during periods of no creek flow. Biological monitoring will be budgeted and planned for as part of any future rate analysis to ensure this expense continues to be funded. This may also need to be expanded to include the lower Santa Rosa Creek reaches and lagoon area.

In addition to coordinating monitoring expenses into its operating budget, future capital projects should also consider this need. For example, the pending wastewater treatment plant improvements should address the RWQCB's 2015 draft TMDL report recommendations to further reduce nitrates and phosphorus in the CCSD plant effluent. Other possibilities may include recharging the lower Santa Rosa aquifer during the summer with highly treated wastewater effluent, as well as converting the Shamel Park irrigation system to Title 22 non-potable water from the CCSD wastewater treatment plant.

2.2 Basin Management Objective 2

Operate, Plan, and Provide CCSD Water and Wastewater Facilities in a Manner to Prevent Sea Water Intrusion and to Avoid Inelastic Ground Subsidence

Localized subsidence was last experienced along the lower Santa Rosa Creek aquifer during the 1970s and prior to the construction and operation of the CCSD's San Simeon Creek well field. This is documented within the February, 1980 California Geology article by George B. Cleveland entitled "Drought and Ground Deformation, Cambria, San Luis Obispo County, California." Causes cited within this article included: flooding that had destabilized the creek banks; the loss of soil moisture after the area was served by sewers (and local septic tanks and leach fields were abandoned); and, the 1975-1976 drought. Subsequent elevation surveys followed this period and were eventually stopped after no further ground elevation changes were found to be occurring. Since this earlier time, the CCSD also began operating its San Simeon well field, which started during 1979 and has allowed for less strenuous demand on pumping from the Santa Rosa Creek aquifer. Future operations of the CCSD's Santa Rosa Creek and San Simeon Creek aquifer well will avoid lowering groundwater elevations to a point where subsidence could possibly start to occur. Additionally, the CCSD's 2014-constructed emergency water supply project will provide further protection to the San Simeon well field area by increasing groundwater elevations during its operation. The CCSD also uses its water conservation demand offset program to ensure any future water connections are offset by water conservation measures. If static groundwater elevations go near or below 5 feet above mean sea level near the lower San Rosa Well SR-1, ground level surveys may be reinitiated along with adjustments to pump operations to avoid the potential for subsidence.

2.3 Basin Management Objective 3

Work Cooperatively with District Customers, the Agricultural Community, and Regulatory and Resource Agencies to Protect and Maintain Groundwater and Surface Water Quality

The CCSD actively participates in the County-wide Water Resources Advisory Committee (WRAC), which is widely represented and makes recommendations to the County Board of Supervisors on water related matters. It is also a signatory agency to the County-wide Integrated Regional Water Management Plan (IRWMP) memorandum of Understanding. Continuing participation in the WRAC and IRWMP by the CCSD will help foster a collaborative working relationship with the local agencies and agricultural community.

In addition to the WRAC and IRWMP, land use jurisdiction within the unincorporated CCSD service area and groundwater basins is governed by San Luis Obispo County. Because the area is within the Coastal Zone, proposed development is subject to conditions within the Local Coastal Plan, with land use development permitting by the County being appealable to the State Coastal Commission. A local North Coast Advisory Committee further reviews proposed new development and makes recommendation to County Planning and the area's local County Board Supervisor. Besides these reviews, the CCSD implements a demand offset program that requires the demand from any new water connections to be offset by water conservation measures implemented within the CCSD's water services boundary. This overall process ensures that any new development is closely reviewed for possible impacts to groundwater.

The County is also lead on administering a Hazardous Materials Management Plan (HMMP) program, which serves to further protect the local groundwater and surface water quality by documenting where and how hazardous materials are stored, as well as guiding emergency responders on how to safely and expeditiously respond to fires and accidents to minimize the potential for accidental releases.

The community has also benefitted from the past efforts of local ranchers and agricultural interests. Most recently, a local rancher allowed residents to haul irrigation water from one of his wells that had an appropriation permit. During the early 1975-1976 drought, ranchers along the Santa Rosa Creek provided temporary relief to the CCSD by piping irrigation wells into Santa Rosa Well SR-2 to locally recharge the aquifer near the CCSD wells. Others have reduced or voluntarily suspended irrigation practices during extreme drought periods. Further collaborative opportunities exist with the agricultural community, including work with the CCSD's well field neighbors.

2.4 Basin Management Objective 4

Continue to Monitor and Collect Baseline Groundwater Elevation and Quality Data for Use by Resource and Regulatory Agencies, In Assessing Progress, Developing Action Plans, and in Developing Future Groundwater Management Planning Updates

The CCSD regularly collects bi-monthly groundwater elevation data from wells installed along the lower reaches of the San Simeon Creek and Santa Rosa Creek aquifers. Elevation and water quality data is also collected to meet requirements set by the RWQCB and Division of Drinking Water as part of monitoring and reporting programs supporting operation of the Emergency Water Supply project and the CCSD's potable wells. Groundwater monitoring has previously supported geo-hydrological modeling of both the San Simeon Creek and Santa Rosa Creek aquifers by the US Geological Survey. More recently, geo-hydrological modeling of the lower San Simeon Creek aquifer was developed during 2014 to support design of the Emergency Water Supply project.

A future recommendation is for the CCSD to regularly enter elevation data from the CCSD-owned wells into the California Statewide Groundwater Elevation Monitoring (CASGEM) web site portal. This would further augment the confidential well data that has been entered for the San Simeon Basin Valley Groundwater Basin (Number 3-35) and the Santa Rosa Valley Groundwater Basin (Number 3-36). Data on the CCSD-owned wells is currently maintained by the CCSD's Water Department. Entering this data in to the CASGEM system would facilitate future study of the groundwater basins by making it more readily accessible.

Section 3 - Inter-Agency Coordination and Collaboration Plan

The CCSD has completed this Groundwater Management Plan following completion of an intense emergency response effort to the area's epic drought, which was coupled with a significant loss of revenue due to exceptional conservation efforts. To address its cash flow difficulties, while ensuring it was meeting all of the Proposition 84 grant funding requirements, the CCSD has completed this current Groundwater Management Plan using in-house staff, and has chosen to update the earlier groundwater management program by following the procedural requirements outlined in Water Code Sections 10753.4 and 10753.5.

Because of the time urgency associated with its revenues needs, the CCSD is completing a two-step adoption process that includes seeking comments from public agencies and interested parties, similar to how environmental documents are reviewed. A more elaborate agency collaboration plan is also described within this section for consideration on future Groundwater Management Plan Updates. The use of the steering committee is recommended for future groundwater management plan updates, which would more ideally occur when there is less time urgency.

3.1 Inter-Agency Coordination

The inter-agency coordination followed in adopting this current Groundwater Management Plan has included sending notices on the CCSD's intent to complete its update to regulatory and resource agencies, as well as interested private parties. Following publication of its notice per *California Government Code* §6066, the CCSD Board held an initial hearing on its intention to complete this current Groundwater Management Plan on October 15, 2015. Following deliberations during this hearing, the CCSD Board adopted Resolution 34-2015, indicating its intention to complete this Groundwater Management Plan. Appendix A includes CCSD Resolution 34-2015, a certified copy of the newspaper notification, the list of agencies and interested parties notified by mail, and the notice that was mailed.

Following a second public noticing per *California Government Code* §6066, on November 12, 2015, the CCSD held a second public hearing to consider whether a majority property owner protest existed over the adoption of the Groundwater Management Plan. Following the receipt of three written comment letters, as well as public testimony received during this hearing, the CCSD Board deliberated on District Ordinance 01-2015, and moved forward with adopting the Groundwater Management Plan. District Ordinance 01-2015, the CCSD Staff Report on this item, and written comment letters are provided in Appendix B.

3.2 Inter-Agency Collaboration Plan

It is recommended that as follow-up to adopting this current Groundwater Management Plan, the following steps be implemented to ensure continuing and future inter-agency input and collaboration. These steps should logically follow the CCSD's updating of its Urban Water Management Plan and Watershed Sanitary Surveys, which are required every five years. This would then allow pulling information from those five-year planning and updating efforts into any subsequent Groundwater Management Plan updates. This process would also include the formation of a steering committee to further guide the development of future plan updates.

Step 1 – Develop a Plan to Finance Future Groundwater Management Plan Updating

The CCSD should include as part of its planning and budgeting processes, a means to finance the regular completion of Groundwater Management Plan updates. The CCSD may want to involve the services of a consultant to assist in such efforts due to the workload such periodic efforts may require, and the specialized nature of the work. A scope of work and request for proposals would then follow for selection of a consultant to assist the CCSD.

Step 2 – Formation of a Multi-Agency Steering Committee

As lead agency, the CCSD should include contacting the following agencies and organizations to solicit representatives that would be available to attend monthly steering committee meetings and/or conference calls:

- San Luis Obispo County
- California Coastal Commission
- California Department of Fish and Wildlife
- California Department of Parks and Recreation
- Upper Salina-Las Tablas Resource Conservation District
- Natural Resources Conservation Service
- San Luis Obispo County Farm Bureau
- California Cattlemen's Association
- The Santa Rosa Creek Valley Groundwater Monitoring Cooperative
- The CCSD's agricultural neighbors
- Greenspace, The Cambria Land Conservancy
- North Coast Advisory Council
- Cambria Chamber of Commerce
- Cambrians for Water (C4 H2O)
- Regional Water Quality Control Board
- Department of Water Resources

This list may be adjusted as needed to ensure that a broad spectrum of stakeholders are available and included. The initial committee meetings would set up a mission statement, goals, rules for participation, meeting schedules, and distribute key documents for review.

Step 3 – Review and Identify Regulatory Updates and Any Recent Trends That May Require Related Groundwater Management Plan Updating

Data collected from ongoing monitoring programs would be reviewed along with progress that has been made towards meeting key regulatory and voluntary criteria. For example, future updating may include review of the RWQCB's target goals that were recently described in the draft 2015 "Total Maximum Daily Loads for Nitrate, Dissolved Oxygen, Sodium, and Chloride in San Simeon Watershed in San Luis Obispo County, California," as well as any related progress to the CCSD's wastewater treatment plant, which may contribute towards meeting such goals.

Step 4 – Develop an Action Plan to Complete Groundwater Management Plan Updates

Key points to include in a detailed action plan would include a public outreach effort, progress reporting to the CCSD Board and any Board ad-hoc committees, as well as a production schedule on a Groundwater Management Plan update. This outreach effort should plan on making special presentations to the area's North Coast Advisory Committee, County Planning Commission, County Board of Supervisors, California Coastal Commission, conservation and environmental organizations, neighboring property owners, service clubs and organizations, as well as business groups.

Step 5 – Execute the Updating Process

The completion of subsequent Groundwater Management Plan updates should regularly involve the public to make sure the key concerns are understood along with any potential alternatives towards addressing certain issues. This would include the pros and cons of various approaches being considered before the final report is finalized. The report would then be completed through a series of at least two public hearings with the CCSD Board. The first hearing would describe the CCSD's intent to complete this updated Groundwater Management Plan. The second CCSD hearing would focus on adoption of the Groundwater Management Plan. Intermediate discussions would also be made through reports by the CCSD ad-hoc committee during regular CCSD Board meetings, Board agenda discussion items, or a combination of both.

Section 4 - Groundwater Recharge and Mapping Update

Groundwater recharge to the Santa Rosa and San Simeon Creek Basins occurs through permeable alluvial materials that underlie the creek beds. Detailed mapping of the area by Hall (1974) and the USGS (1998) provided much of the detailed geology information for the area, including alluvial deposit locations. This information was used in the completion of Figure 4-1, which provides an updated map of the recharge areas within the San Simeon Creek and Santa Rosa Creek groundwater basins. Within each basin, recharge predominantly occurs through these alluvial deposits during the annual rainy season while the creeks are flowing. Certain upper reaches of each creek may also run perennially with springs contributing to surface water in the upper elevations of the watersheds during the dry summer months. During multiple-year droughts, such springs may stop flowing late in the year. Surface flow along the lower reaches of each creek typically stop during the latter dry season, with the Santa Rosa Creek having more of a propensity to flow for a longer period into the dry season period than the lower San Simeon Creek. During winter time flows, recharge will result from rainfall events and can extend through entire reach of each creek, depending upon the pattern and intensity of seasonal rains.

In addition to Figure 4-1 of this report, the CCSD has provided digital, ESRI-based mapping files to the Department of Water Resources, San Luis Obispo County, and the San Luis Obispo County Local Agency Formation Commission (LAFCO).

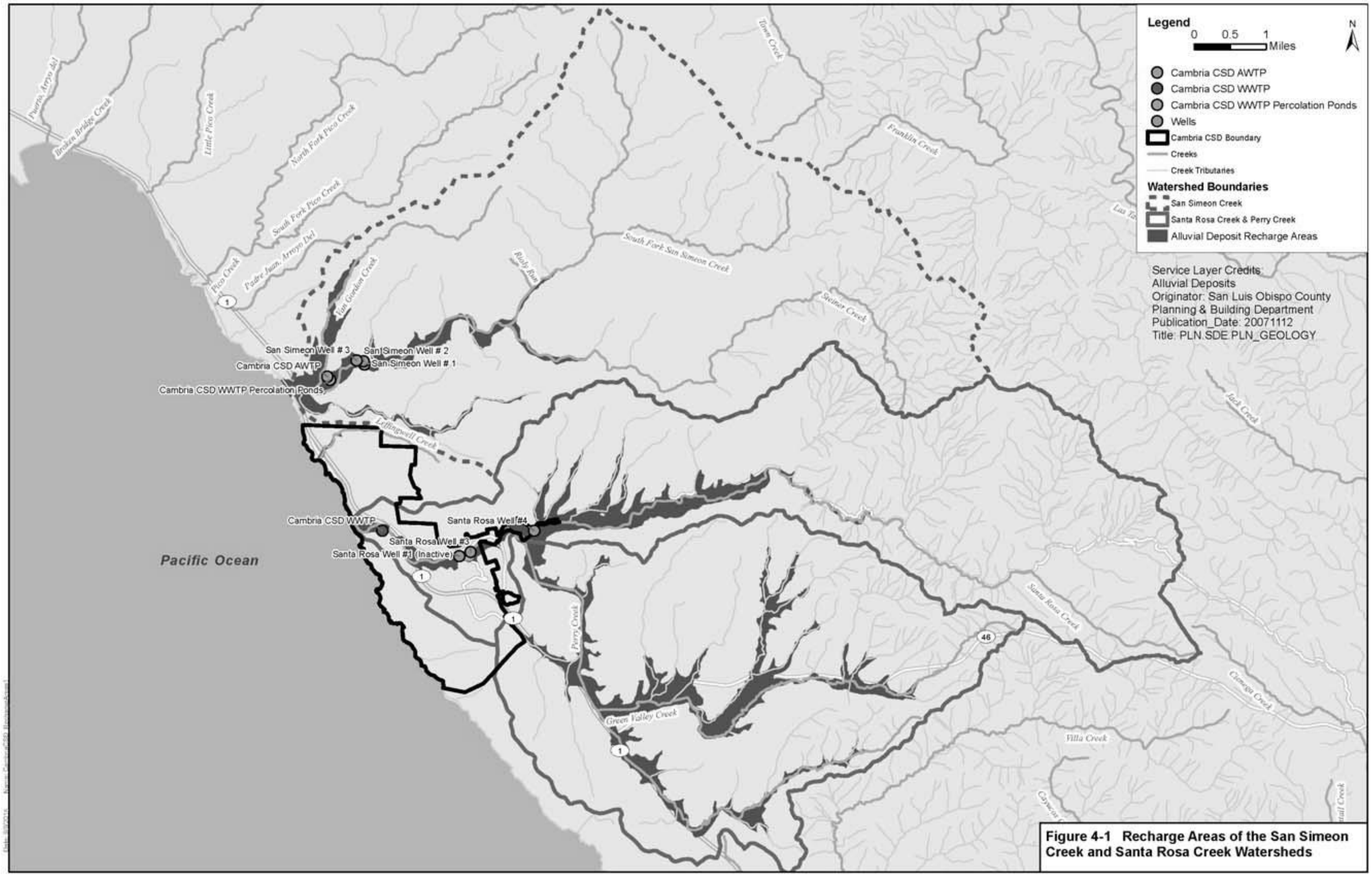


Figure 4-1 – San Simeon Creek and Santa Rosa Creek Watershed Recharge Areas

Section 5 - Groundwater and Surface Water Monitoring

The CCSD has collected groundwater elevation and quality data since it began water operations during the 1970s. Additionally, the US Geological Survey, San Luis Obispo County Flood Control and Water Conservation District, and RWQCB, have collected data on surface water flow and quality. In more recent times, Senate Bill 6 (SBx7-6) was enacted on November 6, 2009, which revised CWC §10920, et seq. and established a new groundwater monitoring program (CASGEM) to more regularly and systematically monitor groundwater in all or parts of groundwater basins throughout the state. The CCSD is currently the sole public entity registered with the state's CASGEM portal for groundwater monitoring within the San Simeon Creek and Santa Rosa Creek ground water basins. Data is currently being provided to the CASGEM system on CCSD-owned wells.

This section describes the following elements of the groundwater and surface water monitoring program:

- Groundwater Elevation Monitoring
- Groundwater Quality Monitoring
- Land Subsidence Monitoring
- Groundwater-Surface Water Interaction Monitoring

The monitoring program is used to adjust CCSD operations, promote collaborative efforts with other water users to protect the groundwater basins, support meeting the Basin Management Objectives outlined within this update, and in supporting future groundwater management plan updates.

5.1 Groundwater Elevation Monitoring

Groundwater elevations will continue to be monitored by the CCSD on a bi-monthly basis at the lower groundwater aquifer wells identified on Table 1-1 and shown on Figure 5-1. The data from these wells is also being reported in the statewide CSGEM web site portal by the CCSD.

Historic data plots from these wells are further shown in Appendix C. In addition to the historically plotted well field data, the CCSD also measures elevation and water quality data on its Emergency Water System project per the Monitoring and Reporting Program requirements issued by the RWQCB. The Emergency Water Supply Project monitoring is further described within its state-approved Operation Maintenance and Monitoring Program (OMMP) report. OMMP Section 18, which describes the project's Monitoring and Reporting Program, is included as Appendix D.

5.2 Groundwater Quality Monitoring

Groundwater quality monitoring is essential in assessing the overall condition of the groundwater basin, the need to take corrective measures, monitoring the progress of corrective measures, and in meeting statewide policy and local CCSD permit conditions. Statewide policy includes the SWRCB's 2009 adoption of a recycled water policy (RWP) to develop a salt and nutrient management plan within all of the state's groundwater basins. This was to occur by 2014, but subsequent progress has not met this earlier goal. The current RWP emphasis is focused on higher priority groundwater basins within the state. For the CCSD, its existing RWQCB-issued waste discharge requirements order (Order 01-100) includes a condition to maintain a salt management program, which serves to reduce salt loading into the groundwater basin.

Table 5-1 – CCSD Monthly Monitoring Wells

CCSD Water Department Well ID Code	State Well Identifier	Coordinates Latitude	Coordinates Longitude	Reference Elevation Point Feet Above Mean Sea Level	Notes	Estimated Survey Date
SANTA ROSA CREEK WELLS						
23R	27S 8E 23R2	N35° 34' 4.75"	W121° 04' 14.17"	83.42	Lat & long not surveyed - values from Google Earth estimate	
SR4	27S 8E 23R3	N35° 34' 5.34"	W121° 04' 15.69"	82.00	Lat & long not surveyed - values from Google Earth estimate	
SR3	27S 8E 26C5	N35° 33' 51.49"	W121° 04' 49.00"	54.30	Lat & long not surveyed - values from Google Earth estimate	
SR1	27S 8E 26D1	N35° 33' 45.12"	W121° 05' 05.02"	46.40	Lat & long not surveyed - values from Google Earth estimate	
RP#1	27S 8E 27H1	N35° 33' 40.05"	W121° 05' 13.96"	46.25	Lat & long not surveyed - values from Google Earth estimate	
RP#2	27S 8E 27G1	N35° 33' 38.62"	W121° 05' 40.43"	33.11	Lat & long not surveyed - values from Google Earth estimate	
21R3	27S 8E 21R3	Shamel Park Irrigation Well		12.88	County-owned well	
WBE	27S 8E 21R4(?)	N35° 34' 04.64"	W121° 06' 14.44"	16.87	Lat & long not surveyed - values from Google Earth estimate	
WBW	27S 8E 21R5(?)			17.02	(?) State ID number needs to be confirmed.	
SAN SIMEON CREEK WELLS						
11B1		Privately owned well - confidential		105.43		
11C1		Privately owned well - confidential		98.20		
PFNW		Privately owned well - confidential		93.22		
10A1		Privately owned well - confidential		78.18		
10G2		Privately owned well - confidential		62.95		
10G1		Privately owned well - confidential		59.55		
10F2		Privately owned well - confidential		66.92		
10M2		Privately owned well - confidential		55.21		
9J3		Privately owned well - confidential		43.45		
SS1	27S 8E 9J4	N35° 36' 01.63"	W121 ° 06' 32.19"	32.37	Elevation at painted X next to well	2/12/2015 NCE
SS2	27S 8E 9J5	N35° 36' 04.12"	W121° 06' 33.17"	33.16	Elevation at painted X next to well	2/12/2015 NCE
SS3	27S 8E 9K3	N35° 36' 04.28"	W121° 06' 38.95"	33.73	Elevation at painted X next to well	2/12/2015 NCE
SS4	27S 8E 9P5	N35° 35' 53.51"	W121° 06' 51.10"	25.92	Lat & long not surveyed - values from Google Earth estimate	
MIW		N35° 36' 04.44"	W121° 06' 41.51"	29.89	Elevation at Top of casing	2/12/2015 NCE
RIW		N35° 36' 02.69"	W121° 06' 47.74"	25.41	Elevation on concrete next to well	2/12/2015 NCE
9L1	27S 8E 9L1			27.33		
9P7	27S 8E 9P7	N35° 35' 49.47"	W121° 07' 01.26"	20.69	Elevation at Top of casing	2/12/2015 NCE
9P2	27S 8E 9P2			19.11		
9M1		Privately owned well - confidential		65.63		
MW3		N35° 35' 57.47"	W121 ° 07' 10.20"	49.56	Elevation at Top of casing	2/12/2015 NCE
MW2		N35° 35' 53.38"	W121° 07' 14.03"	38.10	Elevation at Top of casing	2/12/2015 NCE
MW1		N35° 36' 04.44"	W121° 06' 41.51"	42.11	Elevation at Top of casing	2/12/2015 NCE
MW4		N35° 35' 41.90"	W121° 07' 15.33"	15.95	Elevation at Top of casing	2/12/2015 NCE
16D1	27S 8E 16D1	N35° 35' 41.84"	W121° 07' 17.47"	11.36	Elevation at Top of casing	2/12/2015 NCE

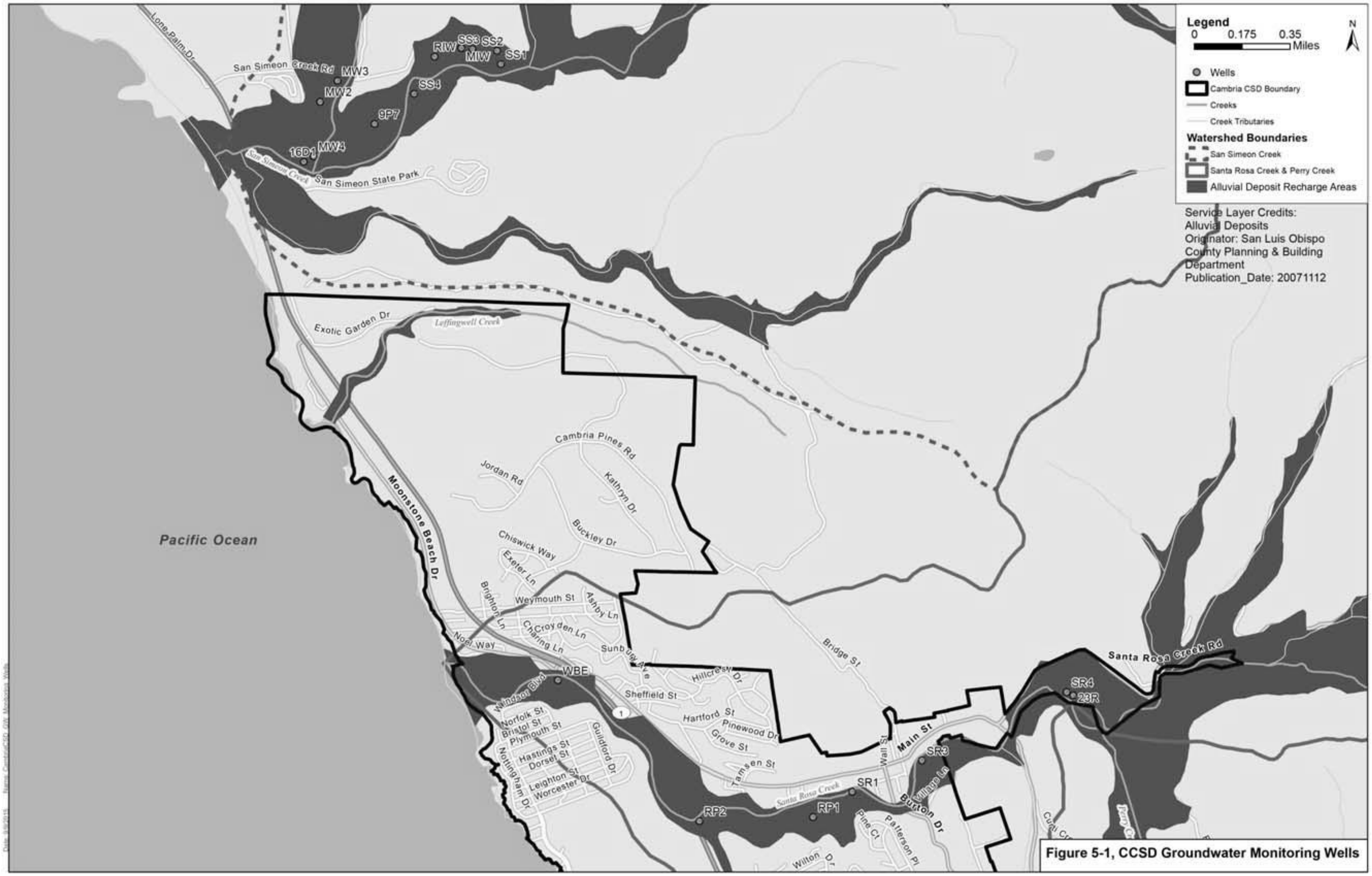


Figure 5-1 – Map of CCSD Monitoring Wells

Besides salt loadings, nutrients are a key regulatory concern due primarily to their potential impact on aquatic habitat. Of these, nitrate is the most significant contaminant of concern with regard to the CCSD's operations and long term planning. This stems from three general areas: 1) groundwater from monitoring wells downstream from the CCSD's treated wastewater effluent percolation ponds are required to have nitrate concentrations below the statewide maximum contaminant level limit for drinking water, which is 10 milligrams per liter (mg/l) when reported as nitrate expressed as nitrogen (NO_3-N); 2) operation of the emergency water supply project requires the maximum NO_3-N concentration of its final re-injected water be no greater than 2.3 mg/l; and, 3) the RWQCB's draft 2015 Total Maximum Daily Loads report for the San Simeon Creek Watershed includes a recommended numeric target of 1.3 mg/l for NO_3-N within the San Simeon Creek and lower lagoon.

Because the CCSD's existing wastewater treatment plant was designed to convert ammonia (which can be toxic to fish) into nitrate, future plant upgrades are needed to reliably remove nitrate, which can otherwise serve as a nutrient to promote excessive algae and plant life within the creek and lagoon (which can reduce dissolved oxygen concentrations at night).

Other concerns exist with regard to salt loading from the CCSD's wastewater plant, which has a total dissolved solids (TDS) effluent concentration limit of 1,000 mg/l for a 30-day mean, and 1,500 mg/l for an instantaneous measurement. Ongoing and future trends in water conservation also create a conundrum for the CCSD due to such efforts increasing TDS concentrations. This is because the same amount of waste product generally occurs even as the water volume decreases. These factors could lead to further assessment of the CCSD's salt management program efforts in reducing plant TDS concentrations.

Of benefit towards addressing the nutrient and salt management concerns, the CCSD's 2014-constructed emergency water supply project serves to further reduce salt loading and nitrates by its operation. This is due to its treatment process including reverse osmosis, which reduces the concentration of nitrates and total dissolved solids from the extracted water before it is re-injected. The CCSD wastewater operators have also made interim operational adjustment to further reduce nitrates in the plant's effluent. Groundwater monitoring and its data collection efforts will allow continuing assessment of progress made in reducing salts and nutrients.

5.3 Leaking Underground Fuel Storage Tanks

Cambria has been previously impacted by leaking underground fuel storage tanks (LUSTs), and had shut down its lower Santa Rosa Creek wells since the fuel oxygenate, methyl tert-butyl ether (MTBE) was discovered in a groundwater contamination plume during late 1999 to early 2000. This led to remedial actions, including the construction of CCSD Well SR-4 and its associated iron and manganese removal filter farther upstream from this plume. In addition, the gas station site where MTBE was detected installed groundwater treatment, including a pump and treat system that hauled away contaminated groundwater. Of the CCSD's existing production wells, Well SR-1 was the closest to the MTBE plume, while Well SR-3 was somewhat better situated than SR-1 to avoid the MTBE plume. Additionally, there have been other LUST locations, such as the one at the old Hampton Inn site (a site that has since been ruled closed by the RWQCB). Figure 5-2 shows the old LUST sites in relation to the CCSD's Santa Rosa wells.

Because of concerns over whether MTBE may be pervasive, as well as form an intermediate degradation product, tert-butyl alcohol (TBA), the CCSD conducted testing on both of these compounds during the testing and startup of converted Well SR-1 and upgraded Well SR-3 during 2014. Additionally, the CCSD converted Well SR-1 to a non-potable irrigation well that had a relatively low pumping rate due to the SR-1 water being hauled by end users. The analytical tests conducted on Wells SR-1 and SR-3 resulted in non-detection of MTBE and TBA. The CCSD will continue testing for these compounds as part of its regular operation of these lower Santa Rosa wells. If either compound is detected at reportable limits, the CCSD may suspend or otherwise modify its existing operation of these two wells.

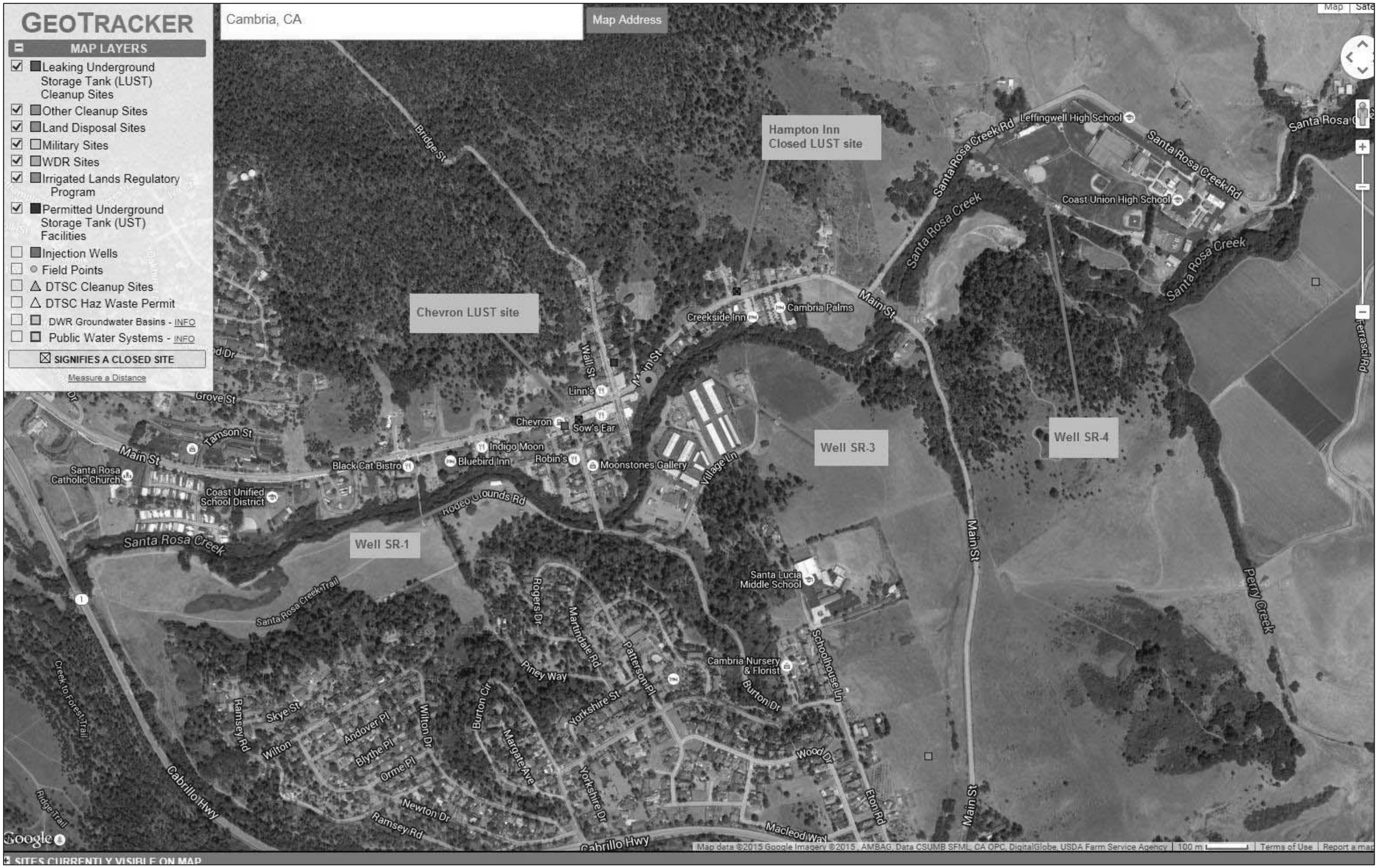


Figure 5-2 – Map of Leaking Underground Fuel Storage Sites and CCSD Santa Rosa Wells

5.4 Surface Water Quality Monitoring

Surface water quality monitoring of the San Simeon and Santa Rosa Creeks is accomplished through a combination of efforts including the CCSD's sampling in response to operating permit criteria, as well as through efforts of the Central Coast Ambient Monitoring Program (CCAMP), which is the Central Coast Regional Water Quality Control Board's regionally scaled water quality monitoring and Evaluation program. In addition to CCAMP, the Central Coast RWQCB issued Irrigated Agricultural Order R3-2012-011, which includes various water quality monitoring requirements for the area's irrigated agriculture. Water quality requirements and goals are generally driven by the beneficial uses identified within the Central Coast RWQCB's Basin Plan.

For the San Simeon Creek, CCAMP sites 310-SSC and 310-SSU have been historical sampled with historic water quality data being managed by the RWQCB. For Santa Rosa Creek, CCAMP sites 310-SRO and 310-SRU have served in a similar capacity.

The primary surface water quality focus of concern has been the listing of the San Simeon Creek watershed as having been included on the Clean Water Act (CWA) Section 303(d) list as being impaired for nitrate (NO_3), dissolved oxygen (DO), sodium (Na), and Chloride (Cl). The RWQCB's early 2015 draft Total Maximum Daily Loads report for the San Simeon Creek watershed suggested numeric limits for receiving water, and will be a key area of study as part of ongoing groundwater and surface water monitoring. This draft report will likely influence future permit requirements as well as the design of the CCSD's wastewater treatment plant improvements.

5.5 Land Subsidence Monitoring

Localized land subsidence was discovered within the lower Santa Rosa Creek aquifer during the 1970s, which was during a period that preceded completion and operation of the CCSD's San Simeon Creek aquifer wells. This earlier subsidence is further documented within the February 1980 California Geology paper by geologist George B. Cleveland of the California Division of Mines and Geology. Land subsidence surveys followed this early discovery, but were eventually stopped after subsequent years of survey found that subsidence was no longer occurring. Additionally, the CCSD also commissioned Cleath–Harris Geologists to review the proposed Well SR-3 operation during earlier 2014, which resulted in a recommendation to keep the minimum static groundwater elevation near lower Santa Rosa Well SR-1 no less than 5 feet above mean sea level in order to avoid the potential for subsidence. In addition to the San Simeon well field going on line since this earlier Santa Rosa Creek experience, the recently completed Emergency Water Supply project serves to recharge the CCSD's San Simeon Well field area to further avoid the potential for subsidence within the San Simeon Creek aquifer. Subsidence has not been observed in the lower San Simeon Creek aquifer. From review of historic CCSD well levels plots from 1988 to 2015, the lowest average groundwater elevation at the CCSD's San Simeon well field has been 0.8 feet above mean sea level. Therefore, to avoid possible subsidence in this area, the CCSD's goal will be to maintain an average San Simeon well elevation at or above the historic minimum of 1 foot above mean sea level.

5.6 Groundwater-Surface Water Interaction Monitoring

Although the CCSD does not have a direct surface water intake as part of its water supply, several permit conditions apply to CCSD's operation with regard to how groundwater pumping may interact with surface water flows. For example, the CCSD is required to stop operating its Santa Rosa Wells when the down-gradient monitoring well (Well WBE) is equal to or less than 3 feet above mean seal level. During 2014 the CCSD added the well WBE to its remote monitoring capabilities to allow for its instantaneous information and alarms. The CCSD is also required to abide by the endangered species act by avoiding the incidental taking of listed species unless it completes a consultation process with the appropriate resource agencies and develops acceptable offsetting mitigations.

To address related concerns along the lower San Simeon Creek, the CCSD included a design feature within its Emergency Water Supply Project, which provides 100 gallons per minute (gpm) of freshwater flow into the upper reach of the San Simeon Creek lagoon whenever the new facility is in operation. The 100 gpm rate was developed by a geo-hydrologist following modeling of the area and review of flow and elevation data. This flow measure also backed up by an Adaptive Management Plan (AMP), with biological monitoring to ensure favorable conditions are being maintained. As part of ongoing efforts to improve the AMP monitoring, the CCSD is also in the process of obtaining permissions to install remote creek monitoring equipment under the State campground's pedestrian bridge, which spans the upper San Simeon Creek lagoon area.

The CCSD plans to continue with its AMP monitoring and to make necessary adjustments to its operations based on input from its biologists. It will also install remote monitoring equipment after permissions are granted by State Parks and other agencies on its installation. Future planning and design of pending wastewater treatment plan improvements will also consider whether highly treated wastewater could be used to recharge or otherwise minimize the lowering of the lower Santa Rosa Creek aquifer during the dry summer months.

Periodic review of the protective measures and elevations will be used to guide CCSD operations and future groundwater management plan updates.

Section 6 - Wellhead Protection, Well Abandonment, and Well Construction Policies

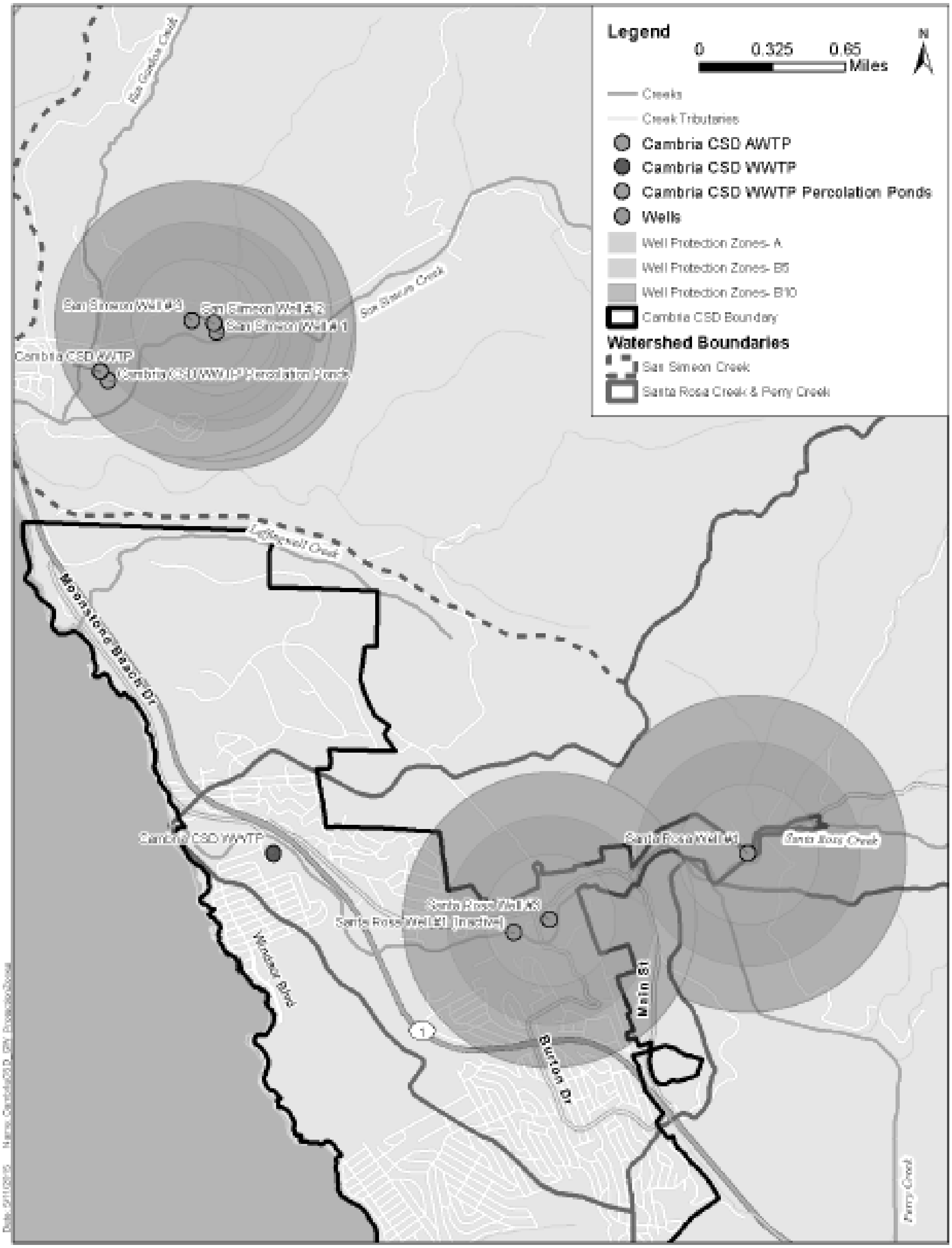
The San Luis Obispo County Department of Environmental Health administers programs within the San Simeon Creek and Santa Rosa Creek watersheds that further protect groundwater and drinking water quality. These programs include the permitting of wells and associated enforcement of the California Department of Water Resources Bulletins 74-81 and 74-90 combined standards. The efforts by County Environmental Health in this area are essential in protecting the area's groundwater quality, as improperly constructed, maintained, or destroyed wells can impact water quality by allowing:

- Pollutants, contaminants, and water to enter a well bore or casing;
- Poor quality surface and subsurface water, pollutants, and contaminants to move between the well casing and borehole wall;
- Poor quality groundwater, pollutants, and contaminants to move from one stratum or aquifer to another; and,
- The well bore to be used for illegal waste disposal

Besides wells, the County's Department of Environmental Health also administers the cross connection control program for the area, which serves to prevent the accidental introduction of contaminants into potable water systems by ensuring proper backflow prevention devices are installed and maintained.

Because its water supply wells are under the influence of surface water and subject to the state's Surface Water Treatment Regulations, the CCSD is also required to complete an updated Watershed Sanitary Survey every five years. This survey includes identifying existing and potential sources of contamination within the watersheds, providing a water quality and watershed condition assessment, and providing recommendations for watershed management practices to protect surface water quality within the watershed. The CCSD's 2015 survey update included mapping of water protection zones at each of the CCSD's potable production wells, which is shown in Figure 6-1. The identified protection zones A, B5, and B10 coincide with the relative risk that a contaminant has in reaching a well without being detected or mitigated beforehand. Zone A, the closest zone to each well, is generally based on most microbiological contaminants becoming ineffective after being submerged in groundwater for more than two years. Besides microbiological concerns, chemical contamination can travel and last for many years. Zones B5 and B10 are shown in relation to the longer time that a chemical contaminant can travel, with Zone B5 being based on an intermediate travel time of 5 years, while Zone B10 is based on a long-term 10-year travel time.

Recommendations within the CCSD 2015 Water shed Sanitary Survey include additional watershed monitoring, educational efforts on best management practices to promote watershed protection, as well as containment and pollution prevention.



From draft May 29, 2015 CCSD Watershed Sanitary Survey Update
Water Systems Consulting, Inc.

Figure 6-1 – Groundwater Protection Zones

Section 7 - Recommendations

The CCSD should regularly review and assess the condition of the Santa Rosa Creek and San Simeon Creek groundwater basins, to gauge progress on whether the Best Management Objectives (see Section 2) are being met. Future updates to the Groundwater Management Plan should be considered as conditions evolve and adjustments or additional measures are deemed necessary. A logical timing to consider such updating would follow the 5-year cycle of updating the CCSD's Urban Water Management Plan and its Watershed Sanitary Survey. If future pumpage or other conditions (e.g., climate change) result in a deficit to the groundwater basin water balance (see Table 1-3 on page 7 and its earlier discussion), the CCSD could consider weighing the need to implement measures outlined in the 2014 Sustainable Groundwater Management Act (SGMA) legislation. Because the San Simeon Creek aquifer and the Santa Rosa Creek aquifer are not classified by the state as being either a high or medium priority groundwater basin, SGMA compliance is not mandatory. However, if desired or otherwise warranted by changing conditions, future SGMA measures could include determining and developing a lead Groundwater Management Planning Agency, as well as a Sustainable Groundwater Management Plan. At this time, more near-term recommendations are outlined below.

1. The CCSD should complete its regular Coastal Development Permitting process with San Luis Obispo County on its Emergency Water Supply Project to further improve the reliability of its existing supplies. This effort is to include completion of a supporting Environmental Impact Report, which would support operating the new facilities whenever they are needed to avoid the potential waste of water; a reverse hydraulic gradient condition between its treated wastewater hydraulic mound and upstream San Simeon well field; or the onset of any future water shortage emergency.

2. The CCSD should continue to coordinate with the Army Corps of Engineers on its long-term water supply project and associated Environmental Impact Statement (EIS) process. This includes providing supporting data and information to complete the technical analyses that are needed to support the EIS consultant. The acquisition of continuing federal funding to support the Corps and its consultants would be part of this coordination.

3. The CCSD's financial planning and budgeting should include anticipating requirements associated with meeting the Basin Management Objectives. Example cost items would include:

   a. Continued funding to support the emergency water supply project's EIR and regular Coastal Development Permit.

   b. Funding to support remaining technical analyses of the Army Corps'-administered long-term water supply project's Environmental Impact Statement (EIS).

   c. Funding to support completion of a long-term water supply alternative (i.e., the preferred alternative to be identified within the Army Corps EIS).

   d. Improvements to the CCSD wastewater treatment plant.

   e. Regular biological monitoring of the riparian habitat

   f. Data collection and laboratory water quality analyses.

   g. Additional remote sensing of the creeks and monitoring wells.

   h. 5-year updating to the Groundwater Management Plan.

   i. Additional monitoring wells that may be identified as a future monitoring need.

j. Continuance of the CCSD water conservation program and related conservation demand offset program efforts.

k. Continuation of efforts to extend SWRCB diversion permits 20387 and 17287 (See Table 1-1.).

4. Future Groundwater Management Plan updates should allow for the time and resources to form a steering committee as part of its outreach efforts.

5. Future Groundwater Management Plan updates should allow for the time, and provide the necessary resources, to update the water budget for both basins (See Table 1-3.) using current water use information and an associated or similar modelling effort that was used in the original USGS Report (98-4061).

6. The CCSD should continue to routinely monitor and report data on its groundwater monitoring wells. This reporting would include participation in the statewide CASGEM system.

7. Review the water rights settlement agreement with the CCSD's ranch neighbor to the north of its lower San Simeon Creek property and develop means to modify or meet the future commitments outlined in this agreement.

8. Continue to assess evolving water conservation innovations and incorporate cost-effective measures into the CCSD's demand offset program. This may include point of use recycled water systems, such as the "Civis eWater" system, as well as other innovations.

Section 8 - References

The following references were used during the completion of this Groundwater Management Plan:

California Department of Water Resources, Groundwater Information Center web site

Cambria Community Services District, San Simeon Creek Water Basin Management Program and Operations Manual, August 14, 1980

Cambria Community Services District, 2010 Urban Water Management Plan

US Geological Survey Report 98-4061, "Hydrogeology, Water Quality, Water Budgets, and Simulated Responses to Hydrologic Changes in Santa Rosa and San Simeon Creek Ground-Water Basins, San Luis Obispo, CA, 1998

San Luis Obispo County Flood Control and Water Conservation District, Integrated Regional Water Management Plan; July, 2014

San Luis Obispo County Environmental Health Services web site, including links to California Department of Health Well Standards, Bulletins 74-81 and 74-90

Cambria Community Services District, Watershed Sanitary Survey Update, draft report by Water Systems Consulting, Inc. dated 5/29/2015

Personal communications between R. Gresens of the CCSD and Joshua Reynolds of Water Systems Consulting Inc. regarding production of Figure 4-1 and 5-1

Personal communications between R. Gresens of the CCSD and Tim Cleath of Cleath-Harris Geologists regarding recharge areas shown on Figure 4-1 and subsidence reference

Geologic Map of the Cambria Region, San Luis Obispo County, Clarence A. Hall, 1974, US Geological Survey, US Government Printing Office 1975-0-689-908/51

"Drought and Ground Deformation, Cambria, San Luis Obispo County, California, California," California Geology paper by George B. Cleveland, February, 1980

San Luis Obispo County Coastal Zone Land Use Ordinance

Warren – CCSD Settlement Agreement, November 20, 2006

Cambria Community Services District Water Use Efficiency Plan, Maddaus Water Management, February 28, 2013

Cambria Community Services District, "Final Report, Task 3: Recycled Water Distribution System Master Plan," by Kennedy/Jenks Consultants, July 2004

"Delineating Groundwater Sources and Protection Zones," University of California Agricultural Extension Service and California Department of Health Services, April 2002

Cambria Community Services District, "Final Report: Baseline Water Supply Analysis," by Kennedy/Jenks Consultants, December 8, 2000

"Operations, Maintenance, and Monitoring Plan for the Cambria Emergency Water Supply Project, Revised Final" by CDM Smith, January 6, 2015

Personal communications between R. Gresens of the CCSD and Mladen Bandov of San Luis Obispo County Public Works regarding plan references and requirements

Permits listed on Table 1-1 (page 5) and Table 1-2 (page 6)

Review of CCSD record drawings on wastewater and water facilities

Presentation by Bob Hitchner of Nexus eWater during the Home Builders Association's Central Coast Water Forum, Mountainbrook Church, San Luis Obispo, CA, August 5, 2015

Appendix A

Cambria CSD Resolution 34-2015

Staff Reports

Public Notices

List of Contacted Parties

RESOLUTION NO. 34-2015
October 15, 2015

A RESOLUTION OF THE BOARD OF DIRECTORS
OF THE CAMBRIA COMMUNITY SERVICES DISTRICT OF ITS
INTENTION TO DRAFT A GROUNDWATER MANAGEMENT PLAN
(WATER CODE SECTION 10753.2)

WHEREAS, Water Code Section 10753 et seq. provides the Cambria Community Services District with the authority to adopt a Groundwater Management Plan within its jurisdiction; and

WHEREAS, after holding a noticed public hearing in accordance with Water Code Section 10753.2(a), the Board of Directors has determined that it should initiate the process of drafting a Groundwater Management Plan.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Cambria Community Services District as follows:

1. To immediately proceed with the drafting of a Groundwater Management Plan in accordance with the provisions Water Code Sections 10753 et seq.

2. The attached Exhibit A, which is incorporated herein by reference, shall constitute the written statement required by Water Code Section 10753.4(b) describing the manner in which interested parties may participate in developing the Groundwater Management Plan.

3. In accordance with Water Code Section 10753.2(c) and (d), a copy of this Resolution shall be provided to the Department of Water Resources for posting on their website, and informed that the contact person at the CCSD for the Groundwater Management Plan is District Engineer Robert Gresens, PO Box 65, Cambria, CA 93428, (805) 927-6223.

4. The District Clerk is directed to publish this Resolution in accordance with the requirements of Water Code Section 10753.3(a), as well as to provide interested persons copies in accordance with of Water Code Section 10753.3(b).

PASSED AND ADOPTED THIS 15th day of October, 2015.

Gail Robinette

Gail Robinette, President
Board of Directors

ATTEST:

Monique Madrid

Monique Madrid, District Clerk

APROVED AS TO FORM:

Timothy J. Carmel, District Counsel

CAMBRIA COMMUNITY SERVICES DISTRICT

I, Gail Robinette, President of the Cambria Community Services District Board of Directors, hereby call a Special Meeting of the Board of Directors pursuant to California Government Code Section 54956. The Special Meeting will be held:**Thursday, October 15, 2015, 4:00 PM**, **1000 Main Street Cambria, CA.** The purpose of the special meeting is to discuss or transact the following business:

AGENDA
SPECIAL MEETING OF THE CAMBRIA COMMUNITY SERVICES DISTRICT BOARD OF DIRECTORS
Thursday, October 15, 2015, 4:00 PM
1000 Main Street
Cambria, CA

1. OPENING

A. Call to Order

B. Pledge of Allegiance

C. Establishment of Quorum

2. PUBLIC COMMENT ON AGENDA ITEMS

Members of the public wishing to address the Board on any item described in this Notice may do so when recognized by the Board President prior to Board consideration of each agenda item. Public Comment on this agenda will be limited to three (3) minutes per person.

3. CONSENT AGENDA (Estimated time: 15 Minutes)

All matters on the consent calendar are to be approved by one motion. If Directors wish to discuss a consent item other than simple clarifying questions, a request for removal may be made. Such items are pulled for separate discussion and action after the consent calendar as a whole is acted upon.

A. Consider Adoption of Resolution 33-2015 to Revise Reporting the Payment of Member Contributions to the California Public Employee's Retirement System for IAFF Local 4635 Members

4. HEARINGS AND APPEALS (Estimated time: 15 Minutes per item)

A. Public Hearing Regarding Adoption of Resolution 34-2015, A Resolution of Intention to Draft a Groundwater Management Plan

5. REGULAR BUSINESS (Estimated time: 15 Minutes per item)

A. Discussion and Consideration of Procedure to Fill the Vacancy on the CCSD Board of Directors Created by the Resignation of Muril Clift

6. ADJOURN

CAMBRIA COMMUNITY SERVICES DISTRICT

TO: Board of Directors AGENDA NO. **4. A.**

FROM: Jerry Gruber, General Manager

Meeting Date:	October 15, 2015	Subject:	PUBLIC HEARING REGARDING ADOPTION OF RESOLUTION 34-2015, A RESOLUTION OF INTENTION TO DRAFT A GROUNDWATER MANAGEMENT PLAN

RECOMMENDATIONS:
Staff recommends that the Board of Directors hold a public hearing in accordance with the requirements of Water Code Section 10753.2 regarding adoption of a Resolution of Intention to Draft a Groundwater Management Plan.

Staff recommends that the Board of Directors:

1. Open the Public Hearing;
2. Receive public testimony;
3. Close the Public Hearing;
4. Consider Resolution 34-2015, a Resolution of Intention to Draft a Groundwater Management Plan

FISCAL IMPACT:
There will be costs related to staff time needed to draft the Groundwater Management Plan. Once in place, it will satisfy a requirement of the Proposition 84 Integrated Regional Water Management (IRWM) Grant, so that funding can be processed to the District.

DISCUSSION:
At its meeting on September 24, 2015, the Board of Directors considered the issue of initiating the process for preparation and adoption of a Groundwater Management Plan ("GMP"). The CCSD has been awarded a Proposition 84 IRWM Grant ("Grant") for the Emergency Water Supply Project and one of the Grant conditions is the adoption of a GMP that complies with the requirements of Water Code Section 10753.7.

Adoption of the GMP must comply with the statutory procedures and requirements of Water Code Sections 10753 through 10753.10. The first step is to hold a noticed public hearing in accordance with Water Code Section 10753.2(a), after which the Board can consider adopting a Resolution of Intention to Draft a Groundwater Management Plan (the "Resolution"). The item before the Board is the public hearing to consider adoption of Resolution 34-2015, a Resolution of Intention to Draft a Groundwater Management Plan. Water Code Section 10753.4(b) also requires that the District prepare a written statement describing the manner in which interested parties may participate in developing the Groundwater Management Plan, which has been included as an exhibit to the Resolution and sets forth the process described below.

After adoption of the Resolution, a copy will be published and provided to the Department of Water Resources ("DWR") in accordance with Water Code Section 10753.2(c), which will then post it on its website, pursuant to Water Code Section 10753.2(d). The District is also required to prepare a written statement describing the manner in which interested parties may participate in developing the GMP available to the public and DWR. A draft statement is attached.

As noted in the September 24, 2015 staff report, staff believes that a balance must be struck between swiftly preparing and adopting a GMP and facilitating the community's involvement in same, so that the Grant conditions can be satisfied as quickly as possible while maximizing public participation in the process. Accordingly, public review and comment will be facilitated through a process similar to how environmental documents are reviewed. An initial workshop during which the public will be introduced to a draft GMP will be held on October 21, 2015 at 2:00 p.m. A public review and comment period will follow, where written comments can be provided to the District. A second workshop on the GMP will be held on October 29, 2015 at 2:00 p.m. to receive additional verbal comments and to discuss any written comments received. Board attendance at these workshops, which will be led by District Engineer Bob Gresens, will be limited to the Water Permitting Ad Hoc Committee. In addition, during this process, the draft GMP, as well as any subsequent revisions to the draft, will be posted on the CCSD website. Public input will be accepted and considered throughout the process. A Special Meeting is scheduled on November 12, at 12:30 p.m. in anticipation of the Board's consideration to introduce an Ordinance to Adopt the Groundwater Management Plan.

As previously noted, the GMP will be adopted under Water Code Sections 10753 et seq., which since January 1, 2015 is only available for low or very low priority groundwater basins. Both the San Simeon and Santa Rosa basins are classified as very low priority basins. This is not a Groundwater Sustainability Plan, which is a process under a different statutory scheme (reference Water Code Sections 10720 et seq.) for high or medium priority groundwater basins.

Attachments: Resolution 34-2015
Exhibit A to Resolution 34-2015

BOARD ACTION: Date ____________ Approved: _______ Denied: _________

UNANIMOUS: ___ ROBINETTE ___THOMPSON ____ BAHRINGER ___ RICE

Supervisors may fill the vacancy within ninety (90) days of the vacancy or the Board of Supervisors may order the District to call an election to fill the vacancy.

After consulting with President Robinette, who expressed a desire to facilitate the appointment process as much as possible, staff took the liberty of identifying dates that the Board of Directors could hold a Special Meeting to consider appointment. Staff also posted a Notice of Vacancy on October 2, 2015 in order to satisfy the statutory requirement. It has been determined that a quorum of Board Members is available to meet on October 19, 2015, at 12:30 p.m. to consider making an appointment to fill the vacancy. Pursuant to her authority under the Brown Act, President Robinette has indicated that she will call a Special Meeting on that date. Also, the Notice of Vacancy provided that applications were available for those interested in applying for the vacancy, and would be accepted until October 15, 2015 at 4:00 p.m. The application packet being used is consistent with the packets used for prior Board vacancies.

State law does not require any specific procedure when a community services district board seeks to fill a vacancy by appointment. Accordingly, it is appropriate for the Board of Directors to discuss and consider the procedure by which the vacancy created by the resignation of former Vice President Muril Clift will be filled.

BOARD ACTION: Date ______________ Approved: ________ Denied: __________

UNANIMOUS: ___ ROBINETTE ___ BAHRINGER ____THOMPSON ___ RICE

Exhibit A to Resolution 34-2015 (corrected)

HOW TO PARTICPATE IN DEVELOPING
THE CAMBRIA COMMUNITY SERVICES DISTRICT'S
PROPOSED GROUNDWATER MANAGEMENT PLAN

In accordance with the requirements of Water Code Section 10753.4, the following written statement describes the manner in which interested parties may participate in developing the Groundwater Management Plan.

The draft Groundwater Management Plan (GMP), as well as any subsequent revisions to the draft, will be posted on the CCSD's website (www.cambriacsd.org) and copies will be available in the office of the District Clerk.

An initial workshop will be held on October 21, 2015 at 2:00 p.m. at the Veterans Memorial Building located at 1000 Main Street, Cambria, CA, where the public will be introduced to a draft of the GMP. The public workshop will be followed by a public review and comment period, where written review comments can be provided to the District.

A second workshop on the GMP will be held on October 29, 2015 at 2:00 p.m. at the Veterans Memorial Building located at 1000 Main Street, Cambria, CA, to receive additional verbal comments and to discuss any written comments that have been submitted. Public input will be accepted and considered throughout the process.

In accordance with Water Code Section 10753.4(c), the CCSD will establish and maintain a list of persons interested in receiving notices regarding GMP preparation, meeting announcements, and availability of draft plans, maps, and other relevant documents. Any person may request, in writing, to be placed on the list of interested persons. Such written requests should be submitted to the CCSD District Clerk, PO Box 65, Cambria, CA 93428, mmadrid@cambriacsd.org.

Following the public workshops, it is anticipated that a Special Meeting will be held on November 12, 2015 at 12:30 p.m. for the Board to consider adoption of an ordinance to adopt the Groundwater Management Plan.

Questions regarding the GMP can be directed to the District Engineer, Bob Gresens, PO Box 65, Cambria, CA 93428, (805) 927-6223, bgresens@cambriacsd.org.

CAMBRIA COMMUNITY SERVICES DISTRICT
NOTICE OF PUBLIC HEARING TO CONSIDER ADOPTING RESOLUTION OF INTENTION TO DRAFT A GROUNDWATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that the Cambria Community Services District (CCSD) Board of Directors will hold a Public Hearing on October 15, 2015 at approximately 4:00 p.m. in the Cambria Veteran's Hall at 1000 Main Street, Cambria, CA, for the following purpose:

To consider adoption of a Resolution of Intention to Draft a Groundwater Management Plan for the Cambria Community Services District (CCSD) service area pursuant to California Water Code Section 10753 *et seq*.

The CCSD recognizes the importance of maintaining a sustainable, reliable, high-quality groundwater supply for the long-term benefit of its customers. Adoption of a Groundwater Management Plan could further this goal. The CCSD Board of Directors will hold a Public Hearing as indicated above to provide interested members of the public with an opportunity to express their opinions and hear the Board's deliberations on whether or not to adopt a Resolution of Intention to Draft a Groundwater Management Plan. The Board will consider adopting, and may adopt, a Resolution of Intention to Draft a Groundwater Management Plan immediately following the Public Hearing. All interested persons may attend the Public Meeting and be heard.

Additional information and a copy of the proposed Resolution of Intention to Draft a Groundwater Management Plan may be obtained by contacting the CCSD Offices at (805) 927-6223, or by visiting the CCSD web site at CambriaCSD.org.

Dated: September 24, 2015

By Monique Madrid, CCSD District Clerk

THE TRIBUNE

Newspaper of the Central Coast

3825 South Higuera • Post Office Box 112 • San Luis Obispo, California 93406-0112 • (805) 781-7800

In The Superior Court of The State of California
In and for the County of San Luis Obispo
AFFIDAVIT OF PUBLICATION

AD # 1995293
CARMEL & NACCASHA, LLP

STATE OF CALIFORNIA

ss.

County of San Luis Obispo

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen and not interested in the above entitled matter; I am now, and at all times embraced in the publication herein mentioned was, the principal clerk of the printers and publishers of THE TRIBUNE, a newspaper of general Circulation, printed and published daily at the City of San Luis Obispo in the above named county and state; that notice at which the annexed clippings is a true copy, was published in the above-named newspaper and not in any supplement thereof – on the following dates to wit; SEPTEMBER 30; OCTOBER 7, 2015 that said newspaper was duly and regularly ascertained and established a newspaper of general circulation by Decree entered in the Superior Court of San Luis Obispo County, State of California, on June 9, 1952, Case #19139 under the Government Code of the State of California.

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Jane E. Durand

(Signature of Principal Clerk)
DATED: OCTOBER 7, 2015
AD COST: $280.24

CAMBRIA COMMUNITY SERVICES DISTRICT
NOTICE OF PUBLIC HEARING TO CONSIDER ADOPTING RESOLUTION OF INTENTION TO DRAFT A GROUNDWATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that the Cambria Community Services District (CCSD) Board of Directors will hold a Public Hearing on October 15, 2015 at approximately 4:00 p.m. in the Cambria Veteran's Hall at 1000 Main Street, Cambria, CA, for the following purpose:

To consider adoption of a Resolution of Intention to Draft a Groundwater Management Plan for the Cambria Community Services District (CCSD) service area pursuant to California Water Code Section 10753 et seq.
The CCSD recognizes the importance of maintaining a sustainable, reliable, high-quality groundwater supply for the long-term benefit of its customers. Adoption of a Groundwater Management Plan could further this goal. The CCSD Board of Directors will hold a Public Hearing as indicated above to provide interested members of the public with an opportunity to express their opinions and hear the Board's deliberations on whether or not to adopt a Resolution of Intention to Draft a Groundwater Management Plan. The Board will consider adopting, and may adopt, a Resolution of Intention to Draft a Groundwater Management Plan immediately following the Public Hearing. All interested persons may attend the Public Meeting and be heard.

Additional information and a copy of the proposed Resolution of Intention to Draft a Groundwater Management Plan may be obtained by contacting the CCSD Offices at (805) 927-6223, or by visiting the CCSD web site at CambriaCSD.org.

Dated: September 24, 2015
By Monique Madrid, CCSD District Clerk
Sept. 30; Oct. 7, 2015 1995293

THE Newspaper of the Central Coast
TRIBUNE

3825 South Higuera • Post Office Box 112 • San Luis Obispo, California 93406-0112 • (805) 781-7800

In The Superior Court of The State of California
In and for the County of San Luis Obispo
AFFIDAVIT OF PUBLICATION

AD # 2040249
CARMEL & NACCASHA LLP

STATE OF CALIFORNIA
ss.
County of San Luis Obispo

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen and not interested in the above entitled matter; I am now, and at all times embraced in the publication herein mentioned was, the principal clerk of the printers and publishers of THE TRIBUNE, a newspaper of general Circulation, printed and published daily at the City of San Luis Obispo in the above named county and state; that notice at which the annexed clippings is a true copy, was published in the above-named newspaper and not in any supplement thereof – on the following dates to wit; OCTOBER 21, 28, 2015 that said newspaper was duly and regularly ascertained and established a newspaper of general circulation by Decree entered in the Superior Court of San Luis Obispo County, State of California, on June 9, 1952, Case #19139 under the Government Code of the State of California.

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Jane E. Durand

(Signature of Principal Clerk)
DATED: OCTOBER 28, 2015
AD COST: $379.68

RESOLUTION NO. XX-2015
October 15, 2015

A RESOLUTION OF THE BOARD OF DIRECTORS OF THE CAMBRIA COMMUNITY SERVICES DISTRICT OF ITS INTENTION TO DRAFT A GROUND-WATER MANAGEMENT PLAN (WATER CODE SECTION 10753.2)

WHEREAS, Water Code Section 10753 et seq. provides the Cambria Community Services District with the authority to adopt a Groundwater Management Plan within its jurisdiction; and

WHEREAS, after holding a noticed public hearing in accordance with Water Code Section 10753.2(a), the Board of Directors has determined that it should initiate the process of drafting a Groundwater Management Plan.

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the Cambria Community Services District as follows:

1. To immediately proceed with the drafting of a Groundwater Management Plan in accordance with the provisions Water Code Sections 10753 et seq.

2. The attached Exhibit A, which is incorporated herein by reference, shall constitute the written statement required by Water Code Section 10753.4(b) describing the manner in which interested parties may participate in developing the Groundwater Management Plan.

3. In accordance with Water Code Section 10753.2(c) and (d), a copy of this Resolution shall be provided to the Department of Water Resources for posting on their website, and informed that the contact person at the CCSD for the Groundwater Management Plan is District Engineer Robert Gresens, PO Box 65, Cambria, CA 93428, (805) 927-6223.

4. The District Clerk is directed to publish this Resolution in accordance with the requirements of Water Code Section 10753.3(a), as well as to provide interested persons copies in accordance with of Water Code Section 10753.3(b).

PASSED AND ADOPTED THIS 15th day of October, 2015.

/s/Gail Robinette, President
Board of Directors

ATTEST:
/s/Monique Madrid, District Clerk

APROVED AS TO FORM:
/s/Timothy J. Carmel, District Counsel
October 21, 28, 2015 2040249

THE TRIBUNE Newspaper of the Central Coast

3825 South Higuera • Post Office Box 112 • San Luis Obispo, California 93406-0112 • (805) 781-7800

In The Superior Court of The State of California
In and for the County of San Luis Obispo
AFFIDAVIT OF PUBLICATION

AD # 2059178
CARMEL & NACCASHA

STATE OF CALIFORNIA
ss.
County of San Luis Obispo

I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen and not interested in the above entitled matter; I am now, and at all times embraced in the publication herein mentioned was, the principal clerk of the printers and publishers of THE TRIBUNE, a newspaper of general Circulation, printed and published daily at the City of San Luis Obispo in the above named county and state; that notice at which the annexed clippings is a true copy, was published in the above-named newspaper and not in any supplement thereof – on the following dates to wit; OCTOBER 29; NOVEMBER 5, 2015 that said newspaper was duly and regularly ascertained and established a newspaper of general circulation by Decree entered in the Superior Court of San Luis Obispo County, State of California, on June 9, 1952, Case #19139 under the Government Code of the State of California.

I certify (or declare) under the penalty of perjury that the foregoing is true and correct.

Jane E. Durand

(Signature of Principal Clerk)
DATED: NOVEMBER 5, 2015
AD COST: $402.28

NOTICE OF PUBLIC HEARING TO CONSIDER INTRODUCTION OF AN ORDINANCE ADOPTING THE CAMBRIA COMMUNITY SERVICES DISTRICT GROUNDWATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that the Cambria Community Services District ("CCSD") Board of Directors ("Board") will hold a Public Hearing on November 12, 2015 at approximately 12:30 p.m. in the Cambria Veterans Hall at 1000 Main Street, Cambria, CA, for the following purpose:

To consider introduction of an ordinance adopting the Cambria Community Services District Groundwater Management Plan, pursuant to California Water Code Sections 10753 et seq.

The draft CCSD Groundwater Management Plan summarizes Santa Rosa Basin and San Simeon Groundwater Basin conditions, identifies groundwater issues, defines basin management objectives, long term water supply planning, conservation efforts, regional planning, interagency coordination and collaboration, groundwater recharge, mapping and quality issues. The plan covers both the Santa Rosa and San Simeon Groundwater Basins.

The CCSD recognizes the importance of maintaining a sustainable, reliable, high-quality groundwater supply for the long-term benefit of its customers. Adoption of a Groundwater Management Plan will further this goal. The Board will hold the Public Hearing as indicated above to provide interested members of the public with an opportunity to express their opinions and hear the Board's deliberations on whether or not to adopt the draft Groundwater Management Plan. Landowners within the jurisdiction of the CCSD may file written protests to the adoption of the Groundwater Management Plan. Written protests must include a description of the land owned sufficient to identify the land (ex: APN or street address) and the landowner's signature. Written protests must be received by the Clerk of the Board prior to the close of the Public Hearing. The Board will consider written protests prior to the adoption of the draft Groundwater Management Plan. The Board will consider introducing an ordinance adopting the draft CCSD Groundwater Management Plan immediately following the Public Hearing. All interested persons may attend the Public Hearing and be heard.

Additional information and a copy of the proposed Groundwater Management Plan may be obtained by contacting the CCSD Offices at (805) 927-6223, or by visiting the CCSD web site at CambriaCSD.org.

Dated: October 26, 2015
By Monique Madrid, CCSD District Clerk
Oct. 29; Nov. 5, 2015 2059178

CAMBRIA COMMUNITY SERVICES DISTRICT

Groundwater Management Plan – Workshop 1

Wednesday, October 21, 2015 – 2:00 PM

VETERANS MEMORIAL BUILDING, 1000 MAIN ST., CAMBRIA, CA

AGENDA

Please note that this workshop agenda is not for a CCSD Board meeting. The meeting will end by 4:00 p.m. due to commitments for the facility.

1. **OPENING**
   A. Introductions
   B. Purpose of today's workshop
   C. Review of today's agenda

2. **INTRODUCTION TO DRAFT CAMBRIA CSD GROUNDWATER MANAGEMENT PLAN – DISTRICT ENGINEER BOB GRESENS**

3. **REVIEW OF SECOND PLANNED GROUNDWATER MANAGEMENT WORKSHOP AND OTHER MEETINGS**

4. **HOW TO PARTICIPATE IN THE CONTINUED DEVELOPMENT OF THE PROPOSED GROUNDWATER MANAGEMENT PLAN**

5. **PUBLIC COMMENTS AND QUESTIONS**
   Each speaker has up to three minutes. Speaker slips (available at the entry) should be submitted to the District Clerk.

6. **ADJOURN**

CAMBRIA COMMUNITY SERVICES DISTRICT

Groundwater Management Plan – Workshop 2

Wednesday, October 29, 2015 – 2:00 PM

VETERANS MEMORIAL BUILDING, 1000 MAIN ST., CAMBRIA, CA

AGENDA

Please note that this workshop agenda is not for a CCSD Board meeting. The meeting will end by 4:00 p.m. due to commitments for the facility.

1. **OPENING**
   - **A.** Introductions
   - **B.** Purpose of today's workshop
   - **C.** Review of today's agenda

2. **BRIEF OVERVIEW OF GROUNDWATER MANAGEMENT PLAN**

3. **REVIEW OF UPDATES MADE TO DRAFT CAMBRIA CSD GROUNDWATER MANAGEMENT PLAN IN RESPONSE TO PUBLIC COMMENTS MADE DURING AND FOLLOWING WORKSHOP NO. 1**

4. **HOW TO PARTICIPATE IN THE CONTINUED DEVELOPMENT OF THE PROPOSED GROUNDWATER MANAGEMENT PLAN**

5. **PUBLIC COMMENTS AND QUESTIONS**

   Each speaker has up to three minutes. Speaker slips (available at the entry) should be submitted to the District Clerk.

6. **REMINDER ON SPECIAL CCSD BOARD MEETING OF NOVEMBER 12, 2015**

7. **ADJOURN**

Cambria Community Services District Contacts List

The following individuals and organizations were contacted during completion of the Groundwater Management Plan:

Zaffar Eusuff – California Department of Water Resources

Monica Reis - California Department of Water Resources

Bruce Gibson - San Luis Obispo County Supervisor, District 2

Ken Topping, - San Luis Obispo County Planning Commissioner, District 2

Matt Janssen – San Luis Obispo County Planning & Building

Wade Horton – San Luis Obispo County Public Works

Mladen Bandov – San Luis Obispo County Public Works

Airlin Singewald - San Luis Obispo County, Planning & Building

Callie Lewis – San Luis Obispo County

Ken Harris - California Water Board, Central Coast Region

Howard Kolb – California Water Board, Central Coast Region

Jeff Densmore - California Water Board, Division of Drinking Water

Dan Carl, California Coastal Commission

Daniel Robinson – California Coastal Commission

Tom Luster - California Coastal Commission

Brooke Gutierrez – California State Parks, Hearst – San Luis Obispo Coast District

Doug Barker – California State Parks, Hearst – San Luis Obispo Coast District

Jeffrey Single - California Department of Fish and Wildlife

Becky Ota – California Department of Fish and Wildlife

Dean Marston – California Department of Fish and Wildlife

Tim Duff – California State Coastal Conservancy

Devin Best - Upper Salinas - Las Tablas Resource Conservation District

James Worthley - San Luis Obispo Council of Governments

Carolyn Skinder – Monterey Bay National Marine Sanctuary

California Native American Heritage Commission

Fred Segobia - Salinan Tribe of San Luis Obispo. Monterey, and San Benito Counties

Connie Gannon– Greenspace, The Cambria Land Conservancy

Mary Webb – Greenspace, The Cambria Land Conservancy

EcoSLO – San Luis Obispo

Elizabeth Bettenhausen – Cambria Resident

Mahala Burton – Cambria Resident

Tina Dickason – Cambria Resident

Bill Allen – Cambria Resident

Clyde Warren - Cambria Area Rancher

Jon Pedotti – Cambria Area Rancher

George Kendall – Cambria Area Rancher

Mark Rochefort – Cambrians for Water (C4H2O)

Deryl Robinson - UnLoc

Cynthia Hawley - Landwatch

Bruce Fosdike – North Coast Advisory Commission

Cambria Community Services District Contacts List

Mel McColloch – Cambria Chamber of Commerce

Dixie Walker – Cambria Lions Club

Cambria Rotary Club

Joy Fitzhugh, San Luis Obispo County Farm Bureau

Michael Bell, The Nature Conservancy

Heidi Holmes – Cambria Community Healthcare District

Marcia Betrue, Coast Union School District

Tom Gray – Public Information Consultant to the Cambria CSD

Dean Florez – Balance Public Relations, Cambria CSD Consultant

Rita Garcia – Michael J. Baker International, Cambria CSD Consultant

Mike Smith – CDM Smith, Cambria CSD Consultant

Gregg Cummings – CDM Smith, Cambria CSD Consultant

Kathe Tanner – Cambrian Newspaper

KSBY TV

KCBX Radio

New Times, San Luis Obispo

KVEC Radio

CalCoast News

Bailey Hudson, Central Coast Urban Forest Council

Caitlin Malone, Brownstein Hyatt Farber Schreck

Jena Shof, Brownstein Hyatt Farber Schreck

Appendix B

Cambria CSD Ordinance 01-2015

November 19, 2015 Cambria CSD Staff Report

November 12, 2015 Cambria CSD Staff Report

Comment Letters

ORDINANCE NO. 01-2015

BOARD OF DIRECTORS
CAMBRIA COMMUNITY SERVICES DISTRICT
DATED: NOVEMBER 19, 2015

AN ORDINANCE ADOPTING THE CAMBRIA COMMUNITY SERVICES DISTRICT GROUNDWATER MANAGEMENT PLAN

WHEREAS, Water Code Section 10750 et seq. provides the Cambria Community Services District with the authority to adopt a Groundwater Management Plan within its jurisdiction; and

WHEREAS, after holding a noticed public hearing in accordance with Water Code Section 10753.2(a), the Board of Directors adopted Resolution 34-2015 regarding its intention to draft a Groundwater Management Plan in accordance with the requirements of Water Code Sections 10753 through 10753.10; and

WHEREAS, subsequent to the adoption of Resolution 34-2015, workshops were held in order to provide interested parties with an opportunity to participate in the development of the Groundwater Management Plan and opportunities were provided for the submittal of written and verbal comments and public input; and

WHEREAS, as required by Water Code Section 10753.5 and Government Code Section 6066, notice of a second public hearing relating to the Groundwater Management Plan was published and a second public hearing was conducted on November 12, 2015 by the Board of Directors of the Cambria Community Services District in order to receive and consider any protests on whether or not to adopt the Groundwater Management Plan. Pursuant to Water Code Section 10753.6(c)(3), the Board of Directors has determined that a majority protest has not been filed and therefore, the Board wishes to take action to adopt the Groundwater Management Plan.

NOW THEREFORE, BE IT ORDAINED by the Board of Directors of the Cambria Community Services District (CCSD) as follows:

Section 1. The foregoing Recitals are true and correct and are incorporated herein.

Section 2. Pursuant to Water Code Sections 10753 and 10753.6, the Cambria Community Services District Groundwater Management Plan, attached hereto as Exhibit A and incorporated herein by reference, is hereby adopted.

Section 3. The adoption of the Cambria Community Services District Groundwater Management Plan is hereby determined to be both statutorily and categorically exempt from the California Environmental Quality Act (CEQA) under CEQA Guidelines Sections 15262, 15306, 15307, and 15308. The General Manager is hereby authorized and directed to file a Notice of Exemption in accordance with the provisions of CEQA.

Section 4. If any section, subsection, subdivision, paragraph, sentence, or clause of this Ordinance or any part thereof is for any reason held to be unlawful, such decision shall not affect the validity of the remaining portion of this Ordinance or any part thereof. The Board of Directors hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, or clause thereof, irrespective of the fact that any one or more section, subsection, subdivision, paragraph, sentence, or clause be declared unconstitutional.

Section 5. This Ordinance shall take effect thirty (30) days after its adoption.

The foregoing Ordinance was adopted at a regular meeting of the Board of Directors of the Cambria Community Services District held on the 19th day of November, 2015.

AYES: 5
NOES: 0
ABSENT: 0

Gail Robinette
Gail Robinette
President, Board of Directors

Monique Madrid
Monique Madrid
District Clerk

APPROVED AS TO FORM:

Timothy J. Carmel
District Counsel

CAMBRIA COMMUNITY SERVICES DISTRICT

TO: Board of Directors

AGENDA NO. **9.B.**

FROM: Jerry Gruber, General Manager

Meeting Date:	November 19, 2015	Subject:	CONSIDERATION OF ADOPTION OF ORDINANCE 01-2015 AN ORDINANCE ADOPTING THE CAMBRIA COMMUNITY SERVICES DISTRICT GROUNDWATER MANAGEMENT PLAN AND DIRECTING THAT A NOTICE OF EXEMPTION BE FILED

RECOMMENDATIONS:

Staff recommends that the Board of Directors move to adopt Ordinance 01-2015 An Ordinance Adopting the Cambria Community Services District Groundwater Management Plan (the "Ordinance") by title only and waive further reading. The Ordinance also directs that a Notice of Exemption be filed pursuant to CEQA.

FISCAL IMPACT:

There were costs incurred related to staff time needed to draft the Groundwater Management Plan (GMP). Once in place, the GMP will satisfy a requirement of the Proposition 84 Integrated Regional Water Management (IRWM) Grant, so that funding can be processed to the District.

DISCUSSION:

The CCSD has been awarded a Proposition 84 IRWM Grant for the Emergency Water Supply Project and one of the Grant conditions is the adoption of a GMP that complies with the requirements of Water Code Section 10753.7. At its meeting on November 12, 2015 the Board of Directors held a public hearing in accordance with Water Code Section 10753.5 to consider any protests to the adoption of the GMP and to determine whether or not to introduce it. After the public hearing, the Board determined that a majority protest did not exist and introduced Ordinance 01-2015. The Ordinance is now being presented to the Board of Directors for adoption.

The GMP is statutorily exempt from the California Environmental Quality Act (CEQA) under California Code of Regulations, Title 14 (CEQA Guidelines), Section 15262 (feasibility and planning studies), and categorically exempt under the State CEQA Guidelines Section 15306 (information collection), Section 15307(actions by regulatory agencies for protection of natural resources), and Section 15308 (actions by regulatory agencies for protection of the environment). The Ordinance provides for a determination relating to these CEQA exemptions and directs that a Notice of Exemption be filed pursuant to CEQA.

Attachment:
Ordinance No. 01-2015 An Ordinance Adopting the Cambria Community Services District Groundwater Management Plan

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BOARD ACTION: Date ____________ Approved: _______ Denied: _________

UNANIMOUS: ___ ROBINETTE ___ THOMPSON ___ BAHRINGER ____ RICE ___ SANDERS

CAMBRIA COMMUNITY SERVICES DISTRICT

I, Gail Robinette, President of the Cambria Community Services District Board of Directors, hereby call a Special Meeting of the Board of Directors pursuant to California Government Code Section 54956. The Special Meeting will be held:**Thursday, November 12, 2015, 12:30 PM**, **1000 Main Street Cambria, CA.** The purpose of the special meeting is to discuss or transact the following business:

AGENDA
SPECIAL MEETING OF THE CAMBRIA COMMUNITY SERVICES DISTRICT
BOARD OF DIRECTORS
Thursday, November 12, 2015, 12:30 PM
1000 Main Street
Cambria, CA

1. **OPENING**
   - A. **Call to Order**
   - B. **Pledge of Allegiance**
   - C. **Establishment of Quorum**
2. **ACKNOWLEDGEMENTS AND PRESENTATIONS**
   - A. Presentation of Proclamation recognizing Vice-President Clift for his years of service to the CCSD and the Cambria Community
3. **PUBLIC COMMENT ON AGENDA ITEMS**

   Members of the public wishing to address the Board on any item described in this Notice may do so when recognized by the Board President prior to Board consideration of each agenda item. Public Comment on this agenda will be limited to three (3) minutes per person.
4. **HEARINGS AND APPEALS (Estimated time: 15 Minutes per item)**
   - A. Public Hearing to Consider Introduction of Ordinance 01-2015 Adopting the Cambria Community Services District Groundwater Management Plan
5. **REGULAR BUSINESS (Estimated time: 15 Minutes per item)**
   - A. Receive and Discuss Water and Sewer Rate Study from Bartle Wells & Associates, and Consider and Approve the Notice of Proposed Increase in Water Rates
6. **ADJOURN**

CAMBRIA COMMUNITY SERVICES DISTRICT

TO: Board of Directors AGENDA NO. **4.A.**

FROM: Jerry Gruber, General Manager

Meeting Date: November 12, 2015 Subject: PUBLIC HEARING TO CONSIDER INTRODUCTION OF ORDINANCE 01-2015 ADOPTING THE CAMBRIA COMMUNITY SERVICES DISTRICT GROUNDWATER MANAGEMENT PLAN

RECOMMENDATIONS:
Staff recommends that the Board of Directors hold a public hearing in accordance with the requirements of Water Code Section 10753.5 to consider protests and determine whether to introduce an Ordinance Adopting the Cambria Community Services District Groundwater Management Plan (GMP).

Staff recommends that the Board of Directors:

1. Open the Public Hearing;
2. Receive public testimony and consider protests to the adoption of the GMP;
3. Close the Public Hearing;
4. Determine whether a majority protest exists (reference Water Code Section 10753.6); and
5. If the Board of Directors finds that a majority protest has not been filed, move to introduce Ordinance 01-2015 An Ordinance Adopting the Cambria Community Services District Groundwater Management Plan by title only and waive further reading.

FISCAL IMPACT:
There have been costs related to staff time needed to draft the GMP. Once in place, the GMP will satisfy a requirement of the Proposition 84 Integrated Regional Water Management (IRWM) Grant, so that funding can be processed to the District.

DISCUSSION:
The CCSD has been awarded a Proposition 84 IRWM Grant ("Grant") for the Emergency Water Supply Project and one of the Grant conditions is the adoption of a GMP that complies with the requirements of Water Code Section 10753.7. At its meeting on October 15, 2015, the Board of Directors held a public hearing in accordance with the requirements of Water Code Section 10753.2 and adopted a Resolution of Intention to Draft a Groundwater Management Plan.

Subsequent to the adoption of the Resolution of Intention to Draft a Groundwater Management Plan, two public workshops on the proposed GMP were held, with public review and comment periods and instructions as to how written comments could be provided to the District. Public input has been accepted and considered throughout the process and will continue to be until such time as an Ordinance is introduced. The GMP was and will continue to be updated, as appropriate, in response to that public input. Staff will distribute the final revised draft GMP under separate cover prior to or at the November 12, 2015 special meeting. Any revision of the attached version will be clearly identified.

The Board of Directors is now being asked to hold a second public hearing in accordance with Water Code Section 10753.5 to consider any protests to the adoption of the plan and determine whether or not to adopt it. Water Code Section 10753.6 provides that written protests may be filed by landowners, and a majority protest exists if the Board of Directors finds that protests filed and not withdrawn prior to the conclusion of the second hearing represent more that 50 percent of the assessed value of the land within the District. If a majority protest exists, the GMP may not be adopted and the District cannot consider adopting a plan for a one year period. If a majority protest does not exist, the District may then proceed with the process of adopting the GMP. Since the District is authorized to act by ordinance, the GMP is to be adopted by an ordinance in accordance with Water Code Section 10753(a). Accordingly, Ordinance 01-2015 has been prepared for consideration by the Board of Directors if it is determined that a majority protest does not exist.

Attachments:

1. Ordinance 01-2015 An Ordinance Adopting the Cambria Community Services District Groundwater Management Plan
2. Draft Groundwater Management Plan (Exhibit “A” to Ordinance 01-2015)

BOARD ACTION: Date ____________ Approved: _______ Denied: _________

UNANIMOUS: ___ ROBINETTE ___ THOMPSON ___ BAHRINGER ____ RICE ___ SANDERS

ORDINANCE NO. 01-2015

BOARD OF DIRECTORS
CAMBRIA COMMUNITY SERVICES DISTRICT
DATED: , 2015

AN ORDINANCE ADOPTING THE CAMBRIA COMMUNITY SERVICES DISTRICT GROUNDWATER MANAGEMENT PLAN

WHEREAS, Water Code Section 10750 et seq. provides the Cambria Community Services District with the authority to adopt a Groundwater Management Plan within its jurisdiction; and

WHEREAS, after holding a noticed public hearing in accordance with Water Code Section 10753.2(a), the Board of Directors adopted Resolution 34-2015 regarding its intention to draft a Groundwater Management Plan in accordance with the requirements of Water Code Sections 10753 through 10753.10; and

WHEREAS, subsequent to the adoption of Resolution 34-2015, workshops were held in order to provide interested parties with an opportunity to participate in the development of the Groundwater Management Plan and opportunities were provided for the submittal of written and verbal comments and public input; and

WHEREAS, as required by Water Code Section 10753.5 and Government Code Section 6066, notice of a second public hearing relating to the Groundwater Management Plan was published and a second public hearing was conducted on November 12, 2015 by the Board of Directors of the Cambria Community Services District in order to receive and consider any protests on whether or not to adopt the Groundwater Management Plan. Pursuant to Water Code Section 10753.6(c)(3), the Board of Directors has determined that a majority protest has not been filed and therefore, the Board wishes to take action to adopt the Groundwater Management Plan.

NOW THEREFORE, BE IT ORDAINED by the Board of Directors of the Cambria Community Services District (CCSD) as follows:

Section 1. The foregoing Recitals are true and correct and are incorporated herein.

Section 2. Pursuant to Water Code Sections 10753 and 10753.6, the Cambria Community Services District Groundwater Management Plan, attached hereto as Exhibit A and incorporated herein by reference, is hereby adopted.

Section 3. The adoption of the Cambria Community Services District Groundwater Management Plan is hereby determined to be both statutorily and categorically exempt from the California Environmental Quality Act (CEQA) under CEQA Guidelines Sections 15262, 15306, 15307, and 15308. The General Manager is hereby authorized and directed to file a Notice of Exemption in accordance with the provisions of CEQA.

Section 4. If any section, subsection, subdivision, paragraph, sentence, or clause of this Ordinance or any part thereof is for any reason held to be unlawful, such decision shall not affect the validity of the remaining portion of this Ordinance or any part thereof. The Board of Directors hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, or clause thereof, irrespective of the fact that any one or more section, subsection, subdivision, paragraph, sentence, or clause be declared unconstitutional.

Section 5. This Ordinance shall take effect thirty (30) days after its adoption.

The foregoing Ordinance was adopted at a regular meeting of the Board of Directors of the Cambria Community Services District held on the day of 2015.

AYES:
NOES:
ABSENT:

____
Gail Robinette
President, Board of Directors

APPROVED AS TO FORM:

Monique Madrid	Timothy J. Carmel
District Clerk	District Counsel

Cambria Community Services District Groundwater Management Plan

Special Board Meeting of November 12, 2015

Public Hearing to Consider Adoption of Groundwater Management Plan

Overview of Draft Groundwater Management Plan

Presentation Outline

Background

Purpose

Summary Review of Draft Plan Sections

Summary of Public Participation Process

Public Comments

General Groundwater Management Plan Background Information

- Groundwater Management Act (AB 3030) added to the Water Code in 1992
- CCSD had completed a 1980 basin management plan in response to permit conditions
- Groundwater Management Plan requirements are described in California Water Code Sections (Sections 10753 through 10753.10)
- Proposition 84 grant funding requirement
- Proposed plan will include the required components of a Groundwater Management Plan
- Proposed plan is not to be confused with the 2014 Sustainable Groundwater Management Planning Act requirements.

Plan Purpose

- Work with basin stakeholders to maintain a sustainable, reliable, high-quality groundwater supply.
- San Simeon Creek basin (3-35)
- Santa Rosa Creek basin (3-36)

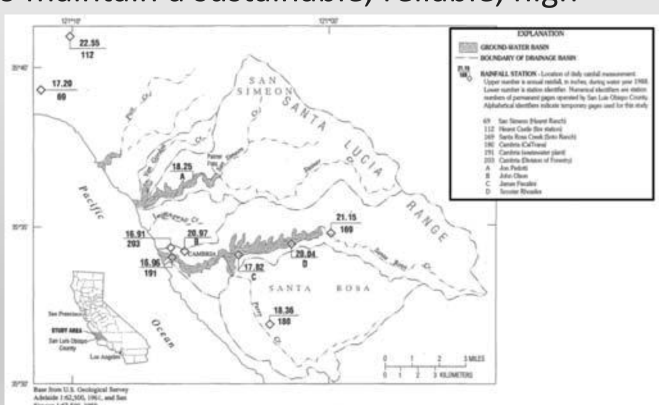


Figure 1. Locations of creeks, drainage-area boundaries, ground-water basins, and rainfall stations in the Cambria area, San Luis Obispo County, California—Continued.

From USGS Report 98-4061, "Hydrogeology, Water Quality, Water Budgets, and Simulated Responses to Hydrologic Changes in Santa Rosa and San Simeon Creek Ground-Water Basin, Yates & Van Konyenberg

Figure 1-1 – San Simeon Creek and Santa Rosa Creek Groundwater Basins

Draft Groundwater Management Plan Contents

1. Purpose & Background
2. Basin Management Objectives
3. Inter-Agency Coordination and Collaboration Plan
4. Groundwater Recharge and Mapping
5. Groundwater and Surface Water Monitoring
6. Wellhead Protection, Well Abandonment, & Well Construction Policies
7. Recommendations
8. References

   Appendices

Basin Management Objectives

1. Monitor & Manage Water and Wastewater Facilities to Ensure Protection of the Area's Fishery and Riparian Habitat
2. Operate, Plan, and Provide CCSD Water and Wastewater Facilities in a Manner to Prevent Seawater Intrusion and to Avoid Inelastic Ground Subsidence
3. Work Cooperatively with District Customers, the Agricultural Community, and Regulatory & Resource Agencies to Protect and Maintain Groundwater and Surface Water Quality
4. Continue to Monitor & Collect Baseline Groundwater Elevation and Quality Data for use by Resource and Regulatory Agencies in Assessing Progress, Developing Action Plans, and in Developing Future Groundwater Management Plan Updates

Inter-Agency Coordination and Collaboration Plan

- Inter-Agency Coordination
  - Outreach via noticing
  - Review & response to plan comments
- Inter-Agency Collaboration Plan
  - Financing to allow for future plan updating
  - Formation of a multi-agency steering committee
  - Review regulatory updates and trends that warrant planning updates
  - Action Plan for Update
  - Execute future updates

Groundwater Recharge & Mapping Update

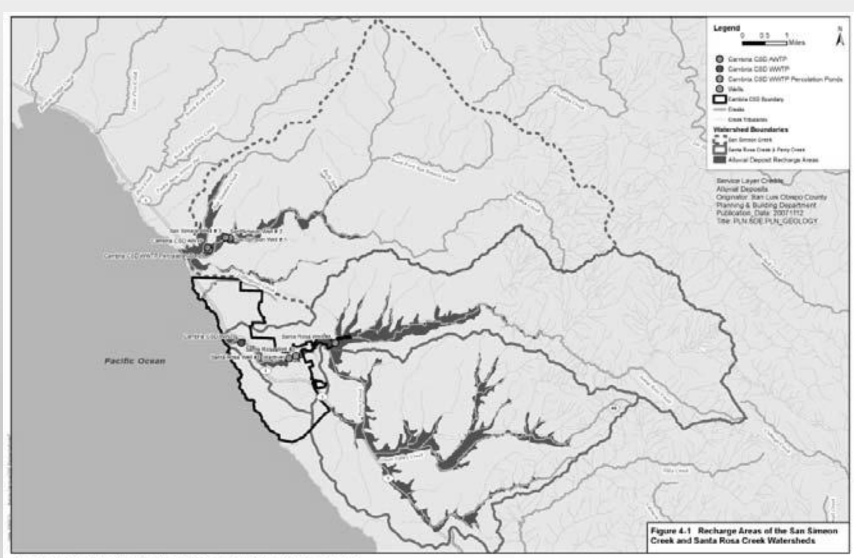


Figure 4-1 – San Simeon Creek and Santa Rosa Creek Watershed Recharge Areas

Groundwater & Surface Water Monitoring

- Groundwater Elevation Monitoring
  - Participation in statewide effort (CASGEM)
  - Permitted/regulatory requirements
  - Operational need
- Groundwater Quality Monitoring
  - Permitted/regulatory requirements
  - Salt & nutrient management planning requirement for recycled water
  - Operational need
- Land Subsidence Monitoring
- Groundwater – Surface Water Interaction Monitoring
  - Permitted/regulatory requirements
  - Adaptive Management Plan – includes biological monitoring of habitat

Wellhead Protection, Well Abandonment, & Well Construction

- Administered by SLO County Environmental Health Department
- Standards include California Department of Water Resources Bulletins 74-81 and 74-90
- Very important for water quality protection due to:
  - Potential for contaminants to enter well bore casing
  - Contamination could travel between/move down well casing and borehole wall.
  - Contamination could move between underground formations
  - Potential for bore to be used for illegal waste disposal
- CCSD also required to complete Watershed Sanitary Survey Updates

Recommendations

- Regularly review & gauge progress in meeting Basin Management Objectives
- 5-year review cycle suggested following UWMP Updating and Watershed Sanitary Surveys
- Could consider the Sustainable Groundwater Management Act requirements in future updates if Basin Management Objectives are not being met, or other concerns arise
- Foster collaboration with basin stakeholders.
- Allow more time for future plan updates to incorporate steering committee approach.
- Continue to pursue completion of regular Coastal Development Permit of Emergency Water Supply Project (I.e., Water Restoration Project)
- Financial planning and budgeting to allow funding of future plan updates and projects that support meeting Basin Management Objectives

Recommendations - continued

- Emergency water supply project's EIR and regular Coastal Development Permit
- Technical analyses of the Army Corps'-administered long-term water supply project's EIS
- Completion of a long-term water supply alternative
- Improvements to the CCSD wastewater treatment plant.
- Regular biological monitoring of the riparian habitat
- Continued data collection and laboratory water quality analyses.
- Additional remote sensing of the creeks and monitoring wells.
- 5-year updating to the Groundwater Management Plan.
- Additional monitoring wells that may be identified as a future monitoring need.
- Continuance of the CCSD water conservation program and related conservation demand offset program efforts.
- Continuation of efforts to extend SWRCB diversion permits 20387 and 17287

Summary of Public Participation

- September 24, 2015 Board Meeting to consider completing a Groundwater Management Plan
- October 15, 2015 Workshop 1
- October 29, 2015, Workshop 2
- Updated report in response to review comments
- Posted report updates on cambriacsd.org web site.
- Revision log provided
- Published announcements per water code criteria are in Appendix A
- Comment letters with responses to comments provided in Appendix B

Today's Meeting is to Consider Adopting the Groundwater Management Plan by Ordinance 01-2015

Cambria Community Services District

Groundwater Management Plan

Revisions Log

No.	Date	Revision Summary	Report pages
1	10/20/2015	Revised report date to 10/20/2015	cover
2	10/20/2015	Changed second public hearing meeting date shown in part 3.1 from 11/19/2015 to 11/12/2015.	15
3	10/28/2015	Revised listing of agencies and organizations shown under Step 2	16
4	10/28/2015	Added second sentence in first paragraph of subsection 5.4, which references Irrigated Agricultural Order R3-2012-011.	25
5	10/28/2015	Added recommendation 5, and renumbered subsequent recommendations.	30
6	10/28/2015	Revised the order of monitoring wells listed on Table 5-1 to begin at the furthest up-gradient wells and end at the lowest down-gradient well.	21
7	11/05/2015	Revised report date to 11/05/2015	cover
8	11/05/2015	Added sentence on basins being within SLO County	1
9	11/05/2015	Replaced the word “increasing” with “maximizing”	4
10	11/05/2015	Corrected typo on the word “expend” by replacing with “expand”	8
11	11/05/2015	Describe addition of Adaptive Management Plan as Appendix E	12

12	11/05/2015	Added the word “Storage” to part 5. 3 header.	23
13	11/05/2015	Added last two sentences to part 5.5	25
14	11/05/2015	Providing comment letters for Appendix B	
15	11/05/2015	Providing Adaptive Management Plan as newly added Appendix E	
16	11/08/2015	Part 1.7; changed “to the most” to “to be the most”	8
17	11/08/2015	Part 1.7; changed “(remove nitrates) to “(to remove nitrates)”	9
18	11/08/2015	Part 1.9, changed “resulting” to “resulted”	10
19	11/08/2015	Part 2.3, changed Integrated Water” to “Integrated Regional Water”	13
20	11/08/2015	Part 5.2, Changed “design convert” to “designed to convert”	23
21	11/08/2015	Part 5.5, changed “1 feet” to 1 foot”	25
22	11/08/2015	Added materials to Appendices A, B, C, & D.	
23	11/09/2015	Revised titles used for Appendices A & B to indicate resolution number and ordinance number	TOC iii
24	11/09/2015	Part 3.1, Revised second paragraph to better match discussion in 11/12/2015 staff report.	15
25	11/09/2015	Revised date on front cover to 11/09/2015. Updated list of CCSD Board of Directors	cover
26	11/12/2015	Revised cover sheet date to 11/12/2015	cover

27	11/12/2015	Approval sheet, which follows the cover sheet to indicate Ordinance (as opposed to earlier resolution reference)	After cover page
28	11/12/2015	Added footnotes 1 and 2 to Table 1-1 (this also revised the report's page break and subsequent page numbers)	5
29	11/12/2015	Added recommendation 3.k to the list of recommendations in Section 7	Page 30

CAMBRIA COMMUNITY SERVICES DISTRICT

1316 Tamsen Street, Suite 201 • P.O. Box 65 • Cambria CA 93428
Telephone (805) 927-6223 • Facsimile (805) 927-5584

November 5, 2015

Ms. Mary Webb
Greenspace, The Cambria Land Trust
P. O. Box 1505
Cambria, CA 93428-1505

Subject: October 29, 2015 Review Comments to Cambria CSD's Draft Groundwater Management Plan

Dear Ms. Webb,

Thank you for taking the time to review and comment on our draft Groundwater Management Plan. Where appropriate, we are updating the draft Groundwater Management Plan to incorporate your suggestions and requests. The following summarizes the updates we will be making, provides additional background information, or otherwise explains where answers to your questions can be found in the existing draft Groundwater Management Plan (GMP), which is posted on our website at cambriacsd.org. Our responses are also numbered in the same order as those shown on the attached annotated copy of your October 29, 2015 letter:

1) The Emergency Water Supply project was constructed per the County-issued Emergency Coastal Development Permit (CDP) and Coastal Zone Land Use Ordinance Section 23.03.045. The Emergency CDP included conditions requiring numerous protective measures that were followed during construction, including biological monitoring, archeological monitoring, and cultural resource monitoring. An environmental impact report (EIR) to support the project's regular CDP is currently being completed, with a 45-day public review period of the draft EIR estimated to begin around this coming mid-December to early January. In addition, part 1.7 of the GMP provides discussion on the CCSD's long-term water supply efforts, which will include completion of a NEPA-compliant Environmental Impact Statement (EIS) through a cooperative agreement with the Army Corps of Engineers.

The Emergency Water Supply project is abiding by permits that were issued by the County and the Water Board. The Water Board's permitting process contained detailed technical reviews, including their review of results from the project's tracer study that was conducted from July 24, 2014 to September 29, 2014. To meet the State's 60-day travel time, the re-injection rate into the aquifer and pumping rate from wells SS-1 and SS-2 out of the aquifer cannot exceed 400 gpm. The 400 gpm rate is lower than the average pumping rate during the tracer test, which was 435 gpm. The test results were used to calibrate the project's groundwater model, which resulted in meeting the 60-day minimum travel time requirement by limiting the extraction rate from existing wells SS1 and SS2 to no more than 400 gpm. A future tracer study test will be completed as a follow up to the Water Board's November 12, 2014 letter, which summarized their review of the tracer study. Since this letter was issued, the Water Board subsequently amended the timing of a future tracer study, which now allows for it to be completed next year.

Water quality violations were primarily related to mist from the emergency water supply project's mechanical evaporators momentarily drifting past the limits of the evaporation pond liner. Adjustments have since been completed to the evaporator system to prevent this from re-occurring. The "chlorine spill" you describe occurred when drinking-water-quality water entered the creek during a limited pipeline testing period. Detailed responses describing the corrections made to address these past events have been provided to the Water Board. On April 17, 2015 the Emergency Water Supply project was shut down one week earlier than planned due to nitrate concentrations exceeding the project's permitted value of 2.3 mg/l (with nitrate being expressed as nitrogen, I.e., NO_3-N), which were still well below the allowable drinking water limit of 10 mg/l (NO_3-N). Since then, the CCSD's wastewater treatment plant operators made adjustments to significantly lower nitrates within the plant's effluent before it is introduced into the percolation ponds. The Emergency Water Supply project was restarted on September 20, 2015, and is currently being operated eight-hours per day, Monday through Friday. There is also regular reporting to the Water Board on the facility's operations to ensure compliance with permit conditions. For further reference, GMP Table 1-2 provides a listing of the permits that were issued for the Emergency Water Supply Project.

2) The Emergency Water Supply project is re-injecting approximately 192,000 gallons per day of water, while it is operated over an 8-hour period per work day. This equates to 0.56 acre-ft per 8-hour work day shift. Of the re-injected water, approximately 40% will remain in the aquifer, with the remainder being pumped by wells SS1 and SS2.

3) The Emergency Water Supply project includes a design feature that provides 100 gallons per minute of water to the head of the San Simeon Creek lagoon during dry periods. This feature serves to benefit and protect coastal resources.

4) The Emergency Water Supply project is limited by the conditions found in the permits that are listed in Table 1-2 of the GMP.

5) The Emergency Water Supply project does not appropriate water beyond what has been previously permitted by the SWRCB (permit numbers 20387 & 17287) and the Coastal Commission (CDP 428-10). Water that is extracted by its supply well is treated and re-injected back into the same groundwater basin.

6) Our analyses found that the Emergency Water Supply project provides a beneficial impact to the riparian and lagoon habitat through its design feature that provides 100 gpm of flow to the upper end of the San Simeon Creek lagoon during dry conditions. The project's lagoon water design feature is also backed up by an existing Adaptive Management Plan (AMP), which is currently being followed, along with its supporting and ongoing biological monitoring of in-stream and riparian habitat associated with the San Simeon Creek and Van Gordon Creek. Our next posted update to the Groundwater Management Plan (GMP) will expand upon the discussion found under Part 2.1, "Basin Management Objective 1 – Monitor and Manage Water and Wastewater Facilities to Ensure Protection of the Area's Fishery and Habitat," which can found on page 12 of the draft GMP. We will reference the AMP and include it as an appendix within this same GMP update. We also believe the AMP is consistent with the GMP objective, which

is why GMP Recommendation 3.e on page 29, includes planning and budgeting for "Regular biological monitoring of the riparian habitat."

7) The San Simeon Creek well levels during 2014 were influenced by the community's approximate 40 percent reduction in water demand from its unprecedented historic level of water conservation, as well as there being no diversion occurring from the San Simeon aquifer during the aforementioned tracer study, which occurred from July 24, 2014 to September 29,2014. Comparison between the 2013 and 2015 levels show a significant difference, with higher levels occurring in 2015 following start up and operation of the Emergency Water Supply project. Our Mid-October average San Simeon well elevations were 10.72 feet for 2015; 9.11 feet for 2014; and, 6.77 feet for 2013. These elevations are expressed as feet above mean sea level.

8) See related discussion under item 6).

9) We are cognizant of the steelhead recovery plan, which is described as a guidance document by NOAA. Per the aforementioned discussion in item 6), the Emergency Water Supply project serves to significantly improve habitat conditions within the lagoon during dry weather. This design feature is further backed up by biological monitoring being conducted per an Adaptive Management Plan (AMP). The AMP was developed, in part, as a means to avoid an incidental take of steelhead. Lastly, the CCSD had also issued an amendment to its EIR consultant to include permitting efforts that would cover a Section 7, Endangered Species Act consultation. Although the related Section 7 permitting consultation is on hold due to funding limitations, the CCSD intends to pursue this additional permitting effort after it completes the Groundwater Management Plan.

10) Discussion on the Total Maximum Daily Loading in San Simeon Creek can be found in sections 1.7 and 5.2 of the GMP. In addition, recommendation 3.d on page 29 of the GMP recommends planning and budgeting for improvements to the CCSD wastewater treatment plant, which will further improve water quality.

11) See response under item 6). The Adaptive Management Plan is being provided as an appendix to the next posted update of the GMP.

12) Please see the discussion on long-term planning, which is provided in section 1.7 of the GMP. Also see the related recommendation 2 on page 29 of the GMP.

13) Operation of the Emergency Water Supply project has no growth inducing impacts.

14) The GMP was developed to meet the requirements of State Water Code Sections 10753 et seq. The EIR currently being prepared for the Emergency Water Supply project will allow for further public review and comments per the process required of the California Environmental Quality Act.

In closing, we appreciate your time and efforts in providing comments to the draft GMP. We will be posting an update to the GMP later this week and will notify you by email once an update is available on our cambriacsd.org web site.

Sincerely,

Robert C. Gresens
District Engineer
Cambria Community Services District

Attach (1)

cc w/attach: County of San Luis Obispo Public Works Department; Mladen Bandov
Department of Water Resources – Planning and Local Assistance; Monica Reis
California Department of Fish and Wildlife; Dr. Jeffrey R. Single
California State Parks; Brooke Gutierrez
California Coastal Commission; Tom Luster
Regional Water Quality Control Board; Ken Harris

GREENSPACE
THE CAMBRIA LAND TRUST

October 29, 2015

Bob Gresens, Dist. Engineer
Cambria Community Services District
1316 Tamson Drive, Suite 201
Cambria, CA 93428

Via Email: bgresens@cambriacsd.org

RE: Cambria Community Services District "Draft" Groundwater Management Plan

Thank you for the opportunity to comment on the Draft Groundwater Management Plan. I understand the plan was rushed and comments are due today. The Districts "emergency" water project cannot be uncoupled from the Groundwater Management Plan.

The CSD 'emergency' water project was constructed without adequate environmental review or permits between August 2014 and December of 2014. The project did not pass a 60 day tracer test in the fall of 2014, failed to complete a 90 day test phase this year, caused numerous (13?) water quality violations including a chlorine spill into San Simeon Creek noticed by the Regional Water Quality Control Board in March of 2014, and was shut down due to the high cost of
1 monitoring and reporting requirements and staffing shortfalls in April. The project is reportedly operating again, however it is unclear under what conditions it should be allowed to run given the lack of appropriate permits and agency review.

Greenspace is still awaiting responses to comments made on the Districts "emergency" water project in July of 2014 and a public scoping session of March of 2015 . The effects of the water project on the biological resources of both San Simeon and Santa Rosa Creek remains unknown . Unanswered project questions and concerns include but are not limited to:

2 • Amount of water to be produced by the project
3 • Timing of project operation that would protect coastal resources
4 • Limits of project operation
5 • Water rights and water use is in question based on project operations
6 • Project failed to provide adequate mitigation water to SanSimeon Creek Lagoon during operation
7 • Need for the project based on above average well levels since January of 2014
8 • Lack of instream flow studies to provide baselines to measure ecological impacts to the creek

- 9 Impacts of the project on South-Central California Steelhead Recovery
- 10 Water quality concerns and questions on the TMDL loads from CSD wastewater at San Simeon Creek
- 11 Lack of specifics and need for independent oversight of a proposed “Adaptive Management Plan”
- 12 Lack of specifics on relationship between the “Brackish Water Desalination Emergency Project” and the “Long Term Public Works Project”.
- 13 Lack of funding for the Cambria Build Out Reduction Plan which is required mitigation for the growth inducing effects of desalination.

14 Until our questions, and all agency questions that were submitted between July 2014- March 2015 are answered by the CSD the groundwater management plan is incomplete for review.

We look forward to receiving responses to the detailed and lengthy comments that were submitted in the past. The way forward to a sustainable water supply for resident, tourists and businesses is one that does not cause harm to all the other life we treasure on the Central Coast.

For the Board of Directors of
Greenspace-the Cambria Land Trust
Mary Webb, Interim President

cc: Cambria CSD Board of Directors, Dept. of Water Resources, San Luis Obispo County, Coastal Commission, CA Fish and Wildlife, CA State Parks

CAMBRIA COMMUNITY SERVICES DISTRICT

1316 Tamsen Street, Suite 201 • P.O. Box 65 • Cambria CA 93428
Telephone (805) 927-6223 • Facsimile (805) 927-5584

November 5, 2015

Mr. Tom Luster
California Coastal Commission
45 Fremont Street
Suite 2000
San Francisco, CA 94105-2219

Subject: October 29, 2015 Review Comments to Cambria CSD's Draft Groundwater Management Plan

Dear Mr. Luster,

Thank you for taking the time to review and comment on our draft Groundwater Management Plan. Where appropriate, we are updating the draft Groundwater Management Plan (GMP) to incorporate your suggestions and requests. The following summarizes the updates we will be making to the GMP, provides further background information, or otherwise explains where answers to your comments can be found within the existing draft GMP (The GMP is posted on our website at cambriacsd.org.). Our responses are also numbered in the same order as the numbered points in your October 29, 2015 letter, which began on page 2:

1) Our analyses found that the Emergency Water Supply project provides a beneficial impact to the riparian and lagoon habitat through its design feature that provides 100 gpm of flow to the upper end of the San Simeon Creek lagoon during dry conditions. This feature is also backed up by an existing Adaptive Management Plan (AMP), which is currently being followed, along with its supporting and ongoing biological monitoring of in-stream and riparian habitat associated with the San Simeon Creek and Van Gordon Creek. Our next posted update to the Groundwater Management Plan (GMP) will expand upon the discussion found under Part 2.1, "Basin Management Objective 1 – Monitor and Manage Water and Wastewater Facilities to Ensure Protection of the Area's Fishery and Habitat," which can found on page 12 of the draft GMP. We will reference the AMP and include it as an appendix within this same GMP update. We also believe the AMP is consistent with the GMP objective, which is why GMP Recommendation 3.e on page 29, includes planning and budgeting for "Regular biological monitoring of the riparian habitat."

   We also recognize there may be some confusion over the flow rates due to the emergency water supply project extracting, treating, and then re-injecting water back into the groundwater basin. The project also recycles a portion of the community's treated wastewater effluent, which is discharged into the percolation ponds near extraction well 9P7. To meet the State's 60-day travel time requirement for the indirect potable reuse of recycled water, the re-injection rate into the aquifer, as well as the total pumping rate from well field pumps SS-1 and SS-2 out of the aquifer, cannot exceed 400 gpm. The project's groundwater extraction well (aka Well 9P7) will pump at approximately 629 gpm. However, this pump cycles on and off during facility operation based on levels within a transfer tank that it discharges into prior to the treatment facility's microfiltration process. Therefore, the 629 gpm rate of the project's extraction well is not necessarily a continuous flow. Of the water pumped from well 9P7, 100 gpm of that water is returned to the head of the San Simeon Creek lagoon, which normally occurs after it passes through microfiltration. Another 40 gpm is returned back to the groundwater from the project's micro-filter backwash water, which is discharged into an existing percolation pond. To maximize water use efficiency, the project minimizes the amount of reverse osmosis reject water that is discharged into the evaporation pond by having three stages of reverse osmosis. This results in a 92 percent recovery rate, with only 40 gpm of RO reject water being discharged to the project's evaporation pond. Net production from the project will be less than the 400 gpm groundwater re-injection rate due to about 60 percent of the injected water being pumped by the CCSD's San Simeon potable wells (SS1 and SS2). Therefore, the net production from the project is estimated to be 60 percent of the 400 gpm re-injection rate, which is about 240 gpm of the 400 gpm of water being pumped out by wells SS1 and SS2.

The volume of water produced by the project will also vary by how long the facility operates each day. For example, since September 20, 2015, the facility has been operating during our water operators' 8-hour work day, which has been Monday through Friday.

2) Beyond the explanation provided in item 1) above, we believe your discussion may be more relevant as comments for the Emergency Water Supply Project's project EIR. Stream monitoring that the CCSD and its consultant conducted in 2014 was used to support analyses related to the project's 100 gpm lagoon flow value. This will be described in more detailed within the project's EIR, which will expand upon an explanation that was provided as part of an earlier August 27, 2014 presentation during our joint agency meeting at the Santa Cruz offices of the Coastal Commission. We also found many historical references that indicate the creek is not perennial, which date back to times before the CCSD facilities existed. Additionally, the 2014 regional assessment relied in part on a 2006 study, which did not include a specific evaluation of San Simeon Creek or the lagoon. Therefore, the 0.5 cfs summer time value of the 2014 flow assessment report is an overestimate, which was based on a rough approximating method when compared to the detailed analysis CCSD's consultant completed to support design of the emergency water supply project.

   We are also aware of the steelhead recovery plan, which is described as a guidance document by NOAA. Per the aforementioned discussion in item 1), the project serves to improve habitat conditions within the lagoon during dry weather. This design feature is further backed up by biological monitoring being conducted per an Adaptive Management Plan (AMP). The AMP was developed, in part, as a means to avoid an incidental take of steelhead. Lastly, the CCSD had also issued a contract amendment to its EIR consultant to include permitting efforts that would cover a Section 7, Endangered Species Act consultation. Although the related Section 7 permitting consultation is on hold due to funding limitations, the CCSD intends to pursue this additional permitting effort after it completes the Groundwater Management Plan and the CCSD's Proposition 84 grant reimbursement funding is received.

3) Respectfully, your assertion that CCSD's water rights applications have expired without being perfected is incorrect. The CCSD is aware of the need to extend its existing water right permits with the State Water Resources Control Board (SWRCB) and filed the appropriate petitions with the SWRCB during 2014. This filing also included the payment of a fee to cover what is to be used for the funding of prioritized instream flow studies by the state per Public Resource Code sections 10000-10005. The Groundwater Management Plan further acknowledged the related Coastal Development Permit 428-10 (See Table 1-1, on p. 5), which does not have a similar expiration timeline. The SWRCB is processing CCSD's extension petitions, and future GMP updates will reflect the outcome thereof.

4) The GMP's water quality discussion includes the Central Coast RWQCB's draft 2014 TMDL report on the San Simeon Creek, and can be found in the draft GMP's parts 5.2 and 5.4. The GMP's discussion includes mention that operation of the emergency water supply project serves to improve groundwater quality through its removal of salts and nutrients. This project benefit was also described by the RWQCB during their April 2014 presentation on the draft TMDL report in Cambria (by Howard Kolb of the RWQCB.). The GMP's recommendations also include financing and budgeting for improvements to the CCSD wastewater treatment plant (recommendation 3.d, on p. 29), which will also remove nutrients from its effluent before entering the groundwater percolation basins.

5) The CCSD plans to continue to abide by existing laws and regulations, as it has in completing the Groundwater Management Plan and past projects. Further discussion on applicable North Coast Area Plan regulatory requirements will also follow in the emergency water supply project's EIR.

In closing, we appreciate your time and efforts in providing comments to the draft GMP. We will be posting an update to the GMP later this week and will notify you by email once an update is available on our cambriacsd.org web site.

Sincerely,

Robert C. Gresens
District Engineer

Cambria Community Services District

cc: County of San Luis Obispo Public Works Department; Mladen Bandov
Department of Water Resources – Planning and Local Assistance; Monica Reis
Central Coast Regional Water Quality Control Board; Howard Kolb

STATE OF CALIFORNIA—NATURAL RESOURCES AGENCY
EDMUND G. BROWN, JR., *GOVERNOR*

CALIFORNIA COASTAL COMMISSION
45 FREMONT, SUITE 2000
SAN FRANCISCO, CA 94105-2219
VOICE (415) 904-5200
FAX (415) 904-5400
TDD (415) 597-5885

October 29, 2015

Mr. Robert Gresens, P.E., District Engineer
Cambria Community Services District
1316 Tamson Drive, Suite 201
Cambria, CA 93428

VIA EMAIL: bgresens@cambriacsd.org

RE: Comments on Cambria Community Services District ("CCSD") Draft Groundwater Management Plan

Dear Mr. Gresens:

Thank you for the opportunity to comment on the above-referenced Draft Groundwater Management Plan ("GMP"). As we have discussed with you several times, we are acutely aware of the severity of Cambria's water supply issues and we remain supportive of the CCSD developing appropriate and environmentally sustainable long-term responses to address these issues. We welcome working with you to develop a groundwater management approach that will be consistent with the requirements for the proposed GMP as provided in Section 10753 *et seq*. of the California Water Code and will also address and fully conform to the water planning, resource protection, and growth management requirements of the Local Coastal Program (LCP) and the Coastal Act. Our comments below are focused on helping the Final GMP be consistent with those Water Code requirements in a manner consistent with these other related policies and regulations.

As detailed below, our primary comments identify elements of the Draft GMP that do not yet include relevant documentation about basin characteristics and relevant policies needed to adequately address Water Code requirements. The additional documentation and analyses needed in the Final GMP relate to the following:

- The role of the CCSD's emergency water project in affecting groundwater characteristics;
- The effects of CCSD's proposed measures on streamflow and the related protection of biological resources;
- The effects of the CCSD's limited water rights on implementing groundwater management objectives;
- The effects of water quality concerns in the basins on the CCSD's ability to implement groundwater management objectives; and,
- The role of existing baseline requirements on the GWP's proposed planning process.

Comments and Recommendations

1) **Include descriptions and analyses of the CCSD's emergency water project related to groundwater management:** The Draft GMP includes some brief descriptions of CCSD operations in the San Simeon Creek basin, including mention of the emergency water supply project constructed last year. However, other than stating that the project includes a 100 gallon-per-minute mitigation flow, it does not describe the full effect of the project on surface and groundwater resources in the basin. We recommend the Final GMP more fully describe the amounts of water proposed to be extracted and produced by the project. Over the past year, project descriptions have stated that it would extract varying amounts of groundwater – from about 400 to 690 gallons per minute – and that it would produce similarly varying amounts.

   We additionally recommend that the Final GMP also include, or at least describe, that project's proposed Adaptive Management Plan that we understand the CCSD is preparing as part of the project EIR and permit applications. At a minimum, the Final GMP should include an evaluation of the proposed Adaptive Management Plan to ensure it is consistent with the Final GMP.

2) **Relationship of CCSD's groundwater management to streamflow and protection of biological resources:** The GMP must identify how the CCSD's proposed groundwater management measures are expected to affect streamflow and protect the basins' biological resources.[1] For example, the emergency water project is proposed to operate during periods when well levels are low and streamflows are below levels needed to protect fish and other aquatic species. We recommend the GMP's analyses incorporate findings of the January 2014 San Luis Obispo County *Regional Instream Flow Assessment*, which identified the necessary minimum flows for steelhead in San Simeon Creek as ranging from minimum flows of 1.5 to 1.6 cubic feet per second (cfs) in the spring to no less than 0.5 cfs in the summer. The project's proposed 100 gpm mitigation flow would provide only 0.223 cfs, or less than half, of the minimum amount needed to protect this threatened species. Groundwater management objectives and measures need to fully account for the biological productivity of these coastal zone resources, including ensuring adequate in stream flows to protect these resources and their related habitats.

   We also strongly recommend the Final GMP describe whether the CCSD's proposed groundwater management approach conforms to the December 2014 *South-Central California Steelhead Recovery Plan* published by the National Marine Fisheries Service. This Plan identifies the San Simeon Creek steelhead population as the highest priority area for recovery within the Plan boundaries and also identifies groundwater extraction in the San Simeon Creek watershed as one of the highest threats to recovery. The Final GMP should identify how the CCSD will manage basin groundwater resources to ensure protection of the

[1] For example, Section 10753.7(a)(1) states, in relevant part, that the GMP is to include basin management objectives that address "changes in surface flow and surface water quality that directly affect groundwater levels or quality or are caused by groundwater pumping in the basin." This is also necessary to allow the GMP to conform to relevant policies of the County's LCP and Coastal Zone Land Use Ordinance, such as those described later in this letter – e.g., LCP ESHA Policy 21, which requires development be compatible with continuance of streams' habitat values, and those in the North Coast Area Plan related to *Environmentally Sensitive Habitat – Coastal Creeks (ESH-CC)* requirements and *Cambria Program 11a* requirements for completion of an instream flow study prior to proposing any major water supply project that relies on San Simeon Creek.

streamflows needed to support this and other species reliant on San Simeon Creek habitat. It may also be necessary for the Final GMP to identify any additional groundwater management provisions necessary for the CCSD to avoid "take" of steelhead. We strongly recommend this be incorporated into the Final GMP's Section 2.1 – *Basin Management Objective 1: Monitor and Manage Water and Wastewater Facilities to Ensure Protection of the Area's Fishery and Riparian Habitat.*

3) **Water rights and related agreements:** The Draft GMP (at Section 1.8, for example) describes just one of several water rights components the CCSD is subject to within the two basins – i.e., a 2006 agreement for the CCSD to provide up to 205 acre-feet of water per year to a property within the San Simeon basin. We believe it is necessary for the Final GMP to more completely identify the water rights that affect basin management, and evaluate how the CCSD's existing water rights will affect or limit the CCSD's ability to meet basin management objectives. The Final GMP should more thoroughly describe the CCSD's existing water rights and incorporate them into its analyses. As we understand it, the CCSD's current water rights are considerably less than the amount of water the CCSD has anticipated would be available for water production and groundwater basin management. As noted in our previous correspondences, the CCSD's original water rights applications expired without being perfected, so the currently available amounts are *less than half* the CCSD's expected amounts.[2] The Draft GMP does not appear to be based on these reduced water rights (see, for example, the expected "Municipal Pumpage" in Table 1-3), and thus we highly recommend that the Final GMP's analyses and objectives be consistent with the current/accurate water rights.

4) **Water quality:** The Draft GMP only briefly describes water quality concerns in the two basins and the effect of water quality changes on basin groundwater. The Final GMP should provide more detailed evaluations of water quality issues – i.e. limitations that may be imposed on groundwater basin management objectives due to high nitrates, TMDL listings, low dissolved oxygen levels, and other water quality concerns that have been described in other CCSD documents.

5) **Coordination and Planning:** The Draft GMP describes (at Section 3) a proposed Interagency Coordination and Collaboration Plan that includes a proposal to *Review and Identify Regulatory Updates and Any Recent Trends That May Require Related Groundwater Management Plan Updating*. We strongly recommend the Final GMP add a provision that coordination and planning will also evaluate the CCSD's conformity to **existing** regulatory requirements, including the following:

   - The County's North Coast Area Plan (NCAP) and its applicable provisions/standards and Combining Designations requirements, including areas of the groundwater basins subject to provisions applicable to *Geologic Study Area* (*GSA*) and *Flood Hazard* (*FH*) designations, and Sensitive Resource Areas (*SRAs*), Environmentally Sensitive Habitat –

[2] We understand that the CCSD's initial applications were for water rights of up to 798 acre-feet per year from the Santa Rosa watershed and up to 1230 acre-feet per year from the San Simeon watershed (including a maximum dry season diversion from San Simeon of no more than 370 acre-feet). When those applications expired several years ago, it is our understanding that the "perfected" amounts are now about 218 acre-feet per year in the Santa Rosa watershed and about 798 acre-feet in the San Simeon watershed. The available amount in the San Simeon watershed is further reduced by the above-referenced contractual obligation of the CCSD to provide approximately 205 acre-feet per year to a neighboring property.

Coastal Creeks (*ESH-CC*), and Terrestrial Habitat (*TH*). The NCAP is a part of the County's LCP.

- NCAP Planning Area Standards (Chapter 7) Community Wide Standards.
- NCAP Cambria Programs 11a, which requires the CCSD to prepare an instream flow study before proposing any major water supply project that relies on additional water supplied by San Simeon Creek.
- LCP Coastal Plan ESHA policies, including LCP ESHA Policy 21, which requires that all development be compatible with continuance of stream habitat values.

Thank you for your attention to these comments. We are happy to help revise the GMP in response to these comments and we look forward to the interagency coordination anticipated by the GMP. Please contact me at 415-904-5248 or tluster@coastal.ca.gov if you have any questions.

Sincerely,

Tom Luster

Tom Luster
Senior Environmental Scientist

Cc: County of San Luis Obispo Public Works Department
Department of Water Resources – Planning and Local Assistance

Bob Gresens

From: Michael Broadhurst <mdbroadhurst@att.net>
Sent: Saturday, October 24, 2015 7:50 PM
To: George Kendall; Monique Madrid; Bob Gresens
Subject: Re: Comments on CCSD's proposed Groundwater Management Plan

Thanks to George for his comments on the draft Groundwater Management Plan. I agree fully with his comments. This is a good plan. I have also reviewed selected sections of the draft plan. My comments are as follows:
1. I felt the conservation section was weak and did not mention positive measures that have been taken of which I am aware. Nonetheless, you know best what is required to meet the requirements of such a plan.
2. A steering committee sounds to be a good idea that includes relevant stakeholders. To be effective, however, it will need a strong commitment from staff and your Board. I served as an agricultural representative on a similar committee in Cambria a number of years ago and found a lack of commitment or interest made effective recommendations impossible.
3. I strongly feel that Cambria should make a commitment now to become the lead SGA for the two basins our community relies on for their water supply. I found no mention of SGMA in this report. Limited experience suggests there is a lack of understand of SGMA and its impact by staff and the Board. I know the deadlines for SGPs is 7 years off, but without a good approach process, Cambria will likely be left to devices of other agencies. As Chair of the US-LT RCD Board of Directors, I am currently leading an initiative for our agency to consider becoming an SGA.

Mike Broadhurst

On Saturday, October 24, 2015 3:40 PM, George Kendall <georgekendall01@gmail.com> wrote:

Dear Monique and Bob,

Attached please find a word document with my comments on the proposed groundwater management plan. I will likely be unable to attend the October 29 public workshop, but I appreciate your consideration of the comments.

Thank you,
George Kendall

To:
M. Madrid
CCSD District Clerk
P O Box 65
Cambria, CA 93428

From:
George Kendall
4330 Santa Rosa Creek Rd.
Cambria, CA 93428
(805) 924-1008

Re: Draft of CCSD Groundwater Management Plan

To whom it concerns:

Thank you for posting the Cambria CSD's draft Groundwater Management Plan on your web site. The plan appears to be thorough and should be a good foundation for future management efforts.

I am encouraged by your intention to reach out to basin stakeholders. As a farmer in the Santa Rosa Creek Valley, I especially appreciate your inclusion of the county Farm Bureau and the Upper Salinas - Las Tablas Resource Conservation District in your list of organizations to solicit for inclusion in a multi-agency steering committee. You may also want to consider the Cattleman's Association and the Natural Resources Conservation Service.

Many of the farmers along Santa Rosa Creek are members of the Santa Rosa Creek Valley Groundwater Monitoring Cooperative for the purposes of monitoring groundwater quality to satisfy requirements of the RWQCB's Irrigated Agricultural Order (R3-2012-0011). We sample selected irrigation wells along the creek for several potential contaminants on a multi-year schedule. As co-leader of the cooperative, I can say that we will appreciate good communication with the CCSD regarding any groundwater quality issues or concerns along Santa Rosa Creek. The cooperative's contacts are George Kendall (924-1008) and Mike Broadhurst (924-1260).

The possibility of future groundwater recharge in the lower Santa Rosa Creek Valley, possibly using treated water, was mentioned in the plan. This possibility could both improve groundwater levels in the lower basin and have environmental benefits. I encourage you to pursue this idea as time and funding allow.

One of your basic references is USGS Report 98-4061 covering the hydrology and related topics of the Santa Rosa and San Simeon basins. I have found this report to be an excellent source of information and analysis for these two groundwater basins.

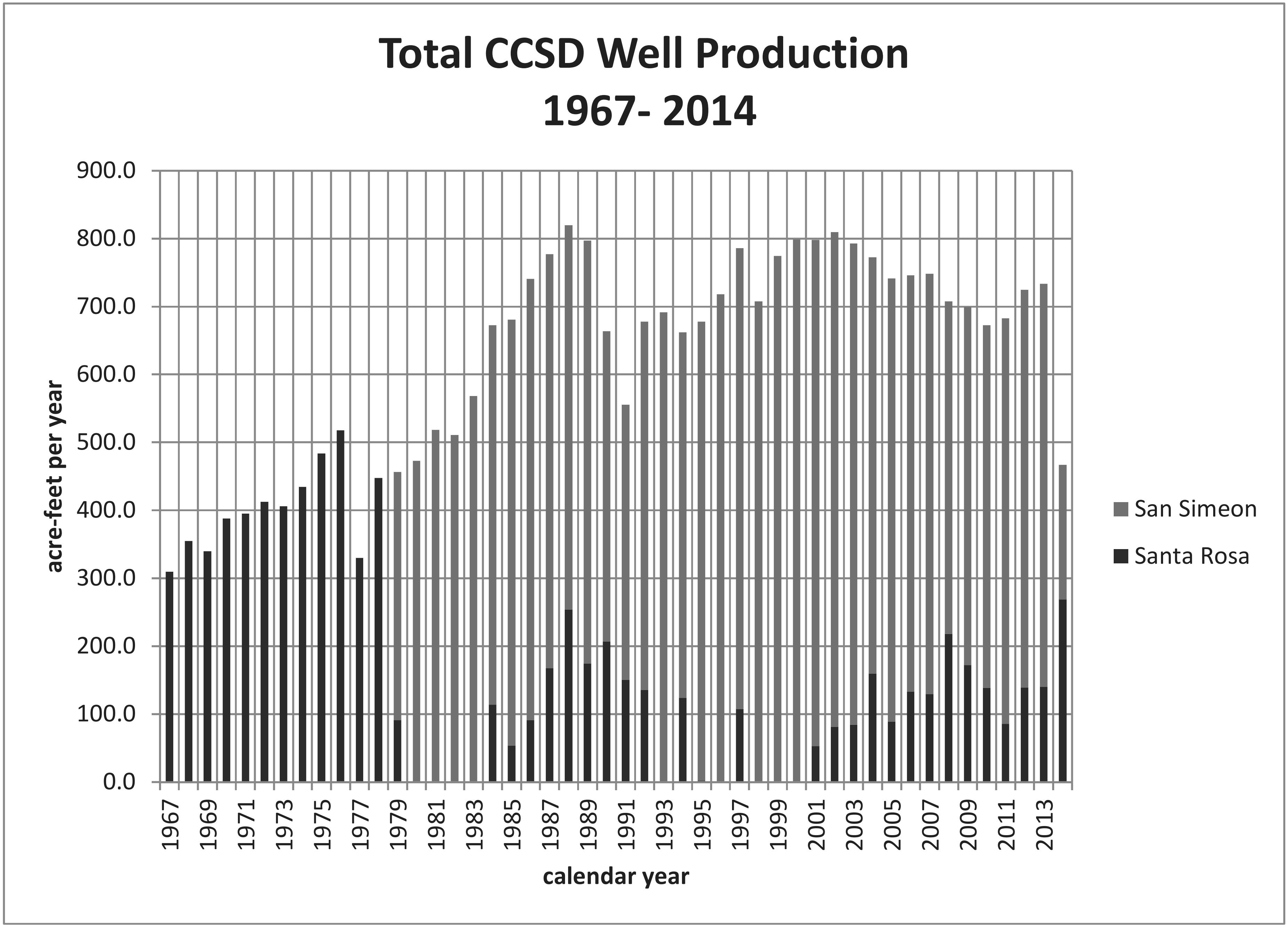
Thank you for the opportunity to comment on the CCSD's draft groundwater management plan.

Sincerely,

George W. Kendall

Appendix C

Plots of Historic Groundwater Elevations



Total CCSD Well Production
1967- 2014
900.0
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
acre-feet per year
1967
1969
1971
1973
1975
1977
1979
1981
1983
1985
1987
1989
1991
1993
1995
1997
1999
2001
2003
2005
2007
2009
2011
2013
calendar year
San Simeon
Santa Rosa

2015
CAMBRIA COMMUNITY SERVICES DISTRICT
WATER PRODUCTION, BY SOURCE
ACRE-FEET

YEAR	SOURCE	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	1000.0 TOTAL	YEAR
	S.S.	51.20	57.90	63.20	47.30	57.40	44.20	50.00	51.70	41.90	37.40	27.40	36.00	565.60	
1988	S.R.	0.00	0.00	0.00	16.30	15.70	30.70	31.20	34.90	36.00	34.90	35.20	19.00	253.90	1988
	TOTAL	51.20	57.90	63.20	63.60	73.10	74.90	81.20	86.60	77.90	72.30	62.60	55.00	819.50	
	S.S.	51.00	47.90	53.90	61.90	57.20	62.20	69.20	60.90	36.30	38.70	42.60	40.60	622.40	
1989	S.R.	0.00	0.00	0.00	1.00	13.80	13.50	17.90	28.00	42.00	22.60	17.60	18.20	174.60	1989
	TOTAL	51.00	47.90	53.90	62.90	71.00	75.70	87.10	88.90	78.30	61.30	60.20	58.80	797.00	
	S.S.	45.70	47.00	55.28	44.75	31.46	32.34	40.00	38.00	31.91	31.40	29.40	29.90	457.14	
1990	S.R.	8.70	0.80	0.50	18.03	32.30	26.79	22.30	22.20	20.64	20.20	19.30	14.90	206.66	1990
	TOTAL	54.40	47.80	55.78	62.78	63.76	59.13	62.30	60.20	52.55	51.60	48.70	44.80	663.80	
	S.S.	26.90	23.10	32.70	39.60	48.60	44.10	40.10	34.80	30.50	28.00	26.40	30.10	404.90	
1991	S.R.	15.30	13.10	0.50	0.10	0.10	5.50	15.00	21.60	20.20	21.00	19.70	18.70	150.80	1991
	TOTAL	42.20	36.20	33.20	39.70	48.70	49.60	55.10	56.40	50.70	49.00	46.10	48.80	555.70	
	S.S.	45.30	42.20	45.90	55.20	64.00	58.10	44.90	41.80	35.00	32.80	34.00	43.10	542.30	
1992	S.R.	0.80	0.30	0.10	0.40	0.50	6.10	22.70	28.10	26.30	25.10	19.50	5.50	135.40	1992
	TOTAL	46.10	42.50	46.00	55.60	64.50	64.20	67.60	69.90	61.30	57.90	53.50	48.60	677.70	
	S.S.	50.10	45.70	52.60	56.30	68.30	68.80	68.10	69.80	59.80	56.10	51.40	43.50	690.50	
1993	S.R.	0.50	0.30	0.00	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.90	1993
	TOTAL	50.60	46.00	52.60	56.30	68.40	68.80	68.10	69.80	59.80	56.10	51.40	43.50	691.40	
	S.S.	47.00	38.60	48.60	52.00	54.60	63.40	69.30	47.80	31.70	30.80	28.20	26.00	538.00	
1994	S.R.	0.00	0.00	0.00	0.00	0.10	0.00	0.00	25.00	30.20	27.70	21.20	19.90	124.10	1994
	TOTAL	47.00	38.60	48.60	52.00	54.70	63.40	69.30	72.80	61.90	58.50	49.40	45.90	662.10	
	S.S.	41.30	41.10	47.10	52.14	53.50	59.00	74.70	74.10	65.40	64.70	55.30	47.60	675.94	
1995	S.R.	1.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.90	1995
	TOTAL	43.20	41.10	47.10	52.14	53.50	59.00	74.70	74.10	65.40	64.70	55.30	47.60	677.84	
	S.S.	46.66	43.40	47.39	56.95	66.18	70.83	75.70	77.27	68.23	65.58	50.37	49.43	717.99	
1996	S.R.	0.01	0.03	0.03	0.03	0.03	0.01	0.03	0.02	0.01	0.02	0.02	0.02	0.26	1996
	TOTAL	46.67	43.43	47.42	56.98	66.21	70.84	75.73	77.29	68.24	65.60	50.39	49.45	718.25	
	S.S.	50.61	49.20	65.66	68.65	76.18	79.14	82.31	57.02	37.32	27.50	38.96	45.96	678.51	
1997	S.R.	0.02	0.08	0.02	0.02	0.02	0.02	0.38	25.92	31.54	36.85	12.41	0.01	107.29	1997
	TOTAL	50.63	49.28	65.68	68.66	76.20	79.16	82.69	82.94	68.86	64.35	51.37	45.97	785.80	
	S.S.	44.39	46.36	47.00	50.53	56.43	63.43	77.75	80.30	68.35	66.58	54.06	52.13	707.31	
1998	S.R.	0.01	0.01	0.01	0.01	0.00	0.01	0.01	0.09	0.01	0.00	0.00	0.00	0.16	1998
	TOTAL	44.40	46.37	47.01	50.54	56.43	63.44	77.76	80.39	68.36	66.58	54.06	52.13	707.47	
	S.S.	56.40	45.26	52.16	57.40	70.43	71.35	85.41	82.68	69.45	68.04	57.78	57.69	774.05	
1999	S.R.	0.01	0.01	0.01	0.04	0.02	0.07	0.01	0.02	0.32	0.02	0.00	0.00	0.53	1999
	TOTAL	56.41	45.27	52.17	57.44	70.45	71.42	85.42	82.70	69.77	68.06	57.78	57.69	774.58	
	S.S.	56.41	50.43	55.27	65.40	70.84	73.60	85.00	84.68	73.30	65.60	58.49	59.80	798.82	
2000	S.R.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2000
	TOTAL	56.41	50.43	55.27	65.40	70.84	73.60	85.00	84.68	73.30	65.60	58.49	59.80	798.82	
	S.S.	56.16	48.05	55.92	60.69	73.30	77.51	85.01	78.50	53.45	56.21	48.16	52.29	745.25	
2001	S.R.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	5.78	21.08	16.87	8.06	0.89	52.68	2001
	TOTAL	56.16	48.05	55.92	60.69	73.30	77.51	85.01	84.28	74.53	73.08	56.22	53.18	797.93	
	S.S.	54.43	52.23	60.70	65.43	60.75	55.13	66.79	73.35	66.59	62.03	56.36	53.98	727.77	
2002	S.R.	1.28	1.27	1.10	1.11	14.82	22.79	19.54	9.67	3.52	4.02	2.04	0.55	81.71	2002
	TOTAL	55.71	53.50	61.80	66.54	75.57	77.92	86.33	83.02	70.11	66.05	58.40	54.53	809.48	
	S.S.	52.73	49.97	57.35	58.32	62.82	68.22	65.05	63.34	58.91	67.08	56.20	48.84	708.83	
2003	S.R.	0.70	1.11	0.48	0.94	1.84	5.63	19.77	22.04	16.00	6.58	3.12	5.84	84.05	2003
	TOTAL	53.43	51.08	57.83	59.26	64.66	73.85	84.82	85.38	74.91	73.66	59.32	54.68	792.88	
	S.S.	55.83	51.40	58.56	64.33	67.98	52.62	47.04	39.68	41.06	34.80	49.30	49.92	612.52	
2004	S.R.	0.00	0.61	1.17	4.84	8.68	22.08	30.80	36.30	27.32	24.95	1.73	1.63	160.11	2004
	TOTAL	55.83	52.01	59.73	69.17	76.66	74.70	77.84	75.98	68.38	59.75	51.03	51.55	772.63	
	S.S.	50.05	46.16	51.09	55.01	65.70	68.81	80.52	61.60	48.71	47.08	40.83	36.70	652.26	
2005	S.R.	0.00	0.62	0.93	0.76	0.76	0.73	1.64	17.32	20.25	21.69	16.92	7.36	88.98	2005
	TOTAL	50.05	46.78	52.02	55.77	66.46	69.54	82.16	78.92	68.96	68.77	57.75	44.06	741.24	
	S.S.	50.81	49.10	48.82	49.65	60.58	65.65	56.12	59.67	52.49	42.86	34.46	42.75	612.96	
2006	S.R.	0.00	0.78	0.00	0.62	0.74	2.56	23.58	20.72	20.17	23.88	26.46	13.63	133.14	2006
	TOTAL	50.81	49.88	48.82	50.27	61.32	68.21	79.70	80.39	72.66	66.74	60.92	56.38	746.10	
	S.S.	57.70	47.45	56.47	60.50	56.11	51.21	55.95	63.48	58.72	37.58	34.83	38.61	618.61	
2007	S.R.	0.00	0.00	0.60	1.81	14.47	22.24	23.47	12.37	5.29	18.70	21.20	9.42	129.57	2007
	TOTAL	57.70	47.45	57.07	62.31	70.58	73.45	79.42	75.85	64.01	56.28	56.03	48.03	748.18	
	S.S.	43.35	45.35	51.55	52.59	40.45	33.03	40.15	47.57	47.24	41.53	21.47	25.41	489.69	
2008	S.R.	2.33	0.67	0.71	2.20	24.69	33.55	32.94	24.87	18.26	21.03	32.21	24.46	217.92	2008
	TOTAL	45.68	46.02	52.26	54.79	65.14	66.58	73.09	72.44	65.50	62.56	53.68	49.87	707.61	
	S.S.	28.17	37.57	50.95	58.52	48.56	37.47	48.80	40.69	31.99	44.62	53.05	46.55	526.94	
2009	S.R.	24.83	3.81	0.00	0.00	13.53	26.06	25.21	34.10	32.64	11.02	0.00	1.34	172.54	2009
	TOTAL	53.00	41.38	50.95	58.52	62.09	63.53	74.01	74.79	64.63	55.64	53.05	47.89	699.48	
	S.S.	45.44	40.48	47.48	48.39	56.26	55.29	50.73	44.58	35.05	37.61	36.14	36.45	533.90	
2010	S.R.	0.00	0.00	0.77	0.62	0.68	8.74	21.96	27.30	32.52	21.71	14.48	9.73	138.51	2010
	TOTAL	45.44	40.48	48.25	49.01	56.94	64.03	72.69	71.88	67.57	59.32	50.62	46.18	672.41	
	S.S.	48.05	43.36	45.17	52.11	53.94	49.27	60.52	55.52	45.40	45.67	46.28	51.87	597.16	
2011	S.R.	0.00	0.70	0.00	0.76	6.65	11.03	12.97	14.82	19.45	14.15	5.19	0.00	85.72	2011
	TOTAL	48.05	44.06	45.17	52.87	60.59	60.30	73.49	70.34	64.85	59.82	51.47	51.87	682.88	
	S.S.	50.12	48.09	52.60	50.52	60.06	56.53	48.17	41.12	36.72	42.22	48.70	50.88	585.73	
2012	S.R.	3.54	0.79	0.00	0.66	1.44	11.14	27.95	33.22	29.98	21.43	8.86	0.00	139.01	2012
	TOTAL	53.66	48.88	52.60	51.18	61.50	67.67	76.12	74.34	66.70	63.65	57.56	50.88	724.74	
	S.S	51.09	47.40	54.72	55.27	63.18	46.01	60.82	72.32	57.73	29.84	26.72	28.61	593.70	
2013	S.R.	0.00	0.00	0.00	4.27	5.28	27.57	18.12	3.50	7.62	22.56	25.38	25.61	139.91	2013
	TOTAL	51.09	47.40	54.72	59.54	68.45	73.58	75.82	75.82	65.41	52.40	52.11	54.22	733.61	
	S.S	22.93	16.97	24.90	25.03	19.39	14.40	11.94	0.00	0.76	24.32	13.74	23.81	198.17	
2014	S.R.	34.69	19.85	10.00	10.44	18.88	24.19	30.89	43.09	36.26	12.06	18.63	9.62	268.59	2014
	TOTAL	57.62	36.82	34.90	35.04	38.27	41.02	42.82	43.09	37.01	36.37	32.36	33.44	466.76	
	S.S	19.95	16.65	17.16	17.79	16.18	14.14	15.14	17.39	20.36	26.17			180.91	
2015	S.R.	14.77	14.90	20.53	20.68	20.99	26.51	29.51	27.78	21.94	16.05			213.66	2015
	AWTP									3.03	8.97			12.00	
	TOTAL	34.72	31.55	37.69	38.47	37.17	40.65	44.65	45.17	42.30	42.22			394.57	
	DIFFERENCE	-22.91	-5.27	2.79	3.43	-1.10	-0.37	1.83	2.08	5.29	5.85	-19.74	-20.79	-72.19	

Example Cambria CSD Well Levels Summary

11/2/15

CAMBRIA COMMUNITY SERVICES DISTRICT
WELL WATER LEVELS FOR 11/2/15

Well Code	Distance Ref. Point to Water Level	Reference Point Distance Above Sea Level	Depth of Water to Sea Level	Remarks
		SANTA ROSA CREEK WELLS		
23R	45.61	83.42	37.81	
SR4	43.08	82.00	38.92	
SR3	32.40	54.30	21.90	
SR1	23.06	46.40	23.34	
RP#1	23.22	46.25	23.03	
RP#2		33.11		Not Read
21R3	9.16	12.88	3.72	37892
WBE	12.95	16.87	3.92	
WBW	13.25	17.02	3.77	

AVERAGE LEVEL OF CCSD SANTA ROSA WELLS SR1 & SR3 = 22.62 FEET

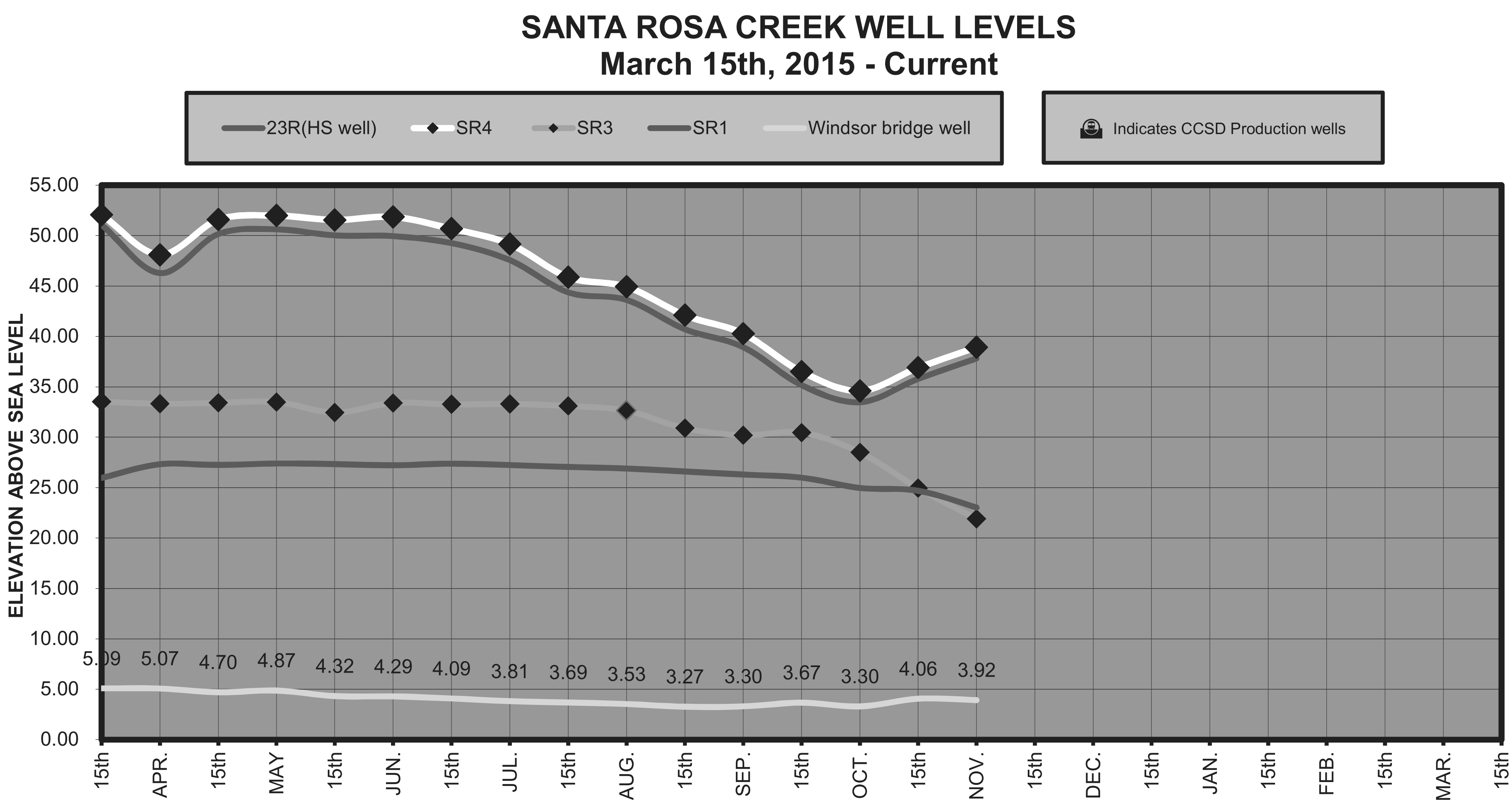
CCSD SANTA ROSA WELL SR4 = 38.92 FEET

Well Code	Distance Ref. Point to Water Level	Reference Point Distance Above Sea Level	Depth of Water to Sea Level	Remarks
		SAN SIMEON CREEK WELLS		
16D1	6.69	11.36	4.67	
MW4	11.10	15.95	4.85	
MW1	23.11	42.11	19.00	
MW2	22.10	38.10	16.00	
MW3	29.30	49.56	20.26	
9M1	34.50	65.63	31.13	
9P2	13.95	19.11	5.16	
9P7	11.81	20.69	8.88	
9L1	18.00	27.33	9.33	
RIW	17.28	25.41	8.13	
SS4	17.91	25.92	8.01	**SS4 to 9P2 Gradient = + 2.85**
MIW	19.70	29.89	10.19	
SS3	23.03	33.73	10.70	
SS2	22.71	33.16	10.45	
SS1	22.57	32.37	9.80	
11B1	50.80	105.43	54.63	
11C1	44.29	98.20	53.91	
PFNW		93.22		Not Read
10A1	43.41	78.18	34.77	
10G2	32.81	62.95	30.14	
10G1	30.79	59.55	28.76	
10F2	38.96	66.92	27.96	
10M2	34.65	55.21	20.56	
9J3	26.81	43.45	16.64	

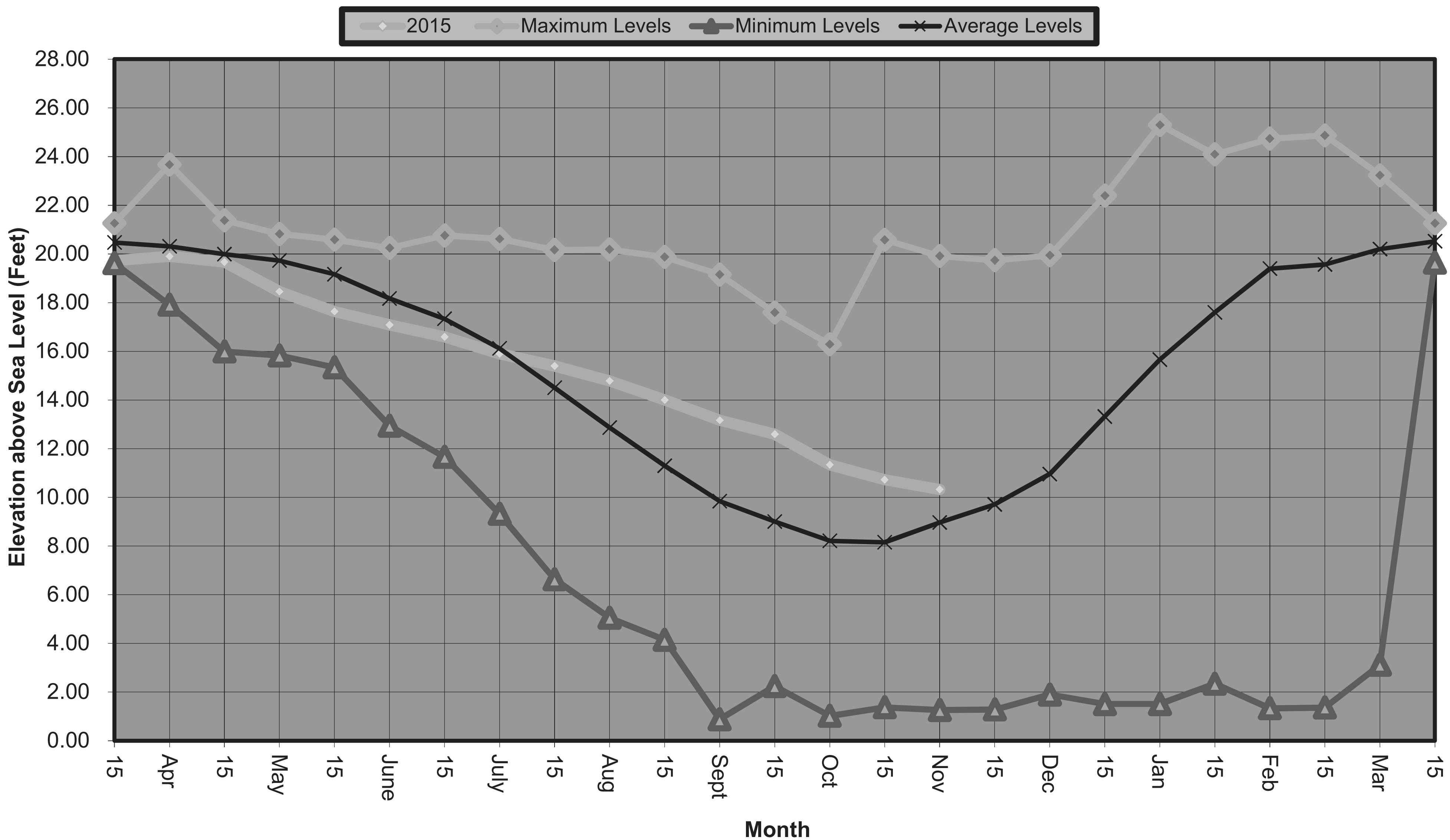
AVERAGE LEVEL OF CCSD SAN SIMEON WELLS SS1,SS2 & SS3 = 10.32 FEET

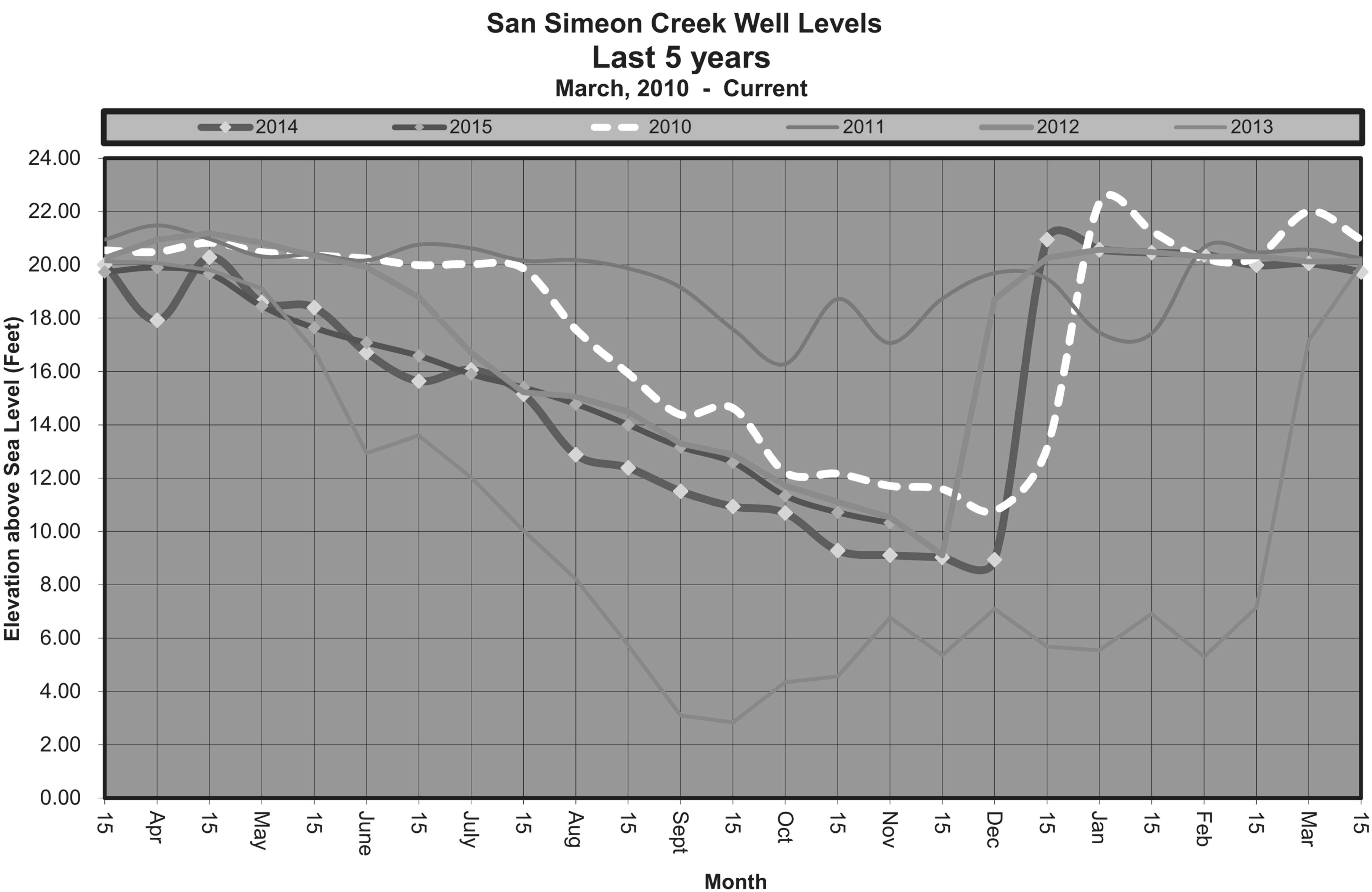
Red Font are the CCSD's Production Wells, as measured on 11/2/15
Reference point on 16d1,miw1,miw2,miw3,9p7,riw,miw1,ss1,ss2 and ss3 updatec 2/17/2015

Example Cambria CSD
Santa Rosa Creek Well Levels Plot

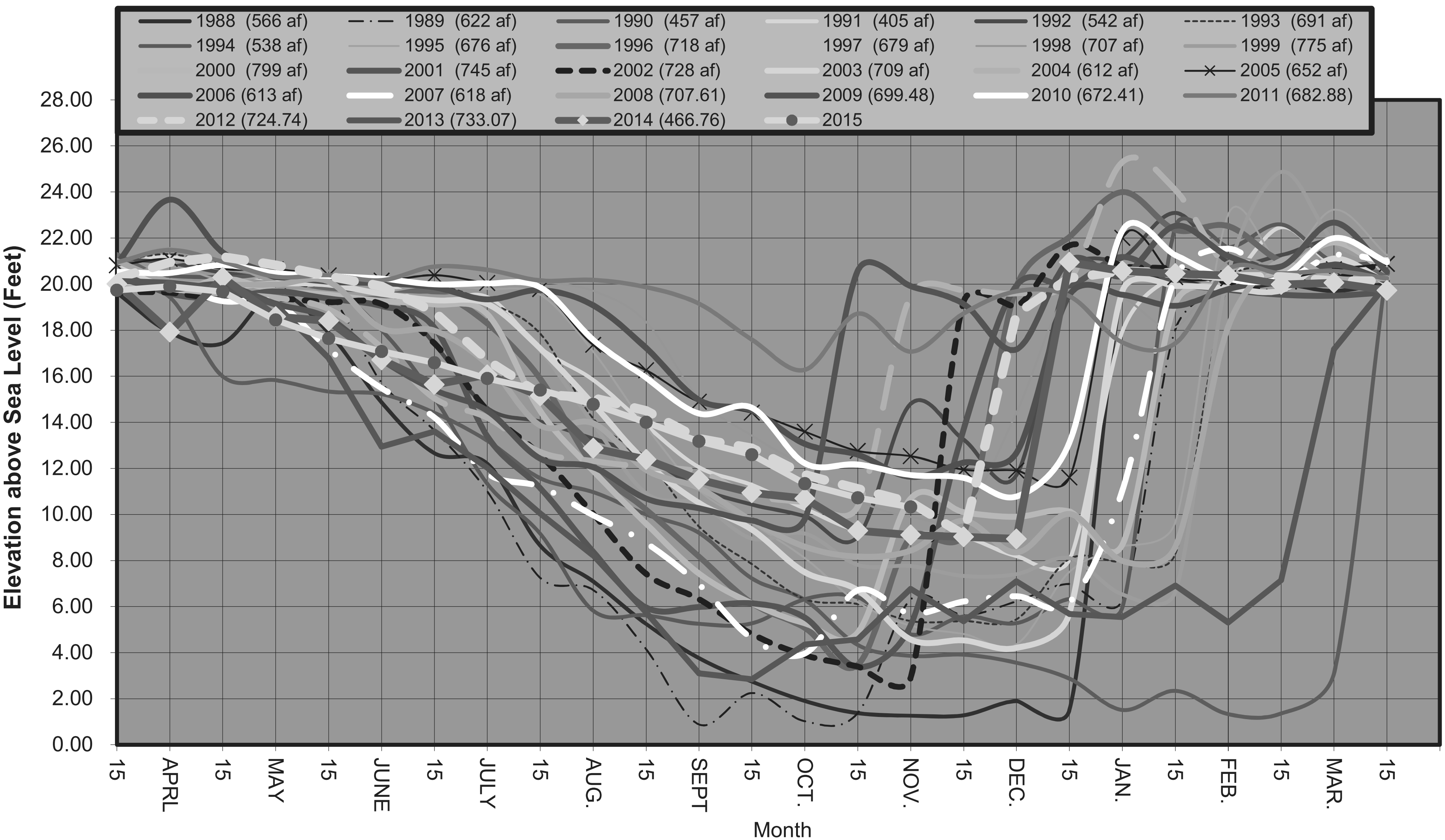


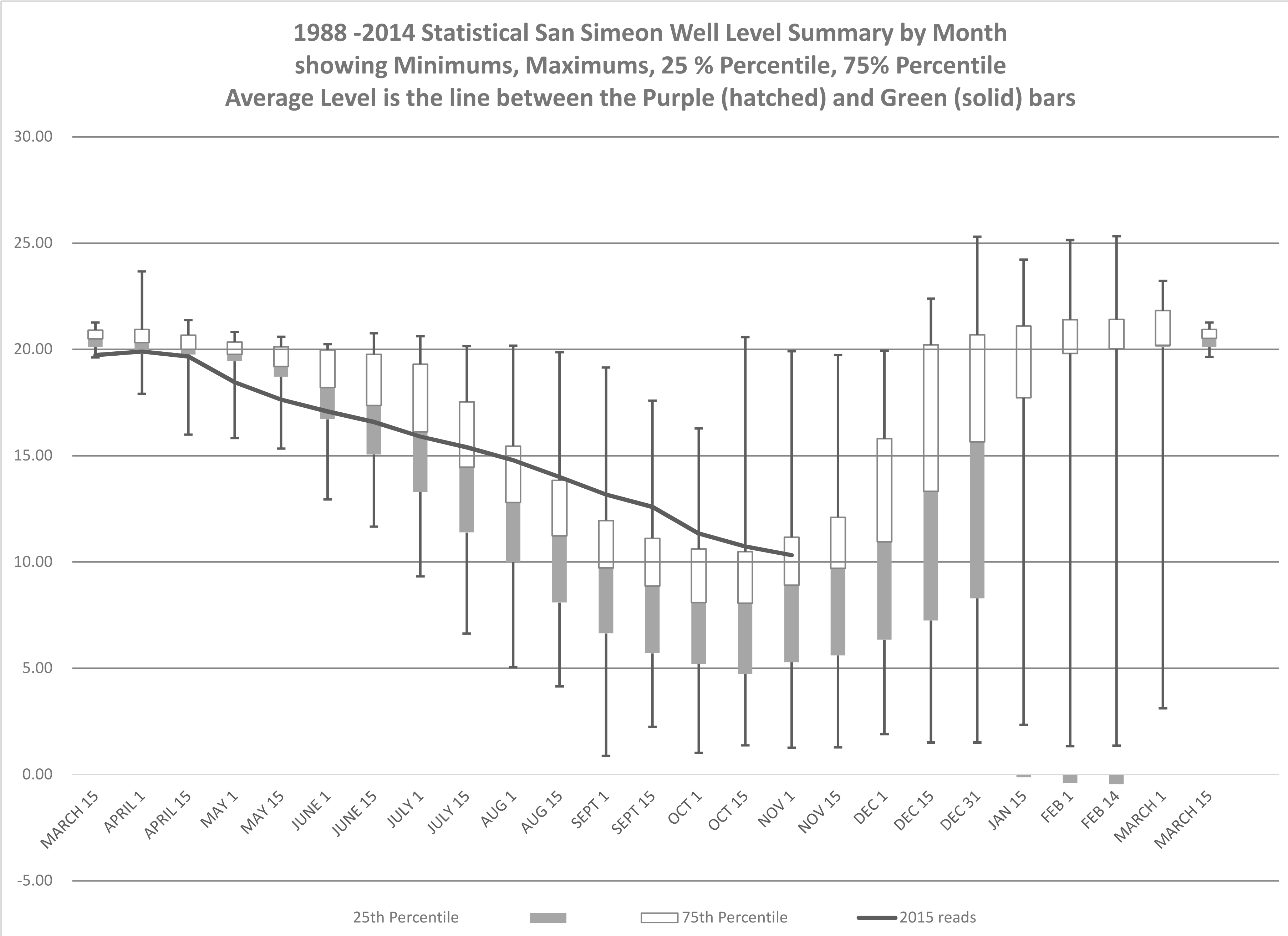
San Simeon Creek Well Levels
Water Year 2015/2016 levels to date and
1988 to Current Min, Max, & Average




San Simeon Creek Well Levels
Last 5 years
March, 2010 - Current
2014
2015
2010
2011
2012
2013
24.00
22.00
20.00
18.00
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Elevation above Sea Level (Feet)
15
Apr
15
May
15
June
15
July
15
Aug
15
Sept
15
Oct
15
Nov
15
Dec
15
Jan
15
Feb
15
Mar
15
Month

San Simeon Creek Well Levels
1988 - Current




1988 -2014 Statistical San Simeon Well Level Summary by Month
showing Minimums, Maximums, 25 % Percentile, 75% Percentile
Average Level is the line between the Purple (hatched) and Green (solid) bars
30.00
25.00
20.00
15.00
10.00
5.00
0.00
-5.00
MARCH 15
APRIL 1
APRIL 15
MAY 1
MAY 15
JUNE 1
JUNE 15
JULY 1
JULY 15
AUG 1
AUG 15
SEPT 1
SEPT 15
OCT 1
OCT 15
NOV 1
NOV 15
DEC 1
DEC 15
DEC 31
JAN 15
FEB 1
FEB 14
MARCH 1
MARCH 15
25th Percentile
75th Percentile
2015 reads

Appendix D

Section 18 – Proposed Monitoring and Reporting Program of the Operations, Maintenance, and Monitoring Program for the Cambria Emergency Water Supply Program

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Operations, Maintenance and Monitoring Plan for the Cambria Emergency Water Supply Project

REVISED FINAL

Prepared for:

Cambria Community Services District
1316 Tamson Street
Cambria, California 93428

**CDM Smith Project No.
138760-104133**

January 6, 2015

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Section 18

PROPOSED MONITORING AND REPORTING PROGRAM

18.1 AWTP Monitoring

18.1.1 General Monitoring Provisions

The CCSD will monitor the flow and quality of the following according to the manner and frequency specified in this MRP:

- Influent to the AWTP;
- AWTP product water;
- Receiving groundwater (monitoring well specified in Section 2); and,
- For the production wells nearest to the injection well, as identified in Section 2, the CCSD will review and evaluate the publicly available Title 22 monitoring data.

Monitoring reports will include, but not limited to, the following:

- Analytical results;
- Location of each sampling station where representative samples are obtained, including a map, at a scale of 1 inch equals 1,200 feet or less, that clearly identifies the locations of all injection wells, monitoring wells, and production wells;
- Analytical test methods used and the corresponding minimum reporting levels (MRLs);
- Name(s) of the laboratory, which conducted the analyses;
- Copy of laboratory certifications by the DDW's Environmental Laboratory Accreditation Program (ELAP); and,
- Quality assurance and control information, including documentation of chain of custody.

The CCSD will instruct its laboratories to establish calibration standards so that the MRLs (or its equivalent if there is a different treatment of samples relative to calibration standards) are the lowest calibration standard.

Upon request by the CCSD, the RWQCB, in consultation with the DDW Quality Assurance Program, may establish minimum reporting limits (MRLs), in any of the following situations:

- When the pollutant has no established method under 40 CFR 141,
- When the method under 40 CFR 14,1 in the Code of Federal Regulations, for the pollutant has a MRL higher than the limit specified in the amended WDR/WRR, or

- When the CCSD agrees to use a test method that is more sensitive than those specified in 40 CFR Part 141.

For regulated constituents, the laboratory conducting the analyses will be certified by ELAP or approved by the RWQCB, or the DDW, for a particular pollutant or parameter.

Samples will be analyzed within allowable holding time limits as specified in 40 CFR Part 141. All QA/QC analyses will be run on the same dates that samples are actually analyzed. The CCSD will retain the QA/QC documentation in its files and make available for inspection and/or submit them when requested by the RWQCB, or the DDW. Proper chain of custody procedures will be followed and a copy of this documentation will be submitted with the quarterly report.

For all bacterial analyses, sample dilutions will be performed so the range of values extends from 1 to 800. The detection methods used for each analysis will be reported with the results of the analyses.

Quarterly monitoring for effluent and groundwater will be performed during the months of February, May, August, and November, provided the Emergency Water Supply is in operation or has been operated within the previous two months. Semiannual monitoring for effluent will be performed during the months of February and August. Semiannual monitoring for groundwater will be performed during the months of May and November. Should there be instances when monitoring could not be done during these specified months, the CCSD will conduct the monitoring as soon as it can and state the reason in the monitoring report the reason that the monitoring could not be conducted during the specified month. Results of quarterly analyses will be reported in the quarterly monitoring report following the analysis.

For unregulated chemical analyses, the CCSD will select methods according to the following approach:

- Use drinking water methods, if available,
- Use DDW-recommended methods for unregulated chemicals, if available,
- If there is no DDW-recommended drinking water method for a chemical, and more than a single USEPA-approved method is available, use the most sensitive of the USEPA-approved methods, or
- If there is no USEPA-approved method for a chemical, and more than one method is available from the scientific literature and commercial laboratory, after consultation with DDW, use the most sensitive method.

18.1.2 Influent Monitoring

Influent monitoring will be conducted to determine compliance with water quality conditions and standards and to assess AWTP performance. The date and time of sampling will be reported with the analytical values determined. Sampling of plant influent will only be conducted during weeks, months, or quarters when the facility is operational. **Table 18-1** constitutes the influent monitoring program:

Table 18-1: Influent Monitoring (Order No. R3-2014-0050, Table M-2)

Constituents	Units	Type of Sample	Minimum Frequency of Analysis
Total Flow	mgd	Recorder	Continuous [1]
pH	pH units	Recorder	Continuous
Turbidity	NTU	Recorder	Continuous [1]
Ammonia-N	mg/L	Grab	Weekly
BOD_5	mg/L	24-hour Composite	Weekly
Boron	mg/L	Grab	Weekly
Chloride	mg/L	24-hour Composite	Weekly
Nitrate-N	mg/L	Grab	Weekly
Nitrite-N	mg/L	Grab	Weekly
Nitrate plus Nitrate	mg/L	Grab	Weekly
Sodium	mg/L	24-hour Composite	Weekly
Sulfate	mg/L	Grab	Weekly
Total Suspended Solids	mg/L	24-hour Composite	Weekly
Total Coliform	mg/L	Grab	Weekly
Total Dissolved Solids	mg/L	24-hour Composite	Weekly
Total Kjeldahl Nitrogen-N	mg/L	Grab	Weekly
Total Nitrogen [2]	mg/L	Grab	Weekly
TOC	mg/L	24-hour Composite	Weekly

[1] For those pollutants that are continuously monitored, the CCSD shall report the monthly minimum and maximum, and daily average values.
[2] Total Nitrogen includes nitrate-N, nitrite-N, ammonia-N, and organic-N.

18.1.3 AWTP Product Water Monitoring

Product water monitoring will be implemented to:

- Determine compliance with conditions contained in Order No. R3-2014-0050;
- Identify operational problems and aid in improving facility performance; and,
- Provide information on product water characteristics and flows for use in interpreting water quality and biological data.

Tables 18-2 through 18-12 constitute the proposed AWTP product water monitoring program, consistent with the GWR Regulations published on June 18, 2014 and the DDW's Recycled Water Policy amended on January 22, 2013. Sampling of plant product water will only be conducted during weeks, months, or quarters when the facility is operational. Some parameters include increased monitoring frequency during the first one or two years of operation.

In keeping with the current practice, product water samples will be collected from the channel downstream of the sodium hypochlorite injection point. Should the need for a change in the sampling station(s) arises in the future, the CCSD will seek approval of the proposed station by the RWQCB Executive Officer prior to use.

Table 18-2: AWTP Product Water Monitoring (Order No. R3-2014-0050, Table M-4)

Constituent/Parameters	Units	Type of Sample	Minimum Frequency of Analysis [1]
Total Recycled Water Flow	mgd	Metered	Continuous
pH	pH units	Metered	Continuous
Turbidity	NTU	Metered	Continuous
Conductivity [2]	mmho/cm	Metered	Continuous
Free residual chlorine	mg/L	Metered	Continuous
Total Coliform	MPN/100 ml	Grab	Daily
TOC	mg/L	Grab	Weekly
Temperature	°C	Metered	Continuous
Total Nitrogen	mg/L	24-hour comp or grab	Twice per week at least 3 days apart [3]
Ammonia-N	mg/L	Grab	Weekly
Nitrate-N	mg/L	Grab	Weekly
Nitrite-N	mg/L	Grab	Weekly
Nitrate plus Nitrate	mg/L	Grab	Weekly
Total Kjeldahl Nitrogen-N	mg/L	Grab	Weekly
Inorganics with primary MCLs [4]	mg/L	Grab	Quarterly
Constituents/parameters with secondary MCL [5]	various	Grab	Quarterly
Radioactivity [6],[14]	pci/L	Grab	Monthly for first 12 consecutive months
Regulated organic chemicals [7],[14]	µg/L	Grab	Monthly for first 12 consecutive months
Disinfection byproducts [8],[14]	µg/L	Grab	Monthly for first 12 consecutive months
General physical [9]	various	Grab	Quarterly
General minerals [9]	µg/L	Grab	Quarterly
Constituents with Notification Levels [10],[14]	µg/L	Grab	Monthly for first 12 consecutive months
Remaining priority pollutants [11]	µg/L	Grab	Annually
Constituents of Emerging Concerns (CECs) [12]	ng/L	Grab	Varies
Surrogates [13]	Varies	Varies	Varies

[1] For those pollutants that are continuously monitored, the CCSD shall report the monthly minimum and maximum, and daily average values.
[2] Monitor the effluent of each RO unit (Stage 1 and 2) and the third stage RO unit (Stage 3). Report the average and maximum conductivity from the effluent of each unit daily.
[3] If no problem is detected, analysis of nitrogen can be reduced to weekly after 12 months of data collection.
[4] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-3 (Order No. R3-2014-0050, Table M-5).
[5] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-4 (Order No. R3-2014-0050, Table M-6).
[6] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-5 (Order No. R3-2014-0050, Table M-7).
[7] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-6 (Order No. R3-2014-0050, Table M-8).
[8] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-7 (Order No. R3-2014-0050, Table M-9).
[9] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-8 (Order No. R3-2014-0050, Table M-10).
[10] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-9 (Order No. R3-2014-0050, Table M-11).
[11] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-10 (Order No. R3-2014-0050, Table M-12).
[12] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-11 (Order No. R3-2014-0050, Table M-13).
[13] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-12 (Order No. R3-2014-0050, Table M-14).
[14] Each month, the CCSD shall collect samples (grab or composite) representative of the effluent of the advanced treatment process and have the samples analyzed for contaminants having MCLs and notification levels (NLs). After 12 consecutive months with no results exceeding an MCL or NL, the CCSD may apply for a reduced monitoring frequency. The reduced monitoring frequency shall be no less than quarterly. The effluent of the advanced treatment process shall not exceed an MCL or NL.

Table 18-3: Inorganics with Primary MCLs (Order No. R3-2014-0050, Table M-5)

Constituents		
Aluminum	Beryllium	Nickel
Antimony	Cadmium	Nitrite (as nitrogen)
Arsenic	Chromium	Selenium
Asbestos	Cyanide	Thallium
Barium	Mercury	Fluoride

Type of Sample: Grab
Monitoring Frequency: Quarterly

Table 18-4: Constituents/parameters with secondary MCL (Order No. R3-2014-0050, Table M-6)

Constituents		
Aluminum	Iron	Silver
Copper	Manganese	Thiobencarb
Corrosivity	Methyl-tert-butyl-ether (MTBE)	Turbidity
Foam Agents (MBAS)	Odor - Threshold	Zinc

Type of Sample: Grab
Monitoring Frequency: Quarterly

Table 18-5: Radioactivity (Order No. R3-2014-0050, Table M-7)

Constituent		
Gross Alpha Particle Activity (Including Radium-226 but Excluding Radon and Uranium)	Combined Radium-226 and Radium-228	Tritium
Gross Beta Particle Activity	Strontium-90	Uranium

Type of Sample: Grab
Monitoring Frequency: Monthly. Each month, the CCSD shall collect samples (grab) representative of the effluent of the advanced treatment process and have the samples analyzed for contaminants having MCLs and notification levels (NLs). After 12 consecutive months with no results exceeding an MCL or NL, the CCSD may apply for a reduced monitoring frequency. The reduced monitoring frequency shall be no less than quarterly. The effluent of the advanced treatment process shall not exceed an MCL or NL.

Table 18-6: Regulated Organics (Order No. R3-2014-0050, Table M-8)

Constituents		
(a) Volatile Organic Chemicals	1,1,1-Trichloroethane	Endothall
Benzene	1,1,2-Trichloroethane	Endrin
Carbon Tetrachloride (CTC)	Trichloroethylene (TCE)	Ethylene Dibromide (EDB)
1,2-Dichlorobenzene	Trichlorofluoromethane	Glyphosate
1,4-Dichlorobenzene	1,1,2-Trichloro-1,2,2-Trifluoroethane	Heptachlor
1,1-Dichloroethane	Vinyl Chloride	Heptachlor Epoxide
1,2-Dichloroethane (1,2-DCA)	Xylenes (m,p)	Hexachlorobenzene
1,1-Dichloroethene (1,1-DCE)	**(b) Non-Volatile synthetic Organic Constituents**	Hexachlorocyclopentadiene
Cis-1,2-Dichloroethylene	Alachlor	Lindane
Trans-1,2-Dichloroethylene	Atrazine	Methoxychlor
Dichloromethane	Bentazon	Molinate
1,2-Dichloropropane	Benzo(a)pyrene	Oxamyl
1,3-Dichloropropene	Carbofuran	Pentachlorophenol
Ethylbenzene	Chlordane	Picloram

Table 18-6: Regulated Organics (Order No. R3-2014-0050, Table M-8)

Constituents		
Methyl-tert-butyl-ether (MTBE)	2,4-D	Polychlorinated Biphenyls
Monochlorobenzene	Dalapon	Simazine
Styrene	1,2-Dibromo-3-chloropropane (DBCP)	Thiobencarb
1,1,2,2-Tetrachloroethane	Di(2-ethylhexyl)adipate	Toxaphene
Tetrachloroethylene (PCE)	Di(2-ethylhexyl)phthalate	2,3,7,8-TCDD (Dioxin)
Toluene	Dinoseb	2,4,5-TP (Silvex)
1,2,4-Trichlorobenzene	Diquat	

Type of Sample: 24-hour Composite
Monitoring Frequency: Monthly. Each month, the CCSD shall collect samples (24-hour composite) representative of the effluent of the advanced treatment process and have the samples analyzed for contaminants having MCLs and notification levels (NLs). After 12 consecutive months with no results exceeding an MCL or NL, the CCSD may apply for a reduced monitoring frequency. The reduced monitoring frequency shall be no less than quarterly. The effluent of the advanced treatment process shall not exceed an MCL or NL.

Table 18-7: Disinfection Byproducts (Order No. R3-2014-0050, Table M-9)

Constituent		
Total Trihalomethanes (TTHM)	Haloacetic acid (five) (HAA5)	Bromate
Bromodichloromethane	Monochloroacetic acid	Chlorite
Bromoform	Dichloroacetic acid	
Chloroform	Trichloroacetic acid	
Dibromochloromethane	Monobromoacetic acid	
	Dibromoacetic acid	

Type of Sample: 24-hour Composite
Monitoring Frequency: Monthly. Each month, the CCSD shall collect samples (24-hour composite) representative of the effluent of the advanced treatment process and have the samples analyzed for contaminants having MCLs and notification levels (NLs). After 12 consecutive months with no results exceeding an MCL or NL, the CCSD may apply for a reduced monitoring frequency. The reduced monitoring frequency shall be no less than quarterly. The effluent of the advanced treatment process shall not exceed an MCL or NL.

Table 18-8: General Physical and General Minerals (Order No. R3-2014-0050, Table M-10)

Constituents		
Asbestos	Potassium	Foaming Agents
Calcium	Sodium	Odor
Chloride	Sulfate	Specific Conductance
Copper	Zinc	Total Dissolved Solids
Iron	Color	Total Hardness
Manganese	Corrosivity	

Type of Sample: Grab.
Monitoring Frequency: Quarterly

Table 18-9: Constituents with Notification Levels (Order No. R3-2014-0050, Table M-11)

Constituents	Units	Type of Sample	Minimum Frequency of Analysis [1]
Boron	µg/L	Grab	Quarterly
n-Butylbenzene	µg/L	Grab	Annually
sec-Butylbenzene	µg/L	Grab	Annually
tert-Butylbenzene	µg/L	Grab	Annually
Carbon disulfide	µg/L	Grab	Quarterly

Table 18-9: Constituents with Notification Levels (Order No. R3-2014-0050, Table M-11)

Constituents	Units	Type of Sample	Minimum Frequency of Analysis [1]
Chlorate	µg/L	Grab	Quarterly
2-Chlorotoluene	µg/L	Grab	Annually
4-Chlorotoluene	µg/L	Grab	Annually
Diazinon	µg/L	Grab	Annually
Dichlorodifluoromethane (Freon 12)	µg/L	Grab	Annually
1,4-Dioxane	µg/L	Grab	Quarterly
Ethylene glycol	µg/L	Grab	Annually
Formaldehyde	µg/L	Grab	Annually
HMX	µg/L	Grab	Annually
Isopropylbenzene	µg/L	Grab	Annually
Manganese	µg/L	Grab	Quarterly
Methyl isobutyl ketone (MIBK)	µg/L	Grab	Annually
Naphthalene	µg/L	Grab	Annually
n-Nitrosodiethyamine (NDEA)	µg/L	Grab	Annually
n-Nitrosodimethylamine (NDMA)	µg/L	Grab	Quarterly
n-Nitrosodi-n-propylamine (NDPA)	µg/L	Grab	Annually
Propachlor	µg/L	Grab	Annually
n-Propylbenzene	µg/L	Grab	Annually
RDX	µg/L	Grab	Annually
Tertiary butyl alcohol (TBA)	µg/L	Grab	Quarterly
1,2,3-Trichloropropane (1,2,3-TCP)	µg/L	Grab	Annually
1,2,4-Trimethylbenzene	µg/L	Grab	Annually
1,3,5-Trimethylbenzene	µg/L	Grab	Annually
2,4,6-Trinitrotoluene (TNT)	µg/L	Grab	Annually
Vanadium	µg/L	Grab	Annually

[1] Monitoring Frequency: Monthly. Each month, the CCSD shall collect samples (24-hour composite) representative of the effluent of the advanced treatment process and have the samples analyzed for contaminants having MCLs and notification levels (NLs). After 12 consecutive months with no results exceeding an MCL or NL, the CCSD may apply for a reduced monitoring frequency. The reduced monitoring frequency shall be no less than quarterly. The effluent of the advanced treatment process shall not exceed an MCL or NL.

Table 18-10: Remaining Priority Pollutants (Order No. R3-2014-0050, Table M-12)

Constituents		
Pesticides	**Metals**	Di-n-butyl phthalate
Aldrin	Chromium III	Di-n-octyl phthalate
Dieldrin	Chromium VI	Diethyl phthalate
4,4'-DDT	**Base/Neutral Extractibles**	Dimethyl phthalate
4,4'-DDE	Acenaphthene	Benzo(a)anthracene
4,4'-DDD	Benzidine	Benzo(a)fluoranthene
Alpha-endosulfan	Hexachloroethane	Benzo(k)fluoranthene
Beta-endosulfan	Bis(2-chloroethyl)ether	Chrysene
Endosulfan sulfate	2-chloronaphthalene	Acenaphthylene
Endrin aldehyde	1,3-dichlorobenzene	Anthracene
Alpha-BHC	3,3'-dichlorobenzidine	1,12-benzoperylene
Beta-BHC	2,4-dinitrotoluene	Fluorene

Table 18-10: Remaining Priority Pollutants (Order No. R3-2014-0050, Table M-12)

Constituents		
Delta-BHC	2,6-dinitrotoluene	Phenanthrene
Acid Extractibles	1,2-diphenylhydrazine	1,2,5,6-dibenzanthracene
2,4,6-trichlorophenol	Fluoranthene	Indeno(1,2,3-cd)pyrene
P-chloro-m-cresol	4-chlorophenyl phenyl ether	Pyrene
2-chlorophenol	4-bromophenyl phenyl ether	**Volatile Organics**
2,4-dichlorophenol	Bis(2-chloroisopropyl)ether	Acrolein
2,4-dimethylphenol	Bis(2-chloroethoxyl)methane	Acrylonitrile
2-nitrophenol	Hexachlorobutadiene	Chlorobenzene
4-nitrophenol	Isophorone	Chloroethane
2,4-dinitrophenol	Nitrobenzene	1,1-dichloroethylene
4,6-dinitro-o-cresol	N-nitrosodiphenylamine	Methyl chloride
Phenol	Bis(2-ethylhexyl)phthalate	Methyl bromide
	Butyl benzyl phthalate	2-chloroethyl vinyl ether

Type of Sample: Grab
Monitoring Frequency: Annually

Table 18-11: Constituents of Emerging Concern (Order No. R3-2014-0050, Table M-13)

Constituents	Relevance/ Indicator Type	Type of Sample	Minimum Frequency of Analysis	Reporting Limit (µg/L)	Monitoring Locations [1]	
					Prior to RO	Following Treatment Prior to Well Injection
17β-estradiol	Health	Grab	Annually	0.001		X
Caffeine	Health & Performance	Grab	Annually	0.05	X	X
NDMA	Health & Performance	Grab	Quarterly	0.002	X	X
Triclosan	Health	Grab	Annually	0.05	X	X
DEET	Performance	Grab	Annually	0.05	X	X
Sucralose	Performance	Grab	Quarterly	0.1	X	X

[1] The January 22, 2013 Recycled Water Policy Attachment A makes a distinction between health-based and performance-based CEC indicators for purposes of monitoring locations. For subsurface applications, the health-based CECs are 17β-estradiol, caffeine, NDMA, and triclosan, with monitoring required for final recycled water only. The health-based and performance-based CECs are caffeine, NDMA, DEET, and sucralose, with monitoring required prior to Reverse Osmosis and post- treatment prior to release to the aquifer. Caffeine and NDMA serve both as health-based and performance based indicators

Table 18-12: Surrogates (Order No. R3-2014-0050, Table M-14)

Constituents	Type of Sample	Minimum Frequency of Analysis	Monitoring Locations	
			Prior to RO	Following Treatment Prior to Well Injection
Electrical Conductivity	Online	Continuous [1]		X
TOC	24-hour Composite	Weekly	X	X

[1] Since monitoring will be continuous using online analyzers, monthly averages for each monitoring location shall be reported in the quarterly compliance monitoring reports.

18.1.4 Groundwater Monitoring

Groundwater monitoring will be done to assess any impacts from the recharge of AWTP product water. The proposed groundwater monitoring program will be developed at a later date through discussions between the CCSD, the DDW, and the RWQCB. **Tables 18-13 through 18-15** includes a preliminary framework for groundwater monitoring.

If any of the monitoring results indicates that an MCL has been exceeded or that coliforms are present as a result of the AWTP water injected into the aquifer, the CCSD will notify the DDW within 72 hours of receiving the results and make note of any positive finding in the next monitoring report submitted to the RWQCB. Sampling of monitoring wells MIW-1 and SS-3 will only be conducted during weeks, months, or quarters when the facility is operational or within two months of when the facility was last operational.

The salinity of the groundwater extracted from Wells SS-1 and SS-2 will be monitored to determine the impacts of operating the AWTP and associated wells on the groundwater quality. If significant increases in salinity are observed (greater than 10 percent increase above historic levels), Well 9P7 pumping will be reduced.

Table 18-13: Groundwater Monitoring (Order No. R3-2014-0050, Table M-16)

Constituents/Parameters	Units	Type of Sample	Minimum Frequency of Analysis
Water level elevation [1]	feet	---	Quarterly
Chlorine residual	mg/L	Grab	Quarterly
Chloride	mg/L	Grab	Quarterly
Nitrate-N	mg/L	Grab	Quarterly
Nitrite-N	mg/L	Grab	Quarterly
Nitrate plus Nitrite	mg/L	Grab	Quarterly
pH	pH units	Grab	Quarterly
Sodium	mg/L	Grab	Quarterly
Sulfate	mg/L	Grab	Quarterly
TOC	mg/L	Grab	Quarterly
Total coliform	MPN/100ml	Grab	Quarterly
BOD_5 20 °C	mg/L	Grab	Semiannually
Oil and Grease	mg/L	Grab	Quarterly
Total Nitrogen	mg/L	Grab	Quarterly
Total Suspended Solids	mg/L	Grab	Semiannually
Turbidity	NTU	Grab	Quarterly
Inorganics with primary MCLs [2]	µg/L	Grab	Quarterly
Constituents/parameters with secondary MCLs [2]	---	Grab	Annually
Fluoride [2]	µg/L	Grab	Quarterly
Radioactivity [2]	pci/L	Grab	Semiannually
Regulated organics [2]	mg/L	Grab	Semiannually
Disinfection byproducts (DBPs) [2]	mg/L	Grab	Semiannually
General physical [3]	various	Grab	Monthly
General minerals [3]	µg/L	Grab	Monthly
Chemicals with NLs [2]	µg/L	Grab	Annually
N-Nitrosopyrrolidine [2]	µg/L	Grab	Annually
Remaining priority pollutants [2]	µg/L	Grab	Annually

[1] Water level elevations shall be measured to the nearest 0.01 feet, and referenced to mean sea level.
[2] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-14 (Order No. R3-2014-0050, Table M-17).
[3] For specific constituents to be monitored and their monitoring frequency, refer to Table 18-15 (Order No. R3-2014-0050, Table M-18).

Table 18-14: Groundwater Monitoring Frequency (Order No. R3-2014-0050, Table M-17)

Constituents	Monitoring Frequency						
	RIW-1	MIW-1	SS1	SS2	SS3	9P7	16D1
Total Suspended Solids (TSS)	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly
Turbidity	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly
Radioactivity							
Gross Alpha Particle Activity (including Radium-226 but excluding radon and uranium)	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Gross Beta Particle Activity	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Radium-226	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Radium-226 & Radium-228 (Combined)	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Radium-228	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Strontium-90	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Tritium	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Uranium	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Organic Chemicals							
(a) Volatile Organic Chemicals							
1,1,1-Trichloroethane	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
1,1,2,2-Tetrachloroethane	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
1,1,2-Trichloro-1,2,2-Trifluoroethane	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
1,1,2-Trichloroethane	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
1,1-Dichloroethane	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
1,1-Dichloroethene (1,1 DCE)	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
1,2,4-Trichlorobenzene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
1,2-Dichlorobenzene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
1,2-Dichloroethane (1,2 DCA)	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
1,2-Dichloropropane	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
1,3-Dichloropropene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
1,4-Dichlorobenzene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Benzene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Carbon Tetrachloride (CTC)	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
cis-1,2-Dichloroethylene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Dichloromethane	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Ethylbenzene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Methyl-tert-butyl-ether (MTBE)	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Monochlorobenzene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Styrene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Tetrachloroethylene (PCE)	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Toluene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
trans-1,2-Dichloroethylene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Trichloroethylene (TCE)	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Trichlorofluoro-methane	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Vinyl Chloride	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Xylenes (m, p)	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly

Table 18-14: Groundwater Monitoring Frequency (Order No. R3-2014-0050, Table M-17)

Constituents	Monitoring Frequency						
	RIW-1	MIW-1	SS1	SS2	SS3	9P7	16D1
(b) non-volatile synthetic organic chemical							
1,2-Dibromo-3-Chloropropane (DBCP)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
2,3,7,8-TCDD (Dioxin)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
2,4,5-TP (Silvex)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
2,4-Dichlorophenoxyacetic acid (2,4-D)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Alachlor	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Atrazine	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Bentazon	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Benzo (a) pyrene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Carbofuran	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Chlordane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Dalapon	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Di (2-ethylhexyl) adipate	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Di (2-ethylhexyl) phthalate	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Annual
Dinoseb	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Diquat	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Endothal	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Endrin	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Ethylene Dibromide (EDB)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Glyphosate	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Heptachlor	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Heptachlor Epoxide	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Hexachlorobenzene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Hexachlorocyclo-pentadiene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Lindane (Gamma BHC)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual

Table 18-14: Groundwater Monitoring Frequency (Order No. R3-2014-0050, Table M-17)

Constituents	Monitoring Frequency						
	RIW-1	MIW-1	SS1	SS2	SS3	9P7	16D1
Methoxychlor	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Molinate	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Oxamyl	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1016	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1221	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1232	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1242	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1248	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1254	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
PCB 1260	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Pentachlorophenol	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Annual
Picloram	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Simazine	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Thiobencarb	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Toxaphene	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Disinfection Byproducts							
Bromate	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Bromodichloro-methane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Bromoform	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Chlorite	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Chloroform	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Dibromoacetic Acid	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Dibromochloro-methane	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Dichloroacetic Acid	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Haloacetic Acid (Five) (HAA5)	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual

Table 18-14: Groundwater Monitoring Frequency (Order No. R3-2014-0050, Table M-17)

Constituents	Monitoring Frequency						
	RIW-1	MIW-1	SS1	SS2	SS3	9P7	16D1
Monobromoacetic Acid	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Monochloroacetic Acid	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Total Trihalomethanes	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Trichloroacetic Acid	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Chemicals with Notification Levels							
1,2,3-Trichloropropane (1,2,3 TCP)	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,2,4-Trimethylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,3,5-Trimethylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,4-Dioxane	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2-Chlorotoluene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,4,6-Trinitrotoluene (TNT)	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4-Chlorotoluene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Boron	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly
Carbon Disulfide	Annual	Annual	Annual	Annual	Annual	Semi Annual	Annual
Chlorate	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Diazinon	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Dichlorodifluoro-methane (Freon 12)	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Ethylene Glycol	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Formaldehyde	Annual	Annual	Annual	Annual	Annual	Annual	Annual
HMX	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Isopropylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Manganese	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual	Semi Annual
Methyl-isobutyl-keytone (MIBK)	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Naphthalene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
n-Butylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
n-Nitrosodiethyl-amine (NDEA)	Annual	Annual	Annual	Annual	Annual	Annual	Annual
n-Nitrosodimethylamine (NDMA)	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly	Qtrly
n-Nitrosodi-n-propylamine (NDPA)	Annual	Annual	Annual	Annual	Annual	Annual	Annual
n-Propylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Propachlor	Annual	Annual	Annual	Annual	Annual	Annual	Annual
RDX	Annual	Annual	Annual	Annual	Annual	Annual	Annual
sec-Butlybenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
tert-Butylbenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Tertiary-butyl-alcohol (TBA)	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Vanadium	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Remaining Priority Pollutants							

Table 18-14: Groundwater Monitoring Frequency (Order No. R3-2014-0050, Table M-17)

Constituents	Monitoring Frequency						
	RIW-1	MIW-1	SS1	SS2	SS3	9P7	16D1
Pesticides							
4,4,4'-DDD	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4,4,4'-DDE	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4,4,4-DDT	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Aldrin	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Alpha BHC	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Alpha Endosulfan	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Beta BHC	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Beta Endosulfan	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Chromium III	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Chromium VI	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Delta BHC	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Dieldrin	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Endosulfan Sulfate	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Endrin Aldehyde	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Acid Extractables							
2,4,6-Trichlorophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,4-Dichlorophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,4-Dimethylphenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,4-Dinitrophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2-Chlorophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2-Nitrophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4,6-Dinitro-o-Cresol (2-Methly-4,6-Dinitrophenol)	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4-Nitrophenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual
p-Chloro-m-Cresol (3-Methyl-4-Chlorophenol)	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Phenol	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Base/Neutral Extractables							
1,12-Benzoperylene ((Benzo(g,h,i)-perylene))	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,2,5,6-Dibenzanthracene ((Dibenzo(a,h) anthracene))	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,2-Diphenylhydrazine	Annual	Annual	Annual	Annual	Annual	Annual	Annual
1,3-Dichlorobenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,4-Dinitrotoluene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2,6-Dinitrotoluene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
2-Chloronaphthalene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
3,3'-Dichlorobenzidine	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4-Bromophenyl phenyl ether	Annual	Annual	Annual	Annual	Annual	Annual	Annual
4-Chlorophenyl phenyl ether	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Acenaphthene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Acenaphthylene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Anthracene	Annual	Annual	Annual	Annual	Annual	Annual	Annual

Table 18-14: Groundwater Monitoring Frequency (Order No. R3-2014-0050, Table M-17)

Constituents	Monitoring Frequency						
	RIW-1	MIW-1	SS1	SS2	SS3	9P7	16D1
Benzidine	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Benzo(a)anthracene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Benzo(b)fluoranthene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Benzo(k)fluoranthene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Bis(2-chloroethoxyl)-methane	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Bis(2-chloroethyl)ether	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Bis(2-chloroisopropyl)ether	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Butyl benzyl phthalate	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Chrysene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Di(2-ethylhexyl) phthalate	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Dimethyl phthalate	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Di-n-butyl phthalate	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Di-n-octyl phthalate	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Fluoranthene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Fluorene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Hexachlorobutadiene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Hexachloroethane	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Indeno(1,2,3-cd) pyrene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Isophorone	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Nitrobenzene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
n-Nitrosodi-n-propylamine	Annual	Annual	Annual	Annual	Annual	Annual	Annual
n-Nitrosodiphenylamine	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Phenanthrene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Pyrene	Annual	Annual	Annual	Annual	Annual	Annual	Annual
Volatile Organics							
1,1-Dichloroethylene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
2-Chloroethyl vinyl ether	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Acrolein	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Acrylonitrile	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Chlorobenzene	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Chloroethane	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Methyl bromide	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly
Methyl chloride	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly	Monthly

Table 18-15: General Physical and General Minerals (Order No. R3-2014-0050, Table M-18)

Constituents		
Asbestos	Potassium	Foaming Agents
Calcium	Sodium	Odor
Chloride	Sulfate	Specific Conductance
Copper	Zinc	Total Dissolved Solids
Iron	Color	Total Hardness
Manganese	Corrosivity	

Type of Sample: Grab.

Monitoring Frequency: Monthly

18.1.5 Evaluation of Pathogenic Microorganism Removal

For the purposes of evaluating the performance of the following treatment facilities/units with regards to pathogenic microorganism removal, the CCSD will include the results of the monitoring specified below in its quarterly compliance monitoring reports:

- WWTP: For the purpose of demonstrating that the log reductions assumed in Section 5 are achieved at the WWTP, the CCSD will report the daily average and maximum turbidity, percent of time more than 5 NTU, and daily coliform results associated with the WWTP.
- MF: For each day of operation, PDT will be performed, and the daily "Pass" or "Fail" results will be reported. Daily average and maximum turbidity will be reported, along with the percent of time more than 0.2 NTU. In addition, the CCSD will report the daily average and maximum turbidity of the MF permeate, along with the percent of time more than 0.2 NTU.
- UV/peroxide: For each day of operation, the CCSD will report the calculated daily peroxide dose (based on the peroxide pump speed and bulk feed concentration) and the applied UV power. For UV, the CCSD will report the UV system dose (expressed as greater than a certain threshold such as 300 mJ/cm^2), UV transmittance (daily minimum, maximum, and average), and UV intensity (daily minimum, maximum, and average).
- Free Chlorine: For each day of operation, the CCSD will report average and minimum free chlorine residual leaving the AWTP, the average and maximum pH, the average and minimum temperature, the minimum travel time to the injection well, the minimum CT achieved, and the maximum CT required for 2-log inactivation of viruses.
- Based on the calculation of log reduction achieved each day by the entire treatment system, the CCSD will report "Yes" or "No" for each day as to whether the necessary log reductions (i.e. 10-logs for *Giardia*, 10-logs for *Cryptosporidium*, and 12-logs for virus) have been attained. An overall log reduction calculation will be provided only for those days when a portion of the treatment system does not achieve the proposed credits.
- The CCSD will immediately notify the DDW and the RWQCB if the AWTP tails to meet the pathogen reduction criteria longer than 4 consecutive hours, or more than a total of 8 hours during any 7-day period.
- If the effectiveness of a treatment train's ability to reduce enteric virus is less than 10-logs, or *Giardia* cyst or *Cryptosporidium* oocyst reduction is less than 8-logs, the CCSD will immediately notify the DDW and the RWQCB, and discontinue delivery of product water to RIW, unless directed otherwise by the DDW or the RWQCB.

18.1.6 Additional RO Monitoring

During initial plant start-up, the CCSD will sample for TDS and conductivity in the feed water, second stage concentrate, primary system permeate (combined first and second stage), and third stage permeate. These samples will be used to develop a correlation between TDS and conductivity for each sample location. During normal plant operation, the CCSD will report the calculated daily average and minimum TDS reduction across each of the primary RO systems and the third stage RO system. TDS reduction will be calculated using measured conductivity values (continuously monitored) and the previously identified correlation factor for each sample location.

During the first twenty weeks of operation, TOC will be measured by grab sample weekly in the combined RO permeate and sent to an outside laboratory for analysis. The CCSD will report the percent of time permeate TOC exceeds the laboratory practical quantitation limit of 0.3 mg/L.

18.1.7 MF Backwash Monitoring

Table 18-16 includes a preliminary framework for monitoring the water quality of MF backwash waste discharge to Percolation Ponds.

Table 18-16: MF Backwash Waste Monitoring (Order No. R3-2014-0050, Table M-3b)

Constituents/Parameters	Units	Type of Sample	Minimum Frequency of Analysis
Total flow	mgd	Metered	Continuous [1]
pH	pH units	Metered	Continuous [1]
Total coliform	MPN/100 ml	Grab	Daily
Ammonia-N	mg/L	grab	Weekly
BOD5	mg/L	24-hour composite	Weekly
Boron	mg/L	grab	Weekly
Chloride	mg/L	24-hour composite	Weekly
Nitrate-N	mg/L	grab	Weekly
Nitrite-N	mg/L	grab	Weekly
Nitrate plus Nitrite	mg/L	grab	Weekly
Sodium	mg/L	24-hour composite	Weekly
Sulfate	mg/L	grab	Weekly
Total Dissolve Solids	mg/L	24-hour composite	Weekly
Total Kjeldahl nitrogen-N	mg/L	grab	Weekly
Total nitrogen [2]	mg/L	grab	Weekly
TOC	mg/L	grab	Weekly
Total Suspended Solids	mg/L	24-hour composite	Weekly
Turbidity	NTU	24-hour composite	Weekly

[1] For those constituents that are continuously monitored, the CCSD shall report the monthly minimum and maximum, and daily average values.
[2] Total Nitrogen includes nitrate-N, nitrite-N, ammonia-N, and organic-N.

18.2 Lagoon Monitoring Plan

This section outlines the planned monitoring and response plan for the San Simeon Creek Lagoon mitigation water supply proposed as a component of the Emergency Water Supply Project. The San Simeon Creek Lagoon is located west of the Project site, at the downstream end of San Simeon Creek. It crosses under SR-1 and spreads onto San Simeon State Beach, providing valuable habitat for fish including federally endangered and state species of special concern tidewater goby, federally threatened and state species of special concern steelhead, and threespine stickleback. The Lagoon is designated as Critical Habitat for tidewater goby and steelhead.

The lagoon is bounded on the western edge by a seasonally closed sand bar along the coastline When closed, the sand bar restricts water from the shore resulting in a freshwater lagoon habitat. The sand bar generally opens in late fall and closes again by mid-spring; while the sand bar is open, oceanic salt water combines with the freshwater of San Simeon Creek to create an estuary. The opening and closing of the sandbar is influenced by rainfall event flows in San Simeon Creek and wave action along the coast. The creek is intermittent in its lower reaches and is generally inundated from late fall to late spring/early summer and dry the rest of the year.

The AWTP has the potential to affect water levels in the lagoon while it is being operated by utilizing groundwater from the aquifer that would otherwise contribute to water flows in San Simeon Creek in the area adjacent to and downstream of the CCSD percolation ponds, and support water levels in the lagoon in dry water years. The magnitude of this potential effect is detailed in the Cambria Emergency Water Supply Project San Simeon Creek Basin Groundwater Modeling Report (GMR) (CDM Smith, May 14, 2014).

Reductions in water levels in the lagoon while water is being pumped from Well 9P7 and treated at the AWTP is in operation could impact the lagoon's freshwater habitat and the fish species that depend on that habitat. To mitigate these potential effects, the EWSP has been designed with a lagoon mitigation water component that would divert 100 gpm of MF filtrate water or a blend of MF filtrate water and product water to the lagoon to maintain water levels at or slightly above baseline conditions. The monitoring and response plans described in this section outlines how the CCSD will implement an adaptive monitoring and response program to track the performance of the lagoon mitigation water supply. In addition to this monitoring and response program, CCSD is developing an Adaptive Management Plan as a part of the CEQA compliance process for the long term operation of the EWSP. It is anticipated that this adaptive management plan will include specific monitoring requirements for species in the lagoon, but the plan will be developed to not conflict with the monitoring or response requirements described in this plan.

18.2.1 Monitoring Plan

The CCSD will monitor the performance of the lagoon mitigation water supply utilizing both real time monitoring of discharge quality and regular in person observations of conditions in the lagoon. **Tables 18-17 and 18-18** include a preliminary framework for monitoring the water quality of lagoon protection water, along with water levels in the lagoon.

The MF filtrate discharge to the lagoon will be monitored consistent with the monitoring requirements presented in Table M-3a of the Monitoring and Reporting Program Order NO. R3-2014-0050 (See **Table 18-17**). Monitoring of the MF filtrate discharge water quality will be completed during start-up of the AWTP, prior to any discharge of the lagoon mitigation supply, to verify that constituent levels do not exceed provisions established for discharge by the Low Threat to Water Quality, National Pollutant Discharge Elimination System General Permit No. CAG993001, Waste Discharge Requirements Order No. R3-2011-0223 (Low Threat General Permit).

Table 18-17: Membrane Filtrate Discharge Monitoring (Order No. R3-2014-0050, Table M-3a)

Constituents/Parameters	Units	Type of Sample	Minimum Frequency of Analysis
Total Flow	mgd	Metered	Continuous [1]

Table 18-17: Membrane Filtrate Discharge Monitoring (Order No. R3-2014-0050, Table M-3a)

Constituents/Parameters	Units	Type of Sample	Minimum Frequency of Analysis
pH	pH units	Metered	Continuous [1]
Turbidity	NTU	Metered	Continuous [1]
Total Coliform	MPN/100 mL	Grab	Daily
Ammonia-N	mg/L	grab	Weekly
BOD5	mg/L	24-hour composite	Weekly
Boron	mg/L	grab	Weekly
Chloride	mg/L	24-hour composite	Weekly
Nitrate-N	mg/L	grab	Weekly
Nitrite-N	mg/L	grab	Weekly
Nitrate plus Nitrite	mg/L	grab	Weekly
Sodium	mg/L	24-hour composite	Weekly
Sulfate	mg/L	grab	Weekly
Total Dissolve Solids	mg/L	24-hour composite	Weekly
Total Kjeldahl Nitrogen-N	mg/L	grab	Weekly
Total Nitrogen [2]	mg/L	grab	Weekly
TOC	mg/L	grab	Weekly
Total Suspended Solids	mg/L	24-hour composite	Weekly

[1] For those constituents that are continuously monitored, the CCSD shall report the monthly minimum and maximum, and daily average values.
[2] Total Nitrogen includes nitrate-N, nitrite-N, ammonia-N, and organic-N.

Table 18-18: Lagoon Monitoring

Constituents/Parameters	Units	Type of Sample	Minimum Frequency of Analysis
Erosion at Discharge Site		Visual/Photo Observation	Weekly
Lagoon Water Levels	Ft (msl)	Visual/Photo Observation	Weekly
Groundwater Level Monitoring	Ft (bgs)	Hand probe	Weekly

Weekly water level monitoring will be completed at the lagoon by the CCSD staff during operation of the AWTP and for one month following shutdown of the plant for the first two seasons of operation in consultation with the RWQCB. It is assumed that following the first two seasons of operation this monitoring plan will be revisited with the RWQCB Staff to compare observed levels against projected levels and determine the need for any additional monitoring. Until a revised monitoring is approved by the RWQCB, lagoon level monitoring will continue as described above.

The lagoon water level monitoring will be completed by visual inspection of a staff gauge that will be installed on the San Simeon Creek Trail Bridge crossing San Simeon Creek to identify any changes in water levels in the lagoon not forecast in the groundwater and lagoon modeling completed during project design and included in the Title 22 Engineering Report. This visual inspection will be recorded in both monitoring logs and with photos that will be shared with the RWQCB upon request. In addition to the lagoon water level monitoring, groundwater levels adjacent to the lagoon will be monitored utilizing either Well 16D1 or a new monitoring well developed up gradient of the lagoon discharge point.

In addition to the weekly water level monitoring, the CCSD staff will inspect the lagoon mitigation supply discharge site for any evidence of scour or erosion into the lagoon.

18.2.2 Response Plan

The monitoring approach listed above will be used to identify any changes in the quality of the mitigation water and water levels in the lagoon during operation of the AWTP to identify any need for implementation of the response plan. The lagoon mitigation water system has been designed to allow for some flexibility in the both the volume of water and the level of treatment completed on the water delivered to the lagoon.

In response to changes in conductivity/TDS levels in the mitigation supply delivered to the lagoon measured continuously at the AWTP or any observed changes in the other constituents monitored as required under Tables M-2 and M-3a of the Monitoring and Reporting Program Order NO. R3-2014-0050, a portion of the 100 gpm of mitigation water can be shifted from the MF filtrate supply to include product water that has received full RO treatment. Water quality issues that cannot be addressed through blending of MF filtrate supply and RO product water will result in the shutoff of the lagoon mitigation discharge by AWTP operators. The RWQCB will be notified within 48 hours of any shutdown of this discharge during operation of the AWTP.

Water levels observed in the lagoon during the weekly sampling efforts that correspond with drops in groundwater levels observed in either Well 16D1 or a new monitoring well developed up gradient of the lagoon discharge point will trigger an evaluation of the performance of the lagoon mitigation supply in coordination with the RWQCB staff. If the evaluation indicates that pumping in support of the AWTP is resulting in lowered lagoon water levels, changes in groundwater pumping rates at well 9P7 or increases in flow rates in the lagoon mitigation supply will be implemented.

The mitigation supply system has been designed to allow for the delivery of up to 150 gpm to the lagoon or alternately depending on groundwater level conditions on site pumping rates from well 9P7 could be reduced. The decision on how best to address changes in lagoon water levels observed utilizing this monitoring protocol that are different from the conditions forecast during design of the Emergency Water Supply Project will be made by the AWTP operators.

Any erosion or scour observed by the CCSD staff during the weekly visual inspection of the discharge site will be addressed by either adjustment to or placement of additional rip rap below the discharge pipe.

18.3 Reporting

The CCSD will submit the required reports outlined in the following paragraphs to the SWRCB's Geotracker database (in Electronic Data Format[1]) and to the Division of Drinking Water (DDW), Drinking Water Field Operations, by the dates indicated.

All reports to the SWRCB's Geotracker will reference the Order No. R3-2014-0050. Compliance monitoring reports will be submitted separately from other technical reports.

[1] For help with EDF go to http://www.waterboards.ca.gov/ust/electronic_submittal/

All reports will be submitted as a pdf file and uploaded electronically to the SWRCB's Geotracker and provided via email to the DDW (if the file exceeds 10 MB, either a CD containing the file will be mailed to DDW, or a link for downloading an electronic copy of the file will be provided). Upon request the data will be provided in excel format.

By the reporting due dates specified in Table 18-1 (Order No. R3-2014-0050, Table M-1), groundwater data will be uploaded electronically to the SWRCB's Geotracker in an electronic deliverable format specified by the SWRCB[2]. Upon request the data will be provided in excel format.

18.3.1 Startup 30 day report

The Discharger must evaluate and field validate the operating assumptions for the AWTP (quality of: water supply, membrane filter backwash discharge, membrane filtrate discharge, reverse osmosis product water re-injection, and lagoon condition) and compare the pre-project assumptions to documented operating data. The Discharger must submit a report detailing differences between documented operating values and assumed concentrations/conditions. The report must be submitted within 10 days following the first 30 days of AWTP operation.

18.3.2 Monthly Reports

Consistent with section III. REPORTING REQUIREMENTS, monthly reports for monitoring and reporting requirements included in the Operations Maintenance and Monitoring Plan will be submitted by the 15th day of each month following the first monthly monitoring period.

18.3.3 Quarterly Monitoring

Quarterly Monitoring Reports will be submitted by the 15th day of the second month following the end of each quarterly monitoring period according to **Table 18-19** (Order No. R3-2014-0050, Table M-1).

Table 18-19: Quarterly Report Periods and Due Dates (Order No. R3-2014-0050, Table M-1)

Reporting Period	Report Due
January – March	May 15
April – June	August 15
July – September	November 15
October - December	February 15

The contents of the Geotracker Quarterly Monitoring Report will include a one-page summary of operational concerns that addresses changes in reporting conditions, including influent, recycled water, and groundwater monitoring results, since the last report.

[2] http://www.waterboards.ca.gov/ust/electronic_submittal/

18.3.4 Annual Summary

The Annual Summary Report will be submitted by April 15 of each year. This Annual Summary Report will contain a discussion of the previous calendar year's analytical results, as well as graphical and tabular summaries of the monitoring analytical data.

Public water systems and owners of small water systems and other active production wells having downgradient sources potentially affected by the CCSD groundwater injection project or within 10 years groundwater travel time from the CCSD groundwater injection project will be notified by direct mail and/or electronic mail of the availability of the annual report.

18.3.5 Operation Plan Revisions

After six months of operation of the Plant, the OMMP will be updated as necessary and submitted to the RWQCB and the DDW for review and approval.

During the first year of operation of the Cambria AWTP, all treatment processes will be operated in a manner to provide optimal reduction of microbial, regulated and nonregulated contaminants. Based on this experience and anytime operational changes are made, the OMMP will be updated.

Significant changes in the operation of any of the treatment processes will be reported to the DDW and the RWQCB. Significant changes in the approved OMMP must be approved by the DDW and the RWQCB prior to instituting changes. The CCSD is responsible for ensuring that the OMMP is, at all times, representative of the current operations, maintenance, and monitoring of the Cambria AWTP.

18.3.6 Five-Year Engineering Report

The CCSD will update the 2013 Title 22 Engineering Report and submit the updated report to the SWRCB's Geotracker and the DDW five years after the startup of the Cambria AWTP, and every five years thereafter.

Appendix E – Adaptive Management Plan





CAMBRIA EMERGENCY WATER SUPPLY PROJECT

San Luis Obispo County, California

Adaptive Management Plan

Prepared For:
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Michael Baker INTERNATIONAL

March 2015
JN: 141290

CAMBRIA EMERGENCY WATER SUPPLY PROJECT

COMMUNITY OF CAMBRIA, SAN LUIS OBISPO COUNTY, CALIFORNIA

Adaptive Management Plan

The undersigned certify that the statements furnished in this report and exhibits present data and information required for this biological evaluation, and the facts, statements, and information presented is a complete and accurate account of the findings and conclusions to the best of our knowledge and beliefs.

Ryan Winkleman
Biologist
Natural Resources

Thomas J. McGill, Ph.D.
Vice President
Natural Resources

March 2015

Table of Contents

EXHIBITS

TABLES

LIST OF ACRONYMS

AMP	Adaptive Management Plan
AWTP	Advanced Water Treatment Plant
BM	Biological Monitor
C	Celsius
CCSD	Cambria Community Services District
CDFW	California Department of Fish and Wildlife
CRAM	California Rapid Assessment Method
DO	Dissolved Oxygen
F	Fahrenheit
gpm	Gallons Per Minute
PHABSIM	Physical Habitat Simulation
ppm	Parts Per Million
ppt	Parts Per Thousand
RBF	RBF Consulting
RIW	Recharge Injection Well
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WUA	Weighted Usable Area

Section 1 Background and Objectives

The Cambria Community Services District (CCSD or the District) proposes to install and operate the Cambria Emergency Water Supply Project to help alleviate an emergency water shortage in the Community of Cambria, San Luis Obispo County, California (Project). The Project would be located on previously-disturbed areas within CCSD's existing San Simeon well field and percolation pond system property. The Project proposes to both utilize existing, as well as construct and operate, the following water facilities: one extraction well (existing Well 9P7); an Advanced Water Treatment Plant (AWTP); a Recharge Injection Well (RIW); an evaporation pond (rehabilitate/modify an existing storage pond); lagoon surface discharge, proposed as mitigation to protect the San Simeon Creek and Lagoon; four monitoring wells; and four pipelines.

1.1 EMERGENCY WATER SUPPLY PROJECT

1.1.1 Project Location

The Project site is generally located east of State Route 1 (SR 1), south of the Community of San Simeon, and north of the Community of Cambria in unincorporated San Luis Obispo County, California (Exhibit 1, *Regional Vicinity Map*). The Project site is located in Sections 9, 16, and 17 of Township 27 South, Range 8 East of the Cambria quadrangle of the United States Geological Survey (USGS) 7.5-minute topographic map series (Exhibit 2, *Local Vicinity Map*). Specifically, the site is east of Van Gordon Creek Road, north of San Simeon Creek, and south of San Simeon-Monterey Creek Road. It is located adjacent to but not within Hearst San Simeon State Park (Exhibit 3, *Project Site Map*).

1.1.2 Project Background

All of Cambria's potable water is supplied by groundwater wells in the San Simeon and Santa Rosa Creek aquifers. The San Simeon and Santa Rosa Creek aquifers are relatively shallow and porous, with the groundwater levels typically recharged every year during the rainy season. Groundwater levels generally exhibit a consistent pattern of high levels during the wet season, steady decline during the dry season, and rapid rise when the wet season resumes. To minimize loss or contamination of potable groundwater at the aquifer and ocean interface, treated wastewater effluent is percolated into the San Simeon Creek aquifer downstream from its production wells. This practice also helps prevent saltwater intrusion into the freshwater water aquifer. If the groundwater level drops too far, treated effluent and seawater could migrate toward the water supply wells, deteriorating the water quality and potentially rendering the freshwater non-potable. The percolation of treated wastewater

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CAMBRIA EMERGENCY WATER SUPPLY PROJECT
ADAPTIVE MANAGEMENT PLAN

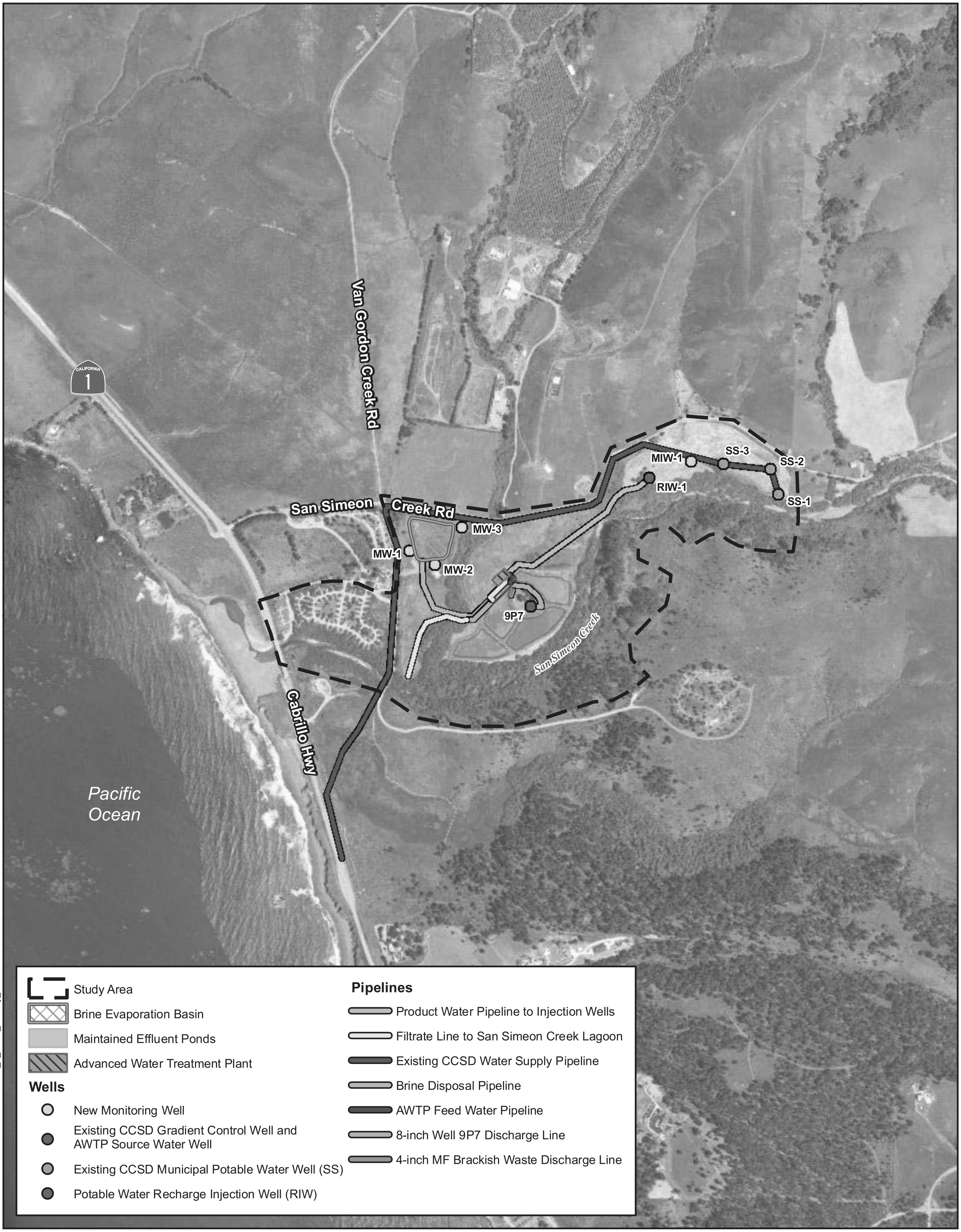
Regional Vicinity Map

Michael Baker
INTERNATIONAL

0 2.5 5 10
Miles

Source: ESRI Relief Map, National Highway Planning Network

Exhibit 1



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CAMBRIA EMERGENCY WATER SUPPLY PROJECT
ADAPTIVE MANAGEMENT PLAN

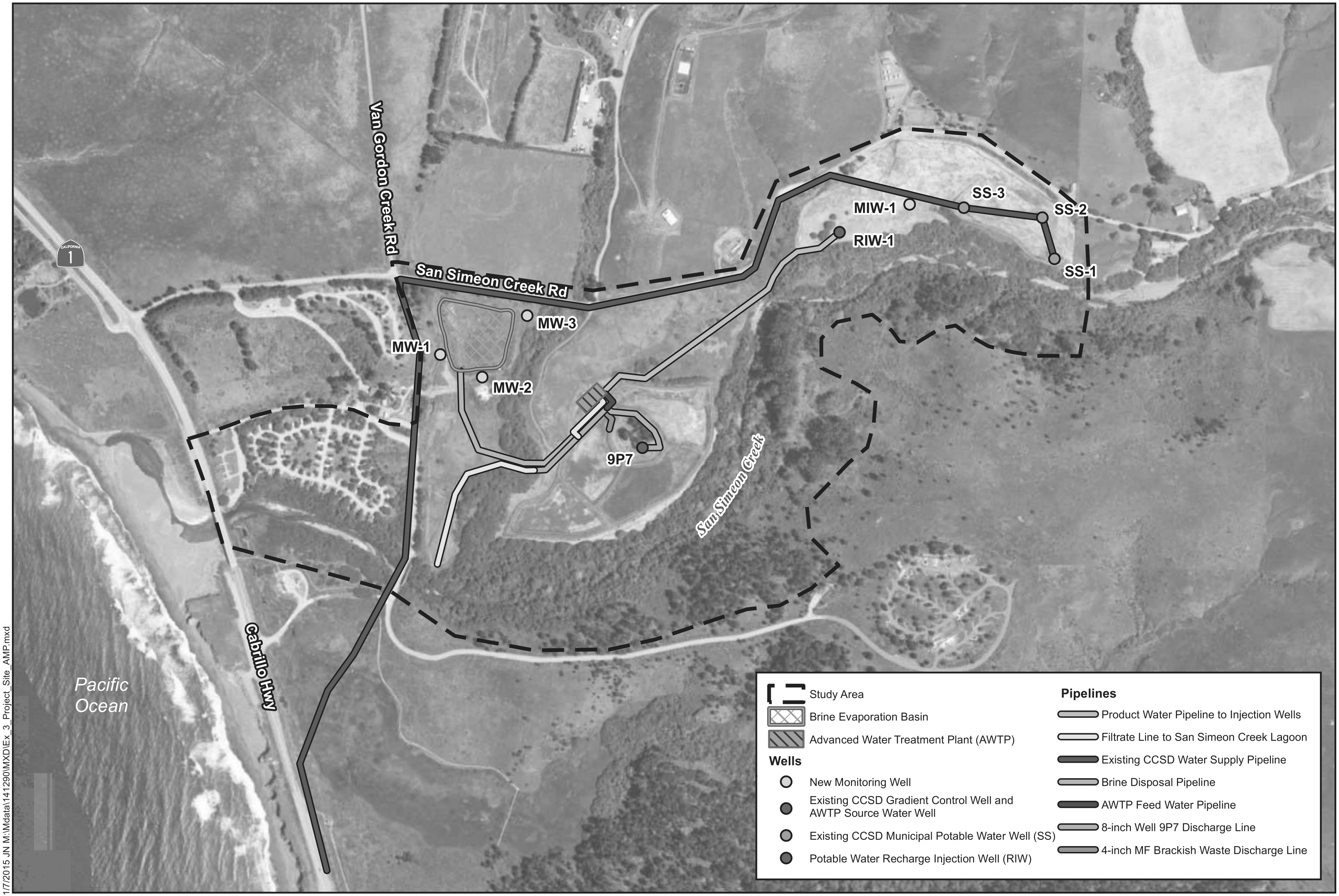
Local Vicinity Map

Michael Baker INTERNATIONAL

0 0.25 0.5 Miles

Source: CDM Smith, ESRI World Topographic Map

Exhibit 2



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Michael Baker INTERNATIONAL

Source: National Hydrography Dataset, CDM Smith, ESRI World Imagery Basemap

CAMBRIA EMERGENCY WATER SUPPLY PROJECT
ADAPTIVE MANAGEMENT PLAN

Project Site Map

Exhibit 3

effluent develops groundwater mounding below the percolation basins, which forms a positive differential between the percolation pond area and the ocean that results in subsurface discharge of fresh water to the ocean. CCSD operations also monitor the groundwater mound throughout the year to maintain a positive differential from CCSD's up-gradient production wells and the down-gradient percolation ponds area. During the summer dry season, and depending upon the prior year's precipitation, the Cambria Community Services District may periodically pump groundwater from its percolation fields in order to maintain this differential. When this occurs, water is lost to the ocean as subsurface underflow and the volume of up-gradient freshwater storage is diminished.

In January 2014, the CCSD declared a Stage 3 water shortage emergency, the most stringent of three levels. In response to this emergency status, the CCSD is constructing the Cambria Emergency Water Supply Project.

1.1.3 Project Description

The Project's source water is the San Simeon Creek aquifer from existing Well 9P7, which is located in the south end of a flat park-like area in the middle of the existing percolation ponds (Refer to Exhibit 3). The extracted groundwater is transferred to an Advanced Water Treatment Plant (AWTP) that treats brackish water to produce potable water. The AWTP consists of multiple unit processes including ultrafiltration membranes, reverse osmosis membrane, advance oxidation, and post-treatment and disinfection facilities. A feed water pipeline transports the brackish water between existing Well 9P7 and the AWTP. To meet California Department of Public Health and Regional Water Quality Control Board regulations, the treated AWTP product water is re-introduced/pumped for injection into the groundwater basin so that it is available in the existing San Simeon well field. To inject the product water into the basin, a new potable water recharge injection well (RIW) is located at the existing potable water well-field, approximately 1,000 feet east of existing potable water Well SS-3. A Project water pipeline transports the product water between the AWTP and RIW well. A separate pipeline from the AWTP to the head of the San Simeon Creek lagoon area provides mitigation water.

The Project's mitigation water flows in a pipeline from the AWTP to an area on CCSD property, which is just upstream from the head of the fresh water lagoon, approximately 1,500 feet southwest of existing Well 9P7. The AWTP generated waste stream (reverse osmosis concentrate) is pumped in a pipeline from the AWTP to an existing holding basin, which has been modified to meet State Title 27 criteria. Both natural and mechanically assisted evaporation of the waste stream occurs within the modified holding basin, which serves as the Project's evaporation pond.

The AWTP is capable of producing an average of 452 gpm of treated water for injection at the District's well field. During facility operations, a maximum of approximately 385 gpm could be extracted for use from CCSD's existing potable wells SS-1 or SS-2. The 452 gpm injection flow may be lower depending upon how much product water is required for blending with the 100 gpm of mitigation water being provided for the San Simeon Creek fresh water lagoon area to meet RWQCB quality criteria. For example, if a 50% blend is required, the 452 gpm would be reduced by 50 gpm. The amount of blending to occur with the mitigation water will be determined as part of the AWTP's commissioning and start-up testing.

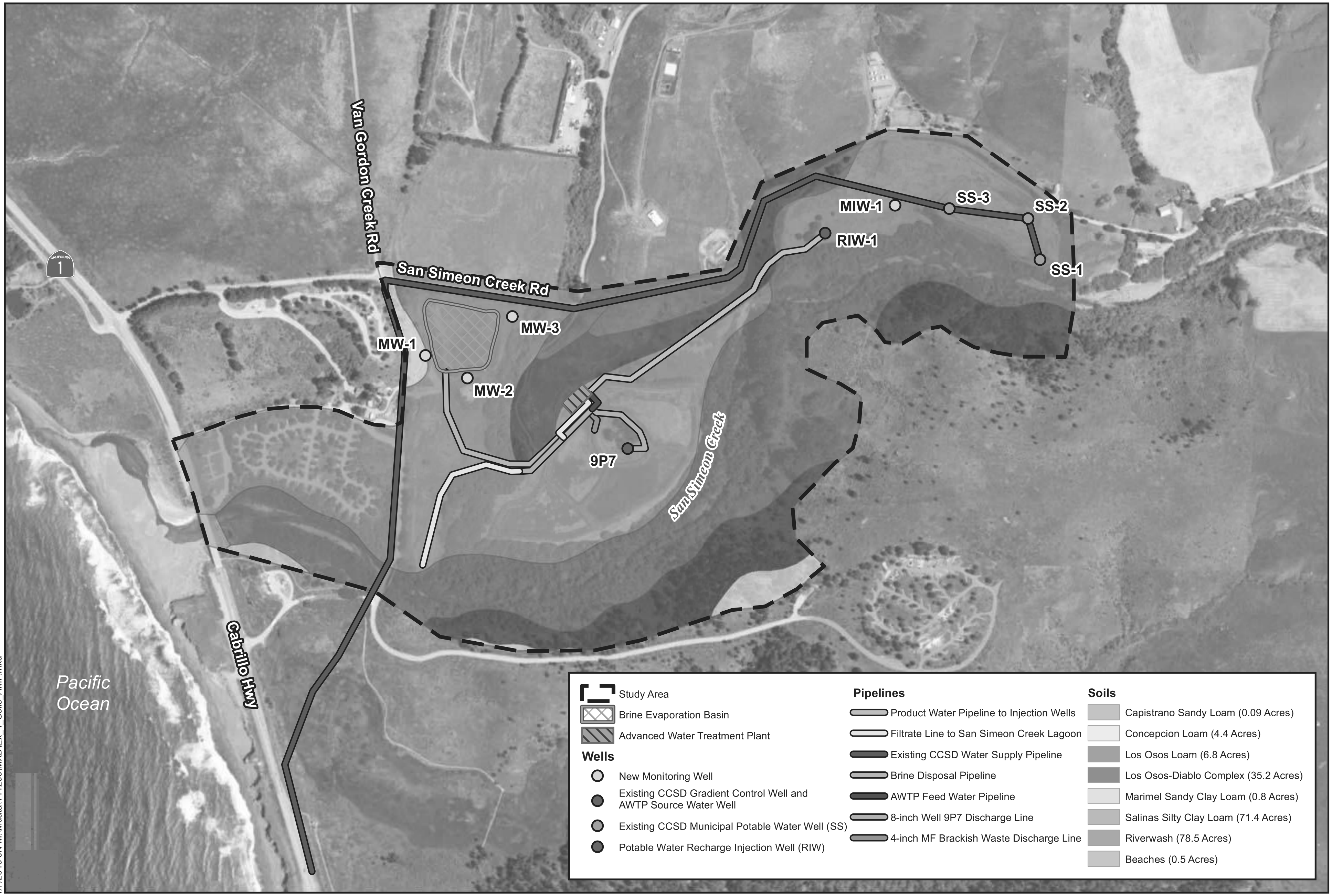
1.2 ENVIRONMENTAL SETTING

1.2.1 Soils

Based on the U.S. Department of Agriculture Soil Survey, the Project site and survey area are underlain by the following soil units (Exhibit 4, *Soils Map*): Beaches, Capistrano sandy loam (rolling), Concepcion loam (5 to 9 percent slopes), Lodo clay loam (5 to 15 percent slopes), Los Osos loam (5 to 9 percent slopes), Los Osos loam (30 to 50 percent slopes), Los Osos-Diablo complex (15 to 30 percent slopes), Marimel sandy-clay loam (occasionally flooded), Riverwash, and Salinas silty clay loam (0 to 2 percent slopes).

1.2.2 Vegetation

Eight (8) plant communities were identified within the survey area during the initial habitat assessment (Exhibit 5, *Vegetation Map*): Central Coast Arroyo Willow Riparian Forest, Monterey Pine Stand/Monterey Pine Forest, Coyote Brush Scrub, California Bulrush Marsh, Annual Grassland, Wild Oats Scrub, Upland Mustards, and Eucalyptus Stand. In addition, areas were identified that would be classified as Landscaped Campground, Percolation Pond, Lagoon/Estuary, Disturbed, and Developed. Table 1 provides the acreage of each plant community or noted feature within the survey area, as well as the percentage that each encompasses within the total survey area. The plant communities are described in further detail below.



1/7/2015 JN M:\Mdata\141290\MXD\Ex_4_Soils_AMP.mxd

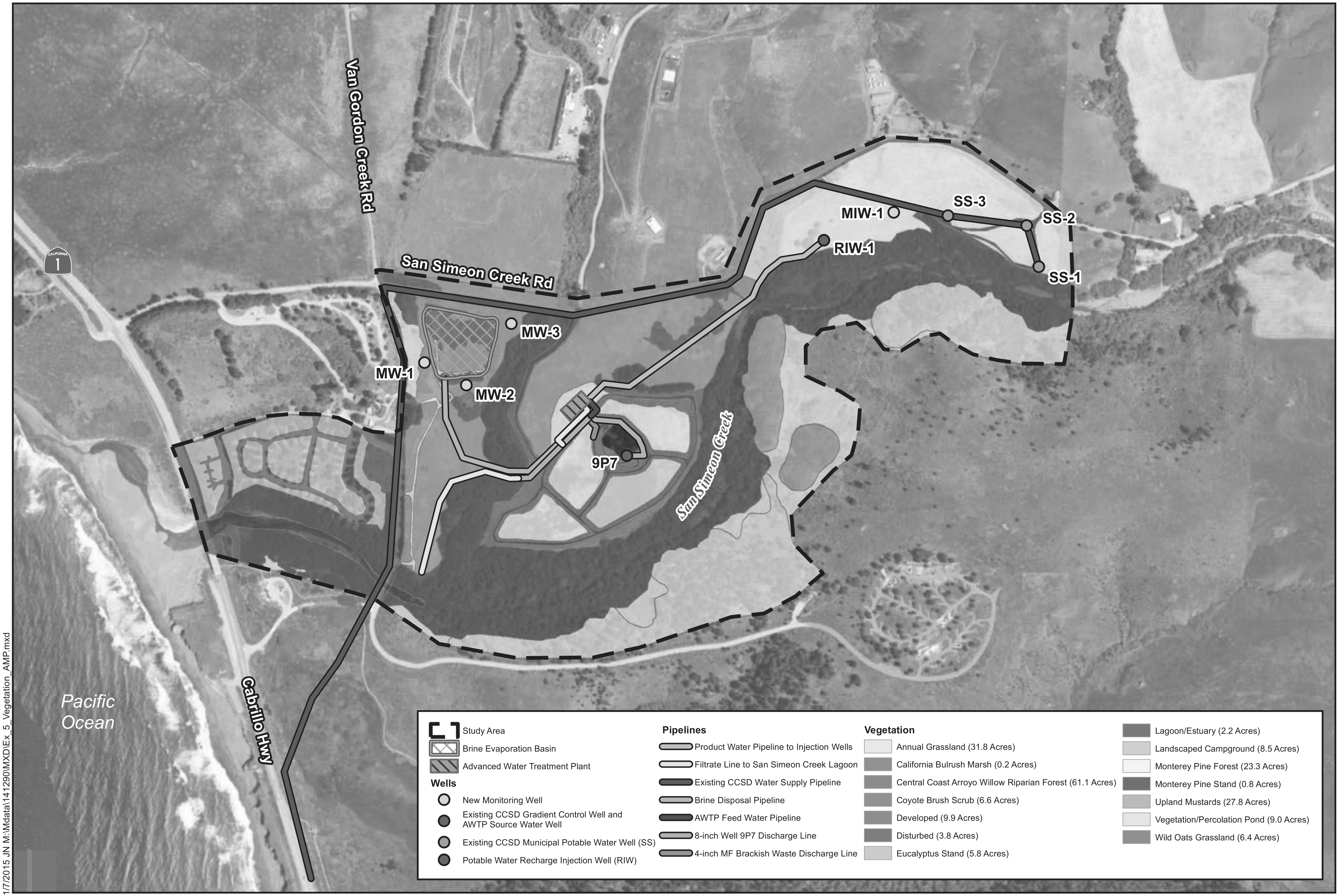
Michael Baker INTERNATIONAL

Source: NRCS Soils ca-664, CDM Smith, ESRI World Imagery Basemap

CAMBRIA EMERGENCY WATER SUPPLY PROJECT
ADAPTIVE MANAGEMENT PLAN

Soils Map

Exhibit 4



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Michael Baker INTERNATIONAL

Source: CDM Smith, ESRI World Imagery Basemap

CAMBRIA EMERGENCY WATER SUPPLY PROJECT
ADAPTIVE MANAGEMENT PLAN

Vegetation Map

Exhibit 5

Table 1: Plant Communities

Plant Community	Acreage	Percentage
Central Coast Arroyo Willow Riparian Forest	61.1	31.0%
Monterey Pine Stand	0.8	0.4%
Monterey Pine Forest	23.3	11.8%
Coyote Brush Scrub	6.6	3.3%
California Bulrush Marsh	0.2	0.1%
Annual Grassland	31.8	16.1%
Wild Oats Grassland	6.5	3.3%
Upland Mustards	27.9	14.1%
Eucalyptus Stand	5.9	3.0%
Landscaped Campground	8.5	4.3%
Percolation Pond	9.0	4.6%
Lagoon/Estuary	2.2	1.1%
Disturbed	3.8	1.9%
Developed	9.9	5.0%
Total	**197.6**	**100%**

Central Coast Arroyo Willow Riparian Forest

The Central Coast Arroyo Willow Riparian Forest is characterized by a dense, low, closed-canopy forest dominated by arroyo willow (*Salix lasiolepis*). It typically occurs in low gradient stream reaches in areas that are moist to saturated sandy or gravelly soil, especially in areas within the coastal fog incursion zone. Other common species along the edge of San Simeon Creek include western sycamore (*Platanus racemosa*), eucalyptus (*Eucalyptus* sp.), and cape ivy (*Delairea odorata*).

Monterey Pine Stand/Monterey Pine Forest

There is one small stand of Monterey pine (*Pinus radiata*) located within the Project site. It is located in the center of the percolation ponds, with Well 9P7 located underneath the trees. The canopy cover in this area is composed entirely of Monterey pines, with the understory composed mostly of ripgut brome (*Bromus diandrus*) and wild oats (*Avena fatua*). In addition, a Monterey pine forest is located on the south side of San Simeon Creek.

Coyote Brush Scrub

Coyote brush scrub is scattered throughout the Project site, but is concentrated in patches primarily south of the vicinity of the intersection of Van Gordon Creek Road with San Simeon-Monterey Creek Road around the brine evaporation pond. It is also present north of the percolation ponds, to the east of the San Simeon Creek Campground within Hearst San Simeon State Park, and on the south side of San Simeon Creek Lagoon east of SR 1. It is dominated by coyote brush (*Baccharis pilularis*) and is intermixed with black mustard (*Brassica nigra*) and non-native grasses.

California Bulrush Marsh

California bulrush marsh is located on the western edge of the Project site, immediately east of the SR 1 crossing and on the south side of San Simeon Creek Lagoon. It consists of a narrow channel dominated by dense California bulrush (*Schoenoplectus californicus*). The upland slopes are covered in coyote brush scrub. This channel is a tributary to San Simeon Creek Lagoon.

Annual Grassland

Annual grasslands are located in the northeastern portion of the Project site between San Simeon-Monterey Creek Road and San Simeon Creek, as well as south of San Simeon Creek. This community is dominated largely by canary grass (*Phalaris aquatica*), wild oat, ripgut brome, dandelions (*Taraxacum officinale*), coyote brush, and other herbaceous vegetation.

Wild Oats Grassland

Wild oats grassland is primarily located along the upper edges of and between the percolation ponds. It is dominated almost exclusively by thick stands of wild oats, but is intermixed with light coverage of ripgut brome, shortpodded mustard (*Hirschfeldia incana*), and canary grass.

Upland Mustards

Upland mustard communities are located primarily in the center of the Project site, both east and west of Van Gordon Creek and north of the percolation ponds. This community intermixes with coyote brush scrub. It is dominated by thick, tall stands of black mustard with low-growing grasses (canary grass and bromes), milk thistle (*Silybum marianum*), dandelion, poison hemlock (*Conium maculatum*), and giant horse tail (*Equisetum telmateia* ssp. *braunii*).

Eucalyptus Stand

Some small eucalyptus stands are located on the eastern side of the Project site on the south/eastern shore of San Simeon Creek. These are predominantly characterized by tall eucalyptus trees that are bordered and surrounded by the Central Coast Arroyo Willow Riparian Forest.

Landscaped Campground

The landscaped campground (San Simeon Creek Campground) is located on the western side of the Project site, west of Van Gordon Creek Road and north of San Simeon Creek Lagoon. It is underlain by non-native ornamental grasses and contains larger trees and shrubs including cypress (*Cupressus* sp.), western sycamore, and toyon (*Heteromeles arbutifolia*).

Percolation Pond

There are four (4) percolation ponds located in the center of the Project site, northeast of the confluence of Van Gordon and San Simeon Creeks. While the upland edges of these are dominated by wild oats grasslands, the bottoms get periodically flooded for water treatment purposes and therefore undergo dynamic changes, sometimes holding dense vegetation, sometimes being bare and dry, and sometimes being inundated with water depending on the current flooding schedule.

Lagoon/Estuary

San Simeon Creek Lagoon/Estuary is located from just east of Van Gordon Creek Road to just west of SR 1. It is surrounded by the Central Coast arroyo willow riparian forest. When the sandbar is closed (typically late spring through fall or winter) this habitat is characterized as a lagoon. When it is open (typically fall or winter through early spring) it is characterized as an estuary where saltwater and freshwater merge. In some years the sandbar may not open at all, resulting in only a lagoon habitat, and in others the sandbar may be artificially breached by an excess of water, resulting in premature or untimely estuary habitat.

Disturbed

Disturbed areas within the survey area can be described as unpaved dirt roads, particularly those surrounding the percolation ponds and those passing through the eastern well field. These areas are not vegetated. It is also noted that the brine evaporation pond was previously disturbed when originally constructed to serve as a holding basin.

Developed

Developed areas within the survey area include existing wells and buildings, as well as the main access road to Well 9P7. These areas are not vegetated.

1.2.1 Wildlife

Plant communities provide food sources, along with foraging, nesting and denning sites, cover, and protection from adverse weather or predation. This section provides a discussion of those wildlife species observed, expected or not expected to occur on-site. The discussion is to be used as a general reference and is limited by the season, time of day, and weather condition in which the survey was conducted. Wildlife observations were based on calls, songs, scat, tracks, burrows and actual sightings of animals.

Amphibians

Much of the Project site and its immediate surrounding area would constitute suitable habitat for amphibians. Two amphibians were detected on-site, the common species Sierran chorus frog (*Pseudacris sierrae*) and the federally threatened California red-legged frog (*Rana draytonii*). Other common amphibian species that could occur in San Simeon Creek or during heavy rainfall and subsequent ponding of water in the percolation ponds include western toad (*Anaxyrus boreas*), American bullfrog (*Lithobates catesbeianus*), ensatina (*Ensatina eschscholtzii*), and various species of slender salamander (*Batrachoseps* sp.). The Project site and surrounding area have the potential to support multiple special-status amphibians, including foothill yellow-legged frog (*Rana boylii*) and Coast Range newt (*Taricha torosa*).

Reptiles

The Project site has the potential to support both terrestrial and aquatic reptiles. Three reptile species were observed during surveys conducted by RBF Consulting (RBF), the common species western fence lizard (*Sceloporus occidentalis*) and coast garter snake (*Thamnophis elegans terrestris*), and the California species of special concern western pond turtle (*Emys marmorata*). The immediate Project site is primarily composed of disturbed, altered areas that are presently overgrown with vegetation. Two creeks, Van Gordon Creek and San Simeon Creek, traverse portions of the Project site. The general Project vicinity has the potential to support a number of reptilian species including gopher snakes (*Pituophis catenifer*), garter snakes (*Thamnophis* ssp.), California kingsnake *(Lampropeltis getula californiae*), northern Pacific rattlesnake (*Crotalus oreganus oreganus*), alligator lizard (*Elgaria multicarinata*), and side-blotched lizard (*Uta stansburiana*). The Project site and surrounding area also have the potential to support two-striped garter snake (*Thamnophis hammondii*).

Avian

The Project site and adjacent area support a high variety of avian species. Because of the high number of species observed, only the most numerous are mentioned here. Those that were observed in the greatest quantities included mallard (*Anas platyrhynchos*), turkey vulture (*Cathartes aura*), California gull (*Larus californicus*), Pacific-slope flycatcher (*Empidonax difficilis*), chestnut-backed chickadee (*Poecile rufescens*), bushtit (*Psaltriparus minimus*), cedar waxwing (*Bombycilla cedrorum*), song sparrow (*Melospiza melodia*), red-winged blackbird (*Agelaius phoeniceus*), and house finch (*Haemorhous mexicanus*). The Project site and surrounding area have the potential to support special-status raptors such as ferruginous hawk (*Buteo regalis*) and prairie falcon (*Falco mexicanus*).

Mammals

The plant communities within the Project site are anticipated to provide suitable habitat for a number of mammalian species acclimated to heavy disturbance. However, most mammal species are nocturnal and are difficult to observe during a diurnal field visit. Mammals observed during RBF's surveys include mule deer (*Odocoileus hemionus*), striped skunk (*Mephitis mephitis*), and feral pig (*Sus scrofa*), with additional sign from coyote (*Canis* *latrans*) and woodrat (*Neotoma* sp.). Common mammalian species expected to occur on the Project site include California ground squirrel (*Otospermophilus beecheyi*), Botta's pocket gopher (*Thomomys bottae*), California vole (*Microtis californicus*), deer mouse (*Peromyscus maniculatus*), raccoon (*Procyon lotor*), cottontail rabbits (*Sylvilagus audubonii*), and opossum (*Didelphis virginiana*). The Project site and surrounding area have the potential to support special-status mammals, including fringed myotis (*Myotis thysanodes*) and Yuma myotis (*Myotis yumanensis*).

Fish

When wetted, San Simeon Creek, Van Gordon Creek, the San Simeon Creek Lagoon, and their tributaries would provide suitable habitat for fish. Threespine stickleback (*Gasterosteus aculeatus*) and the federally endangered tidewater goby (TWG, *Eucyclogobius newberryi*) were observed during the habitat assessment in San Simeon Creek and San Simeon Creek Lagoon. In addition to tidewater goby, the aforementioned waterways have the potential to support another special-status fish species, South-Central California Coast steelhead trout (*Oncorhynchus mykiss irideus*).

1.2.2 Wildlife Movement Corridors

The eastern portion of the Project site abuts the foothills of the Santa Lucia Mountains. This mountain range provides a natural corridor to the north and south along the Coast Ranges. However, while the Project vicinity is considered to be a north-south migratory linkage along the mountains, no formal east-west linkage has been recognized along San Simeon Creek or the other waterways by connectivity assessments such as Missing Linkages (Penrod et al. 2001) or the California Essential Habitat Connectivity Project (Spencer et al. 2010). Regardless, San Simeon Creek and the other waterways are likely to provide valuable migration habitat for birds and fish. San Simeon Creek is recognized by the California Coastal Commission and by the California Department of Fish and Wildlife (CDFW) as an essential creek for steelhead migration, and the lagoon that forms at the mouth of San Simeon Creek can host both juvenile steelhead and tidewater goby (CCC 1998). While California red-legged frog can migrate or move to upland areas during the nonbreeding season, this is decided by individual frogs and is not necessarily a feature of every frog in a population. Nevertheless, frogs that may be present in San Simeon Creek or other waterways in the Project vicinity may migrate up and down the waterways or leave the water and head to upland grasslands during seasonal migrations.

1.2.3 Surface Waters

1.2.4 Groundwater

1.3 REGULATORY REQUIREMENTS

1.3.1 California Environmental Quality Act

The California Environmental Quality Act (CEQA) provides for the protection of the environment within the State of California. If a Project is determined to be subject to CEQA, the lead agency will be required to conduct an Initial Study (IS); if the IS determines that the Project may have significant impacts on the environment, the lead agency will subsequently be required to write an Environmental Impact Report (EIR). A finding of non-significant effects will require either a Negative Declaration or a Mitigated Negative Declaration instead of an EIR. However, in certain conditions a project may be entirely exempt from the CEQA process.

In January 2014, California Governor Edmund G. "Jerry" Brown issued an emergency drought declaration and proclamation. In this emergency declaration, the Governor stated that the Department of Water Resources and the Water Board may take actions to make water immediately available, and that CEQA and all regulations adopted pursuant to CEQA "are suspended on the basis that strict compliance with them will prevent, hinder, or delay the mitigation of the effects of the emergency." The Governor's subsequent Proclamation of a Continued State of Emergency, issued on April 25, 2014, suspended the California Environmental Quality Act (Public Resources Code 21000 and following) for all actions taken by local agencies that were identified by the California Department of Public Health as vulnerable to acute drinking water shortages and that were necessary to implement solutions to such shortages if the Office of Planning and Research "concurs that local action is required." (Proclamation No. 4-25-2014, #12 & #19). On September 12, 2014, the Governor's Office of Planning and Research concurred that the Cambria Emergency Water Supply Project was subject to the Governor's April 2014 executive orders that suspended CEQA.

To abide by the conditions of the Emergency Coastal Development Pemit issued by San Lius Obispo County and support the District's Regular Coastal Development Permit application with the County, the District has commissioned the completion of an EIR, which is following construction of the Emergency Water Supply Project. This atypical completion process was necessitated by the area's extreme drought conditions and allowed for in the Governor's April 2014 Executive Orders.

1.3.2 California Coastal Act §30000 et seq.

Chapter 3 of the California Coastal Act contains policies to protect water quality and the biological productivity of coastal waters (PRC Section 30231); avoid and minimize dredging, diking, and filling sediments (PRC Section 30233); and mitigate wetland impacts (PRC Section 30607.1).

In addition, under the California Coastal Act "environmentally sensitive area means any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments" (PRC Section 30107.5).

The California Coastal Act requires that jurisdictions protect Environmentally Sensitive Habitat Areas (ESHA). Specifically, PRC Section 30240 states that:

a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on such resources shall be allowed within such areas.
b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade such areas, and shall be compatible with the continuance of such habitat areas.

The Coastal Act generally protects ESHAs where they exist and also protects "against any significant disruption of habitat values." Section 30007.5 of the Coastal Act states that where there is a conflict between policies that it:

> *…be resolved in a manner, which on balance is the most protective of significant coastal resources. In this context, the Legislature declares that broader policies which, for example, serve to concentrate development in close proximity to urban and employment centers may be more protective, overall, than specific wildlife habitat and other similar resource policies.*

The Project is located within the jurisdiction of the Coastal Zone, is adjacent to San Simeon Creek and and San Simeon Creek Lagoon, both ESHAs, and is adjacent to Hearst San Simeon State Park.

1.3.3 Local Policies

Local Coastal Program

Under Section 30500 of the California Coastal Act, each local government within the California Coastal Zone must prepare or have the Coastal Commission prepare for it a Local Coastal Program (LCP). The San Luis Obispo County LCP is a comprehensive four-part management program that is intended to assist with the management and protection of the Coastal Zone and to ensure compliance with the California Coastal Act; it was certified by the California Coastal Commission in 1987. This LCP is composed of four separate documents: *Framework for Planning*, *Coastal Plan Policies* (CPP), Area Plans, and *Coastal Zone Land Use Ordinance* (CZLUO).

a) *Framework for Planning*: San Luis Obispo County is split into 13 separate land use categories. The Framework for Planning document (SLO County 1988a) describes each of those categories in detail, including purposes and definitions ("characters"). In addition, the Framework for Planning contains Coastal Table "O," a table which lists approved uses within each land use category.
b) *Coastal Plan Policies*: The San Luis Obispo County CPP (SLO County 1988b) are intended to help the county carry out the preservation policies of the Coastal Act of 1976. As such, this document recommends policies and standards to be implemented for development within the Coastal Zone and to remain in compliance with the Coastal Zone Land Use Ordinance. Among many others, the CPP includes provisions for development that may affect riparian vegetation, terrestrial habitats, wetlands, or that may require habitat restoration. Much of the CPP works in tandem with and is implemented pursuant to the CZLUO.
c) *North Coast Area Plan*: San Luis Obispo County is divided into eight separate planning areas, four of which fall within the Coastal Zone; the Project is located within the North Coast Planning Area. The North Coast Planning Area extends from the northern San Luis Obispo County border south to Point Estero and east to the main ridge of the Santa Lucia Range, encompassing the communities of San Simeon and Cambria. The North Coast Area Plan (NCAP) (SLO County 1980) allocates land use within this planning area through the use of land use categories. Through these land use categories, the NCAP designates residential, commercial, and recreational development standards within the planning area to best protect and conserve natural resources and the overall land use plan. In addition to land use categories, there are "Combining Designations" (CDs). As defined by the NCAP, "Combining Designations are special overlay land use categories applied in areas of the county with potentially hazardous conditions or significant natural resources. In these areas more detailed project review is needed to avoid or minimize adverse environmental impacts, or effects of hazardous conditions on proposed projects." A 1998 update to

the NCAP (CCC 1998) more specifically defined ESHAs and other protected areas within the planning area.

d) *Coastal Zone Land Use Ordinance*: The CZLUO (SLO County 1986) is enacted as Title 23 of the San Luis Obispo County Code. It is the implementation portion of the LCP and regulates development and land use within the unincorporated areas of the California Coastal Zone. Chapter 7 of the CZLUO deals with CD standards, and Sections 23.07.160 to 23.07.178 pertain specifically to environmentally sensitive areas, including Sensitive Resource Areas (SRAs), ESHAs, wetlands, streams and riparian vegetation, terrestrial habitat, and marine habitat. This document works in tandem with the CPP and provides in many cases more detailed instructions and requirements for development in or adjacent to environmentally sensitive areas.

1.4 POTENTIAL IMPACTS TO SENSITIVE SPECIES

Based on habitat requirements for specific species, availability and quality of habitats needed by sensitive species, and known distribution in and around the Project site, it was determined that the following species occur or have a high potential to occur in the surrounding aquatic habitat. These species could be affected by Project implementation.

Amphibian and Reptile Species

Based on historical survey results and the results of RBF's surveys, it was determined that the habitat in and around the Project site supports or is likely to support the following sensitive amphibian and reptile species.

Western Pond Turtle

The western pond turtle is designated by the CDFW as a California species of special concern. It typically inhabits slow-moving streams, ponds, and marshes with exposed banks, logs, and other suitable locations for basking. Pond turtles mate and lay eggs in spring and summer in upland grassland habitat, and in most of their range will overwinter between October and April.

Western pond turtle has been previously documented in San Simeon Creek and San Simeon Creek Lagoon. Suitable habitat is located within these two areas, particularly in the downstream reaches of San Simeon Creek where the creek substrate gives way from rocks to sandy or muddy bottoms, which are often utilized by pond turtles for hiding during evasive movements. This species was observed by RBF biologists in San Simeon Creek Lagoon.

California Red-legged Frog

The California red-legged frog is federally listed as threatened and is designated by the CDFW as a California species of special concern. It is a year-round resident in the Project vicinity. The life cycle of this species entails breeding between winter and early spring, followed by tadpole development and metamorphosis in summer. The California red-legged frog typically breeds between February and April in permanent or ephemeral water sources including lakes, ponds, reservoirs, slow streams, marshes, bogs, and swamps. During the non-breeding season, individuals of this species may leave and migrate elsewhere, but California red-legged frogs generally stay in one place year-round if the habitat is inundated. The California red-legged frog is primarily found near ponds in humid forests, woodlands, grasslands, coastal scrub, and streamsides with plant cover and is most common in lowlands or foothills.

In September and October 2014, RBF biologists conducted a California red-legged frog population count in San Simeon Creek Lagoon and lower San Simeon Creek consisting of two nocturnal mark-recapture surveys. No upland surveys were conducted. Surveys were spaced one week apart and an attempt was made to capture every frog. Using the Lincoln-Petersen population index and the mark-recapture data, the population of California red-legged frogs in San Simeon Creek Lagoon at the time of the surveys was estimated to be 54 frogs constituting a mixture of adults and juveniles. Overwintering tadpoles were not observed. The entire Project site is located within California red-legged frog Critical Habitat Unit SLO-2. Observed wetted habitat within San Simeon Creek during the habitat assessment was highly suitable for this species. This species was observed by RBF biologists in San Simeon Creek Lagoon.

Two-striped Garter Snake

The two-striped garter snake is designated by the CDFW as a California species of special concern. It is primarily an aquatic species and is typically found in or near permanent or semi-permanent water including creeks, pools, stockponds, and other areas. Surrounding vegetation is typically made up of chaparral, forest, woodland, and grassland, and may vary according to the season. This species is primarily active between spring and fall, and in many cases will retreat into a burrow for the winter. Breeding occurs in the spring after the snakes emerge into the active season again.

There is suitable habitat for this species in San Simeon Creek. While it is more likely to be found in the downstream sections where there is more water, it could occur throughout the creek. This species was not observed during RBF's surveys, but has been recorded in this area in the past and has a high potential to occur in San Simeon Creek, San Simeon Creek Lagoon, and Van Gordon Creek.

Fish Species

Tidewater Goby

The tidewater goby is federally listed as endangered and is designated by the CDFW as a California species of special concern. Tidewater goby is a year-round resident of San Simeon Creek Lagoon, generally only living for one year. It occurs primarily in coastal lagoons and estuaries and has only been captured in marine environments in very few instances. In their habitat, tidewater gobies are generally present in the upper estuary where the freshwater and saltwater mix, and will range upstream into pure freshwater and downstream into areas of majority salt water (up to about 75%). Though they can be present in water where salinity ranges up to 28 parts per thousand, they are predominantly found in areas where salinity is less than 12 parts per thousand, i.e. on the upper edges of tidal bays and in coastal lagoons. Tidewater gobies reproduce throughout the year but peak reproduction occurs in spring and late summer while the lagoon sandbar is closed.

There is occupied habitat for this species downstream of the Project site in San Simeon Creek Lagoon. This species was observed by RBF biologists in San Simeon Creek Lagoon, which is also tidewater goby designated Critical Habitat Unit SLO-5, during RBF's habitat assessment. A tidewater goby population estimate was also conducted in October 2014 by D.W. Alley and Associates under contract to RBF. The tidewater goby population estimate effort consisted of one survey in San Simeon Creek Lagoon using seine nets. A total of 1,002 tidewater goby were captured in San Simeon Creek Lagoon during this survey effort.

Steelhead (South/Central California Coast DPS)

Steelhead is federally listed as threatened and is designated by the CDFW as a California species of special concern. The population in the Project vicinity ranges from Santa Cruz County south to, but not including, the Santa Maria River. Typical freshwater steelhead habitat consists of gravel-bottomed, fast-flowing, well-oxygenated rivers and streams. Dissolved oxygen levels should be at least seven parts per million, and streams should have deep, low-velocity pools for wintering. The life cycle of this species is such that adult steelhead return to San Simeon Creek from the ocean in winter and early spring to spawn upstream. As the dry season returns and the creek begins to dry into isolated pools, young steelhead fry will either move into deep pools upstream or move downstream into the lagoon to mature while the sandbar is closed. When the sandbar opens again, steelhead smolt that have been summering in the lagoon will either move out to sea or remain in the lagoon and continue to grow for another year or more. Juveniles will typically spend between one and three years maturing in a freshwater or estuarine environment before migrating out to sea. After a typical span of one to four years of maturation in the ocean, the fish will return to their natal waters to spawn again.

There is suitable habitat for this species in San Simeon Creek. This species has been historically recorded over many years to occur within the creek, both in the creek and downstream in the lagoon. San Simeon Creek and Van Gordon Creek are part of the steelhead designated Critical Habitat unit that is located within the Estero Bay Hydrologic Unit. Based on local accounts, the sandbar across the mouth of the lagoon has not opened for the last couple years, preventing returning adult steelhead from spawning in San Simeon Creek and likely leading to the death of steelhead smolt that may have been maturing in the lagoon. At the time of the surveys in October 2014, no steelhead are believed to have been present in San Simeon Creek Lagoon or the lower reaches of San Simeon Creek. However, this species is expected to have a high potential for occurrence and should be assumed to be present in these water bodies under a normal rainfall year (i.e. not under drought conditions).It is noted that historically, both San Simeon Creek and Santa Rosa Creek were stocked with steelhead by the CDFW and local ranchers.

Section 2 Monitoring Program

Concern has been expressed regarding the Project's potential to lower groundwater levels and create a cone of depression that would impact surface flows in San Simeon Creek as well as riparian vegetation along the banks of San Simeon Creek.[1] This concern is also related to the potential lowering of general groundwater levels and the potential to impact up-gradient phreatophytes as the groundwater level drops. Groundwater modeling conducted by CDM Smith determined that by providing the 100 gpm of mitigation water as a design feature, the Project's proposed pumping and reinjection program would not adversely affect surface water levels in the San Simeon Creek Lagoon and that this action would have no impact upon tidewater goby, steelhead trout, or California red-legged frog. The mitigation water is intended to replenish lagoon water that is lost by seepage to the lowered groundwater table. During times when the Project is operating, there is not significant flow, since the beach berm generally isolates the system from a direct surface connection to the ocean. Due to the complexity of the San Simeon Creek system and to verify that no impact to habitat would occur, one of the mitigation measures recommended for this Project is the development and implementation of an Adaptive Management Plan (AMP) to monitor in-stream and riparian habitat associated with San Simeon Creek, San Simeon Creek Lagoon, and Van Gordon Creek. This AMP was developed to verify that the Project would not significantly adversely impact the in-stream habitat or the surrounding riparian habitat and the species that depend upon them.

This AMP has been prepared as a contingency to define available management actions by the CCSD to address unforeseeable significant adverse impacts, as well as to contribute to the long-term sustainability of the in-stream and riparian habitats in lower San Simeon Creek, San Simeon Creek Lagoon, and Van Gordon Creek. Annual reports will be prepared and will include recommendations for ongoing monitoring and any adaptive management actions required to mitigate any measured loss or prospective loss of riparian habitat that may be attributable to the Project's implementation. Using the baselines and thresholds as described in this AMP, significant adverse impacts to riparian habitat that are attributable to the Cambria Emergency Water Supply Project will be identified early and mitigated before significant adverse impacts occur.

All monitoring duties will be conducted by a biological monitor (BM) or a team of monitors. The BM(s) will be expected to participate in each of the following monitoring and reporting

[1] Concerns were expressed at an interagency meeting held on August 27, 2014 at the Santa Cruz, CA office of the California Coastal Commission. Participants included representatives from CCSD, RBF, CDM Smith, CDFW, USFWS, CA Department of Parks and Recreation, the Regional Water Quality Control Board, U.S. Army Corps of Engineers, and the California Coastal Commission.

activities, as described below. The BM(s) must be capable of correlating quantitative hydrologic modeling with stream conditions, taking stream measurements with standard electronic meters, and comparing habitat requirements of sensitive species against the on-site conditions to identify changes and determine if the noted changes have the potential to result in significant future adverse impacts. To evaluate riparian health, the BM(s) or other biological contractor(s) must be familiar with and possess demonstrable experience conducting evaluations using the California Rapid Assessment Method (CRAM). To conduct capture surveys for listed species, at least one of the BM(s) or other biological contractor(s) conducting the survey must possess current and valid Endangered Species Act Section 10(a)(1)(A) recovery permits for tidewater goby, steelhead trout, and California red-legged frog as applicable, as well as a California Department of Fish and Wildlife Scientific Collecting Permit allowing take of any or all of these species.

Confirm Baseline Assumptions

During the first year of monitoring, the focus will be to gather sufficient data at the monitoring stations to define the interaction between groundwater and surface water and how it has maintained the in-stream habitat as well as the surrounding riparian habitat. Data collection (and analysis) will include groundwater and surface water data, habitat data, and species distribution data. This information will be combined with historical data recorded by CCSD as part of its regular operations and by biological monitoring and surveys. An analysis of the combined set of data will be used to set the threshold for adverse impacts.

Collect Baseline Data

Baseline data for groundwater and surface water gathered during the first year will be collected on a monthly basis. Surface water and groundwater data will include collecting available data from existing surface water monitoring stations, as well as measuring all indications of ponding or surface discharge within a 50-foot radius of the designated groundwater wells. Depth and duration of ponding will be recorded. The water budget for CCSD operations in the San Simeon aquifer will be compiled for correlation with the monitoring program. These data will include monthly averages for:

- Pumping from wells SS1, SS2, SS3 and 9P7
- Inflow to the AWTP
- Injection into RIW-1
- Discharge of treated effluent from the Cambria POTW to the percolation ponds
- Filter backwash discharge from the AWTP to the percolation ponds
- Discharge of RO concentrate to the evaporation pond

Data loggers will be used to record diurnal variations in water levels from wells that are adjacent to riparian areas. This data will be recorded each month and correlated with the groundwater data and surface water data. As noted, it is believed, based on the existing information, that the soil moisture is maintained by a combination of groundwater and surface water. However, data collection (current and historic) and analysis will be needed to confirm this assumption.

Establishment of Thresholds

At the end of the first year, baseline conditions will be established and the interaction of groundwater levels, lagoon levels and surface flows will be better understood. This information will be used to determine specific thresholds that "trigger" additional investigation and adaptive management measures.

2.1 MONITORING GROUNDWATER LEVELS

A groundwater monitoring and management program was recommended for San Simeon Creek by the National Marine Fisheries Service in the 2013 South-Central California Coast Steelhead Recovery Plan (NMFS 2013). Monitoring stations will be established within the adjacent riparian corridor that will allow for monitoring of groundwater levels. Wherever possible, the use of existing monitoring well data, including data routinely collected by the District, will be incorporated. During the initial monitoring year, groundwater data gathered from the CDM Smith 2014 hydro-geological modeling efforts coupled with current data from a monitoring well or system of wells, will be used to establish baseline conditions against which future conditions can be compared. This information will be combined with historical groundwater data as recorded by CCSD. CCSD currently has 20 wells monitoring water levels for San Simeon Creek, 15 of which are within one mile of the proposed water extraction point (Well 9P7) vicinity. If not already present, it is recommended that each of the monitoring wells that will be used as part of the AMP be fitted with pressure transducers that record water levels once every 15 minutes. Although CCSD will continue to take regular groundwater level measurements twice per month to include on comparison charts, having groundwater data available in 15-minute increments will allow retrieval of up-to-date information as needed. Groundwater level data will be supplied to the BM on a monthly basis for evaluation and recommendations as necessary.

The average groundwater levels in San Simeon Creek production wells between 1988 and 2014, as measured bimonthly, indicate that groundwater has been at approximately 20 feet above sea level from February to May, gradually dropping each year in the late spring and summer to reach an average of only eight (8) feet above sea level by October before gradually rising again (CCSD 2014). For purposes of this AMP and during operation of the Project facilities, fluctuations in groundwater levels will be monitored monthly at all available monitoring wells. A drop in groundwater levels outside of historical ranges will be analyzed with the District's hydrologist to determine if the drop in level is within the expected range or if further investigation is required.

2.2 MONITORING SURFACE WATER FLOW

Surface water flow is an integral component of providing suitable habitat for aquatic species. While tidewater goby and California red-legged frog require still water or minimal water flow to survive, steelhead trout requires water flow during most of its life stages, including adult migration, spawning, juvenile growth, overwintering, and juvenile migration (Smith undated). Surface water flow can be seriously depleted by water withdrawals, and as such it will be necessary to simultaneously monitor surface water levels in San Simeon Creek. It is recommended for ease, efficiency, and accuracy that stream flow be measured electronically with a flow meter, such as the Marsh McBirney Flo-Mate 2000. However, the facility may only be operated when the adjacent reaches of San Simeon and Van Gordon Creeks are already dry, as these reaches only flow seasonally and are not perennial streams. Therefore, such monitoring may be more closely related to monitoring the San Simeon Creek Lagoon area during the dry season. It is noted, little if any flow will be observed during the dry portion of the year, if the beach berm is not open. Monitoring of stage in the lagoon and the stage relative to groundwater will be assessed.

In the absence of an electronic flow meter, an alternative but less accurate method of calculating stream flow is to calculate the amount of time that it takes for a floatable object (e.g. pine cone, orange) to float down a fixed stream segment. With this method, flow can be calculated by solving the following equation:

$$\text{Flow} = ALC / T$$

Where:

- A = The average cross-sectional area of the stream (stream width multiplied by average water depth);
- L = The length of the stream reach that is being measured (typically this is 20 feet);
- C = A coefficient or correction factor (0.8 for rocky-bottom streams or 0.9 for muddy-bottom streams); and
- T = The time in seconds for the float to travel the length L.

Surface water flow should be measured at least twice each month at two-week intervals for the first year at the same time and in the same general location that the surface water level is measured (Section 2.3). It is noted, there will be tidal influences on the flow in the system, if the beach berm is open. Measurement periods would be required to specify the point in the tidal cycle when spot measurements are taken. Measurements will be taken in Van Gordon Creek, San Simeon Creek, and San Simeon Creek Lagoon, as applicable. The information obtained during this measurement will be used to help determine habitat suitability for fish species, as described in Section 2.5. Typical flow rates will be determined over the course of the first year of monitoring in order to determine baseline flow rates for future benchmarking. Following the first year, measurements shall be taken on a quarterly basis.

2.3 MONITORING SURFACE WATER LEVELS

San Simeon Creek originates in the Santa Lucia Range and runs for approximately 8.5 miles before draining into San Simeon Creek Lagoon. Upstream of the confluence with Steiner Creek it is perennial.[2] As such, it receives significant surface flow each year, much of which dries up in the late spring and summer. Historical biological survey reports for lower San Simeon Creek and San Simeon Creek Lagoon will be used to help characterize the annual water cycles (temporally) and inundation patterns (geographically) in these water bodies. In addition, CCSD will coordinate with applicable agencies and organizations to identify key surface water monitoring stations for collection of historical data and active monitoring data.

CCSD staff gages are present in San Simeon Creek. However the San Luis Obispo County Flood Control District maintains a former USGS gaging station, which is located between the San Simeon well field and the proposed AWTP. The County data for this station is also available online via their website. Manual staff gages are used for quick visual recording of the height of surface water in water bodies. Where appropriate and as part of this AMP, and in consultation with the BM and a hydrologist, the CCSD will install additional staff gages in Van Gordon Creek, San Simeon Creek, and San Simeon Creek Lagoon for the future measurement of surface water levels. Gages will be placed at easily accessible locations to facilitate efficient and cost-effective gage checks. It is recommended that they be placed in areas where it is convenient to simultaneously measure water levels and stream flow. Surface water levels will be measured twice per month at two-week intervals for the first year of AMP implementation. Historical data will be used to establish baseline surface water levels for future monitoring. Following the first year, measurements shall be taken on a quarterly basis.

[2] Based on the USGS report of monitoring of the Palmer Flats gage, which is near the confluence, the stream is dry for about half the year.

2.4 MONITORING IN-STREAM AND RIPARIAN HABITAT EXTENT AND HEALTH

A crucial element of the long-term monitoring process will be to monitor the extent and health of the in-stream and riparian habitat associated with Van Gordon Creek, San Simeon Creek, and San Simeon Creek Lagoon. This includes the measurement of wetted width, wetted depth, water flow, and soil moisture levels in the riparian habitat. These measurements will in turn evaluate the suitability of the habitat to support listed species known to occur in the Project vicinity.

The riparian forest within the immediate vicinity of groundwater and surface water monitoring stations will be directly monitored to detect changes in soil moisture levels as well as vegetative composition. For areas that exhibit groundwater at or near the surface, groundwater is the primary source of water for the riparian vegetation at that location. Similarly, for areas with consistent surface discharge, but with lower groundwater elevations, vegetation depends mostly on surface water. Undoubtedly, some areas obtain water from both sources, and this is likely to vary within a single year and also from year to year depending on a variety of factors, making the determination of definitive baseline conditions difficult. Based on RBF's current understanding of the interaction of groundwater levels and surface flows, a combination of severe and rapid groundwater drawdown in excess of several feet, coupled with a corresponding loss of surface flows, would be required before soil moisture within the rooting zone of the riparian habitat would decrease enough to cause adverse impacts to the riparian plants and ultimately a reduction in riparian forest.

The proposal to collect groundwater, surface water, and soil moisture data will provide important information on vegetative response to changing conditions. In addition to collecting these data, it is recommended that three separate CRAM surveys be conducted of Van Gordon Creek, lower San Simeon Creek, and San Simeon Creek Lagoon. CRAM is a rapid assessment method used to monitor California's wetlands by assessing the ambient conditions within watersheds and assigning numerical scores based on physical and biotic features. CRAM surveys have previously been conducted in upper San Simeon Creek Lagoon (upstream of Van Gordon Creek Road) in 2005 and 2007. By conducting new or updated CRAM surveys of Van Gordon Creek, lower San Simeon Creek, and San Simeon Creek Lagoon, baseline physical conditions can be obtained to compare against in the future. CRAM surveys shall be conducted annually to provide long-term pictures of the potentially changing conditions within this watershed.

2.5 MONITORING AVAILABLE IN-STREAM AND FISH HABITAT

A major component of monitoring the available fish habitat in San Simeon Creek and San Simeon Creek Lagoon is establishing the connection between stream flow and habitat. The

Physical Habitat Simulation System (PHABSIM) software is used to simulate the relationship between stream flow and physical in-stream habitat for different life stages of designated fish species (Milhous and Waddle 2012). PHABSIM relies upon hydraulic simulation using defined hydraulic parameters and habitat simulation using defined habitat suitability criteria. Hydraulic simulation looks at particular stream segments that may have different combinations of depth, velocity, and channel index (e.g. substrate, cover). This information is subsequently used to calculate a habitat measure called Weighted Usable Area (WUA) for the subject stream segment from species suitability information.

By inputting tidewater goby and steelhead trout habitat requirement parameters into the PHABSIM model, it is possible to calculate the WUA for each of these species. This information will be calculated at least twice a month at two-week intervals following each period of measurements in order to determine if the simulated suitable habitat for these species has increased, decreased, or is remaining constant during Project implementation.

Available fish habitat can also be determined on a relative scale using quantitative measurements such as temperature and available dissolved oxygen. These water characteristics can be measured with oxygen and salinity meters. According to annual studies commissioned by the CCSD between 1991 and 2005, tidewater goby has been observed to be generally more tolerant of adverse ambient conditions. Tidewater goby can spawn at salinities ranging from 5 to 10 parts per thousand (ppt) and can survive in temperatures ranging from 18 up to 27° Celsius (C) and only 1 part per million (ppm) of dissolved oxygen (DO).

However, steelhead trout require more restrictive aquatic conditions in order to survive. Based on years of annual steelhead surveys funded by CCSD on San Simeon Creek, optimal conditions for steelhead trout in San Simeon Creek are believed to be salinity of less than 10 ppt, water temperatures below 22°C, and dissolved oxygen of greater than 5 ppm. While steelhead can survive at DO concentrations as low as 1-2 ppm, this is generally only for a very short period of time and typically only in the morning when temperature is low and DO is at its lowest due to overnight algal respiration. Algae conduct photosynthesis during the day when the sun is out, consuming carbon dioxide and producing high amounts of oxygen. At night the opposite trend occurs with photorespiration: algae consume and can nearly deplete oxygen while simultaneously producing high levels of carbon dioxide, thus leading to substantially lower DO levels overnight and into early morning. Steelhead ecology is such that these temporary nightly drops in DO are tolerable because the temperature is generally cooler and metabolic rate is reduced; as water temperature increases over the course of the day, fish metabolic rates increase (generally doubling with each 10°C increase in water temperature) and they require more oxygen. It is estimated that steelhead would be able to survive for only 15-30 minutes with 1-2 ppm DO and at a water temperature of 18-20°C. Thus, steelhead cannot persist for extended periods of time with low DO and high temperatures.

Available habitat for California red-legged frog and other aquatic herpetofauna can also be determined the same way. California red-legged frog lays eggs in water that is usually less than 16°C, with a maximum salinity tolerance of 9 ppt for adults and 6 ppt for embryos (Cook 1997). Western pond turtle occurs in brackish estuaries or freshwater (Lovich undated), preferring temperatures between 15°C and 39-40°C and generally not occurring in water that is outside of this range (Jennings and Hayes 1994). By measuring the appropriate aquatic data, as described above, general suitability for monitored species can be determined.

The above habitat measurements will be measured and evaluated twice a month for the first year at two-week intervals along with all other measurements. Following the first year, habitat will be evaluated on an annual basis.

2.6 MONITORING PRESENCE OF LISTED SPECIES

Tidewater goby, steelhead trout, and California red-legged frog have been known to occur in lower San Simeon Creek and/or San Simeon Creek Lagoon since at least the early 1990s, and much earlier for steelhead due to artificial fish stocking. From 1992 to 2006, the CCSD commissioned in-house surveys for tidewater goby and steelhead in lower San Simeon Creek and San Simeon Creek Lagoon. Tidewater goby was surveyed semiannually, while steelhead was surveyed annually. CCSD has not regularly commissioned California red-legged frog surveys, but this species has instead been surveyed for on an as-needed basis for research and management requirements, particularly by biologists representing and funded by the USGS Piedras Blancas Research Station.

Historically, tidewater goby surveys have been conducted in San Simeon Creek Lagoon in early summer and early fall to measure the species' status immediately after sandbar closure and immediately before the sandbar opens again. Steelhead has been surveyed for in lower San Simeon Creek in the summer after young steelhead had hatched. To monitor the presence or absence of listed species, it is necessary to continue conducting surveys for them following Project implementation. Surveys for these two species shall continue to be conducted during these same time periods in order to capture consistent data with what has historically been evaluated and to continue building a database of fish presence in these water bodies.

As part of this AMP, visual surveys for California red-legged frog shall be conducted on a regular basis in February/March and again in August/September. It is recommended that the first surveys be conducted in early February; if breeding (e.g. observation of amplexus, aural detection of mating calls, presence of egg masses, or presence of tadpoles) is not documented during these surveys, a second round of surveys shall be conducted three (3) weeks later.

Historically, tidewater goby surveys have been conducted in San Simeon Creek Lagoon in early summer and early fall to measure the species' status immediately after sandbar closure and immediately before the sandbar opens again. Steelhead trout have been surveyed for in lower San Simeon Creek in the summer after young steelhead had hatched. Surveys for these two species shall continue to be conducted during these same time periods, in order to capture consistent data with what has historically been evaluated and to continue building a database of fish presence in these water bodies. Two (2) rounds of visual surveys for tidewater goby and a single visual survey for steelhead trout shall be conducted.

2.7 MONITORING WATER QUALITY

CCSD's wastewater department currently monitors and analyzes water quality semiannually at Wells SS3, SS4, 9P7, 16D1, and a separate USGS well. Measurements are taken of depth to groundwater and groundwater elevation, nitrate/nitrogen, total dissolved solids, sodium, chloride, sulfate, boron, and water pH. The recent enrollment of the Project's mitigation water into the RWQCB's General NPDES permit for low threat discharges will also have additional monitoring and water quality requirements. This information will be provided to the BM for analysis and comparison with previous measurements. In addition, water quality will be evaluated based on its ability to provide suitable habitat for fish and other aquatic species.

2.8 GROUNDWATER MODEL DEVELOPMENT

Data obtained during the aforementioned monitoring actions, particularly those described in Sections 2.1 – 2.4, will be used to develop and calibrate the groundwater model that will assist in tracking condition changes in San Simeon Creek, San Simeon Creek Lagoon, and Van Gordon Creek. Baseline data obtained during the first monitoring year will be combined with historical data to determine regular and expected habitat measurements at all times of the year. These data will be used to determine thresholds at which management changes will be required while the facility is in operation.

In order to determine the point at which creek outflow may be adjusted or other management actions may be implemented to avoid impacts to listed species, it is necessary to determine the thresholds at which the potential for an adverse impact would need to be evaluated. Unless otherwise attributable to natural causes, or anthropogenic activities by riparian users upstream and apart from the CCSD-controlled property within the watershed (e.g., an agricultural accident leading to a chemical spill), should any of the following conditions be documented during regular surveys or otherwise during creek monitoring, management actions shall be required:

- Unexplained deaths or die-offs of tidewater goby, steelhead trout, and/or California red-legged frog;
- Early closure of the San Simeon Creek Lagoon sandbar due to dropping water levels;
- Failure of California red-legged frog egg masses due to desiccation;
- Unexplained changes in population levels of these species;
- Project-related drop in groundwater levels below previous historic minimum levels causing impacts to riparian habitat;[3]
- Decrease in lagoon surface water levels below historic minimums.[4]

As part of the Project, 100 gpm of treated groundwater would be released via pipeline into San Simeon Creek Lagoon as mitigation to avoid potential adverse impacts. Using the monitoring methods provided within this AMP, if it is found that riparian vegetation, creek or lagoon water levels, and/or species population numbers surpass the thresholds established in this document or those established based on the first year of monitoring, the CCSD may increase the treated water mitigation being provided, adjust facility operations, or suspend facility operations until conditions are once again deemed acceptable.

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[3] Water levels are anticipated to drop every year regardless of Project operations. Therefore, should the lowering of groundwater levels result in riparian habitat impacts, management actions may include, but not be limited to: artificially increasing the soil moisture content around riparian plants; periodically alternating which percolation basin is in operation; reducing extractions; increasing the mitigation water flow; or, some combination of these approaches (also see Section 5).

[4] It is noted, surface water flows will need to be correlated to rainfall. No flow is anticipated during the dry season.

Section 3 Reporting

This adaptive management plan is a surface water, groundwater, and biological monitoring program designed to provide adaptive management to the Cambria Emergency Water Supply Project to ensure that it will not result in significant adverse impacts to the riparian habitat in San Simeon Creek, San Simeon Creek Lagoon, and Van Gordon Creek. Integral to the effectiveness of an adaptive management program is the preparation of monthly, quarterly, and annual reports to monitor in-stream and riparian conditions within the subject area.

For the first year of monitoring, the BM will prepare and submit to the CCSD a monthly report that will discuss any notable changes in conditions. If any conditions show adverse changes, the report will suggest remedial actions to take. If the site conditions are all shown to be within an acceptable range of variation, the report will note this as such. The report will be equivalent to a memo report or a short letter report for quick analysis of monthly conditions. Following the first year, the report will be compiled on a quarterly basis.

For the first year and all subsequent years, the BM will prepare an annual report for submittal to CCSD, the CDFW, and the U.S. Fish and Wildlife Service (USFWS). The annual report will identify:

- Periods of operation of the new facility;
- Specific parameters that were monitored during the year;
- Any noted changes in the quality or extent of riparian habitat in Van Gordon Creek, San Simeon Creek, or San Simeon Creek Lagoon;
- Additional factors that could affect the long-term sustainability of surrounding riparian habitat and that should be included in the monitoring program; and
- Specific management measures that should be considered to minimize potential effects of the Cambria Emergency Water Supply Project.

Monitoring each year will occur from October 1 through September 31 of the following year. The collected monitoring data will be analyzed during the month of November and presented to an oversight committee each December for review, including preliminary interpretation of data, recommendations for hydrologic and biological monitoring in the coming year and, if necessary, adaptive management measures to correct potential adverse conditions. The annual report shall provide results of the data collection, an interpretation of results, and recommendations for changes to the monitoring program. Recommended changes to monitoring procedures and/or other adaptive management actions will be approved or denied by January 15. Table 1 provides an outline for the required elements of the annual report.

Table 1:
Annual Report Outline for the Cambria Emergency Water Supply Project Adaptive Management Plan

Annual Report Format
Introduction Briefly mention the monitoring programs conducted that year, the type of data, and the intended use of these data. **Methods** Describe the methodology for each monitoring program conducted that year in sufficient detail to ensure repeatability. Describe the analyses used to generate the results from each set of data. **Results** The results section presents the collected data in consistent format (tabular and/or graphic). Note changes in surface flows and groundwater levels and any changes in riparian habitat at each of the monitoring sites. **Discussion** Provide an analysis of the collected data and discuss whether any observed changes and/or trends are within natural variation or indicative of unexpected and adverse effects from the loss of surface water or changes in groundwater levels. If changes in surface water and/or groundwater are determined to be outside natural variation, assess whether they are related to changes in the riparian forest in surrounding riparian habitat. **Conclusions** The conclusion should be a succinct summary of the results, interpretation of the data analysis including noted changes or identified trends, recommendations for modifications to the monitoring program, and recommendations for adaptive management actions. **References** Appendix A Groundwater Monitoring Data Appendix B Surface Water Flow Monitoring Data Appendix C Surface Water Level Monitoring Data Appendix D Riparian Vegetation Monitoring Data Appendix E In-stream and Fish Habitat Monitoring Data Appendix F Species Survey Data

Section 4 Process to Revise the AMP

The unique challenge associated with monitoring arises from the need to identify potential adverse effects in a timely manner, so that remedial measures can be implemented before significant adverse impacts (e.g., die off of areas of riparian habitat or of listed species) occur. As described in Section 2, the goal of this Plan is to determine, through monitoring of appropriate early indicators (groundwater levels, surface water flows, riparian habitat condition), that actions related to the Cambria Emergency Water Supply Project are not on a trajectory to cause harm to in-stream and riparian resources in lower San Simeon Creek, San Simeon Creek Lagoon, or Van Gordon Creek.

The annual collection of data will provide a picture of the seasonal trends and, after a number of years, longer-term trends in groundwater and surface water levels in these water bodies, as well as the associated health of the in-stream and riparian habitats based on visual observations of the extent and overall health of the in-stream habitat and riparian vegetation using aerial photographs and photo documentation. Section 2 above describes each indicator to be monitored, the expected range of measurements during the course of a single annual monitoring period, and levels of deviation from the previous monitoring period that would be considered outside natural variation, thus triggering the need for a more detailed assessment of in-stream habitat and riparian vegetation (in-stream measurements, CRAM surveys, detailed examination of aerial photographs, and ground level photo documentation).

All of the above data will be included in the annual report, including any noted change in monitoring levels. This report will also assess whether the noted change can be attributed to other causes independent of the Project, or if the change is thought to represent an adverse response to the Project's ongoing groundwater extraction activities. If a change is determined to be an adverse response to the ongoing groundwater pumping, recommendations for correcting the deviation will be included in the annual report and submitted to CCSD for their review and evaluation as part of the monitoring and annual reporting process under this AMP.

Recommendations for revisions to the monitoring and the adaptive management program, including groundwater, surface water, and biological monitoring, as well as suggested corrective measures to Project-related activities, will be evaluated and considered by CCSD during their reviews of the annual report. Linking recommendations for budgeting to the reporting process will facilitate funding of any needed changes to the monitoring program and adaptive management process.

All monitoring results, suggested revisions to the monitoring program, recommendations for corrective actions related to the groundwater extraction (adaptive management measures), and comments will be presented to the District in the annual report for future monitoring and management decisions. Following District review, suggested revisions or corrective measures will be made and noted in the AMP, including changes to the monitoring program. A final annual report will be prepared and made available to CDFW and USFWS.

Section 5 Potential Mitigation Measures

The development and implementation of this AMP will ensure that the Cambria Emergency Water Supply Project operations do not significantly adversely impact the riparian habitat of the lagoon and adjacent reaches of San Simeon Creek and Van Gordon Creek . The following potential mitigation measures are suggested for evaluation in the event that significant and adverse deviations and/or trends are noted in San Simeon Creek, San Simeon Creek Lagoon, and/or Van Gordon Creek as part of the annual monitoring program:

- **Limit operations to dry season periods when there is no surface water flow in San Simeon Creek and Van Gordon Creek.** As proposed, the facility is intended to augment water supplies during the dry season. The adjacent lower creek reaches are not perennial and typically dry up by mid-summer of each year. Under such dry conditions, steelhead and related species of concern would likely be limited to the San Simeon Creek lagoon area. The Project's mitigation water design feature is intended to protect the lagoon area during such dry season operations.

- **Adjustments to New Facility Operations.** The amount of groundwater being removed by the new facility may need to be temporarily reduced or suspended should monitoring determine potentially adverse riparian impacts were projected to occur. This measure should be considered if groundwater and/or surface water levels substantially drop to levels outside of historical ranges and significantly impact habitat. If conditions begin to improve and once again fall within the acceptable range, the amount of groundwater being pumped by the new facility at that time should be considered for subsequent pumping regime levels to avoid repetitive occurrences.

- **Changes in the quantity of treated water that is returned to San Simeon Creek Lagoon.** As proposed, CCSD will return 100 gpm of treated water to San Simeon Creek Lagoon. It may be necessary to increase the amount of water that is returned into the lagoon by increasing the mitigation water flow or adjusting operation of the new facility to pump less. This measure should be considered if surface water levels or riparian health decrease below what is considered acceptable due to operation of the new facilities. If conditions begin to improve and once again fall within the acceptable range given annual site conditions, the amount of treated water being returned to San Simeon Creek Lagoon at that time should be adjusted to avoid repetitive occurrences.

- **Increase soil moisture content for riparian plants**. Should plants along the riparian corridor exhibit stress due to a lowering of groundwater levels, irrigation to increase soil moisture content may be deployed. This adaptive measure may include the use of a water truck or above ground irrigation piping to increase soil moisture content. Additionally, the CCSD may periodically alternate which percolation basin they are using in order to place percolated water closest to plant areas showing signs of stress. The CCSD has historically needed to operate only one of its four existing percolation basins at any given time. Therefore, it has some operating flexibility on which percolation basin it places into operation.

- **Design and implementation of additional biological monitoring measures.** In the event that negative trends are not reversible with the above measures, additional monitoring measures may be required to reverse such negative trends. Such measures would be identified and described in the annual monitoring report.

Section 6 References

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Appendix D

Section 18 – Proposed Monitoring and Reporting Program of the Operations, Maintenance, and Monitoring Program for the Cambria Emergency Water Supply Program

Appendix E – Adaptive Management Plan

STATE OF CALIFORNIA
CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY
STATE WATER RESOURCES CONTROL BOARD

DIVISION OF WATER RIGHTS

RIGHT TO DIVERT AND USE WATER

APPLICATION 28158 PERMIT 20387 LICENSE 13917

Right Holder: Cambria Community Services District
P.O. Box 65
Cambria, CA 93428-0065

The State Water Resources Control Board (State Water Board) authorizes the diversion and use of water by the right holder in accordance with the limitations and conditions herein SUBJECT TO PRIOR RIGHTS. The priority of this right dates from **June 8, 1984**. This right is issued in accordance with the State Water Board delegation of authority to the Deputy Director for Water Rights (Resolution 2012-0029) and the Deputy Director for Water Rights redelegation of authority dated October 19, 2017. This right supersedes any previously issued right on **Application 28158**. The right holder has made proof, to the satisfaction of the State Water Board, of the quantities of water put to beneficial use during the authorized development schedule.

Right holder is hereby granted a right to divert and use water as follows. No water shall be diverted or used under this water right unless right holder is in compliance with the terms and conditions herein:

1. Source of water: **Santa Rosa Creek Underflow**

   tributary to: **Pacific Ocean**

   within the County of **San Luis Obispo**

2. Location of points of diversion

By California Coordinate System of 1983 in Zone 5	40-acre subdivision of public land survey or projection thereof	Section (Projected)*	Township	Range	Base and Meridian
Well SR1 (1) **North 2,405,136 feet and East 5,644,286 feet**	**SW¼ of NW¼**	**26***			
Well SR3 (2) **North 2,405,741 feet and East 5,645,624 feet**	**NW¼ of NW¼**	**26***	**27S**	**8E**	**MD**
Well SR4 (3) **North 2,407,057 feet and East 5,648,418 feet**	**SE¼ of SE¼**	**23***			

3. Purpose of use	4. Place of use		
	Townships	Range	Base and Meridian
Municipal	**27S & 28S**	**8E**	**MD**
	Within the Cambria Community Services District as shown on map.		

The place of use is shown on map filed on February 4, 1976 with the State Water Board.

5. The water appropriated under this right shall be limited to the quantity which can be beneficially used and shall not exceed **0.59 cubic foot per second** by direct diversion to be diverted from January 1 to December 31 of each year. The maximum amount diverted under this right shall not exceed **218 acre-feet per year.** The maximum amount diverted under this right shall not exceed **155.3 acre-feet** from May 1 through October 31 of each year nor shall it exceed 218 acre-feet per calendar year.

(0000005A)

6. The equivalent of such continuous flow allowance for any 30-day period may be diverted in a shorter time provided there is no interference with other rights and instream beneficial uses and provided further that all terms or conditions protecting instream beneficial uses are observed.

(0000027)

7. No water shall be diverted under this right unless right holder is operating in accordance with a compliance plan, satisfactory to the Deputy Director for Water Rights. Said compliance plan shall specify how right holder will comply with the terms and conditions of this right. Right holder shall comply with all reporting requirements in accordance with the schedule contained in the compliance plan.

(0000070)

8. During the season specified in this license, the total amount and rate of water diverted and used under this license and the licensee's claimed existing right for the place of use specified in this license shall not exceed the amount and rate of diversion and use, respectively, specified in this license. If the licensee's claimed existing right is quantified at some later date as a result of an adjudication or other legally binding proceeding, the amount and rate of diversion and use allowed under this license shall be the net of the face value of this license less the amounts of water available under the claimed existing right.

   Licensee shall forfeit all rights under this license if the licensee transfers all or any part of the claimed existing right for the place of use covered by this license to another place of use without the prior approval of the State Water Board.

   Licensee shall take and use water under the existing right claimed by the licensee only in accordance with law.

(0000021)

9. For the protection of water quality from increased salinity due to sea water intrusion in the lower subbasin of Santa Rosa Creek and for the protection of instream resources, licensee shall:

   (a) Maintain monitoring wells WBE and WBW in the vicinity of well 21R3. If the well(s) need to be replaced, the location of the new well(s) shall be approved by the Deputy Director of the Division of Water Rights.

   (b) Follow water sampling protocol, as approved by the Deputy Director of the Division of Water Rights and have the water samples analyzed for electrical conductivity and chloride content in a laboratory certified by the State of California.

   (c) Measure the water level in monitoring wells WBE and WBW, or the equivalent, and cease diversions under this water right if the water level in the monitoring wells falls below 3.00 feet above mean sea level. The Deputy Director of the Division of Water Rights is authorized to adjust the water elevation requirement on the monitoring wells, if appropriate, based upon review of the hydrological analysis to be submitted by the licensee. Any such hydrologic analysis shall consider the depth of the bedrock in the monitoring well and shall determine the fresh water elevation needed to prevent seawater intrusion. Any action by the Deputy Director of the Division of Water Rights to lower the monitoring well water elevation requirements must be accompanied by a finding that the licensee as consulted with the California Department of Fish and Wildlife regarding the tidewater goby (Eucyclogobius newberryi) and that lowering the monitoring well water elevation requirement would be in compliance with applicable provisions of state and federal law.

(0400500)
(0110500)

10. To prevent any significant ground deformation in the lower subbasin of Sant Rosa Creek from occurring due to diversions of water under this water right, licensee shall:

    (a) Adhere to the Ground Deformation Monitoring Plan approved by the Deputy Director of the Division of Water Rights on February 11, 1991.

    (b) Monitor for vertical ground deformation on a weekly basis when the static water level in well SR1 or SR3 falls below 15 feet below mean sea level.

    (c) Cease diversion under this water right when the vertical ground deformation exceeds the limit established in the approved ground deformation monitoring program.

    (d) Prior to making any changes in the approved ground deformation program, licensee must get prior approval by the Deputy Director of the Division of Water Rights.

(0400500)
(0490500)

11. This water right is specifically subject to the diversion of water from the lower subbasin wells of Lloyd and Faye Junge, Joyce Bretz and Tony Williams, Bruce Black, and Rancho Pacifica and their successors in interest under valid claim of riparian right.

    At such time as licensee is diverting water authorized under this water right and the water level in the Junge, Bretz, Williams, Black, or Rancho Pacifica wells reaches a depth which renders the well unusable, licensee shall:

    (a) Deliver water from its point of diversion to the riparian place of use served by the well, or;

(b) Take other action to provide an alternate supply of water as is mutually agreeable to the licensee and Junge, Bretz and Williams, Black, and Rancho Pacifica or their successors in interest.

Any water supplied for satisfaction of riparian rights shall not be considered as water appropriated under this water right.

In the event that licensee opts to deliver water to the riparian place of use of any of the above wells, the riparian diverter shall be liable for the estimated costs which the riparian would have incurred to pump water from the affected well. In the absence of an agreement between the parties relative to pumping costs, the costs shall be based on the average amount per acre-foot for pumping water from the affected well during the month in question over the prior three years. Licensee shall pay the cost of installing and maintaining any water conveyance facilities needed to deliver water to the riparian point of diversion or place of use.

(0280800)

12. For the maintenance of riparian vegetation, fish and aquatic resources, licensee shall use the Santa Rosa Gaging Station operated by San Luis Obispo Flood Control (County Station 716) near the intersection of Santa Rosa Creek and Main Street to monitor stream flow in Santa Rosa Creek. Licensee shall limit diversion to:

(a) A maximum of 2.0 acre-feet per day from November 1 through April 30 when the average daily flow at County Station 716 is between 3.5 and 11.0 cubic feet per second;
(b) A maximum of 1.4 acre-feet per day from November 1 through April 30 when the average daily flow at County Station 716 is less than 3.5 cubic feet per second.

If County Station 716 ceases operation or licensee can no longer obtain adequate data to determine average daily stream flow at this location, licensee is limited to a maximum daily diversion of 1.4 acre-feet per day between November 1 and April 30 under this water right.

(0140500)
(0100500)

13. Right holder shall comply with the measuring and monitoring requirements as specified in the terms of this right or any reporting requirements by statute, order, policy, regulation, decision, judgment or probationary designation. The more stringent requirement shall control in each instance where there is a conflict or inconsistency between the requirements. Right holder shall comply with the measuring and monitoring requirements of chapter 2.8, title 23, California Code of Regulations.

(000000R)

14. No water shall be diverted or used under this right for commercial and applicable personal medical use cannabis cultivation unless the water right holder is in compliance with all applicable conditions, including the numeric and narrative instream flow requirements, of the current version of the State Water Board's Cannabis Cultivation Policy – Principles and Guidelines for Cannabis Cultivation, which is available online at: https://www.waterboards.ca.gov/water_issues/programs/cannabis/docs/policy.pdf

(0000120)

THIS RIGHT IS ALSO SUBJECT TO THE FOLLOWING TERMS AND CONDITIONS:

A. Right holder is on notice that: (1) failure to timely commence or complete construction work or beneficial use of water with due diligence, (2) cessation or partial cessation of beneficial use of water, or (3) failure to observe any of the terms or conditions of this right, may be cause for the State Water Board to consider revocation (including partial revocation) of this right. (Cal. Code Regs., tit. 23, § 850.)

(0000016)

B. Right holder is on notice that when the State Water Board determines that any person is violating, or threatening to violate, any term or condition of a right, the State Water Board may issue an order to that person to cease and desist from that violation. (Wat. Code, § 1831.) Civil liability may be imposed administratively by the State Water Board pursuant to Wat. Code, § 1055, or may be imposed by the superior court. The Attorney General, upon the request of the board, shall petition the superior court to impose, assess, and recover those sums. (Wat. Code, § 1846.)

(0000017)

C. Right holder is not authorized to make any modifications to the location of diversion facilities, place of use or purposes of use, or make other changes to the project that do not conform with the terms and conditions of this right, prior to submitting a change petition and obtaining approval of the State Water Board.

(0000018)

D. Right holder shall measure the amount of water beneficially used under this right using devices and/or methods satisfactory to the Deputy Director for Water Rights.

In order to demonstrate compliance with the beneficial use monitoring requirements of this right, right holder shall provide evidence that the devices and/or methods are functioning properly, in a manner satisfactory to the Deputy Director of Water Rights, within thirty days of first use of the device and/or method, with the reports required by chapter 2.7, title 23, California Code of Regulations, and whenever requested by the Division of Water Rights.

(0000015)

E. Right holder shall comply with the reporting requirements as specified in the terms of this right or any reporting requirements by statute, order, policy, regulation, decision, judgment or probationary designation. The more stringent requirement shall control in each instance where there is conflict or inconsistency between the requirements.

Right holder shall comply with the reporting requirements of chapter 2.7, title 23, California Code of Regulations.

Right holder shall promptly submit any reports, data, or other information that may reasonably be required by the State Water Board, including but not limited to documentation of water diversion and beneficial use under this right.

(0000010)

F. Right holder shall promptly submit any reports, data, or other information that may reasonably be required by the State Water Board, including but not limited to documentation of water diversion and use under this right and documentation of compliance with the terms and conditions of this right.

(0000010)

G. Right holder shall grant, or secure authorization through right holder's right of access to property owned by another party, the staff of the State Water Board, and any other authorized representatives of the State Water Board the following:

1. Entry upon property where water is being diverted, stored or used under a right issued by the State Water Board or where monitoring, samples and/or records must be collected under the conditions of this right;

2. Access to copy any records at reasonable times that are kept under the terms and conditions of a right or other order issued by State Water Board;

3. Access to inspect at reasonable times any project covered by a right issued by the State Water Board, equipment (including monitoring and control equipment), practices, or operations regulated by or required under this right; and,

4. Access to photograph, sample, measure, and monitor at reasonable times for the purpose of ensuring compliance with a right or other order issued by State Water Board, or as otherwise authorized by the Water Code.

(0000011)

H. This right shall not be construed as conferring right of access to any lands or facilities not owned by right holder.

(0000022)

I. All rights are issued subject to available flows. Inasmuch as the source contains treated wastewater, imported water from another stream system, or return flow from other projects, there is no guarantee that such supply will continue.

(0000025)

J. This right does not authorize diversion of water dedicated by other right holders under a senior right for purposes of preserving or enhancing wetlands, habitat, fish and wildlife resources, or recreation in, or on, the water. (Wat. Code, § 1707.) The Division of Water Rights maintains information about these dedications. It is right holders' responsibility to be aware of any dedications that may preclude diversion under this right.

(0000212)

No water shall be diverted or used under this right, and no construction related to such diversion shall commence, unless right holder has obtained and is in compliance with all necessary permits or other approvals required by other agencies. If an amended right is issued, no new facilities shall be utilized, nor shall the amount of water diverted or used increase beyond the maximum amount diverted or used during the previously authorized development schedule, unless right holder has obtained and is in compliance with all necessary requirements, including but not limited to the permits and approvals listed in this term.

If construction or rehabilitation work is required for the diversion works covered by this right, right holder shall prepare and submit to the Division of Water Rights a list of, or provide information that shows proof of attempts to solicit information regarding the need for, permits or approvals that may be required for the project. At a minimum, right holder shall provide a list or other information pertaining to whether any of the following permits or approvals are required: (1) lake or streambed alteration agreement with the Department of Fish and Wildlife (Fish & G. Code, § 1600 et seq.); (2) Department of Water Resources, Division of Safety of Dams approval (Wat. Code, § 6002); (3) Regional Water Quality Control Board Waste Discharge Requirements (Wat. Code, § 13260 et seq.); (4) U.S. Army Corps of Engineers Clean Water Act section 404 permit (33 U.S.C. § 1344); and (5) local grading permits.

Right holder shall, within 30 days of issuance of any permits, approvals or waivers, transmit copies to the Division of Water Rights.

(0000203)

K. Urban water suppliers must comply with the Urban Water Management Planning Act (Wat. Code, § 10610 et seq.). An "urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually.

Agricultural water users and suppliers must comply with the Agricultural Water Management Planning Act (Act) (Water Code, § 10800 et seq.). Agricultural water users applying for a permit from the State Water Board are required to develop and implement water conservation plans in accordance with the Act. An "agricultural water supplier" means a supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. An agricultural water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers.

(0000029D)

L. Pursuant to Water Code sections 100 and 275 and the common law public trust doctrine, all rights and privileges under this right, including method of diversion, method of use, and quantity of water diverted, are subject to the continuing authority of the State Water Board in accordance with law and in the interest of the public welfare to protect public trust uses and to prevent waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of said water.

The continuing authority of the State Water Board may be exercised by imposing specific requirements over and above those contained in this right with a view to eliminating waste of water and to meeting the reasonable water requirements of right holder without unreasonable draft on the source. Right holder may be required to implement a water conservation plan, features of which may include but not necessarily be limited to (1) reusing or reclaiming the water allocated; (2) using water reclaimed by another entity instead of all or part of the water allocated; (3) restricting diversions so as to eliminate agricultural tailwater or to reduce return flow; (4) suppressing evaporation losses from water surfaces; (5) controlling phreatophytic growth; and (6) installing, maintaining, and operating efficient water measuring devices to assure compliance with the quantity limitations of this right and to determine accurately water use as against reasonable water requirements for the authorized project. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such specific requirements are physically and financially feasible and are appropriate to the particular situation.

The continuing authority of the State Water Board also may be exercised by imposing further limitations on the diversion and use of water by right holder in order to protect public trust uses. No action will be taken pursuant to this paragraph unless the State Water Board determines, after notice to affected parties and opportunity for hearing, that such action is consistent with California Constitution, article X, section 2; is consistent with the public interest; and is necessary to preserve or restore the uses protected by the public trust.

(0000012)

M. The quantity of water diverted under this right is subject to modification by the State Water Board if, after notice to right holder and an opportunity for hearing, the State Water Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the State Water Board finds that (1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges.

(0000013)

N. This right does not authorize any act which results in the taking of a candidate, threatened or endangered species or any act which is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish & G. Code, § 2050 et seq.) or the federal Endangered Species Act (16 U.S.C. § 1531 et seq.). If a "take" will result from any act authorized under this right, right holder shall obtain any required authorization for an incidental take prior to construction or operation of the project. Right holder shall be responsible for meeting all requirements of the applicable Endangered Species Act for the project authorized under this right.

(0000014)

This right is issued, and right holder takes it subject to the following provisions of the Water Code:

Section 1392. Every permittee, if he accepts a permit, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefor shall at any time be assigned to or claimed for any permit granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any permittee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any permittee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

Section 1627. A license shall be effective for such time as the water actually appropriated under it is used for a useful and beneficial purpose in conformity with this division (of the Water Code) but no longer.

Section 1629. Every licensee, if he accepts a license, does so under the conditions precedent that no value whatsoever in excess of the actual amount paid to the State therefore shall at any time be assigned to or claimed for any license granted or issued under the provisions of this division (of the Water Code), or for any rights granted or acquired under the provisions of this division (of the Water Code), in respect to the regulation by any competent public authority of the services or the price of the services to be rendered by any licensee or by the holder of any rights granted or acquired under the provisions of this division (of the Water Code) or in respect to any valuation for purposes of sale to or purchase, whether through condemnation proceedings or otherwise, by the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State, of the rights and property of any licensee, or the possessor of any rights granted, issued, or acquired under the provisions of this division (of the Water Code).

Section 1630. At any time after the expiration of twenty years after the granting of a license, the State or any city, city and county, municipal water district, irrigation district, lighting district, or any political subdivision of the State shall have the right to purchase the works and property occupied and used under the license and the works built or constructed for the enjoyment of the rights granted under the license.

Section 1631. In the event that the State, or any city, city and county, municipal water district, irrigation district, lighting district, or political subdivision of the State so desiring to purchase and the owner of the works and property cannot agree upon the purchase price, the price shall be determined in such manner as is now or may hereafter be provided by law for determining the value of property taken in eminent domain proceedings.

STATE WATER RESOURCES CONTROL BOARD

Scott McFarland, for

Erik Ekdahl, Deputy Director
Division of Water Rights

Dated: **MAR 1 4 2019**

Board of Directors
Cambria Community Services District
1316 Tamsen Street, Suite 201
Cambria, CA 93428

EAM
Ecological Assets Management, LLC

April 10, 2024

Subject: *Occurrences of Special-status Biological Resources in the Immediate Vicinity of 2950 Santa Rosa Creek Road (APN 013-081-075), Cambria, San Luis Obispo County, California*

Cambria and its surrounding areas are known to possess a wide diversity of ecological conditions that support a large number of special-status plant and animal species, and sensitive habitats. This is easily seen in a query of the California Natural Diversity Database (CNDDB) for the general Cambria area. The 2.39-acre Subject Property that is identified in item 6a of the Cambria Services District's Thursday, April 11, 2024, agenda for the Regular Board of Directors Meeting is located immediately adjacent to and includes a portion of Santa Rosa Creek, which includes the riparian habitats and aquatic portions of the creek. Santa Rosa Creek and the surrounding areas provide habitat for numerous species considered as "special-status" or "species at risk" by the U.S. Fish and Wildlife, National Marine Fisheries Service, and the California Department of Fish and Wildlife. A review of the 2.39-acre Subject Property in the CNDDB resulted in eleven (11) occurrences of ten (10) different special-status species (refer to Table 1 and Exhibit A). In my experience, this is an unusually high number of occurrences for one location. These include species listed as endangered, threatened, and proposed threatened by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service; endangered by the State of California; and numerous plants and animals ranked as Rare or Species of Special Concern, respectively, by the California Department of Fish and Wildlife. In addition, Santa Rosa Creek, including the surrounding riparian habitats and aquatic portions of the creek, has been designated by the U.S. Fish and Wildlife Service and the National Marine Fisheries Service as critical habitat (i.e. habitat needed to support recovery of listed species) for two (2) species, California red-legged frog (*Rana draytonii*) and steelhead (*Oncorhynchus mykiss irideus* pop. 9), respectively. In addition, the U.S. Fish and Wildlife Service has also recently designated the western pond turtle (*Actinemys marmorata*) as a Proposed Threatened species, which has also been identified as occurring within Santa Rosa Creek.

Any work or construction within the 2.39-acre Subject Property has a potential to result in direct and/or indirect impacts to special-status species. Exhibit 4 to the proposed Resolution of Necessity in Agenda item 6a provides for "*construction, placement, operation, and maintenance of a paved roadway for use by heavy trucks and other vehicles*…" Exhibit 4 also purports to grant a right "*to remove obstructions, structures and/or other improvements, as well as to trim and remove landscaping, trees and other vegetation, over, above, on, under, in, across, along and through the Easement Area*." It should be noted that both California red-legged frog and western pond turtle will utilize upland habitats away from their aquatic habitats and could be present in work areas located on the Subject Property. Based on the proposed allowed activities, and the ecology of these two special-status species, direct impacts could occur. In addition, indirect impacts to special-status species could occur from the proposed activities. This includes equipment operation disrupting birds nesting in the adjacent riparian

Table 1: CNDDB Results of Special-Status Species Occurrences from Immediate Area Surrounding Subject Property.

Scientific Name	Common Name	Federal Status	Critical Habitat Present	State Status	CA Rare Plant Rank*	CDFW Status**
Rana boylii pop. 6	foothill yellow-legged frog - south coast DPS	Endangered	-	Endangered	-	-
Rana draytonii	California red-legged frog	Threatened	Yes	None	-	SSC
Oncorhynchus mykiss irideus pop. 9	steelhead - south-central California coast DPS	Threatened	Yes	None	-	SSC
Arctostaphylos cruzensis	Arroyo de la Cruz manzanita	None	-	None	1B.2	-
Calystegia subacaulis ssp. episcopalis	Cambria morning-glory	None	-	None	4.2	-
Horkelia cuneata var. sericea	Kellogg's horkelia	None	-	None	1B.1	-
Monolopia gracilens	woodland woollythreads	None	-	None	1B.2	-
Pinus radiata	Monterey pine	None	-	None	1B.1	-
Streptanthus albidus ssp. peramoenus	most beautiful jewelflower	None	-	None	1B.2	-
Actinemys marmorata	western pond turtle	Proposed Threatened	-	None	-	SSC

***California Rare Plant Rank:**
Rank: 1B = rare, threatened, or endangered in California and elsewhere; 4 = a watch list plants of limited distribution
Threat Codes: 1 = Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat); .2 = Fairly endangered in California (20-80% occurrences threatened)
****CDFW:**
SSC= Species of Special Concern

habitats, or soil/sediment entering Santa Rosa Creek from the lack or poor implementation of sediment and erosion control measures

To fully assess potential impacts to special-status species from this action, a Biological Resources Assessment should be prepared by a County-approved biologist. The final Assessment should be provided to the U.S Fish and Wildlife, National Marine Fisheries Service, and the California Department of Fish and Wildlife for their review and comments.

Sincerely,

Dwayne Oberhoff

Dwayne Oberhoff
Senior Project Biologist

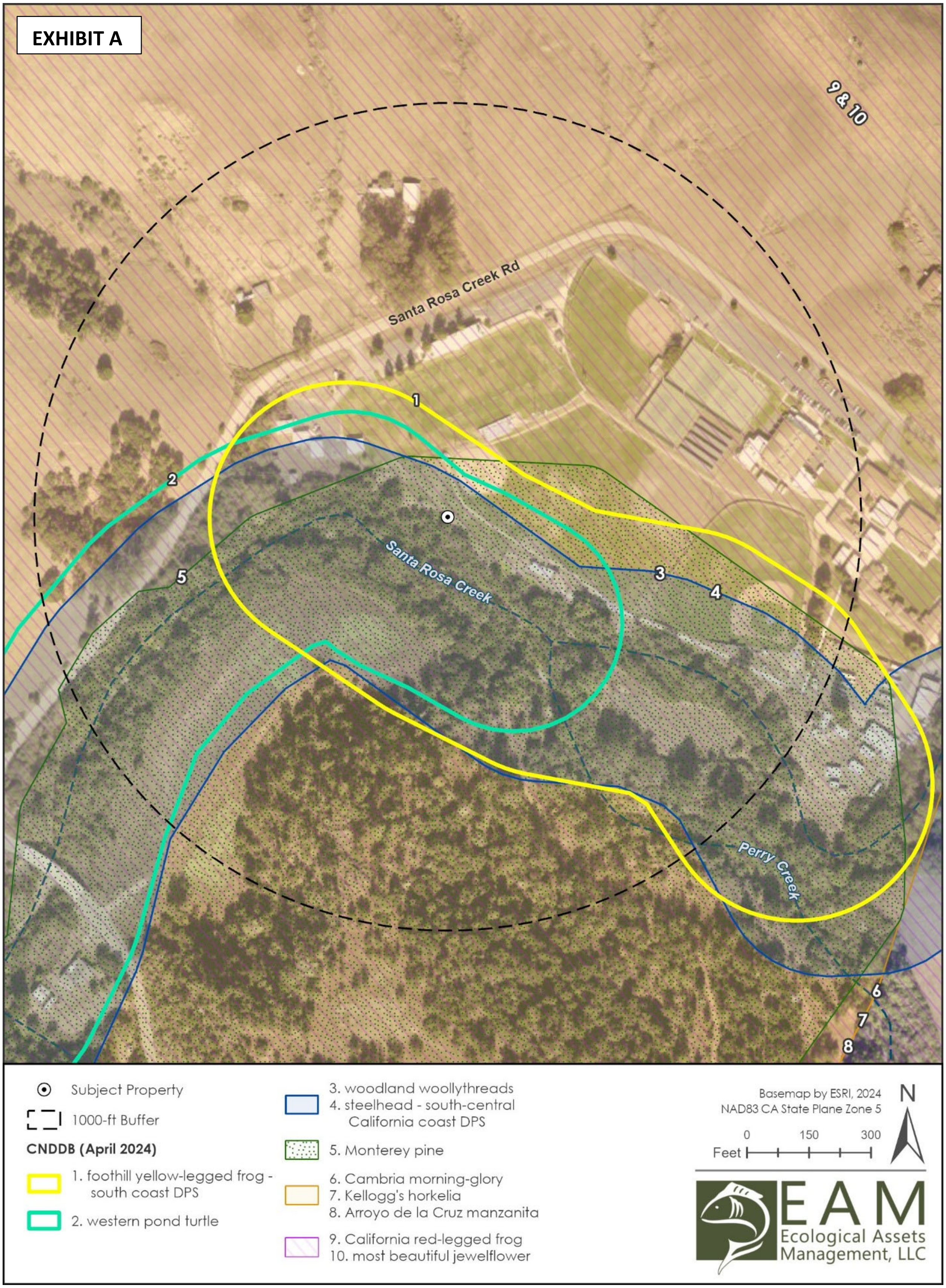
EXHIBIT A
9 & 10
Santa Rosa Creek Rd
1
2
5
3
4
Santa Rosa Creek
Perry Creek
6
7
8
Subject Property
1000-ft Buffer
CNDDB (April 2024)
1. foothill yellow-legged frog - south coast DPS
2. western pond turtle
3. woodland woollythreads
4. steelhead - south-central California coast DPS
5. Monterey pine
6. Cambria morning-glory
7. Kellogg's horkelia
8. Arroyo de la Cruz manzanita
9. California red-legged frog
10. most beautiful jewelflower
Basemap by ESRI, 2024
NAD83 CA State Plane Zone 5
0
150
300
Feet
N
EAM
Ecological Assets Management, LLC

Santa Rosa Creek
Watershed Management Plan

Santa Rosa Creek
Watershed Management Plan

February 2012

Prepared for:

California Department of Fish and Game

Prepared by:

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in fulfillment of a grant from the California Department of Fish and Game's Fisheries Restoration Grant Program

Cover photographs

Preferred citation

Stillwater Sciences, Central Coast Salmon Enhancement, and Greenspace – The Cambria Land Trust. 2012. Santa Rosa Creek watershed management plan. Prepared for the California Department of Fish and Game, under a grant for the Fisheries Restoration Grant Program (P0740401).

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Appendices

EXECUTIVE SUMMARY

The Santa Rosa Creek Watershed Management Plan was funded by California Department of Fish and Game's (CDFG) Fisheries Restoration Grant Program to develop a technically sound plan that addresses the strategic and scientific needs for watershed management, restoration planning, and south-central California coast steelhead (*Oncorhynchus mykiss*) recovery in the Santa Rosa Creek watershed, and that will be effective within current and foreseeable land use, water supply, and land ownership patterns in the watershed. Specifically, the objectives of the watershed management plan are to assess existing conditions, prioritize limiting factors for steelhead, and identify and prioritize restoration recommendations to address these limiting factors and improve physical functions and ecological conditions in the watershed. The watershed management plan was developed through the collaboration of a broad spectrum of participants. Stakeholders representing community sectors including agriculture, business, the community services district, planning advisory groups and fishing interests, and who work or live in the watershed, met periodically throughout the development of the watershed management plan to advise and inform the process, contribute historic and current information, assist in evaluating the accuracy of existing conditions and to review information and provide comments. In addition, a Technical Advisory Committee reviewed key watershed management plan elements, and input from the public was solicited at three public workshops.

Physical processes and ecological conditions in the Santa Rosa Creek watershed have been affected by historical clearing of land, groundwater pumping, urban development, bank revetment, historical mercury mining, land management practices, and road building. These activities have increased hillslope erosion and fine sediment supply to creek channels, resulted in channel incision, exacerbated low flows in the summer and fall, degraded riparian and aquatic habitat conditions, created barriers to fish migration, decreased water and sediment quality, and introduced non-native invasive species. Several of these effects limit the population of steelhead in the watershed by dramatically reducing instream flows in the summer and fall, decreasing pool habitat and large woody debris for summer and winter rearing, restricting their migration, and possibly limiting the potential for lagoon rearing.

The watershed management plan includes a suite of management, restoration, and study recommendations based on the synthesis of existing watershed conditions, steelhead limiting factors analysis, results of a geomorphic assessment and benthic macroinvertebrate sampling conducted specifically for the watershed management plan, and input from stakeholders and technical advisors. The recommendations present multiple ways to address steelhead limiting factors and conserve and improve physical processes and ecological conditions in the watershed, and are designed to be implemented individually, or in combination, on a voluntary basis, by or with the consent of willing landowners. Recommendations are presented by their ultimate objective and are listed in order of their relative importance to steelhead habitat restoration:

- Increase Summer and Fall Instream Flows
- Restore the Riparian Corridor
- Reduce Fine Sediment Delivery to the Creek
- Conserve and Protect Open Spaces and Existing Land Uses
- Increase Large Woody Debris Supply and Retention
- Remove Barriers to Fish Passage
- Fill Key Data Gaps
- Reduce Mercury Supply

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1 INTRODUCTION

1.1 Purpose of and Need for a Watershed Management Plan

Santa Rosa Creek in northern San Luis Obispo County once supported one of the largest populations of steelhead (*Oncorhynchus mykiss*) along the central California coast south of San Francisco (Titus et al. 2006). Perennial flow in most years, suitable instream habitat conditions (e.g., riparian cover and spawning substrate), and few physical barriers contributed to the success of this species in the watershed. However, recent fish studies have suggested that the population has dropped significantly below historic levels, driven by a number of probable factors including land uses and urbanization, road building, and groundwater and surface water management (e.g., Nelson 1994, D. W. Alley & Associates 2008, Nelson et al. 2009). In response to the concerns about existing habitat conditions for the threatened steelhead trout, several state and local advocacy groups began to identify limiting factors for steelhead trout habitat in the watershed (D. W. Alley & Associates 2008, TLCSLOC 2010) and implement stream habitat restoration projects (see Section 1.5).

Resource agency representatives responsible for recovering steelhead trout populations began to acknowledge the need to consolidate and unify these various efforts and provide a strategic and scientifically-based plan for improving steelhead habitat in Santa Rosa Creek. In 2008, California Department of Fish and Game (CDFG) awarded Greenspace – The Cambria Land Trust (Greenspace) grant funding to develop a comprehensive watershed management plan based on technical and local input that identifies limiting factors in the watershed and identifies and prioritizes restoration activities and can effectively restore creek function within current and foreseeable land use, water supply, and other constraints in the watershed. As the basis for these recommendations, the watershed management plan includes other recent information on watershed (e.g., climate, hydrology, and water quality) and steelhead population conditions. Acknowledging that there was a lack of understanding of physical factors that influence watershed conditions, the grant also included an investigation of the watershed's geomorphology —the scientific study of landforms and the processes that shape them (Section 2.5 and Appendix A). To better understand water quality conditions and their influence on aquatic biota, the grant included sampling of the benthic macroinvertebrate population as well (Section 2.8.4 and Appendix B). The purpose of this watershed management plan is to address the restoration needs for watershed management in the Santa Rosa Creek watershed by assessing existing conditions, identifying limiting factors for steelhead, and identifying and prioritizing restoration recommendations to improve physical and ecological conditions and facilitate the recovery of steelhead in the watershed.

What are your concerns about the creek and watershed?

"I would hope for a cooperative effort that results in a healthy watershed."
- Public Meeting Participant

1.2 Goals and Objectives

The objectives of this watershed management plan are to:

- Document historical watershed conditions.
- Assess physical and biological conditions in the watershed.
- Determine factors limiting the steelhead population.
- Identify and prioritize actions to address limiting factors for steelhead.
- Recommend additional actions that will improve overall fish and wildlife habitat.

The goals of the watershed managements planning process are to:

- Provide a thorough compilation of historical and current conditions in the Santa Rosa Creek watershed and assessment of steelhead limiting factors.
- Provide opportunities to educate the community on watershed conditions and ecological processes.
- Build local support for and participation in watershed conservation and restoration.
- Provide a supporting document so that willing participants can seek funds for recommended steelhead projects from CDFG's Fisheries Restoration Grant Program.

1.3 Overview of the Watershed

Looking up the Santa Rosa Creek watershed

Santa Rosa Creek watershed lies within the southern portion of the California Coast Range—a northwest-trending series of mountains and basins along the coast from Santa Barbara north to the Oregon border (Figure 1-1). The 48 mi^2 (123 km^2) watershed is bounded to the east by the Santa Lucia Mountain range and the west by the Pacific Ocean. Bordering the watershed are the similarly sized watersheds of San Simeon Creek to the north, Adelaida Creek to the northeast, Paso Robles Creek to the east, and Villa Creek to the south. Santa Rosa Creek and its tributaries flow mostly unobstructed down steep hillslopes mantled with shallow soils and sparse shrub vegetation and through agricultural areas and the small town of Cambria before reaching the Pacific Ocean. Santa Rosa Creek travels 16 mi (25 km) from its headwaters, following a sinuous course to the west through a confined canyon that opens up into a relatively long, broad valley floor. The town of Cambria sits near the mouth of Santa Rosa Creek, downstream of the confluence with Perry Creek—the largest tributary in the watershed. Only four creeks have been named on topographic maps of the U.S. Geological Survey (USGS)—Santa Rosa, Perry, Green Valley, and Fiscalini creeks (USGS 1979a, 1979b), while an additional six streams have been unofficially designated as derived from past or current property owner names (e.g., D. W. Alley & Associates 2008). These tributaries are referenced throughout this report, as summarized below in Table 1-1 and shown in Figure 1-2. The topographic relief is typical of the southern Coast Range terrain, with steep upland areas and low-gradient valley bottoms bordering the lower reaches of Santa Rosa, Green Valley, and Perry creeks (Figure 1-2). Relatively higher elevations are present in the Santa Rosa Creek sub-watershed, which peaks at Cypress Mountain with an elevation of 2,933 ft (894 m). In comparison, the highest point in the Perry Creek sub-watershed (NE corner of the Green Valley sub-watershed) reaches an elevation of 1,419 ft (433 m). At its lowest elevation, Santa Rosa Creek flows through a lagoon contained by an annually formed sandbar at Moonstone Beach that breaches when streamflow begins to rise and ocean wave action increases in late fall.

Table 1-1. Santa Rosa Creek watershed and sub-watershed areas and stream lengths.

Sub-watershed [a,b]		**Tributary location [c]**		**Area [d]**		**Stream length [e]**	
USGS-designated stream name	**Unofficial stream name**	**mi**	**km**	**mi^2**	**km^2**	**mi**	**km**
Santa Rosa Creek [f]		n/a	n/a	24.6	63.6	15.8	25.4
Unnamed	*Taylor Creek*	3.5	5.6	2.4	3.8	2.4	3.8
Unnamed	*Curti Creek*	7.5	12.1	2.1	5.5	2.2	3.5
Unnamed	*Lehman Creek*	9.7	15.6	2.5	6.5	2.6	4.1
Unnamed	*East Fork Santa Rosa Creek* [g]	12.1	19.5	1.9	4.9	2.9	4.7
Unnamed	*North Fork Santa Rosa Creek* [h]	12.5	20.1	2.2	5.6	2.6	4.2
Unnamed	*Mora Creek*	12.5	20.1	2.6	6.8	3.0	4.8
Perry Creek		3.0	4.8	22.9	59.3	9.7	15.6
Fiscalini Creek		5.2	8.4	2.6	6.7	1.4	2.3
Green Valley Creek		6.0	9.7	12.2	31.5	7.9	12.8
Total Santa Rosa Creek Watershed				**47.5**	**123**	**15.8**	**25.4**

[a] Tributaries are indicated by the degree of text indentation (e.g., Taylor Creek is a tributary to Santa Rosa Creek, Green Valley Creek is a tributary to Perry Creek which is a tributary to Santa Rosa Creek).
[b] To help identify unnamed tributaries on USGS topographic maps (USGS 1979a, 1979b) that are referred to later in this document unofficial tributary names from D.W. Alley & Associates (2008) are also presented.
[c] Locations of Taylor, Curti, Lehman, East Fork Santa Rosa, North Fork Santa Rosa, and Perry creeks are based on the longitudinal station at which they enter mainstem Santa Rosa Creek, starting at the Santa Rosa Creek mouth. The location of Mora Creek is based on the longitudinal station at which it enters North Fork Santa Rosa Creek upstream from mainstem Santa Rosa Creek. Locations of Fiscalini and Green Valley creeks are based on longitudinal stations along Perry Creek upstream from mainstem Santa Rosa Creek.
[d] Sub-watershed area derived in a GIS using a USGS 10m Digital Elevation Model (DEM).
[e] Stream length derived in a GIS using a USGS 10m DEM-generated stream network with a contributing area threshold of 0.04 km^2.
[f] Santa Rosa Creek mainstem continues along the unofficially named “East Fork Santa Rosa Creek” per the USGS stream designation (USGS 1979b).
[g] This creek is also commonly known as Soto Creek (D. Dunlap, pers. comm., 2009).
[h] This creek is also commonly known as Macacci Creek (D. Dunlap, pers. comm., 2009).

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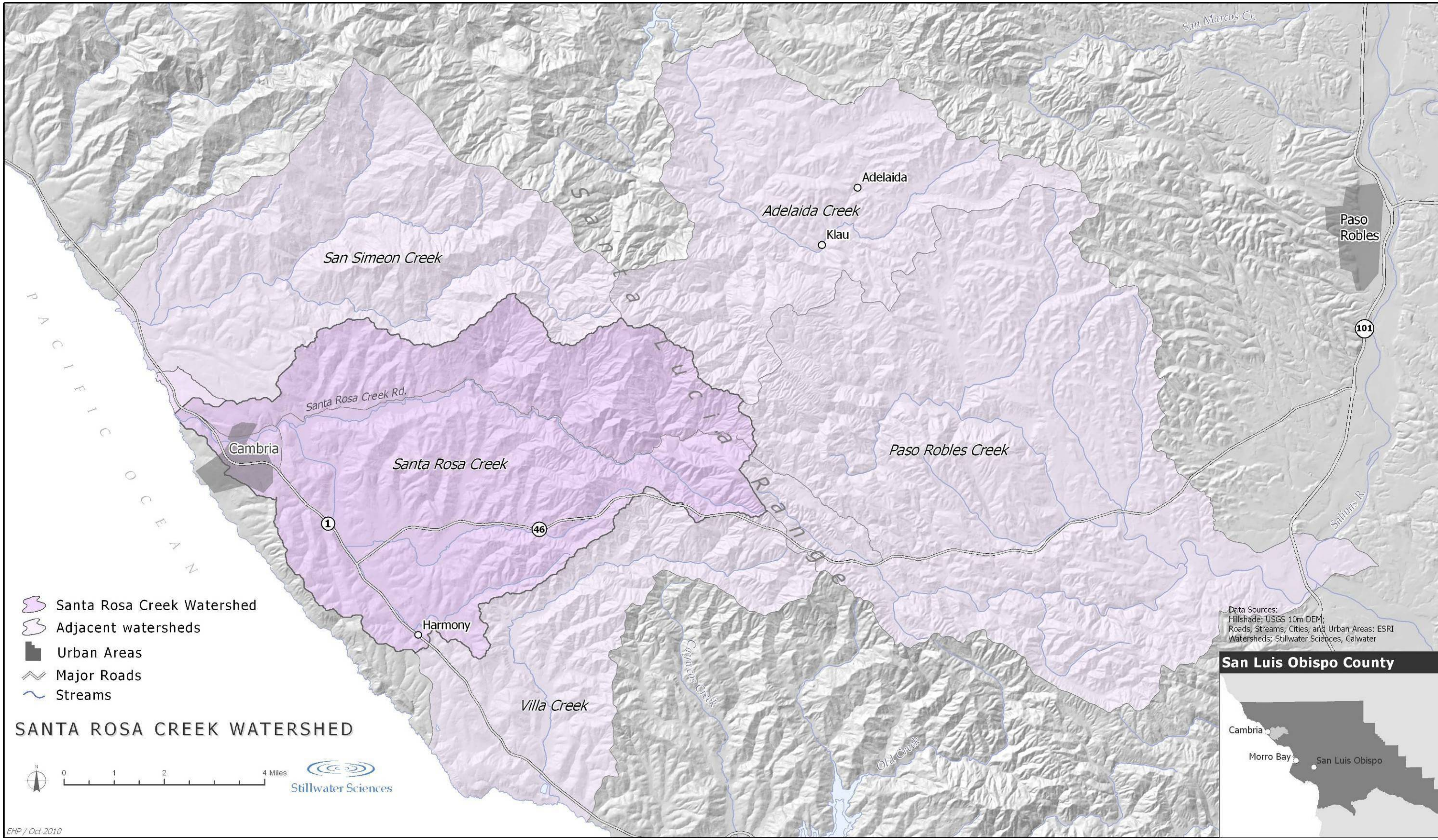

Figure 1-1. Santa Rosa Creek watershed and vicinity map.

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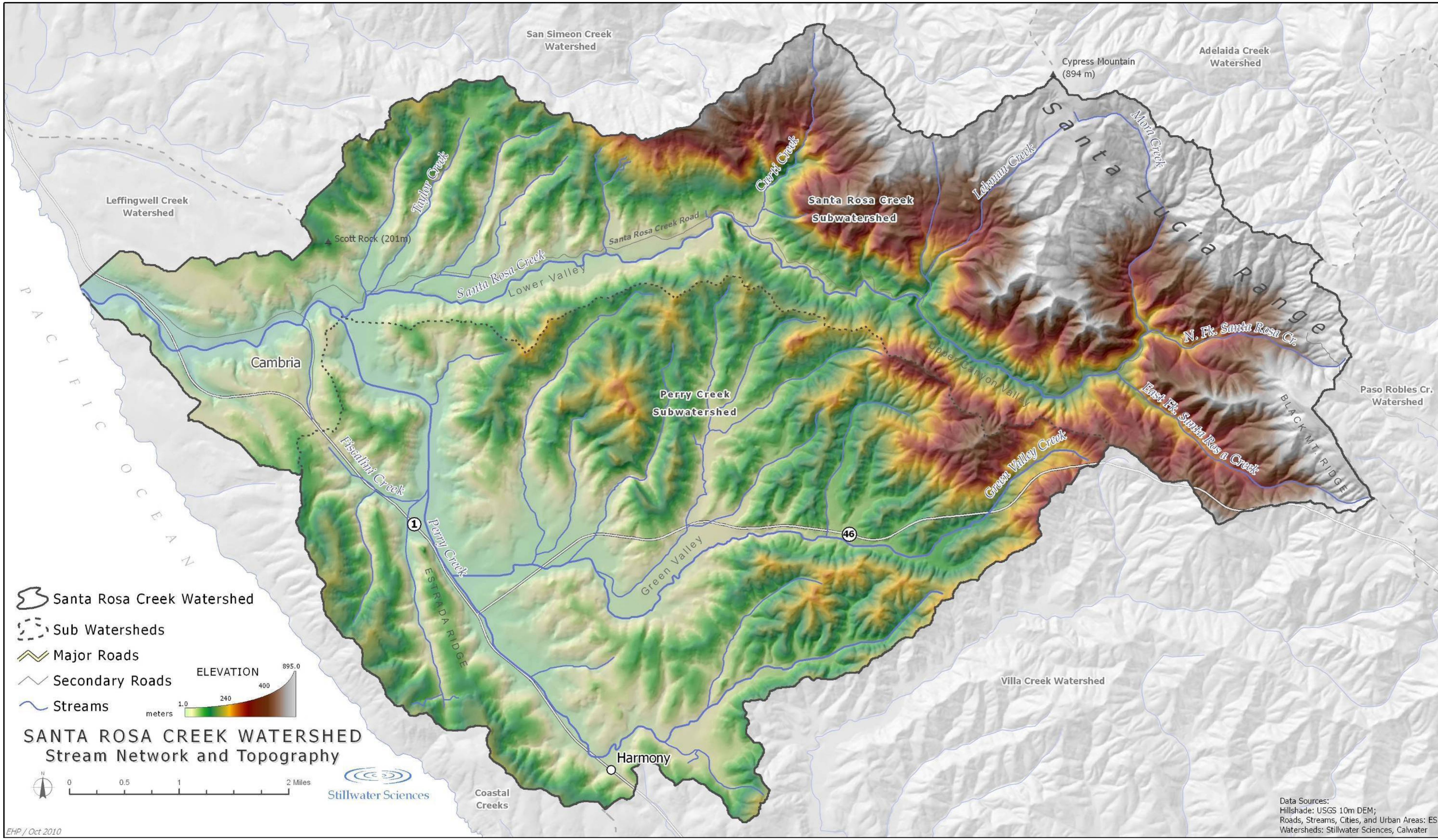

Figure 1-2. Santa Rosa Creek watershed stream network and topography.

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1.4 Stakeholder Involvement in the Watershed Management Plan

Recognizing that the development of a watershed management plan requires understanding and embracing the needs and concerns of local landowners, water users, and industry, the watershed management plan included the establishment of a stakeholders group. The role of stakeholders in formulating the watershed management plan is central to the success of its development and implementation, and their willingness to share information to shape the context of issues, marks a plan that will live beyond its written pages.

Stakeholders representing the various sectors that exist in the watershed, including agriculture, business, the community service district, planning advisory groups and fishing interests, were recruited to participate in the development of the watershed management plan. All stakeholders either work or live in the watershed. Stakeholders met periodically to contribute historic and current information, assist in reviewing the accuracy of existing conditions and other information, and provide comments. In addition, each stakeholder meeting included educational opportunities to offer background on a variety of topics related to steelhead ecology and watershed restoration, and increase awareness of and appreciation for the way in which watershed residents and businesses could voluntarily engage in restoration activities. Stakeholders' time and effort are recognized as being the cornerstone of continuing efforts to address factors limiting steelhead in the Santa Rosa Creek watershed, and are acknowledged throughout this document, as well as in the acknowledgements section at the end of this document (Section 5). Stakeholders met eight times between September 2009 and March 2011, representing a total of 240 person-hours, not including the time spent reviewing documents.

What are your concerns about the creek and watershed?

"Sustainable management of water for environment and people; enhance the productivity of ecosystem services of the watershed."

- Stakeholder

A Technical Advisory Committee (TAC) was convened to review and provide input to the watershed management plan to ensure that the data, analyses, and recommendations in the watershed management plan are correct, appropriate, and in keeping with local, regional, state, and federal efforts. TAC members are listed in the acknowledgements section at the end of this document.

In addition to stakeholders, the public was invited to attend three meetings during the course of the watershed management plan's development to facilitate information feedback between the TAC and the larger community and to provide a forum for education. The first meeting, held in January 2010, introduced the project to the public and sought input through a written questionnaire (Appendix C). The second meeting in August 2010 provided the public with a summary of watershed conditions. The third meeting in March 2011 unveiled the final watershed management plan and formally expressed gratitude to the community and stakeholders for their contributed time and effort.

1.5 Related Studies and Management Actions in the Watershed

A number of watershed management and restoration studies and/or actions have and are being conducted in the Santa Rosa Creek watershed. Several of these provided the impetus for this watershed management plan, while others support it by improving watershed conditions and incorporating a broad range of community members in the conservation and restoration of the watershed.

The Land Conservancy of San Luis Obispo County (TLCSLOC) recently completed the *Santa Rosa Creek Watershed Conservation Plan* (TLCSLOC 2010). The conservation plan compiled an extensive set of existing data for the watershed, collected additional data on upland erosion, and presents conservation strategies based on Natural Resources Conservation Service and California Rangelands resources. The synthesis of existing watershed conditions in this watershed management plan relied in part on the data compiled and collected by TLCSLOC (2010).

Rathbun et al. (1991) documented the status of four special-status declining reptiles, amphibians, and fishes in lower Santa Rosa Creek, which provided much of the basis for the *Lower Santa Rosa Creek Enhancement Plan* (Prunuske Chatham Inc. 1993). The lower creek plan, which was completed in 1993, described the ecological conditions and presented a plan for enhancing the reach of the creek from the Main Street Bridge to the ocean (Prunuske Chatham Inc. 1993). This watershed management plan updates and geographically expands upon the lower creek plan, and incorporates several of its enhancement measures.

Many property owners in the watershed are already protecting watershed resources by implementing best management practices, and several local organizations, including Greenspace, the Cambria Community Services District (CCSD), Friends of Fiscalini Ranch Preserve, Cambria Forest Committee, and others, have completed enhancement, monitoring, and educational projects and events in the watershed. These have included:

Riparian buffer between Santa Rosa Creek and adjacent farmland

- Water quality monitoring snap shot days (ongoing, approximately annually)
- Beach and creek cleanups (ongoing, annually)
- Ferrasci Road barrier removal (2011)
- Non-native eucalyptus tree removal downstream of Highway 1 (2010)
- Steelhead habitat enhancement, bank stabilization, and educational signs downstream of the Highway 1 Bridge (2007/2008)
- Burton Street Bridge barrier removal (2006)
- Fiscalini streambank stabilization (2005)
- San Luis Obispo County stream crossing inventory and fish passage evaluation (2005)
- Cambria forest management plan (2002)
- Santa Rosa Creek is Your Watershed educational program (2002)
- Watershed and Cambria forest conferences (2002 and 1991)

2 SYNTHESIS OF WATERSHED CONDITIONS

2.1 Historical Watershed Conditions and Watershed Impacts

Looking at a watershed's past provides insight into natural physical and ecological trends in addition to the identification of human-induced changes over time. An informed forecast of future watershed conditions can therefore be made based on synthesizing the understanding of past and present conditions. The information presented in this section summarizes general historical conditions in the watershed dating back to pre-European settlement in an attempt to illuminate the historical (both natural and human-induced) events that may have had an effect on physical processes and ecological conditions in the watershed (Figure 2-1).

Prior to European settlement along the California coast, the watershed is assumed to have been in a relatively undisturbed condition, responding only to fluctuating flood, drought, earthquake, and fire sequences, and with relatively minor impacts associated with the hunting and gathering practices of the local indigenous peoples. The first recorded accounts of Santa Rosa Creek valley are those made during the Portola Expedition where, in September 1769, the party encountered a "canyon… and arroyo[1] surrounded with hills of pine" (Hamilton 1974). On numerous instances, the expedition party noted flowing streams, both along what is now known as the mainstem Santa Rosa Creek and from many of its "springs", or tributaries (Hamilton 1974). Few other records of this area's natural resources were made for several decades despite the establishment of Mission San Miguel (1779) near present-day Paso Robles and the growing use of the Santa Rosa and San Simeon watershed areas for timber and wild game to support the Spanish population throughout the southern Coast Range region.

In 1840, Don Julian Estrada was granted possession of Rancho Santa Rosa—a 13,200-ac (53-km^2) land holding encompassing a portion of the western half of the watershed (Angel 1883, Hamilton 1974). Estrada drafted an illustration of his land in that year that depicts several notable features of the historical landscape, including Santa Rosa and San Simeon creeks draining to the ocean from steep upland areas, continuous pine forests upon hillsides surrounding lower Santa Rosa Creek near the area of present-day Cambria, a coastal trail parallel to the coastline, and, perhaps most interestingly, a "laguna", or lake along the narrow valley of lower Perry Creek (Figure 2-2). This lake is further described in Hamilton (1974) as a "shallow, broad lake… clogged with tules" fed by both Perry and Green Valley creeks, and bordered along its eastern shore by a coastal trail linking San Luis Obispo with San Simeon. The exact location of this lake is not precisely known, but it has been estimated to have formerly extended from the Perry and Green Valley creeks confluence north towards Santa Rosa Creek (Hamilton 1974; D. Dunlap, pers. comm., 2009). The lake was eventually drained by "Walker Ditch" in the early 1870s under the direction of the second owner of this portion of Rancho Santa Rosa, George Hearst, for the purpose of converting the wetland area to agricultural land (Hamilton 1974; D. Dunlap, pers. comm., 2009). The first official survey map of San Luis Obispo County published in 1874 does not depict the lake, indicating that it had already been drained when the survey was conducted, and instead shows a stream channel that generally follows the present-day stream course of lower Perry Creek (Harris 1874) (see Appendix A). Today, this artificial stream course of lower Perry Creek stands out from all other stream courses in the watershed as it follows long, straight segments connected by right-angle turns along the valley floor and north towards its confluence with Santa Rosa Creek.

[1] The Spanish word of "arroyo", as used in this account, translates to mean a small creek and not one that is necessarily incised, which is unlike the contemporary use of the word in the English language to mean an incised creek, typically those found in the American southwest.

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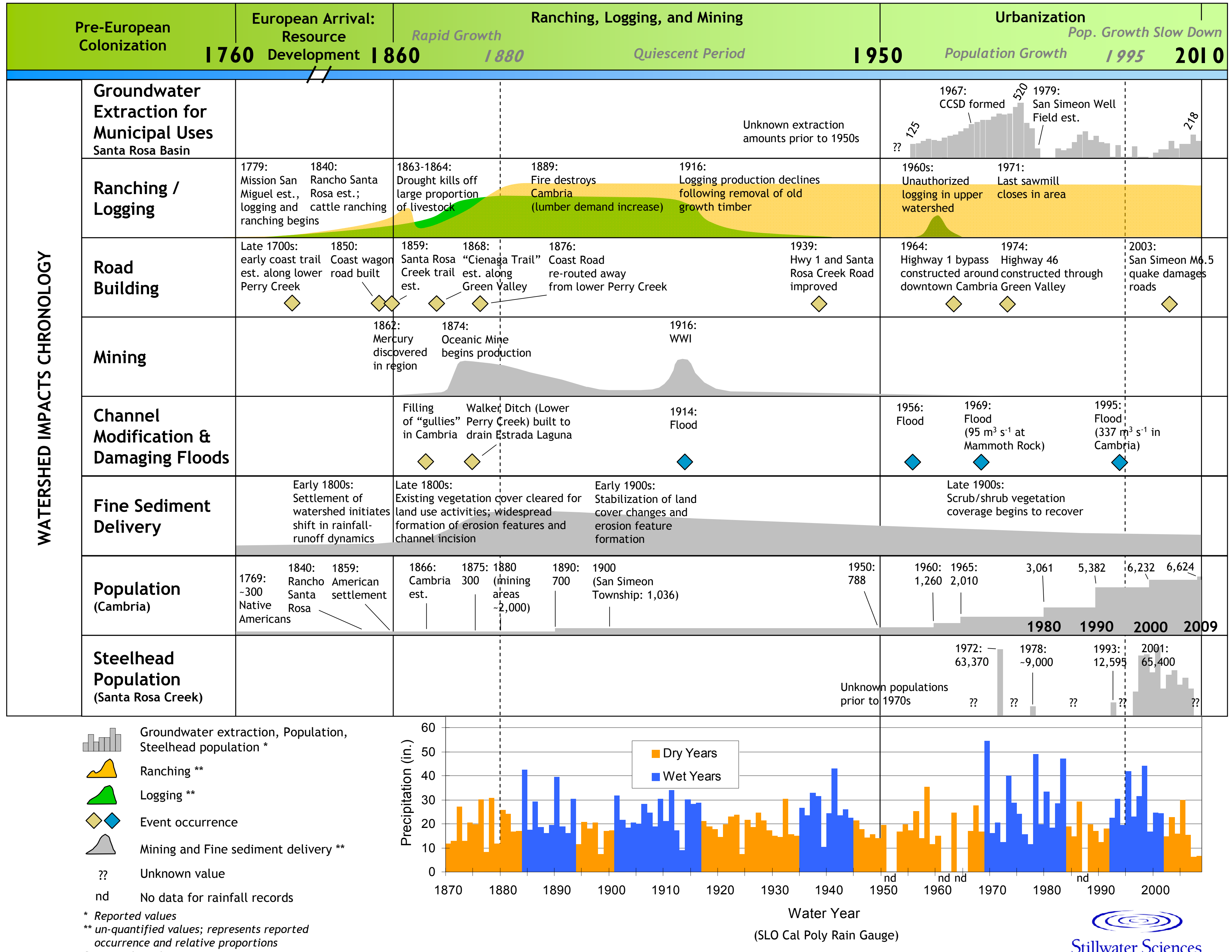

Figure 2-1. Chronology of watershed impacts and events. Precipitation records indicate periods of cumulatively wetter (blue) and drier (orange) periods in the watershed.

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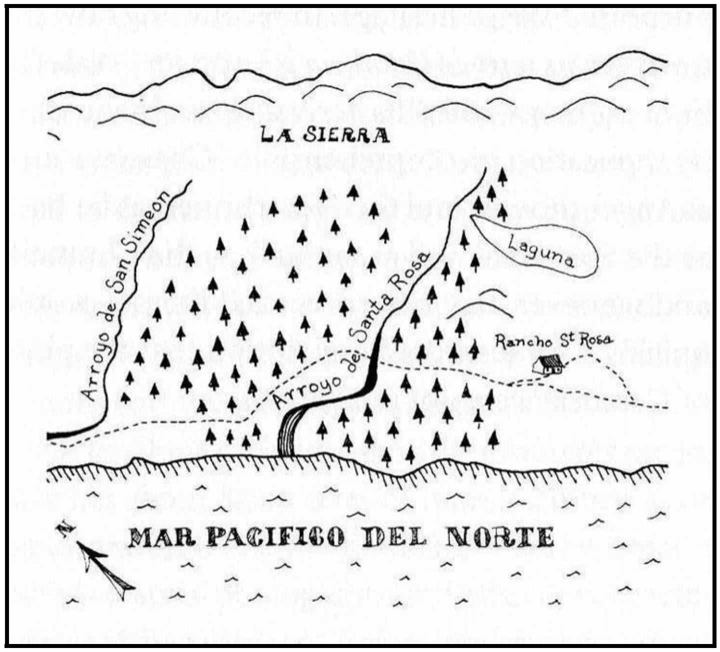
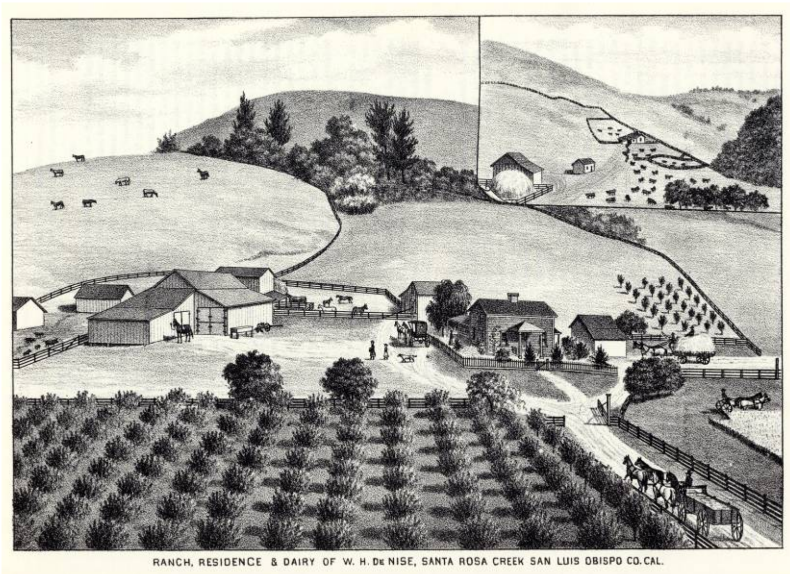


Figure 2-2. Illustration of Rancho Santa Rosa by Don Julian Estrada as part of his 1841 land grant application. Source: Coffman 1995.

The lagoon likely functioned as a settling basin for sediment delivered by tributaries of Perry Creek, and effectively served historically to separate the Perry Creek sub-watershed from the Santa Rosa Creek sub-watershed in terms of sediment delivery, especially of coarse sediments.

In the early 1800s, clearing of the land in support of agricultural activities—cattle ranching, crop cultivation, and logging—likely caused significant changes to rainfall-runoff relationships as trees, shrubs, and deep-rooted native perennial grasses in the valleys and upon hillslopes were degraded and replaced by shallow-rooted, non-native annual grass species that less effectively protect soil against erosion. Initially, cattle herds from Mission San Miguel were occasionally moved into the Santa Rosa Creek watershed because of ample sources of water and foraging vegetation even during the dry seasons (Hamilton 1974). Starting in the late 1850's, Americans and European immigrants began settling the watershed and greatly increased the pace of land clearing, which was reportedly achieved by cutting and/or burning the native vegetation (Coffman 1995; D. Dunlap, pers. comm., 2009). Historical accounts from across the coastal region tell of coordinated efforts by land owners to clear valley-bottom forests along major rivers (Boughton et al. 2006), which was likely practiced along Santa Rosa, Perry, and Green Valley creek valleys as very little forest cover remains but for some riparian stands closely bordering the stream channels (see Appendix A). Overall, these land uses coupled with episodic storm events resulted in several significant changes in the watershed, namely: (1) greater volumes of hillslope runoff generated per unit rainfall, with far greater volumes of fine sediment production throughout the watershed and increased gullying and shallow landslide potential on the steeper hillslopes; and (2) incision of the mainstem stream channels due to decreased stream bank stability and increased stream power allowing high flows to entrench the channel. Prior to incision, the Santa Rosa, Perry, and Green Valley creek channels would have supported higher groundwater elevations and more frequent inundation under lower flows, which supported the valley forests.

Between 1865 and 1885, a period of population growth and land development occurred in the watershed. Despite a die-off of beef cattle during the intense 1863–1864 drought, a shift to dairy farming, continued logging, and mining of cinnabar for mercury in the region maintained a steady rate of landscape alteration over the next two decades. Urban development and road building began the process of filling in small stream channels, especially those situated near Cambria (Hamilton 1974). By 1880, the landscape had been radically changed from its pre-European settlement condition and appeared very similar to present-day conditions, as represented in several illuminating sketches made during the 1870s (Angel 1883) that show grass-covered hillslopes and valley floors used for pasture with some relict patches of native riparian vegetation remaining near stream channels (Appendix A). Another notable feature depicted in two of these



DeNise ranch, residence, and dairy in the Santa Rosa Creek watershed, circa 1880 (Angel 1883)

illustrations is active hillslope erosion in the form of gullies, which remains a ubiquitous feature of the present-day landscape.

Beginning in 1874, cinnabar, the common ore of mercury, began to be mined at the Oceanic Mine in the Curti Creek sub-watershed. During peak production, ore was milled and processed into pure forms of mercury in a furnace located approximately ½-mile downhill from the mine (Eckel et al. 1941, as cited in CCRWQCB 1999). Mining production continued on and off through the 1900s, with a second peak around 1916 in support of World War I efforts (Hamilton 1974, Baker 2003). While land clearing, road building, and excavation associated with the mine likely resulted in increased fine sediment supply to Curti Creek and downstream, the mine's most deleterious impact has been to water quality. Iron-rich, red seepage from the mine and erosion of mercury-rich waste rock at the former mill site continue to pollute and discolor Curti Creek for most of the downstream distance to Santa Rosa Creek (CCRWQCB 1999, CDPH 2009).

Between 1920 and 1940, the rate of new land development leveled off as mining and logging operations declined, along with the transient population that supported those industries. These trends were driven, respectively, by falling mercury prices and by the near-depleted stock of old growth pine trees (Hamilton 1974). Through this period, dairy farming and crop cultivation continued, but likely did not increase in extent. In general, the landscape condition present during this period appeared very similar to the present-day condition (Appendix A). However, despite these seemingly unchanged conditions in many areas of the watershed, significant changes to specific areas did occur after this relatively quiescent period in the watershed's post-settlement history. The only available records of fish stocking in the watershed occurred during this time. Titus et al. (2006) cite a 1933 record of approximately 4,000 brown trout and a 1951 record of approximately 3,000 rainbow trout being planted in the watershed.

Starting in 1960 and extending through to the mid-1990s, the town of Cambria experienced a steady increase in population and, correspondingly, an increase in urban development in the form of new housing, commercial, and some industrial developments as driven by their tourism industry. According to County and U.S. Census data, Cambria's population (excluding the remainder of the watershed) increased from 788 to 5,382 between 1950 and 1990, representing 6.8-fold increase, while California as a whole experienced only a 2.8-fold increase. Recent population growth in Cambria since 2000, however, dropped considerably to only a 1.1-fold increase, which is below the state growth rate during the past decade (A. Ochs, pers. comm., 2009; U.S. Census Bureau 2003, 2009). This population growth slowdown period signifies stabilization not only of the Cambria population but also of development that would expand the town's urban footprint in the watershed.

The urbanization time period between 1960 and the 1990s also represented an expansion of groundwater pumping and stream diversions to irrigate crops and to provide drinking water to Cambria, which has reduced base flows in Santa Rosa Creek, and potentially within Perry and Green Valley creeks as well. A lowered groundwater table has led to subsidence in areas of the lower Santa Rosa Creek valley, which was observed in Cambria during 1976—the year with the highest municipal groundwater extraction (Yates and Van Konyenburg 1998). Groundwater lowering may have led to further degradation of mature riparian vegetation (in areas where riparian vegetation was not replaced by crops), which is reliant primarily on groundwater during the summer dry season. Large floodplain areas with extensive riparian vegetation may have attenuated floods within Santa Rosa Creek; the removal and degradation of large riparian stands would have therefore increased the "flashy" nature of flood events (i.e., higher flows over a shorter time period). Indeed, large floods in 1914, 1956, 1969, and 1995 have damaged properties situated upon floodplain areas (Hamilton 1974; D. Dunlap, pers. comm., 2009). As a result, bank revetments, or riprap, were subsequently installed along some reaches of Santa Rosa Creek near Cambria to protect floodplain developments from future flood-induced bank erosion. To date, however, no levees have been constructed along the creek or its tributaries, although Highway 1 serves as a low-lying berm to the west of downtown Cambria.

A very significant impact to the watershed from 1960 to the 1990s is the construction of roads; Highways 1 and 46, and Santa Rosa Creek Road. Each of these roads has altered runoff patterns as it traverses the landscape. The first trails and roads in the watershed closely followed the contours of the natural terrain. Their impact was likely limited only to vegetation removal and fine-sediment run-off. The present-day route of Santa Rosa Creek Road primarily follows the original wagon road from Cambria and east towards Paso Robles (Harris 1874, Hamilton 1974) and was paved in 1939. While paving may limit fine-sediment runoff from the road surface, it may also concentrate flow drainage near the stream channel and cause gullies to form on the out-board side of the road and into the creek. The route taken today by Highway 1 differs from that traced by the original "coast road" (Harris 1874, Hamilton 1974) and was cut into hillslopes and laid across small streams channels with culverts. Many of the culverts in the watershed have become partial if not complete barriers to fish migration and movement (see Section 2.7).

Completed in 1974, Highway 46 travels through Green Valley and is the most recent roadway constructed in the watershed, involving relatively large cut and fill sections that allow for a nearly straight path through the varied topography. The need for an extensive series of fill embankments and cuttings for Highway 46 greatly increased rates of fine sediment input to Green Valley Creek during and shortly after construction, and has led to on-going problems of embankment and culvert-related erosion, as well as accelerating runoff into Green Valley Creek. In addition, upper Green Valley Creek and numerous small streams have been virtually cut-off from lower Green Valley Creek, but for the presence of some culverts. Under normal circumstances, water may be conveyed completely through these culverts, but coarse sediment and large woody debris deposited at the culvert entrance during high flows causes blockages that deny the replenishment of gravel and cobble substrates and woody debris in the lower reaches. This adversely affects not only the channel morphology of Santa Rosa Creek but also the availability and complexity of steelhead trout habitat (D. W. Alley & Associates 2008, Nelson et al. 2009). An additional negative of all three major roadways in the watershed has been their effect on erosion associated with concentrating runoff towards the downslope side of the roads (see Section 2.7).

As stated above, the most recent time period between the mid-1990s and present day is generally characterized by a population growth slowdown and, accordingly, a reduction in additional urban development that would act to further alter the landscape, physical processes, and ecological conditions the watershed (see Section 2.2.4). This period also marks the initiation of several endeavors to restore ecologic and geomorphic function in Santa Rosa Creek, including the removal of fish passage barriers and bank-repair projects (see Section 1.5).

2.2 Land Use

2.2.1 Current land uses

The majority of the Santa Rosa Creek watershed is sparsely populated, with urban development concentrated downstream at the town of Cambria. As of 2009, the town supported a population of 6,624 (Cambria Chamber of Commerce, pers. comm., 2009). The remainder of the watershed is almost entirely under agriculture, with primary activities consisting of cattle ranching and limited crop cultivation, which require some level of water usage, primarily obtained via groundwater pumping. In Cambria, developments consist of a business district, which closely borders the lower 2.8 mi (4.5 km) of Santa Rosa Creek from Main Street Bridge to the lagoon area, and residential neighborhoods that extend to the north and south upon the adjacent hillsides. Tourism, primarily directed towards visitors traveling to Hearst Castle in nearby San Simeon, is the chief industry of Cambria. As of 2001, developed areas account for approximately 8% of the watershed area (Homer et al. 2004). Besides the town of Cambria, the only other significant elements of infrastructure in the watershed include three roadways: Highway 1, Highway 46, and Santa Rosa Creek Road. The roadways closely follow and occasionally cross, via bridge or culvert, portions of Santa Rosa, Perry, and Green Valley creeks.

Field ready for planting

2.2.2 Land use planning

The Santa Rosa Creek watershed is entirely within the unincorporated area of the County of San Luis Obispo, where current land use decisions and long range planning are governed by the County's General Plan Land Use Elements and Local Coastal Program. The overarching land use and resource management planning tools embedded in the Land Use Elements include the Resource Management System, the Framework For Planning (Inland) (2009), Coastal Zone Framework For Planning (1993), and Planning Areas. Two Planning Areas, separated by the Coastal Zone Boundary (Figure 2-3), cover the Santa Rosa Creek watershed: the North Coast Planning Area, which is governed by both the Coastal Act and County's General Plan Local Coastal Program, and the Adelaida Planning Area, governed by the General Plan.

The lower half of Santa Rosa Creek watershed is within the rural North Coast Planning Area (Figure 2-3, Coastal Zone Boundary), which covers 165,300 ac (668 km^2) along the San Luis Obispo County coastline, approximately 77,000 ac (311 km^2) of which are owned by the Hearst Corporation. Cambria is one of only two urban areas in the North Coast Planning Area (the other is San Simeon Acres in the San Simeon Creek watershed). Aside from two small commercial/retail parcels on Hearst Corporation property, the entire North Coast Planning Area is designated as agriculture, with two relatively small areas of rural land use north of Cambria and on the border of Monterey County. Table 2-1 summarizes the types of development projects completed between 2003 and 2008 in the North Coast Planning Area (outside the urban areas of Cambria and San Simeon Acres).

The upper half of the watershed is within the Adelaida Planning Area, which covers 208,008 ac (842 km^2) and borders the cities of Paso Robles, Atascadero and Morro Bay and the communities of Cayucos and Templeton. In 1990, the Adelaida Planning Area was extended over the ridge of the Santa Lucia range and onto the western coastal slope of the upper Santa Rosa Creek watershed. Table 2-1 summarizes the types of development projects completed between 2003 and 2008 in the Adelaida Planning Area.

As shown in Figure 2-3, the vast majority of land in the watershed is designated agriculture with small parts of the upper watershed designated as rural lands. A number of urban development types are allowed in these land use categories, including wineries and tasting rooms, bed and breakfasts, retail sales, restaurants, veterinary hospitals, residences, sale of farm equipment and supplies, camping, certain types of manufacturing, and communication facilities (San Luis Obispo County 1993).

Table 2-1. Completed development projects in the Adelaida and North Coast Planning Areas [a] of San Luis Obispo County between 2003 and 2008.

Type of development	Adelaida Planning Area [b]							North Coast Planning Area [b]						
	2003	2004	2005	2006	2007	2008	Total	2003	2004	2005	2006	2007	2008	Total
Winery facility	1	10	2	4	9	10	36	0	0	0	0	0	0	0
Misc. commercial	0	2	0	0	1	2	5	0	0	0	1	0	0	1
Commercial/ industrial addition/alteration	2	4	1	7	3	2	19	2	2	0	0	0	2	6
Farm support quarters	0	1	0	0	0	0	1	0	0	0	1	0	0	1
New single family dwelling	3	19	12	12	24	15	85	0	3	5	4	1	3	16
Guesthouse	1	2	3	1	4	2	13	0	0	0	2	0	0	2
Secondary dwelling	0	0	1	1	0	1	3	0	0	0	0	0	0	0
Mobile home	2	6	9	8	1	11	37	1	0	0	1	1	1	4
Swimming pool/spa; resident. & comm.	3	5	5	7	7	8	35	0	0	0	0	0	1	1
Radio/cell tower	0	0	2	1	2	1	6	0	1	1	0	0	0	2
Wind/solar system	0	5	4	14	11	18	52	0	1	1	0	1	3	6

[a] The Coastal Zone is the boundary between these two planning areas (Figure 2-3).
[b] Source: Permit Tracking Summaries 2003–2008, accessed at: www.slocounty.ca.gov/planning/Permits/

2.2.3 Growth trends in San Luis Obispo County

The 2008 Growth Assessment states that between 2000 and 2007, two of every five new homes built in the unincorporated County were built in rural areas outside of the urban communities. If this trend continues, the County estimates that population in the rural areas of the County will increase by 7,900 to 15,800 individuals by 2030. According to the County's 2006 General Plan Annual Progress Report, the Adelaida Planning Area is projected to see a population increase of 2,241 between 2010 and 2030. Table 2-1 of completed projects in the Adelaida Planning Area from 2003 through 2008 shows a trend toward water-intensive wineries and residential uses. To date, however, that development has occurred primarily on the eastern side of the Santa Lucia range on rural lands outside the urban areas of Paso Robles, Templeton, and Atascadero.

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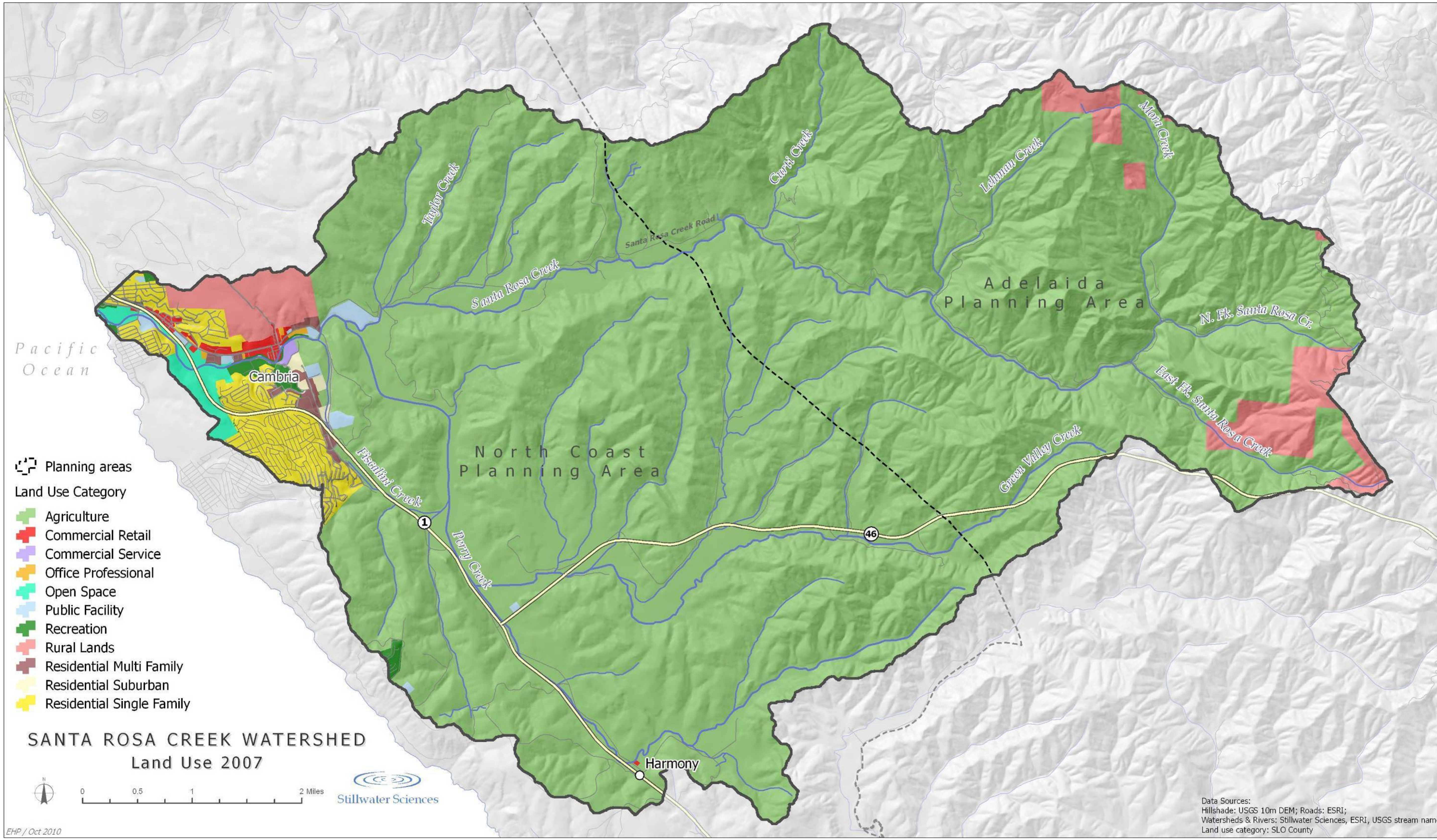

Figure 2-3. Land uses within the Santa Rosa Creek watershed.

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A steady increase in the numbers of people choosing to live in the rural areas of the County is fueled in part by the existence of underlying antiquated subdivisions[2], of which there are over 3,500 in the unincorporated County area. Many of these parcels are capable of being developed through the process of obtaining certificates of compliance (legal documents that certify compliance of an underlying parcel with the California Subdivision Map Act). And while in 1977 approximately 80% of these parcels were farmed or grazed with only a small fraction of the parcels developed at that time, since the year 2000 over 600 of these parcels have been developed with homes (San Luis Obispo County 2009).

2.2.4 Rural to urban conversion

City and Regional Planning research indicates that there is a typical sequence to land use changes over time as rural lands are converted to urban uses (Briassoulis 2000). Portions of the lower Santa Rosa Creek watershed exhibit this shift, as large ranches have been subdivided and converted to dairy and row crops and urban land uses. This conversion can degrade the quality of watershed resources and it is often the degree and balance of disturbance in urban land uses versus rural that is of consequence. Said differently, rural land use development may impact watershed health in a dispersed manner whereas urban influences are more concentrated.

As rural lands are developed, shifting from grazing to intensified agriculture and/or urban uses, water consumption generally increases, rainfall runoff volume and velocity increase as impervious surfaces increase, groundwater recharge/infiltration decreases, bank erosion and channel incision may increase, and tributary and mainstem peak flow volumes, and therefore flood risk, increase during the rainy season. In the dry season, base flow is reduced as groundwater is pumped year-round.

Although urbanization in the Santa Rosa Creek watershed is limited to the relatively small community of Cambria and surrounding neighborhoods, several of the impacts associated with land use shift have been documented in the lower watershed. These include increased municipal water demand that can reduce instream flows (see Section 2.6), additional instream infrastructure that reduces habitat quality (see Section 2.7), and increased rainfall runoff and associated impacts to water quality and drainage (see Section 2.8). Urban development of the watershed has been limited by land use planning regulations and water supply (see Section 2.2.5 below), and is constrained to the downstream end of the watershed, where the ill effects associated with urbanization are limited to a small portion of the watershed. Changes in land use controls could, however, lift some of the current constraints to urbanization (see Section 2.2.5 below). It will be important to recognize and prevent or mitigate land use changes that could exacerbate the ill effects associated with urbanization or promote the expansion of such land use changes further up the watershed.

2.2.5 Land use controls

While a portion of the lower watershed has already been developed, outside of this area the pattern of rural to urban land use conversion is currently limited in the majority of the Santa Rosa Creek watershed. This is due to a variety of planning related factors, such as the Coastal Act, Local Coastal Program, Williamson Act, and agricultural and rural land use designations that limit development, and physical factors, such as the limited supply of water and road access to

[2] Underlying antiquated subdivisions are parcels created before modern land-use planning laws. These parcels underlay larger parcels created by the California Subdivision Map Act and they are antiquated because they were created before the Map Act was passed.

most of the watershed. Several of these land use control are, however, at risk of being lifted, which could increase the conversion of rural land uses to intensified agriculture and/or urban uses and, as described above, result in serious impacts to the ecological conditions of the watershed.

A major difference in land use controls within the two planning areas of the watershed is the resource protections provided by the California Coastal Act and the Local Coastal Program that apply only to the lower watershed in the North Coast Planning Area (see Figure 2-3). The Coastal Act requires protection of agricultural resources and environmentally sensitive habitat areas and provides an additional layer of development permit review by the California Coastal Commission. In addition, land use plans in the coastal zone must be consistent with the resource protection requirements of the Coastal Act and must be certified by the Coastal Commission. By contrast, the upper half of the watershed is not subjected to the same state agency scrutiny during the planning process or the development review process. Land uses are also tracked by the Coastal Commission during periodic reviews that provide additional data that are not available for inland portions of the upper Santa Rosa Creek watershed.

The geographic dividing line of the Santa Lucia Mountain ridge separates the development patterns in the upper Santa Rosa Creek watershed from other areas within the Adelaida Planning Area. While the majority of the planning area spreads east and south from the ridge to include land adjacent to the urban communities of Paso Robles, Templeton, Atascadero, Cayucos, and Morro Bay, the upper Santa Rosa Creek watershed is remote from urban communities other than Cambria and is connected to Cambria only by Santa Rosa Creek Road which at some points narrows to a single lane. Santa Rosa Creek Road is the only collector road in the watershed (Adelaida Planning area Circulation Map). Therefore, data representing the overall Adelaida Planning Area do not reflect the coastal influences, geographic conditions and development patterns that have occurred in the upper Santa Rosa Creek watershed and cannot be relied upon to show development trends in that area. The development projects completed between 2003 and 2008 in the Adelaida Planning Area (Table 2-1) do not represent the development that has occurred on the upper slopes of the Santa Rosa Creek watershed. For example, there are only two wineries in the Santa Rosa Creek watershed, while data for the Adelaida Planning Area show 36 new wineries completed between 2003 and 2008 (Table 2-1).

Development on the majority of privately-owned currently undeveloped parcels in the watershed is limited under Williamson Act contracts (Figure 2-4). The Williamson Act, the common name for the California Land Conservation Act of 1965, enables local governments to enter into contracts with private landowners for the purpose of restricting specific parcels of land to agricultural or related open space use. In return, landowners receive property tax assessments which are much lower than normal because they are based upon farming and open space uses as opposed to full market value. If Williamson Act contracts are allowed to expire one of the primary land use controls in the watershed will be lifted, and large parcels, particularly in the Adelaida Planning Area where California Coastal Act and Local Coastal Program protections do not apply, may be at risk of subdivision and development.

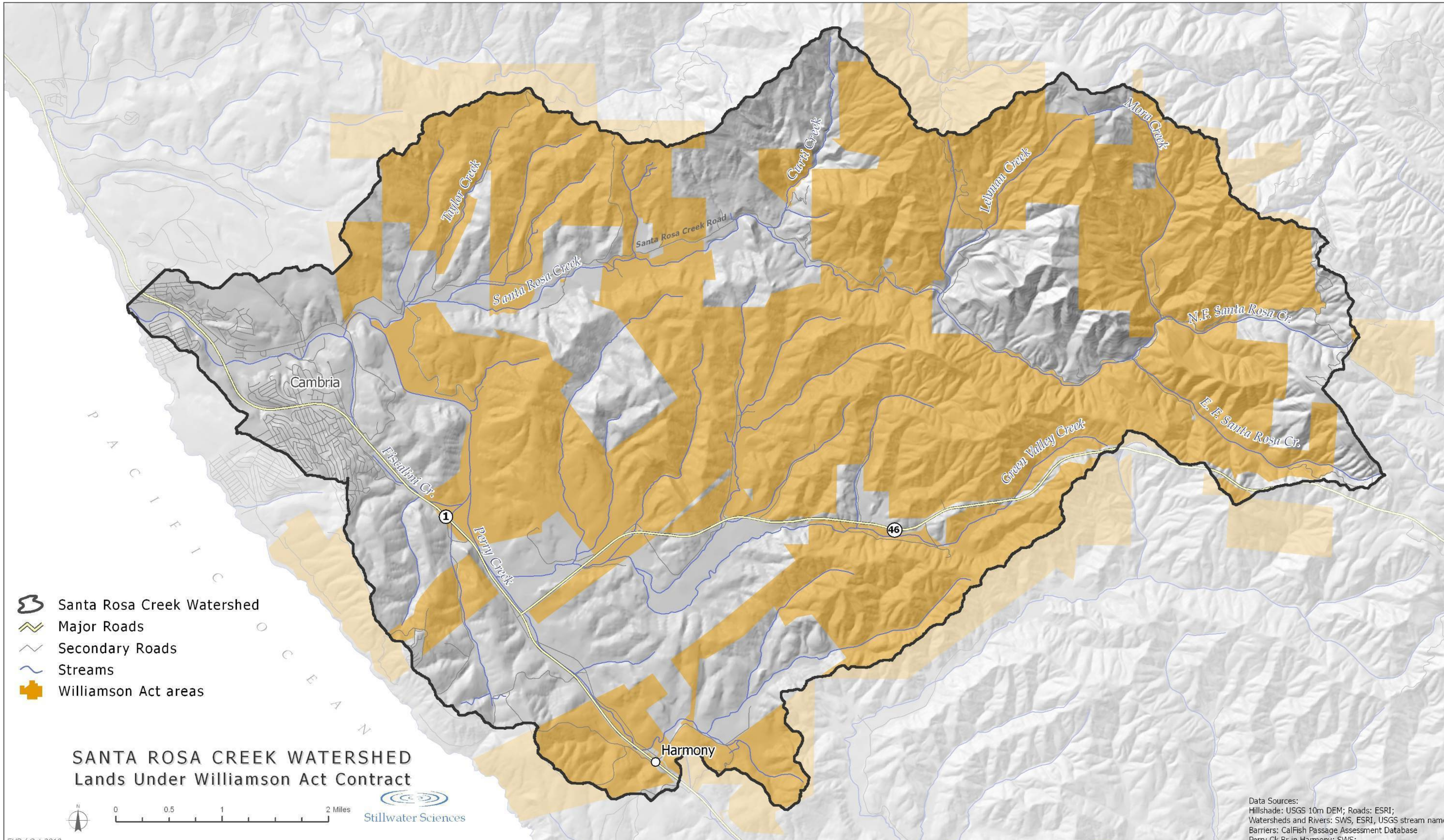

Figure 2-4. Land under Williamson Act contract within the Santa Rosa Creek watershed.

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The CCSD and U.S. Army Corp of Engineers (USACE) are currently assessing the feasibility of a seawater desalination plant at the mouth of Santa Rosa Creek. The desalination plant would improve water supply reliability in the CCSD service area, particularly in dry years, by augmenting the San Simeon and Santa Rosa Creek groundwater aquifers that are currently relied upon (CCSD 2008). At the December 9, 2011 California Coastal Commission hearing the USACE was unanimously denied a Coastal Consistency Determination by the Commission to conduct geo-technical drilling in the vicinity of the mean high tide line at the mouth of Santa Rosa Creek. The Commission determined that the proposed geo-technical study site was inappropriate because the mouth of Santa Rosa Creek and the associated lagoon are among the most protected and sensitive habitats on the Central Coast. If ultimately approved, however, a desalination plant could remove one of the key physical controls on population growth in the watershed and surrounding areas. The proposed desalination plant has the potential to produce unlimited amounts of water; however, as currently proposed it would produce 602 acre-feet of water per year. The plant would consist of subterranean seawater intake, pumping and pipeline facilities to transport the seawater to the desalination plant, reverse osmosis desalination treatment, a groundwater blending system, facilities to pump the treated water into the water supply distribution system, and disposal of desalination effluent into the ocean. The site currently being considered for intake and effluent disposal is the beach at the mouth of Santa Rosa Creek (CCSD 2008). Potential impacts related to construction and operation include: disturbance and mobilization of mercury, adverse impacts to protected species such as steelhead, California red-legged frog, and tidewater goby (California Coastal Commission 2010), and drawdown of water levels in the lagoon. To avoid influencing lagoon water levels, the beach wells must be constructed more than 500 feet from both the Santa Rosa and San Simeon creek lagoons (North Coast Engineering, Inc. 1993).

The growth-inducing impacts of a future water supply project such as a desalination plant and the additional water supply it will create, were analyzed in CCSD's Water Master Plan program-level Environmental Impact Report, which was certified by the CCSD Board of Directors on August 21, 2008 (R. Gresens, pers. comm., 2012). The CCSD operates a voluntary Buildout Reduction Program inside the town of Cambria, designed to reduce water demand by retiring and merging buildable lots. In addition, CCSD must also abide by conditions in San Luis Obispo County's (2008) North Coast Area Plan, which states that for any major public works water supply project to support new development within the CCSD service area "[t]he maximum service capacity of the project will not induce growth inconsistent with the protection of coastal resources and public access and recreation opportunities" and that "[t]he project shall assure that CCSD water withdrawals from Santa Rosa and San Simeon Creeks will be sufficiently limited to protect: (1) adequate instream flows necessary to support sensitive species and other riparian/wetland habitats within the reach of the streams affected by CCSD pumping; (2) underlying groundwater aquifers; and (3) agricultural resources." The North Coast Area Plan, however, anticipates that desalination will be a source of water for development outside of Cambria and, as such, the potential for growth-inducing impacts associated with a desalination plant or other major water supply project would primarily be outside of the current CCSD service area. By ordinance, CCSD accepts and processes applications for delivery of water outside of Cambria based on availability of water, which would notably increase if a desalination plant or other major water supply project becomes operational. In 2006, Measure P-06 was passed by CCSD-district voters which requires a majority vote of the CCSD electorate to extend potable water service outside of 2006 CCSD boundaries. Measure P-06 further requires an environmental review under the California Environmental Quality Act and an amendment to the Water Master Plan before potable water service is extended beyond 2006 CCSD boundaries.

2.3 Climate

Coastal watersheds along the western flank of the Coast Ranges experience a two-season Mediterranean-type climate, with wet cool winters and dry warm summers. The regional climate is controlled by the North Pacific High, a high pressure system resting over cold upwelling waters of the eastern Pacific, while the local climate is controlled by the watershed's topography and proximity to the ocean (Carle 2006). The Pacific High system deflects storms from reaching the California coast during summer months, resulting in dry westerly winds blowing over cold ocean water and often producing fog. In the Santa Rosa Creek watershed, this fog belt typically extends inland 8 miles from Cambria. During winter, the Pacific High retreats to the south resulting in high rainfall in California concentrated between November and April. Overall, the California coast experiences highly variable annual rainfall depending on each storm's frequency and magnitude on the landscape relief. Mean annual rainfall across the watershed varies between 21 and 37 in (53 and 94 cm), as reported by the U.S. Department of Agriculture (1971–2000) and San Luis Obispo County Division of Public Works (1954–2008) (Figure 2-5). A clear pattern of increased rainfall with elevation is expressed across the watershed, as the lowlands near Cambria, including much of Perry and Green Valley creeks, receive nearly half the rainfall received in the headwaters of Santa Rosa Creek.

Periodicity in the pattern of the wet/dry years in California is correlated to the El Niño–Southern Oscillation (ENSO) climatic phenomenon. ENSO is characterized by warming and cooling cycles (oscillations) in the waters of the eastern equatorial Pacific Ocean. Specifically, El Niño episodes are initially driven by abnormally low atmospheric pressures in the eastern Pacific, resulting in lower upwelling rates of cold ocean waters and, therefore, a persistence of warmer surface water temperatures (Kousky and Bell 2000). Ultimately, the warmer waters lead to increased precipitation along the eastern Pacific, extending up to California. ENSO cycles typically have a 1- to 1.5-year duration and 3- to 8-year recurrence interval. ENSO-induced climate change occurs on a multi-decadal time scale that is consistent with the recent shift from a relatively drier climate (averaged over the period 1944–1968) to a relatively wetter climate (averaged over the period 1969–1995) in North American's Pacific region (Inman and Jenkins 1999). The most recent El Niño events occurred in water years 2007 and 2010 (NOAA 2009a).

A long-term record of annual precipitation totals in San Luis Obispo County (SLO Cal Poly rain gauge #1.0) from 1870 to present day is presented in Figure 2-5. The precipitation record indicates periods of cumulative wetter and drier periods in the region, where most wet years coincide with large floods (see Section 2.6).

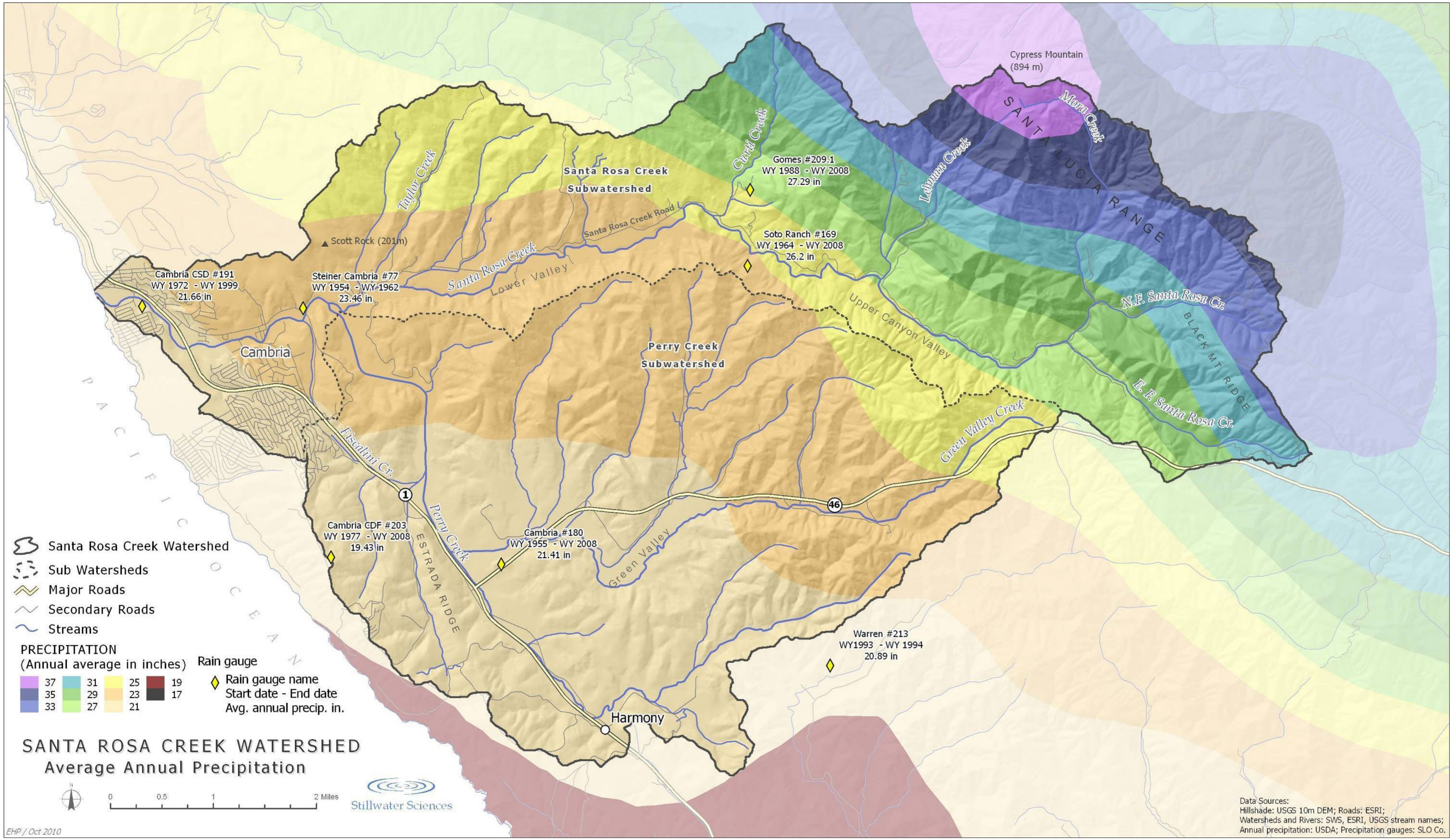

Figure 2-5. Distribution of average annual precipitation in the Santa Rosa Creek watershed. Precipitation contours represent the period of 1960–2001. Rain gauge stations representing various years of data shown for reference.

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In the future, the Santa Rosa Creek watershed is likely to be affected by changes in temperature, precipitation, and sea-level resulting from global warming. Predictions of climate change in California in the next century include warmer winters (by 5–6° F), slightly warmer summers (by 1–2° F), and increased winter precipitation (primarily as rain rather than snow), particularly in the mountains (Field et al. 1999). ENSO events may increase in intensity and/or frequency (Field et al. 1999). In central and southern California the change in precipitation timing is expected to lead to increased winter runoff, decreased summer stream flow, and changes in the frequency and/or intensity of severe storms, droughts, wildfires, and flooding. In addition, global climate change is expected to result in sea-level rise. Based on a set of climate scenarios prepared for the California Energy Commission, Cayan et al. (2009) project that, under medium to medium-high greenhouse gas emissions scenarios, mean sea level along the California coast will rise from 3–5 ft (1–1.4 m) by the year 2100. In the Santa Rosa Creek watershed, such a rise in sea-level would put new areas at risk of flooding, increase the likelihood and intensity of floods in areas that are already at risk, and accelerate shoreline recession due to erosion (Figure 2-6) (Heberger et al. 2009). Such predictions stress the importance of floodplain and coastal conservation, ecosystem restoration, and water conservation to increase the adaptability and resiliency of the watershed to respond to these changes, particularly when considered in conjunction with future land uses and human impacts to the watershed.

Figure 2-6. Predicted flood risk in 2100 in the Cambria area under a 1.4-m sea-level rise scenario. Light blue area is the current coastal base flood (approximate 100-year flood extent), dark blue area is the predicted coastal base flood under sea-level rise (current plus 1.4 m), yellow line is the predicted landward limit of erosion high hazard zone in 2100, and red line is Highway 1. Map used with permission from the Pacific Institute, Oakland, California.

2.4 Geology, Tectonics, and Soils

The Santa Rosa Creek watershed lies along the Santa Lucia Mountain range near the southern end of the geologically distinctive Coast Range geomorphic province. Orientated with the overall NW-SE trending grain of the California topography, the Santa Lucia range follows the southern Coast Range for 93 mi (150 km) between Monterey Bay to the north and the San Rafael Mountains to the south near Santa Barbara. The province resides within a tectonically active zone composed primarily of right-lateral strike-slip (horizontal sliding motion) faults separating the Pacific and North American plates. At the axis of this zone is the 600-mile-long (1,000-km-long) San Andreas Fault, which lies 37 mi (60 km) to the east of the Santa Rosa Creek watershed. Overall, this tectonically and geomorphically active province exhibits intermittent seismicity and asymmetrical drainages offset by faulting. Additionally, the presence of relatively weak rocks at higher elevations in the Santa Rosa Creek watershed has led to naturally high sediment delivery rates, or sediment yields, from those higher relief and steeper tributaries (see Section 2.5).

Much of the Coast Range province, and especially the Santa Rosa Creek watershed, is composed of old, weathered, and partially metamorphosed sedimentary rocks originally formed during the Mesozoic (200 to 100 million years ago [Ma]) and Cenozoic (65 to 25 Ma) eras (Chipping 1987). Today, the majority of the Santa Rosa Creek watershed is predominately (~50%) composed of Franciscan mélange: a mix of hard graywacke (sandstone) and weak, sheared argillite (silt/claystone) (Chipping 1987, Dibblee 2007a 2007b) (Figure 2-7). Following the complete subduction of the Farallon Plate beneath the North American Plate, the eventual transition to a transform (strike-slip) plate boundary began about 25 Ma with the gradual contact between the northwest-moving Pacific Plate and the southeast-moving North American Plate (Atwater and Molnar 1973). This transition marked a geologically brief period of coastal volcanism which locally produced the erosion-resistant Cambria Felsite rocks, as seen today at Scott Rock located east of Cambria near Taylor Creek (Dibblee 2007a). Other volcanic rocks formed during this period include the now highly weathered basalts and hardened tuffs (solidified volcanic ash) of the Obispo Formation that run along a northwest-trending band in the upper watershed. Terrestrial and marine sedimentary rocks formed during this period include a mix of hard, coarse-grained sandstones and weak, fine-grained shales.

The Coast Range orogeny, or mountain-building process, began during the late Pliocene and Pleistocene epochs (≤4 Ma) and continues today. Regional uplift has been driven by crustal convergence that occurs where subtle NW–SE trending bends along the active transform fault zones forcing materials in between the larger faults to "pile up," thereby creating the upland areas of the watershed. Obvious evidence of geologically recent uplift activity is the existence of Pleistocene marine terraces situated along the coastline and the lower watershed. Tectonic movement here may explain the watershed's unusual drainage pattern of being split in two primary halves—Santa Rosa Creek and Perry Creek sub-watersheds—where Perry and Green Valley creeks may have once flowed directly to the coast but were eventually "captured" by Santa Rosa Creek as uplift and transverse migration of the elevated landscape re-directed Perry and Green Valley creeks northward. Coincident with the Coast Range uplift period, the valley floors along Santa Rosa, Perry, and Green Valley creeks have accumulated unconsolidated alluvial and stream-terrace deposits as the uplifted landscape has eroded and delivered its sediments to the valley floors over time. It is within these sediments that the watershed's groundwater basin has developed, which currently serve as a primary water supply source to urban areas and land use activities in the watershed (see Section 2-6).

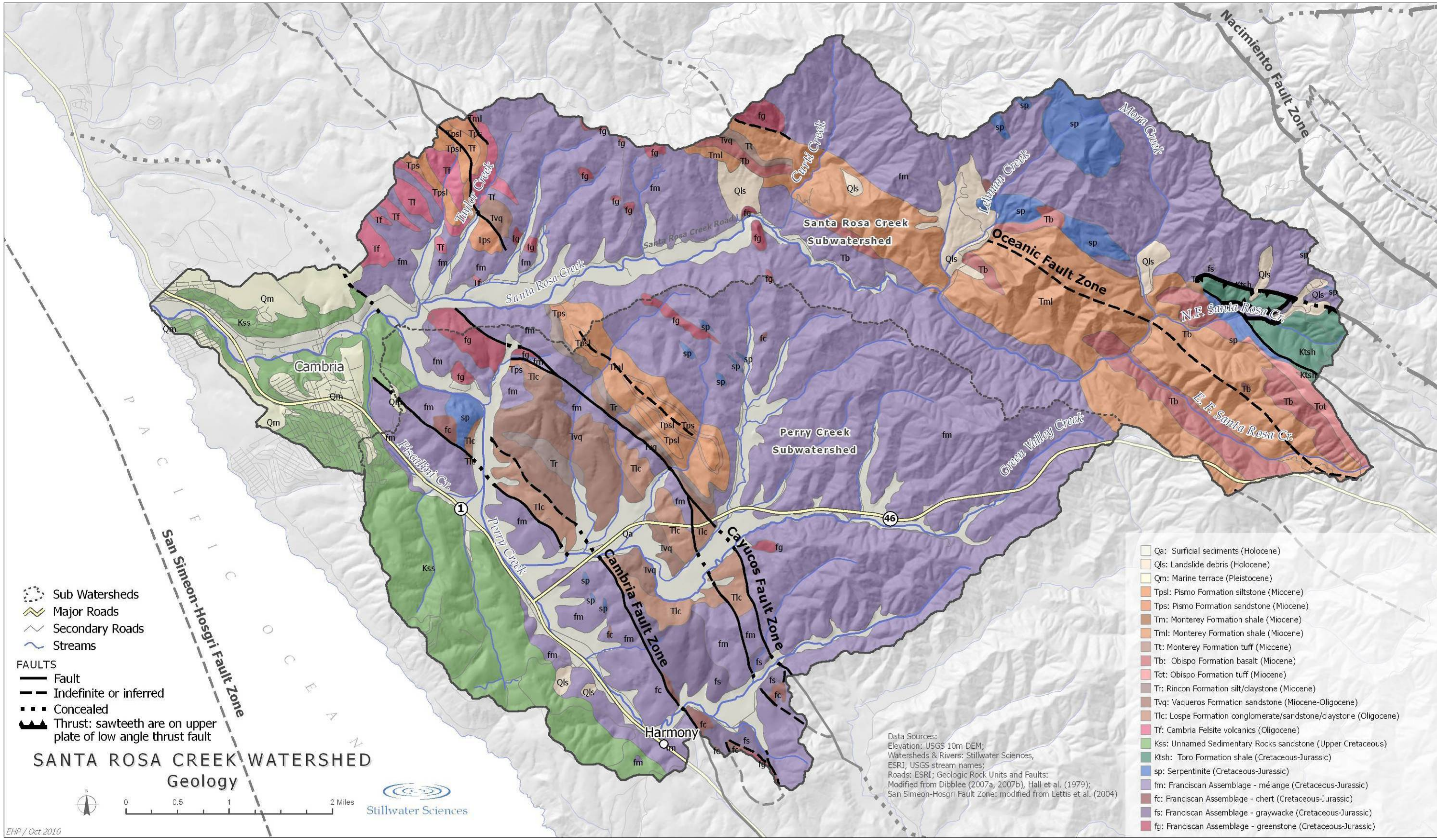

Figure 2-7. Santa Rosa Creek watershed geology.

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With continuous landscape uplift to drive hillslope processes and large areas of highly sheared metamorphic and sedimentary rock units now hundreds of meters above the valley bottoms, the Santa Rosa Creek watershed has geologic characteristics commonly associated with high rates of erosion. Field observations indicate that areas in the watershed displaying relatively high hillslope erosion are chiefly underlain by the fine-grained and easily eroded siltstone and mudstone of the Pismo (shale member), Monterey, Rincon, and Toro formations found traversing the watershed close to the two primary fault traces, and the highly fractured graywacke/argillite of the Franciscan mélange unit that is found throughout the watershed (Figure 2-7).

The sedimentary, metamorphic, and volcanic rocks of the Santa Rosa Creek watershed provide the parent material for much of the watershed's soils, and are one of the primary controls on soil texture and mineral content. As such, topographic form, rainfall runoff patterns, groundwater percolation rates, potential for erosion, and vegetation distribution are strongly influenced by geology. For this reason watershed geology, rather than soils, were used as the basis of the assessment of watershed geomorphology and hillslope sediment production estimates (see Section 2.5 for further discussion). Over 60 different soil types occur in the watershed, most of which are clay to sandy loams (NRCS 1977 and 1984). Additional details on watershed soils are summarized in TLCSLOC (2010).

2.5 Geomorphology

As all aquatic habitat is intimately linked to creek morphology and process, it follows that the habitat also responds to the flux created by sediment sources and storage sites within a watershed. They are particularly affected by changes away from "normal" conditions. For this reason, aquatic habitat is closely linked to geomorphic processes and the influence of human activity. The benefits and hazards of living near to a stream are also linked strongly to changing channel morphology and process: significant erosion of channel banks is often perceived as land loss by the owner, while sediment deposition raises channel bed elevations and makes the adjacent floodplain more prone to flooding. As such, understanding geomorphic processes and their alteration is also central to stream channel and watershed management in general.

A watershed-wide geomorphology study was conducted in 2009–2010 to provide information on the physical watershed and stream channel processes for the development of the watershed management plan. The study subdivided the lower 13 miles (22 km) of Santa Rosa Creek into upper, middle and lower reaches (Figure 2-8), which are referred to throughout this document[3]. The lower reaches begin at the river mouth (stream mile 0) and extend upstream to the confluence with Perry Creek (stream mile 3); the middle reaches extend from the Perry Creek confluence upstream to Mammoth Rock (stream mile 7); and the upper reaches extend from Mammoth Rock to stream mile 14. A detailed technical report of this study is presented in Appendix A, while the major findings have been summarized below.

From the chronology of watershed changes described in Section 2.1 and summarized in Figure 2-1, there are two time periods in recent history that likely had the greatest effect on watershed geomorphic processes: early land clearing in 1860–1880 and population growth, development, and road building from 1950–1990. Overall, the two periods both led to increased flashiness of streamflows, proportionally more rainfall entering the creek as runoff than from baseflow, and increased sediment entering stream channels, especially fine sediment. In comparison, it is likely that land clearing for lumber and agriculture created more extensive geomorphic impacts,

[3] D.W. Alley & Associates (2008) and Nelson et al. (2009) both used different reach delineations for their steelhead monitoring and habitat typing. Reach delineation differences are described in more detail in Section 2.10.1.

including the majority of the over 1,000 gullies still evident across the watershed (see Figure 2-8), whereas the more recent impact of road and urban development primarily impacted Green Valley Creek and the lower reaches of Perry and Santa Rosa creeks.

2.5.1 Sediment production, transfer, and storage

Sediment refers to rock- and soil-derived material that ranges in size from clay to boulder, and includes cobble, gravel, and sand. Coarse sediment refers to gravel-sized material and larger (>2 mm in diameter) and overall has the greatest influence on the morphology of a stream channel (e.g., providing grade control, and forming bar-pool morphology). Fine sediment refers to clay-, silt-, and sand-sized materials (<2 mm in diameter), which in excess can have detrimental affects on aquatic habitat conditions. As a geomorphic unit, a watershed serves to transport sediment from its place of origin to an eventual place of lasting storage. In so doing, a distinctive relief is developed in the watershed that reflects the balance between long-term processes of tectonic uplift and rates of erosion driven by physical, chemical, and biological factors. This balance is generally achieved through the medium of moving water. Sediment sources are those sites predominantly characterized by erosion and often have steep slopes. Sediment storage, particularly in a small coastal watershed such as Santa Rosa Creek, occurs mostly offshore as sediment-laden water exits the watershed, but it also occurs where sediments are deposited on floodplains (where the material is termed alluvium) and at breaks to gentler hillslope gradients (termed colluvium). Connecting sediment sources with their sites of long-term storage is a flux of sediment transport through the watershed, typically occurring on a time scale from years to centuries. The flux of sediment is intermittent and driven mostly by large rainfall or streamflow events, and so most such "short-term" sediment transfer occurs along the creek channel. The exact locations of the short-term sources and storage sites of sediment can, however, be influenced as strongly by human activities as by natural factors. A typical short-term sediment source is the erosion of alluvial stream banks, representing the re-mobilization of previously stored sediment, while short-term sediment storage often occurs on the channel bed in the form of a wave of "excess" sediment deposited after a flood event. Therefore, the typical transfer of sediment through a watershed involves a flux in which changes to the creek morphology is an integral part.

Present day Santa Rosa Creek watershed is characterized, as are most other watersheds, by a wide variety of sediment sources that potentially affect management decisions. The predominant sediment sources and stores in the Santa Rosa Creek watershed, and the dynamics of sediment transfer, are summarized in Table 2-2 and the various source locations mapped in Figure 2-8 (additional detail is also available in Appendix A). The very steep hillslopes in the headwaters of Santa Rosa Creek (and some tributaries to Green Valley Creek) have naturally high sediment yields, and it seems likely that, in geomorphic terms, the historically-noted steelhead populations in the watershed result in part from the habitat created by the delivery of very coarse sediment from the upper reaches of Santa Rosa Creek. The other predominant sediment sources in the watershed have resulted primarily from previous land and channel management, and include gullying, stream bank erosion, and road-related erosion. These processes primarily involve the erosion of the landscape's soils and thus supply primarily only fine sediment to watershed channels.

Historical land clearing for lumber and agriculture is likely responsible for the majority of the over 1,000 gullies still evident across the watershed (Table 2-2, Figure 2-8). Fine sediment yields from these features most likely increased substantially during and following land clearing in the late 1800s and early 1900s, but have probably been reduced closer to historical levels in recent decades (see "Fine Sediment Delivery" in Figure 2-1). This is because, with the exception of development in Cambria over the past several decades, land uses across the vast majority of the watershed have not changed considerably over the past half-century (see Section 2.1). Outside of Cambria's urban boundaries, contemporary views of the landscape are very similar to historical views from the early 1900s, and the number and location of gullies have not noticeably changed since 1937 (see Appendix A for additional detail). Streambank erosion in Santa Rosa Creek is exacerbated by channel incision, a deepening of the channel often resulting from perturbations to the watershed. Channel incision is assumed to have occurred quickly after initial land clearing activities began in the mid-19th century. Over time, channel incision eventually causes the mass instability of channel banks, which then become a source of fine sediment. More recently, channel meandering in the incised reaches has resulted in the erosion of high alluvial banks of the former floodplain (Figure 2-8). Over 250 instances of recorded road-related erosion features exist in the watershed (Figure 2-8), which effectively deliver predominately fine sediment to the channel network. Erosion is focused along cut and fill sections of Highway 46 and Santa Rosa Creek Road, and to a lesser extent Highway 1.

Coarse sediment (gravel and larger) delivered to the mainstem Santa Rosa Creek appears to be delivered primarily from Lehman and Curti creeks in the upper reaches, and from the tributary that runs adjacent to Main Street in the lower reach. Fine sediment (sand and silt) appears to be predominantly derived from tributary sources such as Curti Creek and Perry Creek, which delivers sediment to the lower reach, and local in-channel sources such as bank erosion in the middle reaches.

Table 2-2. Sediment sources, storage, and transfer dynamics in the Santa Rosa Creek watershed.

Location	Process/Description
Sediment Sources	
Landslides	Only 17 landslides are recorded in the areas of watershed without canopy cover, but they are individually high-yielding. Landslides are concentrated in high relief, steep-sided areas, primarily in the headwaters of Santa Rosa Creek. Landslides erode previously stored colluvium on hillslope swales and, potentially, weathered bedrock closer to the failure plane. Mixed-load sediments released as part of large deep-seated landslides, as mapped in geologic maps of the watershed (see Figure 2-7), may reside for years to centuries before eventually being completely delivered to the stream network.
Gullies and rills	Gullies and rills are numerous throughout the watershed. Over 1,000 gullies have been recorded and many have evidently been present since the late 19th century and so may be past their sediment production peak. These features primarily result in the production of fine sediments as they erode soil-mantled, moderately steep hillslopes and, because they are often connected directly to the stream network, a near 100% delivery ratio of sediment can be inferred. Gullying in the watershed is likely to have resulted in far higher volumes of fine sediment delivered to the channel network during and following their formation, which have likely been reduced closer to pre-development levels in recent decades.
High yielding Geomorphic Landscape Units	Areas of the watershed with the highest sediment yield potential are primarily situated on steep, grassland and barren hillslopes composed of weak rock. These areas result in the production of both coarse and fine sediments, but fine sediments are probably derived preferentially from the widespread Franciscan mélange terrain. Sediment delivery from these Geomorphic Landscape Units (GLUs) (see Figure 2-8 and Appendix A) is likely high given the steep hillslopes and confined and steep channels.
Creek incision	Channel incision in the major streams is assumed to have occurred quickly after initial land clearing activities began in the mid-19th century. Incision is widespread but focused in the middle reaches[c] of Santa Rosa Creek and the middle and upper reaches of Perry and Green Valley creeks. Incision initially releases channel bed sediments which may be relatively coarse.

Location	Process/Description
Bank erosion of high bluffs following incision	Over time, channel incision eventually causes the mass instability of channel banks of the former floodplain which then makes them a highly effective source of finer sediment as the channel widens. More recently, meander activity as the incised reaches recover their equilibrium has allowed erosion of high alluvial banks of the former floodplain, causing a net sediment supply biased towards fine sediment.
Road-related erosion	Over 250 instances of recorded road-related erosion features exist in the watershed. Erosion is focused along cut and fill sections of Highway 46 and Santa Rosa Creek Road (and to a lesser extent Highway 1). Because road drainage frequently serves channel road runoff from the road surface efficiently to the channel network, sediment (particularly fine sediment) is also delivered very effectively to the channel network.
Sediment Storage	
Lower Perry Creek in the vicinity of the former Estrada Lake	Historically, Estrada Lake at the downstream end of Perry Creek probably trapped all coarse and most fine sediments delivered by the contributing streams, meaning that few sediments from the Perry Creek sub-watershed ever reached Santa Rosa Creek. Subsequent draining of the lake to create a trapezoidal channel permitted the transport of sediment, especially fine sediment, from the Perry Creek sub-watershed into Santa Rosa Creek. Subsequent incision of the lowest reach of Perry Creek must have resulted in the remobilization of former lake sediment (i.e., fine, organic-rich sediment). The broad-bedded, low gradient ditch farther upstream still favors the deposition of coarse sediments before reaching Santa Rosa Creek, and a noticeable fining of bed material occurs on Santa Rosa Creek downstream of the Perry Creek confluence.
Water storage ponds	There are over 40 small water storage ponds throughout the watershed, with a greater proportion in the Perry Creek sub-watershed (Figure 2-8). They regulate 8% of the watershed area but are likely to have low sediment-trapping efficiencies, trapping primarily a small amount of coarser-grained sediments.
Channel bed in upper reaches	Field evidence indicates temporary storage of coarse sediments delivered from the steep, high relief tributary sub-watersheds (e.g., East Fork Santa Rosa and Curti creeks) into mainstem Santa Rosa Creek. Along the mainstem, there is also field evidence for the temporary storage of coarse material in channel and floodplain locations. Remobilization of the coarse sediment occurs during high flow events with material either wholly entrained or abraded into finer, more easily-transportable particles.
Channel bed in lower reaches	While lower gradient reaches are frequently characterized by finer sediment beds and sediment deposition, field evidence of short-term storage of fine material on the channel bed may reflect high rates of fine sediment supply to the lower reaches, especially from the Perry Creek sub-watershed.
Transfer Dynamics [a]	
Upper reaches	The upper reaches are very capable of mobilizing the median grain size (~2–3 in [~50–90 mm]) of the channel bed during even moderate flow events and the channel morphology rates as highly active. Fine sediment is transferred quickly from the reaches, whereas field evidence indicates the temporary storage and probable breakdown of very coarse material.
Middle reaches	Middle reaches are competent to transport the median grain size (~0.7–2 in [~20–50 mm]) of the channel bed during even moderate flow events and the channel morphology rates as highly. This stream power is borne out by increased sinuosity in these reaches since the early 20th century in which coarse sediment is deposited in the form of channel bars and larger volumes of fine sediment are derived from the high banks of the former floodplain surface.
Lower reaches	Lower reaches are competent to transport the median grain size (~0.2–1 in [~5–45 mm]) of the channel bed during even moderate flow events and the channel morphology rates as highly active. These reaches exhibit unusually high stream power for such low gradient reaches and may reflect bank protection which prevents the exchange of sediment from channel banks and prevents channel widening in response to flood events.

[a] See Figure 2-8 for locations of Santa Rosa Creek reaches.

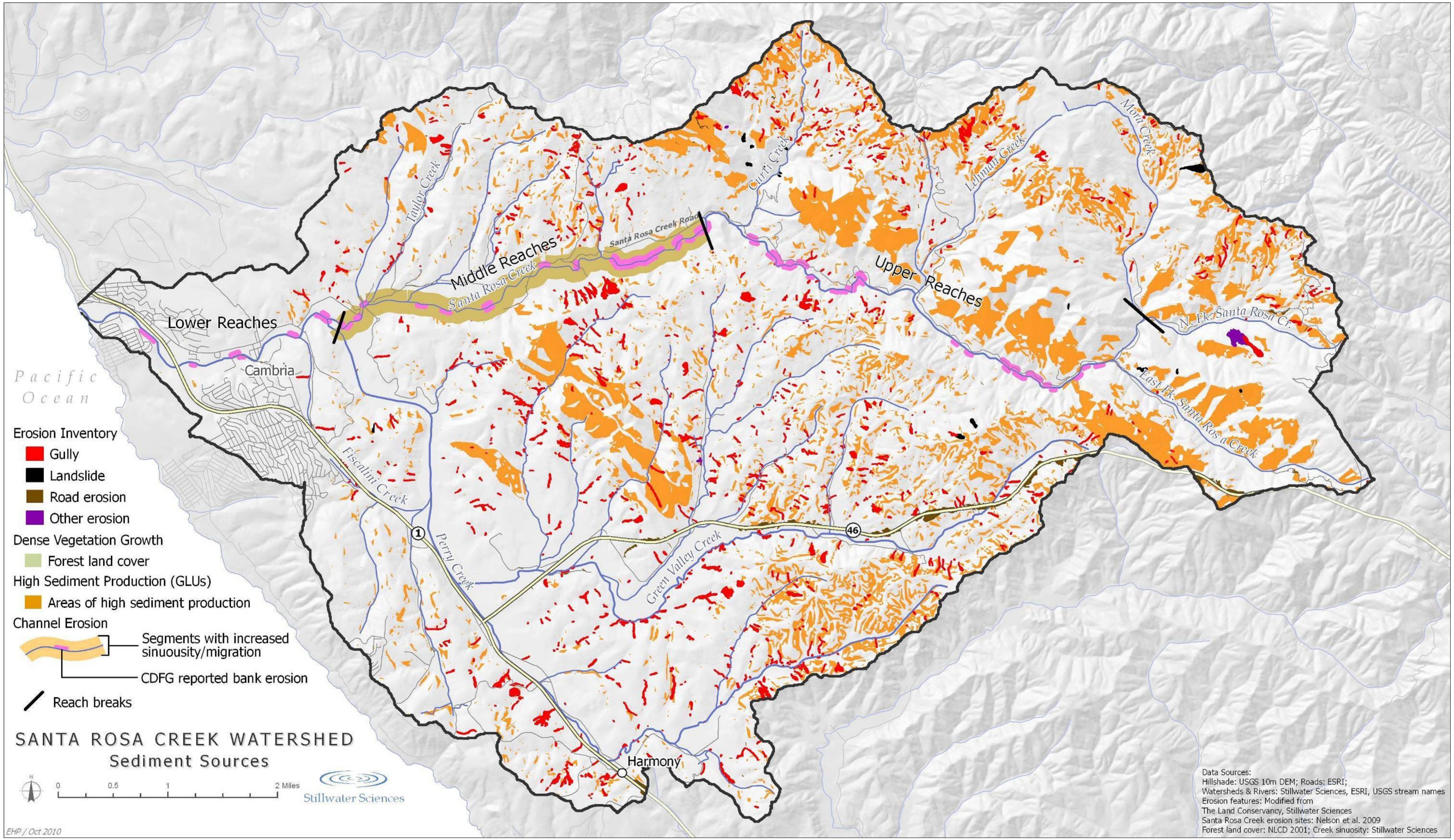

Figure 2-8. Sediment source and transfer areas in the Santa Rosa Creek watershed.

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2.5.2 Channel morphology

Understanding the character of the creek morphology and its sediment is a fundamental component in understanding how fluvial processes will affect the creek, the likely extent and availability of aquatic habitat, the extent of human impacts on the creek, and should be used to devise appropriate management actions into the future. Conditions in the upper, middle and lower reaches of Santa Rosa Creek, the Perry/Green Valley Creek sub-watershed, and lagoon are summarized below.

Examples of conditions in the upper, middle, and lower reaches of Santa Rosa Creek

The upper reaches of Santa Rosa Creek are characteristic of a mountain river, with a steep, confined morphology and a boulder-cobble-gravel bed. Lehman and Curti creeks provide a relatively high supply of coarse to fine sediment to these reaches.

The middle reaches display the features of a classic alluvial channel, with a sinuous channel that meanders through deposited alluvium, and a cobble-gravel bed characterized by pool-riffle bedforms. The middle reaches transition from a highly incised reach with active bank erosion and high sediment input at its upstream extent, to a moderately incised and apparently less dynamic reach as the degree of channel confinement increases and bedrock control once again becomes an influence near the confluence with Perry Creek. Comparing aerial photographs from 1937 to 2007, there has been a significant increase in the sinuosity of the middle reaches (Figure 2-8). The increase in sinuosity of this incised reach is evidence that the channel is still recovering from the impact of land use change in the mid-19th century. Land clearing for lumber and agriculture changed rainfall-runoff dynamics by decreasing landscape surface roughness (i.e., vegetation removal), thereby increasing the stream power in the creek for a given rainfall intensity and duration (i.e., increased hydrograph "flashiness"). Stream bank erosion in the middle reaches is one of the primary sources of fine sediment in Santa Rosa Creek.

Bedrock control returns at the junction with the lower reaches which have a sand-gravel bed and are moderately confined by terrain and development and show signs of aggradation before becoming tidally influenced near the low-gradient creek mouth (described in more detail below). Sediment delivered to the lower reaches from upstream Santa Rosa Creek, Perry Creek, and from local tributaries has resulted in a large amount of stored sediment in the reach. Banks are relatively stable, not least where extensive riprap protection exists.

Perry Creek enters Santa Rosa Creek approximately 2 mi (3 km) upstream of the Highway 1 Bridge and is the largest tributary. It is characterized by a moderately confined channel with finer bed sediment that flows approximately 10 mi (16 km) from the town of Harmony downstream to the confluence with Santa Rosa Creek. Lower Perry Creek was channelized from the former Estrada Lake and begins as a trapezoidal cut roughly paralleling Highway 1 while the lowest reach is incised into the organic-rich sediments of the former lake bed. The major tributary of Perry Creek is Green Valley Creek, which enters approximately 5 km upstream from Santa Rosa Creek confluence. Green Valley Creek originates in the steep, south-facing hillslopes along Highway 46, flows west through a confined alluvial valley, and enters Perry Creek in a broad alluvial zone near Highway 1. From limited field observation and available data, the upper reaches of mainstem Green Valley Creek appear somewhat similar to the upper reaches of Santa Rosa Creek in terms of valley confinement, but unlike Santa Rosa Creek, Green Valley develops a very wide alluvial valley through its middle and lower reaches. These reaches are highly incised and actively eroding their banks. Together, Green Valley and Perry creeks transport a mixed sediment load skewed toward finer sediment that includes silt/fine sand to fine cobbles, with the dominant sediment bed particle size ranging from coarse gravel in the upper reaches to fine gravel in the lower reaches. The Perry/Green Valley Creek sub-watershed is another of the primary sources of fine sediment in Santa Rosa Creek.

Perry/Green Valley Creek sub-watershed

The morphology of the coastal barrier lagoon at the mouth of Santa Rosa Creek is influenced by prevailing onshore currents and the effects of a rock island close offshore, by flows from Santa Rosa Creek, and by topographic constraints that are both geologic and a function of a landfill and riprap (at present-day Shamel Park). The upstream end of the lagoon is defined by the upstream extent of tidal influence, which is well below the Highway 1 Bridge. Overall, the lagoon responds largely to incoming streamflow including its pattern of seasonal breaching which is usually in response to overwash from ocean swells and to high flows from Santa Rosa Creek that overwhelm the capacity of the lagoon. The morphology of the lagoon has remained remarkably static since at least 1919, when the earliest USGS (1919) topographic maps and aerial photographs of the area are available (see Appendix A for additional detail). In a comparison of the lagoon over time, two main patterns are apparent: (1) the mouth has nearly always occupied its current position, on the north end of the beach adjacent to the marine terrace, with few exceptions (e.g., 1986); and (2) the amount of vegetation adjacent to the lower creek channel and lagoon has increased considerably since the earliest aerial photograph in 1937 (see Appendix A for additional details). It can be inferred from historical aerial photographs that neither net aggradation nor erosion has occurred during the past 70-plus years based on the following: (1) the lower stream channel and lagoon have maintained a relatively static position (i.e., no meandering or avulsions); and (2) the lower stream channel exhibits a similar, albeit transitory, bar and pool morphology. This has positive implications for the continued functionality of an ecologically-important lagoon.

2.6 Surface and Groundwater Hydrology

2.6.1 Hydrologic conditions

The climatic and hydrologic characteristics of the watershed produce a perennial flow regime along the majority of Santa Rosa Creek, while most tributaries, including Perry and Green Valley creeks, experience intermittent flows (Figure 2-9). Discharge has been measured over the past 50 years in both the upper (i.e., upstream of Mammoth Rock) and lower watershed (i.e., downstream of the Perry Creek confluence) by three gauges operating at different time periods (Table 2-3, Figure 2-9). During this time annual maximum flow has ranged by a factor of ~50 (60 to 3,350 cfs [1.7 to 95 $m^3 s^{-1}$]) in the upper watershed, and even more widely (<1 to <12,000 cfs [<0.03 to 340 $m^3 s^{-1}$]) in the lower watershed between water years (WY) 1962–1994, with the largest flow recorded at both locations occurring in WY 1969. The monthly streamflow patterns closely follow the seasonal precipitation patterns, where the highest flows occur in winter (Figure 2-10). In summer and fall, monthly average flows are often less than 5 cfs (0.14 $m^3 s^{-1}$), leaving many stream reaches dry, such as immediately downstream of Mammoth Rock where any surface water delivered from upstream reaches seeps down to the groundwater table (Figure 2-9).

The discussion of watershed hydrologic conditions in this section are informed by two stream gauges: one in the upper watershed (USGS 11142200) and one in the lower watershed at the Highway 1 Bridge crossing (SLO County Station 16). The active stream gauge at the Main Street Bridge crossing (SLO County Station 21) is not included because it was found to have large variations in reported annual maximum discharge, likely as a result of a lack of flow calibration. For consistency, this discussion focuses instead on the Highway 1 gauge in the lower watershed because it was used as part of a recent USGS groundwater recharge study conducted in the watershed (Yates and Van Konyenburg 1998).

Table 2-3. Stream gauges of Santa Rosa Creek.

Stream gauge ID	Stream gauge operator	Stream gauge location	Period of record (water years)
USGS 11142200	U.S. Geological Survey	0.4 mi (0.7 km) upstream of Curti Creek	1958–1972
SLO County Station 16	San Luis Obispo County Water Resources, Division of Public Works	Highway 1 Bridge	1976–1992
SLO County Station 21	San Luis Obispo County Water Resources, Division of Public Works	Main Street Bridge	1989–present

From the extended annual maximum flow data, the annual maximum discharge expected to be equaled or exceeded approximately once every 1.5 to 2 years (the statistical "bankfull" flow event) during this time period is approximately 760–1,100 cfs (21–30 $m^3 s^{-1}$) in the upper watershed and 1,800–2,700 cfs (50–78 $m^3 s^{-1}$) in the lower watershed. These "bankfull" flow events, which are geomorphically significant (see below), have the potential to occur in any month, but are more likely to occur in February or March (Figure 2-10).

Similar to other Coast Range watersheds, flood flows in Santa Rosa Creek typically increase, peak, and subside rapidly in response to high intensity rainfall. This hydrologic attribute is characteristic of a "flashy" hydrograph, whereby a rapid increase in discharge occurs over a relatively short time period with a quickly developed peak discharge in relation to normal baseflow (Ward 1978). Since 1958, large flood events have occurred in 1967, 1969, 1973, 1978, 1986, 1993, 1995, and 2005, frequently (but not always) corresponding with ENSO years (NOAA 2009b), which is consistent with an understanding that ENSO years in the Coast Ranges, especially south of 35ºN (Cambria is at 35.6ºN), are characterized by relatively high rainfall intensities, with rivers and streams exhibiting higher annual peak flows than they do in non-ENSO years (Cayan et al. 1999, Andrews et al. 2004).

Inundated floodplain during high flows

The Santa Rosa Valley groundwater basin underlies the Santa Rosa, Green Valley, and Perry creek valleys and is approximately 4,480 ac (7 mi^2) in size (Figure 2-9) (CDWR 2004). The groundwater storage capacity of the basin has been estimated at 24,700 ac-ft, although the actual volume is unknown and likely fluctuates in response to seasonal variations in rainfall and groundwater extraction (Yates and Van Konyenburg 1998, CDWR 2004). Groundwater levels in the basin are typically highest during the wet season, decline during the dry season, and then recover to higher levels in the following wet season. The groundwater basin is recharged primarily from seepage of surface flows in Santa Rosa Creek and its tributaries, deep percolation of precipitation, and residential/agricultural return flows (Yates and Van Konyenburg 1998). During dry periods, flows in Santa Rosa Creek can be insufficient to recharge the basin, which can lead to seawater intrusion and water quality degradation (Yates and Van Konyenburg 1998). Since the 1950's there has been one temporary seawater intrusion event (in 1961), although there is not a good understanding of why this occurred (Yates and Van Konyenburg 1998).

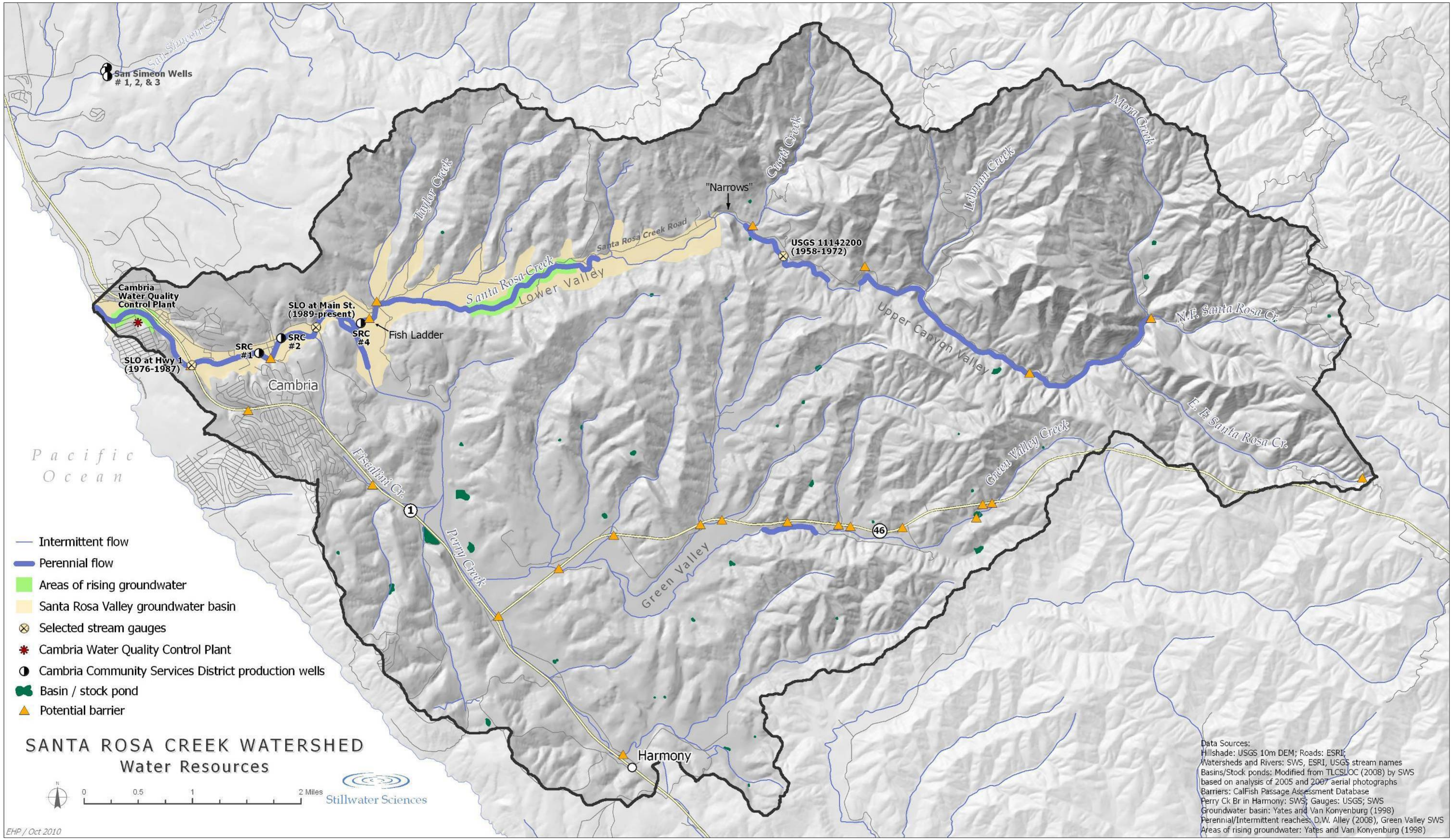

Figure 2-9. Water resources in the Santa Rosa Creek watershed. Perennial and intermittent streams, groundwater basin, and stream gauge locations are shown.

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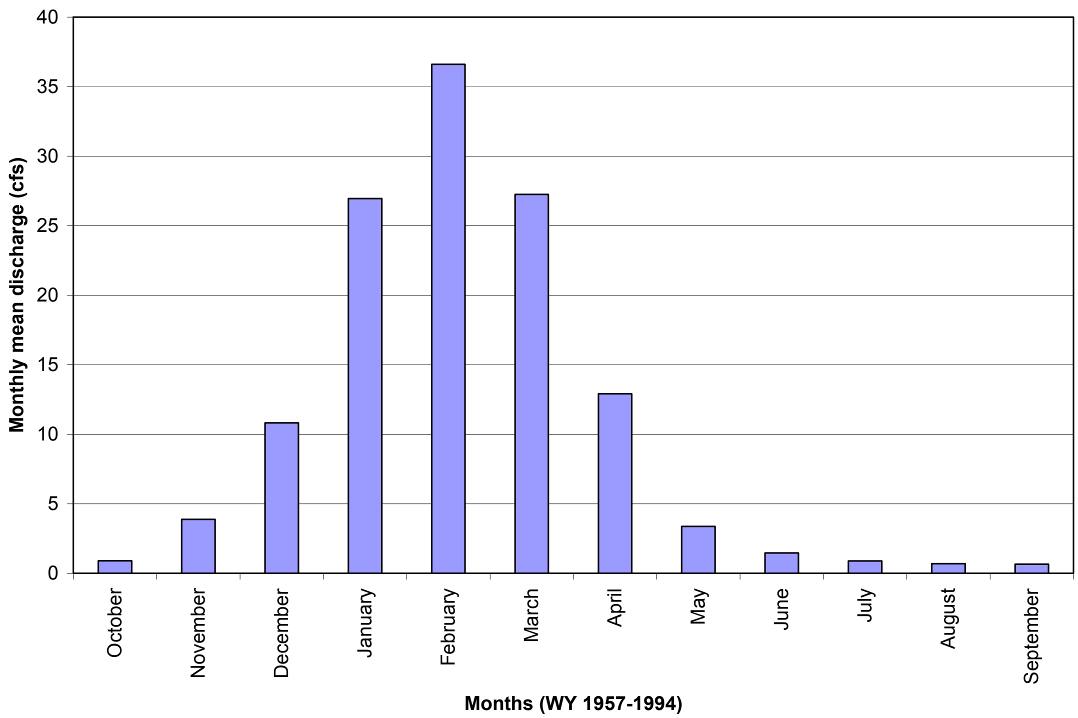

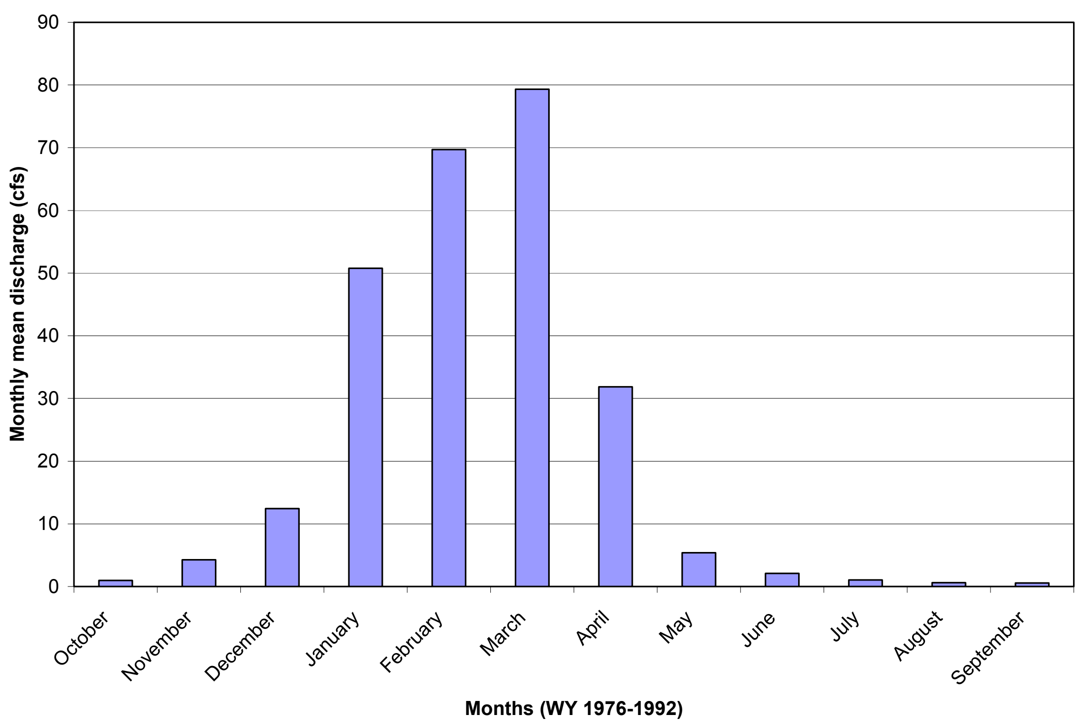

Figure 2-10. Monthly mean discharge for Santa Rosa Creek at Cambria based on USGS gauge 11142200 (from correlation with USGS gauge 11147070 to extend period beyond WY 1972 through 1994) (top) and SLO County Station 16 (bottom).

2.6.2 Groundwater extraction and surface water diversion

The urbanization time period between 1960 and the 1990s also represents an expansion of water use, primarily through groundwater pumping, to irrigate crops and provide drinking water to Cambria. The likely impact of groundwater extraction and limited surface water diversion has been an overall reduction in baseflow within Santa Rosa Creek, and potentially within Perry and Green Valley creeks. Until the San Simeon well field was established in 1979 (see Figure 2-9) to supplement municipal water demands in Cambria, the peak of groundwater extraction by CCSD for municipal water use in the Santa Rosa Creek watershed occurred in 1976 and totaled 520 acre-feet (CCSD 2009), or 3.6 times the total annual stream flow measured at the Highway 1 Bridge stream gauge (annual flow in 1976 = 144 acre-feet; 1976 was a dry water year) (Figure 2-11). Since 1979, annual extraction rates from the Santa Rosa wells have been strongly dependent on water year conditions, where rates peaked above 200 acre-feet during drought (or near-drought) years—1987, 1988, 1990, and 2008—and dropped close to zero during wet (or near-wet) years—1980, 1981, 1982, 1993, 1995, 1996, and 1998. Overall, extraction from the groundwater basin by CCSD has not exceeded the annual permitted limit of 518 acre-feet (CCSD 2008). In late 1990s, CCSD shut down its Santa Rosa wells (SRC-1 and SRC-2; see Figure 2-9) due to contamination risks from hydrocarbons from nearby leaking fuel tanks in Cambria. CCSD subsequently installed a new well (SRC-4) up-gradient of the fuel leak plume close to Coast Union High School and the confluence with Perry Creek (see Figure 2-9); it remains the sole municipal water production well in the watershed. Even with the San Simeon wells in place, the municipal water supply of Cambria has a severity rating of Level III (resource capacity has been met or exceeded) due to unreliability of the groundwater supply to meet existing demands, as designated in the 2011 San Luis Obispo County Draft Master Water Plan (Carollo 2011).

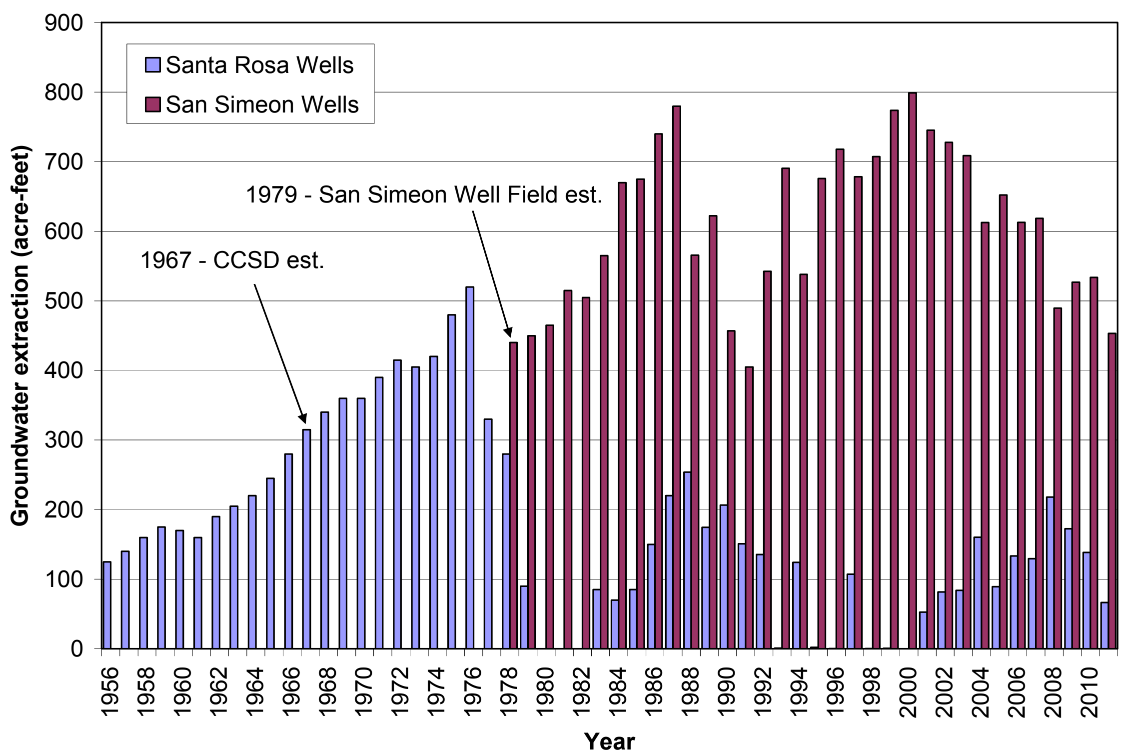

Figure 2-11. Annual groundwater extraction by CCSD from the Santa Rosa and San Simeon groundwater wells to provide Cambria water supply. Data from 1956–1988 provided by Yates and Van Konyenburg (1998) based on CCSD pumping records, and data from 1989–2011 provided by CCSD (2011). All years have recorded data.

Since the majority of municipal water is now supplied by the San Simeon wells (Figure 2-11), groundwater pumping in the Santa Rosa Creek watershed is primarily for private residential and/or agricultural use. Overall, the amount of groundwater extracted by entities other than CCSD is not well known. There are only few estimates of groundwater pumping by private entities available. USGS estimated that groundwater extracted by private entities for agricultural uses in 1988–1989 (after the establishment of the San Simeon wells) was approximately 3.5 times the amount pumped by the CCSD for municipal uses (Table 4 in Yates and Van Konyenburg 1998). The present-day amounts of urban and agricultural groundwater extraction are approximately equal (815 acre-feet per year [AFY] for urban, 830 AFY for agricultural) in the Cambria Water Planning Area, which includes Santa Rosa Creek, San Simeon Creek, Leffingwell Creek, and Villa Creek watersheds (ESA 2010). Agricultural pumping in the watershed typically peaks in the height of the growing season, usually July–August, and is close to zero in winter (Yates and Van Konyenburg 1998). Summer months also have the highest water demand due to increased occupancy and tourism in Cambria (San Luis Obispo County 2008).

Surface water diversion is limited in the watershed (for example, the recent update of the San Luis Obispo Water Master Plan makes no mention of surface water diversions in the Cambria Water Planning Area [Carollo 2011]), primarily because there is little to no instream flow during summer and fall when agricultural water demand is highest. Where surface diversions do occur, ditch pumps are generally employed (Yates and Van Konyenburg 1998). Ditch pumps have low yields and are, therefore, unlikely to significantly reduce surface water availability. The watershed does, however, host approximately 28 stock ponds, all situated on small, low-order tributaries. Taken together, these small ponds, which average 0.5–3.5 acre-feet in storage, intercept surface runoff from about 8% of the total watershed drainage area. In a given year, the amount of surface water intercepted by these ponds potentially ranges between 10 and 100 acre-feet based on their number and size. It is not known whether any of the ponds are supplemented with well water.

As discussed in Section 2.2, the CCSD and USACE are currently assessing the feasibility of a seawater desalination plant at the mouth of Santa Rosa Creek that would supplement the amount of municipal water currently being pumped from the San Simeon and Santa Rosa Creek aquifers, which is intended to improve the water supply reliability in the CCSD service area (CCSD 2008). There is the potential that, if desalinated water is ever used in place of pumped groundwater for the municipal water supply, the decreased extraction of groundwater from the Santa Rosa Creek aquifer could partially restore instream flows within Santa Rosa Creek. However, the extent to which, or even if, desalinated water may be used to replace the use of groundwater for the municipal water supply is unknown based on information available in CCSD (2008) and preliminary plans for the desalination plant. In addition, the majority of groundwater now pumped from the Santa Rosa Creek aquifer is by private entities for residential and/or agricultural water use. There is no indication that desalinated water would be used in place of privately pumped or diverted water from the watershed.

2.6.3 Lagoon hydrology

Similar to other lagoons along the California coast, the Santa Rosa Creek lagoon exhibits a “wet” and “dry” state during any given year, whereby winter and spring flows fill up the lagoon and the lack of flows during late summer and early fall often result in a dry lagoon. During the relatively wet year of 2005, D. W. Alley & Associates (2006) reported that the lagoon remained full throughout the summer. They also reported that lagoon water depth was predominantly controlled by streamflow and that tidal overwash and through-flow (i.e., subsurface flow through the sandbar) had a minimal effect. Flows into the lagoon during summer and fall are likely worsened by low stream flows resulting from excessive groundwater pumping and diversions (Rathbun et al. 1991, Yates and Van Konyenburg 1998, D. W. Alley & Associates 2006, 2008). From 1993 to 2007, summer and fall streamflows immediately upstream of the lagoon ranged from 0 cfs (1994 and 2007) to 2 cfs (2005), with a median of 0.4 cfs (D. W. Alley & Associates 2008). In some lower flow years such as 2003 and 2004, entire sections of the lower lagoon dried up, reducing the area of suitable steelhead rearing habitat (D. W. Alley & Associates 2008). Prior to its relocation farther upstream in 2001, a CCSD groundwater well was located at the upstream end of the lagoon. Groundwater pumping at this location had observable impacts on water levels in the lagoon (Elliott 1995), which have increased since the well was relocated. Depending upon the location, water extraction for the desalination plant proposed by CCSD and the U.S. Army Corps of Engineer's could also decrease water levels in the lagoon (e.g., if the extraction point is located in an area that is hydrologically connected with the lagoon). As such, the extraction point location is likely to be the subject of additional data collection and impact analysis. Low flows and water diversion may also contribute to extended periods of saltwater and freshwater stratification in the lagoon, which results in warmer temperatures and anoxic conditions along the bottom (where denser saltwater settles) (see Section 2.8).

The sandbar typically breaches after high rainfall and remains open for a week or more depending on streamflows; then the sandbar reforms to create the lagoon (M. Walgren, pers. comm., 2010). Often, high wave energy can also contribute to sandbar breaching. Reformation of the sandbar and closure of the lagoon occurs when lower stream discharges and lower-intensity wave action facilitate onshore sediment transport and deposition at the mouth. Lagoon closure can take weeks to months, depending on the stream discharge and wave conditions. While the sandbar is open, the lagoon drains and is subject to the tides. From 1993–2007 the median date of sandbar closure was May 27, with the earliest closure on March 15 in 2007, and the latest closure on July 13 in 1998 (D. W. Alley & Associates 2008). During these years, date of sandbar closure was positively and significantly related to rainfall in the preceding water year, although the relationship was not strong ($r^2 = 0.347$; $P = 0.0209$; n = 15).

Open sandbar at the lagoon

2.7 Infrastructure and Channel Modifications

Infrastructure involves man-made constructs such as dams, roads, and bridges, and facilities related to water diversion and return. Channel modifications include straightening channels, construction of levees for flood control purposes, and bed and/or bank revetments as protection against bank erosion. Generally, these modifications are related to the development of floodplains including routing of roads near stream channels.

2.7.1 Creek crossings and fish passage barriers

There are numerous creek crossings (i.e., bridges and culverts) along Highways 1 and 46 and Santa Rosa Creek Road that may locally influence the dynamics of sediment deposition and erosion and prevent or impede fish migration and movement. Bridges and other crossings frequently cause hydraulic constrictions during high flow, which promote local geomorphic changes including sediment deposition upstream of the structure and erosion of the bed and banks of the creek downstream of the structure as flow accelerates. Likewise, when crossing structures are not built to grade seamlessly with the channel bed, similar impacts are likely. Both causes may result in a significant "step" in the channel bed thereby disrupting geomorphic processes locally and impeding upstream fish passage.

Stream crossings and channel conditions in the Santa Rosa Creek watershed have been assessed by a number of entities to determine the extent to which they may limit fish migration and movement. The results of these assessments have been consolidated in the California Fish Passage Assessment Database (PAD)[4] (CalFish 2009). The potential barriers identified for the watershed in the PAD are summarized in Table 2-4 and mapped in Figure 2-12. The previous downstream-most barrier in the watershed, the Burton Street Bridge apron (PAD ID #707020) was modified in 2006 to provide fish passage under a wider range of flow conditions. In addition, the culverts and fish ladder at Ferrasci Road (PAD ID #700068) that were previously identified as a passage barrier were replaced with a free-spanning bridge in 2011. Without these two barriers, steelhead and other fish species, have unimpeded access to approximately 12 stream miles (19 km) on the mainstem creek between the ocean and East Fork Santa Rosa Creek, which presents the natural limit of anadromy.

Ferrasci Road crossing before (above) and after (below) replacement

There is a concentration of road drainage and crossing-related impacts along Green Valley Creek as part of the Highway 46 construction in the 1970s. The status of these creek crossings in impeding fish passage is largely unknown (Table 2-4), but it is possible that they exclude steelhead from nearly the entire Perry/Green Valley Creek sub-watershed (Figure 2-12). Perhaps the greatest geomorphic impact of these crossings has come from drainage modification approximately 3 mi (5 km) upstream from the junction of Highways 1 and 46. The increase in flow to Green Valley Creek at this location appears to have, at least in part, caused substantial downstream channel enlargement (i.e., bed incision and channel widening) in Green Valley Creek and erosion of the tributary channel downstream of the culvert. The impact appears to extend approximately 1 mi (2 km) downstream to where the channel gradient decreases, the channel width increases, and sediment deposition is observed to occur. Upstream of the road drainage and culvert, exposed bedrock and coarse bed material seem to be controlling the channel grade, thereby inhibiting channel enlargement due to the flow increase.

[4] While the PAD is not an error-proof database, many of the barriers identified in the Santa Rosa Creek watershed (Table 2-4 and Figure 2-10) have been previously field verified.

Table 2-4. Potential fish passage barriers in the Santa Rosa Creek watershed.

PAD ID No. [a]	Barrier location				Barrier description	Barrier status	Barrier priority	Information sources
	USGS-designated stream name	Unofficial stream name [b]	Station					
			mi	km				
712027	Unnamed	Unnamed tributary to Santa Rosa Creek	3.5	5.6	Culvert at Santa Rosa Creek Road crossing	Partial	Low	CCC, Greenspace
712044	Unnamed	Curti Creek	7.6	12.2	Culvert at Santa Rosa Creek Road crossing	Total	Low	CCC, Greenspace
712043	Unnamed	Unnamed tributary to Santa Rosa Creek	9.2	14.7	Culvert at Santa Rosa Creek Road crossing	Total	Low	CCC, Greenspace
712045	Unnamed	North Fork Santa Rosa Creek	12.6	20.2	Culvert at Santa Rosa Creek Road crossing	Total	Low	CCC, Greenspace
731782	Unnamed	Unnamed tributary	2.0	3.3	Culvert at Highway 1 crossing	Unknown	Medium	Caltrans
731365	Fiscalini Creek		6.0	9.6	Culvert at road crossing	Unknown	Medium	Caltrans
736678	Perry Creek		6.5	10.4	Highway 46 Bridge with potential passage constraints	Unknown	Medium	Caltrans
No ID	Perry Creek		8.3	13.4	Culvert at road crossing	Unknown	Medium	Caltrans
736483	Green Valley Creek		7.0	11.2	Highway 46 Bridge with potential passage constraints	Unknown	High	Caltrans
736475	Unnamed	Unnamed trib. to Green Valley Creek	7.5	12.1	Culvert at Highway 46 crossing	Unknown	Medium	Caltrans
736538	Unnamed	Unnamed trib. to Green Valley Creek	9.0	14.5	Culvert at Highway 46 crossing	Unknown	Medium	Caltrans
736487	Unnamed	Unnamed trib. to Green Valley Creek	10.0	16.0	Culvert at Highway 46 crossing	Unknown	Medium	Caltrans
736431	Unnamed	Unnamed trib. to Green Valley Creek	10.5	16.8	Culvert at Highway 46 crossing	Unknown	Medium	Caltrans
736457	Unnamed	Unnamed trib. to Green Valley Creek	10.6	17.0	Culvert at Highway 46 crossing	Unknown	Medium	Caltrans

PAD ID No. [a]	Barrier location				Barrier description	Barrier status	Barrier priority	Information sources
	USGS-designated stream name	Unofficial stream name [b]	Station					
			mi	km				
736621	Unnamed	Unnamed trib. to Green Valley Creek	11.1	17.8	Culvert at Highway 46 crossing	Unknown	Medium	Caltrans
716213	Green Valley Creek		11.9	19.2	Unspecified	Unknown	Unspecified	CDWR
736625	Unnamed	Unnamed trib. to Green Valley Creek	12.0	19.4	Culvert at Highway 46 crossing	Unknown	Medium	Caltrans
736583	Green Valley Creek		12.1	19.5	Culvert at Highway 46 crossing	Unknown	High	Caltrans

[a] Data source: California Fish Passage Assessment Database (PAD) (CalFish 2009).
[b] To help identify unnamed tributaries on USGS topographic maps (USGS 1979a, 1979b) that are referred to elsewhere in this document unofficial tributary names from D.W. Alley & Associates (2008) are presented.

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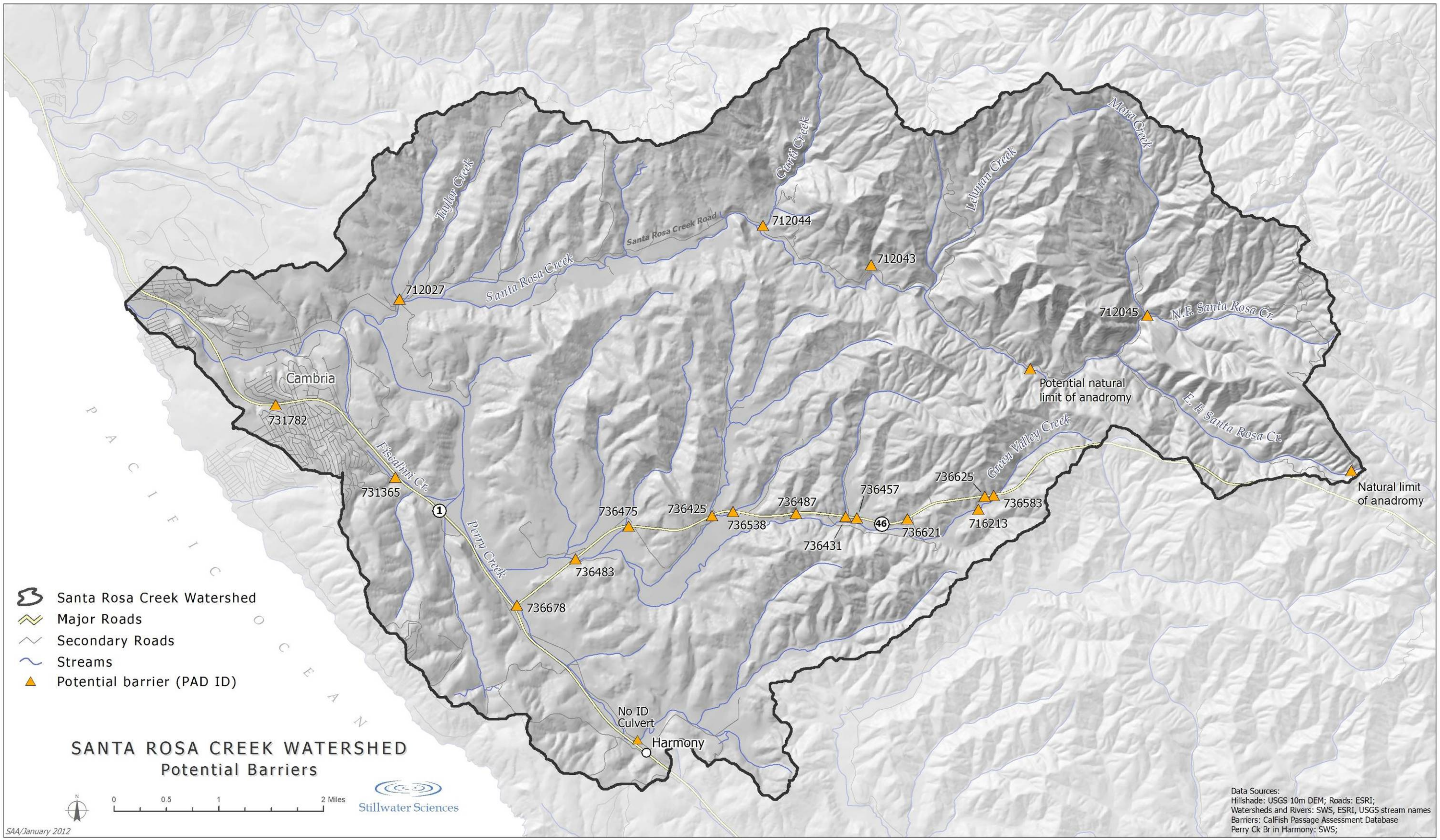

Figure 2-12. Potential fish passage barriers in the Santa Rosa Creek watershed (see Table 2-4 for details).

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2.7.2 Bank revetment and floodplain development

While no levees have been constructed along Santa Rosa Creek or its tributaries, there are numerous instances of bank revetment in the watershed, lining one or both banks of the creek (Nelson et al. 2009). The majority of riprap between the high school and old grammar school, which is composed primarily of boulder-size quarry rock, was reportedly installed immediately following the damaging floods of 1969 to repair banks that had eroded during the floods (D. Dunlap, pers. comm., 2009). In most instances, bank revetment is installed as a piecemeal solution to an on-going bank erosion concern that either threatens infrastructure or results in land loss. Unfortunately, bank revetment is also a symptomatic solution that does not account for the reason that high energy flow exists and is causing erosion. Therefore, bank revetments frequently cause flow to be deflected back across the channel resulting in further erosion downstream. The subsequent threat to downstream land and infrastructure promotes the continuing construction of further revetments and maintenance of existing revetments until such time that the channel is almost entirely revetted. Extensive revetment tends to cause channel incision, more rapid flows, channel bed armoring (i.e., coarse bed surface layer), and reduced topographic complexity of the channel bed resulting in significant reductions in habitat suitability for native aquatic organisms including salmonids.

In addition to in-channel structures, development along channel banks and the adjacent floodplain can have a significant impact on channel morphology. Floodplain development increases runoff associated with impervious area and increases channel confinement associated with bank hardening and structures built along channel banks, both of which have the potential to cause channel incision and/or widening due to increased flow velocities during high flow events. Since 1937, there has been concentrated development on the north bank (i.e., right bank) floodplain along Santa Rosa Creek from Highway 1 downstream. During the improvement of Highway 1 in the mid 1960's (bypass construction), many of the lower reaches of the channel were modified. In an effort to improve building conditions, an abandoned channel meander approximately 0.3 mi (0.5 km) downstream of the Highway 1 Bridge was filled-in sometime after 1937. These development features have undoubtedly played some role in controlling the current channel geomorphic character.

2.8 Water Quality

Surface water in the Santa Rosa Creek watershed has a number of beneficial uses, which are designated by Central Coast Regional Water Quality Control Board's (CCRWQCB) 1994 Basin Plan in order to inform water quality criteria (Table 2-5). A beneficial use is defined as the historical, present, and potential uses of water in the Basin as defined by the RWQCB. The intent is to ensure the continuance of beneficial uses and establish compatible water quality standards as well as the level of treatment necessary to maintain the standards.

Water quality monitoring by the CCRWQCB's Central Coast Ambient Monitoring Program (CCAMP) indicate that a number of water quality parameters occasionally exceed established criteria such that beneficial uses may no longer be supported in portions of the watershed at some times (CCRWQCB 2002). These include total dissolved solids (TDS), sulfates, sodium and chloride. In particular, a criterion for sulfate was exceeded 91% of the time on Santa Rosa Creek, at sites both upstream and downstream of Cambria. However, for all four of these parameters, the CCRWQCB acknowledged that because no upstream data exist it is unclear whether the elevated levels of these parameters are from anthropogenic sources and recommended that these parameters be evaluated throughout the watershed (CCRWQCB 2002).

Table 2-5. Beneficial uses of Santa Rosa Creek watershed surface waters.

Beneficial use	Estuary	Creek
Municipal and Domestic Supply (MUN)		X
Agricultural Supply (AGR)		X
Industrial Service Supply (IND)		X
Ground Water Recharge (GWR)	X	X
Freshwater Replenishment (FRSH)		X
Water Contact Recreation (REC-1)	X	X
Non-Contact Water Recreation (REC-2)	X	X
Commercial and Sport Fishing (COMM)	X	X
Warm Fresh Water Habitat (WARM)		X
Cold Fresh Water Habitat (COLD)	X	X
Estuarine Habitat (EST)	X	
Wildlife Habitat (WILD)	X	X
Preservation of Biological Habitats of Special Significance (BIOL)	X	
Rare, Threatened, or Endangered Species (RARE)	X	X
Migration of Aquatic Organisms (MIGR)	X	X
Spawning, Reproduction, and/or Early Development (SPWN)	X	X
Shellfish Harvesting (SHELL)	X	

Source: CCRWQCB (1994)

Additional monitoring by the CCRWQCB (Shwartzbart 1993), as well as CDFG (Nelson et al. 2009), and D. W. Alley & Associates (2008) identified a number of other water quality parameters that may be impairing instream conditions and potentially limiting the population of native aquatic species. These include temperature, dissolved oxygen (DO), and mercury, which are discussed in more detail below. In addition, development of this watershed management plan included a survey of benthic macroinvertebrates as a measure of overall water quality and stream health. The methods and results of this survey are also described below.

2.8.1 Temperature

Santa Rosa Creek is being considered for placement on the Clean Water Act 303d list of impaired waterbodies for temperature (CCRWQCB 2010). In streams such as Santa Rosa Creek with designated beneficial uses such as cold freshwater habitat (Table 2-5), objectives for water temperature are based, in part, on species-specific temperature tolerances (CCRWQCB 1994, SWRCB 1998). During their decision to recommend Santa Rosa Creek for placement on the 303(d) list, the CCRWQCB used 55–70°F (13–21°C), the optimal range for steelhead trout growth and other lifestages based on Moyle (1976), as their evaluation guideline (CCRWQCB 2010). However, some populations of steelhead have been shown to display local adaptation to higher water temperatures and there are many central California coast examples of steelhead surviving and growing well at water temperatures above 70°F (21ºC) (Moyle 2002, Spina 2007, Smith 1990, D. W. Alley & Associates 2008).

While there is still considerable uncertainty of what optimal temperatures for steelhead are in this region (A. Spina, pers. comm., 2010), available data for Santa Rosa Creek indicate that, in most years, summer water temperatures are suitable for successful steelhead rearing in the majority of stream reaches (see Section 3.4 for additional detail). A relatively intact riparian corridor in most reaches and the influence of coastal fog likely help moderate stream temperatures in Santa Rosa Creek. In 2004–2006, D. W. Alley & Associates (2008) recorded maximum daily summer (July to September 10) water temperatures ranging from 67–75°F (20–24°C) in the lower reaches (stream miles 0.5–2.9); 69–74°F (20–23°C) in the middle reaches (stream miles 3.4–4.2); and 64–71°F (18–22°C) at two sites in the upper reach (stream miles 9.6–10.1 and 11.5–12.4). In 2005, CDFG recorded maximum daily summer (June through October) water temperature at stream miles 0.6, 8.0, and 14.5 (Nelson et al. 2009). Temperatures ranged from 55–79°F (13–26°C) at stream mile 0.6, 50–71°F (10–22°C) at stream mile 8.0, and 51–70°F (11–21°C) at stream mile 14.5 (Nelson et al. 2009).

D. W. Alley & Associates (2008) recorded summer (July 10 through October) water temperatures at two locations in the lagoon—adjacent to the Moonstone Beach parking lot and to Shamel Park—in 2001, 2002, 2005, and 2006. In all four years, temperatures reached or exceeded 77°F (25°C) at one or both of the monitoring sites for some portion of the summer. While temperatures of this magnitude likely make the lagoon inhospitable for summer rearing, steelhead were observed using the lagoon in both 2001 and 2006 (D. W. Alley & Associates 2008). Low instream flows and water diversion likely contribute to extended periods of saltwater and freshwater stratification, with warmer temperatures and anoxic conditions along the bottom where denser saltwater settles.

2.8.2 Dissolved oxygen

Dissolved oxygen (DO) levels measured by the CCAMP suggest that it may be a potential water quality limiting factor and that beneficial uses may no longer be supported (CCRWQCB 2002). At DO levels <5–6 mg/l, stress can begin to effect fish and other organisms. At high temperatures, steelhead can survive DO concentrations as low as 1.5–2.0 mg/l for brief periods, though concentrations closer to 8–12 mg/L are normally required for growth (Moyle 2002).

D. W. Alley & Associates (2008) recorded DO levels in the lagoon for 14 years (1992–2005) and during that time DO levels rarely met the 5 mg/l criterion or the 2 mg/l lethal limit for steelhead. They concluded that a reduction in tidal overwash could help to reduce the low DO saline layer at the bottom of the lagoon (tidal overwash increases lagoon salinity which can result in higher salinity, higher temperature, and lower DO layer at the bottom of the lagoon) and an increase in lagoon depth from increased stream inflow and increased shading could help to prevent filamentous algae growth (D. W. Alley & Associates 2008). Further, they found that, while DO levels frequently failed to meet guidelines and likely restricted the activity of steelhead in the lagoon, they were likely less limiting than temperature to steelhead survival in the lagoon since steelhead could avoid the low DO zones in the saline layer at the bottom of the lagoon and in the vicinity of high density filamentous algae (D. W. Alley & Associates 2008).

2.8.3 Mercury

A 1993 CCRWQCB study documented elevated levels of mercury in stream sediment, and to a lesser extent in water, in and downstream of Curti Creek (Schwartzbart 1993). Cinnabar, the common ore of mercury, was historically mined at several locations in the watershed, most notably at the Oceanic Mine located in the Curti Creek sub-watershed. Active mining at the site began in 1865 and continued intermittently through the 1900s. Records during this time indicate that a total of over 38,000 flasks of mercury were produced from the Oceanic Mine, nearly equal to the production from all other mercury deposits in the County combined (CCRWCQB 1999). During peak production, ore was milled and processed into pure forms of mercury in a furnace located approximately ½-mile downhill from the mine (Eckel et al. 1941, as cited in CCRWQCB 1999). In 1964, the mine was sold to Buena Vista Mines, Inc., while the former mill site was sold to a different owner (Holcombe 1970, as cited in CCRWQCB 1999).

During a study of inactive mercury mines in San Luis Obispo County, the Central Coast Regional Water Quality Control Board documented iron-rich, red seepage from the mine, which reportedly pollutes and discolors Curti Creek for most of the downstream distance to Santa Rosa Creek, and the erosion of mercury-rich waste rock by Curti Creek at the former mill site (Schwartzbart 1993, CCRWQCB 1999). Stream sediment samples contained elevated mercury levels ranging between 1.095 to 8.48 mg/kg (ppm) downstream of the mine and former mill site (Schwartzbart 1993) (Table 2-6). These values exceed the concentrations above which adverse biological effects are expected to occur frequently in freshwater sediment (Buchman 2008).[5] Of the 49 inactive mines investigated during the study, the CCRWQCB concluded that Santa Rosa Creek was one of the most heavily metal-mined-impacted watersheds as a result of the Oceanic Mine former mill site (Schwartzbart 1993, CCRWQCB 1999). More recently, several sediment samples from lower Santa Rosa Creek have been tested for mercury (CCRWQCB 2002, L. Harkins and Sierra Club, unpubl. data, 2009). The results of all total mercury (THg) in sediment measurements taken in the watershed are summarized in Table 2-6 and sample points are mapped in Figure 2-13.

One sample point, HSC-4 in the lagoon, was analyzed for methyl mercury, the form of mercury that can bioaccumulate in living tissue, and was found to have 3 µg/kg (parts per billion), or 0.60% of THg (L. Harkins and Sierra Club, unpubl. data, 2009). Three-spined stickleback (*Gasterosteus aculeatus*) were collected in the lagoon by CCAMP in 1999 and 2001 and tested for mercury. The mercury concentration in the 1999 sample measured 0.318 ppm, while the 2001 sample measured 0.085 ppm; neither of which exceeded the CCRWQCB's (1994) 0.5 ppm criteria for mercury in aquatic organisms. Additional information is needed to more fully understand the magnitude of mercury methylation in the lagoon (which is the primary area in the watershed with the low dissolved oxygen conditions that facilitate the methylation process) and the extent to which mercury is being taken up by the aquatic foodweb.

CCRWQCB (1999) recommended that erosion control be implemented throughout the Ocean Mine area to stabilize the eroding mercury-rich waste rock at the former mill site. In addition, they determined that constructed wetlands could be a practical solution to retain and treat pollutants entering Curti Creek from the mine and former mill site. Remediation requirements from the CCRWQCB have been in place since 1997, however, no reclamation activities have been conducted at the mine or former mill site (CCRWQCB 1999).

[5] The following mercury levels in sediment are provided for reference:
0.08 mg/kg (ppm) = estimated pre-mining mercury levels in California stream sediments (SFBRWQCB 2008)
0.174 mg/kg (ppm) = mercury threshold effect level (TEL), the concentration above which adverse biological effects are expected to occur rarely, in freshwater sediment (Buchman 2008)
0.486 mg/kg (ppm) = mercury probable effect level (PEL), the concentration above which adverse biological effects are expected to occur frequently, in freshwater sediment (Buchman 2008)
20 mg/kg (ppm) = mercury hazardous waste limit

Table 2-6. Sediment mercury levels in Santa Rosa Creek watershed.

Sample point ID	Location	Date	Sediment THg (mg/kg) (ppm)
RB-SR-D1 [a]	Santa Rosa Creek upstream of Curti Creek	2/12/1992	0.192
RB-SR-C1 [a]	Curti Creek upstream of Oceanic Mine tributary	2/12/1992	0.511
RB-SR-A1 [a]	Tributary north of Oceanic Mine	2/12/1992	0.601
RB-SR-A2 [a]	Tributary at Oceanic Mine	2/12/1992	1.095/1.75 [d]
RB-FD-16 [a]	Tributary in vicinity of Oceanic Mine	5/19/1986	3 [e]
RB-SR-B [a]	Tributary south of Oceanic Mine	2/12/1992	6.79
RB-SR-C2 [a]	Tributary at Oceanic Mine just upstream of Curti Creek	2/12/1992	5.01
RB-SR-C3 [a]	Curti Ceek just downstream of Oceanic Mine tributary	2/12/1992	1.104
RB-SR-D2 [a]	Lower Curti Creek	2/12/1992	1.194/8.48 [d]
RB-SR-D3 [a]	Santa Rosa Creek downstream of Curti Creek	2/12/1992	0.161
HSC-1 [b]	Santa Rosa Creek 20 ft (6 m) upstream of Main Street Bridge	7/15/2009	0.12
HSC-2 [b]	Santa Rosa Creek at Creekside Reserve at Center St	7/15/2009	0.16
HSC-3 [b]	Santa Rosa Creek lagoon, 350 ft (106 m) upstream of bench at Shamel Park	10/12/2009	0.18
HSC-4 [b]	Santa Rosa Creek lagoon, at Shamel Park bench	10/12/2009	0.54
SWAMP-1 [c]	Mouth of Santa Rosa Creek	3/1/1998	0.55

[a] Source: Schwartzbart 1993
[b] Source: L. Harkins and Sierra Club, unpubl. data, 2009
[c] Source: CCRWQCB 2002
[d] Two measurements were taken at this sample point
[e] Another lab measured 41 mg/kg at this point

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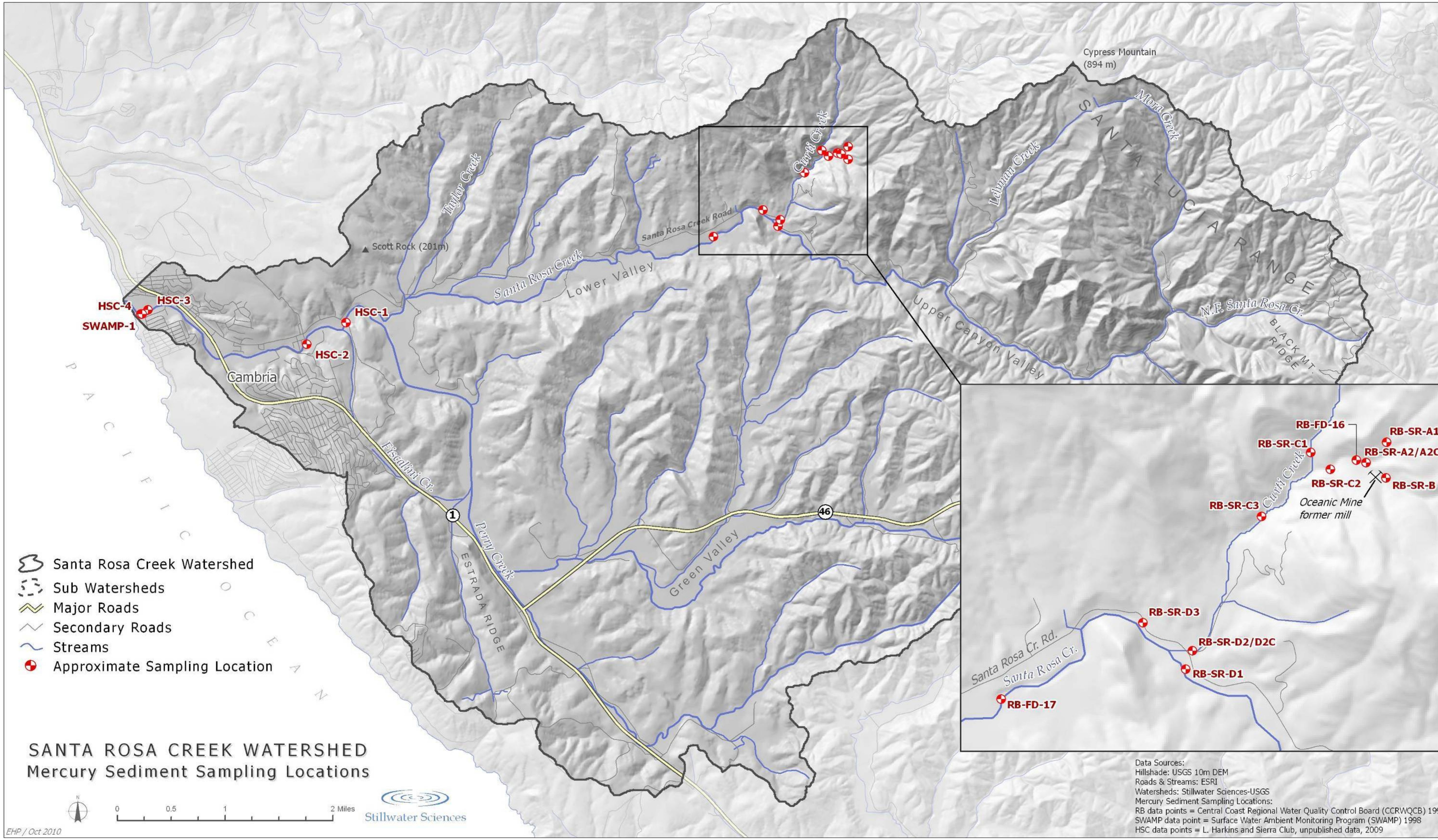

Figure 2-13. Mercury sample points in the Santa Rosa Creek watershed (see Table 2-6 for sampling entity and results).

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2.8.4 Benthic macroinvertebrates

Hydropsychid caddisflies

As a part of the development of this watershed management plan, the benthic macroinvertebrate population was sampled in lower Santa Rosa Creek to evaluate water quality and biological conditions of stream habitat in the watershed (Appendix B). Benthic macroinvertebrates are organisms that utilize the stream bed substrate as habitat. The distribution of benthic macroinvertebrates is dependent on seasonal weather variations (which influence water volume, velocity, and temperature), food availability, and water and habitat quality (Plotnikoff et al. 1997). Stream benthic macroinvertebrates respond to impacts related to pollution, sedimentation, and other changes in their habitat. The number, composition, and distribution of benthic macroinvertebrates can be a strong indicator of instream habitat quality. Benthic macroinvertebrates are also a primary food source for steelhead. Therefore, assessment of the benthic macroinvertebrate community can provide valuable insight into potential limiting factors for steelhead productivity.

In general, benthic macroinvertebrate diversity in Santa Rosa Creek is higher upstream, where the benthic macroinvertebrate assemblage is less tolerant of degraded conditions, and lower downstream, where the species assemblage is more tolerant of poor water quality conditions.

2.8.4.1 Sampling methods

On May 5, 6, and 7 of 2010, benthic macroinvertebrates were collected using an abridged version of the State Water Resource Control Board's (SWRCB) Surface Water Ambient Monitoring Program (SWAMP) bioassessment protocol (Ode 2007) at seven sites along Santa Rosa Creek (Figure 2-14):

Site 1 (stream mile 0.3)
Site 2 (stream mile 1.0)
Site 3 (stream mile 1.5)
Site 4 (stream mile 1.8)
Site 5 (stream mile 2.8)
Site 6 (stream mile 3.3)
Site 7 (stream mile 5.0)

Sampling sites were selected in part based on personal communications with Mary Adams of CCAMP and Jennifer Nelson of CDFG, both of whom have experience on Santa Rosa Creek. Physical accessibility and permission for access from landowners also played a role in site selection. Selected sampling sites reflect a variety of land uses and human influences, including urbanization, agriculture, and ranching. The four downstream-most sites are located within the town of Cambria.

Figure 2-14. Benthic macroinvertebrate sampling sites on Santa Rosa Creek.

Sampling took place at base flow conditions, at riffles no deeper than 2 ft, using the targeted riffle composite procedure (Ode 2007). A 450-ft reach of riffle habitat was defined at each site. Riffles are shallower stream habitats characterized by water that flows over and between rocks, creating mild to moderate water turbulence (Ode 2007). Riffles are commonly used for benthic macroinvertebrate sampling because they usually offer the highest diversity of benthic macroinvertebrate species (Ode 2007). Each 450-ft reach was randomly divided into eight transects, and sampling began at the lower-most transect and progressed upstream. At one location along each transect, a D-frame net with a mesh size of 0.5 micrometers was placed perpendicular to flow and flat on the substrate. Organisms in a 1-ft^2 sample area immediately upstream of the net were first removed from larger rocks and then the substrate within the sampling area was disturbed by hand for 60 seconds. Care was taken to ensure that all sample material flowed downstream and was captured by the net. Sample material from each transect was placed into a sample jar and preserved in 95% ethanol for lab analysis.

Water temperature, pH, dissolved oxygen, and velocity were measured at the downstream end of each reach using a digital Vernier LabQuest water quality meter. Wetted width of the stream, water depth, substrate, the presence of organic matter, and cobble embeddedness were measured and recorded at each transect. In addition, visual estimates and habitat scoring methods were used to assess the complexity of instream habitat, riparian vegetation, bank stability, and level of human influences at each transect.

2.8.4.2 Analysis and results

Transect samples were compiled for each site, sorted, and identified to 600 individual organisms per sample. Biometric values, including richness, composition, functional feeding group, and the Southern California Index of Biological Integrity (So Cal IBI), were calculated for each site. (Appendix B, Table 4.1 provides a list of all biometrics calculated, as well as a comparison of the results for Santa Rosa Creek with Coon Creek, San Luis Obispo County.) Each biometric is a characteristic of the benthic macroinvertebrate community that changes in a predictable way relative to a habitat stressor (Fore 1996). Biometrics are used as a diagnostic tool and are useful in evaluating stream health and for comparing conditions between sites, between sampling events, and with other streams.

Richness—Richness, or diversity, is the total number of individual benthic macroinvertebrate species in a sample. The more diverse a benthic macroinvertebrate assemblage, the greater the likelihood that the local habitat is also diverse and robust. Sites 2 and 3 had the lowest richness values (17 and 18 total species, respectively), while sites further upstream had greater richness (e.g., 25 to 29 total species) (Figure 2-15).

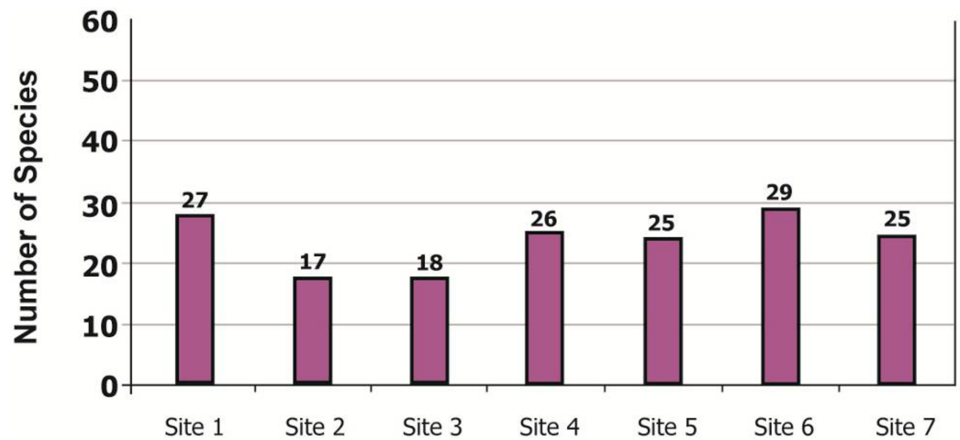

Figure 2-15. Benthic macroinvertebrate taxonomic richness at sampling sites on Santa Rosa Creek in 2010.

Composition—Composition is the percentage, or relative abundance, of particular taxa in a sample. The two composition metrics reported here are the sensitive EPT Index and the Dominant Taxa index. The sensitive EPT Index is the percentage of three pollution-sensitive orders of benthic macroinvertebrates: Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies). The higher the percent of sensitive EPT in a sample, the greater the likelihood that local water quality is good. In general, downstream sites on Santa Rosa Creek had lower sensitive EPT Index values than upstream sites (Figure 2-16).

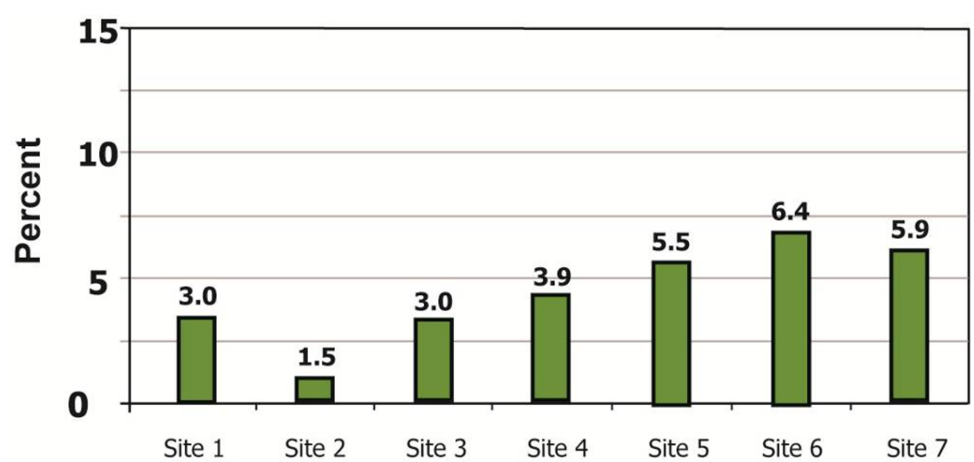

Figure 2-16. Benthic macroinvertebrate sensitive EPT Index values at sampling sites on Santa Rosa Creek in 2010.

The Dominant Taxa metric is the percentage of the third, second, and single most dominant benthic macroinvertebrate taxa in a sample. A stream with excellent water quality can support a greater number of taxa. If dominant taxa make up 40% or more of the total sample, it is an indication of instability in the macroinvertebrate community and that a stressor is present (MBNEP 2008). On Santa Rosa Creek, the three downstream-most sample sites had higher percentages of dominant taxa, indicating that a stressor is present (Figure 2-17).

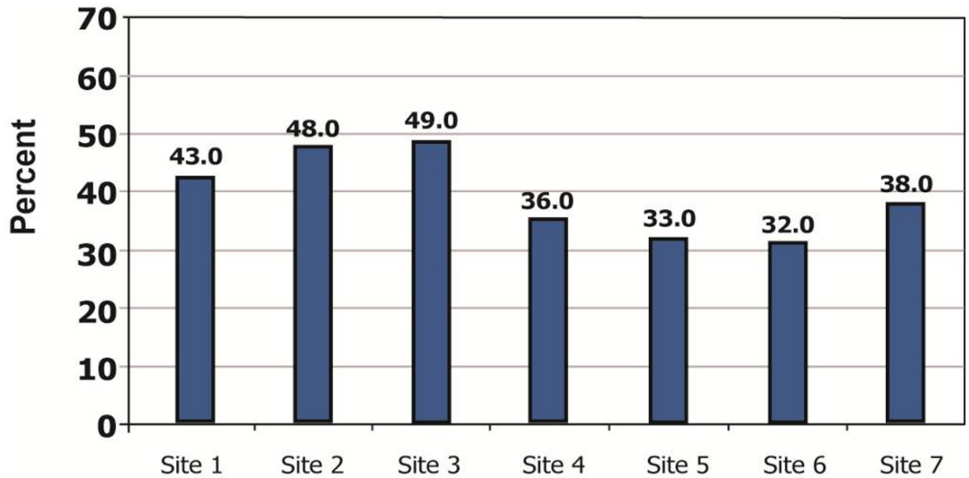

Figure 2-17. Percent of dominant benthic macroinvertebrate taxa at sampling sites on Santa Rosa Creek in 2010.

Functional Feeding Group—The functional feeding group metric is the proportion of taxa with different feeding strategies within a sample. Two types of functional feeding group metrics were calculated: the Scrappers Taxa metric and the Shredder Taxa metric. The Scrappers Taxa metric identifies the proportion of benthic macroinvertebrate taxa that graze upon periphyton. The greater the proportion of scrapper taxa, the higher the primary productivity at a sample location. On Santa Rosa Creek, downstream sites (e.g., Sites 1 through 4) had lower Scrapper Taxa values that upstream sites (e.g., Sites 5 through 7).

The Shredder Taxa metric is the percentage of benthic macroinvertebrate taxa that shred leaf litter. Higher proportions of shredder taxa indicate habitats with high retention of organic matter and food sources such as overhanging leaves and branches. On Santa Rosa Creek, Shredder Taxa values were much higher for Site 6 (3.1) and Site 7 (2.2), compared to Sites 3 and 4, where no shredder taxa where identified.

Southern California Index of Biotic Integrity—For each site, a standardized So Cal IBI score was determined. The So Cal IBI is a "condition" score that expresses the health of sites in a single qualitative number ranging from 0 to 100, with 0 representing an environment of very poor quality and low diversity and 100 being a very healthy environment with high diversity. The So Cal IBI is the sum of the following uncorrelated biometric values: (1) the number of Coleoptra (beetle) taxa; (2) the number of Ephemeroptera (mayflies), Plecoterea (stoneflies), and Trichoptera (caddisflies) (EPT) taxa; (3) the number of Predator taxa; (4) the percentage of sensitive individuals; (5) the percentage of Collector individuals; (6) the percentage of tolerant taxa; and (7) the percentage of non-insect taxa.

The So Cal IBI scores for the Santa Rosa Creek sites range from poor (34 at Site 2) to moderately good (63 at Site 6) (Figure 2-18). Site 2 (34) and Site 3 (37) exhibited the two lowest So Cal IBI scores, which suggest the likelihood of poor water quality at those sites. These sites are adjacent to the town of Cambria and, as such, experience higher levels of urban runoff. Urban runoff commonly contains higher levels of certain pollutants such as, but not limited to, heavy metals and petroleum-based pollutants, as compared to non-urban areas. These pollutants, along with physical changes to the riparian zone and stream channel that are common in urban areas, can affect the benthic macroinvertebrate community. The So Cal IBI score at Site 1, the most downstream site, is comparable to Sites 4 and 5, further upstream (Figure 2-18). The So Cal IBI scores suggest that the two most urban sampling sites, Sites 2 and 3, deserve a closer inspection of the potential influences on water quality in these areas and may warrant recommendations for land use best management practices to improve water quality in drainages leading to these sites. It should be noted however, that So Cal IBI scores can also be influenced by parameters other than water quality, such the size and quality of the riparian buffer. Thus, So Cal IBI scores should be utilized in conjunction with an understanding of local riparian conditions to guide management practices. The two upstream-most sites—Site 6 (63) and Site 7 (60)—exhibited moderately good water quality. These sites are not as affected by urban runoff but may be affected by adjacent lands uses of agriculture and ranching.

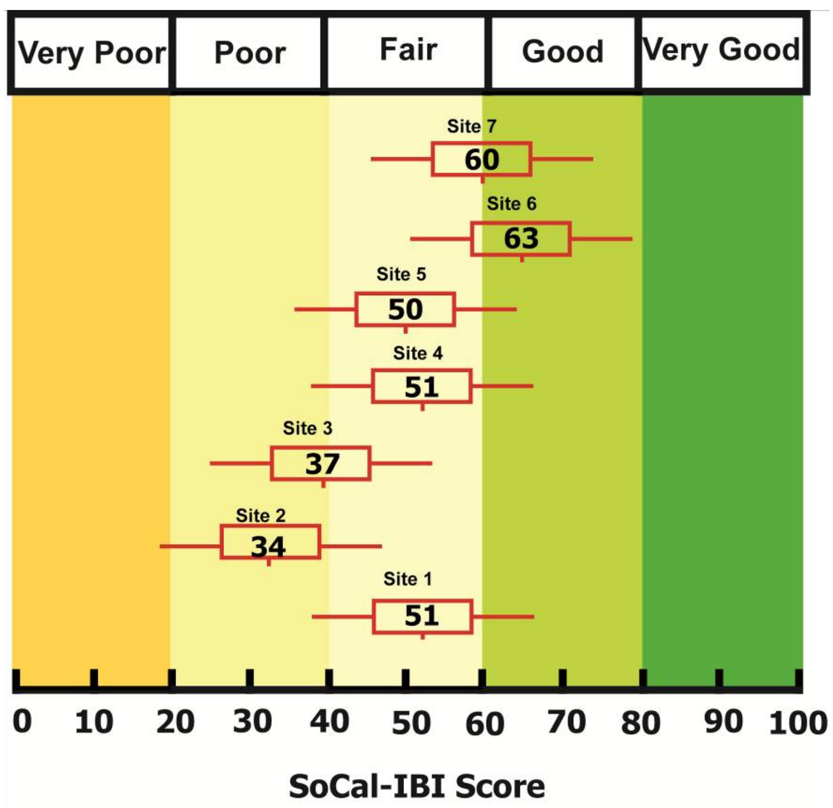

Figure 2-18. Southern California Index of Biological Integrity scores for benthic macroinvertebrate sampling sites on Santa Rosa Creek in 2010.

Another result of this study was to verify if the food supply in the Santa Rosa Creek is adequate to sustain populations of steelhead. The taxonomic lists for each site proved to have large populations of *Baetis* (mayflies) and *Simulium* (blackfly) populations, which are considered a valuable food source for steelhead (Appendix B).

The results in Appendix B can be used as a baseline for the establishment of a bio-monitoring program that tracks the impact of increased urbanization and other changes in land uses on the water quality of Santa Rosa Creek. In turn, repeated monitoring data can be useful in identifying areas that are in need of water quality improvement, and to help monitor the success of implemented restoration actions. Benthic macroinvertebrate sampling and analysis is increasingly recognized as an effective and efficient diagnostic tool for assessing water quality. The State of California is in the process of integrating benthic macroinvertebrate assessment into the water quality regulatory framework.

2.8.5 Storm water

2.8.5.1 First flush stormdrain monitoring

As a part of the development of this watershed management plan, water samples were collected in the late fall of 2010 to evaluate pollutants in the first stormwater runoff of the water year, or first flush, in the more urbanized portion of the watershed. The first flush is a unique opportunity to assess the quality of water entering creeks and streams as it carries materials, ranging from trash to road-way pollutants, which have accumulated on the landscape since the last rainfall. These constituents can be identified and analyzed in the lab, and can be used to guide the development of focused management actions to minimize the pollutants and/or prevent them from washing into waterways. Santa Rosa Creek 2010 first flush sampling sites are mapped in Figure 2-19 (sampling also occurred at the Burton Bridge and Bridge Street sites in 2011).

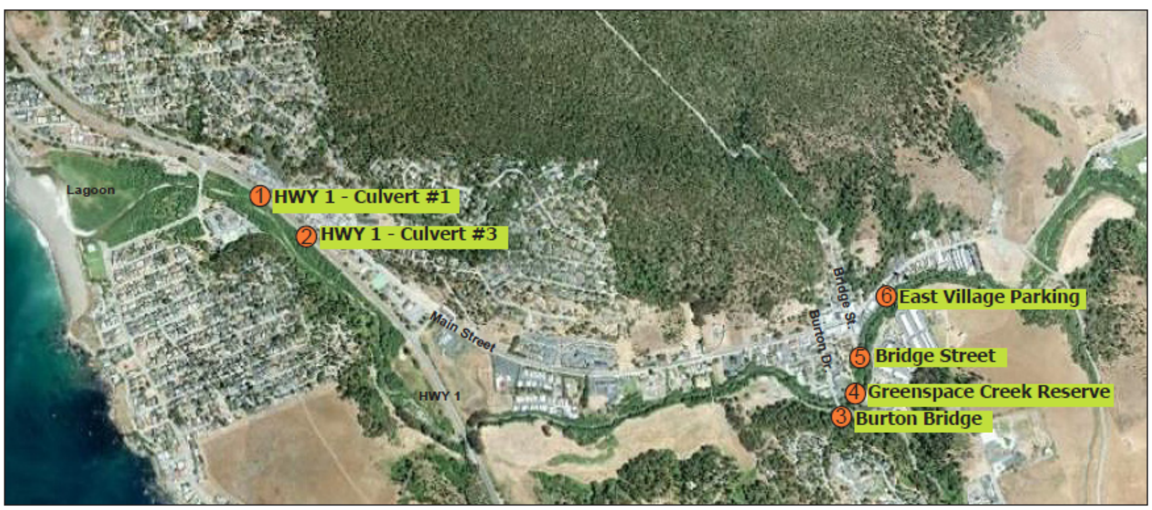

Figure 2-19. First flush sampling sites on lower Santa Rosa Creek.

Samples were collected using the Monterey Bay Sanctuary Citizen Watershed Monitoring Network's stormdrain monitoring protocol (Conrad et al. 2000). Water samples were collected directly from outfall pipes at all sample locations, except the Greenspace Creek Reserve, where samples were taken directly from the thalweg of the creek. Samples were collected in sterile Whirlpaks, stored in an ice chest, and transported to a lab for analysis at the earliest opportunity. Constituents identified in the Santa Rosa Creek first flush samples included total dissolved solids, nitrate, copper, zinc, and coliform bacteria (Table 2-7).

Table 2-7. 2010 first flush results for lower Santa Rosa Creek.

Analyte	Highway 1 Culvert #1	Highway 1 Culvert #3	Burton Bridge [a]	Greenspace Creek Reserve	Bridge Street [a]	East Village Parking	RWQCB attention level
Total Dissolved Solids (mg/L)	1,600	not detected	3,700 (80)	1,100	210 (400)	6,200	500
Nitrate as N (mg/L)	not detected	0.5	0.48	not detected	0.78	1.1	2.25
Copper (mg/L)	0.0095	0.031	0.05	0.0023	0.041 (0.73)	0.066	0.01
Zinc (mg/L)	0.04	0.075	0.15	not detected	0.18 (0.51)	0.21	0.01
Total Coliform (MPN/100 ml) [b]			(>1,600)		(>1,600)		100
Total Oil and Grease (mg/L)			(not detected)		(8)		n/a

[a] 2011 results, as available, are provided in parentheses.
[b] Total coliform is measured using the most probable number (MPN) index, which is the concentration of coliform bacteria in a sample expressed as the number of bacteria per 100 mL.

Total dissolved solids are all inorganic and organic substances that are smaller than 2 microns (0.0002 cm) in size. Total dissolved solids is not generally considered a primary pollutant but is used as an indicator of the presence of a broad array of chemical contaminants. Sources of total dissolved solids are agricultural and residential runoff (including pesticides), leaching of soil contamination, point source water pollution discharge from industrial or sewage treatment plants, and natural weathering and dissolution of rocks and soils. Total dissolved solids in the lower Santa Rosa Creek first flush samples are presented in Figure 2-20. Four of six sites exceeded the attention level set by the CCRWQCB (1994). An attention level is the concentration of a substance in a particular medium (water, soil, etc.) that may be of concern when exceeded (CCRWQCB 1994).

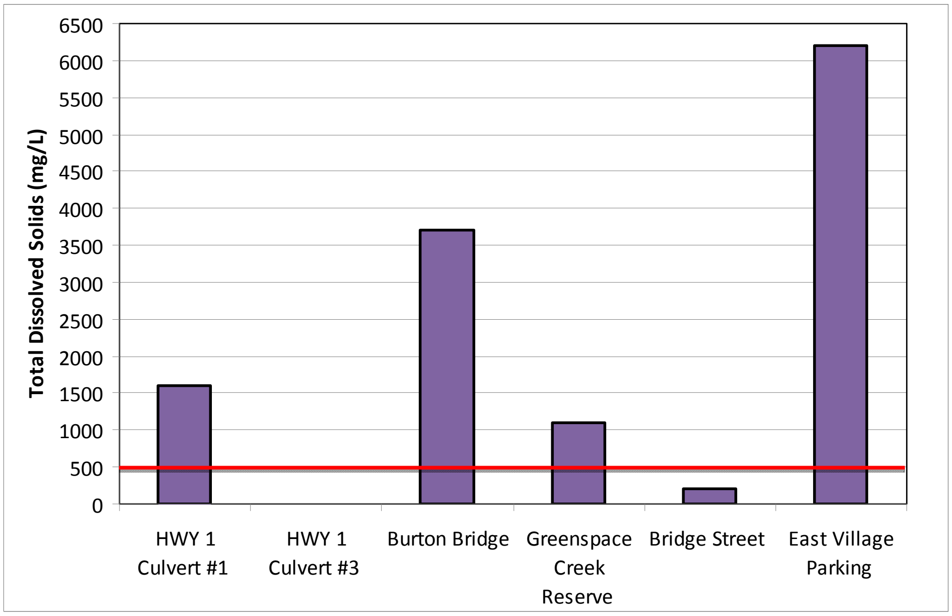

Figure 2-20. Total dissolved solids in 2010 lower Santa Rosa Creek first flush samples. The red line is 500 mg/L, the CCRWQCB (1994) attention level for total dissolved solids.

Nitrogen is a nutrient that acts as a fertilizer. When nutrient levels are high, excessive plant and algae growth can create water quality problems. Nitrogen enters water from human and animal waste, decomposing organic matter, and run-off of fertilizer from lawns and crops. Nitrate as nitrogen in the lower Santa Rosa Creek first flush samples is presented in Figure 2-21. While upstream sites have higher nitrate levels than downstream sites, none of the sites exceed the CCRWQCB (1994) attention level.

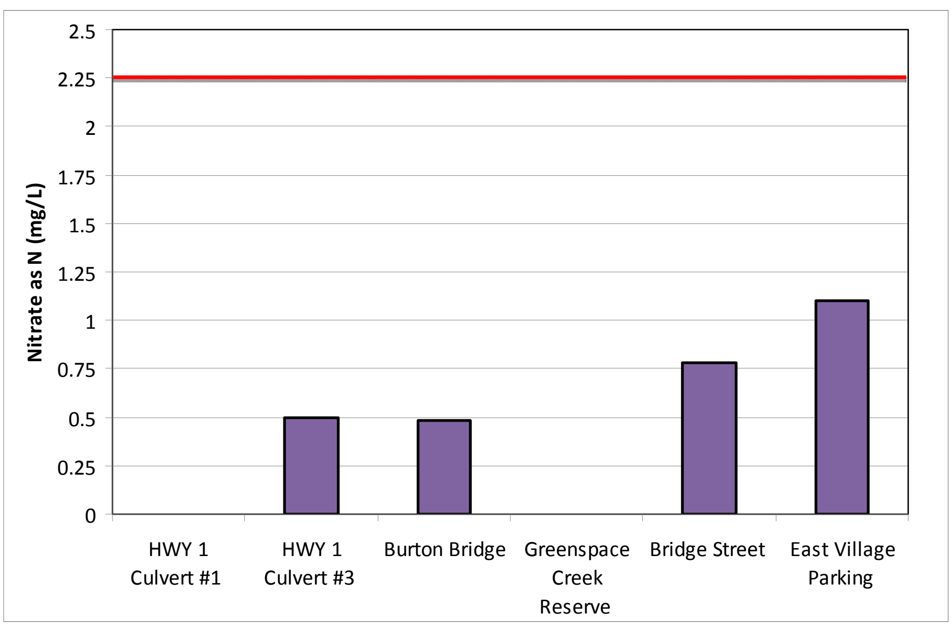

Figure 2-21. Nitrate as nitrogen in 2010 lower Santa Rosa Creek first flush samples. The red line is 2.25 mg/L, the CCRWQCB (1994) attention level for nitrate as nitrogen.

Metals such as copper and zinc may come from erosion of natural deposits, pesticides, industrial waste discharges, car brakes, agricultural waste, or corroding metal pipes and storage tanks. Trace metals can have direct toxic effects on aquatic plants and animals, and can bioaccumulate in aquatic species and have negative impacts throughout the food chain. Metals can also accumulate in sediment and be resuspended during storm events. Dissolved copper and zinc concentrations in the lower Santa Rosa Creek first flush samples are presented in Figures 2-22 and 2-23, respectively. The majority of sites on lower Santa Rosa Creek exceed CCRWQCB (1994) attention levels, but the attention levels are dependent on water hardness: copper and zinc are more toxic in softer water and less toxic in harder water (Ebrahimpour 2010). The Santa Rosa Creek results have not been adjusted for water hardness. Given the documented copper and zinc levels, a toxicity threshold that incorporates water hardness should be calculated.

Fecal coliform in the 2011 samples at the Bridge Street and Burton Bridge sites exceeded the limits of the lab test that was conducted. As such, it is not possible to determine if coliform levels in the creek exceeded the CCRWQCB (1994) attention level. However, the documented levels are high enough to suggest septic system or sewer leaks and fecal test should be conducted.

The first flush results represent an initial attempt at characterizing the types and quantities of pollutants in stormwater runoff in the more urban areas of the watershed. With additional resources a more robust first flush program could be initiated and conducted over time to more fully understand the trends in and degree of urban water quality influence on Santa Rosa Creek habitats and aquatic species.

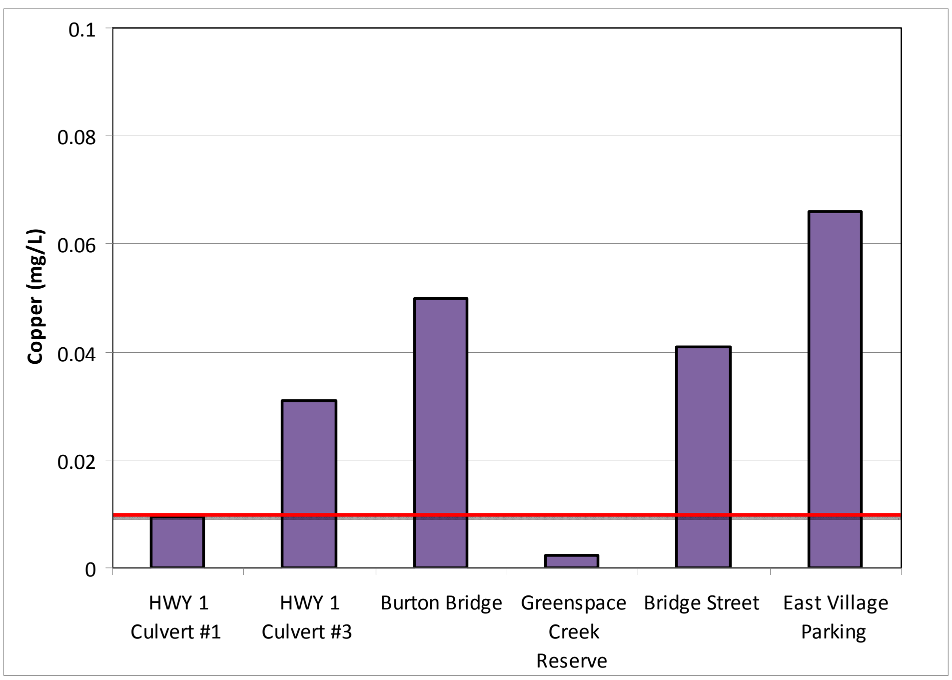

Figure 2-22. Dissolved copper in 2010 lower Santa Rosa Creek first flush samples. The red line is 0.01 mg/L, the CCRWQCB (1994) attention level for copper.

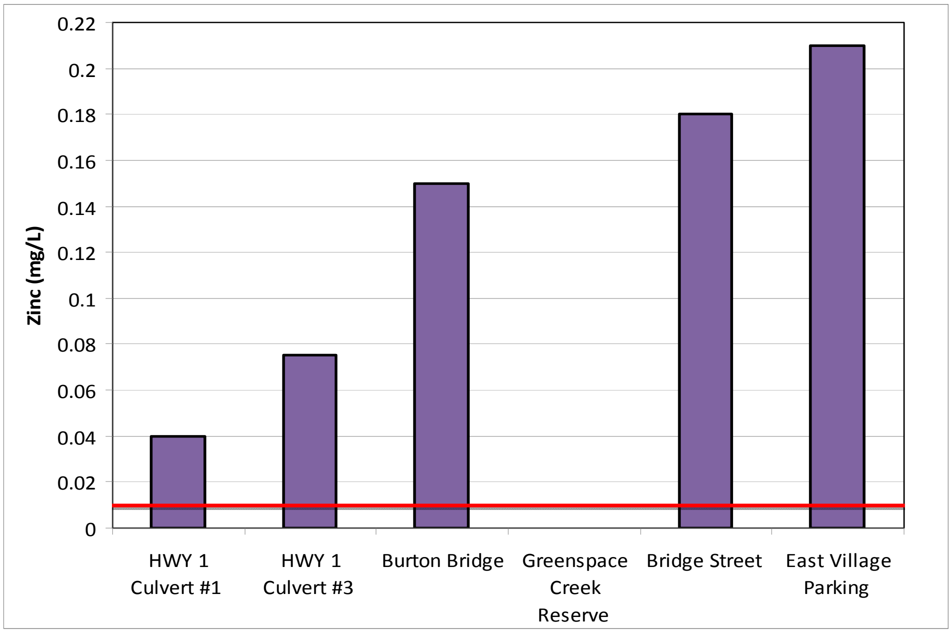

Figure 2-23. Dissolved zinc in 2010 lower Santa Rosa Creek first flush samples. The red line is 0.01 mg/L, the CCRWQCB (1994) attention level for copper.

2.8.5.2 Drainage-related erosion and flooding

Storm water related erosion, drainage problems, and flooding have been documented in a number of Cambria's residential neighborhoods. In 1999 an erosion and sediment study was commissioned for the Lodge Hill neighborhood after local residents, San Luis Obispo County staff, and local media documented storm water related drainage problems in the neighborhood (USDA NRCS 1999). While the study concluded that storm water erosion rates were not high enough to be a major source of sediment to nearby waterways and the Pacific Ocean, it documented steeply sloped unpaved roads, tire action from large vehicles, and construction sites with inadequate erosion control measures as sources of fine sediment during storm water flows (USDA NRCS 1999). The study report warned that without a coherent system of storm water management in the neighborhood, storm water drainage and erosion issues would worsen as more residences are constructed (USDA NRCS 1999). Study recommendations included developing a comprehensive master plan for built-out neighborhood conditions that incorporates a street drainage network, paved roads, and measures to address concentrated storm water flow and reduce impacts on forest resources (USDA NRCS 1999).

Flood damage to homes and businesses in March 2001 prompted San Luis Obispo County to commission another drainage study for additional Cambria neighborhoods (RMC 2004). The study found that the combination of steep topography in many Cambria neighborhoods, the lack of underground drainage facilities, and the location of many parcels below street grade results in localized poor drainage and flooding of some residences, buildings, and roadways during storm events (RMC 2004). Storm water-related flooding and erosion were found to be a result primarily of upslope concentrated flows entering downhill lots without any storm drain facilities. The study proposed a number of projects to capture storm water runoff from residential lots and roadways and convey it to a creek or to the ocean. Projects include paving roads with rolled asphalt berms, installing drop inlets or catch basins, and constructing roadside ditches and drainage channels (RMC 2004). Project implementation is likely to be the responsibility of individual property owners, developers, and/or a local entity, working in collaboration with the County Flood Control and Water Conservation District. The 2004 study noted that new development is expected to substantially increase storm water runoff in Cambria neighborhoods, particularly in Lodge Hill where many roads are unpaved, and that any proposed development in the Cambria area should be planned with drainage improvements.

Together the 1999 and 2004 drainage studies indicate that storm water is not being adequately planned for or managed in Cambria's residential neighborhoods. Although current rates of runoff and erosion from neighborhoods do not appear to be significantly affecting habitat conditions in Santa Rosa Creek, both studies warned that storm water issues can be expected to worsen if development continues in the Cambria area, unless meaningful steps are taken to plan for and address road- and home lot-related storm water runoff.

2.9 Vegetation

2.9.1 Vegetation types and distribution

The Santa Rosa Creek watershed is dominated (63% of watershed total) by grassland/herbaceous vegetation, much of which is used for cattle ranching and dairy cattle pasture (Homer et al. 2004) (Table 2-8, Figure 2-24). Throughout the watershed, scrub/shrub (coastal and chaparral) is found in steeper, upland areas and mixed-hardwood forest types, such as California bay tree (*Umbellularia californica*), occur in riparian areas. In the inland portions of the watershed, mixed-hardwood forest, such as coast live oak (*Quercus agrifolia*), and stands of evergreen forest occur on ungrazed hillslopes. Closer to the coast, stands of Monterey pine (*Pinus radiata*) evergreen forest occur near Cambria, and woody and emergent herbaceous wetland vegetation, such as willows (*Salix* spp.) are found primarily around the lagoon (Figure 2-24). While the National Landcover Dataset of 2001 (Homer et al. 2004) was used to generate the summary of data in Table 2-8 and map of vegetation in the watershed (Figure 2-24), the vegetation descriptions provided below are based, in part, on the compilation and description of multiple vegetation maps for the watershed by TLCSLOC (2010).

Table 2-8. Vegetation types in the Santa Rosa Creek watershed.[a]

Landcover/Vegetation type		Area (acres)	Area (hectares)	% of watershed area[b]
Grassland/Herbaceous		19,256	7,793	63
Scrub/Shrub		3,235	1,309	11
Mixed Forest		2,899	1,173	10
Developed	Open Space	1,951	790	6
	Low Intensity	409	165	1
	Medium Intensity	124	50	0.4
	High Intensity	3	1	0.01
Evergreen Forest		1,958	792	6
Cultivated Crops		360	146	1
Woody Wetlands		153	62	1
Pasture/Hay		37	14	0.1
Emergent Herbaceous Wetland		4	2	0.01

[a] Source: 2001 National Land Cover Data (Homer et al. 2004)
[b] Proportion of land cover category within the total watershed area determined in GIS.

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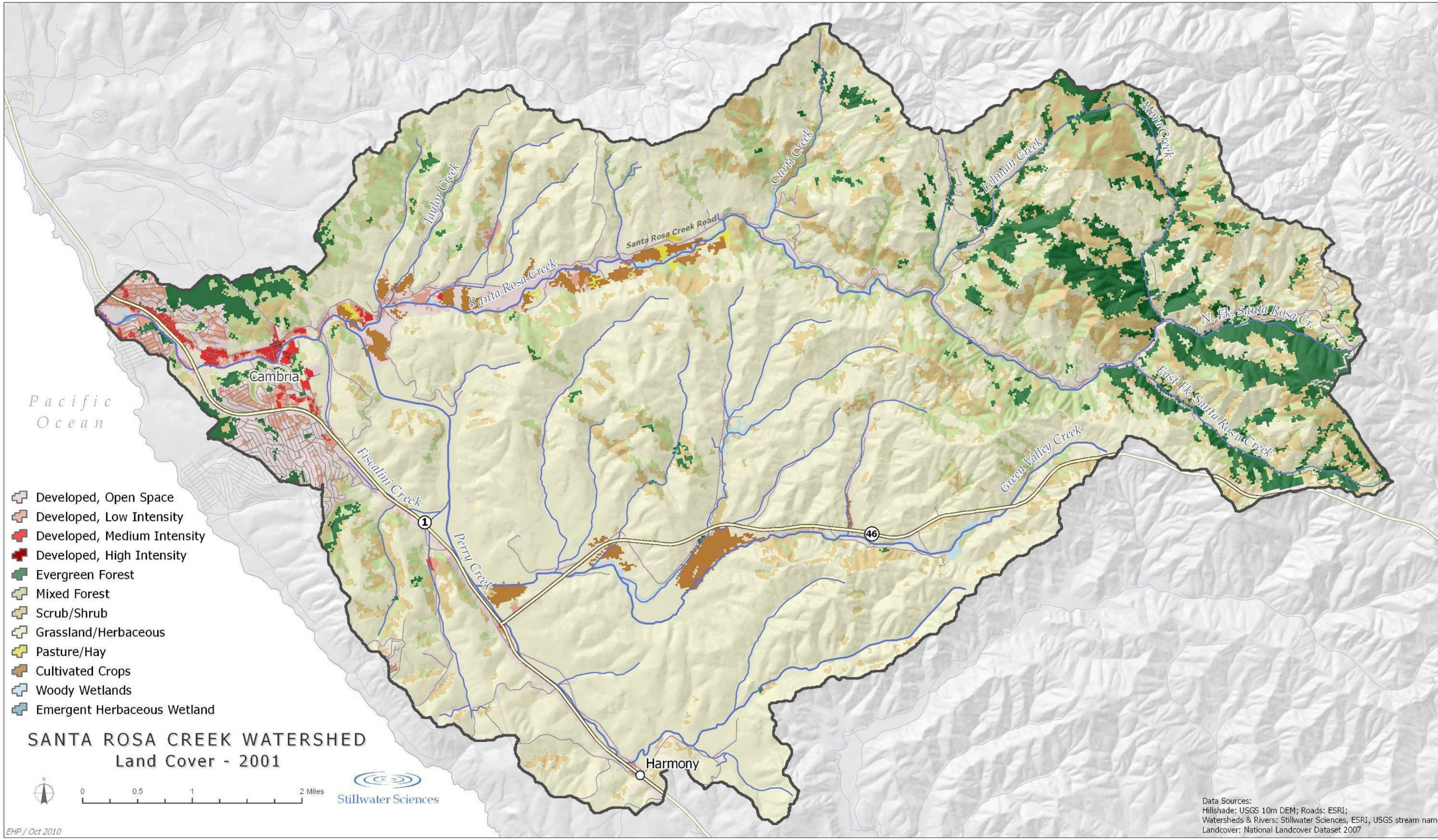

Figure 2-24. Vegetation/land cover types within the Santa Rosa Creek watershed.

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2.9.1.1 Grassland/Herbaceous

Grasslands dominate much of the watershed (Figure 2-24). Like most grasslands in California, those in the Santa Rosa Creek watershed are likely dominated by non-native grass species that are now considered naturalized (TLCSLOC 2010). For example, non-native wild oat (*Avena* spp.), soft chess (*Bromus hordeacous*), rip-gut brome (*B. diandrus*), and Italian ryegrass (*Lolium multiflorum*) are the dominant grass species in the Fiscalini Ranch Preserve (the old East-West Ranch), along with common weedy species such as filaree (*Erodium cicutarium*), vetch (*Vicia* sp.), black mustard (*Brassica nigra*), prickly lettuce (*Lactuca serriola*), storksbill (*Erodium botrys*), summer mustard (*Hirschfeldia incana*), milk thistle (*Silybum marianum*), wild radish (*Raphanus sativa*), mayweed (*Anthemis cotula*), Italian thistle (*Carduus pyncnocephalus*), coast morning glory *(Calystegia macrostegia* ssp*. cyclostegia*), and scarlet pimpernel (*Anagallis arvensis*) (Morro Group 2009). Despite being dominated by non-native species, grasslands in the Fiscalini Ranch Preserve have been documented to contain several native grasses and forbs that are indicative of native coastal prairie, such as California oat grass (*Danthonia californica*), hairgrass (*Deschampsia elongata*), purple needle grass (*Nassella pulchra*), sky lupine (*Lupinus nanus*), California poppy (*Eschscholzia californica*), tidy tips (*Layia platyglossa*), and California buttercup (*Ranunculus californicus*) (Ford and Hayes 2006, Morro Group 2009). Coastal prairie vegetation, which occurs in fog-influenced areas from the Oregon border to northern Santa Barbara County, is increasingly rare and endangered (Ford and Hayes 2006). Even though coastal prairie also tends to be dominated by non-native grasses, it supports a high diversity of native perennial grasses and forbs, many of which are endangered, threatened, or rare species, particularly when exposed to appropriate magnitudes and durations of cattle, goat, and/or sheep grazing and burning (Hayes and Holl 2003). Given the magnitude of coastal fog influence and cattle grazing in the watershed, it is quite likely that coastal prairie vegetation is supported in at least some areas mapped as grassland/herbaceous. As a result of this loss and the number of protected plant and animal species associated with this vegetation type, there is increasing interest and effort to preserve and maintain coastal prairie through land acquisition, and grazing and fire management.

2.9.1.2 Scrub/Shrub

Chaparral, coastal scrub, and coast mixed shrub occur in patches throughout the watershed (Figure 2-24). Chaparral and southern coastal scrub communities generally grow in dense thickets, and are dominated by drought-tolerant long-lived shrubs, such as manzanita (*Arctostaphylos* spp.), California sagebrush *(Artemisia californica*), sage *(Salvia* spp*.),* and coyote bush (*Baccharis pilularis*) (TLCSLOC 2010). These communities are also highly flammable and adapted to occasional disturbance by fire, which facilitates seed germination and regeneration of some dominant species. Like coastal prairie, these coastal scrub vegetation types are increasingly rare and endangered (Ford and Hayes 2006). As such, many coastal scrub and coastal prairie vegetation alliances are afforded protection by the State of California, either as CDFG-recognized special natural communities or as the host of state-protected plant and animal species (CDFG 2003a; Hillyard 2009).

Scrub/Shrub and Mixed Forest vegetation in the upper Santa Rosa Creek watershed

2.9.1.3 Mixed forest

Both coast live oak and blue oak woodlands are components of areas mapped as Mixed Forest in the Santa Rosa Creek watershed. Coast live oak woodlands can occur on more moist, often north-facing slopes or in drier, more exposed areas (TLCSLOC 2010). In moister areas, coast live oak (*Quercus agrifolia*) generally forms dense forests with California bay-laurel (*Umbellularia californica*), madrone (*Arbutus menziesii*), and big-leaf maple (*Acer macrophyllum*), with a variety of shade-tolerant understory plants (TLCSLOC 2010). In drier areas, coast live oak woodlands are characterized by sparsely scattered oaks among either shrubby or herbaceous understory plants, or integrated with grasslands (TLCSLOC 2010). Blue oak (*Q. douglasii*) woodlands occur in the warmer, drier eastern portion of the watershed.

Areas of Mixed Forest also include bands of riparian vegetation that occur along most of the larger channels in the watershed (Figure 2-24). CDFG (Nelson et al. 2009) noted abrupt changes in the composition and condition of riparian vegetation as one moves downstream:

> From the headwaters down to stream mile 7.8, the creek flows through a sinuous confined canyon where oaks, California bay and alder are the dominant tree species. Grasses, sedges and other herbaceous species comprised the understory. At stream mile 7.8, the creek abruptly discharges from the narrow canyon into a broad valley with a poorly defined creek channel, extensive gravel bars and flood plains, short, denuded stream banks and intermittent willow trees, mule fat and grasses. … From stream mile 6.5 downstream to stream mile 3, the valley floor is still broad, however the stream channel is incised. Riparian species include alder, willow, cottonwood, sycamore and a dense herbaceous understory. Downstream of this point the valley constricts somewhat and the town of Cambria surrounds the creek. Much of channel in this area is lined with rip rap and the riparian has been encroached upon by development. The native vegetation along the creek includes willow, poison oak, stinging nettle and blackberry, however extensive stands of non-native trees, shrubs and ivy dominate the riparian zone to the exclusion of native vegetation.

Riparian canopy conditions are further described in Section 2.9.4 below.

2.9.1.4 Evergreen forest

Much of the Evergreen forest mapped in the lower watershed is Monterey pine (*Pinus radiata*) (Figure 2-24). There are approximately 3,500 acres of Monterey pine forest in and around the community of Cambria (both within and outside the Santa Rosa Creek watershed), which constitutes approximately 17% of the remaining native Monterey pine forest in California and Baja California (Cambria Forest Committee 2002). In natural stands, Monterey pine forms a closed canopy forest with coast live oak, and toyon (*Heteromeles arbutifolia*), with various shrubs and herbs in the understory (Cambria Forest Committee 2002, TLCSLOC 2010). Approximately 1/3 of the Cambria Monterey pine forest intergrades with developed areas (Cambria Forest Committee 2002). The Cambria Forest Management Plan was developed in 2002 to guide conservation and management of the Cambria Monterey pine forest, in part as a response to continued threats to the forest by pine pitch canker disease and urban development. Monterey pine has also been planted extensively outside of its indigenous range, both in California and around the world.

Evergreen forest in the upper watershed is likely a mix of hardwoods, gray pine (*Pinus sabiniana*), and potentially Douglas fir (*Pseudotsuga douglasii*).

2.9.1.5 Woody and emergent herbaceous wetlands

During periods of low flow and when the sandbar at Moonstone Beach is closed, a seasonal lagoon forms at the downstream end of Santa Rosa Creek. The seasonal lagoon supports a fringe of riparian vegetation at its upstream end and wetland species, such as cattail (*Typha* spp.) that are tolerant of continuous inundation, along the water's edge. Small patches of salt marsh vegetation that are tolerant of the brackish water conditions closer to the ocean occur along the waters edge at the downstream end of the seasonal lagoon. Small patches of dune vegetation occur on the beach, outside of the seasonal lagoon inundation area (Z. Diggory, pers. obs., 2009).

2.9.2 Rare plant species and vegetation types

TLCSLOC (2010) identified special-status plant species with the potential to occur in the watershed using CDFG's California Natural Diversity Data Base (CNDDB) and the California Native Plant Society's (CNPS) Inventory of Rare and Endangered Plants online database. Queries of these databases, which included the Cambria and Cypress Mountain 7.5 minute quadrangles, identified 21 plant species with the potential to occur in the watershed that are listed by CNPS as rare, threatened, or endangered in California and elsewhere (CNPS List 1B). These are primarily perennial herb species, but also include five manzanita species and several other shrubs, as well as Monterey pine (TLCSLOC 2010). Of these, Cambria morning-glory (*Calystegia subacaulis* ssp. *episcopalism*), Obispo Indian paintbrush (*Castilleja densiflora* ssp. *obispoensis*), compact cobwebby thistle (*Cirsium occidentale* var. *compactum*), and Monterey pine (*Pinus radiata*) have been documented to occur in the watershed, specifically in the Fiscalini Ranch Preserve (Morro Group 2009).

As described earlier, Cambria supports a notable percentage of the remaining natural stands of Monterey pine in California and Baja California (Cambria Forest Committee 2002). Natural Monterey pine forests are recognized in the CNDDB as a special natural community (CDFG 2003a), and this population in particular is protected by the Coastal Commission as an Environmentally Sensitive Habitat Area (ESHA). In addition, the Fiscalini Ranch Preserve supports Valley Needlegrass Grassland vegetation, which is composed of purple needlegrass (*Nassella pulchra*), a native bunchgrass that was once an abundant component of the California grassland flora and is recognized in the CNDDB as a special natural community (CDFG 2003a, Morro Group 2009).

2.9.3 Non-native invasive plant species

Combined, over 200 non-native invasive plants observed or with the potential to occur in the Santa Rosa Creek watershed have been identified by CDFG (Nelson et al. 2009), TLCSLOC (2010), Morro Group (2009), and Cambria Forest Committee (2002). This includes the non-native grassland species described in Section 2.9.1. Several of these species are particularly troublesome as they are already widely distributed, are highly effective at replacing native vegetation, are known to disrupt and impair native habitat, or require aggressive treatment to control. These include:

- arundo/giant reed (*Arundo donax*)
- pampas grass (*Cortaderia selloana and/or C. jubata*)
- Scotch broom (*Cytisus scoparius)*
- cape ivy (*Delairea odorata*)
- eucalyptus (*Eucalyptus* sp.)
- French broom (*Genista monspessulana*)

During a survey of the lower 14 mi (22 km) of Santa Rosa Creek, CDFG noted the presence and general distribution of non-native plants in the riparian corridor (Nelson et al. 2009).
The greatest diversity of non-native invasive plants in the riparian corridor was found to occur in the lower 6 mi (10 km) of the creek, and at stream mile two specifically (Nelson et al. 2009). The residential and commercial land uses that occur close to the creek in this area are likely responsible for the intentional and/or accidental introduction of most of these plants, many of which are commonly found in gardens (e.g., palm trees, nasturtium, and periwinkle). With only two exceptions, no non-native plant species were observed between stream miles 11 and 14 (Nelson et al. 2009).

Eucalyptus, planted throughout California in the late 1800's for wharf construction and fence post production and to provide wind breaks, was recorded as relatively dense stands on the streambank in some locations. Eucalyptus often precludes the establishment and/or growth of understory species because of its allelopathic properties; oils in the leaves and bark that fall to the ground prevent or greatly reduce the ability of other plants to grow. CCSD is currently planning a eucalyptus removal project along the lower creek, downstream of the Highway 1 Bridge (B. Boer, pers. comm., 2010).

Cape ivy infestation near the lagoon

CDFG noted that "cape ivy was found from stream mile 10 downstream, but was most extensive in stream miles 5 and 6" (Nelson et al. 2009). In some areas, cape ivy was found to completely cover the streambank. In these and other cases, the extent of cape ivy is likely sufficient to preclude the establishment of native plants that would better shade the creek and help moderate stream temperatures as well as provide habitat for native wildlife species. Although Nelson et al. (2009) noted pampas grass in several areas in the lower 6 mi (9 km) of the creek, this was most likely jubata grass, which is easily confused with pampas grass but is more prevalent along the San Luis Obispo County coast (DiTomaso 2000). Large infestations of pampas grass and jubata grass threaten California's coastal ecosystems by crowding out native species, particularly in sensitive coastal dune areas.

Only one patch of arundo was recorded by CDFG, near stream mile 14 (Nelson et al. 2009). Arundo is a highly invasive species in central and southern California riparian environments and can rapidly displace native vegetation and alter riparian habitat conditions. This occurrence of arundo should be an extremely high priority for eradication to prevent it from spreading farther downstream.

In addition to cape ivy and pampas grass, the Cambria Forest Committee (2002) also noted that French broom and Scotch broom are the most abundant invasive species in the Cambria area, and the ones that will require the most aggressive treatments.

2.9.4 Riparian vegetation conditions

When of sufficient width and density, riparian vegetation performs many functions in natural river systems. It provides a buffer between the stream and adjacent land uses, reduces erosion, and filters runoff and nutrients, thereby reducing the delivery of fine sediment and pollutants to the stream. Riparian vegetation provides habitat for terrestrial wildlife and nesting birds, movement corridors for wildlife, and woody debris for instream habitat. Riparian canopy cover supplies leaf litter and terrestrial invertebrates for the aquatic foodweb and moderates stream temperatures by shading the channel and reducing near-stream windspeed (Poole and Berman 2001). The conservation and restoration of riparian vegetation, therefore, provides a relatively straightforward and cost-effective way for landowners and other watershed stakeholders to conserve and enhance myriad ecosystem conditions.

Following California statehood in 1850, Americans quickly settled the watershed and greatly increased the pace of land clearing, which was reportedly achieved by cutting and/or burning the native vegetation (Coffman 1995, D. Dunlap, pers. comm., 2009). Historical accounts from across the coastal region tell of coordinated efforts by land owners to clear valley-bottom forests along major rivers (Boughton et al. 2006), which was likely practiced along Santa Rosa, Perry, and Green Valley creek valleys. Historical illustrations of ranches in the watershed from the late 1800s and the earliest aerial photographs of the watershed in 1937 indicate only narrow strands of riparian vegetation along streams. Aerial photography taken in 2009 reveals a considerable increase in riparian vegetation extent and density compared with 1937 (Figure 2-5).

Outside of Cambria, the ability of riparian vegetation to recruit and grow is limited by cattle grazing in the riparian corridor, the effect of which is apparent in the denuded streambanks in much of the Perry/Green Valley Creek sub-watershed, and to some extent by groundwater conditions, such as in the middle reaches of Santa Rosa Creek. Encroaching riparian vegetation is also occasionally removed from the channel in wet water years in the vicinity of bridges and other public works by the San Luis Obispo County Public Works Department to reduce the risk of flooding (B. Boer, pers. comm., 2010).

While riparian vegetation extent has recovered since the 1930s, it is now limited by urban development and infrastructure, which limits the area where riparian vegetation can establish (see Figure 2-25) and is a source of non-native invasive plant species (see Section 2.9.3 above). Riparian canopy cover conditions on Santa Rosa Creek vary by reach and are strongly influenced by stream flow. Between 1994 and 2006, tree canopy closure (i.e., the percent of the channel covered by the riparian tree canopy) was measured every four years in the lower 13 mi (20 km) of Santa Rosa Creek in association with steelhead population and habitat surveys (D. W. Alley & Associates 2008). CDFG also measured riparian canopy density at approximately one-third of the habitat units mapped during a survey of steelhead in the lower 14 mi (22 km) of the creek (Nelson et al. 2009). Table 2-9 summarizes the results of the D. W. Alley & Associates (2008) tree canopy measurements.

Figure 2-25. Historical (1937) and current (2009) aerial photographs of riparian corridor conditions in the lower reach of Santa Rosa Creek and near the town of Cambria.

Table 2-9. Tree canopy closure in the lower 13 mi (20 km) of Santa Rosa Creek.[a]

Reach location (stream miles)	Tree canopy closure (percent) [b]				
	1994	1998	2002	2006	Average
0.5–2.9	n/a	33	42	27	34
2.9–3.4	n/a	40	54	42	45
3.4–4.2	44	36	53	42	44
4.2–7.9	44	32	33	24	33
7.9–9.6	57	34	55	44	48
9.6–10.1	72	63	67	58	65
10.1–11.2	63	63	77	67	68
11.2–11.5	52	70	80	85 [c]	72
11.5–12.4	59	71	77	70	69
12.4–13.0	59	70	74	68	68
Average	56	51	61	53	

[a] Source: D. W. Alley & Associates (2008). Values are estimated from Figure A18 and correspond with values reported in the text, with the exception of reaches 0b and 2 in 2002. The text reports these values as 61 and 54 percent, respectively.
[b] Measurements were taken in the fall and are estimated to be between 5 and 10 percent lower than during summer due to the onset of leaf-fall (D. W. Alley & Associates 2008).
[c] The Reach 5 sampling site was relocated into the upper portion of Reach 4 in 2006 (D. W. Alley & Associates 2008).

Tree canopy closure ranged from a low of 24% between stream miles 4.2–7.9 to a high of 85% between stream miles 11.2–11.5 (both in 2006), and varied by both reach and year (Table 2-9). The lower 8 mi (12 km) of the creek (reaches 0a–2), where the channel is widest, had consistently lower ranges and average canopy closure than in the upper reaches (Table 2-9). This is to be expected since higher levels of canopy closure are easier to maintain across narrower channels. This same pattern was observed by CDFG, who recorded canopy closures between 17% and 46% in the lower 8 mi (12 km) of the creek, and 23% to 57% in the upper 6 mi (9 km) (Nelson et al. 2009).

The lower 10 mi (16 km) of the creek experienced a decline in canopy closure between 1994 and 1998 in response to the March 1995 flood. D. W. Alley & Associates (2008) report that "[t]he entire riparian corridor, with all of its trees, was washed away for miles in the lower valley during that one storm flow. Many tree-less vertical banks were left afterwards, even in the straight-aways." Conversely, the canopy closure in the upper three reaches increased by approximately 10% between 1994 and 1998. By 2002, canopy closure had recovered to at least 1994-levels in most of the lower reaches. The high-flow event of 2005, which was a particularly wet year, likely contributed to the decline in canopy closure experienced in all reaches between 2002 and 2006.

The difference in canopy closure between the lower and upper reaches suggests that riparian vegetation is more effective at moderating stream temperatures in the upper reaches. This is demonstrated by the generally lower water temperature measured in the upper watershed by CDFG (see Section 2.8.1 above). The variation in canopy closure over the years, which appears to be driven largely by high-flow events, implies that the ability of riparian vegetation to shade the channel and effectively moderate stream temperatures also varies over time. In the years immediately following a scouring high-flow event, riparian vegetation is likely less effective at moderating stream temperatures and providing other ecosystem services, regaining its effectiveness as it re-grows. The typically more pronounced decline in canopy closure in the lower reaches of the creek following high-flow events further limits the ability of riparian vegetation to moderate stream temperatures in these reaches.

2.10 Wildlife

The diversity of vegetation types, as well as aquatic environments, in the Santa Rosa Creek watershed support a wide variety of habitat for a number of fish and wildlife species. TLCSLOC (2010) and Fiscalini Ranch Preserve final Master Environmental Impact Report (Morro Group 2009) both summarize the wildlife species that have been observed or are likely to occur in the habitat types found throughout the watershed. As the focal species of this watershed management plan, steelhead life history, habitat requirements, and population in the Santa Rosa Creek watershed is the primary focus of this section. In addition, this section summarizes other special-status species that occur in the watershed, with an emphasis on those species whose life history, habitat requirements, and population trends provide further insight into watershed conditions and the development of appropriate management and restoration action, as well as documented non-native invasive species.

2.10.1 Steelhead

Steelhead (*Oncorhynchus mykiss irideus*) found in the Santa Rosa Creek watershed belong to the South-Central California Coast Distinct Population Segment (DPS), which includes most streams in Monterey, San Benito, Santa Clara, Santa Cruz, and San Luis Obispo counties between the Pajaro (inclusive) and Santa Maria (exclusive) rivers (NMFS 1997, 2006). This DPS is listed as threatened under the federal Endangered Species Act (NMFS 1997, 2006), and is a CDFG species of special concern. The life history of south-central California coast steelhead and their population trends in Santa Rosa Creek are described below. As the focal species of this watershed management plan, factors limiting steelhead in the watershed are discussed in detail in Section 3.

2.10.1.1 Life history

Steelhead is the term commonly used for the anadromous life history form of *O. mykiss*, and rainbow trout is the term for the resident life history. Both steelhead and rainbow trout are expressed within the Santa Rosa Creek watershed (Nelson et al. 2009), although detailed information on the relative proportion of each life history type is not available. The relationship between anadromous and resident life history forms of this species is the subject of ongoing research. The two forms are capable of interbreeding and current evidence suggests that, under some conditions, either life history form can produce offspring that exhibit the alternate form (i.e., resident rainbow trout can produce anadromous progeny and vice-versa) (Burgner et al. 1992, Donohoe et al. 2008, Zimmerman et al. 2009), although in some watersheds the two life histories are distinct (e.g., Pearse et al. 2009).

Steelhead return to spawn in their natal stream, usually in their third or fourth year of life, with males typically returning to fresh water earlier than females (Shapovalov and Taft 1954, Behnke 1992). Adult steelhead are known to stray from their natal streams to spawn in nearby streams and, in more hydrologically variable streams of the central coast such as Santa Rosa Creek, straying is often more prevalent (Clemento et al. 2009, Pearse et al. 2009). Based on variability in life history timing, steelhead are broadly categorized into winter and summer reproductive ecotypes. Only the winter ecotype (winter-run) occurs in Santa Rosa Creek. Winter-run steelhead generally enter spawning streams from late fall through spring as sexually mature adults, and spawn in late winter or spring (Shapovalov and Taft 1954, Behnke 1992, Busby et al. 1996). Little data on steelhead spawning time exist for Santa Rosa Creek, although both spawning time and distribution within the watershed appear to be related to time and duration of sandbar opening at the Santa Rosa Creek lagoon and winter discharge (D. W. Alley & Associates 2008, Nelson et al. 2009). Peak spawning time for other steelhead populations in the South-Central California Coast ESU is generally between January and March (Busby et al. 1996).

Female steelhead construct redds in suitable gravels, often in pool tailouts, or in isolated gravel patches in cobble and boulder dominated streams (McEwan and Jackson 1996). Eggs incubate in redds for 3–14 weeks, depending on water temperatures (Shapovalov and Taft 1954, Moyle 2002). After hatching, alevins remain in the gravel for an additional two–five weeks while absorbing their yolk sacs, and then emerge in spring or early summer (Moyle 2002). After emergence in late-spring and summer, steelhead fry move to shallow-water, low-velocity habitat, such as stream margins and low-gradient riffles, and forage in open areas lacking instream cover (Hartman 1965, Fontaine 1988). As fry grow and improve their swimming abilities in the late summer and fall, they increasingly use areas with cover and show a preference for higher velocity, deeper mid-channel areas near the thalweg (the deepest part of the channel) (Hartman 1965, Everest and Chapman 1972, Fontaine 1988). Juvenile steelhead occupy a wide range of habitats, using deep pools as well as higher-velocity riffle and run habitat (Bisson et al. 1982, Bisson et al. 1988). During periods of low temperatures and high flows that occur in winter months, steelhead prefer low-velocity pool habitat with large rocky substrate or woody debris for cover (Hartman 1965, Raleigh et al. 1984, Fontaine 1988).

Juvenile[6] steelhead in northern and central California typically spend one to two years in freshwater prior to smolting[7] and outmigration to the ocean (Shapovalov and Taft 1954). The duration of time they spend in fresh water appears to be related to growth rate, with larger, faster-growing members of a cohort smolting earlier (Hayes et al. 2008). Depending partly on growing conditions in their rearing habitat, steelhead may migrate downstream to estuaries as young-of-the-year (YOY) or may rear in streams for up to four years before outmigrating to the estuary and ocean (Shapovalov and Taft 1954). Some steelhead in the lower 8 mi of Santa Rosa Creek likely require only one year of growth before reaching smolt size (approximately 6–7 in [150–180 mm]), whereas most fish above stream mile 8 typically require two years depending on availability of food and streamflow (D. W. Alley & Associates 2008). Age data from scale analysis and corresponding length data from individuals collected in the lower 8 mi of Santa Rosa Creek indicate that many individuals reach 4–5 in (120–140 mm) fork length[8] by their first fall (D. W. Alley & Associates 2008).

There is very little data describing juvenile steelhead life history strategies expressed in Santa Rosa Creek. Limited outmigrant trapping in Santa Rosa Creek suggests some individuals rear in upstream reaches before outmigrating as smolt, and some migrate to the lower reaches and lagoon at smaller sizes/younger ages (D. W. Alley & Associates 2008, Nelson et al. 2009). A portion of Santa Rosa Creek juvenile steelhead appear to have historically reared in the lagoon prior to outmigration (Puckett 1970, as cited in Rathbun et al. 1991), and recent evidence suggests some individuals likely still do in some years (Nelson et al. 2009, Alley and Sherman 2006, D. W. Alley & Associates 2008). During summer and fall sampling in 2004, Alley and Sherman (2006) captured 101 and 69 juvenile steelhead (varying in size from approximately 1–4 in [35–94 mm]

[6] In this report juvenile steelhead refers to both young-of-the-year (YOY) and age 1+/2+, unless indicated separately. YOY are age 0+ individuals less than one year old that hatched the previous spring or early-summer and are the offspring of adults that spawned the previous winter or early-spring. Age 1+/2+ refers to all pre-smolt juveniles one year old or older. This report presents age-class-specific juvenile data from D. W. Alley & Associates (2008), who assigned age-classes based on site-specific divisions in the frequency distribution of steelhead standard-lengths (SL). Based on this sampling, YOY are likely to be between 3 and 6 months old, and age 1+/2+ are likely between 1.25 and 2.5 years old.

[7] Smolts are juvenile steelhead migrating to the ocean (i.e., smolting) that exhibiting silver coloration and have no parr marks.

[8] Fork length is measured from the tip of the snout to the fork, or middle, of the caudal (tail) fin

standard length[9]), respectively between Shamel Park and Windsor Bridge. Available water quality data also suggests that, at least in some years, conditions are suitable for steelhead rearing in the lagoon (see Section 3.5). In nearby San Luis Obispo Creek, many YOY steelhead that hatch in upper tributaries and reaches migrate downstream and rear in lower mainstem reaches prior to entering the ocean (Spina et al. 2005).

Smolt downstream migration in Santa Rosa Creek typically occurs from March through early June (D. W. Alley & Associates 2008). Trapping at Santa Rosa Creek stream mile 0.35 in 2005 revealed a peak in smolt capture from mid to late April (Nelson et al. 2009), which is consistent with that documented in nearby San Luis Obispo Creek (Spina et al. 2005). Steelhead exhibiting smolt coloration ranged from approximately 5–10 in (130–250 mm) fork length, with 6–7 in (150–180 mm) fork length being most common (Nelson et al. 2009).

2.10.1.2 Distribution and status

Annual estimates of adult escapement, the number of adults returning to spawn, are arguably the best measure of steelhead population trends (Gallagher and Gallagher 2005). Unfortunately, no actual adult steelhead escapement data are available for Santa Rosa Creek. Information on the historical adult steelhead population abundance in Santa Rosa Creek is largely anecdotal, but all available evidence points towards a decline. A study from 1969–1970 indicated that the adult steelhead run in the creek was approximately 600 individuals (Seldon 1972, as cited in Becker and Reining 2008). Based on CDFG unpublished reports and field logs, Rathbun et al. (1991) reported that steelhead were “abundant” in the Santa Rosa Creek drainage as recently as the early 1980's, but provided no adult population estimate. However, anecdotal fishermen reports indicated declines in the numbers of adult fish entering the creek between 1987 and 1991 (Rathbun et al. 1991). From 1988–1991, CDFG received only a few reports of spawning adults, and no steelhead were seen during a survey of the lower 2 miles of the creek in mid-July 1991 (Rathbun et al. 1991, Titus et al. 2006).

The apparent decline of the adult steelhead population is supported by more quantified juvenile population data. In 1972 the total juvenile population was estimate to be over 60,000 fish (Bailey 1973, as cited in Nelson 1994). An apparent population crash occurred between 1972 and 1978, when the juvenile population was estimated to be less than 10,000 (Knable 1978, as cited in Nelson 1994). The juvenile population in 1993 remained at just over 10,000 individuals (Nelson 1994). More recent population estimates (1998–2006) reported by D. W. Alley & Associates (2008), indicate an apparent rebound, with the juvenile population ranging from approximately 25,000 to 65,000. However, the different methodology used for these recent estimates makes it difficult to accurately compare them with the older estimates (Titus et al. 2006). Moreover, between 1998 and 2006 the abundance of both age 0+, also referred to as young-of-the-year (YOY), and age 1+/2+ juvenile steelhead in Santa Rosa Creek significantly declined (D. W. Alley & Associates 2008) (Figures 2-26 and 2-27).

[9] Standard length is measured from the tip of the snout to the anterior edge of the caudal fin (excludes caudal fin).

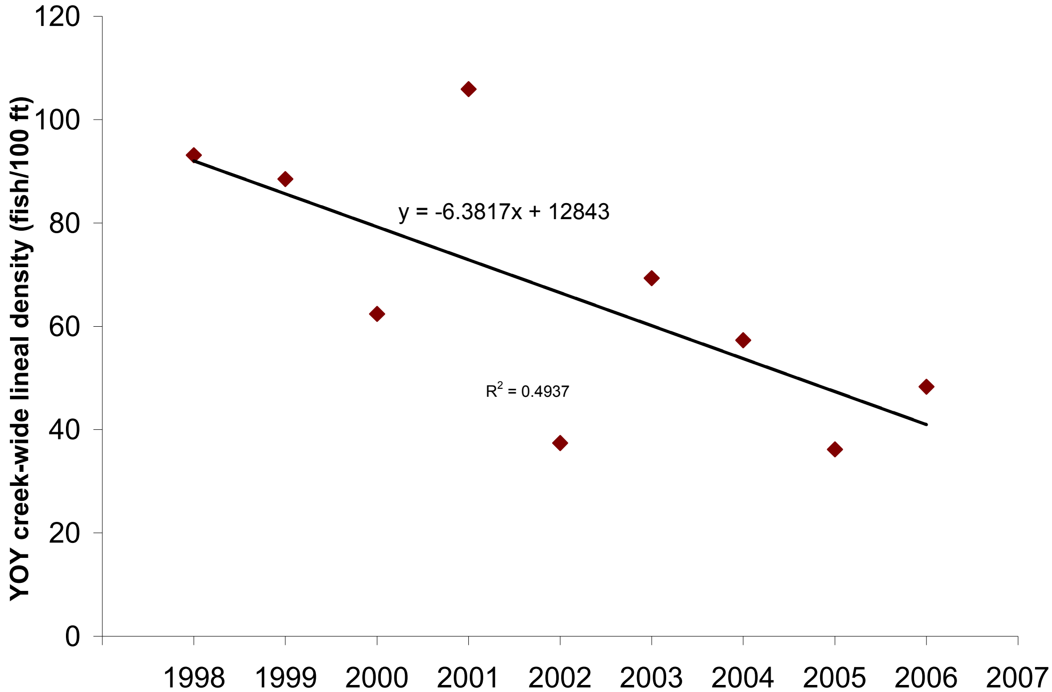

Figure 2-26. Lineal density (fish/100 ft) of YOY steelhead in Santa Rosa Creek from 1998 to 2006 (r^2 = 0.4937; P = 0.0348; n = 9). Data source: D. W. Alley and Associates (2007, Table 25a).

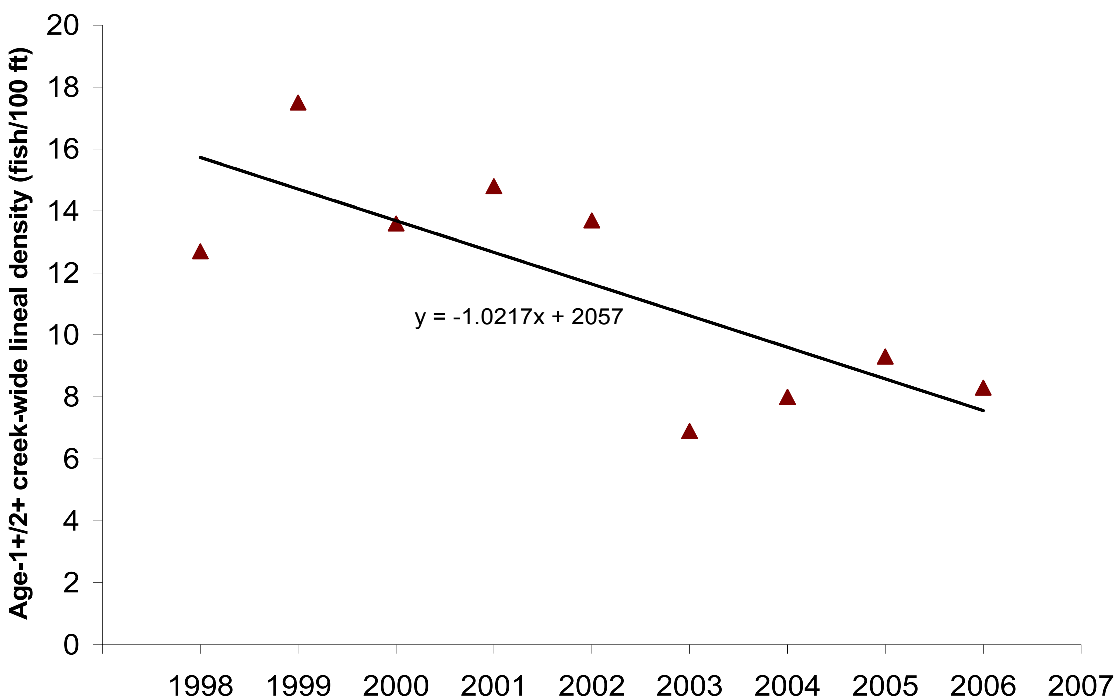

Figure 2-27. Lineal density (fish/100 ft) of age-1+/2+ steelhead in Santa Rosa Creek from 1998 to 2006 (r^2 = 0.592; P = 0.0154; n = 9). Data source: D. W. Alley & Associates (2007, Table 25a).

Juvenile steelhead densities are consistently higher in the upper reaches (approximately stream miles 8–13) than in the middle and lower reaches (approximately stream miles 0–8) of Santa Rosa Creek (D. W. Alley & Associates 2008, Nelson et al. 2009) (Figures 2-28 and 2-29).[10] The generally higher densities in the upper reaches suggest that a greater number of steelhead spawned there, that food availability and habitat quality are higher (and thus capable of supporting higher densities of fish), and/or that embryo and/or juvenile survival was higher in these reaches than in the lower watershed. In addition, the upper reaches are more likely to support some level of resident rainbow trout production due to water quality and habitat features, although this cannot be ascertained based on existing information. Habitat conditions vary considerably between the reaches, with the upper reaches generally containing larger substrates, less fine sediment, deeper pools, lower summer base flows, and more stream shading due to higher percentage of canopy closure, than the middle and lower reaches, which run through a marine terrace and are lower gradient and less confined (D. W. Alley & Associates 2008, Nelson et al. 2009).

Using average densities of juvenile steelhead from previous monitoring results, Titus et al. (2006) documented a statistically significant shift in the use between the upper (approximately stream miles 8–13) and lower reaches (approximately stream miles 0–8) over a 23-year period, with increasing use of the upper creek and decreasing use of the lower creek. These results suggest that the degraded physical habitat and reduced instream flows in the lower creek (see discussions in Section 3) have progressively rendered this area less and less suitable for rearing juveniles.

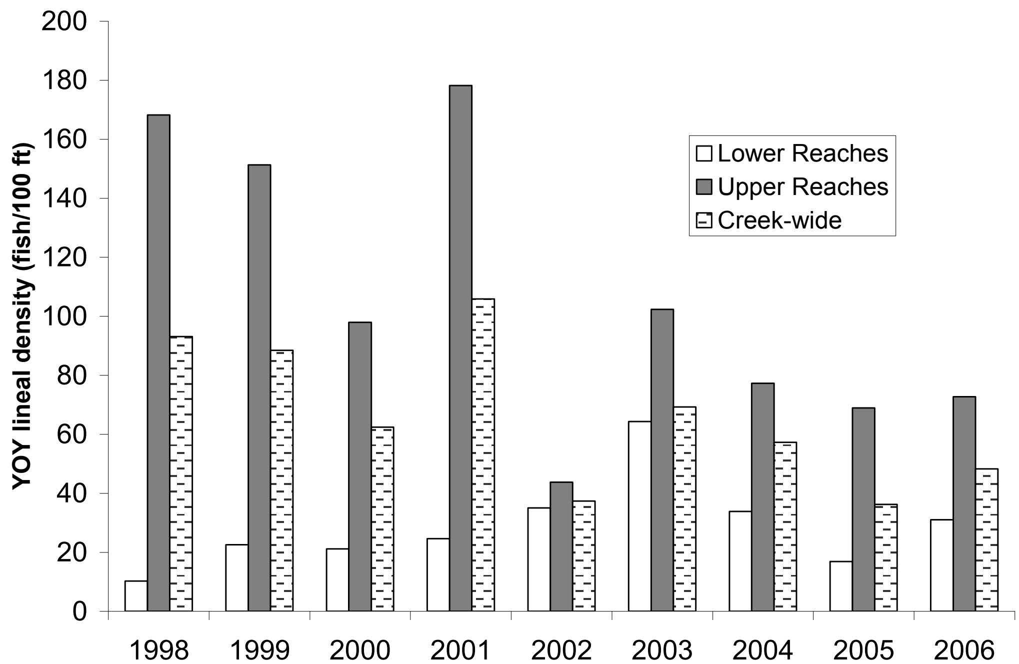

Figure 2-28. Mean lineal density of YOY steelhead at sample sites in the lower reaches (stream miles 0–8), upper reaches (stream miles 8–13), and creek-wide from 1998–2006. Data source: D. W. Alley & Associates (2007, Tables 26a and 26b).

[10] D. W. Alley & Associates (2008) and Nelson et al. (2009) used different reach delineations than those used and described previously in this document. These reports delineated lower reaches, also referred to as lower valley, from stream mile 0 to 8, and upper reaches, also referred to as upper canyon, from stream mile 8 to 13. These reach delineations are used when presenting data from D. W. Alley and Associates (2008) and Nelson et al. (2009).

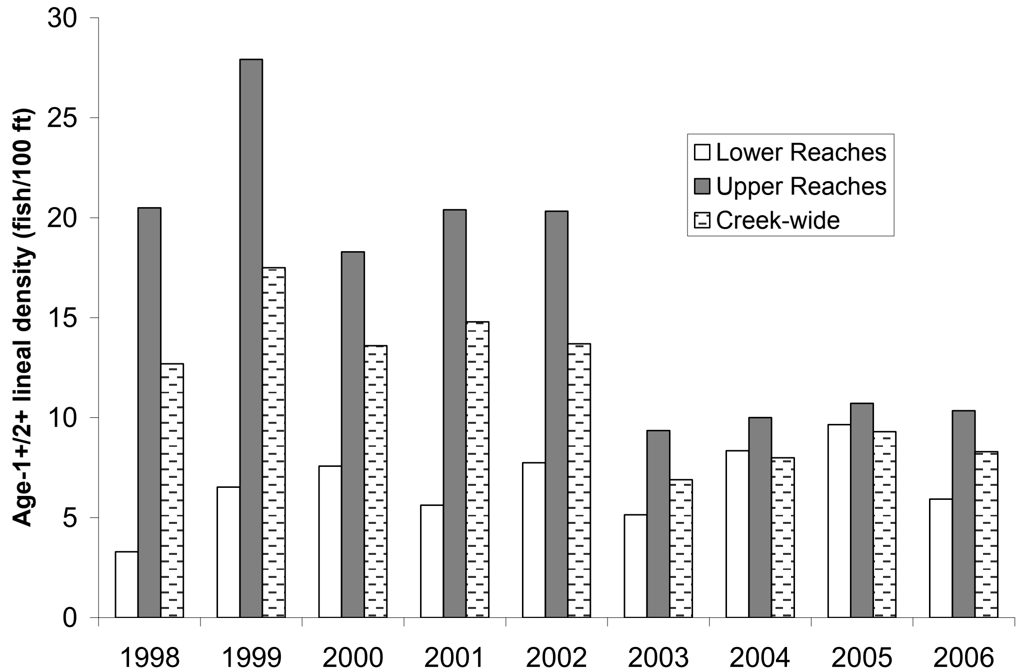

Figure 2-29. Mean lineal density of 1+/2+ steelhead at sample sites in the lower reaches (stream miles 0–8), upper reaches (stream miles 8–13), and creek-wide from 1998–2006. Data source: D. W. Alley & Associates (2007, Tables 26a and 26b).

Despite the evident decline in steelhead population since historical levels, compared to most other watersheds with populations in the DPS, Santa Rosa Creek contains a relatively high quantity of suitable spawning habitat and relatively high densities of juvenile steelhead have been observed in recent years (D. W. Alley & Associates 2008). For this reason, habitat restoration and continued monitoring of Santa Rosa Creek's steelhead population is considered important for the recovery of the DPS (NMFS 2007, CDFG 2010).

2.10.2 Other rare species

In addition to steelhead, TLCSLOC, Cambria Forest Management Plan, and Fiscalini Ranch Preserve final Master EIR all identified special-status wildlife species—those listed as threatened or endangered under either the federal or state Endangered Species Acts, or as a species of special concern (SC) by CDFG—with the potential to occur in the watershed (Cambria Forest Committee 2002, Morro Group 2009, TLCSLOC 2010). Of these, the following have been observed in the watershed (Rathbun et al. 1991, Nelson et al. 2009, D. W. Alley & Associates 2008, Morro Group 2009):

- Pacific (previously southwestern) pond turtle (*Actinemys marmorata*; SC)
- monarch butterfly (*Danaus plexippus*; CNDDB vulnerable species)
- tidewater goby (*Eucyclogobius newberryi*; federally endangered and SC)
- Monterey dusky-footed (Santa Lucia) woodrat (*Neotoma macrotis luciana*; SC)
- California red-legged frog (*Rana draytonii*; federally threatened and SC)
- American badger (*Taxidea taxus*; SC)
- two-striped gartersnake (*Thamnophis hammondii*; SC)

Pacific pond turtle, tidewater goby, California red-legged frog, and two-striped gartersnake have all been the subject of relatively recent surveys and reports in the Santa Rosa Creek watershed, as detailed below. The life history, habitat requirements, and population trends of these "umbrella species" provide additional insight, beyond that provided by steelhead, into the state of the watershed. In some cases, the habitat and life history requirements of these species are connected or overlap with those of steelhead and, as a result, appropriate management for steelhead is expected to benefit these species as well. In other cases, appropriate management for steelhead could conflict with the habitat and life history requirements of these other species. This section provides a brief overview of these species and their population trends in Santa Rosa Creek, and identifies potential synergies and/or conflict between these species and management for steelhead.

2.10.2.1 Pacific pond turtle

Pacific pond turtles inhabit fresh or brackish water characterized by areas of deep water, low flow velocities, moderate amounts of riparian vegetation, warm water and/or ample exposed basking sites, and underwater cover elements such as large woody debris and rocks (Jennings and Hayes 1994). In California, Pacific pond turtles are found from the Oregon border south to the border with Baja California, including the Central Valley and Sierra Nevada foothills, and along the Coast ranges (Stebbins 2003). The species has experienced population declines as conversion of wetland and riparian habitat to urban and agricultural use has accelerated (Jennings and Hayes 1994, Germano and Bury 2001). In addition, hatchlings and juveniles are vulnerable to predation by a variety of native and non-native mammals, birds, fish and amphibians (Moyle 1973, Holland 1985, both as cited in Rathbun et al. 1991).

Along major rivers, Pacific pond turtles are often concentrated in side channel and backwater areas. Turtles may move to off-channel habitats, such as oxbows, during periods of high flows (Holland 1994). While highly aquatic, Pacific pond turtles also spend time on land basking, over-wintering, nesting, and to seek refuge/cover, up to a reported 0.3–0.6 mi (0.5–1 km) away from aquatic habitats (Rathbun et al. 1992, Holland 1994, Reese and Welsh 1997, Rathbun et al. 2002). Egg-laying sites vary from sandy shoreline to forest soil types, though are generally located in grassy meadows, away from trees and shrubs (Rathbun et al. 1992, Holland 1994, Rathbun et al. 2002), with canopy cover commonly less than about 10% (Reese 1996). In an 8-year study of several creeks just north of Santa Rosa Creek, Pacific pond turtles left the drying creek beds in late summer for nearby woodland and coastal sage scrub habitat, and returned after winter floods, and females laid their eggs in sunny upland habitat, such as grazed pastures (Scott and Rathbun 2001, Rathbun et al. 2002).

Surveys of lower Santa Rosa Creek in the late 1970s consistently observed Pacific pond turtles hauled-out on logs in the lower end of the seasonal lagoon (D. Holland, unpubl. data, as cited in Rathbun et al. 1991). Since 1986, however, observations of Pacific pond turtles have decreased, and only two to three individuals were recorded downstream of the Highway 1 Bridge in 1991 (Rathbun et al. 1991). At least one Pacific pond turtle was captured in the lower 14 mi (22 km) of Santa Rosa Creek during CDFG's steelhead surveys in 2005 (Nelson et al. 2009). Rathbun et al. (1991) attribute this apparent decline to insufficient instream flows resulting from a combination of below-average precipitation that year and groundwater pumping in the lower reaches of the creek.

In general, management actions to enhance steelhead habitat should also benefit Pacific pond turtles. For example, actions to increase instream flow, enhance the riparian corridor, reduce fine sediment delivery to channels, and provide instream woody debris should improve aquatic habitat conditions for Pacific pond turtle. However, the conservation of upland scrub and grassland habitat adjacent to the creek is equally important for egg-laying, refuge, and basking habitat.

2.10.2.2 Tidewater goby

Tidewater goby is a small fish that inhabits coastal lagoons, marshes, estuaries, and lower stream reaches along the California coast from Del Norte County to San Diego County (Swift et al. 1989, Moyle 2002, USFWS 2005). The fish still occurs within this range, but at over half of the sites within the distribution, populations have been extirpated or are extremely small with uncertain long-term persistence (USFWS 2005). The decline in this species resulted in it being listed as federally endangered in 1994 (USFWS 1994). Tidewater gobies are an important part of estuarine food webs because they provide prey for larger fish, aquatic snakes, and piscivorous birds (Swenson and McCray 1996). Tidewater gobies are threatened by changes in water quality, degradation and loss of winter and summer habitat due to urbanization and sandbar breaching, and predation from invasive species.

During reproduction/spawning, juvenile, and adult life stages, tidewater goby appear to prefer shallow depths (20–100 cm [8–39 in]) near emergent vegetation at the fringe of large estuaries and within lagoon and tidal slough systems, though possibly deeper since most previous surveys did not effectively sample in deeper waters (Stillwater Sciences 2006a).

Tidewater gobies were documented as abundant in the Santa Rosa Creek lagoon in 1977, but subsequent surveys in the early to late 1980s documented only small numbers (Swift 1977, 1981, and Dudley 1988, as cited in Rathbun et al. 1991). As with other species in the lower creek, Rathbun et al. (1991) attributed this decline to a lack of instream flow from primarily agricultural and urban water use. D. W. Alley & Associates surveyed tidewater goby in Santa Rosa Creek lagoon from 1995 to 2007 and documented highly variable abundance (Alley and Sherman 2006, D. W. Alley & Associates 2008).

Habitat restoration may be mutually beneficial to steelhead and tidewater gobies. For example, enhancement of brackish marshes and lagoon habitat can increase steelhead rearing habitat while also providing year-round habitat for tidewater goby (Stillwater Sciences 2006a). However, the habitat requirements of the tidewater goby differ enough such that restoration for steelhead may not always be beneficial, and under some circumstances may be detrimental, to tidewater goby populations (Stillwater Sciences 2006a). Therefore, care must be taken when implementing actions to enhance steelhead habitat to minimize unintended consequences on tidewater goby habitat. Accurate predictions of the effect of restoration on both water depths and salinity dynamics are crucial in determining the long-term effect of restoration on tidewater goby habitat quality and extent (Stillwater Sciences 2006a).

2.10.2.3 California red-legged frog

California red-legged frogs are found in ephemeral or permanent bodies of water, including wetlands, natural and artificial ponds and reservoirs, wet meadows, lakes, and low-gradient, slow-moving stream reaches with permanent pools, primarily in coastal drainages along California's central coast. The frog's range covers Mendocino County to Baja California, with isolated remnant populations occurring in the Sierra foothills, from sea level to approximately 8,000 ft (2,440 m) (Stebbins 2003, Shaffer et al. 2004). They are considered extirpated from the foothills of the Sierra San Pedro Martir, the coastal plain of Baja California Norte, and the Central Valley region, which represents an approximate 70% reduction of its historical range (CDFG 2009, USFWS 2002). California red-legged frog populations are threatened within their remaining range by a variety of human-influenced impacts, including urban encroachment, altered hydrological regimes that are not suitable for their life history needs, introduction of exotic predators and competitors, contaminants including pesticides and fertilizers, and habitat fragmentation (USFWS 2002). It is a threatened species under the federal Endangered Species Act (USFWS 1996) and a California species of special concern.


California red-legged frog

California red-legged frog habitat is generally characterized by still or slow-moving water with deep pools (usually at least 2 ft [0.7 m], though frogs have been known to breed in shallower pools) and emergent and overhanging vegetation, usually cattails, rushes, or willows (Jennings and Hayes 1994). Although some adults may remain resident year-round at favorable breeding sites, others may disperse overland up to a mile or more (Fellers and Kleeman 2007). Movements may be along riparian corridors, but some individuals move directly from one site to another without apparent regard for topography or watershed corridors (Bulger et al. 2003). California red-legged frogs sometimes enter a dormant state during summer or in dry weather, finding cover in small mammal burrows, moist leaf litter, root wads, or cracks in the soil. California red-legged frog populations are likely to persist where multiple breeding and non-breeding aquatic areas are embedded within a matrix of upland dispersal habitat (USFWS 2002, Fellers and Kleeman 2007). In the study of several creeks north of Santa Rosa Creek, high spring flows were found to inhibit California red-legged frog breeding and eliminate egg masses in some creeks in some years (Scott and Rathbun 2001). In general frogs were always found in or very near water, but could be found farther upland in wet winters. Overhanging willow branches, bulrush/ cattails, exposed tree roots, and upland thickets were the most common cover types used by frogs during the study (Scott and Rathbun 2001).

Annual herpetological surveys of lower Santa Rosa Creek from the mid-1970s to 1989 consistently documented California red-legged frogs, but in decreasing numbers (Rathbun et al. 1991). In 1991, only two red-legged frogs—one dead—were observed in the creek between the Windsor Street bridge and Highway 1 bridge (Rathbun et al. 1991). An unspecified number of California red-legged frogs were captured in the lower 14 mi (22 km) of Santa Rosa Creek during CDFG’s steelhead surveys in 2005 (Nelson et al. 2009). Rathbun et al. (1991) identified insufficient instream flow in lower Santa Rosa Creek, as a result of agricultural and urban water use, and a lack of adequate cover as the primary causes of the decline in red-legged frogs in this area.

In general, management actions to enhance steelhead habitat should also benefit California red-legged frogs, including increasing instream flows, enhancing riparian habitat, reducing fine sediment delivery to channels, providing instream woody debris and undercut banks for cover, and managing for non-native species (USFWS 2002). For California red-legged frog, it is also important to provide adequate connectivity between breeding, non-breeding, and dispersal habitats (Fellers and Kleeman 2007), as well as to conserve a well-distributed array of natural habitat elements in terrestrial areas upland from occupied aquatic sites (Bulger et al. 2003). Habitat for early life stages of steelhead tend to be similar for California red-legged frogs tadpoles, including low-velocity areas near streambanks.

2.10.2.4 Two-striped garter snake

The two-striped garter snake is generally found around pools, creeks, cattle tanks, and other water sources along the California coast from Monterey County to northern Baja California (Stebbins 2003). Two-striped garter snakes are threatened by a loss of wetland habitat, which has contributed to a reduction in their range. It is currently a California species of special concern.

Although generally considered an aquatic species, preferred retreat habitat is terrestrial, such as mammal burrows, crevices, and surface objects (Rathbun et al. 1993). Juveniles and adults feed primarily on small fish, fish eggs, tadpoles, frog metamorphs, and small invertebrates (Jennings and Hayes 1994). A study of several creeks just north of Santa Rosa Creek found that female two-striped garter snakes spent most of the year in various terrestrial habitats, either on the surface, under surface objects, or in animal burrows (Scott and Rathbun 2001). In the water, snakes were most often found among aquatic vegetation, cattails, bulrushes, and overhanging willow branches. Upland, snakes were often associated with grassy areas and small mammal borrows (Scott and Rathbun 2001).

Numerous two-striped garter snakes were observed in lower Santa Rosa Creek during surveys in the late 1970s, but none were observed in subsequent surveys (Rathbun et al. 1991). As with other aquatic species in the lower creek, Rathbun et al. (1991) attributed this decline to a lack of instream flow from primarily agricultural and urban water use, which is likely correlated with a decrease in aquatic prey species, such as small fish and frogs/tadpoles.

In general, management actions to enhance steelhead habitat should also benefit two-striped garter snakes. Primarily, actions to increase instream flow, enhance the riparian corridor, and reduce fine sediment delivery to streams should improve aquatic habitat conditions for two-striped garter snake by increasing their prey base. However, the conservation of upland habitats adjacent to the creek is equally important for refuge and basking.

2.10.3 Non-native, invasive wildlife species

While most non-native species are not particularly invasive or detrimental, some have no natural controls in their new environmental and are able to spread unchecked, causing significant and sometimes irreparable damage to native habitat and species. For example, non-native invasive species can prey on native species, out-compete native species for food and other resources, and/or degrade habitat for native species. While there has been no comprehensive survey for non-native invasive fish and wildlife species in the Santa Rosa Creek watershed, incidental observations during surveys for steelhead and other native species provide an indication of the primary non-native invasive species that occur in the watershed.

2.10.3.1 Aquatic species

Dr. Dan Holland (unpublished data, as cited in Rathbun et al. 1991), CDFG (Nelson 1994, Nelson et al. 2009), and D. W. Alley & Associates (2008) recorded the presence of several non-native aquatic species in creeks in the watershed. These include:

- brown bullhead catfish (*Ictalurus nebulosus*)
- green sunfish (*Lepomis cyanellus*)
- bluegill (*Lepomis macrochirus*)
- crayfish (*Pacifastacus leniusculus*)
- bullfrog (*Rana catesbeiana*)

Mosquitofish (*Gambusia affinis*) are also likely to occur in the creek and ponds in the watershed (G. Rathbun, pers. comm., 2010). Many of these non-native species have been documented to prey upon native species and are capable of continually dispersing into Santa Rosa Creek from the many stock ponds in the watershed. Preventing their further establishment and eradication has been identified as an important step in protecting native species populations in Santa Rosa Creek (Rathbun et al. 1991, D. W. Alley & Associates 2008, Nelson et al. 2009). Rathbun et al. (1991) implicated bullfrogs and bass in the extirpation of tidewater goby in nearby Old Creek (near the town of Cayucos) and noted that bluegill may be a serious predator of tidewater gobies and red-legged frog eggs in Santa Rosa Creek. Similarly, D. W. Alley & Associates (2008) identifies introduced non-native predators, such as centrarchids (bass family of fishes), bullfrog and possibly crayfish as one of the four major threats to tidewater goby in the watershed. In an assessment of steelhead habitat and limiting factors, Nelson et al. (2009) notes that while crayfish have been shown to consume salmonid eggs, the impact of their ubiquitous presence in Santa Rosa Creek is not understood and their eradication would be difficult at best. Nelson et al. (2009) were particularly disconcerted by the presence of bullfrogs and green sunfish, which can prey upon steelhead eggs and young-of-the-year, but are generally less common in small coastal streams like Santa Rosa Creek. They continued: “Given the warm water temperatures in the lower watershed both of these non-native species will thrive during the summer months. It is doubtful that the sunfish could withstand the higher winter flows, but the adult bullfrogs will move to higher ground during these flow events, re-occupying the creek when flows subside.”

There have been no documented reports of Asian clam (*Corbicula fluminea*), a highly invasive aquatic invertebrate, in the Santa Rosa Creek watershed, but it has been documented in the Salinas River and in Lake Nacimiento by the USGS Nonindigenous Aquatic Species program (NAS 2010).

2.10.3.2 Terrestrial species

European starlings (*Sturnus vulgaris)* and brown-headed cowbirds (*Molothrus ater*) are both widespread non-native birds that can affect native bird populations and occur or are likely to occur in the Santa Rosa Creek watershed. European starlings are aggressive competitors for nest holes, often evicting native species, while brown-headed cowbirds are brood-parasites of many native bird species (i.e., they lay their eggs in the nests of native birds, who then raise the cowbird chicks often to the detriment of their own offspring) in riparian areas throughout California, especially those near agricultural lands. There have been no documented reports of brown-headed cowbirds in the Santa Rosa Creek watershed specifically, but high counts of the birds have consistently been recorded during the annual Christmas Day bird count in San Luis Obispo County (MCAS 2005, 2006). European starling populations appear, at least anecdotally, to be increasing in the watershed (R. Hawley, pers. comm., 2010).

Feral pigs (*Sus scrofa*) are known to occur and cause damage to creek channels and other areas in the watershed (S. Soto, pers. comm., 2010; G. Kendall, pers. comm., 2010; M. Smith, pers. comm., 2010). California’s feral pig population likely started in San Benito and Monterey counties with escaped domestic swine brought over by Mexican settlers, who commonly released swine to forage in woodlands (Groves and Di Castri 1991, Kreith 2007). Since then feral pigs have been deliberately (and illegally) relocated elsewhere in the state for hunting (Kreith 2007). In the Santa Rosa Creek watershed, wild Russian boars and sows were brought in for hunting in the 1930’s by a landowner to amuse his guests (D. Dunlap, pers. comm. 2010). Swine have the greatest reproductive capacity of all free-ranging, large mammals in the United States (Wood and Barrett 1979) and population expansion can occur rapidly. Feral pigs degrade ecosystems through predation and competitive impacts on native fauna, grazing on native plants, and physically altering habitat by rooting. Rooting creates large, disturbed areas that can lead to extensive erosion, displace native species, facilitate invasion by non-native, invasive plant species (Barrett 1977), and contribute to fine sediment delivery to waterways. Feral pig disturbance causes several million dollars in damages to crops, fencing, roads and trails annually in California, and, between 2002 and 2006, for over $275,000 in damages in San Luis Obispo County alone. Feral pig is regulated as a big game mammal by CDFG. Hunting is believed to have thinned the feral pig population in the Santa Rosa Creek watershed dramatically compared with levels in the 1960s through 1980s, but the population appears to be increasing again in the upper watershed (S. Soto, pers. comm., 2010; D. Dunlop, pers. comm., 2010).

2.11 Critical Issues

There are several issues that are impairing or have the potential to affect ecological conditions in the Santa Rosa Creek watershed and make obvious focal points for restoration and management planning. These issues are summarized below and include water quantity, water quality, fine sediment, non-native invasive species, and changes in land use. Several of these issues feature prominently in the steelhead limiting factors analysis (Section 3), and recommendations to address them are included in Section 4.

2.11.1 Water quantity

While the Santa Rosa Creek watershed, due to its climate and setting, likely experienced very low and intermittent flows in the late summer and fall on occasion under historical conditions, groundwater pumping and riparian water diversions are removing water that would otherwise be available to the stream channel (see Section 2.6). Since the establishment of the San Simeon well field in 1979, groundwater extraction in the Santa Rosa Creek watershed by CCSD for municipal use has ranged from 0 to just over 200 acre-feet annually. Through the early 1990s, the amount of groundwater and surface water extracted by private entities was estimated to be approximately 3.5 times the amount pumped by the CCSD. The precise effects of groundwater pumping and water diversion on the volume of instream flow are not currently known, but there is general consensus among the resource scientists who have surveyed the watershed that low instream flows have contributed to the decline of several special-status aquatic species in the watershed (Rathbun et al. 1991, D. W. Alley & Associates 2008, Nelson et al. 2009).

Reduced instream flows are particularly problematic in the intermittent reach of the creek and in the lagoon. In the intermittent reach of the creek (see Figure 2-8), where surface flows readily percolate into the subsurface, reduced instream flows constrain, and may entirely eliminate, connectivity between upstream and downstream habitat. The mechanisms for water loss in this reach, and thus for restoring flows, are not currently well understood. In the lowest reaches of the creek and in the lagoon, reduced instream flows limit the extent of aquatic habitat and likely contribute to elevated stream temperatures and low DO levels in the lagoon.

2.11.2 Water quality

In general, water quality in the middle and upper reaches of Santa Rosa Creek is good: relatively low summer stream temperatures and a diverse assemblage of benthic macroinvertebrates that are indicative of high water quality are maintained. As one moves downstream, however, water quality becomes increasingly reduced. Water temperatures begin to increase, and occasionally exceed CCRWQCB water quality criteria for temperature in the summer, in the downstream portion of the middle reach, most likely as a result of limited riparian canopy cover in some areas and low instream flows. Sites adjacent to the town of Cambria had the least diverse assemblages of benthic macroinvertebrates and exhibit generally poor water quality as a result of increased levels of urban runoff, riprap, concrete, and trash. Water quality criteria for temperature and DO are frequently exceeded in the lagoon, in part as a result of low instream flows.

Sediment samples downstream of the Oceanic Mine on Curti Creek, including several in the lagoon, indicate elevated levels of mercury in the watershed (Section 2.8.3). Mercury is delivered to the watershed primarily from the erosion of mercury-laden waste rock at the former mill site by Curti Creek. No actions have been implemented to control this delivery or remediate the mine or former mill site. While additional study is necessary to determine the extent of mercury bioaccumulation in the aquatic food chain, moderately elevated levels of methylmercury—the bioavailable form of mercury—were recently measured in the Santa Rosa Creek lagoon.

2.11.3 Fine sediment in the lower reaches

Historically, fine sediment production rates likely increased substantially during the late 1800s and early 1900s when land clearing activities initiated (e.g., logging, ranching, and urbanization). Changes in the rainfall-runoff dynamics caused by this land clearing created a flashier system that more effectively eroded previously stored sediment on the hillslopes creating numerous erosional features (e.g., gullies and landslides), and led to channel incision throughout the watershed, particularly in the middle reaches of Santa Rosa Creek and the middle and upper reaches of Perry and Green Valley creeks. Over time, the channel incision eventually drove the mass instability of channel banks, another significant source of fine sediment. Together, this increase in hillslope and bank erosion rates led to proportionally higher rates of fine sediment delivery (as opposed to coarse sediment delivery) to stream channels in the watershed.

During the past half century, high fine sediment production rates have been reduced for the following reasons: (1) land use activities and vegetation coverage remained largely unchanged; and (2) the supply of sediments stored on hillslopes is less available after significant volumes were previously evacuated. The number and size of gully and landslide features present in the early 20th century have not changed considerably in recent decades, further indicating that land use-induced erosion of the landscape has stabilized. Additionally, and perhaps more importantly, stored sediment in the Santa Rosa Creek channel bed is predominantly coarse-grained (fine gravels to coarse cobbles), with few accumulations of fine sediment in the middle and upper reaches. This signifies that present-day fine sediment yields to the channel, which are assumed to be greater than pre-settlement rates, are not overwhelming the transport capacity of the channel under the current flow regime. This ability of the channel to self-maintain a predominantly coarse-grained bed helps to provide suitable instream habitat. However, occurrences of bank erosion exacerbated by incised channel morphology, altered watershed hydrology, and road runoff continue to represent a significant fine sediment source that can limit habitat quantity and quality at the reach scale.

The downstream, low-gradient reaches of Perry and Green Valley creeks are very fine-grained indicating that these major tributaries transport a high fine-sediment load to the lower reaches of Santa Rosa Creek. In addition, stormwater runoff-related erosion from Cambria neighborhood roads and home lots may also contribute to fine sediment in the lower reaches of Santa Rosa Creek. While the much of this input of fine sediment is conveyed with relative ease out of the watershed, the instream habitat quantity and quality of lower Perry and Green Valley creeks are limited by their fine-grained channels and enough remains in the lower reaches of Santa Rosa Creek to embed coarser substrates (see Section 3 for additional details).

2.11.4 In-channel infrastructure


Culvert on Curti Creek

Although the two downstream-most barriers to fish migration and movement (i.e., Burton Street Bridge and Ferrasci Road crossing) have been corrected, close to 20 man-made (i.e., bridges and culverts) barriers have been identified in the watershed. Barriers that may impede access to potential steelhead spawning and rearing areas include several stream crossings on Perry and lower Green Valley creeks.

Streambank rip-rap placement in the lower reaches of Santa Rosa Creek may cause flow to be deflected back across the channel resulting in further erosion downstream and threatening downstream land and infrastructure. If continued, extensive rip-rap placement could cause channel incision, more rapid flows, channel bed armoring (i.e., coarse bed surface layer), and reduced topographic complexity of the channel bed resulting in significant reductions in habitat suitability for native aquatic organisms including salmonids.

2.11.5 Non-native invasive species

Stream surveys and other resource inventories have documented a variety of non-native invasive plant and animal species in the watershed. Several of these species are known predators of steelhead and other special-status aquatic species in the watershed, can alter and impair native habitat conditions, and/or have the ability to disperse and expand their distribution quickly. Relatively large infestations of some species, such as eucalyptus, cape ivy, crayfish, bullfrogs, and freshwater sunfishes, have already been reported. In addition, the currently limited distribution of some of the non-native invasive species documented in the watershed (e.g., arundo, pampas/jubata grass, and French broom) can quickly change since they are known to spread rapidly and can be difficult or problematic to control. For many non-native invasive species, early detection is important so that control measures can be undertaken before an infestation worsens and control becomes increasingly difficult.

2.11.6 Changes in land use

The subdivision of large parcels, population growth, and the proposed desalination plant all have important ramifications on the future condition of the Santa Rosa Creek watershed. In recent decades, fine sediment delivery to stream channels in the watershed has been reduced closer to pre-development levels primarily because land uses on high-yielding geomorphic landscape units have not changed over this time. The subdivision of large parcels is likely to result in land use changes in the smaller parcels. If these future land uses remove vegetation, change hillslope topography, or alter runoff patterns, there is the potential that gully and rill erosion could be reinitiated with a subsequent increase in fine sediment delivery to watershed stream channels. Retaining large parcels or otherwise conserving existing land uses, particularly in the upper watershed, could be a valuable tool in preventing the degradation of aquatic habitat throughout the watershed. In subdivided parcels, it will be important that land use changes are implemented in a way that reduces the potential for erosion and that associated increases in water demand are avoided.

The combination of San Luis Obispo County population growth and the proposed desalination plant to supplement the municipal water supply has the potential to increase the population and development in and around Cambria. This could further increase water demand and subsequently lead to impacts related to urban development that threaten aquatic habitat in the lower watershed (e.g., increased impervious surfaces, contaminated runoff, non-native invasive species introductions, and encroachment of floodplains and the riparian corridor). San Luis Obispo County's (2008) North Coast Plan restricts growth associated with any public works water supply project within the CCSD service area, stating: "[t]he maximum service capacity of the project will not induce growth inconsistent with the protection of coastal resources and public access and recreation opportunities," and that "[t]he project shall assure that CCSD water withdrawals from Santa Rosa and San Simeon Creeks will be sufficiently limited to protect: (1) adequate instream flows necessary to support sensitive species and other riparian/wetland habitats within the reach of the streams affected by CCSD pumping; (2) underlying groundwater aquifers; and (3) agricultural resources." Abiding by these restrictions by reducing groundwater pumping if the desalination plant is someday operational would minimize the potential effects of growth in Cambria on Santa Rosa Creek.

3 STEELHEAD LIMITING FACTORS ANALYSIS

The following limiting factors analysis describes seasonal and age class-specific habitat needs and discusses how habitat conditions in Santa Rosa Creek likely affect each steelhead freshwater life stage. The aim is to integrate the effects of habitat carrying capacity and density-independent mortality (i.e., sources of mortality such as water temperature or disease with effects that are not dependent on the density of the population) across the entire life cycle of steelhead to determine mechanisms regulating population growth. Determining the relative effect of each life stage on overall population dynamics then allows for the identification of the factors most limiting steelhead production in the watershed (i.e., limiting factors) (Section 3.6) and specific actions that can be taken to address these factors (Section 4).

A species' life history and available habitat are among the many factors that can influence the growth or decline of a population (i.e., population dynamics) (Figure 3-1). Individual growth rate, survival, outmigration size, outmigration timing, ocean survival, upstream migration, and spawning success can all influence population dynamics of the Santa Rosa Creek steelhead population. Central to this analysis of limiting factors, which draws primarily upon the recent monitoring work of CDFG (Nelson 1994, Nelson et al. 2009) and D. W. Alley & Associates (2007 and 2008), is that steelhead population dynamics in Santa Rosa Creek are defined by two major characteristics: (1) patterns of habitat use between the upper and lower reaches, and (2) annual variation in flow. As to the first point, most of the successful spawning and rearing of steelhead in Santa Rosa Creek occurs in the upper reaches of the watershed (upstream of stream mile 8), although individual growth rates in the lower reaches (downstream of stream mile 8) appear to be high. Secondly, nearly every pattern of steelhead distribution, habitat use, abundance, density, or growth within the watershed is related to significant annual variation in instream flow conditions (as influenced primarily by precipitation). The sections below summarize the current understanding of the Santa Rosa Creek steelhead population based on the information gathered to date, and describe preliminary hypotheses of the primary factors likely limiting steelhead production in the watershed.

Ideally this understanding of steelhead and limiting factors hypotheses will be tested through the recommendations in Section 4, such that preliminary hypotheses are accepted, rejected, or refined, based on new understanding of the system, and as new uncertainties are identified. The iterative process of hypothesis development, testing, and refinement provides an adaptive and efficient process for identifying restoration strategies and any additional priority studies for the conservation and support of steelhead.

3.1 Spawning Habitat

For anadromous steelhead populations (as well as other pacific salmon populations such as coho salmon), the average fecundity, the number of eggs in a female fish prior to spawning, is high relative to the amount of suitable juvenile rearing habitat usually available within a stream. Rather than being controlled by reproductive success, growth of anadromous populations tends to be limited by physical habitat constraints during the juvenile freshwater rearing stage. As described below this generally appears to be the case for Santa Rosa Creek as well, although spawning habitat quality in the lower reaches of Santa Rosa Creek, where fish can be restricted in dry winters, may become more limiting relative to juvenile habitat in some years.

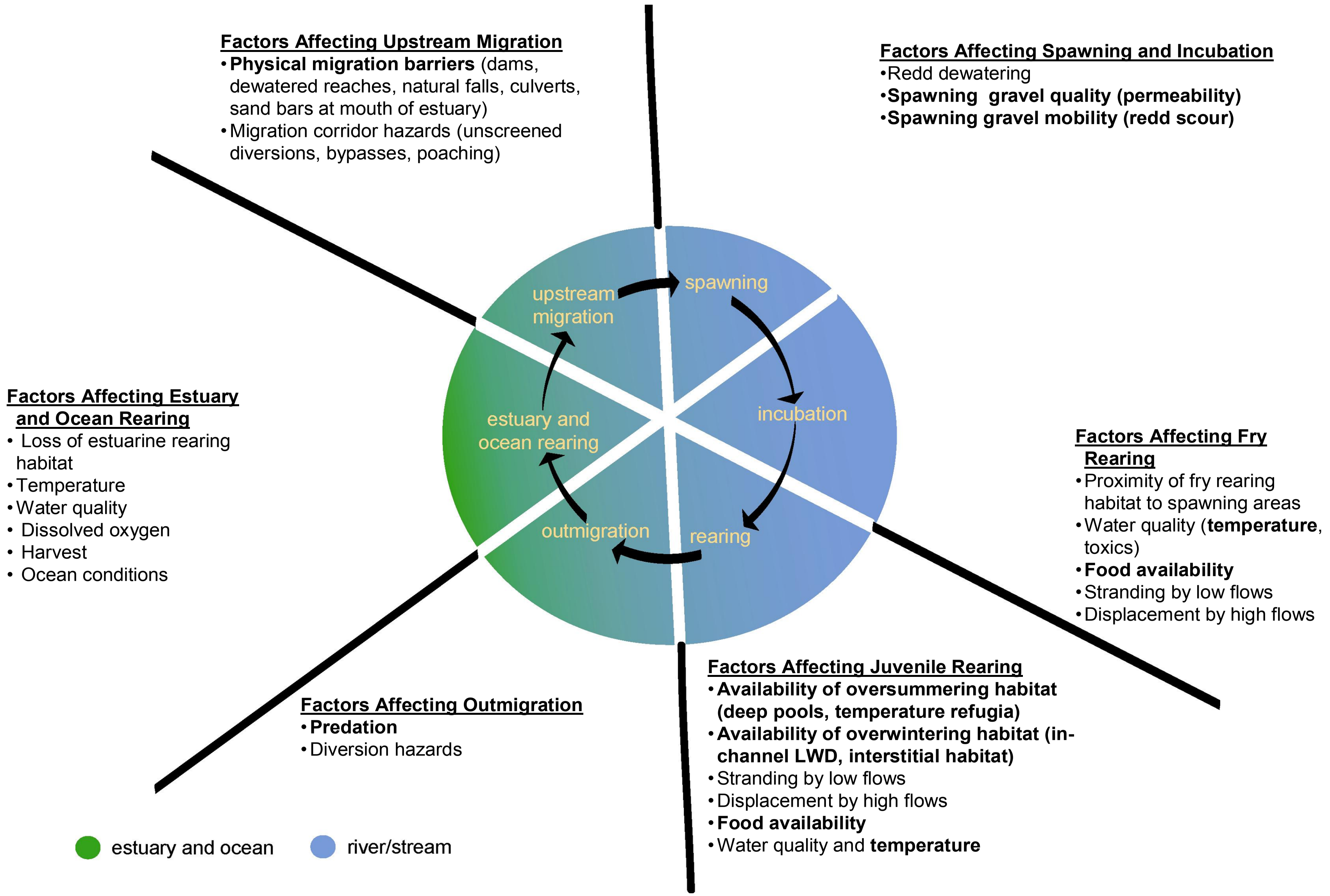

Figure 3-1. Steelhead life cycle with potential factors affecting each life stage.

3.1.1 Access to spawning habitat

CDFG surveys from the 1930s found no significant migration barriers to steelhead access in Santa Rosa Creek (Titus et al. 2006). Under current conditions several culverts and other man-made structures have been identified in the Santa Rosa Creek watershed that restrict the ability of migrating steelhead to access high quality upstream spawning habitat (see Section 2.7). Two of the furthest downstream barriers (Burton Street Bridge apron at stream mile 1.9 and Ferrasci Road crossing at stream mile 3.4) have recently been modified to allow fish passage under a wider range of flow conditions. Undersized and/or poorly placed culverts at road crossings likely limit steelhead access to potential spawning areas in Taylor and Curti creeks, and just as importantly, they disrupt the supply of coarse sediment and large woody debris that is necessary to create and maintain suitable rearing habitat (see Sections 3.2 and 3.3 below).

Nearly every road crossing in the Perry/Green Valley Creek sub-watershed has been identified as a potential fish passage barrier, but none have been assessed to determine if, why, or when a barrier to fish movement occurs (CalFish 2009; see Section 2.7). It is not known how often or in what capacity steelhead use reaches of the Perry/Green Valley Creek sub-watershed, or what condition those reaches are in (Nelson et al. 2009, Appendix A). Determining the potential for steelhead to access this sub-watershed would be an important first step towards understanding the relative importance of this sub-watershed for steelhead.

Low instream flows, which likely occurred naturally in drier years but are now exacerbated by groundwater pumping and water diversions, can also present barriers to fish movement on Santa Rosa Creek, particularly in the intermittent middle reaches (see Figure 2-8). Based on comparison of available flow data from the Main Street Bridge gauge (see Section 2.6) and steelhead passage requirements on lower Santa Rosa Creek (D. W. Alley & Associates 1993), it appears that when steelhead migration is initiated (as early as December) flows are typically adequate to allow migration, but that these flows are not continuously maintained throughout the entire upstream adult and downstream juvenile migration periods. It has also been suggested that in dry winters adult entrance into the lagoon and passage over shallow riffles can be constrained (Nelson 1994, Nelson et al. 2009, D. W. Alley & Associates 2007). Nelson et al. (2009) report that over one-half of the high-quality spawning locations are located upstream of stream mile 8, downstream of which the creek typically goes seasonally dry. During drier winters, this dry reach may significantly delay or prevent adult steelhead from accessing, and smolts from emigrating from, the upper reaches (Nelson et al. 2009).

Analyses of YOY steelhead capture data suggest that rainfall affects adult passage into the upper reaches of Santa Rosa Creek and drives the distribution of spawning and resulting YOY distribution (D. W. Alley & Associates 2007). Relative to the lower reaches, fall YOY densities were generally higher in the upper reaches in years with higher rainfall amounts during the previous year (D. W. Alley & Associates 2007, Nelson et al. 2009). Furthermore, the ratio of YOY steelhead densities in the upper reaches to lower reaches was positively correlated with rainfall in the preceding water year (Figure 3-2). These analyses suggest that during years with higher rainfall, such as 2005, a higher percentage of adults can migrate through the lagoon and lower reaches to access preferred spawning areas in the upper reaches (where greater numbers of YOY steelhead are produced), although the analyses did not specify whether this improved access is a result of longer sandbar breaching, the elimination of dry riffles, and/or improved flow conditions through or over structural barriers. A prolonged drought may prevent adult steelhead access to spawning grounds in the upper watershed for several consecutive years (Nelson et al. 2009).

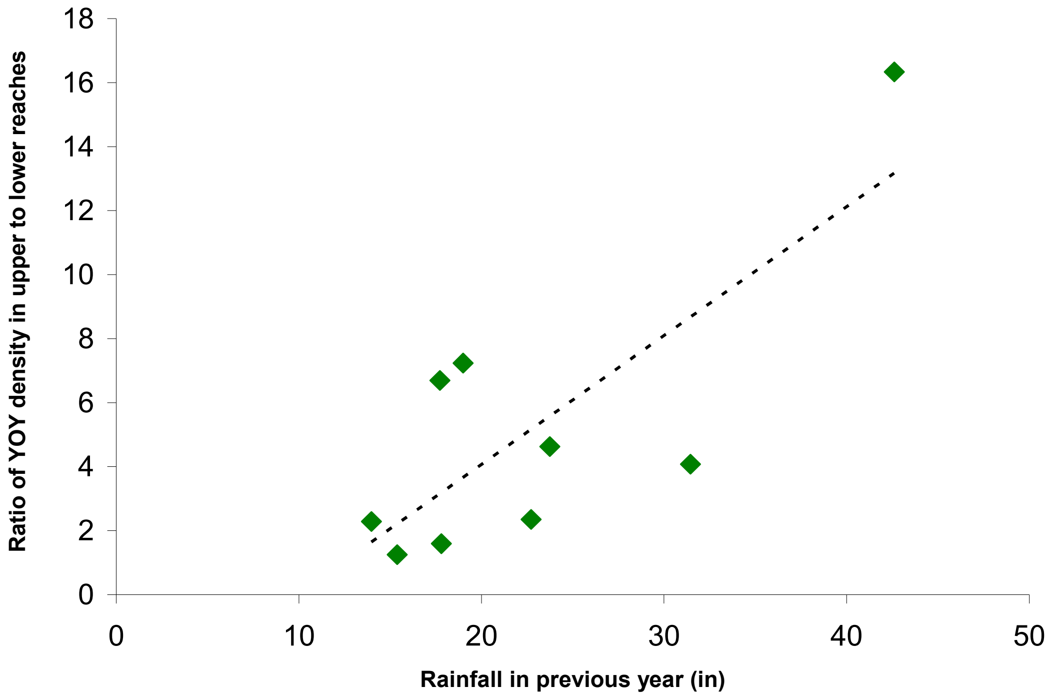

Figure 3-2. Ratio of YOY steelhead lineal density in upper to lower reaches versus rainfall in the previous water year (r^2 = 0.61; P = 0.0130; n = 9). Data sources: Nelson et al. (2009) and CCSD (http://www.cambriawqcp.org/).

In addition, lagoon sandbar formation and breaching patterns are speculated to affect adult steelhead migration in Santa Rosa Creek (D. W. Alley & Associates 2008, Nelson et al. 2009). In drier winters there can be insufficient instream flow to breach and/or maintain an open sandbar during adult migration, possibly preventing adults from entering the lagoon from the ocean, or resulting in a later or shorter run of steelhead (D. W. Alley & Associates 2008, Nelson et al. 2009). In addition, winter sandbar breaching can be influenced by ocean conditions. (Sandbar monitoring data for the Santa Rosa Creek lagoon were not available for this effort.)

In summary, structural and flow-related barriers to steelhead are likely a limiting factor for steelhead in dry years, when they may prevent steelhead from entering the lagoon and can restrict steelhead to the lower 3–7 mi (4–11 km) of the creek, where spawning and rearing habitat is of poorer quality (see discussions below).

3.1.2 Spawning habitat quantity

CDFG surveys from the 1930s described extensive steelhead spawning habitat in Santa Rosa Creek watershed (Titus et al. 2006). In 1960, CDFG noted that spawning areas were abundant and in good condition throughout the lower 7 mi (11 km) of the stream, and scattered in the next 4 mi (Titus et al. 2006). Recent surveys have also documented a substantial amount of steelhead spawning habitat throughout the watershed from stream mile 0.2–13 (Nelson et al. 2009, D. W. Alley & Associates 2008). Nelson et al. (2009) identified a total of 175 pool tail crests and 183 other potential spawning sites appropriate for steelhead spawning in the mainstem, and noted that suitable spawning habitat also likely exists in the lower, accessible reaches of Mora and Lehman Creeks and the East Fork of Santa Rosa Creek (see Figure 1-2). At this time it does not appear that spawning gravel quantity limits production of steelhead in the watershed.

3.1.3 Spawning habitat quality

On Santa Rosa Creek, spawning habitat quality is primarily controlled by the degree of spawning gravel embeddedness, since it appears that in most years flows are sufficient to prevent dewatering of redds during the incubation period and deliver adequate levels of dissolved oxygen to developing embryos (D. W. Alley & Associates 2008, Nelson et al. 2009). High levels of embeddedness, a measure of the degree to which cobbles and gravels are buried by fine sediments (i.e., silt and sand), reduces the ability of females to move cobble to construct redds, and the survival of developing eggs. The *California Salmonid Stream Habitat Restoration Manual* (Flosi et al. 2004) indicates that embeddedness of 25% or less is considered good spawning substrate for steelhead; however spawning habitat with embeddedness less than 50% is generally considered suitable (Nelson et al. 2009, NCRWQCB 2006). Excess fine sediments can also decrease egg-to-fry survival by filling interstitial spaces of the redd gravels and reducing oxygen delivery to developing embryos (Chapman 1988). Various studies indicate that as the percentage of fine sediments in spawning gravels exceeds 20–30%, dramatic reduction in embryo survival occurs (Chapman 1988, Reiser and White 1988, NCRWQCB 2006). Embeddedness values in Santa Rosa Creek range from 33–51% in runs (D. W. Alley & Associates 2008) to generally less than 25–50% in pool tail crests (Nelson et al. 2009)[11]. Spawning gravel embeddedness ratings higher than 50% are generally restricted to the lower reaches (Nelson et al. 2009).

Whereas spawning habitat appears to be suitable and not limiting production in the upper reach of Santa Rosa Creek, CDFG has identified a lack of suitable spawning substrates from excessive fine sediment deposition as one of the primary constraints to successful spawning in the lower reaches (Nelson 1994, Nelson et al. 2009). The lower reaches of a watershed are natural places for fine sediments to accumulate due to their lower gradients, and the Perry/Green Valley Creek sub-watershed, which joins Santa Rosa Creek at approximately stream mile 3, delivers a large supply of fine sediment directly to lower reaches of Santa Rosa Creek (see Section 2.5). Until 2011, the Ferrasci Road crossing may have, under a range of flow conditions, restricted spawning to the lower 3.5 mi (5.6 km) of the creek, while inadequate flows through the middle reaches may restrict spawning to the lower 7 mi (11 km) of the creek for a considerable portion of the spawning season during dry winters (Nelson et al. 2009). Under these circumstances, particularly if repeated over a number years, poor spawning habitat quality in the lower reaches likely limits the success of steelhead spawning and juvenile production. This is supported by the lower densities of fall YOY steelhead in the lower reaches when compared to the upper reaches (2-19), although it should be stressed that summer rearing habitat limitations may also be influencing this pattern. Notably, analysis of data from D. W. Alley & Associates (2007) indicated that YOY densities in the lower (stream miles 0–8) and upper (stream miles 8–13) reaches were not significantly correlated from 1998–2006, suggesting that YOY steelhead production—and the factors limiting it (e.g., spawning gravel quality)—differed between the upper and lower reaches within a given year.

Very little is known about the quality or access to spawning habitat in the Perry/Green Valley Creek sub-watershed. Presence of juvenile *O. mykiss* in Perry and Green Valley creeks (CDFG 2003b and USFS 1999, as cited in Becker and Reining 2008) indicates that at least some successful spawning occurred there, in spite of their apparently degraded condition (Yates and Van Konyenburg 1998, Appendix A), although it is not known if these juveniles were the progeny of anadromous steelhead or resident rainbow trout.

[11] It should be noted that a high degree of variability can result from embeddedness measures that are collected with different methods, calculations, or observers (Rowe et al. 2003).

3.2 Summer Rearing Habitat

The relatively extended freshwater rearing of steelhead has important consequences for the species' population dynamics. The maximum number of steelhead that a stream can support is limited by food and space through territorial behavior, and this territoriality is necessary to produce steelhead smolts that are large enough to have a reasonable chance of ocean survival. Therefore, the number of YOY fish that a reach of stream can support is typically small relative to the average fecundity of an adult female steelhead.

The habitat requirements for different age classes of juvenile steelhead are relatively similar, except that as fish grow they require more space for foraging and cover. YOY steelhead can use shallower and slower habitat with finer substrates (e.g., gravels) to meet their energetic demands and escape predators than age 1+/2+ steelhead, which, because of their larger size, have higher energetic demands and require deeper, more complex pools, and coarser substrate or large woody debris for cover while feeding (Hartman 1965, Fontaine 1988, Spina 2003). Spina (2003) found that, in a short reach of Santa Rosa Creek near stream mile 11, most YOY steelhead used shallower water (<0.4 m) than age 1+/2+ steelhead (>0.4 m) and considerably greater availability of shallow habitat. Due to the greater frequency of shallow habitat and because YOY steelhead can generally utilize habitat suitable for age 1+/2+ steelhead, but age 1+/2+ steelhead can not use the shallower, finer substrate habitat suitable for YOY, a stream reach supports far fewer age 1+/2+ than YOY individuals during summer. Between 1998 and 2006 creek-wide densities of YOY steelhead in the fall were between 2.7 and 10.0 times higher than age 1+/2+ densities (D. W. Alley & Associates 2008) (Figure 3-3). For this reason, it is unlikely that YOY steelhead summer rearing habitat limits steelhead production. In support of this hypothesis, D. W. Alley & Associates (2008) reported that fall YOY densities in Santa Rosa Creek were the highest of nine streams surveyed on the Central California Coast in 2006. As such, the following sections generally focus on rearing conditions for age 1+/2+ steelhead.

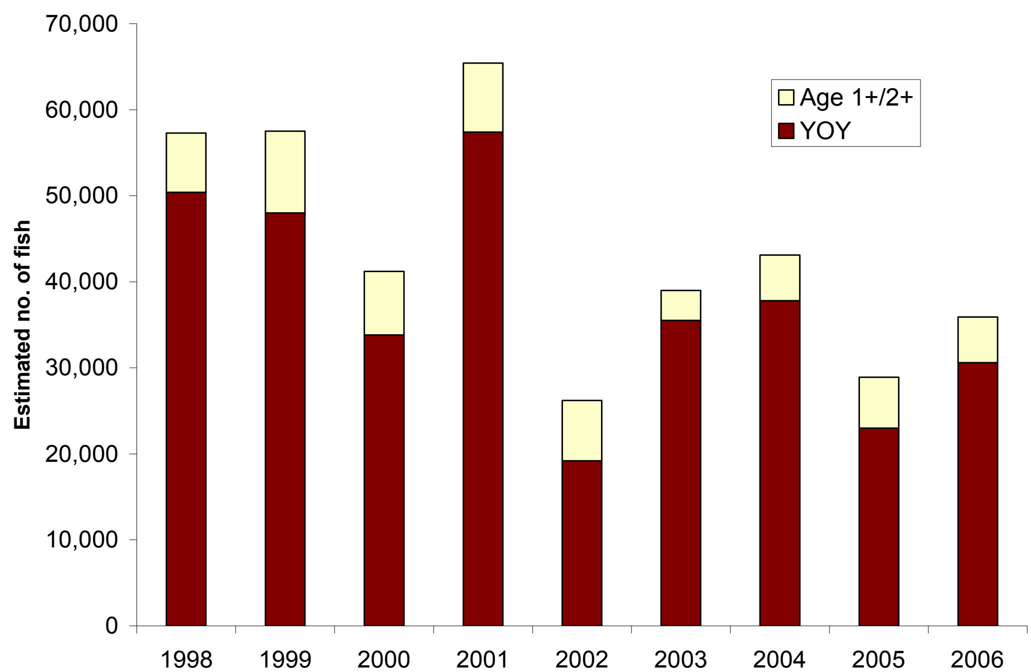

Figure 3-3. Creek-wide YOY and age 1+/2+ steelhead population estimates from 1998 to 2006. Data source: D. W. Alley & Associates (2007, Table 25a).

Juvenile steelhead carrying capacity is strongly influenced by instream flows during the summer, which influence overall rearing habitat area, the depth and volume of pool habitat, connectivity between habitat types, and water temperatures. Streamflow also dictates the quantity of drifting invertebrates that reach feeding steelhead, such that at higher summer flows steelhead can better maintain feeding rates that allow them to meet the metabolic demands of elevated summer water temperatures. Santa Rosa Creek likely experienced seasonally low flows, particularly during drought years, under natural conditions. However, due to groundwater pumping and water diversions, summer instream flows are chronically low compared to historic levels and are considered a critical factor limiting juvenile steelhead populations in Santa Rosa Creek (Yates and Van Konyenburg 1998, D. W. Alley & Associates 2008, Nelson et al. 2009). For example, in 2005, the wettest water year on record since 1998, discharge just downstream of Highway 1 was as low as 9 cfs by late May and was less than 2 cfs from late August until December (Nelson et al. 2009). During drier years, fall discharge measured by D. W. Alley & Associates (2008) was typically between 0.1 and 1 cfs at the downstream-most sampling site. While detailed analysis of how much flow is required to support steelhead summer rearing requirements (e.g., habitat connectivity, suitable stream temperatures, and invertebrate drift) in Santa Rosa Creek has not been conducted, it has been noted that instream flows are often inadequate to allow steelhead movement between habitat types in the late summer and fall (Rathbun et al. 1991, D. W. Alley & Associates 2007, Nelson et al. 2009). For example, flows in the mainstem Santa Rosa Creek go subsurface for approximately 0.5 mile (varying by year) near stream mile 7 during summer (D. W. Alley & Associates 2008, Nelson et al. 2009), eliminating rearing habitat and invertebrate drift in that reach and restricting it downstream.

In small coastal streams such as Santa Rosa Creek, pools are essential summer rearing habitat for age 1+/2+ juvenile steelhead (D. W. Alley & Associates 2008), although age 1+/2+ steelhead in Santa Rosa Creek have also been documented to utilize run habitat in the spring (Spina 2003). Pools must have sufficient depth, generally considered to be 2 ft (0.6 m), although this can depend on availability of escape cover and presence of predators and increases with fish size (Bjorrn and Reiser 1991, McEwan 2001, Spina 2003). In a 2,624-ft (800-m) reach of Santa Rosa Creek near stream mile 11, Spina (2003) documented age 1+/2+ individuals in water as shallow as 1 ft (0.4 m), but most individuals were in depths greater than 2 ft (0.6 m). Reductions in pool depth may adversely affect thermal and velocity refugia and reduce the potential to avoid predators. While recent surveys indicate pools comprise approximately one-third of habitat by stream length in the lower 13 mi (20 km) of Santa Rosa Creek, only about one-quarter were deep enough to be suitable rearing habitat for age 1+/2+ steelhead, and poor pool development has been cited as one of the primary limits on rearing habitat in Santa Rosa Creek (Rathbun et al. 1991; Nelson 1994; D. W. Alley & Associates 2007, 2008; Nelson et al. 2009). Substantially more pool habitat was located in the upper reaches above stream mile 8 than in the lower reaches from stream miles 0–8). Although pool filling as been attributed to fine sediment deposition (Nelson et al. 2009), the relatively high sediment-transporting capacity of the lower reaches of Santa Rosa Creek (see Section 2.5) suggests that poor pool development is likely due to the lack of large woody debris (see discussion below) and other elements that create and maintain pools (e.g., riparian tree roots), rather than solely infilling by fine sediment.

An important element of the pool habitat complexity required for juvenile steelhead rearing is escape cover. Also know as concealment cover or instream shelter, escape cover allows individuals to evade predators and, in the winter, to find refuge from high flows (Cunjak 1996, Spina 2003, D. W. Alley & Associates 2008). Escape cover in Santa Rosa Creek generally includes large, unembedded cobbles and boulders, undercut banks, large woody debris, and overhanging vegetation (D. W. Alley & Associates 2008, Nelson et al. 2009). Less than 20% of pools measured by Nelson et al. (2009) provided escape cover, and unembedded boulder/cobbles and large woody debris were in short supply. Large woody debris is a key habitat component for juvenile steelhead, not only because it provides escape cover, but because it increases overall habitat complexity, facilitates temporary sediment storage, and forms scour points that create and maintain the deeper pools needed by larger juvenile steelhead (Harmon et al. 1986). Both Nelson et al. (2009) and D. W. Alley & Associates (2008) report a paucity of large woody debris in Santa Rosa Creek, with large woody debris making up only about 3% of the cover. A lack of large woody debris is not uncommon in California Mediterranean-climate streams, where historical land clearing and development near streams has decreased the supply of large wood, and woody debris that does make it into the stream are frequently removed due to real and perceived threats to flood control and near-stream infrastructure (Opperman 2002). The lack of large woody debris in Santa Rosa Creek is speculated to restrict carrying capacity of oversummering age 1+/2+ steelhead, since it limits escape cover and prevents the scour formation and maintenance of deep pools (Nelson 1994, Spina 2003, D. W. Alley & Associates 2008, Nelson et al. 2009).

Based on the relatively high abundance of YOY steelhead in the fall, summer rearing habitat is not likely limiting this age class, which is supported by the fact that they can use shallower riffle and pool habitat than age 1+/2+. Based on low abundance of age 1+/2+ compared with YOY, infrequent pools, and groundwater extraction, physical rearing habitat required by age 1+/2+ (and larger YOY) steelhead is very likely limiting summer carrying capacity, and possibly smolt production, in Santa Rosa Creek. However, as discussed in detail below, limitations in winter habitat for age 0+ and age 1+ could also explain this pattern. In addition, the degree to which rearing habitat limits the population may be influenced by habitat conditions in the lagoon. In some cases, lagoons provide rearing habitat capable of supporting large numbers of juveniles that are likely in excess of the summer or winter carrying capacities of stream reaches (Smith 1990, Hayes et al. 2008, Sogar et al. 2009), although this has not been evaluated in the Santa Rosa watershed in recent years. As described in Section 3.5 below, in the 1970s, the juvenile steelhead population in the lagoon was quite large (Bailey 1973 and Puckett 1970, as cited in Rathbun et al. 1991), indicating that it was a suitable and significant rearing habitat for the steelhead population.

3.3 Overwintering Habitat

Overwintering steelhead may suffer elevated mortality when they are displaced (or “entrained”) by high winter flows. Discharge in the inherently flashy Santa Rosa Creek can range from 1 cfs to over 12,000 cfs (as in 1969 and 2005), with winter flood events over 5,500 cfs typically occurring once every five years (Appendix A). Refuge from such flood events requires that steelhead access deeper interstitial spaces in the substrate or other cover to avoid turbulent, high velocity conditions. In general, many of the habitat elements essential for successful summer rearing are also essential for winter rearing.

Because steelhead tend to spawn and rear in higher gradient stream reaches with more confined channels, they have less propensity than other species (e.g., coho salmon) for using off-channel slackwater habitat in winter, and a greater propensity for using in-channel cover provided by cobble and boulder substrates. As such, interstitial spaces in cobble or boulder substrate are considered to be the key attribute defining winter habitat suitability for juvenile steelhead (Hartman 1965, Chapman and Bjornn 1969, Meyer and Griffith 1997). Cobble-boulder rearing habitat is most likely to occur in step-pool channels of confined, higher gradient reaches (Montgomery and Buffington 1997). As described in Section 2.5, cobble-boulder dominated habitat is more common in the upper watershed, much of which is upstream of potential fish passage barriers, and median grain size decreases downstream in almost direct proportionality to drainage area.

Steelhead will use cover in the form of large woody debris or off-channel habitat when it is available, especially in low-gradient reaches where interstitial spaces among cobble and boulder are less abundant. Many of the stream surveys in the Santa Rosa Creek watershed indicate some level of substrate embeddedness by fine sediment (Rathbun et al. 1991, Nelson 1994, D. W. Alley & Associates 2008, Nelson et al. 2009). When embeddedness of cobbles and boulders is greater than about 25% it greatly restricts their utility as escape cover (D. W. Alley& Associates 2008). Nelson et al. (2009) reported that only 26% of pools in Santa Rosa Creek had small cobble, large cobble, or boulders as dominant substrate, with the remainder being comprised primarily of silt, sand, or gravel. Pool tail crest surveys indicated that most large cobbles and boulders were highly embedded, with only one of the 47 locations surveyed having an embeddedness value below 25%. Much of the geology underlying the watershed has moderate to very high erodibility (Section 2.4), so there is naturally a greater potential for fine sediment in the creek channels, and winter habitat in the form of interstitial space may be naturally less abundant than in other coastal streams. Further, there are many anthropogenic sources of fine sediment in the watershed (Nelson et al. 2009, Appendix A). In particular, the Perry/Green Valley Creek sub-watershed delivers a large supply of fine sediment, with no corresponding coarse sediment component, directly to lower 3 m (5 km) of Santa Rosa Creek (see Section 2.5). In this case large woody debris may be more important as winter habitat than in a stream system with naturally available unembedded substrate. However, as described previously, recent stream surveys indicate a lack of large woody debris within the watershed (Nelson et al. 2009, D. W. Alley & Associates 2008).

As with summer habitat, a reach of stream will typically support far fewer age 1+/2+ than YOY steelhead in the winter because YOY are smaller and can utilize a wider range of substrate for refuge. For this reason, in the winter, habitat may often become unsuitable for age 1+/2+ steelhead at lower magnitudes of sedimentation than for YOY. Substrate will become less suitable for both summer and winter rearing at higher levels of embeddedness, but it will often be more limiting in winter because refuge from entrainment during winter freshets requires that steelhead hide deeper within the substrate. As a result, in many watersheds—even those containing poor summer habitat—it has been observed that winter rearing habitat limits steelhead populations in other central California coastal streams such as Lagunitas Creek (Stillwater Sciences 2008), San Gregorio Creek (Stillwater Sciences 2009), and Upper Penitencia Creek (Stillwater Sciences 2006b).

The relatively low abundance of age 1+/2 steelhead observed in fall suggests that either summer rearing habitat or winter rearing habitat is limiting smolt production in Santa Rosa Creek. However, in the absence of an assessment of the juvenile steelhead population in both the fall and the following spring, it is not possible to directly determine whether winter habitat is limiting. Based on the observed relatively low quantity of unembedded cobble-boulder habitat and a paucity of large woody debris (Nelson et al. 2009, D. W. Alley & Associates 2008, Appendix A) it is possible that winter habitat is limiting. Overall, winter habitat is expected to be less important than summer habitat in dry years that lack high flow events and have reduced summer flows. In these years, individuals are less susceptible to entrainment in the winter, while pool habitat and feeding opportunities are expected to be more restricted in the summer.

Juvenile steelhead

3.4 Bioenergetics

Numerous studies have examined the relationships between water temperature, growth, and survival of juvenile steelhead. Results of these studies vary between study populations. Recent studies of more southern populations of steelhead indicate that they can continue to grow at higher water temperatures (Spina 2007, D. W. Alley & Associates 2008, Sogard et al. 2009, Bell et al., in review) and will tolerate short periods of temperatures, up to approximately 81–84°F (27°–29°C) (depending on acclimation temperature), that were previously considered lethal (Myrick 1998).

Available data for Santa Rosa Creek indicate that, in most years, summer water temperatures are suitable for successful steelhead rearing in the majority of stream reaches. Maximum temperatures in the summer and fall of 2004–2006 rarely exceeded 69°F (21°C), particularly in the upper reaches above stream mile 8 (D. W. Alley & Associates 2008, Nelson et al. 2009). Temperature suitability for steelhead rearing may occasionally be exceeded in the lower reaches (below stream mile 8) in drier years (in the summer and fall of 2004–2006, maximum daily water temperatures commonly exceeded 75°F (24°C), but rarely exceeded 77°F (25°C) [D. W. Alley & Associates 2008, Nelson et al. 2009]), but there is still considerable uncertainty of what optimal temperatures for steelhead are in this region (A. Spina, pers. comm., 2010).

Available data suggests that despite periods of unsuitable water temperature in lower Santa Rosa Creek, steelhead continue to grow, and at rates reported to be higher than in nearby San Simeon Creek (D. W. Alley & Associates 2008, Sogard et al. 2009). Fulton condition factors for YOY and age 1+/2+ individuals captured in the fall of 2005 by Nelson et al. (2009) varied considerably, but, within size classes, were actually higher in the warmer lower reaches than cooler, upper reaches. In addition, both Nelson et al. (2009) and D. W. Alley & Associates (2008) found that the size of YOY fish increased steadily in the downstream direction. Although it is not certain whether YOY growth was higher in downstream reaches, if individuals emerged and begin feeding earlier in the spring there, or if larger individuals actively migrated downstream, together these results do suggest that water temperatures were not excessive and/or sufficient food was available in the lower 8 mi (13 km) of the creek during steelhead rearing. Age data from scale analysis and corresponding length data from 2006 (which had a relatively wet spring) support the finding that juvenile steelhead in the lower 8 mi (13 km) of Santa Rosa Creek generally have relatively high growth rates in their first year, with many individuals reaching 5–6 in (130–160 mm) fork length by fall (D. W. Alley & Associates 2008). Above stream mile 8 however, length frequency data of juvenile steelhead captured in October and November 2005 do show a large number of relatively small (2–3 in [50–80 mm] fork length) YOY fish (Nelson et al. 2009). The relatively lower condition factors and generally smaller fish captured above stream mile 8 suggests that food availability may be limiting growth in these reaches compared to the lower 8 mi (13 km).

Overall it appears that water temperature generally does not hinder juvenile growth in Santa Rosa Creek, likely because of mostly suitable water temperatures, natural adaptations to higher temperature, and possibly because of high food availability. However, there appears to be an inconsistency between the observed growth rates and the relatively small smolt sizes observed by the limited spring outmigrant trapping data in Santa Rosa Creek. Based on the size range of YOY observed in the lower reach (5–6 in [130–160 mm] fork length) in fall, most smolts would be expected to be greater than 7 in (170 mm) by spring. Instead, the majority of smolts captured during spring outmigrant trapping in 2005 averaged 6.5 in (165 mm) fork length (Nelson et al. 2009). Several studies have shown a strong relationship between the size at which a steelhead smolt migrates to the ocean and the probability that it will return to spawn (Kabel and German

1967, Hume and Parkinson 1988, Ward et al. 1989, Bond et al. 2008). In one the most focused studies on marine survival in a central California coastal watershed, Bond et al. (2008) found that, in Scott Creek in Santa Cruz County, few returning adults were smaller than 6 in (150 mm) at ocean entry and the majority were larger than 8 in (200 mm). Similarly, Ward et al. (1989) found that only smolts greater than 7 in (170 mm) typically experienced relatively high marine survival (>10%). Assuming that size-dependent survival and ocean conditions experienced by the Santa Rosa Creek populations are similar to these other populations, it is possible that in some years (e.g., 2005) most smolts from Santa Rosa Creek have poor ocean survival due to their small size. As a comparison to other southern California watersheds, in the Santa Clara River smolts in 2009 averaged 7 in (185 mm) fork length (S. Howard, pers. comm., 2010); in the Santa Clara and Santa Ynez estuaries most smolts in 2007/2008 were greater than 7 in (170 mm) fork length (Kelley 2008), and in Topanga Creek nearly all smolts captured during spring 2009 were greater than 7 in (170 mm) (Bell et al. in review). Based on the 2005 outmigrant trapping results, there is the potential that relatively small smolt sizes in Santa Rosa Creek (and therefore poor ocean survival) are a potential limiting factor for the population. However, since outmigrant trapping occurred at stream mile 0.3, and there were growth opportunities in the riverine and lagoon habitat downstream of the trap, it is not clear if captured individuals continued to rear and grow in the lagoon before leaving for the ocean, as observed in other systems (Smith 1990, Hayes et al. 2008). The extremely high growth of some YOY—as indicated by annual growth rings on their scales—collected just upstream of the lagoon (D. W. Alley & Associates 2008), suggests that food resources are likely high in lower Santa Rosa Creek. Clearly, additional outmigrant trapping data, and determining growth opportunities and residency within the lower creek and lagoon, is critical to assessing if smolt outmigrant size is a limiting factor in Santa Rosa Creek.

3.5 Lagoon Habitat

Coastal lagoons are fed mostly by freshwater streamflow and are generally separated from the sea by a sandbar, except when that sandbar is breached during high-flow events or when sea water overwashes the sandbar. Lagoon rearing has been demonstrated to be critically important for other central California coast steelhead populations, with significantly higher growth rates and ocean survival by steelhead that reared in lagoons, even with lagoon water temperatures as high as 75°F (24°C) (Smith 1990, Hayes et al. 2008, Bond et al. 2008). While no studies of lagoon rearing, growth, and survival have been carried out in Santa Rosa Creek, these findings from other central California coast watersheds highlight the potential importance of the Santa Rosa Creek lagoon for steelhead rearing. Since larger smolts tend to have higher ocean survival, growth during lagoon rearing may increase ocean survival of steelhead smolts. It appears that if lagoons are well-mixed (i.e., not salinity stratified), or comprised of mostly freshwater, they can maintain a relatively cool, well-oxygenated, and food-rich environment that provides high quality habitat for juvenile steelhead (Smith 1990). This can potentially relax to some degree the density-dependent bottleneck occurring in stream habitat and provide a high growth environment and adjustment to a saline environment that improves ocean survival for both stream and lagoon reared fish. Conversely, when lagoons are highly saline, or salinity-stratified, they collect heat in the lower saltwater layer, have relatively lower dissolved oxygen levels, and typically have unsuitable conditions for rearing.

Full lagoon in winter

While very little historical or current data exist on the juvenile steelhead population in Santa Rosa Creek lagoon, what data are available suggests it has declined. In the 1970s, the juvenile steelhead population in the lagoon was estimated to be between 2,290 and 6,800 (Bailey 1973 and Puckett 1970, as cited in Rathbun et al. 1991), suggesting that it was a suitable and potentially important rearing habitat. By the 1980’s it appears that little if any steelhead rearing occurred in the lagoon (Holland, unpubl. data, as cited in Rathbun et al. 1991). While ineffective at detecting juvenile steelhead, sampling for tidewater goby in the lagoon from 1993–2007 provides evidence that, in some years, both YOY and smolt-sized steelhead utilize the lagoon for rearing in the summer and fall. In summer and fall sampling in 2004, Alley and Sherman (2006) captured 101 and 69 juvenile steelhead, respectively between Shamel Park and the Windsor Bridge. No steelhead were captured in 2005, but visual observations of steelhead in the lagoon were made (Alley and Sherman 2006). Outmigrant trapping conducted in spring 2005 at stream mile 0.3 also suggests that a portion of the juvenile steelhead population likely migrates into the lagoon prior to smolting: numerous individuals measuring between 2 and 5 inches (50 and 140 mm) and having parr coloration were captured (Nelson et al. 2009). It is not clear whether these individuals were displaced due to limited carrying capacity in upstream reaches, or if they were preferentially exhibiting a lagoon rearing life history strategy.

It is unclear to what extent Santa Rosa Creek lagoon provides suitable conditions for juvenile rearing. While the lagoon may provide quality over-summering habitat in some years, it likely becomes too saline and warm for juvenile steelhead survival in others (D. W. Alley & Associates 2008). The quality of lagoon rearing habitat for steelhead is largely dependant on sandbar formation and maintenance, the amount of freshwater inflow, and water quality conditions. When sandbar breaching is delayed or cut short, either from inadequate instream flows or ocean conditions, adult steelhead are unable to enter the creek and spawn (they typically stray into other nearby creeks). The presence of smolt-sized individuals in Santa Rosa Creek lagoon after sandbar closure, suggests that outmigrating individuals may be “trapped” in the lagoon when the sandbar reforms early in the season (D. W. Alley & Associates 2006). Survival of smolts that rear in the lagoon is not known. Conversely, if the sandbar is breached artificially in the summer (natural breaching during the summer is rare), lagoon habitat can be rapidly reduced and become too saline for rearing steelhead. Fortunately, artificial breaching of the Santa Rosa Creek lagoon is not known to occur (M. Walgren, pers. comm., 2010).

Reduced instream flows limit the extent of lagoon habitat and affect the dynamics of lagoon formation, causing extended periods of saltwater and freshwater stratification that lead to thermal stratification, with warmer temperatures and anoxic conditions along the bottom that lower dissolved oxygen levels and reduce food supplies (Smith 1990, Capelli 1997). In some lower flow years such as 2003 and 2004, entire sections of the Santa Rosa Creek lagoon dried up, reducing the area of suitable steelhead rearing habitat (D. W. Alley & Associates 2008).

Water temperatures and DO levels in the lagoon, particularly at the bottom, can frequently exceed lethal limits for steelhead in the summer and fall (see Section 2.8.1). Although low DO may restrict the scope of steelhead activity in lagoon, D. W. Alley & Associates (2008) hypothesizes that low DO levels are less limiting than temperature to steelhead survival in the lagoon. The observed high water temperatures and low DO levels likely create seasonally unfavorable conditions for rearing steelhead and may limit smolt growth, survival, and production in the watershed in some years. Nonetheless, it is possible that the productive, food-rich lagoon allows juvenile steelhead to successfully rear in the lagoon, even when water temperatures reach moderately high levels for short periods. Overall, the lagoon habitat is predicted to be a crucial component of the life history of steelhead in Santa Rosa Creek and has the potential to increase the carrying capacity of the watershed, alleviating some of the limitations from poor habitat conditions in stream reaches and contributing to recovery of the population.

Although much of the above discussion describes stream and lagoon habitat separately, they are better viewed as connected habitat features. Just as upstream conditions such as freshwater inflow and sediment delivery affect lagoon characteristics, demographic processes such as immigration and emigration link steelhead population dynamics within stream and lagoon habitat. Thus, steelhead populations are typically limited by a combination of density-dependent processes occurring within stream reaches, and the degree to which seasonal rearing opportunities and water quality in lagoon habitat augment carrying capacity in the watershed. For example, if it is initially assumed that winter or summer habitat conditions limit the carrying capacity of stream reaches, it would then be assumed that the ability of lagoon habitat to support steelhead in excess of stream carrying capacity is dependent on the degree to which freshwater inflow interacts with, or displaces, saline water to prevent salinity stratification, which is affected by annual variability in timing of sandbar formation and amount of freshwater inflow.

Increasing winter carrying capacity for YOY steelhead may increase the abundance of juvenile fish until summer habitat for age 1+/2+ steelhead becomes limiting. After winters with high YOY survival, an age 1+/2+ summer habitat bottleneck may develop if pool habitat becomes limiting. However, behavioral emigration of “excess” age 1+/2+ steelhead surviving the winter could increase production if suitable habitat is available in the Santa Rosa Creek lagoon. Besides the ocean life stages, utilization of lagoon habitat is perhaps the least understood component of steelhead population dynamics and ecology in the watershed. For this reason, it is important to implement targeted studies describing the lagoon water quality and habitat conditions as they relate to juvenile steelhead use, growth, and survival.

3.6 Summary of Limiting Factors and Uncertainties

Based on historical evidence, the Santa Rosa Creek watershed supported a robust population of steelhead. There are many ecological characteristics of the watershed that continue to be relatively healthy compared to other streams in the region, and steelhead continue to persist in Santa Rosa Creek despite drastic declines in neighboring watersheds. These characteristics, including high quality habitat in the upper reaches (stream miles 8–13), moderate water temperatures, and an intact lagoon system, highlight the regional significance and potential of this watershed to protect and recover nearby steelhead populations.

A wide range of factors, however, affect the freshwater life stages of steelhead in Santa Rosa Creek. Rather than listing all elements that potentially influence the population (see D. W. Alley & Associates [2008] for a detailed discussion), the limiting factors analysis was used to generate the following hypotheses of the highest priority and most likely causes of the decline in steelhead abundance in the watershed. In turn, these hypotheses are the basis of several of the management and restoration recommendations in Section 4. Overall, the analysis results in the following hypotheses of high priority limiting factors in the watershed:

1. Restricted access to spawning habitat limits steelhead spawning and juvenile production. In dry water years the dry middle reaches can confine spawning adults to the lower reaches.
2. When confined to the lower reaches, steelhead spawning success is limited by poor quality spawning habitat. Potential spawning substrates in the lower reaches are embedded by fine sediment.

3. Low instream flows during the summer reduce summer rearing habitat for age 1+/2+ steelhead and limit the population, particularly during drier water years.
4. Inadequate large woody debris and to a lesser extent fine sediment filling of pools (primarily below Perry Creek), restrict formation and maintenance of complex summer rearing pool habitat for age 1+/2+ steelhead and limit the population.
5. Inadequate large woody debris, embeddedness of cobbles and boulders, and fine sediment filling of pools, limits the overwinter survival of YOY and age 1+/2+ steelhead, particularly during years with flood events.

In conducting the limiting factors analysis of steelhead in the Santa Rosa Creek several uncertainties and data gaps were identified. Filling these data gaps is fundamental to refining, and potentially eliminating, some of the limiting factor hypotheses posited above. These data gaps are the basis of several of the research recommendations in Section 4.

1. Given the uncertainty in recent escapement levels, adult trapping and/or detection in Santa Rosa Creek is needed to monitor annual population success and collect baseline data for the evaluation of population response to implemented restoration actions. Due to the difficulty in monitoring steelhead spawning in creeks with small steelhead populations and dispersed spawning habitat, CDFG recommends the use of traps, weirs, and/or video or sonar detection systems to provide an absolute count of migrating adults (Adams et al. 2011).
2. Juvenile population sampling (e.g., snorkel surveys) is needed in conjunction with fall sampling to differentiate overwinter from oversummer survival. This would need to be done over several years to help elucidate the dependence of winter and summer survival on variation in rainfall and stream flow.
3. A better understanding of residency timing, duration, and growth in the lagoon is needed to determine the suitability of the lagoon for rearing and the influence lagoon rearing has on smolt growth and ocean survival.

4 RECOMMENDATIONS

There are many ecological characteristics of the Santa Rosa Creek watershed that have not been as adversely impacted in terms of steelhead habitat requirements compared to other streams in the region—for example moderate stream temperatures and an intact lagoon system. However, based on the Watershed Synthesis, Steelhead Limiting Factors Analysis, Geomorphic Assessment (Appendix A), and benthic macroinvertebrate sampling (Appendix B), some watershed conditions have been degraded and will require restoration or enhancement to achieve significant protection and recovery of the steelhead population.

The primary objective of the recommendations provided in this section is to address the factors currently believed to be limiting the steelhead population. Additional objectives of these recommendations are to provide for the long-term protection of key ecosystem components that are intact, restore, or enhance ecosystem components that require it, and fill key gaps in the understanding of the watershed and steelhead population. Because there are a number of ways in which these objectives can be met, the recommendations have been organized based on their specific goal, resulting in eight categories. These goals are listed in order of their relative importance to steelhead habitat restoration:

- Increase Summer and Fall Instream Flows
- Restore the Riparian Corridor
- Reduce Fine Sediment Delivery to the Creek
- Conserve and Protect Open Spaces and Existing Land Uses
- Increase Woody Debris Supply and Retention
- Remove Barriers to Fish Passage
- Fill Key Data Gaps
- Reduce Mercury Supply

The recommendations serve as a guide to improving habitat conditions in the Santa Rosa Creek watershed for steelhead, based on identified limiting factors. If implemented, these actions will also benefit other aquatic and terrestrial species. In addition, they are compatible with current land uses in the watershed: reducing land erosion, maximizing efficient rural and urban water use, and conserving agricultural land use that has been part of this watershed for two centuries are compatible with many concerns voiced by stakeholders throughout the watershed planning process.

The recommendations have been developed to be implemented individually, although appropriate combinations and phasing are described, and on a voluntary basis, by or with the consent of willing landowners. They are not intended as prescriptions or requirements. Together, the full suite of recommendations presents multiple ways to address steelhead limiting factors and provides an integrated watershed management plan that will serve various local organizations and individuals for both the near- and long-term. As these are all voluntary actions, various funding sources are available to fund some or all of the recommendations described below (see Appendix D). One advantage of this plan is to serve as a document to support funding for restoration activities in the watershed.

4.1 Increase Summer and Fall Instream Flows

Insufficient instream flow during the summer and fall, as a result of groundwater extraction and riparian diversions, has been identified as the primary factor limiting summer rearing habitat and juvenile steelhead survival in the watershed (Rathbun et al. 1991, Nelson 1994, Yates and Van Konyenburg 1998, D. W. Alley & Associates 2008, Nelson et al. 2009). The recommendations below for increasing summer and fall instream flows include immediate actions, such as water conservation and constructing off-stream storage, as well as updating the water budget and identifying steelhead instream flow requirements, which are necessary to identify specific measures and locations that would be most effective in increasing summer and fall instream flows. These recommendations can be implemented to begin the process of reducing demand for surface and groundwater supplies in the summer and fall, and could also improve the quality and quantity of rearing habitat in the lagoon by increasing the amount and duration of freshwater inflow.

4.1.1 Implement water conservation and reuse strategies

To reduce the amount of water diverted from the stream and pumped from the groundwater basin, and potentially maintain summer and fall instream flows, it is recommended that municipal, domestic, agricultural, and recreational water conservation strategies, including water reuse, be implemented. It is further recommended that additional water conservation opportunities, such as using non-potable water for outdoor landscaping and irrigation, be pursued by CCSD. Per the San Luis Obispo County (2008) North Coast Area Plan, any new development resulting in increased water use should offset such an increase by retrofitting water fixtures, replacing irrigated landscaping with xeriscaping, or other verifiable actions to reduce water use. It is also recommended that water reuse, such as the direct reuse of sufficiently treated wastewater or groundwater replenishment with treated wastewater, be further evaluated in the Santa Rosa Creek watershed. A 2004 Recycled Water Master Plan prepared by CCSD estimated that approximately 50 acre-feet of water could potentially be provided through the use of recycled water, with no net increase in groundwater pumping (R. Gresens, pers. comm., 2012). Currently, Santa Rosa Creek watershed-derived municipal wastewater is treated and allowed to filter into the San Simeon Creek groundwater basin. Given the scarcity of water resources in the region, developing ways to retain and use this water in the watershed would be beneficial.

Local Resource Conservation District, Natural Resources Conservation Service, and Farm Bureau resources are available to assist rural residents and farmers in the watershed in implementing water conservation and reuse strategies. Examples of broad categories of voluntary on-farm and rural water conservation and reuse strategies include:

- Irrigation Management and Scheduling: The local Resource Conservation District's Mobile Irrigation Lab can provide on-site distribution uniformity evaluations of individual irrigation systems. Deciding when and how much water to apply to a field has a significant impact on the total amount of water used by the crop, water use efficiency, and irrigation efficiency. A number of different scheduling systems have been developed that can use either soil/plant- or atmosphere-based measurements to determine when to irrigate. Using a more scientific approach to irrigation scheduling has generally been shown to decrease the amount of water applied while improving yield.
- Tail Water Return Systems: To provide adequate water to the low end of the field, surface irrigation requires that a certain amount of water be spilled or drained off as tail water. Tail water return systems catch this runoff and pump the water back to the top of the field for reuse.

- Reduced Tillage and Cover Crops: The use of cover crops between crop rows or crop seasons and reducing soil tillage increases soil water storage capacity by capturing runoff and minimizing evaporation.
- Plant Species Options: Use drought tolerant forage and horticultural/landscaping plant species can help reduce water use.
- Keyline Design: Keyline design captures water at the highest possible elevation and spreads it outward toward drier ridges using plow lines and gravity, thereby reversing the natural concentration of water in valleys. Maximizing the distribution of water to drier ridges using precise plow lines that are slightly off-contour slows the movement of water and spreads it more uniformly, infiltrating it across the broadest possible area.

4.1.2 Construct off-stream closed water storage

Off-stream water storage of extracted groundwater and riparian diversions for domestic and agricultural uses, which would divert water during higher instream flow conditions in the winter and store it for use in the summer and fall, is one way of achieving additional instream flows for steelhead rearing and fall migration during dry water years. Water for off-stream storage would be diverted in winter only, with an elimination of spring, summer, and/or fall water rights. Off-stream closed water storage facilities (e.g., above-ground water tanks, cisterns, etc.) are maintained along several tributaries in the watershed; it is recommended that opportunities to increase their efficiency as well as to increase the number of facilities in strategic locations be pursued.

Storage tank in Santa Rosa Creek watershed

There have been several recent and successful efforts to increase summer and fall instream flows through water rights transfers and off-stream storage construction that may serve as a model for efforts in the Santa Rosa Creek watershed. In particular, the Mattole Headwaters Groundwater Management Plan 1.0 (Sanctuary Forest 2008) provides an example that, although from a northern California salmonid stream, is likely highly relevant to the Santa Rosa Creek watershed.

4.1.3 Purchase water rights from willing sellers for instream flows

California amended its Water Code in 1991 to allow for the purchase and transfer of water rights to instream flows. While water rights issues are technically and legally complex, and the effect of a single water rights claim on instream flows is typically not known, this could be a strategy for increasing summer and fall instream flows in Santa Rosa Creek. Water rights purchases would be based on willing sellers/donors. Purchased rights could be transferred to instream flows, with an entity such as CDFG or a land trust holding the right, or from a summer to winter diversion if off-stream storage is available (see recommendation above). Individual purchases and transfers will likely require significant research to understand the characteristics of the water right, assess second and third party impacts, and ensure the transfer is legitimate. If, based on this research, a purchase from a willing seller/donor is feasible and appropriate, an application for transfer would need to be prepared and finalized in accordance with SWRCB or governing agency specifications.

4.1.4 Conduct stream gauging and develop an updated water budget

Although Yates and Van Konyenburg (1998) provide insight into the effect of CCSD's municipal groundwater pumping and private groundwater pumping and water diversions on flow conditions in Santa Rosa Creek through the early 1990s, a more detailed and updated water budget is necessary to understand the effect of domestic and agricultural water extraction on instream flow levels, particularly during low-flow seasons. This level of understanding is important to identifying site-specific measures to increase instream flow levels and developing reasonable goals for minimum instream flow maintenance under a range of water-year types. Due to the technical and political complexities of developing an updated water budget, one option is that a sample set of private wells and surface water diversions be monitored and that the data be kept confidential. It is recommended that monitoring data be analyzed on an approximately annual basis to determine both the total amount of water pumped from the watershed and/or specific sub-watersheds during different water-year types and, in conjunction with instream flow measurements, the influence of groundwater pumping and surface water diversions on seasonal instream flow levels. An updated water budget would also contribute to the County's North Coast Area Plan requirement that any new development in Cambria not using a CCSD connection must assure no adverse impacts to Santa Rosa Creek (San Luis Obispo County 2008).

Currently there is no single consistent or accurate source of stream flow data in the watershed, which are necessary to provide useful and reliable data for an updated water budget. This is essential to understanding changes in watershed conditions, developing meaningful measures to increase instream flows, and monitoring the effectiveness of implemented actions. This could be done most efficiently by bringing the stream gauge at the Main Street Bridge up to current USGS-protocols for stream gauge operation and calibration. The primary requirement at present is for a campaign of flow measurements aimed at robustly calibrating the gauge during low and high flows. In addition to improving the gauge at Main Street Bridge, it is recommended that additional stream flow gauges be installed upstream of the lagoon to record flows that include all tributaries and in the vicinity of Mammoth Rock to record flows in the portion of the watershed with relatively consistent perennial flow.

4.1.5 Reduce future municipal groundwater pumping

Per the San Luis Obispo County (2008) North Coast Area Plan, if/when the proposed desalination plant is operational, it is recommended that CCSD water withdrawals from the Santa Rosa Creek aquifer be limited to help protect instream flows in the lower reaches of Santa Rosa Creek (i.e., those reaches affected by CCSD pumping), as well as the aquifer itself and agricultural resources. If planned and operated strategically, the proposed desalination plant could reduce the need for municipal groundwater pumping along Santa Rosa Creek and help to conserve instream flow in the summer and fall.

4.2 Restore the Riparian Corridor

Native riparian vegetation is fundamental to maintaining summer and winter rearing habitat elements that are likely limiting the steelhead population in Santa Rosa Creek. A functioning riparian corridor with overhanging vegetation moderates stream temperatures by shading the channel, provides a source of large woody debris and roots that interact with streamflows to force the development of pools for rearing habitat, and provides leaf litter for aquatic invertebrate, as well as terrestrial invertebrate, prey species. By providing these ecosystem benefits, riparian restoration will also improve steelhead rearing conditions in the lagoon by moderating water temperatures and contributing to the food supply. Riparian vegetation also reduces streambank erosion, filters fine sediment and nutrients from runoff, provides wildlife movement corridors, and prevents non-native invasive plant species from becoming established. The following recommendations to restore the riparian corridor, several of which overlap with previous recommendations by CDFG (Nelson 1994, Nelson et al. 2009), will enhance summer and winter steelhead rearing habitat elements, reduce streambank erosion and fine sediment supply, and help conserve more natural streambank conditions in the lower reaches.

4.2.1 Revegetate degraded streambanks

To facilitate and expedite the restoration of a dense, multi-storied riparian corridor that provides multiple ecosystem services and benefits, it is recommended that native riparian trees and shrubs be planted in suitable areas. Examples of suitable areas include reaches where cattle have been excluded or are otherwise unable to graze on revegetated plants, and in areas where natural recruitment of riparian vegetation is not expected to occur in the near-term, such as steeper streambanks, higher elevation benches, or in strategic locations in or around bank revetment. Active revegetation may also be suitable soon after non-native invasive plant removal efforts (see below) to quickly restore vegetative cover and minimize the potential for re-infestation.

Intact riparian vegetation in lower Santa Rosa Creek

While planting palettes need to be selected based on site-specific conditions (e.g., elevation above baseflow, soil type, and groundwater level), alder (*Alnus rubra*), willow (*Salix* spp.), cottonwood (*Populus* spp.), sycamore (*Platanus racemosa*), big-leaf maple (*Acer macrophyllum*), and mulefat (*Baccharis salicifolius*) are examples of native trees and shrubs that may be appropriate for revegetation on streambanks and in wetter areas. In some cases, such as in the middle reaches, steep streambanks may need to be graded before planting. In upland or drier areas, coast live oak (*Quercus agrifolia*), blue oak (*Q. douglasii*), madrone (*Arbutus menziesii*), manzanita (*Arctostaphylos* spp.), California sagebrush *(Artemisia californica*), sage *(Salvia* spp*.),* toyon (*Heteromeles arbutifolia*), and coyote bush (*Baccharis pilularis*) may be appropriate. To the greatest extent possible, planting stock should be collected from the Santa Rosa Creek watershed to maintain genetic integrity. Planting at the onset of the rainy season can greatly reduce and even eliminate the need for irrigation, particularly in areas where plant roots can be expected to reach groundwater quickly. The use of cuttings, particularly for willow, cottonwood, and mulefat, can be another way to reduce the cost of revegetation efforts.

4.2.2 Manage grazing to reduce impacts to the riparian corridor

Cattle currently graze on streambanks and access the stream channel in several reaches of Santa Rosa Creek, as well as throughout the lower Perry/Green Valley Creek sub-watershed (Nelson et al. 2009, Appendix A). Such grazing can have severe impacts on riparian and instream conditions, including denuded streambanks, increased water temperatures, increased streambank erosion, and water quality contamination (Armour et al. 1994, Belsky et al. 1999), to the extent that fish populations are impacted (Platts et al. 1985, Ohmart 1996). It is recommended that grazing in the Santa Rosa Creek watershed be managed to reduce impacts to the riparian corridor. This could include the installation of fencing to exclude cattle from streambanks and the channel, as previously recommended by CDFG (Nelson et al. 2009), or other practices to limit access and use of the riparian corridor by cattle, such as off-channel watering. Ideally these voluntary efforts would be focused on the denuded reaches of upper Santa Rosa Creek, the intermittent portion of the middle reach of Santa Rosa Creek, and in the Perry/Green Valley Creek sub-watershed. In the intermittent middle reach, where surface flow loss to groundwater may already limit the extent of riparian vegetation, cattle grazing is likely exacerbating streambank erosion and further preventing riparian vegetation to persist. In the Perry/Green Valley Creek sub-watershed, cattle grazing has denuded streambanks and is contributing to streambank erosion that supplies fine sediment to the lower reaches of Santa Rosa Creek.

4.2.3 Minimize the need for bank protection

While bank protection such as concrete, rip-rap, and gabion baskets can be necessary to protect infrastructure near the creek, particularly in emergency situations, it degrades riparian and instream habitat by precluding native vegetation and simplifying the channel, and, as observed on Santa Rosa Creek in the town of Cambria, often shifts the erosion upstream or downstream of the rip-rap or to the opposite bank (Nelson et al. 2009). Conserving and restoring streambanks and floodplains through the recommendations above will help minimize the need for bank protection by preventing development near the creek (that might subsequently require protection) and decreasing the erodibility of the banks. Where roads or buildings are threatened by streambank erosion, it is recommended that the potential to “train” the creek away from these areas be investigated as an alternative to hardened bank protection. For example, the bar opposite the eroding streambank could be manipulated (e.g., skimmed or cut) to direct flow closer to the middle of the channel and away from the eroding bank. The feasibility of such an approach is dependent upon site-specific conditions (e.g., access for heavy equipment, and the condition of upstream and downstream areas) and must be evaluated accordingly. However, it presents several significant benefits compared with hardened bank protection: it addresses the cause rather than just the symptom of bank erosion; and it conserves existing, and may even help improve, riparian and instream habitat conditions.

As previously recommended by CDFG, where bank protection is necessary, it is recommended that bio-engineering alternatives to rip-rap and other hard measures be implemented. Many of these alternatives are described in CDFG’s California Salmonid Stream Habitat Restoration Manual (Flosi et al. 2004). Streambank soil bioengineering, for example, typically includes installing large woody debris and/or boulder structures and planting interstitial (i.e., exposed) bank surfaces with quick growing vegetation, such as willows. The exposed large woody debris, boulders, and planted vegetation dissipates flow velocities against the bank toe and bank surface, and planted vegetation physically holds bank substrates (silts and sands) in place, thus increasing bank strength. Exposed large woody debris and planted vegetation will, in turn, also contribute to over-summer and over-winter habitat improvements for steelhead by scouring pools and providing cover. Separate or in combination with soil bioengineering, a bio-fabric can be applied across the bank surface to shield the bank high flow velocities and holds bank soils in place, and/or steep streambanks can be re-contoured (i.e., re-shaping) to create a more gently-sloping profile and increase resistance at the bank toe. A more gently-sloping bank has a lighter load above the bank failure plane and is, therefore, better able to withstand toe scour and/or undercutting than a vertical bank.

4.2.4 Treat non-native invasive species

As described in the Watershed Synthesis, a number of non-native invasive plant species that have the potential to degrade riparian habitat by replacing native species and altering physical conditions have been documented in the Santa Rosa Creek riparian corridor. Several of these species, including several large-scale infestations of cape-ivy, isolated occurrences of arundo, pampas/jubata grass, eucalyptus, and French/Scotch broom are priorities for treatment efforts to promote the natural regeneration and growth of native vegetation and prevent further infestations. Removal of large areas of non-native vegetation is generally done in conjunction with riparian restoration so as to prevent the re-colonization of the area by non-native species.

However, the vast majority of the remaining watershed area has not been surveyed for non-native invasive species, where infestations can easily expand to downhill or downstream locations. For example, ponds in the Perry/Green Valley sub-watershed, which is largely un-surveyed, are likely a major source of bullfrogs to lower Santa Rosa Creek. Identifying small or recently established populations early on is important, since these are easier to control and/or eradicate. In addition, understanding broader patterns of non-native invasive plant distribution is important to increase the effectiveness of treatment measures and reduce the potential for later or downstream re-infestations. Therefore, it is recommended that the locations and populations of persistent non-native, invasive species in the riparian corridor be mapped and described. The inventory needs to conclude with a summary of identified species (in terms of their potential detriment to the ecosystem, rate of infestation, and methods of control) and priorities and designs for control measures.

Based on the non-native invasive species identified in the watershed, and the severity of their infestation, site-specific treatment methods need to be developed. Treatment methods should be selected that are appropriate for the site, minimize disturbance to adjacent natural areas, and do not result in unintended effects on non-target species. When appropriate, treatment methods should be implemented by trained and/or licensed crews. In some cases, non-native species can be discouraged and/or controlled by properly managed, targeted maintenance activities. For example, grazing practices can be managed to encourage and restore native species over non-native grasses and forbs.

4.3 Reduce Fine Sediment Delivery to the Creek

Summer and winter rearing habitat in the lower reaches (stream miles 0–3.5) of Santa Rosa Creek is partially degraded by excess fine sediment input. Fine sediment embeds larger substrates, limiting their use for spawning and as refuge from high flows, and can fill pool habitat that is used during both summer and winter rearing. The following recommendations focus on two of the most problematic sources of fine sediment identified in the Geomorphic Assessment (Appendix A): the Perry/Green Valley Creek sub-watershed and road-related streambank erosion. Fine sediment supply from excessive streambank erosion would be addressed through the riparian restoration recommendations made above. It is recommended that initial treatment of fine sediment sources, wherever they are conducted, be implemented as an adaptive management experiment, with monitoring to determine if treatments are effective at reducing substrate embeddedness and/or pool infilling.

In addition, it is recommended that fine sediment source treatments be conducted in coordination with other recommendations to improve winter rearing habitat in mainstem Santa Rosa Creek, further test the hypothesis that winter habitat is limiting steelhead production in the watershed, and assess the effectiveness of the actions. Based on the monitoring results of initial efforts, it can be determined whether to expand and/or revise treatment of fine sediment in the future. Remediating sources of fine sediment, particularly in the Perry/Green Valley Creek sub-watershed is also likely to increase the extent of rearing habitat in the lagoon by reducing the amount of aggradation.

4.3.1 Maintain roads to decrease hillslope and streambank erosion

San Luis Obispo County is responsible for the maintenance of Santa Rosa Creek Road and others in the watershed. Road-related runoff is the cause of much of the hillside and streambank erosion that is frequently observed in the watershed. Often, improperly placed ditches and culverts (or a lack thereof) concentrate winter runoff from roads where it can actively erode hillslopes or streambanks. Such erosion currently threatens Santa Rosa Creek Road at several locations. Road maintenance actions taken by the County would correct drainage features that currently concentrate runoff to unsuitable locations. It is recommended that culvert or ditch improvement or relocation be considered by the County at several locations (particularly where the road base is threatened) in the short-term, while out-sloping of roads (to discourage the concentration of runoff) may be more appropriate in the long-term.

Erosion at Santa Rosa Creek Road

4.3.2 Reduce and/or retain fine sediment delivery from the Perry/Green Valley Creek sub-watershed

Sediment delivered from the Perry/Green Valley Creek sub-watershed consists almost entirely of fine sediment (Appendix A). This supply is almost certainly a significant contributor to the lower quality spawning and rearing habitat conditions in the lower reaches of Santa Rosa Creek. Based on the Geomorphic Assessment (Appendix A) a number of measures are potentially appropriate to reduce fine sediment to and from the Perry/Green Valley Creek sub-watershed, including exclusion of cattle from stream channels, riparian corridor restoration, gully maintenance, and road infrastructure improvements to reduce sediment-laden runoff from roads. However, as survey access has previously been limited in this sub-watershed, it is recommended that a focused survey be conducted to identify specific fine sediment supply areas and site-appropriate remediation measures. Ideally this survey would also be used to identify measures that may be appropriate to retain fine sediment from the sub-watershed before it enters Santa Rosa Creek.

4.3.3 Implement Cambria drainage study recommendations

Both the 1999 and 2004 drainage studies conducted in Cambria's residential neighborhoods indicated that storm water is not being adequately planned for or managed, and warned that storm water issues can be expected to worsen if development continues in the Cambria area, unless meaningful steps are taken to plan for and address road- and home lot-related storm water runoff (USDA NRCS 1999, RMC 2004). These studies include detailed maps of problem areas, and recommend projects to improve storm water runoff capture and conveyance. It is recommended that these recommendations be implemented on a voluntary basis by existing property owners, and be required for newly proposed developments, either by the developer or coordinating local entity. The USDA NRCS (1999) report and maps are available for review at the Greenspace office: 4251 Bridge St, Cambria, CA 93428. The San Luis Obispo County Flood Control and Water Conservation District report and maps (RMC 2004) are available on-line: http://www.slocountydrainagestudies.org/

4.4 Conserve and Protect Open Spaces and Existing Land Uses

Conserving existing open space and land uses in the watershed will help address one of the critical issues in the watershed: the threat of land use change on fine sediment production, water demand, and the deleterious effects of urban development (e.g., increased impervious surfaces, contaminated runoff, non-native invasive species introductions, and encroachment of floodplains and the riparian corridor). This can be done via conservation easement, in which the current landowner retains ownership but is compensated for potential restrictions on land use, or fee-title purchase. If property with water rights is purchased, then these recommendations can also serve to increase summer and fall instream flows. Two focal areas for conservation efforts, to best protect aquatic habitat conditions in the watershed, are described below. TLCSLOC (2010) provides additional details on the conservation easement and fee-title purchase options that are relevant to landowners in the watershed.

4.4.1 Conserve undeveloped floodplains

Development near rivers and streams necessitates or facilitates many of the elements that degrade the riparian corridor and aquatic ecosystem, such as polluted runoff, increased runoff and decreased percolation from paved surfaces, rip-rap and other bank protection measures, decreased riparian vegetation, invasion by non-native species, and frequently levees to protect developed areas from high flow events. Floodplains also provide important habitat for a number of terrestrial and semi-aquatic species, such as Pacific pond turtle, California red-legged frog, and two-striped garter snake. To prevent further degradation of the Santa Rosa Creek riparian corridor and aquatic ecosystem, it is recommended that undeveloped floodplains, particularly along the lower creek where few remain and the middle reaches where the floodplains are undeveloped, be conserved and floodplain-compatible land uses maintained. For example, the left-bank floodplain between the Burton Street Bridge and Highway 1 is currently undeveloped and supports hiking trails and related recreational activities. Keeping infrastructure and/or more developed land uses away from the creek in this area will help conserve existing floodplain conditions and service, likely contribute to restoration efforts, and prevent further constraints on riparian and aquatic conditions in the future.

4.4.2 Conserve land uses in the upper watershed

The subdivision of large parcels, which are generally located in the upper watershed, is likely to result in land use changes in the subsequent smaller parcels. If these future land uses remove vegetation (both upslope and riparian), change hillslope topography, or alter runoff patterns, there is the potential that gully and rill erosion could be reinitiated with a subsequent increase in fine sediment delivery to watershed stream channels. Retaining large parcels or otherwise conserving existing land uses in the upper watershed would help prevent the degradation of aquatic habitat throughout the watershed.

4.5 Increase Woody Debris Supply and Retention

Lack of available summer and winter habitat was identified as a factor limiting the population of steelhead. Summer habitat for steelhead has been degraded in part by a disruption of the channel forming processes that form pools, including, but no limited to, a lack of woody debris that typically forms pools where steelhead and other aquatic species can over-summer, provides instream cover and protection from predators, and contributes to the food supply. This lack of woody debris also contributes to the degradation of winter habitat for steelhead. In addition to finding refuge from high flows in the interstitial spaces among cobbles and boulders, steelhead depend on the slower-water refuge areas provided by large woody debris, boulders and other instream cover, and undercut banks during high flow events. In Mediterranean-climate watersheds, large woody debris, which is generally composed of hardwoods such as bay, alder, sycamore, and willow trees greater than six inches in diameter at breast height, is frequently lacking as a result of overall riparian vegetation loss and its removal when it does enter streams (Opperman 2002).

Recommendations to restore the riparian corridor (Section 4.2) will, over time, help to increase the supply of natural large woody debris to the watershed. In conjunction with riparian restoration, education efforts are recommended to help landowners develop a complete understanding of the role large woody debris plays in the riparian ecosystem, and the measures that can be taken to avoid conflicts between large woody debris recruitment and retention and adjacent land uses due to the real and perceived threats from large woody debris on streambank infrastructure and flood risk. The combination of increased large woody debris supply and retention in stream channels contributes to restoring natural ecosystem function and providing long-term and sustainable summer and winter habitat for steelhead.

Riparian restoration is a long term action that will take upwards of a decade before the large woody debris it supplies begins to contribute to the improvement of summer and winter habitat conditions for steelhead. Since the lack of both over-summer and over-winter habitat may be limiting the steelhead population in the Santa Rosa Creek watershed, it is highly recommended that large woody debris in the stream be left where it is found or to manipulate its orientation in its current location. In other cases, it may be appropriate for large woody debris structures to be incorporated into other types of instream projects, such as bank stabilization projects (see Section 4.2.3). Riparian tree species that are native to the watershed, such as alder, bay, sycamore, and willows are appropriate and have been documented, particularly when in multiple log configurations, to effectively form pool habitat and provide instream cover (Opperman 2002). Any project in the watershed that incorporates large woody debris structures needs to be carefully and strategically planned and implemented to minimize unintended consequences on adjacent and/or downstream property, maximize the sustainability and effectiveness of the project in providing winter and summer habitat, and be consistent with the type of woody debris that would occur naturally in Santa Rosa Creek.

4.6 Remove Barriers to Fish Passage

Physical fish passage barriers can restrict adult and juvenile steelhead to the poorer quality spawning and rearing habitats in the lower reaches of Santa Rosa Creek, and may limit the steelhead population if/when this occurs in successive years. Culverts at Taylor and Curti creeks, and elsewhere, not only impede steelhead access to these tributaries, but they interrupt the supply of coarse sediment and large woody debris which is essential to maintaining suitable winter and summer rearing habitat for steelhead. Removal or modification of these culverts is recommended if there is sufficient quantity and quality steelhead habitat upstream. In addition to improving fish passage, sediment and large woody debris transport would be improved under the full range of flow conditions. Recommendations to determine additional actions that could be taken to improve passage conditions in the middle reaches of Santa Rosa Creek, and to assess the severity of potential passage barriers in the Perry/Green Valley Creek sub-watershed are included in Section 4.7 below.

4.7 Fill Key Data Gaps

The Watershed Synthesis and Steelhead Limiting Factors Analysis identified a number of key data gaps that limit the understanding of watershed conditions and processes, the identification of factors potentially limiting steelhead, and the ability to develop effective actions to enhance watershed conditions and address steelhead limiting factors. Ideally the results of the investigations described below will be used to test the hypotheses of steelhead limiting factors, such that hypotheses are accepted, rejected, or refined, based on new understanding of the system.

4.7.1 Monitor adult steelhead population

Adult returns are usually considered the best indicator of population status. However, there are currently no robust estimates of adult abundance in Santa Rosa Creek. Due to the difficulty in monitoring steelhead spawning in creeks with small steelhead populations and dispersed spawning habitat, CDFG recommends the use of traps, weirs, and/or video or sonar detection systems to provide an absolute count of migrating adults (Adams et al. 2011).

4.7.2 Identify steelhead instream flow requirements

While the recommendations in Section 4.1 above will contribute to the maintenance of summer and fall instream flows, better understanding the site-specific instream flow requirements for key steelhead life history stages is essential for developing and planning specific actions. Therefore, an analysis of how much flow is required to maintain adequate summer and fall rearing habitat for age 1+/2+ steelhead (e.g., passage over shallow riffles and connectivity between pools, and suitable water temperatures) and summer invertebrate production is recommended. The results of this assessment would refine the understanding of the specific locations and ways that instream flows limit the steelhead population and can be used to identify minimum instream flow goals in specific parts of the watershed that can then guide the type and number of actions taken to maintain summer and fall instream flows. In addition, this survey, if conducted in the winter can be used to identify minimum flow needs to facilitate migration over shallow riffles. The flows needed for both adult and juvenile steelhead migration have been identified for lower Santa Rosa Creek (D. W. Alley & Associates 1993), but the previous study did not include the intermittent portion of the middle reach situated upstream of the Perry Creek confluence, or upstream of Mammoth Rock where the stream is perennial most years (Figure 2-8). It is recommended that any identification of instream flow requirements be accompanied by an analysis of available stream flow data in order to evaluate the extent to which instream flow requirements for fish passage and/or summer and fall rearing habitat are or are not being met.

4.7.3 Assess lagoon habitat quality and steelhead smolt growth in and outside the lagoon

The degree to which steelhead use the lagoon for rearing, and that the lagoon contributes to steelhead growth, is uncertain (Nelson et al. 2009). As stated previously by CDFG, it is recommended that studies be implemented to document juvenile steelhead use of the lagoon to better understand the link between juvenile steelhead production/carrying capacity in the creek and lagoon, and evaluate steelhead growth patterns under a range of water-year types. These surveys would ideally include the timing and extent of steelhead use of the lagoon, timing and duration of emigration/immigration as related to sandbar closure and instream flow, growth rates in and upstream of the lagoon, and population estimates. Combined with strategic monitoring of water temperature, DO, and salinity under varying flow conditions, these studies can be used to evaluate the suitability of the lagoon for rearing under different water-year types and identify specific actions for enhancing lagoon quality and optimizing steelhead lagoon rearing.

4.7.4 Assess flows through the middle reaches of Santa Rosa Creek

These reaches (approximately stream mile 6.5 to 8) generally run dry each summer, restricting connectivity between steelhead rearing habitat, and, in dry winters, are hypothesized to impede upstream migration of spawning steelhead (Nelson et al. 2009). Due to the low gradient and position in the watershed, these reaches are the natural depositional area for sediments transported from the upper watershed and, in combination with land use changes, result in a wide, undefined floodway and highly pervious substrates. Additional survey work and analysis are recommended to better understand the natural vs. human factors controlling instream flows through these reaches and determine what, if any, other actions would be appropriate to increase the capacity of these reaches to maintain minimum instream flows in the summer and improve upstream migration conditions during dry winters.

4.7.5 Estimate juvenile steelhead abundance

There are currently extensive data on fall abundance of juvenile steelhead in Santa Rosa Creek. While fall abundance data is useful for understanding annual abundance trends, it does not allow the direct assessment of summer habitat limitations, which is a key step in understanding factors limiting the steelhead population in the watershed. Developing reach-specific abundance estimates in the early summer, in addition to the fall, would allow evaluation of both over-winter and over-summer survival of both YOY and older juveniles, and potentially help identify over-winter and/or over-summer habitat limiting factors that may be addressed through restoration. Ideally this would be conducted for several years to help understand the dependence of winter and summer survival on variations in water quantity and flow dynamics. It is recommended that any juvenile monitoring be done according to the protocols described in CDFG's recent California Coastal Salmonid Population Monitoring Strategy, Design, and Methods report (Adams et al. 2011).

4.7.6 Assess mercury uptake in the aquatic food chain

It is unknown to what extent or even if the high levels of mercury that have been detected in sediments in Curti and Santa Rosa creeks are accumulating in the aquatic food chain and/or potentially affecting steelhead populations. To better understand the degree of mercury contamination in the watershed and potentially garner funding for remediation efforts, it is recommended that a focused study of mercury be conducted in the watershed. A well designed study would include sites upstream of, at, and downstream of the mercury mine former mill site off of Curti Creek, as well as other known mercury mine locations in the watershed, to determine natural background levels of mercury and patterns of mercury contamination downstream. Such a study would also include water, sediment, and resident aquatic organism (e.g., benthic invertebrates and/or small resident fish) samples that are tested for total mercury and methylmercury.

4.7.7 Assess the Perry/Green Valley Creek sub-watershed

It is unknown if the Perry/Green Valley Creek sub-watershed is accessed or used by steelhead, or what the aquatic habitat conditions are like. Given the size of this sub-watershed and the potential for steelhead habitat, it is recommended that the assessment include, but not be limited to, geomorphic, hydrologic, and biological (e.g., aquatic habitat conditions, fish passage, and steelhead use) surveys. Knowing the limiting factors potential for steelhead in this sub-watershed would be an important first step towards understanding the relative importance of this sub-watershed for steelhead.

4.7.8 Continue and expand citizen water quality monitoring

The benthic macroinvertebrate and first flush sampling, which was done in coordination with the broader Monterey Bay Sanctuary Citizen Watershed Monitoring Network, conducted for the development of this Watershed Management Plan help characterize just one year of water quality conditions in lower Santa Rosa Creek. Multiple, and ideally continuous, years of sampling and additional sampling sites in the upper watershed, are needed to better understand temporal and spatial trends in water quality conditions. If and when temporal and spatial trends are recognized, these can be used to help identify emerging risks to water quality and aquatic species, pollutant sources, and, subsequently, appropriate best management practices to minimize or prevent pollutants from entering waterways.

4.8 Reduce Mercury Supply

Due to the high potential for mercury to affect human health and aquatic organisms and the fact that methlymercury—the most bio-available form of mercury—has been detected in the Santa Rosa Creek lagoon, it has been previously recommended that efforts be made to control known sources of mercury in the watershed. These recommendations include erosion control along Curti Creek to prevent mercury-laden sediment from being delivered to the creek and creation of treatment wetlands to retain and accumulate existing mercury in the system, need to be implemented to prevent further mercury contamination.

4.9 Summary of Recommendations

Table 4-1 summarizes the recommendations described above and the primary reason for their inclusion in the Watershed Management Plan (e.g., near-term steelhead habitat restoration, long-term watershed enhancement, etc.). The recommendations are listed in order of their relative importance to steelhead habitat restoration, but this ranking is not intended to limit the implementation of any recommendation. Appendix D describes a variety of sources of potential funding for implementation of the plan recommendations.

Table 4-1. Summary of recommendations.

Recommendation (Bolded text indicates actions that are of higher priority for steelhead habitat restoration)		Included to Address: Near-term steelhead habitat restoration	Included to Address: Long-term watershed enhancement	Included to Address: Key uncertainties
4.1.1	**Implement water conservation and reuse strategies**	•	•	
4.1.2	**Construct off-stream closed water storage**	•	•	
4.1.3	**Purchase water rights from willing sellers for instream flows**	•	•	
4.1.4	**Conduct stream gauging and develop an updated water budget**		•	•
4.1.5	Reduce future municipal groundwater pumping			
4.2.2	**Revegetate degraded streambanks**		•	
4.2.1	**Manage grazing to reduce impacts to the riparian corridor**		•	
4.2.3	**Minimize the need for bank protection**		•	
4.2.4	Treat non-native invasive species		•	
4.3.1	**Maintain roads to decrease hillslope and streambank erosion**		•	
4.3.2	**Reduce and/or retain fine sediment delivery from the Perry/Green Valley Creek sub-watershed**		•	
4.3.3	Implement Cambria drainage study recommendations		•	
4.4.1	**Conserve undeveloped floodplains**		•	
4.4.2	**Conserve land uses in the upper watershed**			
4.5	**Increase woody debris supply and retention**	•	•	
4.6	**Remove barriers to fish passage**		•	
4.7.1	**Monitor adult steelhead population**			•
4.7.2	**Identify steelhead instream flow requirements**		•	•
4.7.3	**Assess lagoon habitat quality and steelhead smolt growth in and outside the lagoon**	•		•
4.7.4	Assess flows through the middle reaches of Santa Rosa Creek	•	•	
4.7.5	Estimate juvenile steelhead abundance			•
4.7.6	Assess mercury uptake in the aquatic food chain			•
4.7.7	Assess the Perry/Green Valley Creek sub-watershed			•
4.7.8	Continue and expand citizen water quality monitoring			•
4.8	Reduce mercury supply		•	

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Appendices

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Appendix A

Geomorphic Assessment of Santa Rosa Creek Watershed

(provided as separate document)

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Appendix B

Santa Rosa Creek BMI Sampling

(provided as separate document)

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Appendix C

Public Meeting Questionnaire

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Santa Rosa Creek Watershed
Tell Us What You Think

We greatly appreciate your assistance! Please, fill out this form as completely as you can and place in Public Comment Box before leaving. Then, take a raffle ticket and put one half in the bowl to be eligible for the drawing. (If you need more space for answers, please use the other side of the page.)

1. What are your concerns about the creek and watershed?

2. Do you know of an area in the creek that is in need of maintenance? *Example: bank stabilization, erosion, or trash pickups.*

3. Would you share any stories or historic photos you might have about steelhead or unusual occurrences that that have occurred related to Santa Rosa Creek? We can contact you if you prefer to provide contact info.

4. Please rank the following items in terms of your assessment of their importance with 1 as highest priority and 5 as lowest priority. There are two blank boxes to write in your own priorities.

	1	2	3	4	5
Improve water quality	1	2	3	4	5
Improve water quantity	1	2	3	4	5
Restore and protect riparian habitat for native plants and animals	1	2	3	4	5
Improve natural conditions for people living in the watershed	1	2	3	4	5
Foster community stewardship of, and education about, the watershed such as volunteering for projects	1	2	3	4	5
Reduce sediment delivery into the creek	1	2	3	4	5
	1	2	3	4	5

Contact Information (optional)

Name: ____________________

Street Address: ____________________

City: ____________________ Zip: ____________________

Phone ____
Email: ____
Interest Representing: ____

 Mailing List Volunteer Water Monitoring Special Events – creek clean up

Santa Rosa Creek Watershed
Compiled Questionnaire Information
Public Meeting January 19, 2010

1. What are your concerns about the creek and watershed?
   - Improving quality of resources through cooperation of community/landowners
   - Ag run-off, human caused pollution, illegal dumping, invasive species, sewage impacts
   - That it becomes a healthy system that supports wildlife and public enjoyment of the environment
   - Restore and maintain creek, tributaries and lagoon for steelhead and other wildlife
   - Deforestation, defoliation, top-soil erosion, earth subsidence, deterioration of air and water resources
   - Hope for cooperative effort that results in a healthy watershed
   - Balanced use between Santa Rosa and San Simeon Creeks
   - Use, pollution
   - Taking too much water out and loss of healthy habitat
   - Public health; maintain healthier habitat conditions; viability for diverse species; over-development
   - Sustainable management of water for environment and people; enhance the productivity of ecosystem services of SR Creek Watershed
   - Want more water flow and better water quality to support more wildlife
   - That there be enough water for all of us
   - Interfering with creek hydrology; desal; erosion
   - Steelhead; mercury
   - Sediment load/erosion; hydrologic roughness
   - Amount of overgrowth that has been allowed to remain along the banks; this is going to cause another flood when it all backs up behind Windsor Bridge
   - Overpopulation; building near the creek banks

2. Do you know of an area in the creek that is in need of maintenance? *Example: bank stabilization, erosion, or trash pickups.* If so, please indicate location.
      - Along Fiscalini Ranch Reserve; periodic trash pick up; invasive species removal along streambanks
      - Ferasci Bridge is a barrier to steelhead use; bridge should be reconstructed to allow passage
      - Maintenance is what degrades wildlands
      - Along Hwy. 1 to Burton Dr. trash, weeds, erosion near Hwy. 1 Bridge

- Burton Drive Bridge erosion under and around bridge; sediment falling from steep hillsides on Burton Dr. and increased grading activity on the Rodeo grounds

3. Would you share any stories or historic photos you might have about steelhead or unusual occurrences that that have occurred related to Santa Rosa Creek? We can contact you if you prefer to provide contact info.

   We may contact people who offered stories/photos directly.

4. Please rank the following items in terms of your assessment of their importance with 1 as high priority and 5 as low priority. First number is priority rank; second number is how many responded to that ranking.

Protect stream side archeological sites*	1/1	2	3	4	5
Improve water quality	1/14	2/4	3/1	4/1	5/0
Increase water quantity	1/9	2/5	3/4	4/2	5/0
Restore and protect riparian habitat for native plants and animals	1/11	2/6	3/2	4/0	5/2
Improve natural conditions for people living in the watershed for recreational activities	1/0	2/3	3/10	4/3	5/4
Increase education about the importance of the watershed	1/10	2/6	3/3	4/0	5/1
Foster community stewardship of the watershed such as through volunteering for projects	1/9	2/5	3/4	4/0	5/2
Reduce sediment delivery into the creek	1/12	2/1	3/5	4/2	5/0
Stop fire district campaign*	1/1	2	3	4	5
Monitor water quality (chemical) at least 4 times each year*	1/1	2	3	4	5
Clear sides of banks*	1/1	2	3	4	5
Steelhead enhancement*	1/1	2	3	4	5

*write-ins
Total submitted = 21

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Appendix D

Funding Resources

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California Department of Fish and Game Fisheries Restoration Grant Program (FRGP)
http://www.dfg.ca.gov/fish/Administration/Grants/FRGP/

FRGP was established in 1981 in response to rapidly declining populations of wild salmon and steelhead trout and deteriorating fish habitat in California. This competitive grant program has invested over $180 million to support projects from sediment reduction to watershed education throughout coastal California. Contributing partners include the California Department of Fish and Game (CDFG), federal and local governments; tribes, water districts, fisheries organizations, watershed restoration groups, the California Conservation Corps, AmeriCorps, and private landowners.

San Luis Obispo County Fish and Game Commission Fines Committee
Contact: Robert Cone (805) 781-5024

Each year as part of its budget process, the San Luis Obispo County Board of Supervisors approves a lump sum budget for the Fish and Game Fine Commission. The committee meets to develop a detailed listing of recommended projects for the coming fiscal year. The listing is then submitted to the Board for approval.

CalTrans Environmental Enhancement and Mitigation Program (EEM)
http://www.dot.ca.gov/hq/LocalPrograms/EEM/homepage.htm

EEM is provided by Streets and Highways Code Section 164.56 and authorizes the allocation of up to $10 million each year for grants to mitigate the environmental impacts of modified or new public transportation facilities.

San Luis Obispo Integrated Regional Water Management Plan (IRWMP)
http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/index.htm

The Integrated Regional Water Management (IRWM) Program is intended to promote and practice integrated regional water management to ensure sustainable water uses, reliable water supplies, better water quality, environmental stewardship, efficient urban development, protection of agriculture, and a strong economy.

Wildlife Conservation Board Habitat Enhancement and Restoration Program (HERP)
http://www.wcb.ca.gov/HERP/grants.html

After the Wildlife Conservation Board (WCB) was created by the Wildlife Conservation Law of 1947, it was given the authority to acquire and restore California lands to protect wildlife values and to provide wildlife-oriented public access. The Habitat Enhancement and Restoration Program (HERP) was WCB's first program and incorporated all restoration projects until new restoration programs were first initiated in 1990. Over the last 20 years, there have been at least eight specific new programs added to the WCB's mandate that fund and target certain types of habitat restoration projects that historically fell under the HERP. While the program is not as active as it once was, it still effectively covers important habitat enhancement and restoration projects that fall outside the criteria of the other habitat restoration programs.

California State Coastal Conservancy
http://scc.ca.gov/category/grants/

To achieve its goals, the Coastal Conservancy may award grants to public agencies and nonprofit organizations that qualify under Section 501(c)(3) of the United States Internal Revenue Code and whose purposes are consistent with Division 21 of the California Public Resources Code (commencing with section 31000). Some examples of the kinds of projects the Coastal Conservancy may fund include trails and other public access to and along the coast, natural resource protection and restoration in the coastal zone or affecting coastal areas, restoration of coastal urban waterfronts, protection of coastal agricultural land, and resolution of land use conflicts.

U.S. Fish and Wildlife Service Fisheries Operational Needs System Database for National Fish Passage Program Funds
Contact: Donald Ratcliff (209) 334-2968 ext. 409

Millions of culverts, dikes, water diversions, dams, and other artificial barriers have been constructed to impound and redirect water for irrigation, flood control, electricity, drinking water, and transportation--all changing natural features of rivers and streams. In 1999, the U.S. Fish and Wildlife Service initiated the National Fish Passage Program to work with others to address this problem. The Program uses a voluntary, non-regulatory approach to remove and bypass barriers to aquatic species movement. The Program addresses the problem of passage barriers on a national level, working with local communities and partner agencies to restore natural flows and fish migration. The Program is administered by National and Regional Coordinators, and delivered by Regional Fish and Wildlife Management Assistance Offices.

U.S. Fish and Wildlife Service Partners in Fish and Wildlife Program
http://www.fws.gov/partners

The mission of the Partners Program is to efficiently achieve voluntary habitat restoration on private lands through financial and technical assistance for the benefit of Federal Trust Species.

National Oceanic and Atmospheric Administration (NOAA) Southwest Region
http://www.habitat.noaa.gov/funding/southwest.html

NOAA Restoration Center’s Community-based Restoration Program invests funding and technical expertise in high-priority habitat restoration projects that instill strong conservation values and engage citizens in hands-on activities. Through the program, NOAA, its partners, and thousands of volunteers are actively restoring coastal, marine, and migratory fish habitat across the nation. The NOAA Restoration Center staff helps to identify potential projects, strengthen the development and implementation of habitat restoration activities within communities, and generate long-term national and regional partnerships to support community-based restoration efforts across a wide geographic area.

Upper Salinas-Las Tablas Resource Conservation District
http://us-ltrcd.org/

The Upper Salinas-Las Tablas Resource Conservation District (RCD) serves the local community with its programs in watershed management, restoration, research and education and works with public and private landowners to conserve natural resources throughout the Upper Salinas River Watershed and surrounding environments. The RCD can coordinate with the USDA Natural Resources Conservation Service to bring cost-share programs to a project in order to make restoration projects cost effective.

Private Foundations

Fund For Wild Nature	http://www.fundwildnature.org/
Doris Duke Charitable Foundation Wildlife Action Opportunities Fund	http://www.wcs.org/wildlifeopportunity
Lindbergh Foundation	http://www.lindberghfoundation.org/
Disney Wildlife Conservation Fund	http://www.dwcf-rfp.com/
Waste Management	http://www.wm.com/community/giving.asp
Environmental Grantmakers Association	http://www.ega.org/funders/index.php
Acorn Foundation	http://www.commoncounsel.org/AcornFoundation
California Watershed Funding Database	http://www.calwatershedfunds.org/
Directory of Watershed Resources	http://www.efc.boisestate.edu/watershed/
Conservation grants	http://www.conservationgrants.com/water.htm
EPA Catalog of Federal Funding Sources for Watershed Protection	http://cfpub.epa.gov/fedfund/
Databases of Funding Opportunities	http://www.epa.gov/owow/funding/databases.html
Ben and Jerry's Foundation	http://www.benjerry.com/company/foundation/
Gordon and Betty Moore Foundation	http://www.moore.org/
Henry P. Kendall Foundation	http://www.kendall.org/index_flash.html
Rivers Foundation	http://riversfoundation.org/rfa/about/
Norcross Wildlife Foundation	http://www.norcrossws.org
Frost Foundation	http://www.frostfound.org/Pages/grantapp.html
Fish America	http://www.fishamerica.org/grants/index.html
American Rivers	http://www.americanrivers.org/our-work/restoring-rivers/dams/noaa-grants-program.html
Global Restoration Network	http://www.americanrivers.org/our-work/restoring-rivers/dams/noaa-grants-program.html
Trout Unlimited	http://www.tucalifornia.org