Thomas S. Virsik
ATTORNEY AT LAW

31 October 2019

To: Salinas Valley Basin Groundwater Sustainability Agency (GSA)

Re: 180/400 Draft GSP (comments on errata)

This comment letter is limited to proofreading level issues. The draft reviewed carries an October 1, 2019 date and was released on or about October 21, 2019.

- Volume 1, Chapter 2 at 2.3.2 on page 2-8. The second sentence appears unfinished, ending with a clause without any verb.

- Volume 2, Chapter 6 at 6-9 through 6-11, pages i through xii. This portion of Chapter six carries a lower case Roman pagination whereas all other pages of Chapter 6 (and the other chapters) use a hyphenated Arabic system, i.e., 6-1, 9-23. The unexplained and anomalous switch to a different pagination system is confusing.

- Volume 2, Chapter 8 at 8.9.2.1, page 8-46. There is a portion of a sentence in blue text, center justified, in a font and size different than the rest of the text. It appears the fragment continues to the next page in text, but the size, placement, and color of the fragment do not match the text that follows.

- Volume 2, Chapter 8 at 8.9.2.2 and 8.9.2.3, pages 8-48 and 8-49. On both pages, there is a portion of a sentence in blue text, center justified, in a font and size different than the rest of the text. It appears the fragments continue to the next page in text, but the size, placement, and color of the fragment do not match the text that follows.

- Volume 3, Chapter 9 at 9.3.2, page 9-10. The final sentence has a single closing parenthesis.

A comment letter addressing substantive issues, errors, omissions, and suggestions will be sent separately.

Very truly yours,

Thomas S. Virsik
Thomas S. Virsik

2363 Mariner Square Drive, Suite 240, Alameda, California 94501 | 510.521.3565 TEL | 510.748.8997 FAX | thomasvirsiklaw@gmail.com

Thomas S. Virsik
ATTORNEY AT LAW

11 November 2019

To: Salinas Valley Basin Groundwater Sustainability Agency (GSA)

Re: November 14, 2019 Board of Directors Meeting
Item 4., General Public comment and Item 7.a, Initial Concepts on Planning Actions and Implementation of the 180/400 Aquifer Draft Groundwater Sustainability Plan (GSP)

Well over a year ago, my clients raised concerns about the GSA's approach, suggesting that above all else, a GSP needs to be "genuinely useful." March 7, 2018 letter to GSA Board. Since then, my clients have supported the GSA when it steered toward practical and useful approaches (e.g., the water charge framework) and raised concerns when it did not (e.g., a single GSP v GSP's for each basin/sub-basin). Unfortunately, some of the warnings and concerns in the March 2018 letter were prescient, e.g., the unavailability of a fully acceptable USGS model and ignoring the tool of management areas.

While the GSA -- its Board, staff, and consultant -- should be congratulated for the efforts to date, the meaningful metric is whether the draft 180/400 GSP both (1) meets the regulatory criteria and (2) is genuinely useful. As explained below, it fails both in varying degrees at various points.

There is overall a curious lack of precision in the draft GSA. The issue is not that some numbers have changed a bit. Such "refinement" is understandable, but some have changed materially. See e.g., below at 6. That the same analysis of what should be the same data, results in notably different outcomes suggests either a lack of transparency or precision, if not both.

The inconsistency is not limited to numerical values. The Draft GSP is not consistent in its use of critical terminology, especially around these terms: basin, sub-basin, and Valley (and their various permutations involving capitalization, hyphenation, or compound words). Consistency for the sake of consistency matters little, but those terms are used inconsistently in the draft GSP to mean different things. See below at 1. (That SGMA and its Regulations do not differentiate between basin and sub-basin is frustrating. Water Code § 10721(b)). When the GSP says "our basin" does it mean the 180/400 that is the subject of the GSP? Or the Salinas Valley Groundwater Basin of Bulletin 118, straddling two counties? Or does it mean the collection of sub-basins for which the GSA has responsibility? Or something else? The context can sometimes provide clues, but not always, and at the risk of readers'/reviewers' misunderstanding. A reader versed in SGMA, the local hydrology, and aware of local terms may be able to steer through the inconsistent terminology and come to the intended meaning, but that should not be the standard of clarity or transparency.

And finally, the GSP is not consistent between its granular statements and the more “summary” reporting of conclusion and implications. For example, as shown below, the GSP specifically describes and concludes that a certain proposed project would benefit primarily the Eastside, but when all the discussed projects are summarized for purposes of budgeting, that project is lumped into a “benefits the entire/all of the Valley/basin” category. The binary distinction between the 180/400 and “everything else” is false, misleading, and refuted by the granular portions of the draft GSP.

1. Key Terminology Lacks Rigorous Definition and Application

As it stands, the array of terms used to stand for one or more basins, combination of basins, portions of basins, etc. are inconsistent and impossible for the casual reader to accurately understand. The best approach is to add to the beginning portion a definition of the key terms as used in the GSP and then to rigorously adhere to such terms in the entire GSP, including appendices and supplemental materials. In addition, or alternately, the GSP can include something like a FAQ to educate the readers about the context of the key terms in this GSP (rather than just the statutory definitions).

- How many basins make up The Salinas Valley Basin per Bulletin 118?
- Of those, how many are the responsibility of the SVBGSA (e.g., Paso Robles basin)?
- Are there any basins not in the Bulletin 118 list of Salinas Valley basins for which SVBGSA has responsibility, exclusively or jointly? Which?
- How many GSP’s does the SVBGSA needs to craft?

2. The Basin or Sub-basin Counts are Misleading and Confusing

The GSP is not sufficiently clear -- sometimes patently wrong -- about how many basins/sub-basins are at issue.

ES 1.1 at 1-1. The statement about seven sub-basins within Monterey County is literally true, but also naming them could provide clarity about which are germane to the SVBGSA.

ES 1.2 at 1-2. The language says all five sub-basins surrounding the 180/400 are high priority. False. The Monterey and Forebay are not presently designated high priority.

Appendix 11D, 1.1 at 1. The narrative states that “our groundwater basin is officially designated . . . as “Critically Over-Drafted.” The 180/400 is so designated, but not the Salinas Valley basin itself. The false impression is further confused by references to multiple sub-basins in overdraft and five sub-basins being out of balance (when no analysis has yet been done to reflect which, other than the 180/400, are out of balance). § 1.5 at 3. These specific material misstatements have been flagged before and staff volunteered at the Board of Directors meeting that the corrections would be made. October 9, 2019 Comment letter. On the other hand, if the GSA is treating Appendix 11D as a legacy document, i.e., not a statement of currently accurate and approved strategy, then the GSP should explicitly so note in the footer, table of contents, and otherwise so that a reader is not misinformed that the DWR has designated every sub-basin from Castroville to San Ardo as critically over drafted.

3. The GSP is Premised on a Demonstrably False Binary Distinction Between the 180/400 and "Valley-wide"

Some text in the GSP suggest that benefits of projects and management actions are either (1) specific to the 180/400 or (2) "Valley-wide." § 10.8 at 10-10, "Because the GSP is being developed in coordination with other GSP's in the Salinas Valley, the initial implementation costs are divided into costs that directly benefit the 180/400-Foot Aquifer Subbasin and the costs that benefit <u>all Salinas Valley Subbasins</u>." (emphasis added). The more detailed portions of the GSP refute that misleading dichotomy that "all" parts of the Valley will benefit or that benefits are "Valley-wide." Some projects and actions will benefit only the 180/400 but the rest are not all Valley-wide. As explained below, various projects and actions benefit specific sub-basins or a combination, rather than "all" or "Valley-wide."

Appendix 2A provides details of what benefits have been (at least preliminarily) analyzed when it comes to the projects, and thus shows that the rest have not. The tool used is the NSV model, which is spatially limited to north and east of the Forebay, concentrating on the 180/400 basin at this time. Appendix 9C at §§ 9c.3.1 at 3, Figure 9C-1 at 4 an § 9C.4 at 11. That means that all conclusion in the draft GSP about benefits of potential projects and actions for Salinas Valley sub-basins other than the 180/400 (and possibly the Eastside) are speculation.

Table 9C-3 (page 12) shows not only that the CSIP projects (including winter injection) benefit the CSIP, but also that the delivery of water to Chualar and Soledad provide benefits predominantly to the Eastside. That modeling analysis is consistent with the narrative text found in Chapter 9 about those projects. <u>See</u> §§ 9.4.3.2 at 9-30 (CSIP projects benefit CSIP), 9.4.3.8 at 9-53 (water diversion to Eastside) and 9.4.3.8.2 at 9-56 (water diversion to Eastside).

The GSP lacks precision in its categorizations. While it is true that the GSA contemplates a "Valley-wide" approach via the ISP, only a few -- and frankly the less critical early -- ISP chapters have been approved thus far. § 11.4 at 11-4. As noted above, the NSV benefit modeling for the 180/400 GSP was appropriately limited to the 180/400 area.

The several potential management actions suffer from a somewhat lesser reliance on the binary. For example, restricting pumping in the deep aquifer (Management Action 5) has no effect on the sub-basins outside of the deep aquifer, e.g., the Upper Valley. § 9.3.6 at 9-18. The detailed discussions reflect the benefit expected is "reduced Subbasin pumping," meaning presumably the 180/400. § 9.3.6.2 at 9-19. The same can be said for Seawater Intrusion management and CSIP regulation, i.e., they are 180/400 management actions. Yet, those important distinctions about which areas benefit from which actions and projects are not carried over to where it matters -- Chapter 10.

Table 10-2 at 10-13 is misleading, if not outright in derogation of the detailed analyses of which parts of the Valley benefit from which of proposed projects and actions. For example, coordinating the Seawater Intrusion Working Group is categorized as "Valley-wide." Yet, there is no seawater intrusion in at least the Forebay and Upper Valley (and none in the Eastside, yet). Refining all projects and actions is also lumped into a "Valley-wide" category, even though many of those (examples of which are noted above) are admittedly for the benefit of only one or two sub-basins, e.g., the Chualar and Soledad diversions that benefit the Eastside and to a lesser degree the 180/400. Only one of the six priority projects of Table 9-1 (invasive species eradication) suggests potential benefits to areas south of Soledad/Chualar. § 9.4.3 at 9-24.

Table 10-1 at 10-12 purports to contain the planning level costs for the 180/400, but none of the planning costs for the actions and projects the GSP shows benefit some or all the 180/400 are included. The false binary of 180/400 and "everyone else" results in foisting the planning cost for the 180/400 actions and projects onto the "entire Valley" rather than on the 180/400 that benefits from such planning.

Tables 10-1 and 10-2 absolutely ignore or contradict Chapter 9's express statements of which areas benefit from which projects and actions. The two Tables are at least inaccurate, if not outright misleading and must be revised to include at least the 180/400 planning costs in the correct Table.

4. Certain Important Tables are Facially Confusing/Impenetrable

Separately, Tables 10-1 and 10-2 are confusing because they combine annual and lump sum amounts, and then seemingly annualize the total and divide by five. (Assuming for the moment the Tables are acceptable as is.) Yet the arithmetic just does not add up. To put it in blunt terms, the "entire Valley" is currently paying close to $1.2 M in regulatory fees. According to Table 10-2, the Valley would pay $1.8 M annually (a $600 K increase spread over the entire Valley) for planning the additional "Valley-wide" projects and actions.

6. The Water Budgets Tacitly Admit They Do Not Comply with SGMA Standards

Water budgets presented in a GSP are subject to the SGMA regulations. § 354.18(c)(2)(C), (c)(3), and (e) and its "best available" standards for the historical, current, and projected water budgets. The GSP acknowledges that likely double counting in its analysis, based on reports of water diversions (1) to the State (eWRIMS) as surface water and (2) to the MCWRA as groundwater. See e.g., § 6.4.1 at 6-11. The GSA was instructed how it can resolve the double counting, but it has chosen to not do so. See July 11, 2019 Comment letter, including the June 4, 2019 email pointing out that a comparison of database entries available to the GSA can identify double counts, which the public cannot duplicate as it lacks access to the non-public database. The GSA's choice not to analyze data willfully perverts the "best available" standards. It is akin to estimating the weight of a package by picking it up in one's hand when a digital scale is available, but one refuses to bring the package to the scale. The public is left to speculate whether the double counts are material, and if so, how they affect the integrity of the calculations.

The projected surface water budget is absent. § 6.10.6 at xii. The caveat at that section is unclear whether the "will be included as soon as available" means before the GSP is due (which the public will not be able to properly review) or if it means after the GSP is submitted. The implication elsewhere is that it will only be available well after the GSP is submitted. § 6.10.2 at v ("The surface water budget will be provided after the model post-processing analysis is completed . . . .")

6. The Water Budgets Analyses Have Inexplicably Changed From the Prior Iteration

Surface dynamics appear to have changed considerably in Chapter 6 since its last iteration was approved by the Board in July 2019. Section 6.5.2 used to be headed as "deep" percolation of precipitation, but now the "deep" is absent. Cf. July 4, 2019 Chapter 6 page 12 with current Chapter 6 at 6-14. Not only has the evapotranspiration component been removed from the calculus, but the amount of precipitation for both the historic and current water budgets have materially changed. Cf. Tables 6-8 in both (e.g., previously reported 67 K current water budget precipitation whereas current Table 6-8 reflects 106,600 af)[1]. Runoff for the historical water budget was previously 7 K whereas now it is around 1 K. Tables 6-9 purport to report the same information in both the July and current Chapter 6, i.e., both Tables have the same heading and are found in the same section of the GSP, but the last line of the current version of the Table does not break down the individual return flows and percolation numbers, while the prior one did. In other words, the latest "improvement" to Table 6-9 is to reduce precision and transparency. Cf. also Tables 6-118 with 6-19 and 6-19 with 6-20, below. Making analyses less transparent is the wrong direction.

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[1] One would expect the past and current precipitation numbers are based on objective third-party reports and hence are static. Note that the sub-basin sustainable yield is reported as 97,200 AAF. § 6.8.5 at 6-32. Consider whether the last-minute 30 K increase in precipitation may be material to calculating the water budget for the 180/400.

2363 Mariner Square Drive, Suite 240, Alameda, California 94501 | 510.521.3565 TEL | 510.748.8997 FAX | thomasvirsiklaw@gmail.com

Many other Tables in Chapter 6 have changed since that chapter was approved for public review in July 2019. Cf. GSP Draft Tables 6-17, 6-18, 6-19, and 6-20 at pages 6-22, 6-23, 6-26. and 6-27 with July 4, 2019 Chapter 6 Tables 6-16, 6-17, 6-18, and 6-19 on pages 19, 22, and 23. Those earlier Tables are enclosed for comparison. Most striking is the difference between current Table 6-19 and prior Table 6-18. Among the jarring differences comparing Tables that are labeled as reflecting the same information/calculation:

July 4, 2019 Chapter 6 release	Current Draft Chapter 6 of GSP
Table 6-16. Precipitation runoff of 69,900	Table 6-17. Precipitation runoff of 9,400
Table 6-16. Min and max river diversions of 2,800 to 22,400	Table 6-17. Min and max river diversions of 6,500 to 9,200
Table 6-17. Forebay and Eastside numbers switched (and adjusted)	Table 6-18. Forebay and Eastside numbers switched (and adjusted)
Table 6-18. Four elements summed for inflow.	Table 6-19. Three elements summed for inflow.
Table 6-18. Streamflow percolation of 73,300	Table 6-19. Streamflow percolation of 50,000
Table 6-19. Four elements summed for inflow.	Table 6-20. Three elements summed for inflow.

The water budget tables have been more than a little "adjusted" since the public last saw them. No explanation is given, for example, why certain factors were combined when calculating net numbers, much less why certain numbers changed substantially. Explanations and presentations on the changes are needed.

7. GSP Ignores the Tool of a Management Area

The GSP states that no management areas have been defined for the 180/400. § 7.1.3 at 7-2. Elsewhere, the GSP explains that management areas are appropriate where "projects and management actions [are] based on differences in water use sector, water source types . . . or other factor." § 8.1 at 8-2. The CSIP meets the requirements of a management area. Its primary water source is different than all other agriculture, e.g., recycled water. The "water charges framework" on which much of the management actions (and projects) are premised reflects that the CSIP will have its own management, i.e., additional CSIP deliveries, and the "allowance" are expected to be unique. § 9.2.2 at 9-5. See also § 9.3.5 at 9-16 (ordinance to prevent use of groundwater in CSIP). Many of the projects are specially designated as for the CSIP, e.g., §§ 9.4.2 at 9-24 (Table 9-1 showing projects 2-5) and 9.4.3.2 at 9-31 (heading: CSIP PROJECTS). Certain management actions are also highly specific to the CSIP. § 9.3.5 at 9-16 (Action 4, restrictions on CSIP pumping). The CSIP differs from the general infrastructure, economics, burdens, and benefits of other agriculture in the 180/400 and should be managed with those differences in mind, i.e., a management area.

The GSA is not per se obligated to create a management area for the CSIP, but the regulatory standard strongly suggests it is better for it to explicitly do so. "Each Agency may define one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan." Regs. § 354.20 (emphasis added). As described above, the GSP acknowledges that the CSIP should be treated differently, e.g., water allowances, projects, management actions, all of which would help to facilitate the goal of sustainability of the 180/400. It would be more honest and transparent for the GSP to acknowledge up front that it is planning a management area for the CSIP, rather than wait for the public and/or DWR to so demand.

Conclusion

SGMA was designed to achieve sustainability in the real world, as opposed to certain prior legal requirements that were facially administrative mandates to generate paper that would have little or no real-world consequences. Missing a deadline outright is not the worst outcome, as SGMA provides notice and a hearing before any action is taken. Water Code §§ 5202 (water extraction reporting -- involving substantial fees -- applies to a probationary basin 90 days after a determination and does not require those who already report their diversions to the state via eWRIMS to do so again); 10736 (90 day notice before hearing to determine whether to place a basin in probationary status). Moreover, this first GSP will set the standard for later GSP's so the stakes are that much higher for all the sub-basins that are or may be required to have GSP's.

On behalf of my clients, the GSA is urged to get it right rather than to meet a deadline. The ideal is to get it right and meet the deadline, but if one of those must take priority, getting it right is much more important to the real world (e.g., health, jobs, economy, and the rest of the factors that constitute sustainability) than administrative success[2]. An administrative failure that results in real-world success must always takes precedence over the converse.

The GSA surely understands its responsibilities, e.g., § 9.1 at 9-1. But the draft GSP requires substantial revisions and explanations before the public or the DWR can accept it. Revise the GSP until it is as good as the "best available" data and science allow, clarify the confusion in terminology, clarify which basins

[2] No timing criticism is directed at staff or consultants, who had to labor with the ever shifting and ultimately counter-productive timing on the availability of the USGS model.

matter or are involved in which projects, actions, (Chapter 9) and benefits (Chapter 10) or state such matters are not yet known, and only then submit it.

Very truly yours,

Thomas S. Virsik
Thomas S. Virsik

Enclosures
July 4, 2019 Draft Chapter 6 (publically released)
Tables 6-8, 6-9, 6-16 through 6-19
Virsik to SVBGSA BOD, July 10, 2019 letter with attachments

Because the estimated flow to agricultural drains is a combination of flow from precipitation and applied irrigation, it is not explicitly removed from the percolation calculation. Rather, it is removed from the total recharge calculations.

Based on these estimates, the estimated deep percolation of precipitation is calculated in Table 6-8

Table 6-8: Deep Percolation from Precipitation for Historical and Current Water Budget

	Average for the Historical Water Budget (AF/yr.)	Average for the Current Water Budget (AF/yr.)
Total precipitation	100,400	67,800
Runoff	7,400	2,000
Evapotranspiration	81,800	59,300
Deep percolation	11,200	6,500

6.5.3 Deep Percolation of Excess Irrigation

Applied irrigation water that is not consumptively used by plants and is not captured as return flow by agricultural drains percolates below the root zone and becomes an inflow component to the groundwater budget. The total amount of water applied for irrigation is the sum of the groundwater pumping for irrigation, Salinas River diversions for irrigation, and CSIP deliveries.

- Agricultural pumping is reported annually by MCWRA for the Pressure Management Area. This value is adjusted proportionally for the area of the Subbasin relative to the total area of the Pressure Management Area.
- Salinas River diversions in the Subbasin are estimated from eWRIMS data for 2010 to 2017; and the average values for those years are applied to earlier years in the water budget.
- CSIP deliveries began in 1999 and are reported annually.

Crop consumptive use was estimated using an average irrigation efficiency of 80% for the Subbasin. This means 80% of applied irrigation is consumed by evapotranspiration and 20% becomes either return flow to agricultural drains or deep percolation to groundwater.

Table 6-9 presents the calculated deep percolation of irrigation without accounting for return flow to agricultural drains.

Table 6-9: Deep Percolation from Excess Irrigation for Historical and Current Water Budget

	Average for the Historical Water Budget (AF/yr.)	Average for the Current Water Budget (AF/yr.)
Total Agricultural Applied Water	108,600	112,300
Crop Consumptive Use	86,900	89,900
Irrigation return Flow	10,000	18,000
Deep Percolation to Groundwater	11,700	4,500

6.5.4 Subsurface Inflows from Adjacent Subbasins

Based on groundwater flow directions and hydraulic gradients at the Subbasin boundaries, subsurface inflow to the 180/400-Foot Aquifer Subbasin from the Forebay Subbasin has been estimated at approximately 17,000 AF/yr. (Montgomery Watson, 1997; MCWRA, 2006; Brown and Caldwell, 2015). The boundary with the Monterey Subbasin is subparallel to groundwater flow direction resulting in a small amount of subsurface flow between the basins. The flow between basins is estimated as a net inflow of 3,000 AF/yr. from the Monterey Subbasin into the 180/400-Foot Aquifer Subbasin based on quantities reported by Montgomery Watson (1997). The estimated values are assumed constant for the historical and current water budgets. Groundwater generally flows from the 180/400-Foot Aquifer Subbasin into the Eastside and Langley Subbasins, as well as to Pajaro Valley. These subsurface outflows are quantified in Section 6.6.3.

The boundary flows will be reassessed when the calibrated historical SVIHM is available. Table 6-10 summarizes the subsurface inflow components for the historical and current water budgets.

Table 6-10: Subsurface Inflow from Adjacent Subbasins in Historical and Current Water Budgets

	Average for the Historical Water Budget (AF/yr.)	Average for the Current Water Budget (AF/yr.)	Notes
Inflow from Forebay Subbasin	17,000	17,000	Estimate from Brown and Caldwell (2015)
Inflow from Monterey Subbasin	3,000	3,000	Estimate from Montgomery Watson (1997)
Total Inflows	20,000	20,000	

Table 6-16: Summary of Historical Surface Water Budget

Inflow		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Surface Water Inflows			
	Salinas River from Forebay Subbasin	311,900	5,000	1,154,900
	Tributaries from East Side Subbasin	2,300	00	11,800
	Precipitation Runoff	7,400	0	69,900
	Irrigation Return Flow	10,000	5,000	16,400
TOTAL INFLOW		331,600	12,900	1,246,500
Outflow		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Surface Water Outflows			
	Salinas River Diversions	9,700	2,800	22,400
	Salinas River Outflow to Monterey Bay	240,700	0	1,250,600
	Other Outflows to Monterey Bay	7,400	2,400	13,800
	Net Percolation of Streamflow to Groundwater	73,300	5,000	80,000
TOTAL OUTFLOW		331,000	16,100	1,360,300

Table 6-17: Summary of Current Surface Water Budget

Inflow		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Surface Water Inflows			
	Salinas River from Forebay Subbasin	163,600	0	3,900
	Tributaries from East Side Subbasin	900	3,300	477,600
	Precipitation Runoff	2,000	0	2,600
	Irrigation Return Flow	18,000	8,700	30,800
TOTAL INFLOW		184,500	12,000	514,900
Outflow		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Surface Water Outflows			
	Salinas River Diversions	7,900	7,400	8,200
	Salinas River Outflow to Monterey Bay	103,400	0	310,100
	Other Outflows to Monterey Bay	15,400	6,100	28,200
	Net Percolation of Streamflow to Groundwater	31,100	3,300	80,000
TOTAL OUTFLOW		157,700	17,600	425,700

The surface water budget components are highly variable. Figure 6-3 illustrates the annual inflow and outflow components for the historical budget period. The diagram uses stacked bar height to illustrate the magnitude of budget components for each year, with inflows shown on the positive y-axis and outflows on the negative y-axis. The inflow and outflow components for each year are tabulated in Appendix 6A.

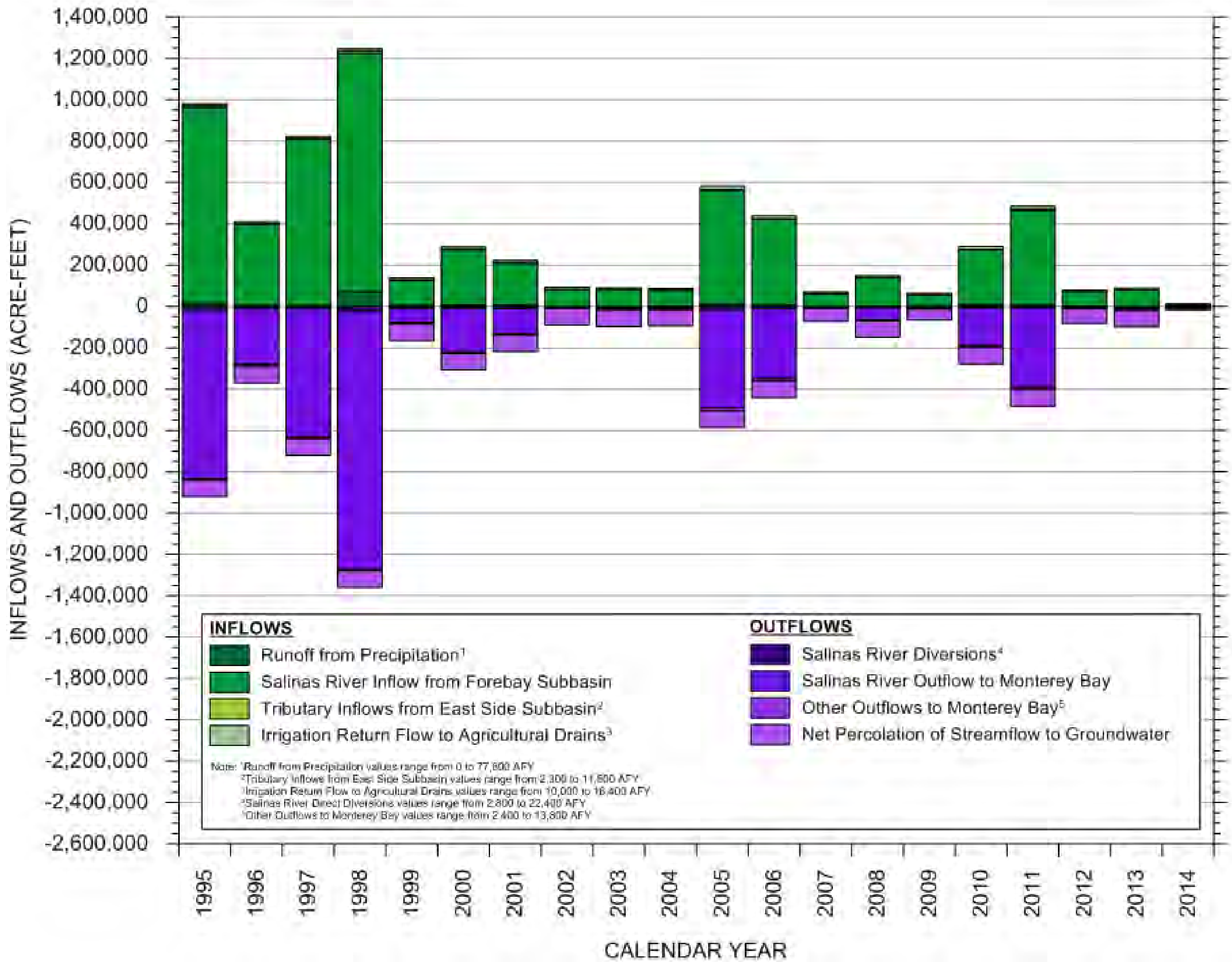

Figure 6-3: Historical Surface Water Budget

6.8.2 Groundwater Budget

The groundwater inflow and outflow components described in Sections 6.5 and 6.6 are combined to generate annual groundwater budgets for the historical (1995-2014) and current (2015-2017) budget periods.

Table 6-18 summarizes the average, minimum, and maximum annual values for each component of the historical groundwater budget. Table 6-19 summarizes the average, minimum, and maximum annual values for each component of the current groundwater budget.

Table 6-18: Summary of Historical Groundwater Budget

Inflow		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Net Percolation of Streamflow to Groundwater	73,300	5,000	80,000
	Precipitation Percolation to Groundwater	11,200	0	22,800
	Irrigation Percolation to Groundwater	11,700	5,200	18,100
	Subsurface Inflows from Adjacent Subbasins	20,000	20,000	20,000
TOTAL INFLOW		116,200	52,600	133,500
Outflow		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Pumping - Total Subbasin	108,300	93,200	131,100
	Agricultural	89,000	76,200	110,800
	Urban	19,000	14,000	27,500
	Rural Domestic	400	300	400
	Riparian Evapotranspiration	12,000	12,000	12,000
	Subsurface Outflows to Adjacent Subbasins/Basin	9,500	9,500	9,500
TOTAL OUTFLOW		129,800	114,600	152,500
Storage		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Change in Storage	-13,700	-77,600	16,700

Table 6-19: Summary of Current Groundwater Budget

Inflow		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Net Percolation of Streamflow to Groundwater	31,100	3,300	80,000
	Precipitation Percolation to Groundwater	6,500	0	10,800
	Irrigation Percolation to Groundwater	4,500	-9400[1]	15,500
	Subsurface Inflows from Adjacent Subbasins	20,000	20,000	20,000
TOTAL INFLOW		62,100	38,700	101,400
Outflow		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Pumping - Total Subbasin	109,300	108,400	111,000
	Agricultural	91,900	89,000	97,700
	Urban	17,000	12,900	19,000
	Rural Domestic	400	400	400
	Riparian Evapotranspiration	12,000	12,000	12,000
	Subsurface Outflows to Adjacent Subbasins/Basin	9,500	9,500	9,500
TOTAL OUTFLOW		130,800	129,900	132,600
Storage		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Change in Storage	-68,700	-28,500	-93,800

[1]Negative percolation due to extremely high flows in the Rec ditch in 2017, which is all subtracted from irrigation. Some Rec Ditch flows should be subtracted from precipitation. The total recharge from both irrigation and precipitation is correct

The annual groundwater budget components are variable, although not as variable as the surface water budget components. Figure 6-4 illustrates the annual inflow and outflow components for the historical budget period. The diagram uses stacked bar height to illustrate the magnitude of budget components for each year, with inflows shown on the positive y-axis and outflows on the negative y-axis. The inflow and outflow components for each year are tabulated in Appendix 6A.

Thomas S.
Virsik
ATTORNEY AT LAW

10 July 2019

To: Salinas Valley Basin Groundwater Sustainability Agency (GSA) Board of Directors

Re: July 11, 2019 meeting

Agenda Item 4.a
ASGSA coordination

Agenda Item 4.b
Chapter 6 of 180/400 GSP

ASGSA Coordination

On behalf of the Orradre and Scheid interests -- both of which have interests and/or lands in or near the Arroyo Seco area, a coordination agreement for a management area under the jurisdiction of the Arroyo Seco GSA (ASGSA) appears premature. Any concern is borne of ignorance, not animosity. Several maps exist of the current, projected, and other configuration of the lands that may be the management area of the ASGSA, e.g., at the DWR portal and in ASGSA public documents. The maps tend to appear "ragged" or riddled with "holes." Such maps may not pass the "straight face" test with the public or DWR irrespective of whose/which lands constitute the holes or peculiar edges. If the "holes" or "ragged edges" impact a client, then there may be further reasons for concern around inconsistent approaches to overall management.

The public discussions and materials -- mostly from the ASGSA -- reflect that the ASGSA desires the input of the landowners that may be affected and would seek it out. "The Subcommittee suggested meetings be held with property owners that have not been included in the set of properties presented to DWR." ASGSA Advisory Committee minutes (draft) for June 2019. While (1) I have had discussions to set a time/place for meetings and (2) informal, i.e., not subject to public disclosure or verification, overtures have been made to my clients by individuals, the ASGSA has yet to present its proposal(s) to my clients. On behalf of my clients, I urge the SVBGSA to take no action on the ASGSA coordination agreement and allow further time for the ASGSA[1] to initiate and conclude discussion or negotiation with landowners with whom it chooses to

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[1] I am aware of the subcommittees and staff at both the ASGSA and GSA that are working on coordination. Those subcommittees are the obvious vector for discussions, at least initially, rather than the full Boards of either entity.

2363 Mariner Square Drive, Suite 240, Alameda, California 94501 | 510.521.3565 TEL | 510.748.8997 FAX | thomasvirsiklaw@gmail.com

engage. As the ASGSA and/or GSA Plan for (parts of) the Forebay is not due until 2022, there appears is ample time for a thorough process.

Chapter 6 draft

Many commenters have provided input on the iterations of Chapter 6 that were before the Planning Committee and the Advisory Committee. The agenda packet contains a matrix of such comments. Pages 58-59. I have included my prior two letters for the sake of transparency and consistency, but also provide the below comments on (1) what has changed in the draft and (2) what should have changed, but has not.

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CHAPTER STILL LACKS CURRENT SUSTAINABLE YIELD CALCULATION
The current sustainable yield calculation is still absent. That has not changed in any iteration to date. At 6.8.4 the draft Chapter purports to address "sustainable yield" but the text confines itself to the historical sustainable yield, being 95,700 AFY. Table 6-20 at 25/42. (Note that the text right above the table uses a different figure of 97,300 AFY.)

The sustainable yield calculation is achieved by subtracting the sum of seawater intrusion and change in storage from the total pumping. 25/42[2]. Applying the same formula as that used to calculate historical sustainable yield to calculate current sustainable yield from the parallel values Table 6-19 (23/40), the current sustainable yield appears to be 40,600 AFY for the 180/400 (109,300 - 68,700 = 40,600). The reduction in pumping needed to achieve current sustainable yield based on the data in Chapter 6 through section 6.8.4, is over 50%. While sustainable yield is not "sustainability" itself, the omission of the current sustainable yield is troubling, pointing to a failure to meet a core regulatory requirement. Emergency GSP Reg. 354.18(b)(5) (the historic, current, and projected water budgets must include quantification of overdraft when basin deemed in overdraft per Bulletin 118).[3]

Also, whether the historical sustainable yield is itself accurate is undermined by the text which recites a total pumping figure of 86,5500 AFY but uses 108,300 in Tables 6-20 and 6-31. Cf 25/42 with 37/54 and 38/55.

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[2] Seawater intrusion and groundwater level changes are apparently lumped together as "change in storage" when calculating historical sustainable yield in Table 6-20 on 25/42.
[3] That "overdraft" may be calculated from the figures and values presented does not obviate the GSP regulatory requirement of quantifying "overdraft" for the several water budgets.

FUTURE SUSTAINABLE YIELD STILL BASED ON QUESTIONABLE ASSUMPTIONS

The latter portion of draft Chapter 6 -- using the SVIHM, not reported data -- calculates the future sustainable yield. The assumptions include a two-thirds reduction in seawater intrusion from 10,500 to around 3,500 AFY. Cf. Table 6-30 with Table 6-15. 37/54 and 18/35. Consultant Williams explained that the difference arose from the CSIP projects coming online, i.e., the projects were built and started performing during the historical period while the future projections assumed the projects were preforming at full capacity. My follow-up comment after the explanation was that it was unrealistic to assume the projects would perform perfectly (now and) in the future and not founded on the "best available" data. I and others noted that the Monterey County Resources Agency (MCWRA) has substantial data on the real-world efficiency/performance of the projects. The GSA can obtain that data, (1) disclose and (2) use it in its future projections of water needs. As it stands, the future projections of Chapter 6 are at best aspirational, when ready data exists that could support realistic projections.

On the ground reality is not simply preferable, but required under SGMA. As my March 2017 letter noted early on, for a basin in overdraft like the 180/400, SGMA requires calculating the "demand reduction" or other methods to mitigate overdraft.

> If overdraft is an issue (i.e., overdraft that causes seawater intrusion near the coast), then SGMA requires projecting a reduction of water use that mitigates overdraft. § 354.44(b)(2). For the Salinas Valley, the projection would entail a reduction of localized pumping (the 180/400 sub basin), as reduction of pumping in the other areas have little or no effect. . . . That option must be explored for the GSP to meet SGMA standards. Whether that simple and tailored approach is preferable to other potential ones (given political, fiscal, economic, environmental, etc. factors) is unknown, but SGMA mandates such an approach be included in the GSP.

March 2017 letter, pages 6-7. The current iterations of Chapter 6 may not be a sufficient basis for later chapters that address how much pumping reductions, in what areas and at what times, mitigates overdraft (a must-be-included potential "management action" in SGMA nomenclature).

SURFACE WATER EXTRACTIONS STILL UNRELIABLE

"Surface" water reports to the State are public, unlike "groundwater" reports to the MCWRA. Total surface water diversions are quantified but have not been cross-checked to eliminate double-counting. My letter of June 4, 2019 provided a real-world example of a state report from the 180/400 area that the GSA -- but not the public -- can check against the MCWRA data to find out if there is double-counting. Appendix 6A contains the data used to calculate the surface water diversions in draft Chapter 6, but the data is a mere aggregation. There is no reason for the GSA to withhold the public data it obtained from the state database, eWRIMS, that it then aggregated.

The order of magnitude of surface pumping reported is not trivial, being around 7,900 AFY on average. 10/27. Changes of similar orders of magnitude have occurred between the initial version of Chapter 6 seen by the Planning Committee to the one before the Board. Updating the draft Chapter because of better data and analyses is good, but it begs the question of why those data command renewed attention while others, e.g., the real-world performance of the CSIP projects and the double-counting of surface/groundwater, do not. By way of example, Table 6-19 is set forth below as it appeared in the initial draft and as it appears now, with highlighting added to illustrate changes.

Table 6-19: Summary of Current Groundwater Budget

Inflow		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Net Percolation of Streamflow to Groundwater	31,100	3,300	80,000
	Precipitation Percolation to Groundwater	11,600	5,000	6
	Irrigation Percolation to Groundwater	4,500	-9,500	15,500
	Subsurface Inflows from Adjacent Subbasins	20,000	20,000	20,000
TOTAL INFLOW		67,200	43,800	105,700
Outflow		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Pumping -Total Subbasin	109,300	108,400	111,000
	Agricultural	91,900	89,000	97,700
	Urban	17,000	12,900	19,000
	Rural Domestic	400	400	400
	Riparian Evapotranspiration	12,000	12,000	12,000
	Subsurface Outflows to Adjacent Subbasins/Basin	3,200	-9,500	9,500
TOTAL OUTFLOW		124,400	110,900	132,500
Storage		Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
	Change in Storage	-57,300	-88,700	-5,200

Table 6-19: Summary of Current Groundwater Budget

Inflow	Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
Net Percolation of Streamflow to Groundwater	31,100	3,300	80,000
Precipitation Percolation to Groundwater	6,500	0	10,800
Irrigation Percolation to Groundwater	4,500	-94001	15,500
Subsurface Inflows from Adjacent Subbasins	20,000	20,000	20,000
TOTAL INFLOW	62,100	38,700	101,400
Outflow	Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
Pumping -Total Subbasin	109,300	108,400	111,000
Agricultural	91,900	89,000	97,700
Urban	17,000	12,900	19,000
Rural Domestic	400	400	400
Riparian Evapotranspiration	12,000	12,000	12,000
Subsurface Outflows to Adjacent Subbasins/Basin	9,500	9,500	9,500
TOTAL OUTFLOW	130,800	129,900	132,600
Storage	Average (AF/yr.)	Minimum (AF/yr.)	Maximum (AF/yr.)
Change in Storage	-68,700	-28,500	-93,800

Similar order of magnitude of changes or corrections can be seen in other data, e.g., Tables 6-18 and 6-29 (of questionable addition). But no similar updates exist about the surface/groundwater double-counting risk or the actual performance/efficiency of the CSIP projects.

CONCLUSION

Iterating the data and analyses is good in general, but not when the effort is selectively applied. In its third iteration, draft Chapter 6 still fails (1) to address a key regulatory requirement (explicitly calculating and disclosing overdraft and the current sustainable yield), (2) report and use MCWRA data about the CSIP projects' on-the-ground efficiency and performance, and (3) address double-counting from surface and groundwater reports.

Very truly yours,

Thomas S. Virsik

Thomas S. Virsik

Encl.

6 June 2019 comment letter to GSA Planning Committee
18 June 2019 comment letter to GSA Advisory Committee

Thomas S. Virsik
ATTORNEY AT LAW
510-508-1530 | thomasvirsiklaw@gmail.com

4 June 2019

To: Salinas Valley Basin Groundwater Sustainability Agency (GSA) Planning Committee

Re: Agenda Item 4.b
Chapter 6 of 180/400 GSP

The below are comments and suggestions for the draft Chapter 6 of the 180/400 GSP. As presented, the draft Chapter fails to meet the minimum requirements of SGMA, lacking literally the word "overdraft" in its text. Emergency GSP Reg. 354.18(b)(5) (the historic, current, and projected water budgets must include quantification of overdraft when basin deemed in overdraft per Bulletin 118).[1]

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CHAPTER SKIRTS AROUND IMPORTANT SUSTAINABLE YIELD CALCULATION
Chapter 8 revealed that the future sustainable yield of the entire Valley is estimated at 494,000 AFY. Chapter 8 19/196 (at Planning Committee). What is the current sustainable yield for the 180/400? That specific query does not appear addressed in draft Chapter 6. At 8.6.4 the draft Chapter purports to address "sustainable yield" but the text confines itself to the historical sustainable yield, being 95,700 AFY. 22/41. The text equates that to a 10% reduction in pumping from the historical average.

The sustainable yield calculation is achieved by subtracting the sum of seawater intrusion and change in storage from the total pumping. Those values come from the chart for the historical groundwater budget. 19/38[2]. Applying the same formula as that used to calculate historical sustainable yield to calculate current sustainable yield from the parallel values in the parallel summary chart (20/39), the current sustainable yield appears to be 52,000 AFY for the 180/400. I.e., delta between inflows and outflows at Tables 6-18, 6-19, and 6-20 (109,300 - 57,300 = 52,000). The reduction in pumping needed to achieve current sustainable yield based on the data in Chapter 6 through section 6.8.4, is near 50%. While sustainable yield is not "sustainability" itself, the

[1] That "overdraft" may be calculated from the figures and values presented does not obviate the GSP regulatory requirement of quantifying "overdraft" for the several water budgets. Whether the next Chapter revision is one of editing (e.g., a change of terminology) or of arithmetic (e.g., add an extra calculation labelled "overdraft" in certain tables) is a matter for the GSA and its consultant.
[2] Seawater intrusion and groundwater level changes are apparently lumped together as "change in storage" in the charts on 19/38 and 20/39 (last entry in both).

omission of the current sustainable yield is troubling, pointing to a failure to meet a core regulatory requirement. Reg. 354.18(b)(5).

FUTURE SUSTAINABLE YIELD BASED ON QUESTIONABLE ASSUMPTIONS
The latter portion of draft Chapter 6 -- using the SVIHM, not reported data -- calculates the future sustainable yield. The assumptions include a two-thirds reduction in seawater intrusion from 10,500 to around 3,500 AFY. Cf. Table 6-30 with Table 6-15. 34/53 and 15/34. How that significant reduction occurs while projected pumping increases beyond historical levels is not explained. 34/53 (pumping of 86,500 AFY for historical sustainable yield v. pumping of 115,300 to 120,600 AFY for projected). Moreover, the calculated historical sustainable yield in Chapter 6 did not use a total pumping value of 86,500 AFY, but 108,300. Table 6-20 at 22/41. Clearly the two halves of Chapter 6 have not been checked against each other.

The "black box" quality of the SVIHM -- at least in its current state when it cannot be publicly peer reviewed by third parties -- undermines the credibility of the 180/400 GSP. A GSP based on assuming seawater intrusion radically decreases while pumping increases strains credulity. It is possible that the model is "correct" per its myriad assumptions and interconnections used to project results, if only one could review and reality test all of them. But at least as recited in draft Chapter 6, its calculation of a 7% reduction in pumping to balance the 180/400 comes across as far-fetched and unrealistic.

On the ground reality is not simply preferable, but required under SGMA. As my March 2017 letter noted early on, for a basin in overdraft like the 180/400, SGMA requires calculating the "demand reduction" or other methods to mitigate overdraft.

> If overdraft is an issue (i.e., overdraft that causes seawater intrusion near the coast), then SGMA requires projecting a reduction of water use that mitigates overdraft. § 354.44(b)(2). For the Salinas Valley, the projection would entail a reduction of localized pumping (the 180/400 sub basin), as reduction of pumping in the other areas have little or no effect. . . . That option must be explored for the GSP to meet SGMA standards. Whether that simple and tailored approach is preferable to other potential ones (given political, fiscal, economic, environmental, etc. factors) is unknown, but SGMA mandates such an approach be included in the GSP.

March 2017 letter, pages 6-7. Lacking specific quantification of overdraft in the several water budgets, draft Chapter 6 may not be a sufficient basis for later chapters that address how much pumping reductions, in what areas and at what times, mitigates overdraft (a must-be-included potential "management action" in SGMA nomenclature).

DATA REFERENCES CONFUSING
Draft Chapter 6 states that the 180/400 basin accounts for 7% of the surface water extractions per eWRIMS. 7/26 The data relied upon is listed in Appendix 6-A. ??/58, 62. Data on eWRIMS has always been public and in the current era can be downloaded. 7/26 Yet, the Appendix does not contain the public information on who, where, and

when the diversions are occurring. If the omission is due to convenience or time pressures, the next iteration of the chapter should make such data available in the sprit (if not requirement) of transparency. The relevance of the data from eWRIMS is less "who," but where (the intruded area?) and when (winter rains or parched river?), which may impact the mandatory demand reduction analysis, i.e., assuming a 7% reduction, when and in what areas of the 180/400 does one curtail pumping?

CONCLUSION

As noted above, prior to any further review, the draft Chapter requires revisions to (1) track regulatory requirements and (2) harmonize the SVIHM projections with data-based reality.

Very truly yours,

Thomas S. Virsik

Thomas S. Virsik

Thomas S. Virsik
ATTORNEY AT LAW
2363 Mariner Square Drive, Suite 240
Alameda, CA 94501

510-508-1530 | thomasvirsiklaw@gmail.com

18 June 2019

To: Salinas Valley Basin Groundwater Sustainability Agency (GSA) Advisory Committee

Re: Agenda Item 4.c
Chapter 6 of 180/400 GSP

Enclosed are: (1) the June 4, 2019 letter to the Planning Committee on Chapter 6 and (2) a copy of an email to the SVBGSA of June 11, 2019, including its enclosures. This letter supplements the prior comment letter based on comments and feedback from the consultant and others at the June 6 and June 10 Planning and Board of Directors meetings, respectively. *Page references are to the internal numbering of the Chapter as posted on June 17, 2019 [a different version of the Chapter was posted on June 14, 2019]*.

EWRIMS (SURFACE WATER DIVERSION) DATA NOT VETTED

The enclosed email explains the simple process the GSA has available to it to determine if the surface water diversions used in the water budgets are "double counting" water. To put it starkly, the publically available statements of water diversion near Speckles sent along with the email claims that the surface water diversion reported to the State is -- in the view of the filer -- actually groundwater. See response to "Additional Remarks" of the State form (enclosed with email). Presumably, the filer (an affiliate/proxy for the well-regarded local ag interest Tanimura & Antle) is also following local requirements and providing the exact same water extraction numbers to the MCWRA per local Ordinance.

Unless the GSA compares the (limited) set of eWRIMS data for the 180/400 with the MCWRA groundwater pumping reports for the nearly identical zone (the "Pressure"), the water budget numbers will erroneously assume water users in the 180/400 draw from two separate sources and hence their reduction to meet "sustainable yield" may be inaccurate. SGMA requires the "best available" data and transparency, which would not be met and the Plan may fail at DWR if the GSA continues to ignore the data and simple analytical approach[1] at its fingertips.

[1] The MCWRA reports are tied to wells while the State reports are tied to land, but both require monthly extraction numbers, which can be directly compared. For example, a diversion for water use near Speckles that reports surface water diversions in succeeding calendar months of 115.2, 229.4, and 425.7 AF and a MCWRA report for a well near Speckles that reports groundwater extractions in succeeding calendar months of 115.2, 229.4, and 425.7 AF must be the same water. It should not be included twice in the water budget analyses.

The historical water budget reports surface water diversions on the order of nearly 10,000 AFY, which is a magnitude material to projecting a reliable sustainable yield. Chapter 6 at Tables 6-5 and 6-16, pages 10 and 18.

FUTURE SUSTAINABLE YIELD BASED ON QUESTIONABLE ASSUMPTIONS ABOUT CURRENT PROJECTS
The latter portion of draft Chapter 6 -- using the SVIHM, not reported data -- calculates the future sustainable yield. The assumptions include a two-thirds reduction in seawater intrusion from 10,500 to around 3,500 AFY. Cf. Table 6-30 with Table 6-15, pages 36 and 17. Consultant Williams explained that the delta is due (1) to the seawater intrusion projects (CSIP, SRDF) coming online during the historical period and (2) an assumed current and future "100%" level of performance of the. Again, what does the "best available" data show about the efficiency or performance of the MCWRA projects? If the data compiled by the MCWRA for its projects reflect a 50% or a 25% level of efficiency, then the model should use that metric instead of assuming the projects will magically perform far better than they have to date.

CONCLUSION
As noted in my prior letter and email and above, prior to further review, the draft Chapter requires revisions to (1) track regulatory requirements and (2) harmonize the SVIHM projections with data-based reality such as surface water diversions and project performance reality. The real danger for the Salinas Valley lies not in whether DWR accepts or approves the GSP, but in intelligently considering and selecting programs and management actions (a later chapter of the GSP) based on factious assumptions and projections about current project efficiency and wet water use/availability (whether labeled ground or surface). It is preferable to proceed with care than risk committing to projects or management actions that will either not lead to or perhaps even make the attainment of sustainability less likely.

Very truly yours,

Thomas S. Virsik
Thomas S. Virsik

Encl.
June 4, 2019 letter to GSA Planning Committee
June 11, 2019 email to GSA re eWRIMS and MCWRA

Thomas S. Virsik
ATTORNEY AT LAW
510-508-1530 | thomasvirsiklaw@gmail.com

4 June 2019

To: Salinas Valley Basin Groundwater Sustainability Agency (GSA) Planning Committee

Re: Agenda Item 4.b
Chapter 6 of 180/400 GSP

The below are comments and suggestions for the draft Chapter 6 of the 180/400 GSP. As presented, the draft Chapter fails to meet the minimum requirements of SGMA, lacking literally the word "overdraft" in its text. Emergency GSP Reg. 354.18(b)(5) (the historic, current, and projected water budgets must include quantification of overdraft when basin deemed in overdraft per Bulletin 118).[1]

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Very truly yours,

Thomas S. Virsik
Thomas S. Virsik

Gmail **Thomas S. Virsik <thomasvirsiklaw@gmail.com>**

EWRIMS and MCWRA reports

Thomas S. Virsik <thomasvirsiklaw@gmail.com> Tue, Jun 11, 2019 at 2:10 PM
To: Gary Petersen <peterseng@svbgsa.org>

Gary,

For Williams' attention per his remarks yesterday that the nature of the reporting to (1) eWRIMS and (2) the MCWRA on water extractions was dissimilar (and hence could not be readily cross-checked for double counting). I vehemently disagree.

I have attached a T&A state report (three years, including the map showing location -- all from eWRIMS). I selected it at random. It claims to be using groundwater, by the way, at "Additional Comments." [I think the word "fights" is supposed to be "rights"]

One can make a direct comparison of the monthly amounts reported in the MCWRA and State databases. If any two reports (one from eWRIMS and the other from MCWRA) arguably within the same sub-basin reflect the exact same amounts for 1/17, 2/17, 3/17 etc. then there is double counting that skews (Ms. Isakson's word) the calculation of sustainable yield and pumping reductions. One need not correlate precise APN's or well codes. I can -- for my own clients whose MCWRA reports I possess-- do such a month by month comparison (none of which relate to the 180/400). I have made this comment in public before, but perhaps it was not understood.

Given the GSA has access to the MCWRA records, it can and must do the same comparison for the limited number of 180/400 eWRIMS statements. Chapter 8 draft Table 8-9. It's simple, yet necessary to meet the "best available" standard. And it leads to a better and more reliable real-world outcome based on accurate water use / yield numbers. No part of the comparison involves determining any "water right" or claim thereto.
--
Thomas S. Virsik
Attorney at Law

4 attachments

S014885 T&A SUPPLEMENTAL STATEMENT OF WATER DIVERSION AND USE 2015.pdf
73K

S014885 T&A SUPPLEMENTAL STATEMENT OF WATER DIVERSION AND USE 2016.pdf
80K

S014885 T&A SUPPLEMENTAL STATEMENT OF WATER DIVERSION AND USE 2017.pdf
80K

Maps from S014885.pdf
85K

[SUMMARY OF FINAL SUBMITTED VERSION]

SUPPLEMENTAL STATEMENT OF WATER DIVERSION AND USE FOR 2015

Primary Owner: TANIMURA LAND COMPANY LLC
Statement Number: S014885
Date Submitted: 05/31/2016

1. Water is used under	Riparian Claim Pre-1914 Claim
2. Year diversion commenced	1984

3-4. Maximum Rate of Diversion for each Month and Amount of Water Diverted and Used				
Month	**Rate of diversion**	**Amount directly diverted (Acre-Feet)**	**Amount diverted or collected to storage (Acre-Feet)**	**Amount beneficially used (Acre-Feet)**
January		3.017	0	3.017
February		2.637	0	2.637
March		14.177	0	14.177
April		9.469	0	9.469
May		8.465	0	8.465
June		13.554	0	13.554
July		14.954	0	14.954
August		4.292	0	4.292
September		0	0	0
October		0	0	0
November		0	0	0
December		0	0	0
Total		70.565	0	70.565
Type of Diversion	Direct Diversion Only			
Comments				

Water Transfers	
8e. Water transfered	No
8f. Quantity transfered (Acre-Feet)	
8g. Dates which transfer occurred	/ to /
8h. Transfer approved by	

Water Supply Contracts

8i. Water supply contract	No
8j. Contract with	
8k. Other provider	
8l. Contract number	
8m. Source from which contract water was diverted	
8n. Point of diversion same as identified water right	
8o. Amount (Acre-Feet) authorized to divert under this contract	
8p. Amount (Acre-Feet) authorized to be diverted in 2015	
8q. Amount (Acre-Feet) projected for 2016	
8r. Exchange or settlement of prior rights	
8s. All monthly reported diversion claimed under the prior rights	
8t. Amount (Acre-Feet) of reported diversion solely under contract	

5. Water Diversion Measurement		
a.	Measurement	Water directly diverted and/or diverted to storage was measured
b.	Types of measuring devices used	Propeller Meter
c.	Additional technology used	Flow Totalizer
	Description of additional technology used	
d.	Who installed your measuring device(s)	Representative using manufacturer's recommendations
e.	Make, model number, and last calibration date of your measuring device(s)	Water Specialties, Propeller meter
f.	Why direct measurement using a device listed in Section 1 is "not locally cost effective"	
	Explanation of why use of devices and technologies listed in Section 1 are "not locally cost effective"	
g.	Method(s) used as an alternative to direct measurement	
	Explanation of method(s) used as an alternative to direct measurement	

6. Purpose of Use	
Irrigation	661.90 Acres Vegetables

7. Changes in Method of Diversion

8. Conservation of Water		
a.	Are you now employing water conservation efforts?	Yes

	Describe any water conservation efforts you have initiated	Drip irrigation. Off wind irrigation. Weather Forecast monitoring for optimal irrigation timing. Flow meter and time clock on pump. Transplants when possible. Soil moisture sensors System maintenance and monitoring to minimize leaks and maximize distribution uniformity. Laser land leveling. Select sprinkler heads, nozzles and drip tape emitters with application rates that match the system layout, system pressure and infiltration rates.
b.	Amount of water conserved	Acre-Feet
	I have data to support the above surface water use reductions due to conservation efforts.	

9. Water Quality and Wastewater Reclamation		
a.	Are you now or have you been using reclaimed water from a wastewater treatment facility, desalination facility, or water polluted by waste to a degree which unreasonably affects such water for other beneficial causes?	No
b.	Amount of reduced diversion	
	Type of substitute water supply	
	Amount of substitute water supply used	
	I have data to support the above surface water use reductions due to the use of a substitute water supply	

10. Conjuctive Use of Surface Water and Groundwater		
a.	Are you now using groundwater in lieu of surface water?	No
b.	Amount of groundwater used	
	I have data to support the above surface water use reductions due to the use of groundwater.	

11a. Additional Remarks
Tanimura & Antle ("T&A") believes that the water it diverts is percolation ground water which T&A uses pursuant to overlying groundwater fights; if, however, it is finally determined by a court of competent jurisdiction or the State Water Resources Control Board that the water T&A diverts is underflow, a subterranean stream, or any other water that is characterized as surface water subject to State Water Resources Control Board jurisdiction, T&A will be deemed to have been exercising riparian and/or pre-1914 water rights.

Attachments		
File Name	**Description**	**Size**
No Attachments		

Contact Information of the Person Submitting the Form	
First Name	Ron
Last Name	Yokota
Relation to Water Right	Diverter of Record
The information in the report is true to the best of his/her knowledge and belief	Yes

[SUMMARY OF FINAL SUBMITTED VERSION]

SUPPLEMENTAL STATEMENT OF WATER DIVERSION AND USE FOR 2016

Primary Owner: TANIMURA LAND COMPANY LLC
Statement Number: S014885
Date Submitted: 08/03/2018

1. Water is used under	Riparian Claim Pre-1914 Claim
2. Year diversion commenced	1984

3. Purpose of Use	
Irrigation	

Irrigated Crops			
	Multiple Crops	**Area Irrigated (Acres)**	**Primary Irrigation Method**
Vegetables	Yes	661.90	Sprinkler

4. Changes in Method of Diversion

Special Use Categories	
C1. Are you using any water diverted under this right for the cultivation of cannabis?	No

5-6. Maximum Rate of Diversion for each Month and Amount of Water Diverted and Used				
Month	**Rate of diversion**	**Amount directly diverted (Acre-Feet)**	**Amount diverted or collected to storage (Acre-Feet)**	**Amount beneficially used (Acre-Feet)**
January		0	0	0
February		0	0	0
March		0	0	0
April		5.059	0	5.059
May		11.164	0	11.164
June		19.857	0	19.857
July		25.109	0	25.109
August		23.773	0	23.773
September		19.856	0	19.856
October		16.781	0	16.781
November		0	0	0

December		0	0	0
Total		121.599	0	121.599
Type of Diversion	Direct Diversion Only			
Comments				

Water Transfers	
6d. Water transfered	No
6e. Quantity transfered (Acre-Feet)	
6f. Dates which transfer occurred	/ to /
6g. Transfer approved by	

Water Supply Contracts	
6h. Water supply contract	No
6i. Contract with	
6j. Other provider	
6k. Contract number	
6l. Source from which contract water was diverted	
6m. Point of diversion same as identified water right	
6n. Amount (Acre-Feet) authorized to divert under this contract	
6o. Amount (Acre-Feet) authorized to be diverted in 2016	
6p. Amount (Acre-Feet) projected for 2017	
6q. Exchange or settlement of prior rights	
6r. All monthly reported diversion claimed under the prior rights	
6s. Amount (Acre-Feet) of reported diversion solely under contract	

7. Water Diversion Measurement	
a. Required to measure as of the date this report is submitted	Yes
b. Is diversion measured?	Yes
c. An alternative compliance plan was submitted to the division of water rights on	
d. A request for additional time was submitted to the division of water rights on	

Measurement ID number	M010336
This Device/Method was used to measure water during the current reporting period	
M1. Briefly describe the measurement device or method	propellor meter
M2. Nickname	
M3. Type of device / method	Flow meter (propeller)
M4. Device make	McCrometer
M5. Serial number	932573-8

M6. Model number	
M7. Approximate date of installation	04/13/2016
M8. Additional info	
M9. Approximate date the measuring device was last calibrated or the measurement method was updated	11/01/2015
M10. Estimated accuracy of measurement	5%
M11. Description of calibration method	Calibrated to manufaturers specifications before installation manufacturer representative
M12. Describe the maintenance schedule for the device/method	
Information for the person who last calibrated the device or designed the measurement method	
M13. Name	
M14. Phone number	
M15. Email	
M16. Qualifications of the individual	California-licensed contractor authorized by the State License Board for C-57 well drilling or C-61 Limited Specialty/D-21 Machinery and Pumps
M17. License number and type for the qualified individual above and/or any other relevant explanation	
M18. Type of data recorder device / method	
M19. Data recorder device make	
M20. Data recorder serial number	
M21. Data recorder model number	
M22. Data recorder units of measurement	
M23. Frequency of data recording	
M24. Additional data recorder info	
M25. I am required to report my diversion or storage data by telemetry as of the date this report is submitted	
M26. I report my diversion or storage date by telemetry to the following website	
M27. I have attached additional information on the method I used to calculate the volume of water	
M28. Describe any documents related to this measurement device or method that are attached to this water use report	

8. Conservation of Water

a.	Are you now employing water conservation efforts?	Yes
	Describe any water conservation efforts you have initiated	Drip irrigation. Off wind irrigation. Weather Forecast monitoring for optimal irrigation timing. Flow meter and time clock on pump. Transplants when possible. Soil moisture sensors System maintenance and monitoring to minimize leaks and maximize distribution uniformity. Laser land leveling. Select sprinkler heads, nozzles and drip tape emitters with application rates that match the system layout, system pressure and infiltration rates
b.	Amount of water conserved	
	I have data to support the above surface water use reductions due to conservation efforts.	

9. Water Quality and Wastewater Reclamation		
a.	Are you now or have you been using reclaimed water from a wastewater treatment facility, desalination facility, or water polluted by waste to a degree which unreasonably affects such water for other beneficial causes?	No
b.	Amount of reduced diversion	
	Type of substitute water supply	
	Amount of substitute water supply used	
	I have data to support the above surface water use reductions due to the use of a substitute water supply	

10. Conjuctive Use of Surface Water and Groundwater		
a.	Are you now using groundwater in lieu of surface water?	No
b.	Amount of groundwater used	
	I have data to support the above surface water use reductions due to the use of groundwater.	

Additional Remarks
Tanimura & Antle ("T&A") believes that the water it diverts is percolation ground water which T&A uses pursuant to overlying groundwater fights; if, however, it is finally determined by a court of competent jurisdiction or the State Water Resources Control Board that the water T&A diverts is underflow, a subterranean stream, or any other water that is characterized as surface water subject to State Water Resources Control Board jurisdiction, T&A will be deemed to have been exercising riparian and/or pre-1914 water rights.

Attachments		
File Name	**Description**	**Size**
No Attachments		

Contact Information of the Person Submitting the Form	
First Name	Anthony
Last Name	Duttle

Relation to Water Right	Diverter of Record
The information in the report is true to the best of his/her knowledge and belief	Yes

[SUMMARY OF FINAL SUBMITTED VERSION]

SUPPLEMENTAL STATEMENT OF WATER DIVERSION AND USE FOR 2017

Primary Owner: TANIMURA LAND COMPANY LLC
Statement Number: S014885
Date Submitted: 08/03/2018

1. Water is used under	Riparian Claim Pre-1914 Claim
2. Year diversion commenced	1984

3. Purpose of Use	
Irrigation	

Irrigated Crops			
	Multiple Crops	**Area Irrigated (Acres)**	**Primary Irrigation Method**
Vegetables	Yes	661.90	Sprinkler

4. Changes in Method of Diversion

Special Use Categories	
C1. Are you using any water diverted under this right for the cultivation of cannabis?	No

5-6. Maximum Rate of Diversion for each Month and Amount of Water Diverted and Used				
Month	**Rate of diversion**	**Amount directly diverted (Acre-Feet)**	**Amount diverted or collected to storage (Acre-Feet)**	**Amount beneficially used (Acre-Feet)**
January		0	0	0
February		0.476	0	0.476
March		6.191	0	6.191
April		8.05	0	8.05
May		27.526	0	27.526
June		27.296	0	27.296
July		24.129	0	24.129
August		0.762	0	0.762
September		3.002	0	3.002
October		41.776	0	41.776
November		0.003	0	0.003

December		1.233	0	1.233
Total		140.444	0	140.444
Type of Diversion	Direct Diversion Only			
Comments				

Water Transfers	
6d. Water transfered	No
6e. Quantity transfered (Acre-Feet)	
6f. Dates which transfer occurred	/ to /
6g. Transfer approved by	

Water Supply Contracts	
6h. Water supply contract	No
6i. Contract with	
6j. Other provider	
6k. Contract number	
6l. Source from which contract water was diverted	
6m. Point of diversion same as identified water right	
6n. Amount (Acre-Feet) authorized to divert under this contract	
6o. Amount (Acre-Feet) authorized to be diverted in 2017	
6p. Amount (Acre-Feet) projected for 2018	
6q. Exchange or settlement of prior rights	
6r. All monthly reported diversion claimed under the prior rights	
6s. Amount (Acre-Feet) of reported diversion solely under contract	

7. Water Diversion Measurement	
a. Required to measure as of the date this report is submitted	Yes
b. Is diversion measured?	Yes
c. An alternative compliance plan was submitted to the division of water rights on	
d. A request for additional time was submitted to the division of water rights on	

Measurement ID number	M010336
This Device/Method was used to measure water during the current reporting period	Yes
M1. Briefly describe the measurement device or method	propellor meter
M2. Nickname	
M3. Type of device / method	Flow meter (propeller)
M4. Device make	McCrometer
M5. Serial number	932573-8

M6. Model number	
M7. Approximate date of installation	04/13/2016
M8. Additional info	
M9. Approximate date the measuring device was last calibrated or the measurement method was updated	11/01/2015
M10. Estimated accuracy of measurement	5%
M11. Description of calibration method	Calibrated to manufaturers specifications before installation manufacturer representative
M12. Describe the maintenance schedule for the device/method	
Information for the person who last calibrated the device or designed the measurement method	
M13. Name	
M14. Phone number	
M15. Email	
M16. Qualifications of the individual	California-licensed contractor authorized by the State License Board for C-57 well drilling or C-61 Limited Specialty/D-21 Machinery and Pumps
M17. License number and type for the qualified individual above and/or any other relevant explanation	
M18. Type of data recorder device / method	
M19. Data recorder device make	
M20. Data recorder serial number	
M21. Data recorder model number	
M22. Data recorder units of measurement	
M23. Frequency of data recording	
M24. Additional data recorder info	
M25. I am required to report my diversion or storage data by telemetry as of the date this report is submitted	
M26. I report my diversion or storage date by telemetry to the following website	
M27. I have attached additional information on the method I used to calculate the volume of water	
M28. Describe any documents related to this measurement device or method that are attached to this water use report	

8. Conservation of Water

a.	Are you now employing water conservation efforts?	Yes
	Describe any water conservation efforts you have initiated	Drip irrigation. Off wind irrigation. Weather Forecast monitoring for optimal irrigation timing. Flow meter and time clock on pump. Transplants when possible. Soil moisture sensors System maintenance and monitoring to minimize leaks and maximize distribution uniformity. Laser land leveling. Select sprinkler heads, nozzles and drip tape emitters with application rates that match the system layout, system pressure and infiltration rates.
b.	Amount of water conserved	
	I have data to support the above surface water use reductions due to conservation efforts.	

9. Water Quality and Wastewater Reclamation		
a.	Are you now or have you been using reclaimed water from a wastewater treatment facility, desalination facility, or water polluted by waste to a degree which unreasonably affects such water for other beneficial causes?	No
b.	Amount of reduced diversion	
	Type of substitute water supply	
	Amount of substitute water supply used	
	I have data to support the above surface water use reductions due to the use of a substitute water supply	

10. Conjuctive Use of Surface Water and Groundwater		
a.	Are you now using groundwater in lieu of surface water?	No
b.	Amount of groundwater used	
	I have data to support the above surface water use reductions due to the use of groundwater.	

Additional Remarks
Tanimura & Antle ("T&A") believes that the water it diverts is percolation ground water which T&A uses pursuant to overlying groundwater fights; if, however, it is finally determined by a court of competent jurisdiction or the State Water Resources Control Board that the water T&A diverts is underflow, a subterranean stream, or any other water that is characterized as surface water subject to State Water Resources Control Board jurisdiction, T&A will be deemed to have been exercising riparian and/or pre-1914 water rights.

Attachments		
File Name	**Description**	**Size**
No Attachments		

Contact Information of the Person Submitting the Form	
First Name	Anthony
Last Name	Duttle

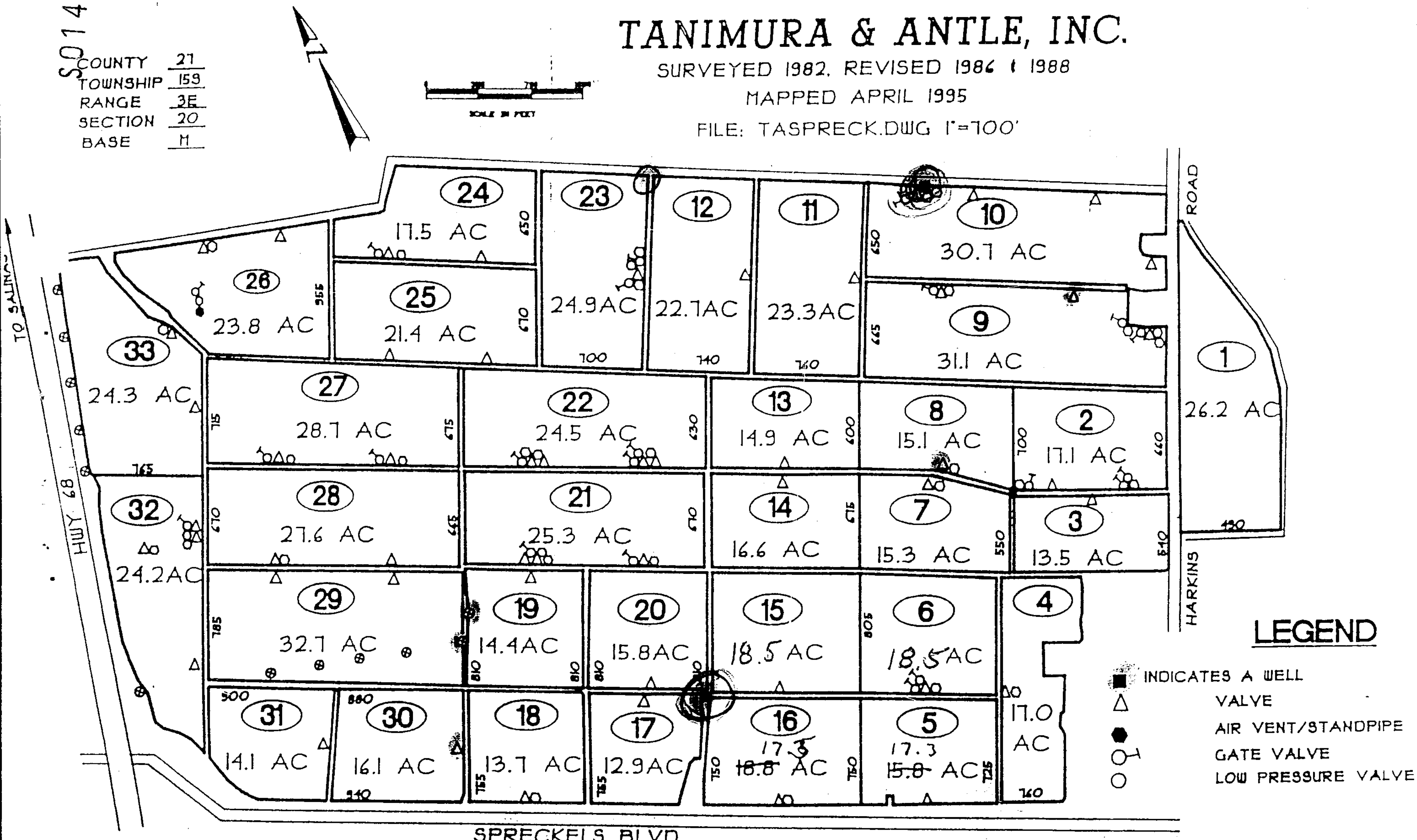
Relation to Water Right	Diverter of Record
The information in the report is true to the best of his/her knowledge and belief	Yes

SPRECKELS RANCH
TANIMURA & ANTLE, INC.

SURVEYED 1982, REVISED 1986 & 1988
MAPPED APRIL 1995
FILE: TASPRECK.DWG 1"=100'

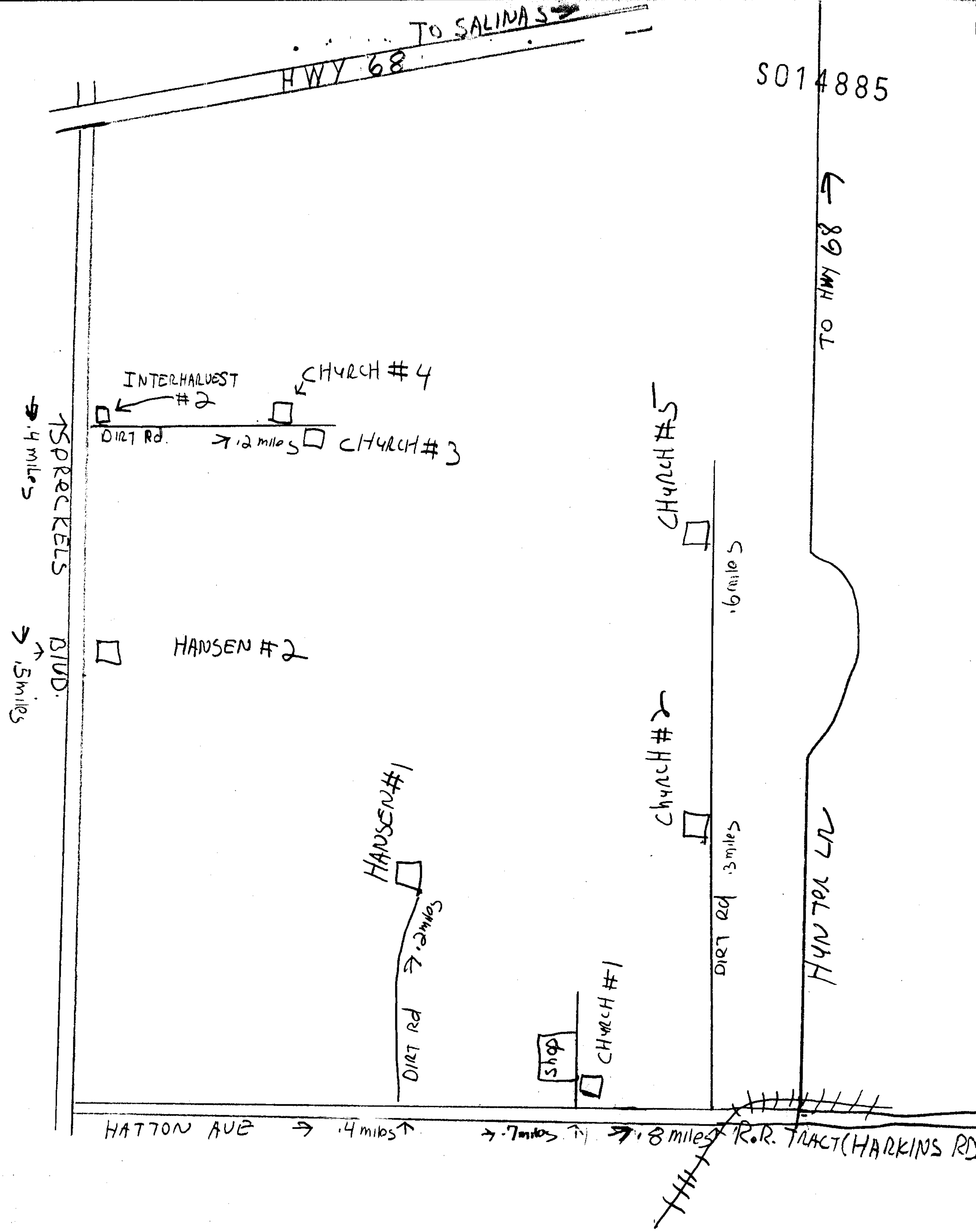
S014885

COUNTY	27
TOWNSHIP	159
RANGE	3E
SECTION	20
BASE	M



677.2± ACRES NET CROP

S014885


TO SALINAS
HWY 68
TO HWY 68
INTERHARVEST #2
CHURCH #4
DIRT Rd.
.2 miles
CHURCH #3
SPRECKELS BLVD.
.4 miles
.15 miles
HANSEN #2
CHURCH #5
.6 miles
CHURCH #2
.3 miles
DIRT Rd
HANSEN #1
.2 miles
DIRT Rd
CHURCH #1
shop
HUNTER LN
HATTON AVE
.4 miles
.7 miles
.8 miles
R.R. TRACT (HARKINS RD

180/400-Foot Aquifer Subbasin
Groundwater Sustainability Plan

Commentary on
Chapter 9 - Projects and Management Actions,
dated August 2, 2019

By AH water consulting, Israel
Raanan Adin and Prof. Avner Adin

Submitted to General Farm Investment, Salinas CA

October 8, 2019

Adin Holdings Ltd.; 4/19 Hacarmel St.; Ganei Tikva; ISRAEL 5591604
Tel.: +972-54-553-0209 ; contact@adinholdings.com ; http://www.adinholdings.com

ADIN HOLDINGS

Table of Contents

ABBREVIATIONS AND ACRONYMS

BMPs	Best Management Practices
CSIP	Castroville Seawater Intrusion Project
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
M1W	Monterey One Water
MCWRA	Monterey County Water Resources Association
mgd	million gallons per day. 1 mgd=189.42 m3/h=4546.09 m3/d
RTP	Monterey One Water's Regional Wastewater Treatment Plant
SGMA	Sustainable Groundwater Management Act
SRDF	Salinas River Diversion Facility
SVBGSA	Salinas Valley Basin Groundwater Sustainability Agency
SVRP	Salinas Valley Reclamation Project

Adin Holdings Ltd.; 4/19 Hacarmel St.; Ganei Tikva; ISRAEL 5591604
Tel.: +972-54-553-0209 ; contact@adinholdings.com ; http://www.adinholdings.com

1. Background

"180/400-Foot Aquifer Subbasin" is one of the subbasins in Salinas Valley for which a Groundwater Sustainability Plan (GSP) is being prepared under California's Sustainable Groundwater Management Act (SGMA).
Chapter 9 of this GSP, entitled "Projects and Management Actions", was published on August 2, 2019.
Chapter 9 includes section 9.4 entitled "Projects" describing projects that are considered by the appointed engineering company for implementation. A project of specific interest is the hydraulic barrier to control seawater intrusion.
Submission of the 20-year plan for the pressure sub-basin to the state is due January of 2020.

This document is a commentary expressing thoughts on chapter 9, including the hydraulic barrier project.

The commentary focuses on section 9.4 and addresses additional relevant sections as well.

2. Highlights

2.1. Hydraulic barrier:

A hydraulic barrier could potentially stop seawater intrusion. The potential benefit of a hydraulic barrier is well presented. The chapter does not include sufficient information to assess its shortcomings. Two alternatives for implementation are extraction and injection. The effect on the aquifer is not presented for either of the alternatives (this preferred project is the only one with no Estimated Groundwater Level Benefit graphs - graphs are presented for preferred projects 1, 2, 4, 7, 8 and 9, we consider projects 3-5 as one as mentioned below in clause 2.5). In the case of injection wells the sources are not identified. Energy requirements are missing.
Since this project is presented as a fundamental part of the GSP, a clear integrated plan, with timeline, of water extraction and of water injection needs should be presented, including all planned projects of the GSP and other agencies. The plan should consider, among other consideration, the following key issues: (1) According to information on the barrier project it will start operating approximately 5 years after initiation. By that time 3 of the other preferred projects are planned to be completed and start improving the water balance and we can assume other agencies' projects will progress an as well; (2) Additional 4 preferred projects are planned to be completed with 3 years of the barrier's start of operation, potentially improving the water balance as well; (3) At the end of the GSP, 15 years after the barrier starts operating, complete water balance must be achieved and the barrier is supposed to become redundant. This should also be considered in the financial scheme that is said to calculate amortization over 25 years.

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Tel.: +972-54-553-0209 ; contact@adinholdings.com ; http://www.adinholdings.com

2.2. Water conservation:

Water conservation is mentioned under "Other Groundwater Management Activities" as not specifically funded or managed by this GSP, yet saving water by implementing agriculture best management practices (BMPs) and urban and rural residential conservation (and hopefully institutional too, which is not mentioned) could be as effective as the projects, if not more. This item is worth being given a high priority.

2.3. Measurable objectives:

Specific measurable success criteria are important and should be identified or if necessary, developed for each project. As written several times in the chapter, direct correlation between most projects and the GSP's measurable objectives (changes in groundwater levels, subsidence and seawater intrusion, etc.) is likely not possible because there are many management actions and projects that will be implemented in the Subbasin.

2.4. Projects and preferred projects:

The methodology of assessment and selection of preferred projects should be presented in detail.
The full list of projects and the list of preferred projects should be revisited occasionally as more information is gathered. Reassessment with new information may change projects' preferences.

2.5. Preferred Projects 3, 4 and 5:

Preferred Project 3: *Modify Monterey One Water Recycled Water Plant - Winter Modifications*, Preferred Project 4: *Expand Area Served by CSIP* and Preferred Project 5: *Maximize Existing SRDF Diversion* are highly interdependent and should be planned and managed as one integrated project.

2.6. Injection and extraction wells:

In cases where injection and extraction may both be needed in the same area, dual-purpose wells should be considered, e.g. for underground storage or for aquifers where the water table rises enough seasonally or due to unpredictable climate changes. "Dual-purpose well" is a well intended both for injection and recovery. Dual purpose well may be cheaper in construction and in operation and maintenance than two separate wells, and less susceptible to clogging due to its redeveloping technique.

2.7. Modify Monterey One Water Recycled Water Plant:

Plans are made to treat and reuse some of the wastewater during the wet season. Efforts should be made to treat and reuse all wastewater during all seasons. Managing water quality of effluents to the right level for irrigation (storage, CSIP network expansion project, etc.), recharge or the hydraulic barrier will optimize energy and other costs.

Adin Holdings Ltd.; 4/19 Hacarmel St.; Ganei Tikva; ISRAEL 5591604
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2.8. Minerals content management of desalinated water:

It is highly important to manage the mineral content of supplied desalinated water to prevent illnesses, plant deterioration and SAR increase associated with lack of minerals (magnesium, calcium and more, that are vital to human health as well as to plant and soil). Solutions may include mixing and remineralization.

2.9. Public Noticing:

It is not enough to present only the merits of proposed project. The shortcomings of each proposed project should be equally presented with detailed comparison of the alternatives. Currently, according to the document reviewed, assessments that will be presented to the SVBGSA Board in publicly noticed meetings are not required to include shortcomings or detailed comparison of alternatives.

Adin Holdings Ltd.; 4/19 Hacarmel St.; Ganei Tikva; ISRAEL 5591604
Tel.: +972-54-553-0209 ; contact@adinholdings.com ; http://www.adinholdings.com

3. Commentary

The following table (Table 1) presents detailed commentary with reference to section number and text quoted from the chapter.

Table 1: Commentary on Chapter 9 - Projects and Management Actions, 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan

Section	Text	Commentary
9.3.5.8 Estimated cost	The SVBGSA will support the development of a mandatory pumping reduction program. The implementation of the program will be through MCWRA and is estimated to take two years to develop. The support of the implementation program will be $50,000 for two years or a total of $100,000.	The "mandatory pumping reduction program" should be explained and the activities covered by the mentioned budget should be listed.
9.4 Projects	Several potential projects are included in this GSP that are currently being pursued by other agencies. These projects are considered sufficiently established, and will be constructed independently of this GSP. ... some of these projects are currently already in the planning stages or in design by other agencies	The time-line of projects currently being pursued by other agencies and their integration with the preferred projects should be clearly explained in this GSP.
9.4.1 Overview of Project Types	There are four major types of projects that can be developed to supplement the Subbasin's groundwater supplies or limit seawater intrusion: 1. In-lieu recharge through direct delivery of water to replace groundwater pumping 2. Direct recharge through recharge basins or wells 3. Indirect recharge through decreased evapotranspiration or increased infiltration 4. Hydraulic barrier to control seawater intrusion	What about water conservation: Is looking for substituting types of plants/products that evapotranspirate at high rate or consume much water with more effective ones totally out of question? A close issue to this is water savings by controlling "exporting water" so called also "virtual water" through export of agricultural products that contain large percentage of water.
9.4.1.1 In-Lieu Recharge through Direct Delivery	Direct delivery projects use available water supplies for irrigation in lieu of groundwater. This option offsets the use of groundwater, allowing the groundwater basin to recharge naturally.	The offset depends on the water source. Reclaimed wastewater and desalinated seawater (remineralized) could be used to offset use of groundwater. Using river water and rainwater harvesting to offset use of groundwater requires careful water balance calculations considering potential natural recharge by these waters.

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Section	Text	Commentary
9.4.1.2 Direct Recharge through Recharge Basins and wells	Recharge basins have the advantage of generally being less expensive to build and operate than in-lieu distribution systems or injection systems.	In view of the continuously increasing demand for food, land availability and cost is expected to increase.
9.4.1.2 Direct Recharge through Recharge Basins and wells	Injection wells are used to inject available water supplies directly into the groundwater basin.	Dual-purpose wells should also be considered for underground storage or for aquifers where the water table rises enough seasonally or due to unpredictable climate changes. "Dual-purpose well" is a well intended both for injection and recovery.
9.4.1.3 Indirect Recharge through Decreased Evapotranspiration or Increased Percolation	Within the Subbasin there are areas that represent opportunities for increased groundwater supply through either a decrease in evapotranspiration or an increase in percolation. Example projects include removal of invasive species from riparian corridors (decreased evapotranspiration) and stormwater capture (increased percolation).	A highly effective method for reducing water loss by evaporation, already widely implemented in Salinas Valley, is transformation of traditionally used irrigation methods such as flood or furrow irrigation to irrigation with low-rate applicators, e.g. sprinkler or drip irrigation systems. Other BMPs in agriculture should be explored.
9.4.1.4 Hydraulic Barrier to Control Seawater Intrusion	A hydraulic barrier can be operated as a recharge barrier, wherein water is injected into the wells and the resulting water level mound creates the hydraulic barrier. Or the barrier can be operated as an extraction barrier, wherein the wells are pumped and the resulting water level trough creates the hydraulic barrier. Recharge barriers require a source of water for recharge. extraction barriers require an end-use for the pumped water.	Dual-purpose wells may also be worth consideration here (see comment above). Energy demand and cost are particularly critical in this kind of project, and should be presented. Injection - The possible water resources should be listed. Extraction - Seawater might have no use other than discharge to the sea.
9.4.2.2 Public Noticing	GSA staff will bring an assessment of the need for the project to the SVBGSA Board in a publicly noticed meeting. This assessment will include: o A description of the undesirable result(s) that may occur if action is not taken o A description of the proposed project o An estimated cost and schedule for the proposed project o Any alternatives to the proposed project	It is not enough to present only the merits. The shortcomings of each proposed project should be equally presented. A detailed comparison of the alternatives should be presented.
9.4.3 All Projects Considered for Integrated Management of the Salinas Valley	This GSP is part of an integrated plan for managing groundwater in all six subbasins of the Salinas Valley that lie in Monterey County. The projects listed in this GSP constitute an integrated management program for the entire Valley.	A true holistic approach demands presenting the integrated GSP at basin level.

Adin Holdings Ltd.; 4/19 Hacarmel St.; Ganei Tikva; ISRAEL 5591604
Tel.: +972-54-553-0209 ; contact@adinholdings.com ; http://www.adinholdings.com

Section	Text	Commentary
9.4.3 All Projects Considered for Integrated Management of the Salinas Valley	The potential projects listed in Appendix 9-B were assessed for cost effectiveness in achieving sustainability throughout the Salinas Valley.	The methodology of assessment should be presented in detail.
9.4.4.1 Assumptions used in developing projects	Assumptions that were used to develop projects and cost estimates are provided in Appendix 9-C. Assumptions and issues for each project need to be carefully reviewed and revised during the pre-design phase of each project. Project designs, and therefore costs, could change considerably as more information is gathered.	The full list of projects and the list of preferred projects should be revisited occasionally as more information is gathered. Reassessment with new information may change projects' preferences.
9.4.4.2 Preferred project 1: Invasive Species Eradication	The initial treatment phase includes mechanical and/or chemical treatment ... The final phase is the on-going monitoring and maintenance treatment phase. This phase requires annual monitoring for re-growth of the invasive species or new invasive species and chemical treatment every three to five years.	Which chemical treatment? How will it affect groundwater and runoff to Salinas river? Using chemicals for invasive species eradication is not a sustainable solution and should be reconsidered or minimized, requiring careful environmental impact assessment. This may take a while. What will be done in the cleared areas? Could cleared areas be used as recharge basins or storage reservoirs? Could agriculture be a future use?
9.4.4.2 Preferred project 1: Invasive Species Eradication	Relevant Measurable Objectives Relevant measurable objectives benefiting from this project include: • Groundwater elevation measurable objective • Groundwater storage measurable objective ... A direct correlation between invasive species eradication and changes in groundwater levels, subsidence, or seawater intrusion is likely not possible because this is only one among many management actions and projects that will be implemented in the Subbasin.	A direct measure of success could be river flow before and after cleared areas and groundwater elevation measurements in the large cleared areas.
9.4.4.3 Preferred Project 2: Optimize CSIP Operations	4. Piping Upgrades: The hydraulic model will identify deficiencies in the water distribution system that will require piping upgrades. The exact piping upgrades are unknown. This component of the project is a placeholder for anticipated upgrades required to the system to assist in the regulation of flow and pressure.	Leakage is not mentioned. Leak detection and repair should be included and priced. Increasing pressure will increase leakage and require more leakage detection and repair. Requirements for the ongoing monitoring of the system should include leak detection. Advanced technologies for this are readily available.

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Section	Text	Commentary
9.4.4.4 Preferred Project 3: Modify Monterey One Water Recycled Water Plant – Winter Modifications	Monterey One Water (M1W) is currently designing and permitting this project. SVBGSA will work closely with M1W to support and implement this project. Monterey One Water's Regional Wastewater Treatment Plant (RTP) has a maximum capacity of 29.6 mgd. Currently, the facility is only treating 16 to 18 mgd of influent wastewater. During the wet weather months, 100% of all secondary treated wastewater is discharged to the ocean, forgoing the opportunity for beneficial reuse. During the wet weather months, there is some demand for recycled water in the CSIP system; however, M1W cannot efficiently produce the reduced demand for tertiary treated water to supply the growers. As a result, growers turn to the groundwater basin for their irrigation needs during these months. Modifications are required at the M1W RTP in order to efficiently treat and store recycled water during the wet weather months.	Is there a plan for using these effluents for injection to the aquifer in the hydraulic barrier project?
9.4.4.4 Preferred Project 3: Modify Monterey One Water Recycled Water Plant – Winter Modifications	Under the M1W Recycled Water Plant Modifications Project, the SVRP will be improved to allow delivery of tertiary treated wastewater to the CSIP system when recycled water demand is less than 5 mgd.	An effort should be made to treat and reuse all wastewater during all seasons.

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Section	Text	Commentary
9.4.4.4 Circumstances for Implementation	The SVRP modifications project is currently being planned and implemented by M1W as part of the Pure Water Monterey Groundwater Replenishment Project. No other circumstances for implementation are necessary.	Few comments: 1. The final title 22 Engineering Report April 2019 (Revised) of Pure Water Monterey states (p.28) that the recycled water supply for agriculture here "is subject to (1) Water Recycling Requirements issued to MRWPCA (Order 94-82) and (2) Recycled Water Used Requirements (Order No. 95-52) issued to MCWRA by the Central Coast Regional Water Quality Control Board." What is the status of meeting those requirements? 2. The recycled water is purified to the standard of drinking water quality with technologies that altogether produce excellent water for that purpose. Irrigation for most products would not need such a high level of purification, which might end up with higher costs of water for the farmers than necessary. If not done already, other alternatives for that portion of the recycled water intended for irrigation can be considered. 3.The recycled water coming out of the RO treatment skillfully includes a post-treatment stabilization step. The latter includes, among others, calcium addition, yet other minerals such as magnesium are missing in the water. That can deprive the plant from vital minerals and raise the water SAR to an undesirable level as well, which is totally unsustainable. Measures can be taken to get the situation right, though it might be costly and should be considered appropriately. 4. Providing direct recycled water for drinking purposes is still debated around the world and the water safety/quality standards are not really finalized nor agreed upon for that specific purpose. So the question here, which is not new, is why not allocating the recycled water as a major source for agriculture, and targeting the natural water plus necessary desalinated water for drinking?

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Tel.: +972-54-553-0209 ; contact@adinholdings.com ; http://www.adinholdings.com

Section	Text	Commentary
9.4.4.4 Preferred Project 3: Modify Monterey One Water Recycled Water Plant – Winter Modifications; 9.4.4.5 Preferred Project 4: Expand Area Served by CSIP; 9.4.4.6 Preferred Project 5: Maximize Existing SRDF Diversion		These projects are highly interdependent and should be planned and managed as one project.
9.4.4.7 Preferred Project 6: Seawater Intrusion Pumping Barrier	The extracted water or a portion thereof could be conveyed to a new or existing desalination facility where it can be treated for potable and/or agricultural use.	This option of using extracted water seems promising and sustainable, yet depends on the sustainability of the barrier project as a whole.
9.4.4.7 Preferred Project 6: Seawater Intrusion Pumping Barrier	An optional barrier using injection instead of extraction was also considered. ... and advanced purified recycled water. Treated Salinas River water and desalinated ocean water would be preferentially delivered to growers and municipalities rather than injected. The only likely source of water for injection is therefore advanced purified recycled water	Could there be a situation where a good rainy season will drive the seawater intrusion front back enough that pumping of sweet water could be of interest? If and where such a case exists, dual-purpose wells could perhaps be of value.
9.4.4.7 Preferred Project 6: Seawater Intrusion Pumping Barrier	Implementation Schedule: 5 years to Start Up	By that time several other projects are planned to be completed. What will be the need then? A consolidated planning on a timeline of the water balance is missing.
9.4.4.7 Preferred Project 6: Seawater Intrusion Pumping Barrier		Missing: Impact on groundwater - Either extraction or injection will affect groundwater. This project is the only one with no Estimated Groundwater Level Benefit graphs.
9.4.4.8 Preferred Project 7: 11043 Diversion Facilities Phase I: Chualar	Proposes to construct extraction facilities at the Chualar location and pump the water to the Eastside Subbasin where the water can then be infiltrated or injected into the groundwater basin at known pumping depressions.	Could dual-pumping serve here (Preferred Project 7)?
9.4.4.9 Preferred Project 8: 11043 Diversion Facilities Phase II: Soledad	An infiltration basin that could be farmed in the summer and fallowed during the winter.	This option seems promising and sustainable.

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Tel.: +972-54-553-0209 ; contact@adinholdings.com ; http://www.adinholdings.com

Section	Text	Commentary
9.4.5.1 Alternative Project 1: Desalinate Water from the Seawater Barrier Extraction Wells	The following plants are in various planning and design stages in the Monterey Bay Area: • Monterey Peninsula Water Supply Project desalination plant, 6.4 mgd (7,100 AF/yr.) • Deep Water Desalination Plant, 22 mgd (25,000 AF/yr.) • People's Water Supply Project desalination plant, 12 mgd (13,400 AF/yr.)	The desal plants (Alternative Project 1) are close to the coast so there should be no specific problem of disposing the brine.
9.5 Other Groundwater Management Activities	Although not specifically funded or managed by this GSP, a number of associated groundwater management activities will be promoted and encouraged by the GSAs as part of general good groundwater management practices.	Why are these not part of the GSP? The benefit of these projects could be similar to and higher than the programs included in the GSP. Is there more than one GSP?
9.5.1 Promote Agricultural Best Management Practices	Agricultural best management practices (BMPs) should be promoted throughout the basin to conserve water. BMPs include using efficient irrigation systems, such as drip irrigation, and replacing frost protection sprinklers with alternative frost protection methods.	Important: Why not plan and calculate the benefit of agricultural BMPs and compare them to the projects above mentioned, perhaps they will be found more economic and more sustainable than some of them? Inputs from agro-technology experts may be needed for assessing the potential.
Appendix 9c: Modeling and analytical tools for analyzing project benefits	Chapter 9 of the GSP includes a set of projects and management actions designed to achieve and maintain sustainability in the 180/400-Foot Aquifer Subbasin over the SGMA implementation horizon. To assess the benefits of individual projects, and combinations of projects, to achieve sustainability, quantitative analyses were performed through simplified groundwater model simulations. These simulations included predicted climate change conditions with and without the proposed projects. In addition, a simplified analytical analysis was developed to evaluate the potential design for a seawater intrusion barrier and its capability to stop seawater intrusion.	The GSP should present complete information on the process of assessing the projects and on the process of selecting the preferred and alternative projects.
9C.5 Seawater Intrusion Barrier Evaluation	A seawater intrusion barrier could be designed to either to extract groundwater and produce a hydraulic trough that would intercept seawater intrusion, or to inject groundwater and produce a hydraulic mound that would block seawater intrusion. A barrier project would transect the 180/400-Ft Aquifer Subbasin and the Monterey Subbasin, with an estimated length of 8.5 miles and approximately 75% of the barrier within the 180/400-ft Aquifer Subbasin.	The GSP should include an estimation of energy demand and cost for extraction and for injection. Destination and cost of extracted water should be presented, particularly alternatives of using the extracted water. In case of injection, alternative water resources should be presented with their costs and compared.

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Section	Text	Commentary
9C.5 Seawater Intrusion Barrier Evaluation	The seawater intrusion barrier sizing was developed in the absence of any of the other future projects included in the GSP. The effect of the other projects would be to improve the water balance in the Subbasin and decrease the rate of seawater intrusion, thereby decreasing the flow required at the barrier.	Not clear: "in the absence of any of the other future projects included in the GSP." What does this mean?

Adin Holdings Ltd.; 4/19 Hacarmel St.; Ganei Tikva; ISRAEL 5591604
Tel.: +972-54-553-0209 ; contact@adinholdings.com ; http://www.adinholdings.com

LandWatch monterey county

November 13, 2019

Ron Stefani, Chairperson
Members of the Board of Directors
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1350
Carmel Valley, CA 93924
Via email peterseng@svbgsa.org, camela@svbgsa.org

Subject: Comments on 180/400-foot Aquifer Subbasin Groundwater Sustainability Plan

Dear Chair Stefani and Members of the Board of Directors:

LandWatch appreciates the opportunity to comment on the 180/400-Foot Subbasin Groundwater Sustainability Plan. Our comments are organized into three sections:

- Summary of comments
- Section 1 documents why the GSP does not meet the legal requirements of the Sustainable Groundwater Management Act ("SGMA")
- Section 2 recommends policy-based changes to the GSP

Summary of comments

The 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan ("GSP" or "Plan") fails to address the biggest threat to the groundwater resource – continued seawater intrusion. The Plan appears to have been designed to avoid the one measure that is most certain to address this threat: immediate mandatory reductions in groundwater extractions.

Each of the legal shortcomings in the Plan document can ultimately be traced to an unwillingness of the SVGBGSA to face the uncomfortable reality that mandatory pumping reductions are needed, and are needed now. As set out in detail in Section I, the Plan does not comply with SGMA for the following reasons:

- The GSP fails to adopt a conservative estimate of sustainable yield until resolution of data gaps and calibration of the groundwater model.
    - The groundwater model is not calibrated.
    - The minimum threshold for reduction in storage is improperly based on uncalibrated model projection of 2070 sustainable yield and improperly uses the least conservative estimate of sustainable yield.

- The minimum thresholds for groundwater levels and storage reduction are inconsistent with SGMA regulations because they fail to avoid the undesirable results for the seawater intrusion sustainability indicator.
    - The minimum threshold for groundwater levels, set at one foot above lowest historical groundwater levels, will not support the minimum threshold for seawater intrusion, set at existing line of seawater intrusion advance, because those groundwater levels will not halt seawater intrusion.
    - The minimum threshold for reduction in storage, set at the future long-term sustainable yield, will not support the minimum threshold for seawater intrusion, because halting seawater intrusion requires *replacement of depleted groundwater storage* by temporarily reducing extractions to below the sustainable yield.

- The GSP proposes inconsistent programs and management actions to attain the minimum threshold for seawater intrusion, and these remedies would not be timely.

- The Plan fails to include immediate pumping reductions, which are required in order to attain the identified minimum threshold for seawater intrusion.

- The Plan fails to mitigate overdraft: the water charges framework cannot reliably mitigate overdraft because pumping reductions remain voluntary and because price sensitivity and demand elasticity are unknown.
    - SGMA requires that a GSP identify projects or management actions, including demand reduction or other methods, that would be sufficient to mitigate overdraft.
    - Contrary to the Plan's claim, the water charges framework would not reduce demand or increase supply sufficiently to mitigate overdraft because it relies on voluntary pumping reductions and permits pumping in excess of sustainable pumping allocations.
    - Mitigation of overdraft requires mandated pumping restrictions that limit total pumping to current sustainable yield plus newly produced water.
    - The Plan fails to provide the mandatory quantification of the mitigation of overdraft: it fails to quantify the benefits of management actions, it assigns all of the Basin-wide Project benefits to the 180/400- Foot Aquifer Subbasin, it double counts some benefits, and it contains an arithmetic error.

- The implementation plan improperly delays substantive action for two years in order to accommodate the implementation schedule for the GSP for the rest of the Basin, which is not *critically* overdrafted.

- The Plan fails to identify project startup dates.

- The Plan fails to impose pumping restrictions pending startup of new water projects. Interim pumping restrictions are needed in order to restore and maintain the protective groundwater elevations to attain the minimum threshold for seawater intrusion.

- The GSP's multiple, inconsistent, incomplete, and deferred approaches to meeting the seawater intrusion minimum threshold – eventual temporary pumping reductions, a long-delayed $100+ million pumping barrier, or some eventual "agreed approach" from the Working Group – renders the GSP uncertain and inadequate as a plan.

In addition to these comments, LandWatch makes suggestions to revise and improve the Plan in Section II, below. LandWatch's detailed comments follow.

Section I: The GSP does not meet SGMA's requirements.

Set forth below in this section A through H are deficiencies in the Plan that preclude it from meeting SGMA's requirements. LandWatch has previously made many of these comments in letters submitted to the SVGBGSA Board as draft chapters have been released. However, the deficiencies remain.

A. The GSP fails to adopt a conservative estimate of sustainable yield until resolution of data gaps and calibration of the groundwater model.

1. The groundwater model is not calibrated.

Chapter 6 of the GSP presents three different and currently unreconciled sustainable yield calculations, one based on the historic water budget (95,700 AFY), one based on the projected 2030 water budget (107,200 AFY in 2030), and one based on the projected 2070 water budget (112,000 AFY in 2070).[1] (GSP, section 6.10.5, Table 6-31.) Chapter 6 admits that the historical and future water budgets "are developed using different approaches, and are therefore not directly comparable with each other" and are not "based on a consistent approach." (GSP, p. 6-1.) A fundamental problem is that the USGS model has not yet been calibrated with reference to the historic data and thus the projection of the future water balance is not based on a calibrated model. (GSP, p. 6-1.) SGMA requires that the model be calibrated. (23 CCR § 358.18(c)(2), (3).)

2. The minimum threshold for reduction in storage is improperly based on uncalibrated model projection of 2070 sustainable yield and improperly uses the least conservative estimate of sustainable yield.

Citing the section §354.28(c)(2) definition of the minimum threshold for reduction of groundwater storage as "a total volume of groundwater that can be withdrawn from the subbasin without causing conditions that may lead to undesirable results," the GSP sets the minimum threshold for the reduction in groundwater storage as the "the future long-term sustainable yield of the Subbasin under reasonable climate change assumptions," which Chapter 6 identifies as 112,000 AFY. (GSP, p. 8-27.)

Use of the conservative estimate of Sustainable Yield is mandated by the level of uncertainty. SGMA provides that "sustainable management criteria and projects and

[1] Unaccountably, the historical sustainable yield is stated at 95,700 AFY in Table 6-31, but as 97,200 AFY in Table 6-21.

management actions shall be commensurate with the level of understanding of the basin setting, based on the level of uncertainty and data gaps." (23 CCR § 350.4(d).) The minimum thresholds for sustainability indicators must be "qualified by uncertainty in the understanding of the basin setting." (23 CCR § 354.28(b)(1).) Measurable objectives must also "be commensurate with levels of uncertainty." (23 CCR § 354.30(c).) The SVGBGSA must "take into account the level of uncertainty associated with the basin setting when developing projects or management actions." (23 CCR § 354.44(d).) And in deciding whether to approve the Plan, DWR must consider "whether sustainable management criteria and projects and management actions are commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the Plan." (23 CCR § 354.4(b)(3).)

Despite the mandate for conservative assumptions to reflect uncertainty, the Plan relies on the *least* conservative estimate of sustainable yield, the highest, uncalibrated, black-box model output for the 2070 Sustainable Yield of 112,000 AFY – a figure produced from a model not made available to the public. The Plan should instead rely on the lower Historical Sustainable Yield of 95,700 AFY, a figure that is based on past historic data and the analysis in publicly available reports. The only rationale the GSP offers for its choice of the least conservative figure for Sustainable Yield is the stakeholder "preference" not to reduce their pumping:

> Public and stakeholder input on the significant and unreasonable conditions for groundwater storage suggested a preference for increasing groundwater storage, but not a preference for restricting average year pumping. Therefore, the minimum threshold is set at the long-term future sustainable yield of 112,000 AFY.

(GSP, section 8.7.2, p. 8-27.)

SMGA requires that the analysis, management actions, and projects in a GSP incorporate "best management practices" (BMPs) and that they be supported by "best available information" and "best available science." (See, e.g., 23 CCR, §§ 351(h),(i); 354.16; 354.18(e) 354.44(c); 355.4(b)(1), Stakeholder preferences may not preempt these considerations.

The GSP states that the sustainable yield "values in Table 6-31 are estimates only" and that the "sustainable yield value will be modified and updated as more data are collected and more analyses are performed." (GSP, section 6.10.5, p. xi.) Regardless whether the values are changed after further analysis, the GSP must observe SGMA's mandate to use conservative estimates in the face of uncertainty.

B. The minimum thresholds for groundwater levels and storage reduction are inconsistent with SGMA regulations because they fail to avoid the undesirable results for the seawater intrusion sustainability indicator.

SGMA requires that each minimum threshold must avoid *each* undesirable result because it requires that "basin conditions at each minimum threshold will avoid undesirable results for *each of* the sustainability indicators." (23 CCR § 354.28(b)(2), emphasis added.) For example, the groundwater level minimum threshold must be "supported by" the "[p]otential effects on *other* sustainability indicators." (23 CCR 354.28(c)(1)(B), emphasis added.) This means that each minimum threshold, especially the groundwater level minimum threshold, must be coordinated to ensure that *all* undesirable results are avoided.

1. **The minimum threshold for groundwater levels, set at one foot above lowest historical groundwater levels, will not support the minimum threshold for seawater intrusion, set at existing line of seawater intrusion advance, because those groundwater levels will not halt seawater intrusion.**

Chapter 8 adopts the 2017 line of advance of seawater intrusion as the minimum threshold for seawater intrusion:

> The 2017 extent of the 500 mg/L chloride concentration isocontour as mapped by MCWRA is adopted as the seawater intrusion minimum threshold for both the 180- and 400-Foot aquifers.

(Section 8.8.2, p. 8-33.)

Because each minimum threshold must avoid each undesirable result, the groundwater level minimum thresholds should be set at the levels that have been determined to be sufficient to prevent seawater intrusion. These levels should be determined based on the most current modeling or groundwater levels that are sufficient to prevent seawater intrusion. If currently modeling is not available, then the 2013 modeling prepared by Geoscience for MCWRA should be used. Regardless, the groundwater levels must clearly be higher than sea level.

Section 8.6.2 sets a minimum threshold for groundwater elevations at one foot above the 2015 groundwater levels. (GSP, section 8.6.2.1, p. 8-9.) This proposed level is equal to the 1991-1992 groundwater level, which was the lowest historical level that occurred in the 1967-1998 climatic cycle. (Ibid; see also Chapter 8, Figure 8-1.) Figures 8-2 and 8-3 show that the proposed minimum groundwater levels *would be well below sea levels in the northern end of the Salinas Valley*. This is consistent with the MCWRA groundwater contour maps for 2015, which show that 2015 elevations were in fact well below sea level in the northern Salinas Valley.[2] Seawater intrusion accelerated in 2015.[3]

Section 8.6.3 sets a measurable objective for chronic lowering of groundwater levels that “represent groundwater elevations that are higher than the minimum thresholds” in order to “provide operational flexibility to ensure that the Subbasin can be managed sustainably.” This level was set at the 2003 groundwater levels, representing “an average groundwater level from the relatively recent past.” Figures 8-4 and 8-5 show that the proposed measurable objective for groundwater levels would be *well below sea levels in the northern end of the Salinas Valley*. Again, this is consistent with the MCWRA groundwater contour maps for 2003, which show that 2003 elevations were

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[2] Maps available at https://www.co.monterey.ca.us/home/showdocument?id=31284 and https://www.co.monterey.ca.us/home/showdocument?id=31286.

[3] MCWRA, Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin, Special Reports Series 17-01, October 2017, pp. 4-5, available at https://www.co.monterey.ca.us/home/showdocument?id=57394.

well below sea level in the northern Salinas Valley.[4] Seawater intrusion continued in 2003.[5]

Seawater intrusion occurred throughout the 1967-1998 climatic cycle and has continued to date. It is caused by groundwater levels that are too low to hold back seawater. In its 2013 study for MCWRA, Geoscience reported the historic rate of seawater intrusion in various time intervals.[6] Intrusion accelerated over the period 1965 to 1999.[7] It has recently accelerated again.[8] Indeed, seawater has continued to steadily advance in both the 180 and 400 foot aquifers through 2017 -- the most recent year that Monterey County released seawater data – and now persists within half a mile or closer of the Salinas city boundary.

Geoscience explained that "historical pumping has lowered ground water levels in both the 180-Foot and 400-Foot aquifer systems such that there is a landward hydraulic gradient which has caused extensive sea water intrusion."[9] The report explains that control of sea water intrusion requires achieving and maintaining "protective elevations," which are defined as "those groundwater elevations which will keep the fresh/salt water interface from migrating inland. *In the northern portion of the Salinas Valley these elevations need to be above sea level and the flow of ground water toward the coast*."[10] The report explains that Geoscience quantified the protective elevations necessary to halt seawater intrusion using the SVIGSM model.

Geoscience's report sets out these necessary protective elevations in Figures 9 and 10 for the 180-Foot and 400-Foot Aquifers. These protective elevations necessary to prevent seawater intrusion are from *10 to 30 feet above sea level in the northern Salinas Valley*.[11]

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[4] Maps available at https://www.co.monterey.ca.us/home/showdocument?id=19538 and https://www.co.monterey.ca.us/home/showdocument?id=19554.

[5] MCWRA, Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin, Special Reports Series 17-01, October 2017, pp. 4-5.

[6] Geoscience, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, 2013, available at https://www.co.monterey.ca.us/home/showdocument?id=19642.

[7] Id., p. 5, Table 2.

[8] MCWRA, Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin, Special Reports Series 17-01, October 2017, pp. 4-5.

[9] Id., p. 4.

[10] Id., p. 6, emphasis added.

[11] Geoscience determined that in order to achieve these protective elevations, additional recharge or “in lieu recharge,” i.e., coastal pumping reductions made possible by moving surface water from the south to the north, would be required:

> The amount, location and timing of groundwater recharge (direct and in lieu), needed to maintain protective elevations and a seaward hydraulic gradient was determined using the SVIGSM. Based on model results, and assuming 2030 land use conditions, 12,000 acre-ft/year will be required from the SVWP Phase I facilities and 48,000 acre-ft/year will

The fact that existing groundwater levels are far from the levels required to prevent further seawater intrusion is readily apparent from the technical study on which the GSP relies for the historic water budget in Chapter 6.[12] That study establishes that as of 2013 there was a cumulative storage deficit in the Pressure Subbasin, an MCWRA management area that includes the 180/400 Foot Aquifer Subbasin and the Monterey Subbasin, amounting to 110,000 acre-feet.[13] That study concludes that this cumulative storage deficit would increase by 10,000 to 20,000 AFY under continued dry conditions. Since the drought did not end until 2019, the cumulative deficit has grown. The relation between cumulative deficit, insufficiently protective groundwater levels, and seawater intrusion is also evident from the rapid advances of seawater intrusion through 2017.

As Chapter 8 admits in section 8.6.2.3, "the GSP must describe the relationship between the selected minimum threshold and minimum thresholds for other sustainability indicators (e.g., describe how a water level minimum threshold would not trigger an undesirable result for land subsidence)." (GSP, p. 8-17.) Chapter 8 discusses the relationship of seawater intrusion and the minimum threshold for groundwater levels as follows:

> Seawater intrusion. A significant and unreasonable condition for seawater intrusion is seawater intrusion in excess of the extent delineated by MCWRA in 2017. Lower groundwater elevations, particularly in the 180-and 400-Foot Aquifers, could cause seawater to advance inland. The groundwater elevation minimum thresholds are set at or above existing groundwater elevations. Therefore, the groundwater elevation minimum thresholds will not exacerbate, and may help control, seawater intrusion.

(GSP, section 8.6.2.3, p. 8-17.) The discussion is not accurate. The proposed groundwater minimum thresholds would cause seawater to advance, would exacerbate existing conditions, and would not help control seawater intrusion. The fact that the minimum thresholds are proposed to be one foot higher than the lowest historical groundwater elevations or that the measurable objectives are based on average conditions is insufficient.[14] Because historic groundwater levels have caused seawater

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> be required from the SVWP Phase II facilities. Given the hydrologic variability in the Salinas Valley area, in order to supply a total of 60,000 acre-ft/year (on average), to the SVWP, it will be necessary to have the right to divert up to 135,00 acre-ft/year from the Salinas River.

Id., p. 11.

[12] Brown and Caldwell, *State of the Salinas River Groundwater Basin*, January 2015, available at https://www.co.monterey.ca.us/home/showdocument?id=19586.

[13] Id., p. ES-11.

[14] The Chapter 8 discussion in sections 8.6.2.2 appears to justify the minimum thresholds and measurable objectives based on the percentage of wells that would still have 25 feet of water. However, setting minimum thresholds and measurable objectives for groundwater levels at this level would permit continued seawater intrusion because that level is demonstrably insufficient to prevent seawater intrusion.

intrusion, the minimum thresholds and measurable objectives cannot simply be based on historic minimums or averages.

Chapter 8 also discusses the relation of groundwater elevation minimum thresholds with changes in groundwater storage. That discussion concludes that because the proposed minimum thresholds are set above existing groundwater levels, they "will not result in long term significant or unreasonable change in groundwater storage." (GSP, section 8.6.2.3, p. 8-17.) This discussion is also not accurate. The GSP concludes that there has been an average loss of storage of 2,100 AFY during the historical period. (GSP, section 6.10.5, Table 6-31, page xii.) This conclusion is consistent with the calculated 2,000 average loss of storage in the Pressure Subarea during the period from 1944 to 2013.[15] If the *average* historic groundwater elevations are correlated with the continuous depletion of the aquifer, setting the minimum groundwater elevations at the *lowest* historic level cannot support maintenance of aquifer storage.

2. **The minimum threshold for reduction in storage, set at the future long-term sustainable yield, will not support the minimum threshold for seawater intrusion, because halting seawater intrusion requires *replacement of depleted groundwater storage* by temporarily reducing extractions to below the sustainable yield.**

As discussed above, the GSP sets the minimum threshold for storage reduction at 112,000 AFY, representing the "future long-term sustainable yield of the Subbasin under reasonable climate change assumption." (GSP, section 8.7.2, p. 8-27.) Also as discussed above, until SVGBGSA has a calibrated groundwater model that reconciles historic and modeled future conditions, it should adopt the most conservative estimate of the long-term sustainable yield for this minimum threshold, i.e., the 95,700 AFY estimated using the historic model. (GSP Table 6-31, p. xii.)

But even a conservative estimate of *long-term* sustainable yield is not an adequate basis to set the minimum threshold for storage depletion because the GSP proposes to use that minimum threshold as a target for sustainable pumping. *Until seawater intrusion is in fact halted, the GSP must adopt an even lower minimum threshold for annual storage reductions in order to replace the cumulative storage deficits and to restore the protective groundwater elevations that will halt seawater intrusion*. As noted in the previous section, there is an accumulated storage deficit in excess of 100,000 AF in the Pressure Subarea, which contains the 180/400-Foot Aquifer Subbasin.

In sum, adopting a conservative estimate of sustainable yield might be sufficient to maintain protective groundwater elevations *once those elevations are attained*, but the continued pumping of the long-term the sustainable yield will not *restore* protective groundwater elevations. The cumulative storage deficit from prior years of overdraft conditions must first be addressed through a program of temporary but substantial reductions in pumping to a level *below* long-term sustainable yield in order to reestablish protective groundwater elevations.

[15] Brown and Caldwell, *State of the Salinas River Groundwater Basin,* 2016, p. Table ES-3, available at https://www.co.monterey.ca.us/home/showdocument?id=19586.

C. The GSP proposes inconsistent programs and management actions to attain the minimum threshold for seawater intrusion, and these remedies would not be timely.

The GSP admits that continued pumping of the long-term sustainable yield is inconsistent with replacing depleted groundwater storage to attain protective elevations. However, the GSP improperly defers the needed pumping reductions to some indefinite time in the future *after* the SVGBGSA has determined the efficacy of proposed projects and management actions:

> While the sustainable yield calculated in chapter 6 assumes zero seawater intrusion, *it does not account for temporary pumping reductions that may be necessary to achieve the higher groundwater levels that help stop seawater intrusion*. Because the minimum thresholds represent long-term management criteria, any temporary pumping reductions needed to raise groundwater elevations are not explicitly incorporated into the thresholds. However, the SVBGSA recognizes that, dependent on the success of various proposed projects and management actions, there may be a number of years when pumping must be held below the minimum threshold to achieve necessary rises in groundwater elevation. *The actual amount of allowable pumping from the Subbasin will be adjusted in the future based on the success of projects designed to halt seawater intrusion*.

(GSP, section 8.7.2, pp. 8-27 to 8-28, emphasis added.) In short, the Plan defers the "temporary pumping reductions" to reestablish protective groundwater elevations even while admitting that these pumping reductions are essential.

The deferral would be for an indeterminate number of years. As discussed in section I.F below, the GSP's implementation chapter postpones even the *commitment* to projects and management actions for the critically overdrafted 180/400-Foot Aquifer Subbasin for two years to coordinate them with the GSP for the rest of the Basin. Chapter 9 indicates that the time required to implement projects and management actions *after* that commitment would run from 2 to 9+ years, although the GSP fails to specify the actual project startup dates. the proposal in Section 8.7.2 to postpone temporary pumping reductions until the GSA first determines whether the long-delayed projects and management actions are effective would result in many more years of seawater intrusion.

Permitting the advancement of the seawater intrusion front for an indeterminate period would be inconsistent with the proposed minimum threshold for seawater intrusion, which requires halting it at the 2017 line of advancement. The fact that SGMA allows SVGBGSA 20 years to attain overall sustainability cannot cure the failure to take immediate action to address seawater intrusion because *the Plan provides no evidence that seawater intrusion can be reversed* once it has occurred. Indeed, the Plan does not provide any discussion of the issue. If reversal of seawater intrusion beyond the 2017 line of advancement were possible at all, it may require heroic measures that are not discussed in the Plan and that would not have been necessary if the intrusion were halted at the 2017 line. In the absence of any discussion of this question, there is no evidence that the Plan can in fact meet the seawater intrusion minimum threshold.

Even though Chapter 8 states that temporary pumping reductions are needed to meet the seawater intrusion minimum threshold, Chapter 9 proposes an entirely inconsistent approach. In Appendix 11E, comment 8-78 asks why the groundwater elevation measurable objectives were not set to stop seawater intrusion. The “DW Response” is that “intrusion could be stopped by pumping water out as well as by raising water levels.” The response in effect argues that the Plan is *not* committed to the temporary reductions in pumping to restore protective elevations that are mentioned in section 8.7.2, but is instead committed to the “Seawater Intrusion Pumping Barrier” identified as “Preferred Project 6.” (GSP, section 9.4.3.7, pp. 9-50 to 9-52.)

This $100 million+ capital project calls for 18 barrier wells continuously pumping 30,000 AFY along an 8.5 mile stretch of the coast. There is no indication that the project has been determined to be feasible, either technically, environmentally, or financially. For example, it is not clear that the Proposition 218 beneficiaries of the project would be willing or able to shoulder its cost. And, the Plan provides no evidence that there is a beneficial use for 30,000 AF of brackish water removed from the basin annually or, if not, that the water could be disposed of somewhere without unacceptable environmental impacts.

Furthermore, unless immediate pumping reductions were implemented to restore protective groundwater elevations, seawater intrusion would continue until the Seawater Intrusion Pumping Barrier is implemented, a period of time that section 9.4.3.7.5 identifies as at least 5 years from project commitment, without allowing any time for the required Proposition 218 process. During that time seawater intrusion would continue to advance past the 2017 line of advancement, which is identified as the minimum threshold. That 2017 line of advancement is already more than six miles inland.[16] The Plan provides no evidence that the proposed Seawater Intrusion Pumping Barrier along the coast could reverse seawater intrusion that has occurred more than six miles inland.

Furthermore, the inclusion of the Seawater Intrusion Pumping Barrier in the list of preferred projects begs the question to be addressed by the “Seawater Intrusion Working Group,” which is supposed to be convened as “Priority Management Action 6.” (GSP, section 9.3.7, pp. 9-20 to 9-21.) This Working Group is supposed to determine “an agreed approach for managing seawater intrusion.” (Id., p. 9-21.) The implication is that there *is in fact no agreed approach* and that the Seawater Intrusion Pumping Barrier is at best an uncertain remedy.

Finally, Priority Management Action 6, the Seawater Intrusion Working Group, is in essence a proposal to *postpone* the development of management actions and projects to halt seawater intrusion. This violates SGMA’s requirement that the *Plan itself* identify the management actions and projects that will mitigate overdraft and provide specified information about these management actions and projects. (23 CCR § 354.44.) For example, SGMA requires that the Plan identify the permits and regulatory process, the status and timetable, and the expected benefits of each project and management action and explain how it will be accomplished. (23 CCR § 354.44(b).) A plan that defers this information does not comply with SGMA because it is incomplete. DWR certainly cannot

[16] MCWRA, Presentation to Special Joint Meeting, 2017 Salinas Valley Groundwater Level Contours & Seawater intrusion Maps, April 24, 2018, available at https://www.co.monterey.ca.us/home/showdocument?id=63777.

find that a plan that defers the identification of management actions and projects by delegating this task to a working group is “sufficiently detailed,” or that it will in fact attain sustainability, or that it meets SGMA’s plan evaluation criteria,. (23 CCR § 350.4(b), (f); § 355.4.) Nor does the delegation of the approach to mitigation of seawater intrusion to a working group meet SGMA’s public participation requirements. (23 CCR § 354.10.)

The GSP’s multiple, inconsistent, incomplete, and deferred approaches to meeting the seawater intrusion minimum threshold – eventual temporary pumping reductions, a long-delayed $100+ million pumping barrier, or some eventual “agreed approach” from the Working Group – renders the GSP uncertain and inadequate as a plan.

D. The Plan fails to include immediate pumping reductions, which are required in order to attain the identified minimum threshold for seawater intrusion.

In its October, 2019 meeting to consider policy choices, the SVBGSA Board discussed the possibility of establishing a buffer to permit further advance of seawater intrusion. However, SVGBGSA does not have the option to allow seawater intrusion to move further inland unless it is prepared to permit the further loss of the land overlying newly seawater-intruded portions of the aquifer for groundwater-based activity, e.g., agriculture. As noted, the Plan does not present any evidence that seawater intrusion can feasibly be reversed; and if it cannot be feasibly reversed, this loss of productive land may be permanent.

If the SVGBGSA were to adopt a minimum threshold for seawater intrusion that permits any further advancement, it would also have to adopt interim milestones in increments of five years, as required by 23 CCR § 354.30. Thus, SVGBGSA would have to decide how much longer it going to let seawater intrusion advance (if it adopts a time-based "buffer") and/or whose land it would allow to be subjected to seawater intrusion (if it adopts a spatial "buffer"). Because the Board has not made this choice, it must adopt a plan that will in fact halt seawater intrusion at the 2017 line of advancement.

The only apparently feasible option to halt seawater intrusion at the 2017 line is immediate pumping reductions. The Plan does not identify pumping reductions that would adequately mitigate overdraft as a management action, even though the regulations require this:

> If overdraft conditions are identified through the analysis required by Section 354.18, *the Plan shall describe* projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.

(23 CCR § 354.44(b)(2).) Proposed priority management action number 4 calls for an *eventual* pumping ban in the CSIP area, but only after such time as replacement water projects are implemented. Furthermore, the Plan fails to include the required quantification of the demand reduction this management action would attain. (GSP, section 9.3.9, pp. 9-16 to 9-18.) Proposed priority management actions number 1 and 2 *might* result in pumping reductions through voluntary land retirements or BMPs, but these reductions are neither assured nor quantified. (GSP, section 9.3.2, 9.3.3, pp. 9-10 to 9-14.)

More problematically, the Plan does not quantify the demand reduction that is *needed* to halt seawater intrusion at the 2017 line of advancement. As discussed, there is available modeling that has determined that a pumping reduction of 60,000 AFY in coastal pumping would be required in order to reestablish protective elevations.[17] This modeling should be updated as necessary in order to specify a management action that would mandate the needed immediate coastal pumping reductions to halt seawater intrusion.

E. The Plan fails to mitigate overdraft: the water charges framework cannot reliably mitigate overdraft because pumping reductions remain voluntary.

1. **SGMA requires that a GSP identify projects or management actions, including demand reduction or other methods, that would be sufficient to mitigate overdraft**.

Mitigation of overdraft conditions is central to meeting the minimum thresholds for groundwater levels, storage reduction, and seawater intrusion. SGMA requires quantification of the "demand reduction or other methods" needed to mitigate overdraft. (23 CCR § 354.44(b)(2).) *Simply put, the SVGBGSA must either reduce pumping or take management actions and implement projects that would generate new water.*

The Plan includes projects, management actions, and an overarching "water charges framework" that are supposed to mitigate overdraft conditions and attain sustainability. (GSP, Chapter 9; see section 9.6, p. 9-85.) However, the Plan does not propose the one obvious and effective management action to ensure that pumping does not exceed sustainable yield: mandatory limits on pumping through water allocations.

As discussed in section I.D above, immediate pumping reductions are needed to attain the minimum threshold for seawater intrusion. But even if pumping reductions were not needed immediately, the Plan is not designed to ensure that pumping remains within the long-term sustainable yield of the 180/400-Foot Aquifer Subbasin. As discussed below, the Plan fails to implement an enforceable or quantifiable demand reduction and fails to show that the management actions and projects will effectively reduce demand or augment supply to avoid overdraft conditions.

2. **Contrary to the Plan's claim, the water charges framework would not reduce demand or increase supply sufficiently to mitigate overdraft**

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[17] Geoscience determined that in order to achieve these protective elevations, additional recharge or "in lieu recharge," i.e., coastal pumping reductions made possible by moving water from the south to the north, would be required:

> The amount, location and timing of groundwater recharge (direct and in lieu), needed to maintain protective elevations and a seaward hydraulic gradient was determined using the SVIGSM. Based on model results, and assuming 2030 land use conditions, 12,000 acre-ft/year will be required from the SVWP Phase I facilities and 48,000 acre-ft/year will be required from the SVWP Phase II facilities. Given the hydrologic variability in the Salinas Valley area, in order to supply a total of 60,000 acre-ft/year (on average), to the SVWP, it will be necessary to have the right to divert up to 135,00 acre-ft/year from the Salinas River.

Geoscience, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, 2013, p. 11.

because it relies on voluntary pumping reductions and permits pumping in excess of sustainable pumping allocations.

The Plan proposes an overarching water charges framework *that it claims will mitigate overdraft*:

> The water charges framework is specifically designed to promote pumping reductions. Should adequate pumping reductions not be achieved to mitigate all overdraft, funds collected through the water charges framework will support recharge of imported water, either through direct recharge or in-lieu means. Therefore, the water charges framework in association with the projects and management actions listed in this chapter will mitigate overdraft through a combination of pumping reduction and enhanced recharge.

(GSP, section 9.6, p. 9-85.)

The water charges framework is based on based on different fees for pumping at three different levels. It distinguishes three levels of fees:

- A “regulatory” fee for pumping a user’s “sustainable pumping allowance,”
- A “surcharge” for a user’s “transitional pumping allowance,” where the transitional pumping allowance is based initially on current pumping and then declines to zero over a period of time, and
- A “supplementary fee” for “supplemental pumping,” i.e., pumping in excess of the sustainable and transitional allowance.

This water charge framework is “designed to achieve” two objectives: “to promote voluntary pumping reductions” and “to fund water supply projects.” (Chapter 9, § 9.2, p. 9-2.)

However, there is no evidence that the fees can or will be set at a level that attains sustainability as long as pumping reductions remain voluntary. A purely voluntary scheme can only work to attain sustainability if (1) the fees are set at a level that pays for water projects that make additional water available in excess of sustainable yield (“new water”) and (2) that fee level is just high enough to incent users to limit their cumulative pumping to an amount equal to current sustainable yield plus that new water. Setting this Goldilocks fee would require SVGBGSA to know the incremental cost of new water from a suite of potential projects and management actions, to know the elasticity of demand, and to know the point at which the marginal cost of new water equals its marginal benefit to users.

In short, reliance on voluntary reductions in response to price signals would not work unless the SVGBGSA has a lot more information to set water prices than it can possibly generate before this Plan must be implemented.

Furthermore, the Plan admits that most of the details of the water charges framework must be deferred due to lack of information. (GSP, section 9.2.7, “Details to be Developed.”) For example, there is no estimate of costs and benefits per acre/foot of new water for some of the management actions. There is no allocation of the estimated Basin-wide benefits of the proposed management actions and projects to users of the 180/400- Foot Aquifer Subbasin. There is no information as to the elasticity of demand that would enable the SVGBGSA to determine what feasible projects and management actions, priced to users at an equitably determined cost per acre/foot, should be implemented in order to satisfy demand. However, if pumping reductions remain voluntary, establishing the supplementary charges for new water that would limit pumping to sustainable levels would require this cost/benefit information and a determination as to when the supplementary water charges will become so high that users will not be willing to buy more water.

Development of the water charge framework will also require critical compromises about technical matters and benefit allocation among affected parties, with vastly different interests by subbasin and by the type of user. This information will not be available by 2020 or perhaps for many years thereafter.

In sum, there is no prospect to get to an agreement, especially any time soon, on the amount of a supplementary water charge that would pay for needed projects and induce users to keep total pumping within the level of sustainable yield plus new water. Even if the SVGBGSA can determine the precise cost per acre/foot of new water, it is unlikely to know the point at which the benefits and costs of that next acre-foot of new water are equal. As long as pumping reductions remain voluntary, there is a significant probability that pumping will exceed sustainable yield.

Accordingly, as a practical matter, the Plan cannot rely on voluntary pumping reductions to ensure that pumping does not exceed sustainable yield. There is insufficient information to develop price signals as an effective incentive for voluntary pumping reductions, and the water charges framework is too uncertain to meet SGMA's requirements. (23 CCR § 354.44(c), (d) ["projects and management actions shall be supported by best available information and best available science;" and "agency shall take into account the level of uncertainty with the basin setting when developing projects and management actions"].)

3. Mitigation of overdraft requires mandatory pumping restrictions that limit total pumping to current sustainable yield plus newly produced water.

In light of the fact that the SVGBGSA cannot determine prices that would attain the needed voluntary pumping reductions, the obvious and essential way to mitigate overdraft is through mandatory reductions. The SVGBGSA must determine each user's share of the sustainable yield, and then mandate that pumping may not exceed this level. There are many methods to allocate shares of sustainable yield.[18]

Furthermore, as LandWatch has proposed in previous comments on a draft of Chapter 9, the SVGBGSA must restrict pumping in excess of the user's allowance of sustainable yield unless and until there is an actual committed, funded management action or project that will deliver new water. When new water is produced, the SVGBGSA should continue to restrict total pumping to the total of current sustainable yield plus that new water. To

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[18] Environmental Defense Fund and New Current Water and Land, LLC, Groundwater Pumping Allocations under California's Sustainable Groundwater Management Act, July 2018, available at https://www.edf.org/sites/default/files/documents/edf_california_sgma_allocations.pdf.

ensure this, when a management action or project is committed and funded, the SVGBGSA could distribute the new water by selling specific allowances of the new water to users.[19]

If demand for new water exceeds supply, the SVGBGSA could allocate the new water allowances through several means. For example, it could sell the new water by auction, e.g., a French auction in which the supply is sold at the lowest bid price above the cost of production that would clear the market. Alternatively, the right to purchase new water at the cost of production could be assigned to users according to some pre-determined formula, e.g. pro-rata, based on their initial allowances of the current sustainable yield.[20] There are other equitable ways to allocate new water. Regardless, the objective of the allocation system should be to recover at least its production cost, to dispose of all of the new water, and to prevent pumping in excess of the sustainable yield plus the amount of new water.

4. **The Plan fails to provide the mandated quantification of the mitigation of overdraft: it fails to quantify the benefits of management actions, it assigns all of the Basin-wide project benefits to the 180/400- Foot Aquifer Subbasin, it double counts some benefits, and it contains an arithmetic error.**

SGMA requires that if overdraft conditions are identified in the Water Budget, the Plan must "describe projects and management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft." (23 CCR § 354.44(b)(2).) Section 9.6 purports to provide this quantification. However, the quantification has four flaws that must be corrected.

First, Section 9.6 fails to quantify the benefits of management actions. SGMA mandates quantification of the benefits of projects *and management actions*. (23 CCR § 354.44(b)(2).) The discussion in Section 9.6 and Table 9-5 address only the benefits of proposed projects, based on the estimated quantification of benefits of each proposed project in the discussion of projects in Section 9.4. There are no such quantified estimates of the benefits of the proposed management actions in Section 9.3. It is likely that the benefits of some of the proposed management actions could in fact be estimated. For example, the benefit of a pumping ban in the CSIP area would presumably be equal to current pumping in that area, which should be ascertainable.

Unless the SVBGSA is prepared to supply at least an estimate of the benefits of proposed management actions, it is not clear that there is adequate evidence that they would have any meaningful or reliable benefits or that there is any way to evaluate those benefits, as required by 23 CCR § 354.44(b)(5). For example, the benefits of reservoir

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[19] A management action or project should not be deemed funded and committed until it has been approved by the implementing agency and until all needed funding is in place, including fee ordinances and Proposition 218 votes as needed.

[20] Users with an allowance of the existing sustainable water supply or an allowance of new water could be permitted to sell an allowance to other users. This secondary market in water allowances would ensure the water goes to the most valued use and would establish price signals that would inform SVGBGSA of users' willingness to pay for future new water supply projects.

reoperations may be too speculative to include at this point in light of the federal agency revocation of the Biological Opinion controlling environmental flows and the unfunded obligation for dam safety repairs, estimated to cost $145 million.[21] (GSP, section 9.3.4, pp. 9-14 to 9-16, Priority Management Action 3: Reservoir Reoperation.").

Second, Chapter 9 states that the proposed management actions and projects "constitute an integrated management program for the entire Valley," not just the 180/400 Aquifer Subbasin. (Chapter 9, sections 9.3.1, 9.4.2.) Despite this, Section 9.6 only discloses the overdraft for the 180/400 Aquifer Subbasin and then concludes that the *benefits of projects intended to mitigate the entire Basin's overdraft* is sufficient because it is greater than the overdraft in the 180/400 Foot Aquifer Subbasin. It is erroneous to allocate the entire benefit of Basin-wide mitigation to a single subbasin.

Third, Table 5 double counts the benefits of the proposed projects #2, 3, 4, and 5, all of which are intended to "work together to improve and expand the performance of the CSIP system" and are identified as "part of an integrated CSIP strategy." (Chapter 9, page 31, "CSIP Projects."). For example, the discussion of the benefits of Project # 5, Maximize Existing SRDF Diversion, states that the "estimated project yield is 11,600 AF/year. *The yield for this project is the same yield that is identified in Project #2 and a portion of the yield identified in Priority Project #3.*" (GSP, section 9.4.3.6.2, p. 9-49, emphasis added.) Despite this, Table 9-5 lists 11,600 AF/year as *additional* potential yield for Project #5, over and above the yield for Projects # 2 and #3. (GSP, Section 9.6, Table 9-5, p. 9-86.)

Fourth, Table 9-5 is not added correctly. The "total" for Table 9-5 is stated as "-58,201." However, the sum of the elements listed in the table is 40,800 acre-feet per year of potential water available for mitigating overdraft. Eliminating the double counted 11,600 acre-feet per year for Project # 5, the total would be 29,200 AF/year.

F. The implementation plan improperly delays substantive action for two years in order to accommodate the implementation schedule for the GSP for the rest of the Basin, which is not *critically* overdrafted.

SGMA requires more urgent action for *critically* overdrafted basins than for other overdrafted basins: plans for critically overdrafted basins are due two years sooner than plans for other overdrafted basins. The Chapter 10 GSP Implementation proposal fails to recognize this urgency because it defers substantive action for the critically overdrafted 180/400 Foot Aquifer Subbasin until the SVGBGSA is prepared to implement the GSP for the rest of the Salinas Valley Groundwater Basin (SVGB). Because the remainder of the Basin is merely overdrafted rather than critically overdrafted, its GSP is not due until 2022.

In particular, section 10.7 postpones implementation of projects and management actions in order to coordinate with the timetable for the rest of the Basin:

[21] Monterey Herald, "Reservoirs bond measure gets water agency support," Oct. 23, 2019**, a**vailable at https://www.montereyherald.com/2019/10/23/reservoirs-bond-measure-gets-water-agency-support/.

> The projects and management actions identified in Chapter 9 are sufficient for attaining sustainability in the 180/400-Foot Aquifer Subbasin as well as the other five subbasins in the Salinas Valley. The projects and actions will be implemented in a coordinated fashion across the entire Salinas Valley to ensure Valley-wide sustainability. Because five of the subbasins in the Valley will not complete GSPs until January 31, 2022, many of the projects and actions will be implemented only after this time.

(GSP, section 10.7, p. 10-10.) Indeed, the only activities proposed for projects and management actions prior to completion of the GSP for the rest of the SVGB in 2023 are some water rights applications, cost refinement, preliminary design ("if projects adequately defined"), and some initiation of environmental permitting. (GSP section 10.7, p. 10-10.)

Figure 10-1, "General Schedule of 5-year Startup Plan," represents that the SVGBGSA will "Implement Prioritized Projects" between 2023 and 2025. (GSP, section 10-9, p. 10-15.) However, the implication that the nine "Preferred" projects identified in Chapter 9 will actually start up in 2026 is inconsistent with the detailed project timelines in Chapter 9, which call for 2 to 9+ years to implement projects *after the SVGBGSA has committed itself to them*.

Furthermore, there is no reason to suppose that the SVGBGSA can or will commit itself to the basin-wide projects in 2023, the moment the SVGBGSA submits the GSP for the rest of the SVGB. First, DWR may not approve the Basin-wide GSP for several years, and the SVGBGSA may not be able to commit to a Basin-wide project without an approved Basin-wide GSP.

Second, many of the projects will require complex Proposition 218 compliance, undertaken only *after* SVGBGSA decides to pursue the projects, in order to determine whether fees can be assessed to actually build them.[22] (Water Code, § 10730.2(c)). The Proposition 218 compliance process, requiring engineering studies and benefit allocations based on a completed design and hydrological assessment, followed by balloting and protest procedures, may add years to each major project. The SVGBGSA cannot actually commit itself to commence a project until it has confirmed that it may make assessments to finance the project through a completed Proposition 218 process. The implementation schedule does not include any time for this critical process.

Finally, section 10.2 defers the implementation of a financing method for projects and management actions to coordinate with the timetable for financing for the rest of the Basin:

> Details of the GSP implementing finance framework for all six subbasins will be developed during the first three years of this GSP's implementation through a

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[22] The GSP identifies a proposed "Groundwater Sustainability Fee" (also termed a "regulatory fee" and a "Tier 1 – Sustainable Pumping Charge") for pumping a "Sustainable allowance" and an "interim base fee" pending completion of the "GSP financing framework." (GSP, sections 9.2 and 10.2, pp. 9-1 to 9-3, 10-4 to 10-5.) However, before Proposition 218 compliance, those fees could not be used for projects but only for the activities related to developing and managing the GSP. (Compare Water Code, §§ 10730 and 10730.2.)

> facilitated, Valley-wide process. This process will be similar to the successful facilitated process that resulted in the SVBGSA serving as the GSA for some or all parts of all six subbasins. The result of this facilitated process will be an agreement on the financing method approved by the SVBGSA. The facilitation will be complete by January 31, 2023, and the financing method will be implemented in all six subbasins immediately following.

(GSP section 10.2, pp. 10-4 to 10-5.) Here, the Plan is apparently describing the adoption of a financing “framework” or “method,” *not an actual financing plan or capital budget*. As noted, the actual budget and financing plan will require the completion of Proposition 218 processes for the projects.

In effect, the proposed GSP Implementation improperly treats the actual management of the critically overdrafted 180/400 Foot Aquifer Subbasin as if it were on the same timetable as the rest of the SVGB. This does not meet the mandate of SGMA, which requires more than a plan by 2020. SGMA requires that critically overdrafted basins “shall be *managed* under a groundwater sustainability plan” by January 31, 2020. (Water Code, § 10720.7(a)(1), emphasis added.)

If the development and financing of projects must await completion of the GSP for the remainder of the SVGB, and because substantial delay will inevitably be required to negotiate financing and develop projects, the SVGBGSA should implement all feasible interim measures to manage the 180/400 Foot Aquifer Subbasin pending the implementation of basin-wide projects and financing. As discussed in section I.D above and in section I.H below, that must include immediate pumping reductions.

G. The Plan fails to identify project startup dates.

The Plan identifies various timelines for the nine identified priority water projects in Chapter 9 that include necessary actions in a necessary sequence, such as studies and preliminary engineering, obtaining agreements and right of way, CEQA, permitting, design, bid and construction, and startup. Some projects might be implemented in 2 years from commitment; but most are projected to take from 5 to 9 years from commitment to startup. As noted above, Chapters 9 and 10 do not include estimates of the additional time required for Proposition 218 compliance.

Chapter 9 does not disclose when the timelines for each project would commence running, so it is impossible to determine when these projects would actually deliver results. The Chapter 10 implementation schedule proposes that no projects commence “implementation” before the adoption of the GSP for the remainder of the SVGB in 2023 so that the projects can be coordinated on a basin-wide basis. However, Chapter 10 does not even purport to identify project start up dates. This violates SGMA. (23 CCR, § 354.44(b)(2).) As discussed above, contrary to Figure 10-1 it is not reasonable to assume that the SVGBGSA will be able to “implement” all nine projects between 2023 and 2025. (GSP, p. 10-15.)

Chapter 10 should be revised to reflect realistic timelines for each project and management action that provide a best current estimate of startup that considers all necessary activity before startup, including the Proposition 218 process.

H. The Plan fails to impose pumping restrictions pending startup of new water projects. Interim pumping restrictions are needed in order to restore and maintain the protective groundwater elevations to attain the minimum threshold for seawater intrusion.

The development, permitting, and financing of water projects to replace reliance on current levels of groundwater pumping will take years. It is unlikely that any actual or substantial results toward halting seawater intrusion can be expected from the proposed projects and management actions by 2025, when Figure 10-1 indicates that the projects will be implemented. Projects may not deliver any substantial results before 2030. Interim management measures are required pending completion of projects. Interim measures must either provide additional water supplies or require mandatory pumping restrictions that will (1) actually ensure that pumping remains within the sustainable yield and (2) replace the cumulative storage deficit in order to restore groundwater levels to protective elevations.

Immediate pumping restrictions are feasible and would not require extensive data acquisition.

Pumping restrictions are legally feasible because they could be imposed based on the regulatory authority of GSAs to "control groundwater extractions by regulating, limiting, or suspending extractions from individual groundwater wells or extractions from groundwater wells in the aggregate, construction of new groundwater wells, enlargement of existing groundwater wells, or reactivation of abandoned groundwater wells, or otherwise establishing groundwater extraction allocations." (Water Code, § 10726.4(a)(2).)

SVGBGSA could adopt pumping restrictions much more quickly than it could actually complete a project. In particular, SVGBGSA would not need to complete the proposed three-year negotiation of a water charge framework and would not need to conduct a potentially multi-year Proposition 218 process. And it is likely that pumping restrictions would be exempt from CEQA as a measure to protect natural resources and the environment. (14 CCR §§ 15307, 15308.) And if the SVGBGSA could not or would not adopt needed pumping restrictions through such a CEQA exemption, then the SWRCB could do so under a statutory exemption. (Water Code, § 10736.2.)

Pumping restrictions could be imposed on the basis of readily available information. For example, the Brown and Caldwell report has already been used to in Chapter 6 to identify the historic sustainable yield of 95,700 AFY. (GSP, Table 6-31, p. xii.) The Brown and Caldwell Report also provides an estimate of the cumulative storage deficit, which should be retired through pumping reductions. In its 2013 study for MCWRA, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, Geoscience quantified the needed reductions in groundwater pumping (via in lieu recharge) to control seawater intrusion in the northern Salinas Valley.[23]

Although more precise data may eventually be available to closely calibrate the needed pumping reductions, there is no reason not to estimate and implement needed

[23] Geoscience, Protective Elevations to Control Seawater Intrusion in the Salinas Valley, 2013, p. 11.

reductions in pumping immediately. *There is simply no question that some pumping reductions are essential to halt seawater intrusion.*

Again, the only rationale advanced in the GSP for avoiding a pumping restriction is that stakeholders did not express a "preference for restricting average year pumping." (GSP, section 8.7.2, p. 8-27.) SGMA neither requires nor permits the SVGBGSA to honor a mere preference when that precludes meeting the mandates to meet the minimum thresholds, including the minimum threshold for seawater intrusion.

The GSP already proposes some pumping restrictions in the form of an immediate moratorium on new wells in the Deep Aquifer and an eventual restriction of pumping in the CSIP areas. (GSP, sections 9.3.5 and 9.3.6, pp. 9-16 to 9-20.) There is no reason that the GSP should not also address the need for immediate measures to address seawater intrusion.

Section II: The GSP should be revised.

Set forth in this section II are suggestions to improve the Plan.

A. Requested revisions to Chapter 6

1. Assumptions regarding efficacy of future projects and management actions to address seawater intrusion in the projected future sustainable yield should be spelled out.

We concur with Thomas Virsik's concerns about the projected future sustainable yield. (June 4, 2019 letter from Thomas Virsik to the Planning Committee.) In particular, Chapter 6 does not explain its assumption that seawater intrusion will be reduced from 10,500 AFY to 3,500 AFY by 2030, despite an increase in pumping and an increase in the change in storage. If this assumption is based on the assumed efficacy of existing or future management actions and projects, then Chapter 6 should identify them and the basis for their assumed efficacy.

Future operations of existing projects may in fact be subject to substantial changes. For example, Chapter 6 states that the modeling of the projected future water budget assumes "the current approach to reservoir management taken by MCWRA." (GSP, section 6.10.1.2, p. iv.) However, it is not clear that this assumption is warranted in light of the withdrawal of NOAA's Biological Opinion for the Salinas Valley Water Project on February 20, 2019. Or for example, it is not clear whether and how the projected future water budget reflects the recent actions by the County to restrict pumping in the Area of Impact within the 180/400 Subbasin.[24] The fact that the model projects that net pumping in 2030 and 2070 will be substantially *greater* than historical pumping suggests that the

[24] Monterey County, Urgency Ordinance # 5302, available at https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/wells/interim-urgency-ordinance-5302.

model assumes that the County's recent well moratorium in portions of the 180/400 Subbasin will not have any lasting effect on pumping amounts.

The purpose of the water budget is to inform decisions about what projects and management actions the SVGBGSA should implement to control undesirable effects, including seawater intrusion. Assuming a partial solution in the projected future water budget is unjustified unless the projects or management actions responsible for that partial solution are (1) outside the control of the SVGBGSA and (2) certain to be implemented by other parties. If projects or management actions responsible for that partial solution are within the control of the SVGBGSA, then they should be weighed against SVGBGSA's *other* options rather than being hard-wired into the water budget. If projects or management actions responsible for that partial solution are uncertain, then their uncertainty should be disclosed.

2. **Double counting of water withdrawals should be resolved**.

A number of previous comments have objected that the water budget overstates historic pumping, and therefore overstates future sustainable yield, because the historic data double counts groundwater pumping as surface water diversions. The Plan admits this problem. (GSP, section 8.11.2.1, p. 8-64.) In a June 18, 2019 letter, Thomas Virsik proposed a relatively straightforward method to identify or at least estimate this double counting by identifying identical extraction numbers in the eWRIMS data and the MCWRA groundwater pumping submissions. Resolution of double counting may materially affect the sustainable yield calculation in the historic water budget, and can only tend to reduce it. Conservative management under uncertainty requires that, before the GSA relies on the historic sustainable yield calculation, it should at least estimate this potential error and reduce the historic sustainable yield calculation by that estimate.

Chapter 6 states that the modeling of the *future* water budget does not double count extractions. (Section 6.9, p. 6-35.) This means that only the historical water budget's determination of sustainable yield has been overstated by double counting. This is not reassuring because it follows that the actual variance between the projected future sustainable yield determined by the USGS model (107,200 AFY in 2020 per Table 6-31) and the sustainable yield determined historically (95,700 AFY per Table 6-20) is even greater than disclosed by Chapter 6.

3. **Sustainable yield determinations should incorporate climate change-caused variability in precipitation**.

Chapter 6 notes that "projections are based on the available climate change data provided by DWR (2018)." (Section 6.10, p. iii.) The Chapter does not explain whether and how DWR's projections are reconciled with those in California's Fourth Climate Change Assessment Central Coast Region Report.

The Fourth Assessment notes:

- Average precipitation is expected to increase by a relatively small amount, but the annual variability increases substantially by the end of the century.
- Projected future droughts are likely to be a serious challenge to the region's already stressed water supplies.

- Water supply shortages, already common during drought, will be exacerbated. Higher temperatures may result in increases in water demand for agriculture and landscaping. Reduced surface water will lead to increases in groundwater extractions that may result in increased saltwater intrusion. Lower surface flows will lead to higher pollutant concentrations and will impact aquatic species.
- Climate change projections of future extreme and prolonged droughts will exacerbate the region's water supply challenges.[25]

Chapter 6 should discuss how variability and uncertainties in future precipitation patterns will impact groundwater budgets. It is not clear that climate variability effects have been modeled. Increased peak precipitation years may not proportionately benefit the groundwater basin as much as increased drought years harm the basin. Peak precipitation may occur in large storm events discharged down the river and out to sea without resulting in proportionately higher basin recharge. However, it is clear that drought years do result in falling groundwater levels.

B. Chapter 7 should require that pumping be monitored by flowmeters.

Chapter 7 does not provide for an adequate system of monitoring annual groundwater extractions. LandWatch strongly recommends that the Salinas Valley Groundwater Basin Groundwater Sustainability Agency adopt an ordinance that requires

1) Independently calibrated and monitored flowmeters on agricultural pumps throughout the Salinas Valley Groundwater Basin; and
2) Annual pumping reports that are independently validated for accuracy.

The ordinance should also include strict enforcement provisions that help assure full compliance. The proposed use of the existing monitoring program to monitor annual groundwater pumping is not adequate because it will generate inaccurate results and potentially lead to unfair cost allocations.

As LandWatch's previous comments on Chapter 7 explain, Monterey County Water Resource Agency does not enforce Monterey County Ordinance No. 3717 which requires installation of flowmeters meeting MCWRA specifications for all groundwater extraction facilities with a discharge pipe of 3 inches or greater. Many wells report extraction based on electricity consumption instead of the mandated reporting based on flowmeters. However, electricity consumption is a demonstrably inaccurate basis to estimate groundwater pumped.[26] Many wells do not report at all.

The Plan does not require enforcement of the MCWRA flowmeter ordinance, but instead would permit continued reliance on the same methods used in the past. (GSP, section 7.3, p. 7-16.) The Plan does not even require annual reporting by all agricultural users, instead providing for estimates of such pumping using crop data and crop duty

---

[25] Langridge, Ruth. (University of California, Santa Cruz), California's Fourth Climate Change Assessment Central Coast Region Report, 2018, pp. 17, 6, 7, 21, available at https://www.energy.ca.gov/sites/default/files/2019-07/Reg%20Report-%20SUM-CCCA4-2018-006%20CentralCoast.pdf.

[26] Irrigation Training and Research Center, California Polytechnic State University, ITRC Paper No. P 17-001, May 2017 available at http://www.itre.org/papers/wellrecords.htm.

estimates. The Plan should be revised to mandate use of flowmeters for all wells with discharge pipes of 3 inches or greater, with annual verification in accordance with Ordinance No. 3717. A monitoring plan that fails to require accurate measurement of groundwater extractions fails to meet SGMA's mandate to rely on best management practices and best available science to obtain the best available information.

Thank you for the opportunity to comment.

Sincerely,

Michael DeLapa
Executive Director

Chevron

Dallas H. Tubbs
Manager – Subsurface Optimization

November 21, 2019

Mr. Gary Petersen
General Manager – SVBGSA
c/o Regional Government Services
P.O. Box 1350
Carmel Valley, CA 93924

Salinas Valley: 180/400-Foot Aquifer Sub-basin Groundwater Sustainability Plan https://svbgsa.org/groundwater-sustainability-plan/180-400-ft-aquifer/

Dear Mr. Petersen:

Chevron North America Exploration and Production (Chevron) operates facilities in the San Ardo area of Monterey County. As an active member of the Salinas Valley Basin Groundwater Sustainability Agency's Advisory Committee, Chevron offers the following comments with respect to the captioned Groundwater Sustainability Plan (GSP).

3.4.1 Water Source Types:

- It is stated in the GSP, that the 180/400-Foot Aquifer Sub-basin has three water source types: groundwater, surface water, and recycled water. However, there is inconsistent use of terminology: both "recycled" and "reclaimed" water appear to be used interchangeably in the document. Chevron recommends the consistent use of the term reclaimed as opposed to recycled. While the terms are synonyms, reclaimed better describes the conversion of wastewater into water that can be reused for other purposes.
- Chevron recommends that the SVBGSA include a fourth category, that being "desalinated water". This will include the desalinated new water that is expected to be produced by the California American Water (Cal-Am) Monterey Peninsula Water Supply Project. It will also allow for the inclusion of water sources created via reverse osmosis or equivalent processes.

San Joaquin Valley Business Unit
Chevron North America Exploration and Production
9525 Camino Media, Bakersfield, CA 93311
Tel 662 412 6464 Mobile 661 319 4742
DallasTubbs@chevron.com

3.9 Conjunctive Use Programs:

- Chevron recommends that the California American Water (Cal-Am) Monterey Peninsula Water Supply Project also be included in this section. While not reclaimed water, the Cal-Am desalination project will represent a new source of water that will be used for urban uses in the Monterey Peninsula, which will offset water demand from the other water sources within the Sub-basin.

Figure 5-25: Cross-Section of Estimated Depth of Seawater Intrusion

- It appears that the seawater intrusion is represented in this cross-section with different shading. If so, Chevron recommends that Figure 5-25 include a legend.

6 WATER BUDGETS

- The "future" water budget is based on output from a groundwater model still under developed by the USGS. Chevron notes that the Salinas Valley Integrated Hydrologic Model (SVIHM) has not been made available for public review. Chevron formally requests that a copy of the model and its relevant input parameters be provided for review. Without external review, the water budget lacks foundation for broad stakeholder acceptance and becomes a matter of faith.
- Although this GSP is for the 180/400-Foot Aquifer Sub-basin, the SVIHM is dependent on flow parameters for the entirety of the Salinas Valley Basin. Chevron notes that the amount of monitoring well data at the southern boundary of the Salinas Valley - Upper Aquifer Sub-basin is sparse (between Monterey and San Luis Obispo counties). This could be a consequential source of error in the USGS model.

6.2.2 Groundwater Budget Components

- Chevron notes that the Groundwater budget inflows does not include desalinated water and recommends that it be added to the "Inflows" budget. This will account for new source of desalinated water expected from projects like the California American Water (Cal-Am) Monterey Peninsula Water Supply Project

6.11 Uncertainties in Projected Water Budget Simulations

- In answer to a Chevron question posed at a meeting of the Advisory Committee, it was learned that the USGS model has not been history matched using actual data from prior years. Replicating historical data seems an obvious first step in validating the efficacy of the model. Accordingly, what is the technical foundation for the expressed confidence in the SVIHM Model?

Table 7-5. Datasets Available for Use in Populating the DMS

- Table 7-5 contains placeholders for data not yet populated. Will data for desalination projects be include in the data field labeled "Recharge"? If not, Chevron recommends that an additional column be added to capture desalination projects.
- The Irrigated Lands Regulatory Program (ILRP) is not included in this table. If it is not included, how will deep percolation from excess irrigation be accounted for?

Sincerely,

Dallas H. Tubbs

Dallas H. Tubbs
Manager – Subsurface Optimization

cc: file

From:	Abby Ostovar
To:	Caryn S. Fogel; Victoria Hermosilla
Subject:	FW: SVBGSA PROJECT
Date:	Monday, November 25, 2019 9:08:50 AM

Here's another one. Just put it under one row in whole GSP, and include this part:

I disagree with the proposed groundwater sustainability project unless it can add a managed aquifer recharge project!

My objection is that majority of the proposed projects take water and don't add water. The injections wells need a source of water to work. CSIP requires recycled water and water from the Salinas River to work. The Arundo project sounds iffy. Plants only transpire 10 percent of the atmosphere water vapor, which is a small amount of water effecting the ground moisture.

I would like the project to include my proposed swale and pond idea to see if we can recharge the ground water and the aquifer and wells. I believe that this is a project that will be accepted by the property owner because this would directly effect the well owner. The project can be monitered easily to find the results and the well owner can use the surface pond water to irrigate.

Abby

Abby Ostovar, PhD
MONTGOMERY & ASSOCIATES

From: Ann Camel [mailto:acamel@rgs.ca.gov]
Sent: Monday, November 25, 2019 7:31 AM
To: Abby Ostovar
Subject: FW: SVBGSA PROJECT

Sent from Mail for Windows 10

From: 'james sang' via Board
Sent: Sunday, November 24, 2019 11:14 AM
To: Gary Petersen; BoardSVBGSA
Cc: Ann Camel; DIANE KENNEDY
Subject: SVBGSA PROJECT

To Mr. Peterson and the Board,

Good Morning,

I disagree with the proposed groundwater sustainability project unless it can add a managed aquifer recharge project!

My objection is that majority of the proposed projects take water and don't add water. The injections wells need a source of water to work. CSIP requires recycled water and water from the Salinas River to work. The Arundo project sounds iffy. Plants only transpire 10 percent of the atmosphere water vapor, which is a small amount of water effecting the ground moisture.

I would like the project to include my proposed swale and pond idea to see if we can recharge the ground water and the aquifer and wells. I believe that this is a project that will be accepted by the property owner because this would directly effect the well owner. The project can be monitered easily to find the results and the well owner can use the surface pond water to irrigate.

I have sent you the plans being done in the Santa Cruz area and seems to be successful. This

plan involves hundreds of acres. They concluded that the project seems successful. This a managed aquifer project.

I hope that you can include the projects written above. It does not make sense to solve the groundwater sustainability problem by taking water out and not replacing it!

James Sang sangjames@yahoo.com

--

The Nature Conservancy
Protecting nature. Preserving life.
CALIFORNIA WATER | GROUNDWATER

555 Capitol Mall, Suite 1290
Sacramento, California 95814
[916] 449-2850
nature.org
GroundwaterResourceHub.org

November 25, 2019

Gary Petersen, General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1441 Schilling Place
Salinas, CA 93901

Submitted via email to: petерseng@svbgsa.org

Re: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (GSP)

Dear Mr. Gary Petersen,

The Nature Conservancy (TNC) appreciates the opportunity to comment on the 180/400-Foot Aquifer Subbasin GSP, within the Salinas Valley Basin, that is being prepared under the Sustainable Groundwater Management Act (SGMA). It is understood that the Salinas Valley-Wide Integrated Groundwater Sustainability Plan (ISP) is intended to be an overarching document for the Salinas Valley Basin, which includes the 180/400-Foot Aquifer Subbasin. Please note that we have previously submitted comments to Chapter 4 of the GSP on February 7, 2019, comments to Chapter 5 of the GSP and Chapters 1 through 4 of the ISP on April 11, 2019, comments to Chapters 7 and 8 of the GSP on June 18, 2019, and comments to Chapter 11 of the GSP on October 11, 2019.

TNC as a Stakeholder Representative for the Environment

TNC is a global, nonprofit organization dedicated to conserving the lands and waters on which all life depends. We seek to achieve our mission through science-based planning and implementation of conservation strategies. For decades, we have dedicated resources to establishing diverse partnerships and developing foundational science products for achieving positive outcomes for people and nature in California. TNC was part of a stakeholder group formed by the Water Foundation in early 2014 to develop recommendations for groundwater reform and actively worked to shape and pass SGMA.

Our reason for engaging is simple: California's freshwater biodiversity is highly imperiled. We have lost more than 90 percent of our native wetland and river habitats, leading to precipitous declines in native plants and the populations of animals that call these places home. These natural resources are intricately connected to California's economy providing direct benefits through industries such as fisheries, timber and hunting, as well as indirect benefits such as clean water supplies. SGMA must be successful for us to achieve a sustainable future, in which people and nature can thrive within the Salinas Valley Groundwater Authority region and California.

We believe that the success of SGMA depends on bringing the best available science to the table, engaging all stakeholders in robust dialog, providing strong incentives for beneficial outcomes and rigorous enforcement by the State of California.

Given our mission, we are particularly concerned about the inclusion of nature, as required, in GSPs. The Nature Conservancy has developed a suite of tools based on best available science to help GSAs, consultants, and stakeholders efficiently incorporate nature into GSPs. These tools and resources are available online at GroundwaterResourceHub.org. The Nature Conservancy's tools and resources are intended to reduce costs, shorten timelines, and increase benefits for both people and nature.

Addressing Nature's Water Needs in GSPs

SGMA requires that all beneficial uses and users, including environmental users of groundwater, be considered in the development and implementation of GSPs (Water Code § 10723.2).

The GSP Regulations include specific requirements to identify and consider groundwater dependent ecosystems (23 CCR §354.16(g)) when determining whether groundwater conditions are having potential effects on beneficial uses and users. GSAs must also assess whether sustainable management criteria may cause adverse impacts to beneficial uses, which include environmental uses, such as plants and animals. In addition, monitoring networks should be designed to detect potential adverse impacts to beneficial uses due to groundwater. Adaptive management is embedded within SGMA and provides a process to work toward sustainability over time by beginning with the best available information to make initial decisions, monitoring the results of those decision, and using data collected through monitoring to revise decisions in the future. Over time, GSPs should improve as data gaps are reduced and uncertainties addressed.

To help ensure that GSPs adequately address nature as required under SGMA, The Nature Conservancy has prepared a checklist (Attachment A) for GSAs and their consultants to use. The Nature Conservancy believes the following elements are foundational for 2020 GSP submittals. For detailed guidance on how to address the checklist items, please also see our publication, *GDEs under SGMA: Guidance for Preparing GSPs*[1].

1. Environmental Representation

SGMA requires that groundwater sustainability agencies (GSAs) consider the interests of all beneficial uses and users of groundwater. To meet this requirement, we recommend actively engaging environmental stakeholders by including environmental representation on the GSA board, technical advisory group, and/or working groups. This could include local staff from state and federal resource agencies, nonprofit organizations and other environmental interests. By engaging these stakeholders, GSAs will benefit from access to additional data and resources, as well as a more robust and inclusive GSP.

2. Basin GDE and ISW Maps

SGMA requires that groundwater dependent ecosystems (GDEs) and interconnected surface waters (ISWs) be identified in the GSP. We recommend using the Natural Communities Commonly Associated with Groundwater Dataset (NC Dataset) provided online[2] by the Department of Water Resources (DWR) as a starting point for the GDE map. The NC Dataset was developed through a collaboration between DWR, the Department of Fish and Wildlife and TNC.

[1]GDEs under SGMA: Guidance for Preparing GSPs is available at: https://groundwaterresourcehub.org/public/uploads/pdfs/GWR_Hub_GDE_Guidance_Doc_2-1-18.pdf

[2] The Department of Water Resources' Natural Communities Commonly Associated with Groundwater dataset is available at: https://gis.water.ca.gov/app/NCDatasetViewer/

3. Potential Effects on Environmental Beneficial Users

SGMA requires that potential effects on GDEs and environmental surface water users be described when defining undesirable results. In addition to identifying GDEs in the basin, The Nature Conservancy recommends identifying beneficial users of surface water, which include environmental users. This is a critical step, as it is impossible to define "significant and unreasonable adverse impacts" without knowing *what* is being impacted. For your convenience, we've provided a list of freshwater species within the boundary of the 180/400-Foot Aquifer Subbasin in Attachment C. Our hope is that this information will help your GSA better evaluate the impacts of groundwater management on environmental beneficial users of surface water. We recommend that after identifying which freshwater species exist in your basin, especially federal and state listed species, that you contact staff at the Department of Fish and Wildlife (DFW), United States Fish and Wildlife Service (USFWS) and/or National Marine Fisheries Services (NMFS) to obtain their input on the groundwater and surface water needs of the organisms on the GSA's freshwater species list. Because effects to plants and animals are difficult and sometimes impossible to reverse, we recommend erring on the side of caution to preserve sufficient groundwater conditions to sustain GDEs and ISWs.

4. Biological and Hydrological Monitoring

If sufficient hydrological and biological data in and around GDEs is not available in time for the 2020/2022 plan, data gaps should be identified along with actions to reconcile the gaps in the monitoring network.

TNC has reviewed the status of our previous comments as appearing in Appendix 11E: Public Review Comments, provided online. Where our comments have not been adequately addressed in the current draft of the GSP, they are repeated in this letter. Additionally, we have the following global statements on critical issues that we have found in the responses to our previous comments in Appendix 11E:

- Appendix 11E states (Responses to Comments 7-26, 8-124, 8-132): "*The shallow aquifer is not considered a principal aquifer*." The GSP states (p. 4-17) that some domestic wells draw water from the shallow aquifer, and that groundwater in these sediments is hydraulically connected to the Salinas River. TNC disagrees with the statement that the shallow aquifer is not a principal aquifer; it is indeed a principal aquifer that needs Sustainable Management Criteria established to prevent adverse impacts to GDEs and surface water beneficial users. Additionally, SGMA defines principal aquifers as "aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems" [23 CCR § 351 (aa)].
- Appendix 11E states (Responses to Comments 8-131, 8-133, 8-134): "*The GSP does not protect species; it assesses whether the depletion of surface water due to pumping is significant or unreasonable*." However, the Water Code § 10723.2 states: "The groundwater sustainability agency shall consider the interests of <u>all</u> (emphasis added) beneficial uses and users of groundwater, as well as those responsible for implementing groundwater sustainability plans. These interests include, but are not limited to [..] (e) Environmental users of groundwater; and (f) Surface water users, if there is a hydrologic connection between surface and groundwater bodies. Identifying beneficial users of surface water, which include environmental users, is a critical step in defining "significant and unreasonable adverse impacts". Without this it is impossible

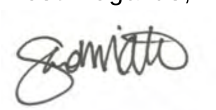
to know what is being impacted. In the GSP, please propose Sustainable Management Criteria that assure protection of GDEs and instream environmental beneficial users.

TNC considers the 180/400-Foot Aquifer Subbasin Draft GSP to be inadequate under SGMA since key environmental beneficial uses and users are not adequately identified and considered. In particular, ISWs and GDEs are not adequately identified and evaluated for ecological importance or adequately considered in the basin's sustainable management criteria. Please present a thorough analysis of the identification and evaluation of ISWs and GDEs in subsequent drafts of the GSP. Once GDEs are identified, they must be considered when defining undesirable results and evaluated for further monitoring needs.

Our comments related to the 180/400-Foot Aquifer Subbasin GSP are provided in detail in Attachment B and are in reference to the numbered items in Attachment A. Attachment D describes six best practices that GSAs and their consultants can apply when using local groundwater data to confirm a connection to groundwater for DWR's Natural Communities Commonly Associated with Groundwater Dataset[2]. Attachment E provides an overview of a new, free online tool that allows GSAs to assess changes in groundwater-dependent ecosystem (GDE) health using satellite, rainfall, and groundwater data.

Thank you for fully considering our comments as you develop your GSP.

Best Regards,



Sandi Matsumoto
Associate Director, California Water Program
The Nature Conservancy

Attachment A
Considering Nature under SGMA: A Checklist

The Nature Conservancy is neither dispensing legal advice nor warranting any outcome that could result from the use of this checklist. Following this checklist does not guarantee approval of a GSP or compliance with SGMA, both of which will be determined by DWR and the State Water Resources Control Board.

<table>
<tr><th colspan="2">GSP Plan Element*</th><th colspan="2">GDE Inclusion in GSPs: Identification and Consideration Elements</th><th>Check Box</th></tr>
<tr><td>Admin Info</td><td>2.1.5
Notice & Communication
23 CCR §354.10</td><td colspan="2">Description of the types of environmental beneficial uses of groundwater that exist within GDEs and a description of how environmental stakeholders were engaged throughout the development of the GSP.</td><td>1</td></tr>
<tr><td rowspan="3">Planning Framework</td><td rowspan="3">2.1.2 to 2.1.4
Description of Plan Area
23 CCR §354.8</td><td colspan="2">Description of jurisdictional boundaries, existing land use designations, water use management and monitoring programs; general plans and other land use plans relevant to GDEs and their relationship to the GSP.</td><td>2</td></tr>
<tr><td colspan="2">Description of instream flow requirements, threatened and endangered species habitat, critical habitat, and protected areas.</td><td>3</td></tr>
<tr><td colspan="2">Summary of process for permitting new or replacement wells for the basin, and how the process incorporates protection of GDEs</td><td>4</td></tr>
<tr><td rowspan="8">Basin Setting</td><td rowspan="3">2.2.1
Hydrogeologic Conceptual Model
23 CCR §354.14</td><td colspan="2">Basin Bottom Boundary:
Is the bottom of the basin defined as at least as deep as the deepest groundwater extractions?</td><td>5</td></tr>
<tr><td colspan="2">Principal aquifers and aquitards:
Are shallow aquifers adequately described, so that interconnections with surface water and vertical groundwater gradients with other aquifers can be characterized?</td><td>6</td></tr>
<tr><td colspan="2">Basin cross sections:
Do cross-sections illustrate the relationships between GDEs, surface waters and principal aquifers?</td><td>7</td></tr>
<tr><td rowspan="5">2.2.2
Current & Historical Groundwater Conditions
23 CCR §354.16</td><td colspan="2">Interconnected surface waters:</td><td>8</td></tr>
<tr><td colspan="2">Interconnected surface water maps for the basin with gaining and losing reaches defined (included as a figure in GSP & submitted as a shapefile on SGMA portal).</td><td>9</td></tr>
<tr><td colspan="2">Estimates of current and historical surface water depletions for interconnected surface waters quantified and described by reach, season, and water year type.</td><td>10</td></tr>
<tr><td colspan="2">Basin GDE map included (as figure in text & submitted as a shapefile on SGMA Portal).</td><td>11</td></tr>
<tr><td>If NC Dataset was used:</td><td>Basin GDE map denotes which polygons were kept, removed, and added from NC Dataset (Worksheet 1, can be attached in GSP section 6.0).</td><td>12</td></tr>
</table>

			The basin's GDE shapefile, which is submitted via the SGMA Portal, includes two new fields in its attribute table denoting: 1) which polygons were kept/removed/added, and 2) the change reason (e.g., why polygons were removed).	13
			GDEs polygons are consolidated into larger units and named for easier identification throughout GSP.	14
		If NC Dataset *was not* used:	Description of why NC dataset was not used, and how an alternative dataset and/or mapping approach used is best available information.	15
		Description of GDEs included:		16
		Historical and current groundwater conditions and variability are described in each GDE unit.		17
		Historical and current ecological condition and variability are described in each GDE unit and adequate to describe baseline as of 2015.		18
		Each GDE unit has been characterized as having high, moderate, or low ecological value.		19
		Inventory of species, habitats, and protected lands for each GDE unit with ecological importance (Worksheet 2, can be attached in GSP section 6.0).		20
	2.2.3 Water Budget *23 CCR §354.18*	Groundwater inputs and outputs (e.g., evapotranspiration) of native vegetation and managed wetlands are included in the basin's historical and current water budget.		21
		Potential impacts to groundwater conditions due to land use changes, climate change, and population growth to GDEs and aquatic ecosystems are considered in the projected water budget.		22
Sustainable Management Criteria	3.1 Sustainability Goal *23 CCR §354.24*	Environmental stakeholders/representatives were consulted.		23
		Sustainability goal mentions GDEs or species and habitats that are of particular concern or interest.		24
		Sustainability goal mentions whether the intention is to address pre-SGMA impacts, maintain or improve conditions within GDEs or species and habitats that are of particular concern or interest.		25
	3.2 Measurable Objectives *23 CCR §354.30*	Description of how GDEs were considered and whether the measurable objectives and interim milestones will help achieve the sustainability goal as it pertains to the environment, beneficial uses and managed areas.		26
	3.3 Minimum Thresholds *23 CCR §354.28*	Description of how GDEs and environmental uses of surface water were considered when setting minimum thresholds for relevant sustainability indicators:		27
		Will adverse impacts to GDEs and/or aquatic ecosystems dependent on interconnected surface waters (beneficial user of surface water) be avoided with the selected minimum thresholds?		28
		Are there any differences between the selected minimum threshold and state, federal, or local standards relevant to the species or habitats residing in GDEs or aquatic ecosystems dependent on interconnected surface waters?		29
	3.4 Undesirable Results *23 CCR §354.26*	For GDEs, hydrological data are compiled and synthesized for each GDE unit:		30
		If hydrological data *are available* within/nearby the GDE	Hydrological datasets are plotted and provided for each GDE unit (Worksheet 3, can be attached in GSP Section 6.0).	31
			Baseline period in the hydrologic data is defined.	32
			GDE unit is classified as having high, moderate, or low susceptibility to changes in groundwater.	33

			Cause-and-effect relationships between groundwater changes and GDEs are explored.	34
		If hydrological data *are not available* within/nearby the GDE	Data gaps/insufficiencies are described.	35
			Plans to reconcile data gaps in the monitoring network are stated.	36
		For GDEs, biological data are compiled and synthesized for each GDE unit:		37
		Biological datasets are plotted and provided for each GDE unit, and provide baseline conditions for assessment of trends and variability.		38
		Data gaps/insufficiencies are described.		39
		Plans to reconcile data gaps in the monitoring network are stated.		40
		Description of potential effects on GDEs, land uses and property interests:		41
		Cause-and-effect relationships between GDE and groundwater conditions are described.		42
		Impacts to GDEs that are considered to be "significant and unreasonable" are described.		43
		Known hydrological thresholds or triggers (e.g., instream flow criteria, groundwater depths, water quality parameters) for significant impacts to relevant species or ecological communities are reported.		44
		Land uses include and consider recreational uses (e.g., fishing/hunting, hiking, boating).		45
		Property interests include and consider privately and publicly protected conservation lands and opens spaces, including wildlife refuges, parks, and natural preserves.		46
Sustainable Management Criteria	3.5 Monitoring Network *23 CCR §354.34*	Description of whether hydrological data are spatially and temporally sufficient to monitor groundwater conditions for each GDE unit.		47
		Description of how hydrological data gaps and insufficiencies will be reconciled in the monitoring network.		48
		Description of how impacts to GDEs and environmental surface water users, as detected by biological responses, will be monitored and which GDE monitoring methods will be used in conjunction with hydrologic data to evaluate cause-and-effect relationships with groundwater conditions.		49
Projects & Mgmt Actions	4.0. Projects & Mgmt Actions to Achieve Sustainability Goal *23 CCR §354.44*	Description of how GDEs will benefit from relevant project or management actions.		50
		Description of how projects and management actions will be evaluated to assess whether adverse impacts to the GDE will be mitigated or prevented.		51

* In reference to DWR's GSP annotated outline guidance document, available at: https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/GD_GSP_Outline_Final_2016-12-23.pdf

Attachment B

TNC Evaluation of the 180/400-Foot Aquifer Subbasin Draft GSP

A complete draft of the 180/400-Foot Aquifer Subbasin GSP has been provided for public review and comment. Please note that we have previously submitted comments to Chapter 4 of the GSP in a letter dated February 7, 2019, comments to Chapter 5 of the GSP and Chapters 1 through 4 of the ISP in a letter dated April 11, 2019, comments to Chapters 7 and 8 of the GSP in a letter dated June 18, 2019, and comments to Chapter 11 of the GSP in a letter dated October 11, 2019. Where our comments have not been adequately addressed in the current draft of the GSP, they are repeated in this letter with the comment number from Appendix 11E highlighted in blue. Comments are provided in the order of the checklist items included as Attachment A.

Checklist Item 1 - Notice & Communication (23 CCR §354.10)

[Chapter 11. Outreach and Communication]

- The Joint Exercise of Powers Agreement (Appendix 11D) lists the Board of Directors that includes a Director representing environmental users and interests. This is the only mention of environmental users in Chapter 11. No details are given as to the types and locations of environmental uses and habitats supported, or the designated beneficial environmental uses of surface waters that may be affected by groundwater extraction in the Subbasin. To identify environmental users, please refer to the following:
  - Natural Communities Commonly Associated with Groundwater dataset (NC Dataset) – (https://gis.water.ca.gov/app/NCDatasetViewer/) which identifies the potential presence of groundwater dependent ecosystems in this basin.
  - The list of freshwater species located in the 180/400-Foot Aquifer Subbasin in Attachment C of this letter. Please take particular note of the species with protected status.
  - Lands that are protected as open space preserves, habitat reserves, fisheries, wildlife refuges, conservation areas or other lands protected in perpetuity and supported by groundwater or ISWs should be identified and acknowledged.
- Please refer to the Critical Species Lookbook[3] to review and discuss the potential groundwater reliance of critical species in the basin. Please include a discussion regarding the management of critical habitat for these aquatic species and its relationship to the GSP.

Checklist Items 2 to 4 - Description of general plans and other land use plans relevant to GDEs and their relationship to the GSP (23 CCR §354.8)

[Section 3.10 Land Use Plans (p. 3-39 to 3-50)]

[3] Available online at: https://groundwaterresourcehub.org/sgma-tools/the-critical-species-lookbook/

- This section discusses the city (Salinas, Gonzales, and Marina) and county (Monterey) general plans covering areas within the Subbasin. Please include a discussion of how implementation of the GSP may affect and be coordinated with General Plan policies and procedures regarding the protection of wetlands, aquatic resources and other GDEs and ISWs.
- This section should identify Habitat Conservation Plans (HCPs) or Natural Community Conservation Plans (NCCPs) within the Subbasin and if they are associated with critical, GDE or ISW habitats. Please identify all relevant HCPs and NCCPs within the Subbasin and address how GSP implementation will coordinate with the goals of these HCPs or NCCPs.
- Please refer to the Critical Species Lookbook[4] to review and discuss the potential groundwater reliance of critical species in the basin. Please include a discussion regarding the management of critical habitat for these aquatic species and its relationship to the GSP.

[Section 3.3 Jurisdictional Areas (p. 3-13 to 3-15)]

- The GSP describes several wildlife refuges, reserves, and conservation areas under Federal and State Jurisdiction, however there is no discussion of any in-stream flow requirements or other protections in place for species in these critical areas. Please include a discussion regarding the management of critical habitat for aquatic species and its relationship to the GSP, including discussion of any in-stream flow requirements.

[Section 3.10.5 Well Permitting (p. 3-47)]

- The GSP includes a brief discussion of well permitting policies governed by Monterey County. Please include a discussion of how future well permitting will be coordinated with the GSP to assure achievement of the Plan's sustainability goals.
- The State Third Appellate District recently found that counties have a responsibility to consider the potential impacts of groundwater withdrawals on public trust resources when permitting new wells near streams with public trust uses (ELF v. SWRCB and Siskiyou County, No. C083239). Compliance of well permitting programs with this requirement should be stated in the GSP.

<u>Checklist Items 5, 6, and 7 – Hydrogeologic Conceptual Model (23 CCR §354.14)</u>

[Section 4.3.2 Vertical Subbasin Boundaries (p. 4-10)]

- [Comment 4-14: GSP text changed but theme of original comment still holds; response does not adequately address the comment.] The SVBGSA has adopted the base of the aquifer defined by the USGS (Durbin et al., 1978). However, as noted on page 9 in DWR's Hydrogeologic Conceptual Model BMP[5] "the definable bottom of the

[4] Available online at: https://groundwaterresourcehub.org/sgma-tools/the-critical-species-lookbook/
[5] Available at: https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP_HCM_Final_2016-12-23.pdf, accessed Feb 6, 2019.

basin should be at least as deep as the deepest groundwater extractions". Thus, groundwater extraction well depth data, as part of the best available data available to the GSA, should also be included in the determination of the basin bottom. This will prevent extractors with wells deeper than the basin boundary from claiming exemption of SGMA due to their well residing outside the vertical extent of the basin boundary.

[Section 4.4 Subbasin Hydrogeology (p. 4-13)]

- Regional basin-wide geologic cross sections are provided in Figures 4-6 through 4-8 (p. 4-14 to 4-16). These cross-sections do not include a graphical representation of the manner in which the shallow aquifer may interact with ISWs or GDEs that would allow the reader to understand this topic. Please include example near-surface cross section details that depict the conceptual understanding of shallow groundwater and stream interactions at different locations.

[Section 4.4.1 Principal Aquifers and Aquitards (p. 4-17)]

- SGMA defines principal aquifers as "aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems" [23 CCR § 351 (aa)]. The GSP states (p. 4-17): "The shallowest water-bearing sediments are thin, laterally discontinuous, and do not constitute a significant source of water for the Subbasin. These shallow sediments are therefore not considered a principal aquifer." The text goes on to state that some domestic wells draw water from this zone, and that groundwater in these sediments is hydraulically connected to the Salinas River, both statements further support the claim that the shallow aquifer is a principal aquifer. TNC disagrees with the statement that the shallow aquifer is not a principal aquifer; it is indeed a principal aquifer that needs Sustainable Management Criteria established to prevent adverse impacts to GDEs and surface water beneficial users.

<u>Checklist Items 8, 9, and 10 – Interconnected Surface Waters (ISW) (23 CCR §354.16)</u>

[5.6.1 Data Sources for Interconnected Surface Water (5-54)]

- [Comment 5-36: Response does not adequately address the comment; no changes to GSP text were made.] While groundwater in the 180- and 400-foot Aquifers is generally not considered to be hydraulically connected to the Salinas River or its tributaries, the Shallow Aquifer (which resides above the Salinas Valley Aquitard) likely does. To address this, interconnections of surface water with groundwater in the Shallow Aquifer should be evaluated in this section of the GSP, since the Shallow Aquifer is within the 180/400-Foot Aquifer Subbasin. Where data gaps exist, cite them here or refer to a subsequent section of the GSP. Cite cross-sections that relay the conceptual understanding of the shallow aquifer interaction with surface water. Groundwater in the shallow aquifer is also likely to be supporting groundwater dependent ecosystems and interacting with the Salinas River in this part of the basin. Basins with a stacked series of aquifers may have varying levels of pumping across aquifers in the basin, depending on the production capacity or water quality associated with each aquifer. If pumping is concentrated in deeper aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow aquifers, that can support springs, surface water, and groundwater dependent ecosystems. This is because the goal of SGMA is to sustainably manage groundwater resources for current and future social, economic, and environmental benefits, and while groundwater pumping may not be currently occurring in a shallow aquifer, it could be in the future.

[Section 5.6.2 Analysis of Surface Water and Groundwater Interconnection (p. 5-56)]

- [Comment 5-37: Response does not adequately address the comment; no changes to GSP text were made.] The 180-Foot Aquifer and the 400-Foot Aquifers are confined units, thus comparing groundwater levels of <20 feet below the ground surface with wells screened within a confined aquifer is an incorrect comparison. This is because the potentiometric surface of a confined aquifer cannot reflect the position of the true water table. Comparing groundwater levels from the shallow (unconfined) aquifer (that exists above the Salinas Valley Aquitard) with the ground surface is a more appropriate approach for identifying ISWs in the basin.
- [Comment 5-38 and Comment 5-39: Groundwater model noted in GSP text; data gaps not cited.] Mapping ISW locations would be best done using contours of depth to groundwater measured from multiple points in time (different seasons and water year types) rather than only from Fall 2013. Groundwater conditions evaluated across the range of seasonal and interannual time frames provides a more representative view of ISWs. Relying solely on any single point in time (in this case Fall 2013) to characterize groundwater conditions (e.g., depth to groundwater) is incomplete because data from one time point fails to capture the seasonal and interannual variability (i.e., wet, average, dry, and drought years) that is characteristic of California's climate. If data gaps exist in groundwater level contour data over time, these data gaps should be discussed in the ISP Section 5.5 (Salinas Valley Basin ISP) and GSP Section 5.6 (180/400-Foot Aquifer GSP Draft) and reconciled in the Monitoring Network section, so that ISW maps can be improved in future GSPs.
- [Comment 5-40: Response does not adequately address the comment and no changes to GSP text made.] The groundwater levels shown on Figure 5-35 are irrelevant to the discussion of ISWs since they do not map the shallow water table. The use of piezometric head from confined aquifers should be eliminated from these ISW mapping efforts, since they do not adequately reflect the position of the true water table (see last paragraph on p. 38 of Salinas Valley Basin ISP).
- [Comment 5-41: Response does not adequately address the comment and no changes to GSP text made.] It is unclear on Figure 5-35 whether missing groundwater levels along certain reaches of the Salinas River are due to groundwater levels >20 feet bgs or due to data gaps in groundwater levels. Mapping the position of wells used for the interpolation of groundwater elevation data used to map

groundwater level contours near surface water would help provide further clarification.

- [Comment 5-42: Response does not adequately address the comment and no changes to GSP text made.] Please elaborate on how depth to groundwater contours were developed for Figure 5-19 of the Salinas Valley Basin ISP and on Figure 5-35 of the GSP. More accurate depth to groundwater maps around surface water features can be obtained by first interpolating groundwater elevations around surface water features and then subtracting groundwater elevations from land surface elevation data (obtained via digital elevation maps (DEM)[6]) for more accurate ISW mapping.
- [Comment 5-43: Response does not adequately address the comment and no changes to GSP text made.] We recommend mapping the gaining and losing reaches onto Figure 5-19 (Salinas Valley Basin ISP) using the data from Figure 5-23 (Salinas Valley Basin ISP). If this is not possible due to insufficient data, then as with the first bullet above, the data gaps would be best addressed by the Monitoring Network.

<u>Checklist Items 11 to 15, Identifying and Mapping GDEs (23 CCR §354.16)</u>

[4.4.4 Natural Discharge Areas (p. 4-23)]
[Appendix 4A Methodology for Identifying Potential Groundwater Dependent Ecosystems]

- Please present or refer to a depth to groundwater map in this section. Refer to our comments on Section 5.6 Interconnected Surface Water above. Please ensure that only wells screened in the shallow unconfined aquifer are used to develop the depth to groundwater maps. Using "depth to groundwater" measurements from confined aquifers is mapping piezometric head of the confined aquifer and not detecting groundwater conditions in the unconfined aquifer that is supporting the ecosystem. The GSP refers to data gaps in water levels in the shallow unconfined aquifer. If there are insufficient groundwater level data in the shallow aquifer, then the GDE polygons in these areas should be included as GDEs in the GSP <u>*until*</u> data gaps are reconciled in the monitoring network.
- Please note the following best practices for depth to groundwater contour maps:
    - o Are the wells used for interpolating depth to groundwater sufficiently close (<5km) to NC Dataset polygons to reflect local conditions relevant to ecosystems?
    - o Are the wells used for interpolating depth to groundwater screened within the surficial unconfined aquifer and capable of measuring the true water table (see comment b above)?
    - o Is depth to groundwater contoured using groundwater elevations at monitoring wells to get groundwater elevation contours across the landscape? This layer can then be subtracted from land surface elevations from a Digital Elevation Model (DEM) to estimate depth-to-groundwater contours across the

[6] Available at: https://catalog.data.gov/dataset/usgs-national-elevation-dataset-ned-1-meter-downloadable-data-collection-from-the-national-map-

landscape. This will provide much more accurate contours of depth-to-groundwater along streams and other land surface depressions where GDEs are commonly found. Depth to groundwater contours developed from depth to groundwater measurements at wells assumes that the land surface is constant, which is a poor assumption to make. It is better to assume that water surface elevations are constant in between wells, and then calculate depth to groundwater using a DEM of the land surface to contour depth to groundwater.

- Please clarify how the light blue shaded area shown in Figure 4A-3 (depth to water < 30 ft south of Chualar) is used for the GDE analysis. The figure implies an incorrect interpretation of the GDE Guidance. Were GDEs in the Subbasin identified only in the overlap of areas south of Chualar *and* areas with depth to water < 30 ft? As the GSP states correctly (Appendix 4A p. 3), if any of the three criteria from the GDE Guidance Document are true, then you likely have a GDE. The figure implies that potential GDEs were only identified in the Quaternary Alluvium south of Chualar, disregarding potential GDEs in the rest of the Subbasin (in other words, the figure implies that GDEs were identified in areas where Criteria 1 AND 2 hold true, not where Criteria 1 OR 2 hold true). This is an incorrect interpretation of the GDE Guidance. As stated above, if any of the three criteria from the GDE Guidance Document are true, then you likely have a GDE.
- Please use care when considering rooting depths of vegetation. Please list the species in each GDE, and whether the GDE was eliminated or retained based on the 30-foot standard, and provide evidence for the decision. While Valley Oak (Quercus lobata) have been observed to have a max rooting depth of ~24 feet (https://groundwaterresourcehub.org/gde-tools/gde-rooting-depths-database-for-gdes/), rooting depths are likely to spatially vary based on the local hydrologic conditions available to the plant. Also, max rooting depths do not take capillary action into consideration, which will vary with soil type and is an important consideration since woody phreatophytes generally do not prefer to have their roots submerged in groundwater for extended periods of time, and hence can access groundwater at deeper depths.
- While depth to groundwater levels within 30 feet are generally accepted as being a proxy for confirming that polygons in the NC dataset are connected to groundwater, it is highly advised that seasonal and interannual groundwater fluctuations in the groundwater regime are taken into consideration. Utilizing groundwater data from one point in time (e.g., Fall 2013) can misrepresent groundwater levels required by GDEs, and inadvertently result in adverse impacts to the GDEs. Based on a study we recently submitted to Frontiers in Environmental Science Journal, we've observed riparian forests along the Cosumnes River to experience a range in groundwater levels between 1.5 and 75 feet over seasonal and interannual timescales. Seasonal fluctuations in the regional water table can support perched groundwater near an intermittent river that seasonally runs dry due to large seasonal fluctuations in the regional water table. While perched groundwater itself cannot directly be managed due to its position in the vadose zone, the water table position within the regional aquifer (via pumping rate restrictions, restricted pumping at certain depths, restricted pumping around GDEs, well density rules) and its interactions with surface

water (e.g., timing and duration) can be managed to prevent adverse impacts to ecosystems due to changes in groundwater quality and quantity under SGMA. We highly recommend using depth to groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) to determine the range of depth to groundwater around NC dataset polygons. Please refer to Attachment D of this letter for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer. If insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons in the GSP *until* data gaps are reconciled in the monitoring network.

- Decisions to remove, keep, or add polygons from the NC dataset into a basin GDE map should be based on best available science in a manner that promotes transparency and accountability with stakeholders. Any polygons that are removed, added, or kept should be inventoried in the submitted shapefile to DWR, and mapped in the plan. We recommend revising Figure 4-10 to reflect this change.

Checklist Items 16 to 20, Describing GDEs (23 CCR §354.16)

- [Comment 4-13: The response states that assessment of potential GDEs followed the approach developed by TNC; this is not the case.] Not all GDEs are created equal. Some GDEs may contain legally protected species or ecologically rich communities, whereas other GDEs may be highly degraded with little conservation value. Identifying an ecological value of each GDE can help prioritize limited resources when considering GDEs as well as prioritizing legally protected species or habitat that may need special consideration when setting sustainable management criteria. Please include a description of the types of species (protected status, native versus non-native), habitat, and environmental beneficial uses (see Worksheet 2, p.74 of GDE Guidance Document) and assign an ecological value to the GDEs.
- Are any of the wells from the MCWRA program (described in Section 5.1.1 of the Salinas Valley Basin ISP) close enough (<1 km) to GDEs and screened in the shallow portions of the aquifer to characterize historical and current groundwater conditions for each GDE? If data gaps exist, they should be discussed in Chapter 5.
- The GDE Pulse web application developed by The Nature Conservancy provides easy access to 35 years of satellite data to view trends of vegetation metrics, groundwater depth (where available), and precipitation data. This satellite imagery can be used to observe trends for NC dataset polygons within the 180-400 Foot Aquifer area (Figure 1). Over the past 10 years (2009-2018), NC dataset vegetation polygons have experienced adverse impacts to vegetation growth and moisture which are correlated to declines in groundwater levels (e.g., as indicated by wells GZWA21202, CHEA21208).

Figure 1. GDE Pulse web viewer screenshots of satellite-based trends of vegetation growth (NDVI), moisture (NDMI), shallow groundwater levels, and precipitation for selected vegetation from the NC dataset in the 180-400 Foot Aquifer area.

<u>Checklist Items 23 to 25 – Sustainability Goal (23 CCR §354.24)</u>

[Section 8.2 Sustainability Goal (p. 8-3)]

- [Comment 8-122: Response does not adequately address the comment and no changes to GSP text made.] In a future draft of the document, please provide more details on how the needs of environmental beneficial users (GDE and ISW ecosystems) will be balanced with other water users in the basin. The sustainability goal should describe how projects and actions will balance environmental water needs and avoid adverse impacts to GDEs and ISWs, how the basin will be operated to maintain or improve these aquatic ecosystems, and an explanation of how the sustainability goal will be achieved within 20 years of implementation of the GSP. For more case studies on how to incorporate environmental benefits into groundwater projects, please visit our website: https://groundwaterresourcehub.org/case-studies/recharge-case-studies/

[Section 8.3 General Process for Establishing Sustainable Management Criteria (p. 8-5)]

- [Comment 8-123: Response does not adequately address the comment and no changes to GSP text made.] This section broadly lists how the chapter was developed, but "publicly available information" and specific stakeholders are not clearly defined or cross referenced to other sections. Please provide or cross-reference this information, including reference to publicly available information regarding GDEs that was researched and how environmental stakeholders were engaged.

Checklist Item 26 – Measurable Objectives (23 CCR §354.30), and Checklist Items 27-29 – Minimum Thresholds (23 CCR §354.28)

[Section 8.11 Depletion of Interconnected Surface Water SMC (p. 8-61)]

- This section states that …"*shallow sediments above the confined 180-Foot aquifer … are connected to the surface water system. However, there almost no groundwater pumping in this area and it is not identified as a defined aquifer. The Salinas River tends to be a losing river where surface water infiltrates into the unconfined zone above the 180-Foot Aquifer. This occurs primarily in the dry season, and the Salinas River is largely dependent on the San Antonio and Nacimiento Reservoir releases for its continuous flow rate.*" Groundwater extraction from the 180-400 Foot Aquifer System has the potential to locally affect conditions in the overlying Shallow Aquifer and deplete interconnected surface water, potentially causing adverse impacts to the environmental beneficial users in the basin. Please integrate the following information into this section of the GSP to appropriately establish SMC for ISWs in a way that achieves the basin's sustainability goal to balance *all* beneficial users of the basin:
    - [Comment 8-124: Response does not adequately address the comment and no changes to GSP text made. See global comment on principal aquifer.] The shallow aquifer is indeed a principal aquifer that needs SMC established to prevent adverse impacts to surface water beneficial users. SGMA defines principal aquifers as "aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems" [23 CCR § 351 (aa)]. In addition, more nested/clustered wells are needed in the 180-400 Foot Aquifer area to determine vertical groundwater gradients and whether pumping in the deeper aquifers are causing groundwater levels to lower in the shallow aquifer and deplete surface water.
    - [Comment 8-125: Response does not adequately address the comment and no changes to GSP text made.] As previously mentioned in our April 11 letter regarding Chapter 5 of the Draft GSP, the shallow aquifer in the 180/400 Foot Aquifer and Monterey Subbasins are likely to be supporting GDEs and interconnecting with the Salinas River. Thus, pumping in *deeper aquifers* can still cause adverse impacts to environmental beneficial users reliant on shallow groundwater. Even if pumping is not occurring in shallow groundwater aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow aquifers, especially those that support springs, surface water and GDEs for current and future uses.
    - [Comment 8-126: Response does not adequately address the comment and no changes to GSP text made.] Several published references indicate that the 180-Foot aquifer is in direct hydraulic communication with the overlying Dune Sand Aquifer or Shallow Alluvial Aquifer where the Salinas Valley Aquitard is

thin or absent.[7] These same references indicate aquitards within the 180/400 Foot aquifer system are known to be locally discontinuous. In addition, the fact that the Salinas is a losing stream and that 67,000 acre feet are recharged from the stream to the groundwater basin in an average year strongly suggests that the shallow aquifer is hydraulically connected to the underlying pumped aquifer systems.

[Section 8.10.2 Minimum Thresholds; Section 8.11.1 Locally Defined Significant and Unreasonable Conditions; and 8.11.2.1 Information and Methodology for Establishing Depletion of Interconnected Surface Minimum Thresholds (p. 8-56 to 8-64)]

- [Comment 8-128: Response states that the list of freshwater species will be included. TNC comment retained for completeness.] These sections explain that the definition of Significant and Unreasonable Conditions, and establishment of Minimum Thresholds and Measurable Objectives is based on considerations related to flows in the Salinas River and specifically the maintenance of minimum flows for the protection of aquatic species and water rights. Steelhead are not the only environmental user that need consideration. A list of freshwater aquatic species identified in the 180-/400-Foot Aquifer Subbasin is included for your reference as Attachment C. It appears that GDEs have been omitted, as they are not mentioned or considered. We believe this to be a deficiency, as the Department of Water Resource's NC Dataset Viewer indicates a variety of potential GDE habitats are located in the subbasin along the Salinas River and its tributaries, and not just within the stream. Furthermore, TNC's GDE Pulse Tool (Attachment E) shows declining ecosystem conditions along the Salinas River between 2014 and 2018, including the period *after* the recent drought (and *after* the baseline period specified in SGMA). NDVI (which represents vegetation growth) and NDMI (which represents vegetation moisture) coincide with a decline in groundwater levels for NC dataset polygons along the Salinas River west of Salinas (Figure 1). Please include a discussion of how baseline conditions, current trends and potential adverse impacts to GDEs were considered in the definition of significant and unreasonable conditions and establishment of Minimum Thresholds and Measurable Objectives. A discussion of applicable state, federal and local standards, policies and guidelines applicable to the GDE species and habitats identified should also be provided. The section should explain how, in light of the nature and condition of the GDEs, these Sustainable Management Criteria will prevent undesirable results related to damage to GDE resources. Any data gaps and the means to address them should be identified.

[Section 8.11.2.4 Effects on Beneficial Uses and Users (p. 8-67)]

- [Comment 8-129: Response does not adequately address the comment and no changes to GSP text made.] The listing of beneficial uses of interconnected surface

[7] See for example "Interpretation of Hydrostratigraphy and Water Quality from AEM Data Collected in the Northern Salinas Valley, CA," by Knight et al., dated 15 March 2018, and Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin, Special Reports Series 17-01," by Monterey County Water Resources Agency, dated October 2017.

water is limited to instream resources of the Salinas River alone. Please expand the listing of beneficial uses and users to address GDEs and ecosystems that are located adjacent to the river and its tributaries. A list of fresh water aquatic species identified in the 180-/400-Foot Aquifer Subbasin is included for your reference as Attachment C. The relationships between GDEs and ecosystems adjacent to the river and its tributaries, and their dependence on interactions with ISW and groundwater, are key to understanding the appropriateness of the subbasin-wide Minimum Threshold for interconnected surface water depletion being proposed for all ISWs. GDEs adjacent to the river should also be considered when establishing the SMC for Chronic Lowering of Groundwater levels. Adjacent or nearby GDEs could be significantly affected by small depletions depending on the depletion rate, their location and the existing surface and groundwater hydraulic gradients. However, even if they are not, these GDEs could still be affected by relatively modest groundwater level declines and likely still need to be considered separately according to groundwater levels under the Chronic Lowering of Groundwater SMC. The discussion of ecological land uses and users should include GDEs and ecosystems adjacent to the river and its tributaries, and their dependence on interactions with ISW and groundwater.

[Section 8.11.2.5 Relation to State, Federal, or Local Standards (p. 8-68)]

- [Comment 8-130: No change to GSP text; response says no need to list flow requirements in this document. TNC comment retained for completeness.] We recommend the streamflow requirements set by the NMFS should be explicitly stated or referenced in the GSP. In addition, any other state, federal or local standards, requirements and guidelines pertaining to the GDE habitats and species identified in the NC dataset or the list of species included in Attachment C should also be discussed or referenced.

[Section 8.11.2.6 Method for Quantitative Measurement of Minimum Threshold (p. 8-68)]

- [Comment 8-131: Response does not adequately address the comment and no significant changes to GSP text made. See global comment on GSP does not protect species.] Modeling/calculation of surface water depletion is the only proposed means to measure the minimum threshold for depletion of ISWs. Ecosystems sensitive to declines in groundwater levels and depletion of interconnected surface waters can experience significant declines in a short period of time depending on their hydraulic function, structure and the species involved. Use of a single calculated value in lieu of measured field data and linkages to other measured hydrogeologic data (such as groundwater levels) leaves a significant data gap that must be filled to assure protection of these resources. Model estimates should be monitored more closely than every five years in order to detect potentially significant effects in a time frame that allows for rapid response and alleviation of ecosystem decline. As discussed, the TNC's GDE Pulse Tool (Attachment E) already shows declining ecosystem conditions along the Salinas River between 2014 and 2018, including the period _after_ the recent drought (and _after_ the baseline period specified in the SGMA). Please discuss how the minimum threshold will be measured in a way that assures protection of GDEs and instream environmental beneficial users.

[Section 8.6.2.1 Information and Methodology Used to Establish Minimum Thresholds and Measurable Objectives (p. 8-8 to 8-16)]

- [Comment 8-132: Response does not adequately address the comment and no changes to GSP text made. See global comment on principal aquifer.] This section describes the methodology used to establish Minimum Thresholds and Measurable Objectives for Chronic Groundwater Level Decline. Subbasin-wide groundwater levels experienced in 2015 are defined as the Minimum Threshold, and the Measurable Objective was established the subbasin-wide groundwater levels experienced in 1992, which were approximately 1 foot higher. Table 8-2 (p. 8-15) lists "Representative Monitoring Sites" or wells where groundwater levels will be measured and compared to the Measurable Objectives to assess compliance with the plan. It is noteworthy that the table does not include a *single* well completed in the Shallow Alluvial or Dune Sand Aquifer. Please identify the lack of shallow aquifer monitoring wells as a data gap, and cross reference your plans discussed in Chapter 7 to install a sufficient number of shallow monitoring wells to assess potential undesirable results to GDEs.

[Sections 8.6.2.3 Relationship between Individual Minimum Thresholds (p. 8-16 to 8-18) and Section 8.7.2.2 Relationship to Other Sustainability Indicators and (p. 8-28 to 8-29)]

- [Comment 8-133: Response does not adequately address the comment and no significant changes to GSP text made. See global comment on GSP does not protect species.] When groundwater levels are used as an objective, their relationship to other Sustainability Indicators must be discussed. These sections describe the relationship of chronic groundwater level declines and change in groundwater storage, which are measured using groundwater levels, to depletion of interconnected surface waters. The discussion is limited to the potential effect of groundwater levels on stream flows, and the potential effect of groundwater level declines on GDEs is not mentioned. The statement that *"minimum thresholds for reduction in groundwater storage is a single value for the entire Basin. Therefore, the concept of potential conflict between minimum thresholds is not applicable"* does not recognize the potential presence of ecosystems and GDEs that could be sensitive to relatively minor or localized declines in groundwater levels. The potential effect of groundwater level declines on GDEs depends on multiple conditions including the type of vegetation present and its ability to adapt to changing groundwater levels, the local interaction between surface and groundwater, and the nature of regional and local pumping stresses. Specification of a single groundwater level is likely insufficient to assure protection of GDEs in the absence of a monitoring program that encompasses both groundwater levels *and* related surface conditions (23 CCR §354.34 (a) and (b)), e.g., the health of the GDEs, for example, by using a tool similar to GDE Pulse. Please revise these sections to include a discussion regarding the effects of potential groundwater level declines on GDEs and limitations of groundwater level monitoring alone to assess potential undesirable results to GDEs.

[Sections 8.6.2.5 Effects on Beneficial Users and Land Uses (p. 8-19 to 8-20) and 8.7.2.4 Effects on Beneficial Uses and Users (p. 8-30)]

- [Comment 8-134: Response does not adequately address the comment and no changes to GSP text made. See global comment on GSP does not protect species.] The discussion on ecological land uses and users does not include a discussion on GDEs, ISWs, or other uses that benefit aquatic and terrestrial wildlife, ecosystem processes or recreation. A list of fresh water aquatic species identified in the 180-/400-Foot Aquifer Subbasin is included for your reference as Attachment C. These sections imply that ecological land uses *may* benefit secondarily from the potential curtailment of agricultural and domestic land uses, but does not clearly state how these specialized aquatic ecosystems and related beneficial groundwater users would benefit or be protected from further decline or future damage. Please include a discussion explaining how GDEs, ISWs and recreational uses may benefit or be protected by implementation of the proposed Minimum Thresholds and Measurable Objectives. A list of freshwater aquatic species identified in the 180-/400-Foot Aquifer Subbasin is included for your reference as Attachment C.

[Section 8.6.4.3 Effects on Beneficial Users and Land Uses (p. 8-26)]

- [Comment 8-135: Comment noted but no change in GSP text.] This section discusses the effects on beneficial users and land uses of criteria used to define undesirable results related to chronic groundwater level decline. Fifteen percent of exceedances is considered reasonable if the wells are widespread through the subbasin. The section acknowledges that significant unreasonable effects could occur in a smaller clustered area due to localized pumping, but does not describe specifically how the proposed regional compliance strategy will identify or address a more localized occurrence. TNC's GDE Pulse Tool (Attachment E) shows declining ecosystem conditions along the Salinas River west of Salinas between 2014 and 2018. This section should be revised to use these data as a basis for addressing how the proposed compliance strategy will address significant and undesirable decline of GDEs at the spatial scale already observed in the GDE Pulse data.

Checklist Item 47-49 – Monitoring Network (23 CCR §352.34)

[Table 7.2 Existing 180/400-Foot Aquifer CASGEM Well Network (p. 7-4)]

- [Comment 7-26: Response does not adequately address the comment. See global comment on principal aquifer.]
  The wells listed in the table and proposed for monitoring do not include <u>any</u> wells completed in the Shallow Alluvial or Dune Sand Aquifers. As such, the proposed monitoring well network is inadequate to assess the potential effects of groundwater pumping and management on ISWs and GDEs. This fact should be

acknowledged with a cross reference to Section 7.2.4 which describes the proposed actions to remedy this situation.

[Section 7.7 Interconnected Surface Water Monitoring Network (p. 7-29)]

- [Comment 7-27: Response does not adequately address the comment.] This section states that *"… there is little to no interconnection between the 180-Foot, 400-Foot or Deep Aquifer and surface water in the 180/400-Foot Aquifer Subbasin."* However, the section further states that "the Salinas River is potentially in connection with groundwater in the shallow water bearing sediments" and Section 8.11.2 states that the average annual surface water depletion of the Salinas River is 67,000 acre feet. The GSP should explain how this amount of recharge can be redistributed through the aquifer system without any significant interconnection between the shallow and deeper aquifer systems. Furthermore, it is our understanding that the rate of surface water depletion from the Salinas River is in fact correlated historical groundwater level declines in the shallow and 180-Foot aquifer systems which have also resulted in seawater intrusion into the subbasin. The installation of two groundwater monitoring wells is insufficient to characterize surface-groundwater interactions across the entire subbasin. The BMP cited in section 7.2 instructs GSAs to "*Monitor surface water and groundwater … to characterize the spatial and temporal exchanges between surface water and groundwater, and to calibrate and apply the tools and methods necessary to calculate depletions of surface water caused by groundwater extractions."* Per the BMP, 13 to 14 monitoring wells would be more adequate to achieve this objective. Please revise this section to (1) reflect what is known and published regarding potential surface-groundwater interactions in the subbasin and related groundwater level and budget trends, (2) identify the existing data gaps, and (3) provide recommendations for an adequate number of monitoring wells to assess surface-groundwater interaction and shallow groundwater level trends.
- [Comment 7-28: Response does not adequately address the comment.] The GSP Regulations (23 CCR §354.34 (a) and (b)) require that monitoring must address trends in groundwater ***and related surface conditions*** (emphasis added). This includes "the tools and methods necessary to calculate depletions" and "[o]ther factors that may be necessary to identify adverse impacts on beneficial uses of the surface water," including impacts to GDEs. Please specify what other monitoring data and methods will be implemented to inform a determination whether significant and unreasonable impacts to GDEs are occurring, and explain how they will adequately meet the requirements of 23 CCR §354.34(c)(6) relative to GDEs and ISWs.

[Appendix 7B Monitoring Procedures]

- [Comment 7-29: Response states this will be added in a later version. TNC comment retained for completeness.] In Appendix 7B, please include monitoring protocols that meet the requirements of 23 CCR §354.34(c)(6) relative to GDEs and ISWs.

Checklist Items 50 and 51 – Projects and Management Actions to Achieve Sustainability Goal (23 CCR §354.44)

[Section 9.1 Introduction (p. 9-1)]

- The 180/400-Foot Aquifer Subbasin includes GDEs and ISWs that are beneficial uses and users of groundwater and may include potentially sensitive resources and protected lands. Environmental beneficial users and uses should be considered in establishing project priorities. In addition, consistent with existing grant and funding guidelines for SGMA-related work, consideration should be given to multi-benefit projects that can address water quantity as well as providing environmental benefits or benefits to disadvantaged communities. Please include environmental benefits and multiple benefits as criteria for assessing project priorities.

[Section 9.3 Management Actions (p. 9-9 to 9-21)]

- The 180/400-Foot Aquifer Subbasin GSP lists all Management Actions considered for the Subbasin in Appenidix 9A. Please consider adding Management Actions which include education and outreach for protection of GDEs and ISWs as well as specific management of these ecosystems and the species they provide for.

[Section 9.4 Projects (p. 9-21 to 9-84)]

- Section 9.4.1 lists "Direct Recharge through recharge basins or wells" as one of the four major types of projects that can be developed to supplement the 180/400-Foot Aquifer Subbasin's groundwater supplies or limit seawater intrusion. However, only one of this project type is presented, as an Alternative Project. The description of Measurable Objectives for Alternate Project 2 (Recharge Local Runoff from Eastside Range) only identifies benefits to groundwater elevation, groundwater storage, land subsidence, and groundwater quality. Because maintenance or recovery of groundwater levels or construction of recharge facilities may have potential environmental benefits, it would be advantageous to demonstrate multiple benefits from a funding and prioritization perspective. For Alternate Project 2, please consider stating how ISWs and GDEs will benefit or be protected, or what other environmental benefits will accrue.
- If ISWs and GDEs will not be adequately protected by the projects listed, please include and describe additional management actions and projects targeted for protecting ISWs and GDEs.
- Recharge basins, reservoirs and facilities for managed stormwater recharge projects can be designed as multi-benefit projects to include elements that act functionally as wetlands and provide a benefit for wildlife and aquatic species. In some cases, such multi-benefit projects and facilities have been incorporated into local Habitat Conservation Plans (HCPs) and Natural Community Conservation Plans (NCCPs), more fully recognizing the value of the habitat that they provide and the species they support. For projects that construct recharge basins, please consider identifying if there is habitat value incorporated into the design and how the recharge basins will be managed to benefit environmental users. Grant and funding considerations for SGMA-related work may be given to multi-benefit

projects that can address water quantity as well as provide environmental benefits. Therefore, please include environmental benefits and multiple benefits as criteria for assessing project priorities.

- For examples of case studies on how to incorporate environmental benefits into groundwater projects, please visit our website: https://groundwaterresourcehub.org/case-studies/recharge-case-studies/

Attachment C

Freshwater Species Located in the 180/400-Foot Aquifer Subbasin

To assist in identifying the beneficial users of surface water necessary to assess the undesirable result "depletion of interconnected surface waters", Attachment C provides a list of freshwater species located in the 180/400-Foot Aquifer Subbasin in the Salinas Valley. To produce the freshwater species list, we used ArcGIS to select features within the California Freshwater Species Database version 2.0.9 within the GSA's boundary. This database contains information on ~4,000 vertebrates, macroinvertebrates and vascular plants that depend on fresh water for at least one stage of their life cycle. The methods used to compile the California Freshwater Species Database can be found in Howard et al. 2015[8]. The spatial database contains locality observations and/or distribution information from ~400 data sources. The database is housed in the California Department of Fish and Wildlife's BIOS[9] as well as on The Nature Conservancy's science website[10].

Scientific Name	Common Name	Legal Protected Status		
		Federal	**State**	**Other**
BIRDS				
Actitis macularius	Spotted Sandpiper			
Aechmophorus clarkii	Clark's Grebe			
Aechmophorus occidentalis	Western Grebe			
Agelaius tricolor	Tricolored Blackbird	Bird of Conservation Concern	Special Concern	BSSC - First priority
Aix sponsa	Wood Duck			
Anas acuta	Northern Pintail			
Anas americana	American Wigeon			
Anas clypeata	Northern Shoveler			
Anas crecca	Green-winged Teal			
Anas cyanoptera	Cinnamon Teal			
Anas discors	Blue-winged Teal			
Anas platyrhynchos	Mallard			
Anas strepera	Gadwall			
Anser albifrons	Greater White-fronted Goose			
Ardea alba	Great Egret			
Ardea herodias	Great Blue Heron			
Aythya affinis	Lesser Scaup			
Aythya americana	Redhead		Special Concern	BSSC - Third priority
Aythya collaris	Ring-necked Duck			
Aythya marila	Greater Scaup			
Aythya valisineria	Canvasback		Special	
Botaurus lentiginosus	American Bittern			

[8] Howard, J.K. et al. 2015. Patterns of Freshwater Species Richness, Endemism, and Vulnerability in California. PLoSONE, 11(7). Available at: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0130710
[9] California Department of Fish and Wildlife BIOS: https://www.wildlife.ca.gov/data/BIOS
[10] Science for Conservation: https://www.scienceforconservation.org/products/california-freshwater-species-database

Bucephala albeola	Bufflehead			
Bucephala clangula	Common Goldeneye			
Butorides virescens	Green Heron			
Calidris alpina	Dunlin			
Calidris mauri	Western Sandpiper			
Calidris minutilla	Least Sandpiper			
Chen caerulescens	Snow Goose			
Chen rossii	Ross's Goose			
Chlidonias niger	Black Tern		Special Concern	BSSC - Second priority
Chroicocephalus philadelphia	Bonaparte's Gull			
Cistothorus palustris palustris	Marsh Wren			
Cygnus columbianus	Tundra Swan			
Egretta thula	Snowy Egret			
Empidonax traillii	Willow Flycatcher	Bird of Conservation Concern	Endangered	
Fulica americana	American Coot			
Gallinago delicata	Wilson's Snipe			
Geothlypis trichas trichas	Common Yellowthroat			
Grus canadensis	Sandhill Crane			
Haliaeetus leucocephalus	Bald Eagle	Bird of Conservation Concern	Endangered	
Himantopus mexicanus	Black-necked Stilt			
Histrionicus histrionicus	Harlequin Duck		Special Concern	BSSC - Second priority
Icteria virens	Yellow-breasted Chat		Special Concern	BSSC - Third priority
Limnodromus scolopaceus	Long-billed Dowitcher			
Lophodytes cucullatus	Hooded Merganser			
Megaceryle alcyon	Belted Kingfisher			
Mergus merganser	Common Merganser			
Mergus serrator	Red-breasted Merganser			
Numenius americanus	Long-billed Curlew			
Numenius phaeopus	Whimbrel			
Nycticorax nycticorax	Black-crowned Night-Heron			
Oxyura jamaicensis	Ruddy Duck			
Pelecanus erythrorhynchos	American White Pelican		Special Concern	BSSC - First priority

Phalacrocorax auritus	Double-crested Cormorant			
Phalaropus tricolor	Wilson's Phalarope			
Plegadis chihi	White-faced Ibis		Watch list	
Pluvialis squatarola	Black-bellied Plover			
Podiceps nigricollis	Eared Grebe			
Podilymbus podiceps	Pied-billed Grebe			
Porzana carolina	Sora			
Rallus limicola	Virginia Rail			
Recurvirostra americana	American Avocet			
Riparia riparia	Bank Swallow		Threatened	
Rynchops niger	Black Skimmer			
Setophaga petechia	Yellow Warbler			BSSC - Second priority
Tachycineta bicolor	Tree Swallow			
Tringa melanoleuca	Greater Yellowlegs			
Tringa semipalmata	Willet			
Tringa solitaria	Solitary Sandpiper			
Xanthocephalus xanthocephalus	Yellow-headed Blackbird		Special Concern	BSSC - Third priority
CRUSTACEANS				
Americorophium spp.	Americorophium spp.			
Cambaridae fam.	Cambaridae fam.			
Cyprididae fam.	Cyprididae fam.			
Gammarus spp.	Gammarus spp.			
Gnorimosphaeroma spp.	Gnorimosphaeroma spp.			
Hyalella spp.	Hyalella spp.			
Neomysis mercedis				Not on any status lists
FISH				
Eucyclogobius newberryi	Tidewater goby	Endangered	Special Concern	Vulnerable - Moyle 2013
Oncorhynchus mykiss - SCCC	South Central California coast steelhead	Threatened	Special Concern	Vulnerable - Moyle 2013
Spirinchus thaleichthys	Longfin smelt	Candidate	Threatened	Vulnerable - Moyle 2013
Catostomus occidentalis mnioltiltus	Monterey sucker			Least Concern - Moyle 2013
Cottus aleuticus	Coastrange sculpin			Least Concern - Moyle 2013
Cottus asper ssp. 1	Prickly sculpin			Least Concern - Moyle 2013
Entosphenus tridentata ssp. 1	Pacific lamprey		Special	Near-Threatened - Moyle 2013

Eucyclogobius newberryi	Tidewater goby	Endangered	Special Concern	Vulnerable - Moyle 2013
Gasterosteus aculeatus aculeatus	Coastal threespine stickleback			Least Concern - Moyle 2013
Gasterosteus aculeatus microcephalus	Inland threespine stickleback		Special	Least Concern - Moyle 2013
Lavinia exilicauda harengeus	Monterey hitch		Special	Vulnerable - Moyle 2013
Lavinia symmetricus subditus	Monterey roach		Special Concern	Near-Threatened - Moyle 2013
Oncorhynchus gorbuscha	Pink salmon		Special Concern	Endangered - Moyle 2013
Oncorhynchus mykiss - SCCC	South Central California coast steelhead	Threatened	Special Concern	Vulnerable - Moyle 2013
Oncorhynchus mykiss irideus	Coastal rainbow trout			Least Concern - Moyle 2013
Orthodon microlepidotus	Sacramento blackfish			Least Concern - Moyle 2013
Ptychocheilus grandis	Sacramento pikeminnow			Least Concern - Moyle 2013
Rhinichthys osculus ssp. 1	Sacramento speckled dace			Least Concern - Moyle 2013
HERPS				
Actinemys marmorata marmorata	Western Pond Turtle		Special Concern	ARSSC
Ambystoma californiense californiense	California Tiger Salamander	Threatened	Threatened	ARSSC
Ambystoma macrodactylum	Long-toed salamander			
Ambystoma macrodactylum croceum	Santa Cruz Long-toed Salamander	Endangered	Endangered	
Anaxyrus boreas boreas	Boreal Toad			
Anaxyrus boreas halophilus	California Toad			ARSSC
Pseudacris regilla	Northern Pacific Chorus Frog			
Pseudacris sierra	Sierran Treefrog			
Rana boylii	Foothill Yellow-legged Frog	Under Review in the Candidate or Petition Process	Special Concern	ARSSC

Rana draytonii	California Red-legged Frog	Threatened	Special Concern	ARSSC
Spea hammondii	Western Spadefoot	Under Review in the Candidate or Petition Process	Special Concern	ARSSC
Taricha torosa	Coast Range Newt		Special Concern	ARSSC
Thamnophis elegans elegans	Mountain Gartersnake			Not on any status lists
Thamnophis elegans terrestris	Coast Gartersnake			Not on any status lists
Thamnophis hammondii hammondii	Two-striped Gartersnake		Special Concern	ARSSC
Thamnophis sirtalis infernalis	California Red-sided Gartersnake			Not on any status lists
Thamnophis sirtalis sirtalis	Common Gartersnake			
INSECTS AND OTHER INVERTEBRATES				
Abedus spp.	Abedus spp.			
Ablabesmyia spp.	Ablabesmyia spp.			
Acentrella spp.	Acentrella spp.			
Aeshna interrupta interna				
Aeshna palmata	Paddle-tailed Darner			
Aeshnidae fam.	Aeshnidae fam.			
Agabus spp.	Agabus spp.			
Ameletus spp.	Ameletus spp.			
Argia spp.	Argia spp.			
Baetidae fam.	Baetidae fam.			
Baetis spp.	Baetis spp.			
Belostomatidae fam.	Belostomatidae fam.			
Berosus spp.	Berosus spp.			
Bisancora spp.	Bisancora spp.			
Brachycentrus spp.	Brachycentrus spp.			
Brillia spp.	Brillia spp.			
Calineuria californica	Western Stone			
Callibaetis spp.	Callibaetis spp.			
Centroptilum spp.	Centroptilum spp.			
Chaetocladius spp.	Chaetocladius spp.			
Cheumatopsyche spp.	Cheumatopsyche spp.			
Chironomidae fam.	Chironomidae fam.			
Chironomus spp.	Chironomus spp.			
Chloroperlidae fam.	Chloroperlidae fam.			
Choroterpes spp.	Choroterpes spp.			
Cladotanytarsus spp.	Cladotanytarsus spp.			
Coenagrionidae fam.	Coenagrionidae fam.			

Corisella decolor				Not on any status lists
Corisella spp.	Corisella spp.			
Corixidae fam.	Corixidae fam.			
Cricotopus spp.	Cricotopus spp.			
Cryptotendipes spp.	Cryptotendipes spp.			
Cymbiodyta spp.	Cymbiodyta spp.			
Dicrotendipes spp.	Dicrotendipes spp.			
Diphetor hageni	Hagen's Small Minnow Mayfly			
Drunella spp.	Drunella spp.			
Dytiscidae fam.	Dytiscidae fam.			
Enallagma carunculatum	Tule Bluet			
Enallagma spp.	Enallagma spp.			
Epeorus spp.	Epeorus spp.			
Ephydridae fam.	Ephydridae fam.			
Fallceon quilleri	A Mayfly			
Fallceon spp.	Fallceon spp.			
Gomphidae fam.	Gomphidae fam.			
Gumaga spp.	Gumaga spp.			
Gyrinus spp.	Gyrinus spp.			
Heptageniidae fam.	Heptageniidae fam.			
Hydrophilidae fam.	Hydrophilidae fam.			
Hydroporus spp.	Hydroporus spp.			
Hydropsyche spp.	Hydropsyche spp.			
Hydroptila spp.	Hydroptila spp.			
Hydroptilidae fam.	Hydroptilidae fam.			
Ischnura spp.	Ischnura spp.			
Isoperla spp.	Isoperla spp.			
Laccobius spp.	Laccobius spp.			
Laccophilus spp.	Laccophilus spp.			
Lepidostoma spp.	Lepidostoma spp.			
Leptoceridae fam.	Leptoceridae fam.			
Leucrocuta spp.	Leucrocuta spp.			
Limnophyes spp.	Limnophyes spp.			
Liodessus obscurellus				Not on any status lists
Malenka spp.	Malenka spp.			
Micropsectra spp.	Micropsectra spp.			
Microtendipes spp.	Microtendipes spp.			
Mystacides spp.	Mystacides spp.			
Nanocladius spp.	Nanocladius spp.			
Nectopsyche spp.	Nectopsyche spp.			
Ochthebius spp.	Ochthebius spp.			
Onocosmoecus spp.	Onocosmoecus spp.			
Optioservus spp.	Optioservus spp.			
Oreodytes spp.	Oreodytes spp.			
Pantala hymenaea	Spot-winged Glider			

Paracladopelma spp.	Paracladopelma spp.			
Paracymus spp.	Paracymus spp.			
Parakiefferiella spp.	Parakiefferiella spp.			
Paraleptophlebia spp.	Paraleptophlebia spp.			
Paratanytarsus spp.	Paratanytarsus spp.			
Paratendipes spp.	Paratendipes spp.			
Peltodytes spp.	Peltodytes spp.			
Phaenopsectra spp.	Phaenopsectra spp.			
Polypedilum spp.	Polypedilum spp.			
Procladius spp.	Procladius spp.			
Psephenus falli				Not on any status lists
Pseudosmittia spp.	Pseudosmittia spp.			
Psychodidae fam.	Psychodidae fam.			
Rhagovelia distincta				Not on any status lists
Rhagovelia spp.	Rhagovelia spp.			
Rheotanytarsus spp.	Rheotanytarsus spp.			
Rhionaeschna multicolor	Blue-eyed Darner			
Rhionaeshna spp.	Rhionaeshna spp.			
Rhithrogena spp.	Rhithrogena spp.			
Rhyacophila spp.	Rhyacophila spp.			
Serratella spp.	Serratella spp.			
Sigara spp.	Sigara spp.			
Simulium spp.	Simulium spp.			
Sperchon spp.	Sperchon spp.			
Sperchontidae fam.	Sperchontidae fam.			
Stylurus spp.	Stylurus spp.			
Sweltsa spp.	Sweltsa spp.			
Sympetrum corruptum	Variegated Meadowhawk			
Tanytarsus spp.	Tanytarsus spp.			
Tipulidae fam.	Tipulidae fam.			
Trichocorixa calva				Not on any status lists
Trichocorixa spp.	Trichocorixa spp.			
Tricorythodes spp.	Tricorythodes spp.			
Tropisternus spp.	Tropisternus spp.			
Uvarus subtilis				Not on any status lists
Zaitzevia spp.	Zaitzevia spp.			
MAMMALS				
Lontra canadensis canadensis	North American River Otter			Not on any status lists
MOLLUSKS				
Anodonta californiensis	California Floater		Special	
Ferrissia rivularis	Creeping Ancylid			CS

Ferrissia spp.	Ferrissia spp.			
Helisoma spp.	Helisoma spp.			
Hydrobiidae fam.	Hydrobiidae fam.			
Lymnaea spp.	Lymnaea spp.			
Menetus opercularis	Button Sprite			CS
Physa spp.	Physa spp.			
Pisidium spp.	Pisidium spp.			
Planorbidae fam.	Planorbidae fam.			
Pomatiopsis spp.	Pomatiopsis spp.			
Sphaeriidae fam.	Sphaeriidae fam.			
PLANTS				
Arundo donax	NA			
Azolla filiculoides	NA			
Calochortus uniflorus	Shortstem Mariposa Lily		Special	CRPR - 4.2
Carex densa	Dense Sedge			
Carex harfordii	Harford's Sedge			
Carex obnupta	Slough Sedge			
Cotula coronopifolia	NA			
Eleocharis macrostachya	Creeping Spikerush			
Euthamia occidentalis	Western Fragrant Goldenrod			
Helenium puberulum	Rosilla			
Hypericum anagalloides	Tinker's-penny			
Jaumea carnosa	Fleshy Jaumea			
Juncus effusus pacificus				
Juncus phaeocephalus phaeocephalus	Brown-head Rush			
Juncus xiphioides	Iris-leaf Rush			
Lemna minor	Lesser Duckweed			
Lepidium oxycarpum	Sharp-pod Pepper-grass			
Limonium californicum	California Sea-lavender			
Mimulus guttatus	Common Large Monkeyflower			
Navarretia intertexta	Needleleaf Navarretia			
Oenanthe sarmentosa	Water-parsley			
Perideridia gairdneri gairdneri	Gairdner's Yampah		Special	CRPR - 4.2
Phacelia distans	NA			
Phragmites australis australis	Common Reed			
Plantago elongata elongata	Slender Plantain			
Populus trichocarpa	NA			Not on any status lists

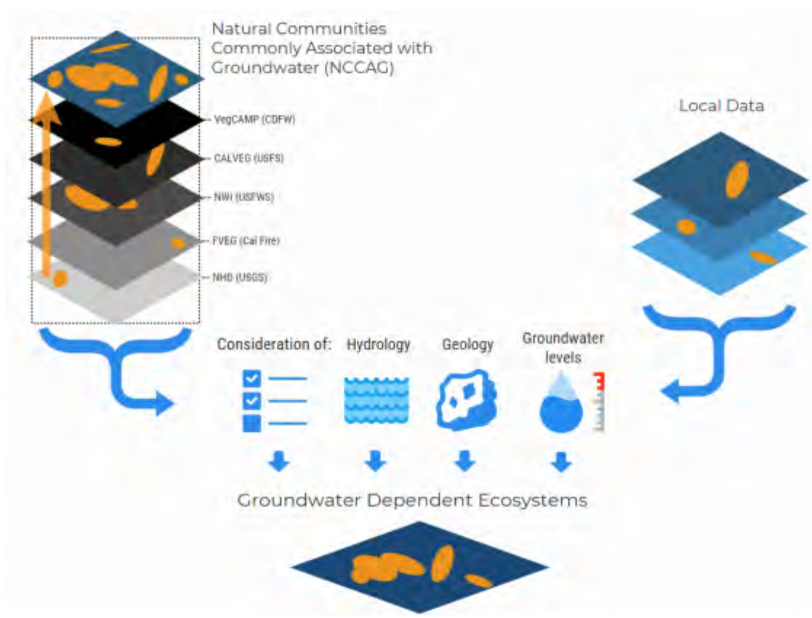
Potentilla anserina pacifica				Not on any status lists
Psilocarphus tenellus	NA			
Rorippa curvisiliqua curvisiliqua	Curve-pod Yellowcress			
Rumex conglomeratus	NA			
Rumex occidentalis				Not on any status lists
Rumex salicifolius salicifolius	Willow Dock			
Rumex stenophyllus	NA			
Salix babylonica	NA			
Salix exigua exigua	Narrowleaf Willow			
Salix laevigata	Polished Willow			
Salix lasiandra lasiandra				Not on any status lists
Salix lasiolepis lasiolepis	Arroyo Willow			
Sequoia sempervirens				
Sparganium eurycarpum eurycarpum				
Stachys ajugoides	Bugle Hedge-nettle			
Stachys chamissonis chamissonis	Coast Hedge-nettle			
Stellaria littoralis	Beach Starwort		Special	CRPR - 4.2
Triglochin maritima	Common Bog Arrow-grass			
Typha latifolia	Broadleaf Cattail			
Veronica anagallis-aquatica	NA			

Attachment D

July 2019

IDENTIFYING GDEs UNDER SGMA
Best Practices for using the NC Dataset

The Sustainable Groundwater Management Act (SGMA) requires that groundwater dependent ecosystems (GDEs) be identified in Groundwater Sustainability Plans (GSPs). As a starting point, the Department of Water Resources (DWR) is providing the Natural Communities Commonly Associated with Groundwater Dataset (NC Dataset) online[11] to help Groundwater Sustainability Agencies (GSAs), consultants, and stakeholders identify GDEs within individual groundwater basins. To apply information from the NC Dataset to local areas, GSAs should combine it with the best available science on local hydrology, geology, and groundwater levels to verify whether polygons in the NC dataset are likely supported by groundwater in an aquifer (Figure 1)[12]. This document highlights six best practices for using local groundwater data to confirm whether mapped features in the NC dataset are supported by groundwater.



[11] NC Dataset Online Viewer: https://gis.water.ca.gov/app/NCDatasetViewer/

[12] California Department of Water Resources (DWR). 2018. Summary of the "Natural Communities Commonly Associated with Groundwater" Dataset and Online Web Viewer. Available at: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Data-and-Tools/Files/Statewide-Reports/Natural-Communities-Dataset-Summary-Document.pdf

The NC Dataset identifies vegetation and wetland features that are good indicators of a GDE. The dataset is comprised of 48 publicly available state and federal datasets that map vegetation, wetlands, springs, and seeps commonly associated with groundwater in California[13]. It was developed through a collaboration between DWR, the Department of Fish and Wildlife, and The Nature Conservancy (TNC). TNC has also provided detailed guidance on identifying GDEs from the NC dataset[14] on the Groundwater Resource Hub[15], a website dedicated to GDEs.

BEST PRACTICE #1. Establishing a Connection to Groundwater

Groundwater basins can be comprised of one continuous aquifer (Figure 2a) or multiple aquifers stacked on top of each other (Figure 2b). In unconfined aquifers (Figure 2a), using the depth-to-groundwater and the rooting depth of the vegetation is a reasonable method to infer groundwater dependence for GDEs. If groundwater is well below the rooting (and capillary) zone of the plants and any wetland features, the ecosystem is considered disconnected and groundwater management is not likely to affect the ecosystem (Figure 2d). However, it is important to consider local conditions (e.g., soil type, groundwater flow gradients, and aquifer parameters) and to review groundwater depth data from multiple seasons and water year types (wet and dry) because intermittent periods of high groundwater levels can replenish perched clay lenses that serve as the water source for GDEs (Figure 2c). Maintaining these natural groundwater fluctuations are important to sustaining GDE health.

Basins with a stacked series of aquifers (Figure 2b) may have varying levels of pumping across aquifers in the basin, depending on the production capacity or water quality associated with each aquifer. If pumping is concentrated in deeper aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow aquifers, such as perched aquifers, that support springs, surface water, domestic wells, and GDEs (Figure 2). This is because vertical groundwater gradients across aquifers may result in pumping from deeper aquifers to cause adverse impacts onto beneficial users reliant on shallow aquifers or interconnected surface water. The goal of SGMA is to sustainably manage groundwater resources for current and future social, economic, and environmental benefits. While groundwater pumping may not be currently occurring in a shallower aquifer, use of this water may become more appealing and economically viable in future years as pumping restrictions are placed on the deeper production aquifers in the basin to meet the sustainable yield and criteria. Thus, identifying GDEs in the basin should done irrespective to the amount of current pumping occurring in a particular aquifer, so that future impacts on GDEs due to new production can be avoided. A good rule of thumb to follow is: *if groundwater can be pumped from a well - it's an aquifer*.

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[13] For more details on the mapping methods, refer to: Klausmeyer, K., J. Howard, T. Keeler-Wolf, K. Davis-Fadtke, R. Hull, A. Lyons. 2018. Mapping Indicators of Groundwater Dependent Ecosystems in California: Methods Report. San Francisco, California. Available at: https://groundwaterresourcehub.org/public/uploads/pdfs/iGDE_data_paper_20180423.pdf

[14] "Groundwater Dependent Ecosystems under the Sustainable Groundwater Management Act: Guidance for Preparing Groundwater Sustainability Plans" is available at: https://groundwaterresourcehub.org/gde-tools/gsp-guidance-document/

[15] The Groundwater Resource Hub: www.GroundwaterResourceHub.org

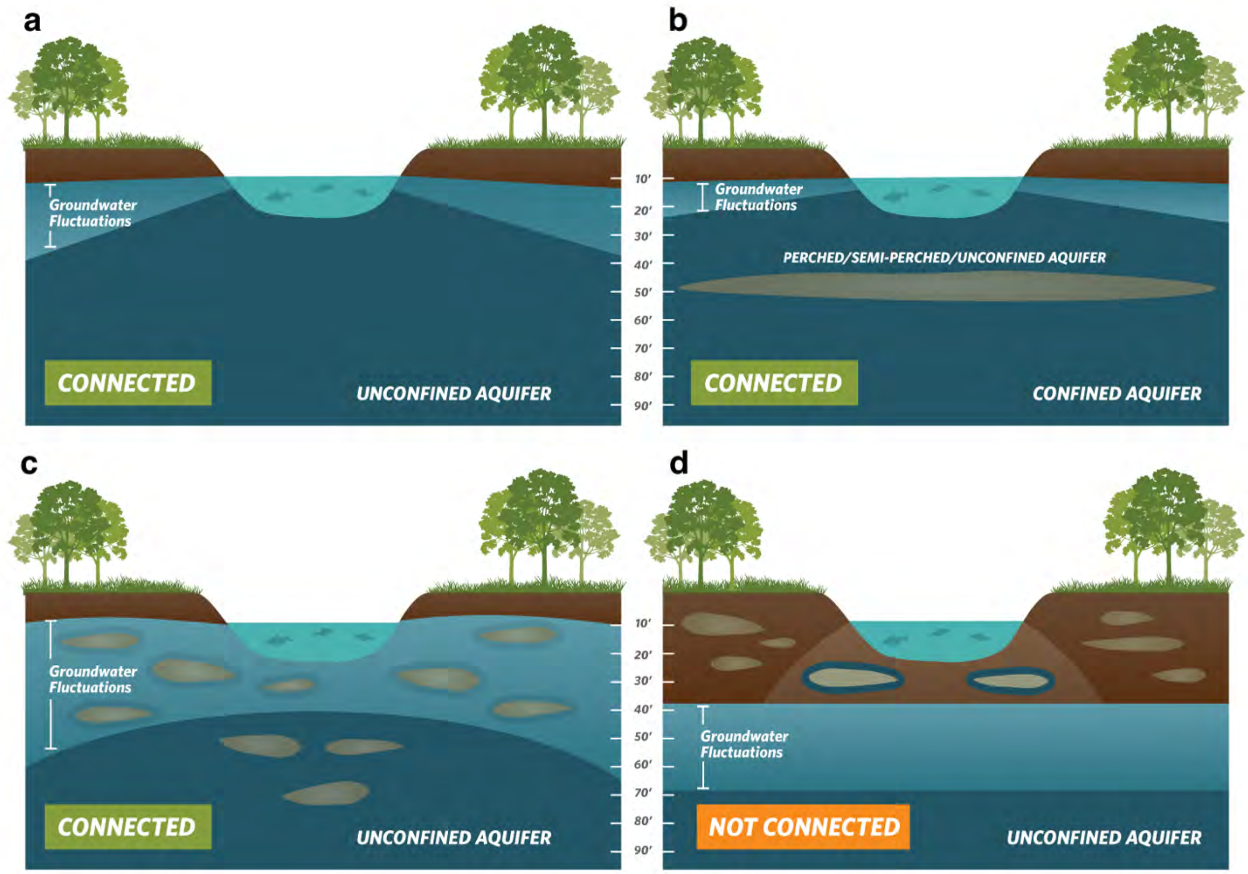

Figure 2. Confirming whether an ecosystem is connected to groundwater. Top: (a) Under the ecosystem is an unconfined aquifer with depth-to-groundwater fluctuating seasonally and interannually within 30 feet from land surface. (b) Depth-to-groundwater in the shallow aquifer is connected to overlying ecosystem. Pumping predominately occurs in the confined aquifer, but pumping is possible in the shallow aquifer. Bottom: (c) Depth-to-groundwater fluctuations are seasonally and interannually large, however, clay layers in the near surface prolong the ecosystem's connection to groundwater. (d) Groundwater is disconnected from surface water, and any water in the vadose (unsaturated) zone is due to direct recharge from precipitation and indirect recharge under the surface water feature. These areas are not connected to groundwater and typically support species that do not require access to groundwater to survive.

BEST PRACTICE #2. Characterize Seasonal and Interannual Groundwater Conditions

SGMA requires GSAs to describe current and historical groundwater conditions when identifying GDEs [23 CCR §354.16(g)]. Relying solely on the SGMA benchmark date (January 1, 2015) or any other single point in time to characterize groundwater conditions (e.g., depth-to-groundwater) is inadequate because managing groundwater conditions with data from one time point fails to capture the seasonal and interannual variability typical of California's climate. DWR's Best Management Practices document on water budgets[16] recommends using 10 years of water supply and water budget information to describe how historical conditions have impacted the operation of the basin within sustainable yield, implying that a baseline[17] could be determined based on data between 2005 and 2015. Using this or a similar time period, depending on data availability, is recommended for determining the depth-to-groundwater.

GDEs depend on groundwater levels being close enough to the land surface to interconnect with surface water systems or plant rooting networks. The most practical approach[18] for a GSA to assess whether polygons in the NC dataset are connected to groundwater is to rely on groundwater elevation data. As detailed in TNC's GDE guidance document[4], one of the key factors to consider when mapping GDEs is to contour depth-to-groundwater in the aquifer that is supporting the ecosystem (see Best Practice #5).

Groundwater levels fluctuate over time and space due to California's Mediterranean climate (dry summers and wet winters), climate change (flood and drought years), and subsurface heterogeneity in the subsurface (Figure 3). Many of California's GDEs have adapted to dealing with intermittent periods of water stress, however if these groundwater conditions are prolonged, adverse impacts to GDEs can result. While depth-to-groundwater levels within 30 feet[4] of the land surface are generally accepted as being a proxy for confirming that polygons in the NC dataset are supported by groundwater, it is highly advised that fluctuations in the groundwater regime be characterized to understand the seasonal and interannual groundwater variability in GDEs. Utilizing groundwater data from one point in time can misrepresent groundwater levels required by GDEs, and inadvertently result in adverse impacts to the GDEs. Time series data on groundwater elevations and depths are available on the SGMA Data Viewer[19]. However, if insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons in the GSP until data gaps are reconciled in the monitoring network (see Best Practice #6).

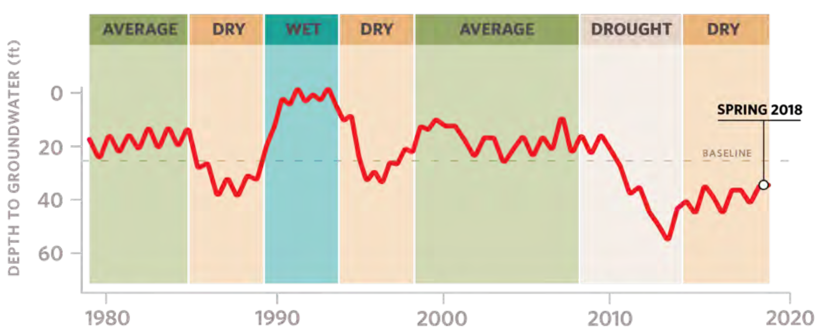

Figure 3. Example seasonality and interannual variability in depth-to-groundwater over time. Selecting one point in time, such as Spring 2018, to characterize groundwater conditions in GDEs fails to capture what groundwater conditions are necessary to maintain the ecosystem status into the future so adverse impacts are avoided.

[16] DWR. 2016. Water Budget Best Management Practice. Available at: https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP_Water_Budget_Final_2016-12-23.pdf

[17] *Baseline is defined under the GSP regulations as "historic information used to project future conditions for hydrology, water demand, and availability of surface water and to evaluate potential sustainable management practices of a basin." [23 CCR §351(e)]*

[18] Groundwater reliance can also be confirmed via stable isotope analysis and geophysical surveys. For more information see The GDE Assessment Toolbox (Appendix IV, GDE Guidance Document for GSPs[4]).

[19] *SGMA Data Viewer: https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer*

BEST PRACTICE #3. Ecosystems Often Rely on Both Groundwater and Surface Water

GDEs are plants and animals that rely on groundwater for all or some of its water needs, and thus can be supported by multiple water sources. The presence of non-groundwater sources (e.g., surface water, soil moisture in the vadose zone, applied water, treated wastewater effluent, urban stormwater, irrigated return flow) within and around a GDE does not preclude the possibility that it is supported by groundwater, too. SGMA defines GDEs as "ecological communities and species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface" [23 CCR §351(m)]. Hence, depth-to-groundwater data should be used to identify whether NC polygons are supported by groundwater and should be considered GDEs. In addition, SGMA requires that significant and undesirable adverse impacts to beneficial users of surface water be avoided. Beneficial users of surface water include environmental users such as plants or animals[20], which therefore must be considered when developing minimum thresholds for depletions of interconnected surface water.

GSAs are only responsible for impacts to GDEs resulting from groundwater conditions in the basin, so if adverse impacts to GDEs result from the diversion of applied water, treated wastewater, or irrigation return flow away from the GDE, then those impacts will be evaluated by other permitting requirements (e.g., CEQA) and may not be the responsibility of the GSA. However, if adverse impacts occur to the GDE due to changing groundwater conditions resulting from pumping or groundwater management activities, then the GSA would be responsible (Figure 4).

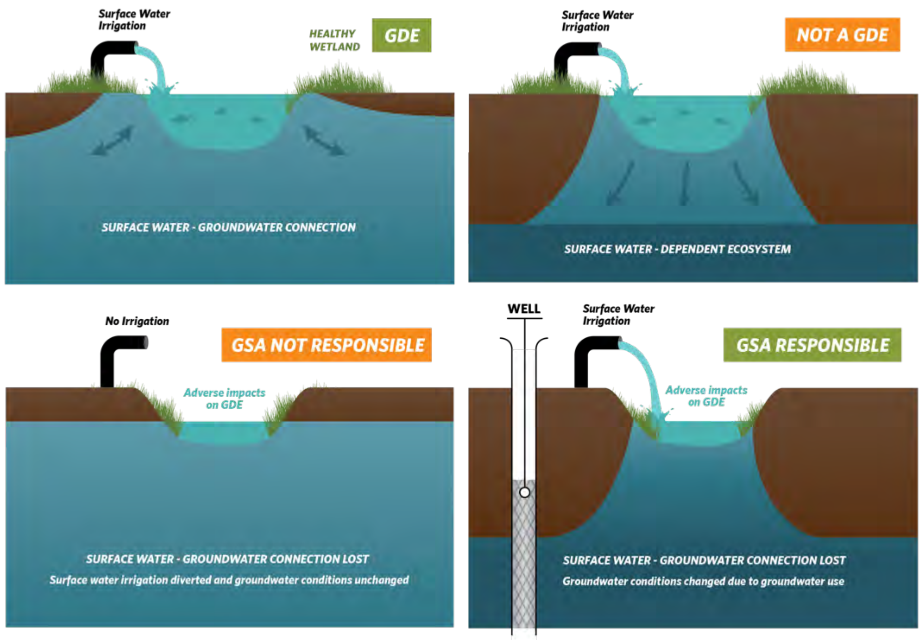

Figure 4. Ecosystems often depend on multiple sources of water. Top: (Left) Surface water and groundwater are interconnected, meaning that the GDE is supported by both groundwater and surface water. (Right) Ecosystems that are only reliant on non-groundwater sources are not groundwater-dependent. Bottom: (Left) An ecosystem that was once dependent on an interconnected surface water, but loses access to groundwater solely due to surface water diversions may not be the GSA's responsibility. (Right) Groundwater dependent ecosystems once dependent on an interconnected surface water system, but loses that access due to groundwater pumping is the GSA's responsibility.

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[20] *For a list of environmental beneficial users of surface water by basin, visit: https://groundwaterresourcehub.org/gde-tools/environmental-surface-water-beneficiaries/*

BEST PRACTICE #4. Select Representative Groundwater Wells

Identifying GDEs in a basin requires that groundwater conditions are characterized to confirm whether polygons in the NC dataset are supported by the underlying aquifer. To do this, proximate groundwater wells should be identified to characterize groundwater conditions (Figure 5). When selecting representative wells, it is particularly important to consider the subsurface heterogeneity around NC polygons, especially near surface water features where groundwater and surface water interactions occur around heterogeneous stratigraphic units or aquitards formed by fluvial deposits. The following selection criteria can help ensure groundwater levels are representative of conditions within the GDE area:

- Choose wells that are within 5 kilometers (3.1 miles) of each NC Dataset polygons because they are more likely to reflect the local conditions relevant to the ecosystem. If there are no wells within 5km of the center of a NC dataset polygon, then there is insufficient information to remove the polygon based on groundwater depth. Instead, it should be retained as a potential GDE until there are sufficient data to determine whether or not the NC Dataset polygon is supported by groundwater.

- Choose wells that are screened within the surficial unconfined aquifer and capable of measuring the true water table.

- Avoid relying on wells that have insufficient information on the screened well depth interval for excluding GDEs because they could be providing data on the wrong aquifer. This type of well data should not be used to remove any NC polygons.

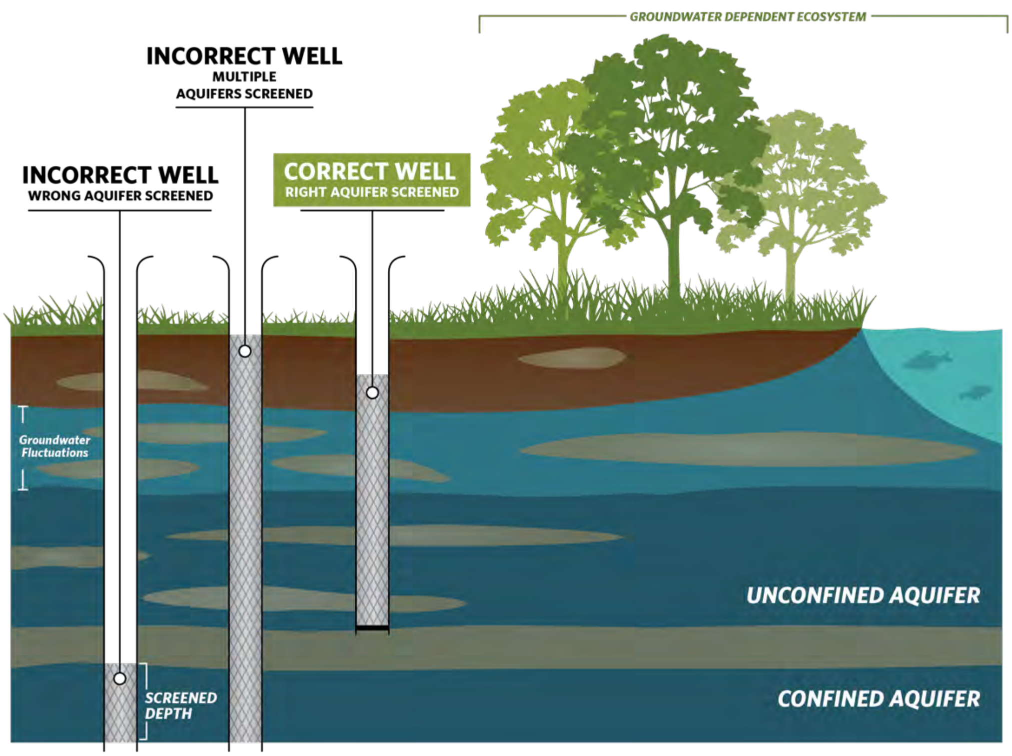


Figure 5. Selecting representative wells to characterize groundwater conditions near GDEs.

BEST PRACTICE #5. Contouring Groundwater Elevations

The common practice to contour depth-to-groundwater over a large area by interpolating measurements at monitoring wells is unsuitable for assessing whether an ecosystem is supported by groundwater. This practice causes errors when the land surface contains features like stream and wetland depressions because it assumes the land surface is constant across the landscape and depth-to-groundwater is constant below these low-lying areas (Figure 6a). A more accurate approach is to interpolate groundwater elevations at monitoring wells to get groundwater elevation contours across the landscape. This layer can then be subtracted from land surface elevations from a Digital Elevation Model (DEM)[21] to estimate depth-to-groundwater contours across the landscape (Figure b; Figure 7). This will provide a much more accurate contours of depth-to-groundwater along streams and other land surface depressions where GDEs are commonly found.

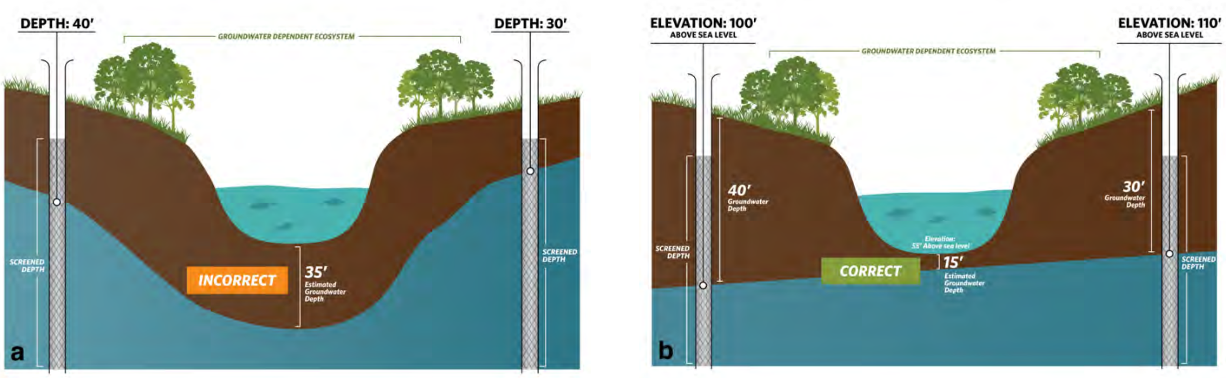


Figure 6. Contouring depth-to-groundwater around surface water features and GDEs. (a) Groundwater level interpolation using depth-to-groundwater data from monitoring wells. (b) Groundwater level interpolation using groundwater elevation data from monitoring wells and DEM data.

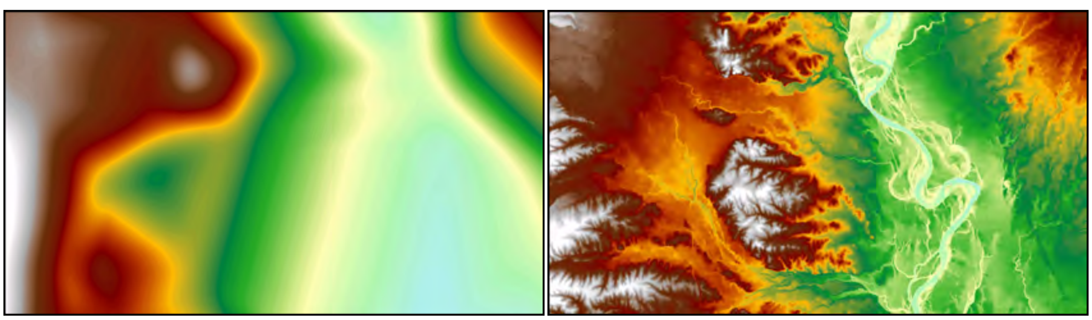


Figure 7. Depth-to-groundwater contours in Northern California. (Left) Contours were interpolated using depth-to-groundwater measurements determined at each well. (Right) Contours were determined by interpolating groundwater elevation measurements at each well and superimposing ground surface elevation from DEM spatial data to generate depth-to-groundwater contours. The image on the right shows a more accurate depth-to-groundwater estimate because it takes the local topography and elevation changes into account.

[21] USGS Digital Elevation Model data products are described at: https://www.usgs.gov/core-science-systems/ngp/3dep/about-3dep-products-services and can be downloaded at: https://iewer.nationalmap.gov/basic/

BEST PRACTICE #6. Best Available Science

Adaptive management is embedded within SGMA and provides a process to work toward sustainability over time by beginning with the best available information to make initial decisions, monitoring the results of those decisions, and using the data collected through monitoring programs to revise decisions in the future. In many situations, the hydrologic connection of NC dataset polygons will not initially be clearly understood if site-specific groundwater monitoring data are not available. If sufficient data are not available in time for the 2020/2022 plan, The Nature Conservancy strongly advises that questionable polygons from the NC dataset be included in the GSP until data gaps are reconciled in the monitoring network. Erring on the side of caution will help minimize inadvertent impacts to GDEs as a result of groundwater use and management actions during SGMA implementation.

KEY DEFINITIONS

Groundwater basin is an aquifer or stacked series of aquifers with reasonably well-defined boundaries in a lateral direction, based on features that significantly impede groundwater flow, and a definable bottom. *23 CCR §341(g)(1)*

Groundwater dependent ecosystem (GDE) are ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface. *23 CCR §351(m)*

Interconnected surface water (ISW) surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted. *23 CCR §351(o)*

Principal aquifers are aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems. *23 CCR §351(aa)*

ABOUT US

The Nature Conservancy is a science-based nonprofit organization whose mission is *to conserve the lands and waters on which all life depends*. To support successful SGMA implementation that meets the future needs of people, the economy, and the environment, TNC has developed tools and resources (www.groundwaterresourcehub.org) intended to reduce costs, shorten timelines, and increase benefits for both people and nature.

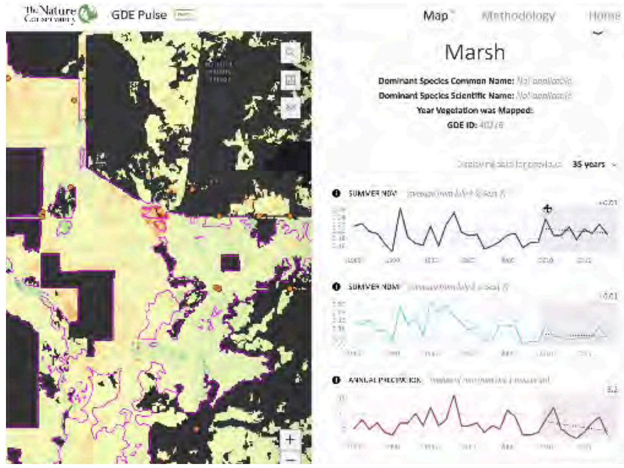
Attachment E

GDE Pulse

A new, free online tool that allows Groundwater Sustainability Agencies to assess changes in groundwater dependent ecosystem (GDE) health using satellite, rainfall, and groundwater data.

The Nature Conservancy
Protecting nature. Preserving life.

Visit
https://gde.codefornature.org/



Remote sensing data from satellites has been used to monitor the health of vegetation all over the planet. GDE pulse has compiled 35 years of satellite imagery from NASA's Landsat mission for every polygon in the Natural Communities Commonly Associated with Groundwater Dataset[22]. The following datasets are included:

Normalized Difference Vegetation Index (NDVI) is a satellite-derived index that represents the greenness of vegetation. Healthy green vegetation tends to have a higher NDVI, while dead leaves have a lower NDVI. We calculated the average NDVI during the driest part of the year (July - Sept) to estimate vegetation health when the plants are most likely dependent on groundwater.

Normalized Difference Moisture Index (NDMI) is a satellite-derived index that represents water content in vegetation. NDMI is derived from the Near-Infrared (NIR) and Short-Wave Infrared (SWIR) channels. Vegetation with adequate access to water tends to have higher NDMI, while vegetation that is water stressed tends to have lower NDMI. We calculated the average NDVI during the driest part of the year (July–September) to estimate vegetation health when the plants are most likely dependent on groundwater.

Annual Precipitation is the total precipitation for the water year (October 1st – September 30th) from the PRISM dataset[23]. The amount of local precipitation can affect vegetation with more precipitation generally leading to higher NDVI and NDMI.

Depth to Groundwater measurements provide an indication of the groundwater levels and changes over time for the surrounding area. We used groundwater well measurements from nearby (<1km) wells to estimate the depth to groundwater below the GDE based on the average elevation of the GDE (using a digital elevation model) minus the measured groundwater surface elevation.

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[22] *The Natural Communities Commonly Associated with Groundwater Dataset is hosted on the California Department of Water Resources' website: https://gis.water.ca.gov/app/NCDatasetViewer/#*

[23] The PRISM dataset is hosted on Oregon State University's website: http://www.prism.oregonstate.edu/

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November 25 , 2019

Mr. Gary Petersen
General Manager,
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1385
Carmel Valley, CA 93924

VIA: E-mail to peterseng@svbgsa.org

RE: Comments on Draft Groundwater Sustainability Plan for 180/400 Sub-Basin of the Salinas Valley Groundwater Basin

Dear Mr. Petersen:

Monterey County Farm Bureau represents family farmers and ranchers in the interest of protecting and promoting agriculture throughout our County. Since 1917, Farm Bureau strives to improve the ability of those engaged in production agriculture to provide a reliable supply of food and fiber through responsible stewardship of our local resources.

Our organization, along with our leadership, has been actively involved in the implementation of the Sustainable Groundwater Management Act (SGMA) since 2015, participating in the formation of the agency and the development of the draft groundwater sustainability plan (GSP).

We very much appreciate the open, transparent and inclusionary process utilized to develop the draft GSP into a solid document that can be a model for the other five GSPs yet to be developed in the coming two years.

In this letter we offer specific comments on Chapters 9 and 10 of the draft GSP; overall, our Directors desire that the consultants continue to do their job, clearly state goals, provide a robust analysis, correct obvious errors, re-think some Management Actions, and keep the budget manageable.

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Chapter 9.4.3.2: Preferred Project 1: Invasive Species Eradication

We fully support the intent of Preferred Project #1 and desire this to be the highest priority project for the 180/400 sub-basin (as well as the Forebay and Upper Valley sub-basins). Eradicating the exotic *Arundo donax* vegetation from the Salinas River Channel has multiple benefits for both landowners, the environment, and the groundwater basin.

There are permits already in place for Salinas River Channel vegetative maintenance with the Army Corps of Engineers, California Fish & Wildlife, and the Central Coast Regional Water Quality Control Board. While those permits do expire in 2020, we expect that their renewal will be in the best interest of the agencies involved as both the Resource Conservation District of Monterey County and the Salinas River Channel River Management Unit Stream Maintenance Program have demonstrated success in removal and management of excess vegetation, improvements to secondary channel flows, and sediment redistribution. The overall outcome is improvement of water flow for both fish passage and flood control.

We see this program as essential to achieving better infiltration of surface waters to the groundwater basin. Vegetation overgrowth in the 95 miles of the Salinas River Channel is estimated to consume from 30,000 to even 50,000 acre-feet of water each year.[1] These numbers exceed the entire number of acre feet needed to balance the basin.[2]

In the Chapter 9 description for Preferred Project #1 the limitation is stated as just *Arundo donax* removal. There are many more vegetative species demonstrating overgrowth in the river channel that should be included; indeed, historical photos from the 1930s show a river channel mostly of sandy bottom lands (which is prior to any stream modifications or dam construction).[3] This lack of vegetation appears to be the native character of the river channel and probably contributed greatly to infiltration of water into the aquifer.

There is widespread unanimity of opinion that the Salinas River Channel has too much vegetation in most reaches after more than a decade of near-total neglect. The maintenance program has touched only a small portion of the river channel to date, and needs to be greatly expanded to include incentives for all landowners to participate. Unfortunately, the costs involved in the permitting and mapping process have discouraged many landowners from participating in the program.

[1] Brown & Caldwell Report, 2015.

[2] Ibid.

[3] University of California, Santa Barbara - Map & Imagery Laboratory: https://www.library.ucsb.edu/mil

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Dollar for dollar, the channel maintenance program is the most cost effective of the Preferred Projects listed in Chapter 9 and provides the biggest bang for the buck, in the shortest time frame. Everyone agrees that channel maintenance is needed for a healthy ecosystem, including the permitting agencies.

Reducing *all* vegetation in the river channel would improve water conveyance and lead to increased water flows for recharge as well other possible projects, such as the diversion points for the Permit #11043 that could supply water to the Eastside trough. The Salinas River Diversion Facility (also known as the rubber dam) could also see more flow conveyance for the expansion of the Castroville Seawater Intrusion Project (CSIP).

Municipalities are participating in the river channel maintenance program, bringing together both urban and agricultural interests for improvements in the river channel environment. Currently, Cities of Salinas, Soledad, and King are participating materially in the maintenance program, mainly to protect their assets adjacent to the river.

Table 9-5 lists 6,000 acre-feet of savings due to *Arundo donax* removal, but there is a reference of 20,000 acre-feet also; is that amount of the entire water savings for the full basin for just the *Arundo donax* vegetation type?

While we fully respect and support the program that the Resource Conservation District of Monterey County and the success achieved in removing *Arundo donax*, there is more to be done than just replicating this as Preferred Project #1. We urge that the draft be modified to include other vegetative species that are in overgrowth mode.

Chapter 9.4.3.6: Preferred Project 5: Maximize Existing SRDF Diversion

The estimated yield for this project is 11,600 acre-feet per year; yet "the yield for this project is the same yield that is identified in Priority Project #2 and a portion of the yield identified in Priority Project #3."[4] Is this statement intending that the same water can be saved twice, or is this just a simple double reference to water that can be saved? Clarification is needed to determine the exact savings for this project and the related three projects listed for the Castroville Seawater Intrusion Project upgrades and expansion.

[4] 180-400 Sub-Basin GSP draft document, page 9-50.

Chapter 9.4.3.7: Preferred Project 6: Seawater Intrusion Pumping Barrier

Much more needs to be known about this particular project before it can be considered more fully. Although seawater intrusion extraction wells may very well yield 30,000 acre-feet per year, this water is essentially useless until it can be desalinated. That seems to indicate that extracted water would need to be dispose of, possibly into the ocean? After determining if this project is environmentally (and politically) feasible, the cost-benefit analysis may not be justified. If the project yield is 30,000 acre-feet, why is there a statement in the notes below Table 9-5 that shows only 22,000 acre-feet? Shouldn't the projected cost benefits of this project then be based on the 11,000 acre-feet of net yield?

Chapter 9.4.3.10: Preferred Project 9: SRDF Winter Flow Injection

We question if winter flow injection makes sense in the context of possible land fallowed and available for dedicated recharge basins. The costs of removing the ground from active production could be offset by passive recharge that has little in ongoing operational and maintenance costs, and very little (comparatively) of capital investment costs. This may be an alternative opportunity for land use should there be voluntary fallowing of land in the sub-basin area.

Chapter 9.2: Water Charges Framework

As described, the water charges framework is a proposal and will still need approval from the SVBGSA Board of Directors (requiring 3 of 4 agricultural directors supporting the program). We question that if this type of funding program is to incentivize the reduction of groundwater pumping, the program will eventually defund itself due to declining water use revenue. This has happened to other utilities and is a distinct possibility in the Salinas Valley also as future farming practices may find more efficient means of delivering and using groundwater.

We also note that significant analysis will be required to determine the correct rate levels of the proposed framework; fluctuations in crops and land values, availability of any new project water, and intensive cropping patterns may make the process of determining the rate structure nearly impossible. Will the water charges framework be adopted in all sub-basins? What happens to the budget if one or more sub-basins is not needing to adopt this method of funding?

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Chapter 9.2.1 Well Registration

We point out that the draft language indicates that well registration does not obviously equate to metering, but only that some wells may have meters. There is needed clarity on what well registration and metering requirements intend, how they transect, and how this will be enforced.

Chapter 9.2.4 Relocation and Transfer of Pumping Allowances

While this entire draft document is iterative in nature, we find that this section may need some enhancements with more details. This is effectively a water trading market mechanism and critical to how pumping allowances will be managed ultimately. If SVBGSA intends to manage this on a case-by-case basis, there will need to be guidelines for how this will be managed and who will make any determinations for transfers; the mechanics of this can get quite complicated and should be fully understood before any transfers are considered. What will be the platform for managing these transfers? Will farmers need to manage these trades amongst themselves? What distance will be allowed as a maximum for a transfer (only within each sub-basin)? In past community discussions there was little support for this type of program; is that why there are no details or the consultants have not recommended a platform or program?

We suggest that the fallowing of land needs to be a fully-defined Management Action or Preferred Project. Will SVBGSA purchase water and retire land for a single year or more? There is no direct statement on what will happen if growers decide to change to different crops that may require higher water use, such as vineyard to vegetables. Just as followed land can be recycled into production, can irrigated land that was formerly producing low water use crops convert to a higher water use crop? Will there then be a penalty applied to that farm or land? This could then cross a line into managing land use and dictating which crops can be produced, or even restrict the ability of a farm to change when market conditions alter the economics of any given crop.

Chapter 9.3.2 Agricultural Land and Pumping Allowance Retirement

We support the right of landowners to do as they please with their lands in terms of wanting to continue farming, temporarily fallow or permanently retire agricultural lands under SGMA *on a voluntary basis*. However, we find this section lacking in detail and therefore may not garner the attention from landowners that may be interested. The assumption is that a combination of reduced pumping *and* Preferred Projects are likely needed; however, there is no statement on how this goal

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will be achieved with reduced extractions alone. The cost analysis is also incorrect and needs revision.

In a basin that has seawater intrusion and facing a long list of expensive projects, we believe this warrants a more proactive and thoughtful approach. SVBGSA and its consultants should conduct a geospatial analysis to assess the best areas to potentially retire land through careful study of the economic value of the land *and* water, and then proactively contact the specific landowners to gauge interest in *voluntarily* participating.

There is no mention that funding could be sourced from grant programs for water quality, habitat, and conservation easements for a voluntary land retirement program. All sources of financial support should be fully explored and exhausted prior to SVBGSA expending funds on land fallowing or retirement.

Chapter 9.6: Mitigation of Overdraft

We find there is a lack of transparency in understanding the overall goal; the total acre-feet of savings through projects needed to bring the sub-basin into balance should be clearly stated here. What is the current demand? What is the sustainable yield? What is the overdraft amount? What is the target goal that includes a buffer for seawater intrusion mitigation?

There is also a lack of understanding of what the cumulative impact of multiple projects would be, if more than one or all are put into place; would there be enough water to manage multiple projects? For example, the three projects listed for the Castroville Seawater Intrusion Project (CSIP) have overlapping water savings, yet these three projects are listed independent of each other.

Budget Concerns: Costs of Management Actions (Chapter 9.3)

Our members are sensitive to total costs of implementing SGMA over the next 20 years. Between the First and Second drafts of Chapter 9 (between July 18 and August 8, 2019), two new Management Actions (MAs) have been added and the cost for existing MAs have expanded in number of years and cost per year, and total cost. We calculate that annual costs for these Management Actions have increased total costs by $1,000,000 or more. On the "Public Comment" document, there is no apparent public comment on these MA changes; most of the comments were around the Water Charges Framework and Projects. A table listing the MAs with anticipated costs would be a good addition to this chapter of the document. We request more specific information on the following:

FARM BUREAU
MONTEREY

1140 Abbott Street, Suite C, Salinas, CA 93901 • PO BOX 1449, Salinas, CA 93902
office (831) 751-3100 • www.montereycfb.com

- Why did MA #1 change from a 4% 30-year amortization to a 6% 25-year amortization?
- How many years is MA #2 expected to take? There is only a notation of "on going."
- Why has the cost per year increased for MA #4?
- SVBGSA will provide oversight for many of the MAs; will these be overseen by SVBGSA staff or the consultants?
- Why are there missing MAs on the Table 10-1?
- Should 180/400 operational costs specific to MAs be in table 10-1?

Tables 10-1 & 10-2

There appear to be some mathematical errors on these two tables. Table 10-1 lists planning level costs that total to $1,399,000 yet the table reflects a total of $1,784,000, a difference of $385,000. Table 10-2 lists planning level cots of $2,922,000 yet the table reflects a total of $9,423,000, a difference of $6,501,000. If either of these tables reflects planning level costs that are for multiple years, it is not clearly noted; thus, there is a distortion of the projected planning level costs for the first five years of implementation.

Conclusion

While we are generally supportive of the draft GSP as presented, we express some concerns over the details, as provided in the comments within this letter. We ask that the consultants review these items and consider further modifications to the GSP during the first two years of implementation, realizing it is difficult to address these concerns prior to full approval by the SVBGSA Board of Directors and submission to meet the January 31, 2020 deadline.

Again, we express our appreciation for the open and transparent process that brought us all to this point.

Sincerely,

Norman C. Groot
Executive Director

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
Central Region
1234 East Shaw Avenue
Fresno, California 93710
(559) 243-4005
www.wildlife.ca.gov

November 21, 2019

Sent Via Mail and Electronic Mail

Gary Petersen, General Manager
Salinas Valley Basin Groundwater Sustainability Agency
Post Office Box 1350
Carmel Valley, California 93924
peterseng@svbgsa.org

Subject: Comments on the Salinas Valley Basin Groundwater Sustainability Plan

Dear Mr. Petersen:

The California Department of Fish and Wildlife (Department) Central Region is providing comments on the Salinas Valley Basin 180/400 Foot Aquifer Draft Groundwater Sustainability Plan (GSP) prepared by Salinas Valley Basin Groundwater Sustainability Agency pursuant to the Sustainable Groundwater Management Act (SGMA) for the 180/400-Foot Aquifer Subbasin (Subbasin). As trustee agency for the State's fish and wildlife resources, the Department has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and the habitat necessary for biologically sustainable populations of such species (Fish & Game Code §§ 711.7 and 1802).

Development and implementation of Groundwater Sustainability Plans under SGMA represents a new era of California groundwater management. The Department has an interest in the sustainable management of groundwater, as many sensitive ecosystems and species depend on groundwater and interconnected surface waters, including ecosystems on Department-owned and -managed lands within SGMA-regulated basins. SGMA and its implementing regulations afford ecosystems and species specific statutory and regulatory consideration, including the following as pertinent to Groundwater Sustainability Plans:

- Groundwater Sustainability Plans must identify and consider impacts to groundwater dependent ecosystems (GDEs), pursuant to 23 California Code of Regulations (CCR) § 354.16(g) and Water Code § 10727.4(l); and

- Groundwater Sustainability Agencies must consider all beneficial uses and users of groundwater, including environmental users of groundwater [Water Code § 10723.2 (e)]; and Groundwater Sustainability Plans must identify and consider potential effects on all beneficial uses and users of groundwater [23 CCR §§ 354.10(a), 354.26(b)(3), 354.28(b)(4), 354.34(b)(2), and 354.34(f)(3)]; and

- Groundwater Sustainability Plans must establish sustainable management criteria that avoid undesirable results within 20 years of the applicable statutory deadline, including depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water [23 CCR § 354.22 *et seq.* and Water Code §§ 10721(x)(6) and 10727.2(b)] and describe monitoring networks that can identify adverse impacts to beneficial uses of interconnected surface waters [23 CCR § 354.34(c)(6)(D)]; and

- Groundwater Sustainability Plans must account for groundwater extraction for all Water Use Sectors including managed wetlands, managed recharge, and native vegetation [23 CCR §§ 351(al) and 354.18(b)(3)].

Furthermore, the Public Trust Doctrine imposes a related but distinct obligation to consider how groundwater management affects public trust resources, including navigable surface waters and fisheries. Groundwater hydrologically connected to navigable surface waters and surface waters tributary to navigable surface waters are also subject to the Public Trust Doctrine to the extent that groundwater extractions or diversions affect or may affect public trust uses (*Environmental Law Foundation v. State Water Resources Control Board* (2018), 26 Cal. App. 5th 844). Accordingly, groundwater plans should consider potential impacts to and appropriate protections for navigable interconnected surface waters and their tributaries, and interconnected surface waters that support fisheries, including the level of groundwater contribution to those waters.

In the context of SGMA statutes and regulations, and Public Trust Doctrine considerations, the Department values groundwater planning that carefully considers and protects groundwater dependent ecosystems, fish and wildlife beneficial uses, and users of groundwater and interconnected surface waters.

COMMENT OVERVIEW

The Department is writing to support ecosystem preservation and enhancement in compliance with SGMA and its implementing regulations based on Department expertise and best available information and science. The Department recommends the GSP provide additional information and analysis on identification and consideration of groundwater dependent ecosystems and interconnected surface waters. The Department is providing additional comments and recommendations below.

GSP COMMENTS AND RECOMMENDATIONS

1. **Comment #1 Plan Area.** Chapter 3 Description of Plan Area, Subchapter 3.3 Jurisdictional Areas and Subchapter 3.4 Land Use (starting page 3-13).

a. *Issue:* Figure 3-3 on page 3-14 incorrectly labels the Department's Moro Cojo Ecological Reserve and does not include privately conserved lands within the GSP boundary. The narrative for paragraph 3.3 Jurisdictional Areas does not list privately conserved lands within the GSP boundary, such as Elkhorn Slough Foundation lands.

b. *Recommendation:* The Department recommends changing the map on page 3-14 to include privately conserved lands to Moro Cojo Ecological Reserve. The Department also recommends the GSP include a section within 3.3 Jurisdictional Areas that defines the privately conserved lands within its boundary, including Elkhorn Slough Foundation lands.

2. **Comment #2 Interconnected Surface Water.** Chapter 4 Hydrogeologic Conceptual Model, Subchapter 4.4.4 Natural Discharge Areas (starting page 4-23); Chapter 5 Groundwater Conditions, Subchapter 5.6 Interconnected Surface Water (starting page 5-54).

   Analysis of interconnected surface waters (ISW) in the GSP deprioritizes shallow groundwater-bearing sediments.

   a. *Issues:*

      i. The GSP explains that the U.S. Geological Survey Salinas Valley Integrated Hydrologic Model (USGS SVIHM) model will help identify surface water-groundwater connectivity and locate potential areas of discharge to streams (pages 4-23, 5-56). Absent model results, the GSP cannot provide specific estimations of the quantity and timing of streamflow depletions as specified in 23 CCR § 354.16(f), though the GSP does identify likely areas of interconnectivity (Figure 5-35, page 5-58).

      ii. Importantly, the GSP abdicates oversight of shallow groundwater above the Salinas Valley Aquitard, excluding shallow groundwater from principal aquifers in the Subbasin and therefore excluding shallow groundwater from ISW analyses. The GSP cites limited hydraulic communication between the shallow groundwater (above the 180-Foot Aquifer) and the basin's primary principal aquifers, 180-Foot and 400-Foot Aquifers, as the reason for excluding shallow groundwater (pages 4-17, 5-56). Therefore, the GSP focuses primarily on interconnectivity between the 180-Foot and 400-Foot Aquifers and surface water, excluding the entirety of shallow groundwater in surface water-groundwater interactions. Groundwater Sustainability Plans are also required to identify principal aquifers, referring to aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems [23 CCR § 351(aa)]. For these principal aquifers, Groundwater Sustainability Plans must include formation names, physical and structural properties, water quality, primary use, data gaps, and groundwater conditions (e.g., groundwater elevation and hydrographs, and other information relevant to SGMA's six sustainability criteria) [23 CCR §§ 354.14(b)(4), 354.16]; as well as monitoring networks sufficient to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions and sustainability indicators [23 CCR § 354.34]. There is no specific reason why a shallow aquifer cannot comprise a 'principal aquifer,' particularly where shallow aquifers are overlain by GDEs supporting interconnected surface waters and special status species. Where a shallow groundwater system stores and yields quantities of water that are 'significant' to surface water beneficial users, including domestic users and environmental beneficial users such as GDE beneficial users, this shallow aquifer may be considered a 'principal' aquifer per the definition provided in the Groundwater Sustainability Plan regulations [23 CCR § 351(aa)]. Shallow groundwater systems are arguably the *most* significant aquifers for environmental beneficial uses and users of groundwater, because they are the aquifers directly accessible to and supportive of the terrestrial and aquatic habitat. Accordingly, Groundwater Sustainability Agencies should consider including shallow groundwater systems as 'principal aquifers' in their Groundwater Sustainability Plans where shallow groundwater and GDEs are concurrently present, in order to thoroughly characterize a groundwater basin and best identify potential effects on environmental users of groundwater as SGMA statue and Groundwater Sustainability Plan regulations require [Water Code § 10723.2(e), 23 CCR §§ 354.10(a), 354.26(b)(3), 354.28(b)(4), 354.34(b)(2), and 354.34(f)(3)].

iii. The GSP also says, "If the groundwater level is below the stream bottom, the stream and groundwater are disconnected. SGMA does not require that disconnected stream reaches be analyzed or managed" (page 5-54). This explanation of ISW is inaccurate and contradicts the definition of ISW per Groundwater Sustainability Plan regulations, which the GSP itself cites on page 8-2 as "surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted" [23 CCR § 351 (o)]. This means that even if groundwater elevation is lower than streambed elevation and the river reach is 'losing,' there may still be hydraulic communication between the aquifer and streamflow if there is a saturated layer connecting the two, and pumping from the aquifer may yet cause streamflow depletion (Barlow and Leake 2012). The definition proffered by the GSP excludes streams as interconnected when groundwater levels fall below streambed elevations; however, these stream reaches may still be interconnected if there is a continuous saturated zone connecting the groundwater table and the stream.

iv. The GSP Water Budget attributes significant quantities of groundwater inflow to streamflow percolation and deep percolation of precipitation and excess irrigation (pages 6-13 to 6-14, 6-29; Figure 6-5). The GSP also claims that shallow water-bearing sediments are poorly connected to the underlying 180-Foot and 400-Foot aquifers due to the Salinas Valley Aquitard (page 4-17); therefore, it is unlikely that significant surficial recharge reaches the 180-Foot and 400-Foot Aquifers (page 4-21). This conclusion creates confusion as to how percolation contributes such large quantities of recharge to the basin, presumably to the principal aquifers that were accounted for in the water budget (180-Foot and 400-Foot), if there is limited hydraulic communication between shallow sediments and these two principal aquifers. This conclusion also lends more importance to management of the shallow groundwater above the Salinas Valley Aquifer (see above comments), especially if the basin undergoes further water resource development in the shallow water-bearing formations.

v. Continued study of surface water-groundwater interaction is not included in Subchapter 4.7 Data Gaps, but it is mentioned on pages 5-56 and 8-68, where the GSP acknowledges that additional data and shallow groundwater monitoring wells may be necessary to reduce uncertainty of ISW.

b. *Recommendations:*

i. The Department recommends that the GSP model results that identify the estimated quantity and timing of streamflow depletions in the Subbasin. The Department also recommends that the GSP include clear documentation on model development, as numerical modeling is an apt but complex tool for identifying surface water-groundwater connectivity.

ii. The Department recommends including the shallow water-bearing sediments above the Salinas Valley Aquifer as a principal aquifer in the GSP to encourage diligent monitoring and management of a resource of great significance to environmental beneficial uses and users in the Subbasin.

iii. The Department recommends correcting the definition of ISW on page 5-54 by incorporating the Groundwater Sustainability Plan regulation definition.

iv. The Department requests clarification on how surficial recharge can be both severely restricted by the Salinas Valley Aquitard and comprise such a significant portion of the Water Budget inflow when shallow groundwater above the aquitard is not included in the GSP's Water Budget analysis.

v. The Department requests including expanded ISW studies and monitoring in the Subchapter 4.7 Data Gaps.

3. **Comment #3 Groundwater Dependent Ecosystems.** Chapter 4 Hydrogeologic Conceptual Model, Subchapter 4.4.4 Natural Discharge Areas (page 4-23 to 4-24).

The GSP proposal to refine Groundwater Dependent Ecosystem (GDE) identification, pursuant to 23 CCR § 354.16 (g), lacks actionable specifics.

a. *Issue:* The GSP relies on the Natural Communities Commonly Associated with Groundwater (NCCAG) dataset for identification of potential GDEs (Figure 4-10, pages 4-23 to 4-24). This dataset provides a valuable foundation for GDE identification but benefits from additional validation. The GSP acknowledges that field reconnaissance is necessary to verify potential GDEs (page 4-23), but it does not specify how or when this verification will occur, nor does it acknowledge that additional GDE identification may be required beyond the NCCAG dataset to thoroughly locate GDEs.

b. *Recommendations:*

i. The Department recommends developing a specific plan and timeline for GDE identification that includes methods used to vet the current set of potential GDEs shown in Figure 4-10. If the GSP will include a depth-to-groundwater analysis for GDE verification, in addition to field reconnaissance, the Department advises development of a hydrologically robust baseline that relies on multiple, climatically representative years of groundwater elevation and that accounts for the inter-seasonal and inter-annual variability of GDE water demand.

The Department also suggests careful consideration of potential GDEs near interconnected surface water bodies, as they may depend on sustained groundwater elevations that stabilize the gradient or rate of loss of surface water, rather than directly on the water table itself.

ii. The Department recognizes that NCCAG (Klausmeyer et al. 2018) provided by California Department of Water Resources (CDWR) is a good starting reference for GDEs; however, the Department recommends that the GSP consider additional resources for evaluating GDE locations, including but not limited to the California Department of Fish and Wildlife (CDFW) Vegetation Classification and Mapping Program (VegCAMP) (CDFW 2019A); the CDFW California Natural Diversity Database (CNDDB) (2019B); the California Native Plant Society (CNPS) Manual of California Vegetation (CNPS 2019A); the CNPS California Protected Areas Database (CNPS 2019B); the U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (2018); the USFWS online mapping tool for listed species critical habitat (2019); the U.S. Forest Service CALVEG ecological grouping classification and assessment system (2019); and other publications by Klausmeyer et al. (2019), Rohde et al. (2018), The Nature Conservancy (TNC) (2014), and Witham et al. (2014).

4. **Comment #4 Water Quality.** Chapter 5 Groundwater Conditions, Subchapter 5.5.3 Distribution and Concentrations of Diffused or Natural Groundwater Constituents.

Starting on page 5-49, the GSP provides a summary of the water quality analysis performed on naturally occurring groundwater constituents and their distribution within the Subbasin. From this analysis, the GSP states, "Of these constituents, most were detected at concentrations above regulatory limits in a small percentage of the sampled wells (<10%). Since constituents with low detection frequency do not represent groundwater quality issues throughout the entire Subbasin, these constituents will not be considered further in this report" (page 5-53). The small percentage of wells that have exceedances above regulatory requirements do not necessarily represent the basin as a whole with regard to water quality or potential water quality related issues, nor does the provided data represent the most current water quality data set.

a. *Issue*: The GSP indicates that only a small percentage of sampled wells (<10%) reported exceedances greater than the State Water Resource Control Board – Division of Drinking Water regulatory requirements for drinking water and as such, indicates that these constituents will not be considered further in this report. When evaluating water quality constituents, it is always beneficial to track trends in water quality concentrations, as increasingly elevated levels of a constituent generally indicate a problem. In the context of drinking water and deliveries from a public water system, the State has prepared regulations and guidance for monitoring and compliance. As specified by State code [22 CCR § 64432], quarterly samples shall be collected and analyzed for any chemical if analyses of such sample indicate a continuous or persistent trend toward higher levels of that chemical, based on an evaluation of previous data. While this requirement may not be applicable for all wells (e.g., agricultural wells) within the Subbasin, the State regulation illustrates the necessity for identifying and tracking water quality trends to avoid undesirable results. It is reasonable to assume that the GSP has the data set for the water quality parameters listed in Subchapter 5.5.3 and the ability to assess potential increasing trends for all water quality constituents identified, as shown for nitrates concentrations in Figures 5.32 and 5.33.

b. *Recommendation:* The Department recommends that the GSP provide a more robust representation of water quality data for the constituents identified within the plan and provide data (i.e. graphical or tabular) illustrating trends over time. Additionally, the Department recommends that the GSP provide the most current available water quality information for the constituent presented within the plan to further substantiate sustainability for this indicator.

5. **Comment #5 Sustainable Management Criteria.** Chapter 8 Sustainable Management Criteria, Subchapter 8.11 Depletion of Interconnected Surface Water (starting page 8-61).

The 5-year average metric established for depletions of ISW Sustainable Management Criteria lacks triggers to avoid significant and unreasonable adverse impacts (i.e., undesirable results).

a. *Issue:* The GSP proposes a volumetric minimum threshold for streamflow depletions based on the future water budget that is designed to prevent against increases in streamflow depletions attributable to pumping. This volumetric minimum threshold is proposed for average hydrologic conditions and as a long-term average over all hydrogeologic conditions (page 8-69). The GSP specifies that the minimum threshold volume will be updated upon completion of the SVIHM model and that volumetric surface water depletions for the previous five years will be estimated (page 8-68). The GSP acknowledges that localized pumping and long periods of dryness (among other causes) could lead to undesirable results including increased streamflow depletions that impact beneficial users of ISW (pages 8-69 to 8-70). The challenge with a streamflow depletion metric that is contingent on long-term hydrologic average conditions and 'normal' water years is that there are no concrete triggers for adaptive management. The GSP does not specify how streamflow depletion minimum threshold exceedances will be identified on a time-scale shorter than five years. Importantly, increased pumping during consecutive dry years that is proximate to ISW could significantly increase surface water depletion and negatively impact instream species as well as riparian habitat (Barlow and Leake 2012, Naumburg 2005). The GSP lacks an actionable path for identifying and addressing streamflow depletion undesirable results in real-time to avoid adverse impacts to aquatic GDEs. Instead, the GSP relies on long-term averages to measure compliance with minimum thresholds, meaning that action may come too late to address undesirable results.

b. *Recommendation:* The Department recommends that the GSP specify management actions to mitigate potential undesirable results to ISW and GDEs during dry years when groundwater pumping increases. Suggestions include pumping restrictions for areas that may impact surface water flow when streamflow depletion minimum thresholds are reached in dry and critical water years.

OTHER COMMENTS: Implementation of Project Actions Related to SGMA

The Department is also commenting on its subsequent role as Trustee and Responsible Agency when individual project actions related to SGMA are implemented.

SGMA exempts the preparation and adoption of Groundwater Sustainability Plans from the California Environmental Quality Act (CEQA) (WC § 10728.6); however, SGMA specifically states that implementation of project actions taken pursuant to SGMA are not exempt from CEQA (WC § 10728.6). The Department is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a)). The Department, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (*Id.*, § 1802). Similarly, for purposes of CEQA, the Department is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

The Department is also a Responsible Agency under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381), and the Department expects that it may need to exercise regulatory authority as provided by the Fish and Game Code for implementation of projects related to the GSP that are also subject to CEQA. These projects may be subject to the Department's lake and streambed alteration regulatory authority (i.e., Fish & G. Code, § 1600 *et seq.*). Notification pursuant to Fish and Game Code § 1602 is warranted if a project will (a) substantially divert or obstruct the natural flow of any river, stream, or lake; (b) substantially change or use any material from the bed, bank, or channel of any river, stream, or lake (including the removal of riparian vegetation); and/or (c) deposit debris, waste or other materials that could pass into any river, stream, or lake. Likewise, to the extent that implementation of any project may result in "take" as defined by State law of any species protected under the California Endangered Species Act (CESA) (Fish & G. Code, § 2050 *et seq.*), related authorization as provided by the Fish and Game Code will be required. The Department is required to comply with CEQA in its issuance of a Lake or Streambed Alteration Agreement or an Incidental Take Permit.

The implementation of SGMA does not alter or determine surface or groundwater rights (WC § 10720.5). It is the intent of SGMA to respect overlying and other proprietary rights to groundwater, consistent with section 1200 of the Water Code (Section 1(b)(4) of AB 1739). The capture of unallocated stream flows to artificially recharge groundwater aquifers are subject to appropriation and approval by the State Water Resources Control Board (SWRCB) pursuant to Water Code § 1200 *et seq*. The Department, as Trustee Agency, is consulted by SWRCB during the water rights process to provide terms and conditions designed to protect fish and wildlife prior to appropriation of the State's water resources. Certain fish and wildlife are reliant upon aquatic and riparian ecosystems, which in turn are reliant upon adequate flows of water. The Department therefore has a material interest in assuring that adequate water flows within streams for the protection, maintenance and proper stewardship of those resources. The Department provides, as available, biological expertise to review and comment on environmental documents and impacts arising from project activities.

CONCLUSION

In conclusion, the Department requests the Salinas Valley Basin 180/400 Foot Aquifer Draft GSP add specificity to analyses of groundwater dependent ecosystems and interconnected surface waters to: 1) better account for shallow groundwater systems and the many environmental beneficial uses and users that rely on shallow groundwater and interconnected surface waters; and 2) address all SGMA statutes and regulations. The Department recommends that the Salinas Valley Basin Groundwater Sustainability Agency consider the above comments before the GSP is submitted to CDWR. The Department appreciates the opportunity to provide comments on the GSP.

If you have any questions regarding this letter, please contact Dr. Andrew Gordus, Staff Toxicologist, at Andy.Gordus@wildlife.ca.gov or (559) 243-4014 extension 239.

Sincerely,

Julie A. Vance
Regional Manager, Central Region

Enclosures (Literature Cited, Attachment A)

ec: **California Department of Fish and Wildlife**

Joshua Grover, Branch Chief
Water Branch
Joshua.Grover@wildlife.ca.gov

Robert Holmes, Environmental Program Manager
Statewide Water Planning Program
Robert.Holmes@wildlife.ca.gov

Briana Seapy, Statewide SGMA Coordinator
Groundwater Program
Briana.Seapy@wildlife.ca.gov

Annee Ferranti, Environmental Program Manager
Central Region
Annee.Ferranti@wildlife.ca.gov

Andy Gordus, Staff Toxicologist
Central Region
Andy.Gordus@wildlife.ca.gov

Annette Tenneboe, Senior Environmental Scientist Specialist
Central Region
Annette.Tenneboe@wildlife.ca.gov

Bob Stafford, Environmental Program Manager
Central Region
Bob.Stafford@wildlife.ca.gov

California Department of Water Resources

Craig Altare, Supervising Engineering Geologist
Sustainable Groundwater Management Program
Craig.Altare@water.ca.gov

Benjamin Gooding, 180/400 Foot Aquifer SGMA Point of Contact
South Central Region Office
Benjamin.Gooding@water.ca.gov

State Water Resources Control Board

Natalie Stork, Chief
Groundwater Management Program
Natalie.Stork@waterboards.ca.gov

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The Otter Project
www.otterproject.org

P.O. Box 269
Monterey, CA 93942
831/663-9460

November 25, 2019

Mr. Gary Petersen, General Manager
SVBGSA
c/o Government Services
P.O. Box 1350
Carmel Valley, CA 93924

Submitted via email: petterseng@svbgsa.org

Re: Comments on the DRAFT 180/400 Foot Aquifer Subbasin GSP

Dear Mr. Petersen,

Thank you for the opportunity to submit comments. The following comments are offered on behalf of The Otter Project / Monterey Coastkeeper (Monterey Coastkeeper is the water quality program of The Otter Project), our board of directors, and our 1000 members. The 180/400 foot aquifer GSP (Draft Plan or Draft GSP) is a terrific start, thanks to the determination of the SVBGSA staff, but, unfortunately, will fail to curb extractions and/or restore our most important aquifers.

Before critiquing the details of the Draft GSP, we must comment on the systemic flaw that underlies the Draft Plan's creation and will plague the Draft GSP's implementation: the structural over-representation of agricultural interests. Four seats of the eleven-seat board are allocated to agricultural interests and it is an open secret that several of the other seats were, by plan, aligned with agriculture.

Agricultural interests sponsored the first steps to form the groundwater sustainability agency (GSA). The "Consensus Building institute" started the process by interviewing a broad range of stakeholders and the first deliverable was a report that included a list of 20 stakeholder interests that must be represented on the initial organizing committee, and the report suggested a cap of 20 members for the organizing committee. The Grower-Shipper Association immediately demanded – and was given -- seven agricultural seats on the committee, effectively displacing other interests. That organizing committee recommended the structure of the GSA board and agricultural stakeholders then demanded four seats on the GSA board.

Critically, as it directly relates to the Draft GSA, the governing documents include a voting provision:

> "Each Director has one vote, and the Board requires a simple majority (six Directors) for routine business, a super majority (eight Directors) for approving the Groundwater Sustainability Plan, budgets, and member termination, and **a super majority plus (eight Directors<u>, including three of the Agricultural Directors</u>) for imposing fees and or pumping limits."** emphasis added

The Central Coast Hydrologic Region, dominated by the Salinas Watershed, relies on groundwater more than any other region in California; 84% of our water comes from groundwater (the next closest region is the South Lahonton that uses very little water in total, but 70% comes out of the ground)[1]. Bringing the Salinas Basin to a sustainable groundwater balance will require money and sacrifice. Approximately 91-percent of all water use in Monterey County is for agriculture[2] and agriculture effectively has veto power over fees and pumping limits, a fatal flaw.

Comment One: The Plan is a plan to create a plan at a later date. The SGMA was passed by the California legislature in 2014 and GSAs have had five years to form and create plans for priority watersheds. The Draft GSA is incomplete. Over and over again the Draft Plan uses “Details to be Developed Later.” This is unacceptable at this late date.

Instead of using best available data and modeling, the Draft GSP proposes to wait for a USGS model that has been promised for -- literally -- years. Instead of making a good effort to create a plan around the two existing models that call for reduction of extraction of 22 and 45 percent (in addition, see comment two below), the SVBGSA proposes to wait for a model that they hope will be more generous.

As noted, the Central Coast is the region most reliant on groundwater, critically over-drafted, and as noted by numerous studies of nitrate contamination,[3] perhaps one of the most contaminated in the state. Waiting is not an option.

Comment Two: The amount of “Usable Storage” is over-estimated by 21 to 32 percent. As stated in section 5.3, the definition of usable storage is:

> “[T]he annual average increase or decrease in groundwater that can be safely used for municipal, industrial, or agricultural purposes.”

But the same paragraph goes on to state:

> “Change in usable groundwater storage is the sum of change in storage due to groundwater level changes and the change in storage due to seawater intrusion.”

“Usable” does not mean, just for agriculture. Just as saltwater is not available for agricultural use, nitrate contaminated groundwater is not available for municipal use. As outlined in the executive summary, three different studies have shown the lower Salinas basin groundwater to be heavily contaminated with nitrates.

Agricultural fields require the application of literally hundreds of pounds of chemicals per acre.[4] The impact of not considering nitrate laden groundwater is to allow pumping far above the seven-percent reduction mentioned is the Draft GSP. This pumped groundwater will then percolate through the chemical laden soils and further contaminate groundwater. The actions or inactions of the SVBGSA will directly impact water quality; by allowing excessive pumping water quality will be degraded, an action considered an “undesirable result” not allowed under the SGMA. This SVBGSA action or inaction could

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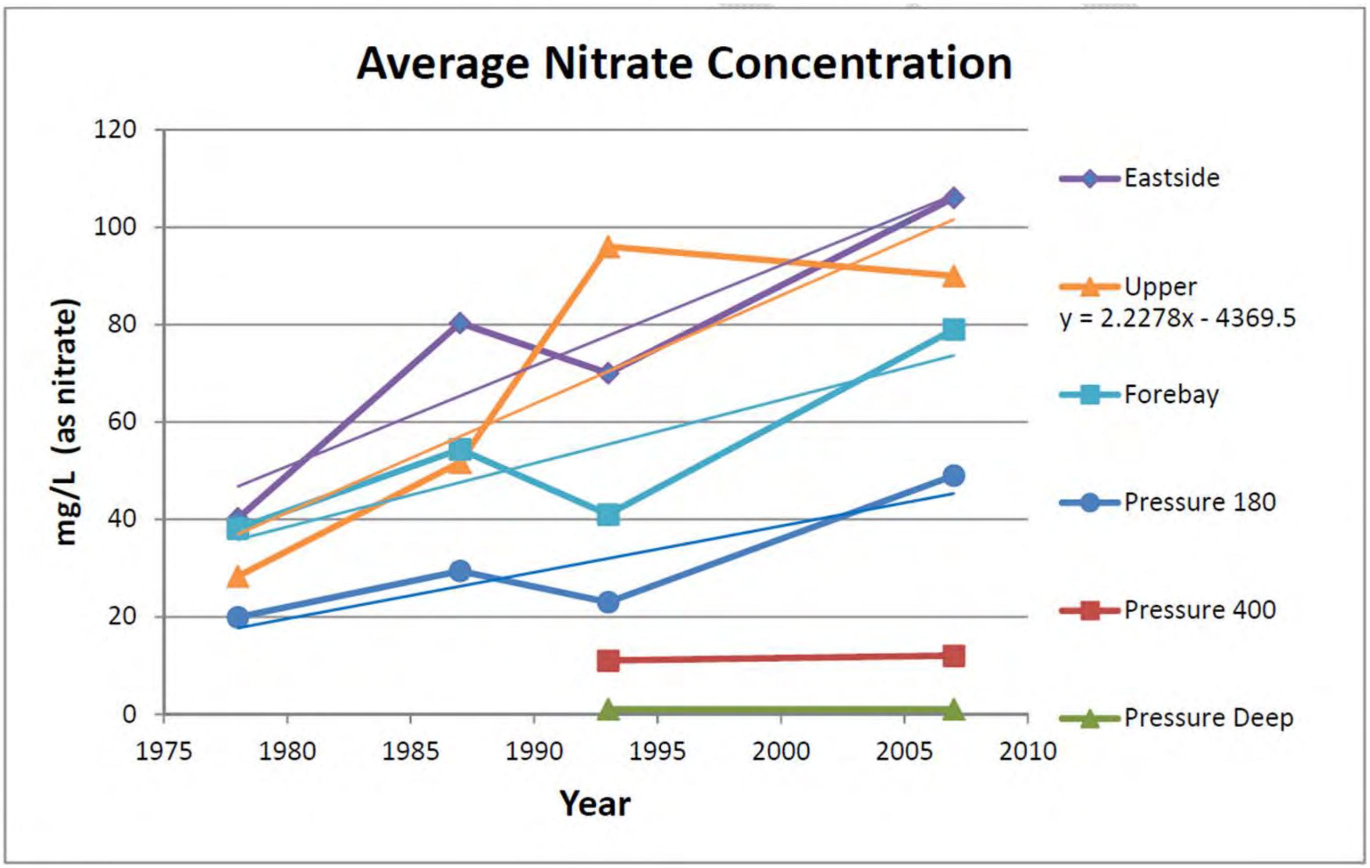
[1] 2015. The 2014 Sustainable Groundwater Management Act, A Handbook to Understanding and Implementing the Law. Water Education Foundation.
[2] See groundwater extraction summaries at https://www.co.monterey.ca.us/government/government-links/water-resources-agency/documents/groundwater-extraction-summaries#wra
[3] http://groundwaternitrate.ucdavis.edu/
[4] Various UC Extension and Department of Pesticide Regulation reports.

also violate the California Nonpoint Source Pollution Policy recently successfully litigated in the trial and appellate courts by Monterey Coastkeeper.

Comment Three: Nitrate laden groundwater plumes are ignored in the Draft GSA. The Draft GSA states at 7.5:

> " There are no known significant contaminant plumes in the GSP area, therefore the monitoring network is monitoring non-point source pollution and naturally occurring water quality impacts."

This statement contradicts studies performed by the Monterey County Water Resources Agency, a partner agency for implementation of the GSP. Graphically, nitrate plumes in the 180/400 aquifers are demonstrated in the following illustration extracted from a MCWRA report[5]:



[5] This graphic was extracted from MCWRA reports that have now been removed from the MCWRA website. The Otter Project would be able to find and provide this report from files provided by MCWRA during legal discovery if the Agency is unwilling to produce the study and information.

Increases in nitrate concentration are results of contamination plumes. Monitoring of plumes will most likely require a greater density of monitoring site.

Comment Four: The cost of priority projects is greatly underestimated. Not all projects were evaluated, but review of the highest priority project, Invasive Species Eradication, revealed a gross under-estimation of the costs of the project. One must wonder if all project costs are under-estimated.

The concept is to remove the invasive reed *Arundo donax* and benefit from the resulting evapotranspiration water savings. Without question, removing Arundo is desirable and would have environmental benefits. However it is extremely expensive as evidenced by the very high cost of the 2014 removal of 75 acres; approximately 1500 acres remain. Referring to the removal project the Draft GSP states:

> "Implementation costs for these projects are typically capital intensive with only minor long-term maintenance costs. Thus, the water supply benefit/cost ratio can increase significantly over the long term."

The concept that removal of 1500 acres of Arundo is financially feasible is a fallacy and the idea that the long term maintenance cost will be minor is equally flawed. As has been experience during the initial roll-out of the project, not all landowners are cooperative and Arundo will re-infest areas very quickly. Continuous removal will be required.

The benefits may be exaggerated as well: removal of Arundo do not result in bare dirt, the Arundo is replaced by other plants that could use a very significant amount of water, just as the Arundo did.

Comment Five: The Tiering Structure of the pumping allowances will be ineffective – for many years – in reducing over-extraction of groundwater. The Draft GSP states that sustainable pumping allowances will be developed over the first three years. We believe this first step is structured to take far longer. We believe determination of the allowances will take longer because of the structure of the board, and/or allowances will be overgenerous in pro-rata allocation and underpriced (limiting management actions) because of the structure of the board.

Once the sustainable pumping allowances are determined, the tiering structure is designed to not meet the goal of sustainable balance within 20 years. As stated on page 9-5, the Tier Two transitional pumping allowance will be phased out over 10 to 15 years. The result of three years of sustainable allowance planning and a 10 to 15-year transition means that it takes 13 to 18 years to even start to come to balance. Also as stated on page 9-5, "Maximum annual (calendar year) pumping between 2012 and 2017 will be used to determine transitional pumping allowances." In other words, the Draft GSP requires absolutely no reduction in pumping from the over-extraction-status-quo for the first 13 to 18 years and then "overnight" growers will be required to meet their sustainable pumping allowance.

We believe, the tiering structing leads to growers simply planning to pay supplemental charges instead of reducing pumping. Again, we must state that because of the board voting structure, the growers control the fees.

Comment Six: The ability to "Carry over" (9.2.3) or"Transfer" (9.2.4) saved water defeats the entire purpose of the Draft GSP and in addition, carry over water is simply "paper water" that will likely no longer exist in the basin. Water moves. Pumping less that the allocation is a very good thing, but that water allowance can not be carried over into a future year as that water has moved downslope and may no longer be in the watershed.

We understand that these comments are a bit tough. But we believe that the past management of the Salinas Groundwater Basin has put us in a very deep deficit. Long ago, there were lakes surrounding Salinas, water literally gushed from the ground, fish – some species now locally extinct – were plentiful, and the lower Salinas River was free flowing all year, many or most years. We've long forgotten the stories of bricks being barged up the Salinas River to build Spreckles or the ferry that moved people and wagons across the river near where Highway 68 crosses the river today. Our "baseline" of experience has shifted. The lakes and salmon will never return, but we cannot sacrifice the River or our groundwater.

Thank you for your consideration.

Sincerely,

Steve Shimek
Executive Director

COMMUNITY WATER CENTER
EL CENTRO COMUNITARIO POR EL AGUA

San Jerardo Cooperative, Inc.

November 25, 2019

Salinas Valley Basin Groundwater Sustainability Agency
Attn: Gary Peterson, General Manager
1441 Schilling Place
Salinas, CA 93901

Submitted electronically to:

Salinas Valley Basin Groundwater Sustainability Agency

Gary Peterson, General Manager

Salinas Valley Basin Groundwater Sustainability Agency Board of Directors

Ron Stefani, Castroville CSD

Adam Secondo, Secondo Farms

Bill Lipe, Rava Ranches

Tom Adcock, Alco Water Service

Colby Pereira, Costa Farms

Janet Brennan, LandWatch

Supervisor Luis Alejo, Monterey County

Mayor Joe Gunter, City of Salinas

City Manager Mike McHatten, City of Soledad

Steve McIntyre, Monterey Pacific/McIntyre Vineyards

Caroline Chapin Hodges, The Don Chapin Company

cc'd:

Department of Water Resources Director, Karla Nemath

Department of Water Resources Deputy Director, Taryn Ravazzini

Department of Water Resources, 180/400 Ft Aquifer Subbasin, Thomas Berg

State Water Resources Control Board Chair, Joaquin Esquivel

State Water Resources Control Board, Natalie Stork

CalEPA Deputy Secretary, Kristin Peer

Central Coast Regional Water Quality Control Board, John Robertson

Re: Comments on the Draft 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan

Dear Salinas Valley Basin Groundwater Sustainability Agency:

The Community Water Center (CWC) and the San Jerardo Cooperative would like to offer several comments and recommendations in response to the draft Groundwater Sustainability Plan (GSP) for the 180/400 Foot Aquifer Subbasin that was released on October 10, 2019 by the Salinas Valley Basin Groundwater Sustainability Agency (SVB GSA).

Community Water Center (CWC) is a 501(c)3 nonprofit that acts as a catalyst for community-driven water solutions through organizing, education, and advocacy. CWC seeks to build and enhance leadership capacity and local community power around water issues, create a statewide movement for water justice in California, and enable every community to have access to safe, clean, and affordable drinking water. San Jerardo Cooperative is a housing cooperative, built and owned by farmworkers, located in the Salinas Valley that has faced many drinking water quality challenges. CWC and San Jerardo Cooperative have worked to facilitate effective Sustainable Groundwater Management Act (SGMA) implementation that meets the needs of vulnerable communities through San Jerardo Cooperative serving on the GSA advisory committee and through both of our participation in SVB GSA meetings (board, advisory, and planning). Many of our comments are reflected in the public record. We have also connected SVB GSA staff directly via email and in person to publicly available resources and data sources to fill the current data gaps in the plan related to disadvantaged community boundaries, state and local small water system data (collected and maintained by the Monterey County Environmental Health Bureau), and private domestic well data (collected by the Central Coast Regional Water Quality Control Board as part of their Irrigated Lands Regulatory Program). We co-hosted two community workshops - on July 31, 2019 and October 24, 2019 - to share information about groundwater planning in the Salinas Valley and to receive feedback on how community members would like to see groundwater managed and get involved in the process.[1]

The comments and recommendations contained in this letter are provided in an effort to protect the drinking water sources of the vulnerable, and often underrepresented, groundwater users. These beneficial users of groundwater include: domestic well owners, community water systems, public water systems, severely disadvantaged communities (SDAC), and disadvantaged communities (DAC). The submitted comments are intended to assist the SVB GSA in developing a groundwater sustainability plan that accomplishes the following objectives:

1. Understands disadvantaged communities' unique vulnerabilities and adequately addresses their drinking water needs;
2. Avoids developing groundwater management actions that cause negative impacts to drinking water supplies or cause a disparate impact on low-income and communities of color;
3. Achieves the objectives required by the SGMA regulations and California's Human Right to Drinking Water in order to ensure the 180/400 Foot Aquifer Subbasin GSP adequately addresses the requirements necessary for GSP approval by the Department of Water Resources (DWR); and
4. Achieves the goals required by SGMA without negatively affecting the implementation of the Newsom Administration's newly passed Safe and Affordable Drinking Water Fund (SB 200, Monning, 2019), by limiting or preventing further contamination (or salinization) of drinking water sources or the dewatering of wells that serve low-income communities of color.

The Department of Water Resources (DWR) will be considering AB 685, which established the Human Right to Water as state law, when reviewing and approving GSPs. The Human Right to Water is a

[1] Notes and materials from the July 31, 2019 *Protecting Drinking Water and Groundwater Planning in the Salinas Valley Workshop* co-hosted by Community Water Center, San Jerardo Cooperative, and the Union of Concerned Scientists are available online:
https://www.communitywatercenter.org/salinas_gsp_workshop

California law that recognizes that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes." GSPs that do not support access to sufficient and affordable quantities of drinking water, or GSPs that impact access to safe drinking water, may require costly and time-consuming revisions prior to approval from DWR, if not outright or eventual rejection of the GSP.

We are unfortunately very concerned that, without significant changes which we lay out in this comment letter, the proposed GSP will have significant negative impacts for access to safe and sustainable drinking water in our most vulnerable populations within the GSA -- low-income communities and domestic well owners. Here is a summary of some key comments and recommendations:

The GSP Should Include Immediate Actions To Take Effect in 2020 While Projects Are Being Developed
The GSP should be revised to lay out a clear and robust plan to achieve sustainability. The GSP delays any decisions on approving projects or actions to address conditions of critical overdraft in the 180/400 foot aquifer subbasin until 2023 and later. This is not acceptable as a significant portion of the drinking water supplies in the subbasin, including drinking water systems serving disadvantaged communities in Castroville and Moss Landing, are already impacted or are at imminent risk of seawater intrusion impacts. The GSA should immediately adopt management actions to slow seawater intrusion and protect vulnerable communities and drinking water supplies.

Chapter 9 Projects and Management Actions: Well Impact Prevention/Mitigation Program
Given delays in described in the plan and negative impacts to drinking water wells, the SVB GSA should develop a robust drinking water well program to prevent or mitigate impacts (e.g. dewatering, increases in contaminant levels, increases in salinity). This should include a vulnerability analysis of DACs and drinking water supplies in order to protect drinking water for these vulnerable beneficial uses and users.

Chapter 3 Description of Plan Area
Include a map of all disadvantaged communities (DACs) (census block groups, census designated places, and census tracts) in the subbasin. Include a map of service areas for all drinking systems that depend on groundwater in the subbasin. This map should include all state small water systems (SSWS), local small water systems (LSWS), and public water systems.

Chapter 5: Groundwater Conditions
Include spatial and temporal water quality data trends in the subbasin based on publicly available, historic drinking water well data from SSWS, LSWS, public water systems, and private wells. Include all known constituents that impact public health that have been found in groundwater in the subbasin including (but not limited to) hexavalent chromium, arsenic, and 123-trichloropropane.

Chapter 6: Water Budget
Revise the basin setting and water budget of the draft 180/400 Foot Aquifer Subbasin GSP to better articulate and quantify the needs of drinking water users within the GSA, and address key missing information and assumptions about drinking water users. The water budget and sustainable yield calculation must take into account the proposed project(s) to address sea water intrusion as well as the significant uncertainty inherent in these projects.

Chapter 7 Monitoring Network

Provide the locations and depths of all public water systems, state and local small water systems, and private domestic wells in the subbasin using the best available information, and present this information on maps along with the proposed SGMA-compliance monitoring network so that the public can evaluate how well the monitoring network addresses these key beneficial users. Expand water quality monitoring network with currently available data to better capture impacts to domestic wells and state and local small water systems who rely on the shallow aquifer.

Chapter 8 Measurable objectives, minimum thresholds, and undesirable results
Clearly identify and describe the current level of contamination and salinity at each representative monitoring well and attribute specific numeric values for MTs/MOs for each contaminant of concern. Revise sustainable criteria to be protective of drinking water users.

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We urge SVB GSA to make changes to better protect the beneficial uses for low-income and communities of color that live within the GSA. Detailed comments and recommendations for individual sections of the GSP developed are included below. We also conducted a focused technical review of certain sections of the GSP. Figures and maps from this review are included as attachments and are referenced in this comment letter. We have also included comments and reflections throughout this comment letter from the SVB GSA public meetings we have attended as well as the GSP workshops we have hosted.

Thank you for reviewing this letter and for the consideration of our comments on the draft GSP. We look forward to working with the SVB GSA to ensure that the 180 / 400 Foot Aquifer Subbasin GSP is protective of the drinking water sources of vulnerable, and often underrepresented, groundwater stakeholders. Please do not hesitate to contact us with any questions or concerns, or if you would like to meet to further discuss these important sets of issues.

Sincerely,

Heather Lukacs
Community Water Center

Horacio Amezquita
General Manager, San Jerardo Cooperative, Inc.

Table of Contents

Attachments to this Comment Letter 34

GSP Chapter 1: Introduction

Sustainability Goal

We encourage the GSA to move the Sustainability Goal section from Chapter 8 to the start of this first chapter. It is important to start the plan with the sustainability goal to set the stage for why this plan matters. We agree that part of the sustainability goal is to "ensure long-term viable water supplies" as you say in Chapter 8. The "sustainability goal" should be revised to explicitly state and include a commitment to the Human Right to Water in the Salinas Valley - that "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes."

At public workshops hosted by CWC, community members have commented that their vision for water in the Salinas Valley Basin includes:

- "Water is for everyone. This is why we passed the human right to water resolution and we are fighting to defend it."
- It is not contaminated ("No contaminada"),
- We are not contaminating the earth, that it is clean for all ("No estamos contaminada la tierra - limpiar para todos")
- The water is like it was in the past, no filters needed, so fresh ("Fuera el agua como pues años atrás. Sin filtros o nada. Tan fresca.)

Our shared vision for groundwater is groundwater that is free of contaminants, available for both private and public uses, available without the need for in-home filtration, and available 24-hours a day. We reject a definition of "sustainability" which allows domestic or municipal wells to become salty, go dry, or become contaminated before management actions are enacted. This vision for the future of groundwater in the Salinas Valley is not currently captured in the draft GSP. In order to improve this section, we recommend the following:

- **Revise the opening paragraph in Section 1.1 to clearly state that the 180/400 Foot Aquifer Subbasin has been designated by the California Department of Water Resources as a "Critically Overdrafted Basin."** This designation means that "the continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts. (DWR 2019)."[2] It is important that the SVB GSA explain clearly to the public why this GSP is needed, that current practices are resulting in critical overdraft, and that the status quo is unacceptable.
- **Revise introduction to clearly describe why this GSP matters and clearly articulate the current challenges.** The Subbasin should be described in a manner that clearly explains baseline conditions for all sustainability criteria and the significant challenges facing Salinas Valley groundwater managers in terms of sea water intrusion, lowering groundwater levels, and extensive water quality contamination.
- **Include a reference for the following comment on page 1-2**: "There is some, although potentially limited, hydraulic communication between the Eastside Aquifer Subbasin and the 180/400-Foot Aquifer Subbasin." This has potentially significant implications for the relationship

[2] California DWR (2019) Critically Overdrafted Basins. Accessed November 17, 2019. https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118/Critically-Overdrafted-Basins

between pumping that is causing the significant cone of depression in the East Side aquifer and seawater intrusion impacting the 180/400 foot aquifer.

GSP Chapter 2: Agency Information

Clarify the legal authority Monterey County has as a GSA eligible entity and JPA signatory to take over the management of the 180/400 foot aquifer sub-basin(Section 2.3.1.1). Given recent public comment (both written and oral) in October and November 2019 regarding SVBGSA authority, it is requested that the SVB GSA clarify this authority.

GSP Chapter 3: Description of Plan Area

The description of the plan area can be improved by clarifying the descriptions of the drinking water users in the area. In order to develop a GSP that addresses the needs of all beneficial users, it is critical that the location and groundwater needs of DACs and domestic well communities are explicitly addressed early on in the GSP. The plan should be updated to include DAC boundaries and service areas for all drinking water systems including all state small water systems (SSWS), local small water systems (LSWS), and public water systems. Our comments in this section identify key data sources and recommended terminology. We have shared information with the GSA directly on this topic during public meetings and also via emails on December 6, 2018 and then again on April 5, 2019, which included information and a link to an online map viewer with all of these data layers.[3] In order to improve this Chapter, we recommend the following:

- **Clearly define all drinking water system types and use those terms consistently in this chapter and plan.** A straight-forward and concise explanation of drinking water system definitions and how drinking water systems are regulated can be found in the *Integrated Plan to Address Drinking Water and Wastewater Needs of Disadvantaged Communities in the Salinas Valley and Greater Monterey County IRWM Region (2017).*[4] We recommend using the following terms consistently throughout the plan:
    - Public Water Systems - this includes community water systems (as discussed in the GSP) and also non-transient, non-community water systems (e.g. schools), as well as transient non-community water systems (e.g. restaurants, gas stations).[5]
    - State Small Water Systems (SSWS) - serve 5-14 service connections.
    - Local Small Water Systems (LSWS) - serve 2-4 service connections.

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[3] The Greater Monterey Community Water Tool (Database and Map Viewer) has been created to show the locations of disadvantaged and suspected disadvantaged communities, geographic areas with water quality contamination (including nitrate, arsenic, and hexavalent chromium contamination), and the boundaries of nearby water districts. More information and a link to the tool is available here: http://www.greatermontereyirwmp.org/documents/disadvantaged-community-plan-for-drinking-water-and-wastewater/

[4] See Chapter 3, Pages 3-1 to 3-3 of the Plan by the Greater Monterey County Regional Water Management Group, which is downloadable: http://www.greatermontereyirwmp.org/documents/disadvantaged-community-plan-for-drinking-water-and-wastewater/

[5] See EPA's website with helpful classification information for public water systems: https://www.epa.gov/dwreginfo/information-about-public-water-systems

- **Include a map of all disadvantaged communities (DACs) and their drinking water sources in the subbasin including Castroville, Moss Landing, and private wells.** Disadvantaged communities are on the front lines of the sea water intrusion front with the public water supplies of Castroville and Moss Landing right on the sea water intrusion minimum threshold line for the 400 foot aquifer (see CWC Figure 1- Attached). What these maps do not show is the number of wells already lost due to sea water intrusion and the ways in which these DACs have already been adapting to poor groundwater management. Castroville, the City of Salinas, and numerous other drinking water users in the subbasin have lost wells due to sea water intrusion. In setting the stage for the plan area, it is important to include the location of all DACs in the subbasin as determined both by census data (block groups, census designated places, and census tracts) and median household income surveys conducted in accordance with state and federal agency guidelines. DACs are defined by California Water Code §79505.5 as communities with an annual median household income that is less than 80 percent of the statewide annual median household income[6].

- **Revise description of plan area to include the sources of water for all DACs, percentage of groundwater dependance, type of water system, current groundwater quality conditions, and number of people served.** Adequately characterizing the other public water systems, state and local small water systems, DACs, and domestic well communities in the GSA is important in order to better identify areas that are vulnerable to groundwater level, groundwater quality, or sea water intrusion challenges in order for the SVB GSA's actions to respond accordingly. Table 3.2 Well Count Summary could be a good place to list the names, ID numbers, populations served, and other key attributes of the over 40 public supply systems in the subbasin.

  We estimate that approximately 50,000 DAC residents in the 180/400-Foot Aquifer Subbasin are entirely dependent on groundwater for their drinking water needs (See CWC Figure 1 - Attached).[7] Clarifying the different types of systems that provide drinking water (private domestic well, public water system, or state or local small water system), population served by each system, and current groundwater quality conditions is important context to set the stage to: (1) quantify drinking water demand in the subbasin for both the current and projected water budget, (2) provide a basis for the monitoring network of drinking water supplies, and (3) ensure inclusive and representative engagement of DACs in the planning process.

- **Describe highly vulnerable drinking water systems, including Castroville and Moss Landing, in more detail to better explain the challenges that groundwater management must address.** Castroville Community Services District (CSD) owns and operates an extremely vulnerable

[6] The DWR DAC Mapping Tool can be used to help identify the locations of these communities and their populations: https://gis.water.ca.gov/app/dacs/.

[7] Several Census Block Groups and Tracts extend beyond the boundary of the subbasin, and thus not all of the population represented by the Tract lies within the basin. In addition to the DACs identified through the DWR-provided DAC Mapping tool (based on 2011-2016 estimates), the community of Moss Landing, which had insufficient data when the tool was developed, has been determined to be a DAC. Thus, the total population based on DWR-provided census data for the Block Groups and Tracts located within and across subbasin boundaries, and Moss Landing is 49,244.

drinking water system (CA2710005) that serves approximately 7,250 residents in the unincorporated community of Castroville. A median household income (MHI) survey was completed by the Rural Community Assistance Corporation in 2017 in accordance with California state standards that qualifies Castroville as a Severely Disadvantaged Community, with a MHI of $35,000. Castroville CSD has wells that have already been impacted by sea water intrusion - making them unusable. They have one well in the deep aquifer that must be blended with another more shallow well in order to reach acceptable temperature levels for potable water. Water levels in this deep well are declining. The CSD has installed an award winning arsenic treatment system due to levels of arsenic in one well water with source water exceeding 20 parts per billion (ppb), which is more than double the drinking water standard. Recent science demonstrates that the way groundwater is managed (groundwater levels and pumping rates) can cause inert arsenic to be released from sediments into groundwater in its aqueous form.[8]

Moss Landing is another extremely vulnerable disadvantaged community located in the sea water intrusion zone. Pajaro Sunny Mesa CSD owns and operates the Moss Landing Harbor Water System which is a community water system (CA2701515) that serves approximately 400 residents. The drinking water supply well for this water system, located inland from its service area, is in close proximity to the 2017 extent of the 400 foot sea water intrusion line, thus making it vulnerable to any further sea water intrusion beyond that point. Castroville CSD owns and operates the Moss Landing County Sanitation District (MLCSD), which is located in the unincorporated town of Moss Landing. California Rural Water Association conducted an MHI survey in 2018 which found Moss Landing to be a Disadvantaged Community (DAC) with an MHI of $47,600. Census data shows insufficient data in the Moss Landing area to determine median household income, thus the State has required the MHI survey in order to determine funding eligibility for state grants.

- **Revise Chapter 3 and Figure 3.4 to include a map of the service areas of the over 100 state and local small water systems in the 180/400 foot aquifer subbasin.** The Monterey County Environmental Health Bureau (EHB) maintains publically available data which includes shape files of state and local small water system service areas (e.g. polygons of all parcels served by each state or local small water system) to water system IDs. Lists of state and local small service areas and out-of-compliance water systems are available online on their state and local small water

[8] Stanford, 2019. A Guide to Water Quality Requirements Under the Sustainable Groundwater Management Act.

Community Water Center, 2019. Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act.
https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858

Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896 system webpage.[9] Monterey County EHB also maintains individual files for each SSWS and LSWS in the County, which often contain well completion reports for each system. All water quality data, location data, and well completion reports are publically available upon request from the Monterey County EHB.

- **Revise Figure 3.6 to add table to clearly define and identify service areas of all drinking water systems *that depend on groundwater in the subbasin*.**
  - **Clarify the definition of "municipal areas" used in Figure 3-6.** We recommend changing "municipal areas dependent on groundwater" to "public water system service areas dependent on groundwater."
  - **Add the Moss Landing water system, which is groundwater dependent, to this map as well as any other water systems that are missing.**
  - **Include groundwater dependent private domestic wells, SSWS, and LSWS.**

  DACs and other communities receive their drinking water from hundreds of domestic wells located within the subbasin, over 100 state and local small water systems, and numerous public water systems, including approximately 30 separate community water systems. We request that all public water system service areas and state and local small service areas be included in this chapter as well as a list of all these system names, water system ID numbers, and number of service connections (or population served).[10] Private wells should also be identified as being groundwater-dependent drinking water supplies. Figure 3.4 includes cities, community service districts and water districts, but does not but does not include smaller public water systems. Figure 3.6 includes "municipal areas" but does not clearly define these areas as "public water system" service areas. All smaller public water systems including Dolan Road Mutual Water Company (CA2700548), Green Acres Water Association (CA2701647), Hidden Valley WA (2700594), Elkhorn Rd WS #4 CA 2700579), and Strawberry Road Water System #06 (CA2700766) should be clearly listed and labeled maps in this chapter. All public water systems and state/local small water systems are important to identify and include in this chapter because all are reliant on groundwater, many are highly vulnerable to water level and water quality changes, and all will be impacted by the way groundwater is managed in the basin.

- **Move Section 3.8.5 Title 22 Drinking Water Program from its current location under "Groundwater Regulatory Program" to a new section - which could be titled "Drinking Water Regulatory Programs."** This could eliminate redundancy in current Section 3.6.3.2 which describes "municipal and community water purveyors" and the section on Title 22 Drinking Water Program which is more extensive and discusses public water systems. The "Drinking Water Regulatory Programs" section could detail the differences between water systems overseen by Monterey County Environmental Health which include state and local small water systems (e.g. those that serve 2-14 connections) and public water systems serving 15-199 connections. It could also discuss requirements for all public water systems serving more than 15 connections.

[9] https://www.co.monterey.ca.us/government/departments-a-h/health/environmental-health/drinking-water-protection/state-and-local.

[10] All of the drinking water wells and small water systems mentioned in Chapter 7, page 7-24 of the 180/400-Foot Aquifer Draft GSP (October 1, 2019) should be included in a map and have an associated list with key information. The GSP mentions: "Small water system wells, regulated by Monterey County Department of Public Health include a total of 136 wells in the current network." All 136 water systems should be clearly mapped, labelled, and named.

- **List domestic water use under the Water Use Section (Section 3.4.2).**This section indicates that, "Domestic use outside of census-designated places is not considered urban use." Even if MCWRA does not report rural residential use, it is an important beneficial use and should be listed as a "water use sector."
- **Revise Chapter 3 (Section 3.6.3.1) to recognize and incorporate MCWRA research and recommendations related to seawater intrusion.** In addition to the MCWRA Seawater Intrusion Monitoring, it is vital that the GSP acknowledge the large body of MCWRA research and recommendations compiled over decades related to sea water intrusion.[11] At least the following reports should be summarized and referenced in Chapter 3:
    - Recommendations To Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin (October 2017)
    - State of the Salinas River Groundwater Basin Report (January 2015)
- **Revise Section 3.6.5 to include Ag Order 3.0 reporting data as well as the forthcoming Ag Order 4.0 data.** This data should be included in the final draft of the plan as it is readily and publically available. It important to include to understand the current state of the basin. We again recommend that section be revised to use the same terminology as other sections for drinking water supply systems for consistency and completeness.
- **Include date and complete reference (including website link) for the Integrated Regional Water Management Plan referenced in Section 3.7.2.**
- **Revise Section 3.8.2 on the Agricultural Order for the following:**
    - The Ag Order 4.0 will not longer be available in early 2020, it is recommended that this is corrected to "2020."
    - The Ag Order 4.0 is for the "entire central coast region, including the Salinas Valley Groundwater Basin area." We recommend adding this text.
    - If the GSA uses Ag Order data as part of the monitoring network, it is critical that this GSP includes a more in depth information about the data (historic and most recent data), how it is collected, reporting requirements, enforcement procedure, and a plan to ensure that all wells are monitored and that reporting is required and enforced.
- **Define "replacement well" and also define and include map of "area of impact" and in Section 3.8.6 on the County Moratorium on Accepting and Processing New Well Permits.** Because the GSA will likely need to build upon or extend the ordinance, a map of the area of impact should also be included.

GSP Chapter 4: Hydrogeologic Conceptual Model

- **Revise Section 4.6 on Water Quality to acknowledge that "natural groundwater quality in the Subbasin" can be influenced by pumping and the way groundwater is managed.[12]** In particular,

[11] See Monterey County Water Resources Agency, Hyrdrogeologic Reports. Accessed November 21, 2019. https://www.co.monterey.ca.us/government/government-links/water-resources-agency/documents/hydrogeologic-reports#wra

[12] Stanford, 2019. A Guide to Water Quality Requirements Under the Sustainable Groundwater Management Act.

Community Water Center, 2019. Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act.
https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/G

contaminants like arsenic, uranium, and chromium (including hexavalent chromium) are more likely to be released under certain geochemical conditions influenced by pumping rates, geological materials, and water level fluctuations.

- **Include the spatial extent of arsenic and hexavalent chromium in all drinking water supply wells in the subbasin.** Data sources should include those described previously in this comment letter (public water system data, state/local small water system data) as well as data available on GAMA from the Central Coast Regional Water Quality Control Board's private well testing program.

GSP Chapter 5: Groundwater Conditions

- **Include the MCWRA management area data layer on all maps that use MCWRA data in order to make the data gaps transparent when presenting data on groundwater conditions.** To make the data gap very clear to the reader, the data layer in Figure 5-21 MCWRA Management Area should be included in all figures that use MCWRA data. For example, Figure 5-1 CASGEM Well Locations should include this as a data layer to illustrate the significant data gap in the north part of 180/400 Foot Aquifer Subbasin where the highest concentrations of domestic wells are located. Same with Figures 5-23 and 5-24 that illustrate the extent of sea water intrusion.
- **Clearly identify data gaps on existing maps and in Section 5.1 on Groundwater Elevations.** Figure 5-21 MCWRA Management Area is a very helpful illustration that the MCWRA areas do not include the northern part of the 180/400 foot aquifer as well as the vast majority of the Langley basin.
- **Revise Section 5.1.2 to present all currently available monitoring data and hydrographs of deep aquifer wells from CASGEM, from public water system water level monitoring (e.g. from Castroville CSD and others), and from other sources.** CASGEM data and also reports from groundwater users themselves demonstrate that groundwater levels are dropping in the deep aquifer. In addition, the GSA should include a report in this section of all data that has been submitted to the GSA and MCWRA as required by Monterey County Ordinance 5302. On page 7-12 of the GSP, it states: "This ordinance, adopted in 2018, limits the number of wells that can be drilled into the Deep Aquifers and requires that all new wells in the Deep Aquifers meter groundwater extractions, monitor groundwater levels and quality, and submit all data to MCWRA and SVBGSA." Clarify if wells in the deep aquifer that replace former wells in the 400 foot aquifer are also required to submit all their data, and include such data if and when available.

Sea Water Intrusion

- **Revise Figures 5-23 and 5-24 to add MRCWA management area boundaries and specific monitoring points to better understand data gaps and uncertainties in sea water intrusion**

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uide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858

Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896

contours. Data from vulnerable drinking water supply wells, including Castroville CSD and Moss Landing Harbor Water System, located both in and around the sea water intrusion contours should also be included in this section as there is a margin of error in the contour data.

- **Revise the first paragraph on page 5-40 to discuss the limitations of Ordinance 5302 and what the GSA plans to do to address these limitations.** This is the same comment we provided on Section 3.8.6 —it is our understanding that this ordinance is limited in the geographic scope of the "area of impact." This ordinance is also limited in that there are many new wells being permitted in the deep aquifer because of an allowance for wells in the 400 foot aquifer to be replaced by wells in the deep aquifer when the 400 ft aquifer wells become unusable (due to sea water intrusion). This is of utmost importance as there are reports of several new wells in the deep aquifer being permitted and drilled around Castroville CSD right now.
- **Revise paragraph on page 5-40, to add date and complete reference including website for the State of the Salinas River Groundwater Basin report.** All stakeholders will need to understand this important report, its recommendations, limitations, and analysis in order to make informed decisions about sea water intrusion abatement measures.

Groundwater Quality Distribution and Trends

- **Revise Section 5.5 of the GSP to include a clear and transparent assessment of the spatial and temporal water quality trends in the subbasin with respect to the drinking water beneficial use (23 CCR § 354.16(d))**. This section should include water quality data (both in map and tabular form) for all constituents with minimum thresholds listed in Tables 8-6 through 8-9 for all public drinking water wells (including those listed in Appendix 7E), state and local small water system wells, and private domestic wells.[13] It is also important to highlight data gaps in drinking water data here and in Chapter 7.
- **Clearly state in the introduction to this section that the amount and location of pumping can impact groundwater quality distribution and trends.**
- **Revise Section 5.5.3, paragraphs 2 and 3, to clarify in the text and on the figure itself the years of the nitrate data and also the well type (on farm domestic well, irrigation well, all wells) of information presented in Figures 5-32 and 5-33.** Because domestic wells often rely on more shallow aquifers that are susceptible to nitrate and other contamination, it is recommended that nitrate maps of domestic wells are separated out from maps of irrigation wells (as you mention further down in this section when discussing the Regional Water Board staff report).
- **Revise Section 5.5.3, paragraphs 4 to 6, to add the complete reference for the May 2018 staff report to the Regional Water Quality Control Board data on nitrate contamination and clarify that the tables referenced in the GSP are located in the staff report not in the GSP.[14]** We also recommend adding information and maps from this staff report to the GSP on other

[13] The review of water quality data in the groundwater conditions section of the draft GSP (Section 5.5) is very limited and focused almost entirely on nitrate. The draft GSP identifies numerous constituents that have been detected in groundwater above drinking water standards, but, with the exception of nitrate, does not present this data spatially or even in tabular format. Even though the draft GSP sets water MTs for these constituents (Table 8-6 through 8-9), the supporting data are not presented, and no analyses of spatial or temporal water quality trends are presented.

[14] Central Coast Regional Water Quality Control Board (CCRWQCB), May 2018. Central Coast Water Board staff report on groundwater quality conditions in Central Coast Groundwater basins: https://www.waterboards.ca.gov/centralcoast/board_info/agendas/2018/may/item8/item8_stfrpt.pdf

contaminants present in the 180/400-Foot Aquifer Subbasin in addition to nitrate including salts, industrial chemicals, arsenic, and pesticides.

- **Consult Guide to Water Quality Requirements Under the Sustainable Groundwater Management Act (2019), published by Stanford University, for a comprehensive overview of data sources on water quality available for use in GSPs in California.**[15] It is important that this GSP includes all publicly available data on groundwater conditions so that groundwater can be managed in a way that improves water quality or, in the least, does not cause further degradation.

GSP Chapter 6: Water Budgets

The GSP water budget requirements are intended to quantify the water budget in sufficient detail in order to build local understanding of how historical changes have affected the six sustainability indicators in the basin. Ultimately, this information is intended to be used to predict how these same variables may affect or guide future management actions[16]. Another important reason for providing adequate water budget information is to demonstrate that the GSP adheres to all SGMA and GSP regulation requirements and can demonstrate the ability to achieve the sustainability goal within 20 years, and maintain sustainability over the 50 year planning and implementation horizon. The calculations of sustainable yield and the water budget in this chapter *greatly overestimate the actual sustainable yield of this subbasin*, and this chapter is also missing key information on data and assumptions used in the development of these sections. We recommend the following changes:

- **Better articulate and quantify the needs of drinking water users within the GSA and address key missing information and assumptions about drinking water users.**
    - This GSP chapter should include more information about all drinking water users in the subbasin (e.g. all small and large public water systems, all state and local small water systems and all private domestic wells) including number of connections, population served, current, historical and projected demands by each system/user.
    - Revise Figure 6-7 to clarify whether the “municipal pumping” and “rural/domestic” include all drinking water users (e.g. all small and large public water systems, all state and local small water systems and all private domestic wells).
    - Revise Table 6-30 Projected Annual Groundwater Pumping by Water Use Sector to include all drinking water users in this model. Currently, rural domestic is not simulated in model and is considered minimal. All drinking water users should be considered including all small and large public water systems, all state and local small water systems and all private domestic wells.

Sustainable Yield

- **Revise calculations of sustainable yield in Section 6.8.5 to include and avoid all six undesirable results as enumerated in the Sustainable Groundwater Management Act (SGMA).** We reiterate and reaffirm our July 11, 2019 comment letter on Draft GSP Chapter 6 which is included as an attachment to this comment letter. The definition of Sustainable Yield in this draft GSP has not

[15] Moran, T. and Belin, A. (2019). A guide to Water Quality Requirements Under the Sustainable Groundwater management Act. Stanford Digital Repository. Available at: https://purl.stanford.edu/dw122nb4780

[16] DWR, 2016. Best Management Practices for the Sustainable Management of Groundwater, Modeling (BMP #5), December 2016.

changed since the draft GSP we commented on in July 2019. Sustainable yield is still defined in the 180/400-Foot Aquifer Subbasin GSP (October 1, 2019, page 6-32) as "an estimate of the quantity of groundwater that can be pumped on a long-term average annual basis without causing a net decrease in storage." Establishing a sustainable yield that adequately takes into consideration all undesirable results is a foundational step for developing appropriate sustainable management criteria and for accurately planning for the management actions and projects necessary to meet sustainable management criteria. We repeat our request that this GSP include a calculation of sustainable yield calculation that informs the public of the actual net amount of water that can be extracted from the subbasin while avoiding all six undesirable results, including sea water intrusion.

- **We strongly urge the GSA in Section 6.10.5 to justify the assumption that a proposed seawater intrusion project will result in "zero seawater intrusion," to clearly explain that the sustainable yield calculations and water budget depend on such proposed project, and to detail the level of pumping reductions necessary to prevent damages to public water supplies if the project is not built.**
    - In public meetings, GSA staff have been clear that a sea water intrusion project will be necessary in order to meet the minimum threshold for sea water intrusion. Section 6.10.5 currently states: "It is important to recall that simply reducing pumping to within the sustainable yield is not proof of sustainability, which must be demonstrated by achieving the SMC that are outlined in Chapter 8. While the sustainable yield estimates in Table 6-31 assume zero seawater intrusion, they do not account for temporary pumping reductions that may be necessary to achieve higher groundwater levels that help stop seawater intrusion." This section needs to include more justification for this assumption - what evidence can the GSA provide that there will be zero seawater intrusion if the project is built? In order to meet interim milestones and/or prevent damages to public water supplies prior to the project being built, what level of pumping reductions will be necessary?

Uncertainties in Projected Water Budget Simulations

- **Revise Section 6.11 to discuss the uncertainty around the assumption that a future project (e.g. sea water extraction barrier) will be built and will successfully stop sea water intrusion.**[17] The largest uncertainty in the projected water budget is not the uncertainty described in this section, but rather the uncertainties related to this future project. Overall, the impacts to DACs and drinking water supplies are *certain* and are, in fact, already happening, but the proposed projects to stop sea water intrusion are very *uncertain* in terms of timeline, effectiveness, how they will impact the water budget of the basin (e.g. how much groundwater will they pull from the ocean-side versus how much will be extracted from the inland side), how the gradient of groundwater may be impacted, how climate change will impact project viability, whether this

[17] The draft GSP identifies a seawater intrusion pumping barrier and estimates that operation will require withdrawing up to 30,000 AFY of groundwater, which would then be conveyed to discharge into the Pacific Ocean or to a new or existing desalination plant (Section 9.4.3.7). The draft GSP also states that an "optional barrier using injection instead of extraction was also considered" and that this option would require injection of approximately 46,000 AFY of water to create a protective mounding effect.

scale of project will be permitted in the coastal zone, what will be the long-term energy demand, what will this project cost to install, maintain, and monitor, and who will pay.

- **Revise Chapter 6 to account for this uncertainty surrounding the extraction barrier, and clearly explain the predicted amount of water that will come from the inland side of the extraction barrier and the uncertainty around that estimate.** There is substantial uncertainty around how much water this project would extract from the subbasin— from the inland side of the extraction barrier and from the ocean side of the extraction barrier. The groundwater gradient is currently moving inland with seawater being pulled from the ocean into the intruded area. The sea water intrusion project will impact the gradient in one of two ways: 1) The gradient will either continue or slow in the same inland direction, or 2) the gradient will reverse and water will be pulled by the extraction barrier toward the coast (at least for some distance). Either way, the project needs to be accounted for in the water budget. If the gradient continues inland, then the sea water intrusion MT will not be met unless pumping is restricted. If the gradient reverses, then the projected water budget will need to include the amount of water being extracted by the subbasin by the sea water intrusion project. In both cases, the project ***will*** impact the MTs and water budget.
- **Include another calculation of sustainable yield that assumes that the seawater extraction barrier is not built because this project itself is highly uncertain**. Sustainability of this subbasin should not hinge on unproven technology. To take into account uncertainty around this project, the GSA should include evidence that sea water intrusion projects of this scale in similar groundwater basins have been successful. The GSA should include actual operation and maintenance costs, including energy demand, of installed projects of similar scale to know how much would need to be charged in the water charges framework to cover these costs. While some numbers are presented in Chapter 9, it is not clear how these numbers were calculated (no mention of comparable projects that are already in operation) and how funding for this project relates to the water charges framework.

GSP Chapter 7: Monitoring Network

Robust monitoring networks are critical to ensuring that the GSP is on track to meet sustainability goals. GSAs undertaking recharge, significant changes in pumping volume or location, conjunctive management or other forms of active management as part of GSP implementation, must consider the interests of beneficial users, including domestic well owners and S/DACs. As currently developed, the monitoring network does not adequately monitor how groundwater management actions related to groundwater levels could impact vulnerable communities. The following public comments were submitted by public comment letter or provided during public workshops hosted by Community Water Center and San Jerardo Cooperative:

> "There is absolutely no monitoring well data from the hill areas in the northern part of the 180/400 ft. aquifer. The monitoring wells are located on the flatland areas only. SVBGSA has NO IDEA what the condition of wells are in the hill areas where thousands of rural residents live. They do not know how many wells are already at risk in terms of groundwater level and how the proposed projects and

continued high pumping rates could exacerbate those low levels." - public comment letter
"We don't know what salt water intrusion is at the Elkhorn Slough." - Public Workshop comment
"How can individuals know what the level the aquifer is where they are? - Public Workshop comment

We recommend the following changes:

- **Provide the locations and depths of all drinking water supply wells in the subbasin.** Use the best available information and present this information on maps along with the proposed SGMA-compliance monitoring network so that the public can evaluate how well the monitoring network addresses these key beneficial users.
- **Clearly describe in Section 7.1.2 how the GSA will establish a representative monitoring network in areas of the basin with vulnerable drinking water supplies and DACs with limited and insufficient data (as previously discussed in our comments on Chapter 5).** As has been acknowledged in many public meetings, one of the biggest challenges to the Salinas Valley GSP implementation is the confidentiality of monitoring data. It is required by SGMA that the monitoring networks be representative.
- **Revise Section 7.1.3 to include management areas and more frequent monitoring around and near vulnerable drinking water systems and private domestic well clusters**.
- **Conduct an in-depth study of groundwater levels, sea water intrusion, and water quality impacts in the northern most "general data gap area" in the subbasin, due to the variable topography and high concentration of private domestic wells (See Figures 7-4 and 7-5 and Section 7.2.4).** We have included CWC Figure 2 (attached to this comment letter) to illustrate the representative monitoring wells proposed for water levels as well as the locations of domestic wells, public supply wells, DACs and public water systems in the subbasin, and the seawater intrusion measurable objectives and minimum thresholds. This map suggests that the data gap identified in the GSP is for a much larger and highly variable geographic area. In order to better understand the scope of this data gap, the GSA should engage local residents and small water systems in this area to support additional monitoring of groundwater levels, sea water intrusion, and water quality in order to best identify representative monitoring points in this geographic area to be included in the GSP monitoring network. We understand that specific data gaps have been recognized in Figure 7-4, Figure 7-5 and Figure 7-6, and that these data gaps will be addressed in the future by adding an existing well in each area to the monitoring network. This is likely insufficient to represent groundwater conditions in some part of the subbasin.
- **Use the same terminology throughout the report and change the first bullet of this section and first paragraph of Section 7.3 to say "Public Water Systems" instead of "municipal groundwater users and small water systems."** It is helpful that you included the definition of a "public water system" and also the source of the information. This is important because the state does not collect this information, nor (to the best of our knowledge) does the county, *for state and local small water systems*. Estimates of total water withdrawn by state and local small water systems is also important to include in this section.
- **Require flowmeter calibration to ensure consistent and fair monitoring among all agricultural groundwater users (Section 7.3.1).** We agree with the data gaps mentioned in Section 7.3.2 with respect to drinking water users and recommend this data gap is filled as soon as possible.

- **Revise Section 7.4 to include more frequent monitoring around and near drinking water systems and private domestic well clusters that are already or that are likely to be impacted by sea water intrusion.** Figures 7-7 and 7-8 should include a data layer that includes drinking water wells (or service areas for state and local small water systems) in order to better determine whether the proposed monitoring network is sufficient to protect these beneficial uses. We have included CWC Figure 1 and CWC Figure 2 which illustrate how different data layers in this report can be brought together to better connect specific drinking water sources with the monitoring network and minimum thresholds.
- **Acknowledge and include the data gap of no seawater intrusion monitoring points in the northern part of the sub-basin and mention that this area is outside of the MCWRA management area (Section 7.4.2).** This includes the area near Elkhorn Slough which has experienced loss of agricultural wells due to sea water intrusion (as reported by local residents) and also the area further inland.

Section 7.5 Water Quality Monitoring Network

- **Revise Section 7.5 to acknowledge that drinking water contaminants such as arsenic, 123-trichloropropane, hexavalent chromium, and nitrate have been found in public supply wells in the 180/400 foot aquifer subbasin.**
- **Determine if there are confined or semi-confined aquifers that have water quality problems that require special monitoring at specific depth intervals.** We know that the underground strata in the GSA is non-homogeneous and we know contaminates such as nitrate vary in concentration by depth. We also know that hexavalent chromium has been found in many wells in the northern part of the subbasin (and a few other locations throughout) and that arsenic is present in some deeper wells. The SVB GSA groundwater quality monitoring network must recognize that well depth (and depth of perforations) is an important parameter for accuracy of level and location of contamination.
- **Clearly identify on both a map and in tabular form each of the wells to be used as representative monitoring sites for water quality as required under 23 CCR §354.34(h).** The GSP must include "The location and type of each monitoring site within the basin displayed on a map, and reported in tabular format, including information regarding the monitoring site type, frequency of measurement, and the purposes for which the monitoring site is being used." Without this information, the public cannot review and assess the adequacy of the proposed GSP to monitor impacts to beneficial users of groundwater, in particular those reliant on domestic wells for drinking water purposes.
- **Include all public water system wells in the monitoring network i**n order to monitor trends in drinking water quality**.** Change or clarify the language in this section that says, "Wells were selected that had at least one of the constituents of concern reported from 2015 or more recently, and totaled 51 wells (Burton and Wright, 2018)." It is unclear if the GSP means to include only public supply wells where contamination has already been detected. Either way, please include all public supply wells in the monitoring network as those without contamination will also need to be monitored and protected from future contamination.
- **Revise this section to include all state small water system and local small water system service areas (by APN) that are publically available from Monterey County Environmental Health Bureau (a division of Monterey County Health Department).** It is critical that this publically available data is included in the monitoring network as it fills, in part, a significant data gap related to water quality in the more shallow aquifers. This section of the GSP should be revised

to include a map of state and local small water systems and include them as representative monitoring points. Clarify the language in this paragraph to make it clear that all 136 wells regulated by Monterey County Department of Environmental Health will be included in the GSP monitoring network. We believe that this is the intent of this paragraph, of this GSP (based on Table 8-4: Summary of Constituents Monitored at Each Well Network and Table 8-5: Groundwater Quality Minimum Thresholds), and of the GSA based on all public meetings and input, but as written, it is not clear whether these systems are RMWs and part of the GSP network. If it is not feasible to include these systems in this draft GSP, these must be clearly listed this as a data gap that will be filled. "Small public water systems" regulated by Monterey County include public water systems that serve 15-199 connections and state and local small water systems that serve 2-14 connections. Because the 15-199 connection systems must meet all statewide requirements for public water systems (e.g. extensive water quality monitoring, groundwater usage reporting), it is recommended to distinguish these systems from state and local small water systems that have different requirements.

- **Expand GSP monitoring network to include reliable monitoring of wells that are representative of the shallow aquifer. Do not rely solely rely on ILRP domestic well data.** Similar to CASGEM, the groundwater quality monitoring network could include monitoring points on private property including ILRP domestic wells, but it should not be restricted to ILRP sites only. While onfarm domestic wells monitored through the ILRP provide a potentially good source of water quality information, additional representative monitoring wells in the shallow aquifer are important to include for several reasons: (1) The ILRP network only includes private domestic wells located on agricultural irrigated lands. While this is the primary land use in the subbasin, there are private domestic wells in areas with different primary land uses (e.g. rural). (2) There are other, more robust networks established by USGS, GAMA, and Monterey County that could be drawn on and included to make the groundwater quality monitoring network more comprehensive and representative of conditions in the shallow aquifer, and (3) Ag Order 4.0 will likely not be adopted until the end of 2020 or early 2021, which means the first year of monitoring data will not be available until 2022. Furthermore, the GSA has no authority to determine the robustness or enforcement of monitoring in the Ag Order 4.0 network.
- **Representative Water Quality Monitoring Wells for the shallow aquifer should be established in this GSP based on all currently available data sources with direct agreements with landowners or public entities established.** If the GSA plans to use Ag Order data as part of the monitoring network, it is critical that this GSP includes and discloses more in depth information about Ag Order 3.0 data (historic and most recent data), how it is collected, reporting requirements, gaps in reporting, and enforcement procedure. The GSA must also include a plan to ensure that all representative monitoring sites have reliable monitoring schedules and that those monitoring schedules are enforced in Ag Order 4.0.
- **Develop long-term access agreements for Representative Monitoring Wells (RMWs) that use private wells.** Collecting data from private wells is not a reliable approach due to access challenges, lack of well construction information, and unreliable accounting of pumping or non-pumping measurements. The GSP should specifically identify the RMW owners and operators, include signed long-term access agreements, and identify a plan to obtain adequate monitoring data, if for any reason the well owners decide to not grant access to the wells or provide associated data to the SVB GSA. It also appears the SVB GSA plans to rely on data collected by growers through the Ag Order. In our experience, not all growers are consistent with their water quality and other reporting, despite the regulatory requirements in place. In order to

maintain consistency for future sustainability analyses, the SVB GSA should also consider conducting its own water quality analysis of wells and establish access agreements to water quality RMWs.

- **Distinguish between on farm domestic wells and irrigation wells in Figure 7-10 and in the text.** We previously made this request during public comment at a GSA meeting in April 2019 and also with a written request on April 27, 2019. All Ag Order 3.0 data - including monitoring data by well type - is public and available upon request from the Central Coast Regional Water Quality Control Board.
- **Include well construction information for all Representative Monitoring Wells (RMWs) included in the GSP.** We recognize that this has been listed as a data gap, and also that some well construction information is already available.
- **Clarify that groundwater quality monitoring network will include domestic wells and state and local small water systems.** Chapter 7 should be updated to be consistent with the rest of the GSP that there will be representative monitoring of the shallow aquifer. We specifically recommend updating language in this chapter around data gaps, domestic wells, and state and local small water systems to be more specific and consistent in this chapter and throughout the GSP, including these particular sections:
    - "Small public water systems wells, regulated by Monterey County Department of Public Health, include a total of 136 wells in the current network. The limitation of this dataset is that the well location coordinates and construction information are currently missing; this is a data gap. SVBGSA work with the County to assess if the data gap can be filled and if additional wells from this network are appropriate to be added to the public water supply wells network for water quality monitoring."
    - "The SVBGSA will use the data developed under this monitoring program to determine if domestic supply wells have constituents of concern above drinking water limits… The SVBGSA will identify a select number of ILRP wells as representative sites after Ag Order 4.0 is issued; not all wells sampled under Ag Oder 4.0 will be included in the GSP's ***agricultural*** water quality monitoring network." Please clarify as described in Chapter 8 that onfarm domestic wells will also be part of the monitoring network.
- **Clarify how the GSA plans to align groundwater monitoring efforts and the sustainable management criteria with any emerging contaminants of concern and new MCLs.**

GSP Chapter 8: Sustainable Management Criteria

At the community GSP workshops, community members shared questions, concerns and recommendations regarding minimum thresholds and groundwater management. The following are community comments[18] that relate to the sustainable management criteria of the 180/400 Foot Aquifer Subbasin GSP and Salinas Valley Integrated Sustainability Plan that the SVB GSA can consider to improve the sustainable management criteria chapter of the GSP:

> Question: "Cómo van a ayudar a pozos privados si el pozo se seca a causa de umbral mínimo?"

[18] Comments in red were received at the Salinas Valley GSP at San Jerardo in July 2019.

How will the GSA help private wells that go dry because of the minimum thresholds?
Question: "Are two minimum thresholds in conflict?"
Concern: "Groundwater levels will cause well failure."
Concern: "No improvement of contaminated wells"
Concern: "Que no vuelva contaminación [a nuestro pozo]." "How to avoid water contamination [in our well] again."
Concern: "Groundwater over pumping in Langley where there is confined aquifer and dry wells."
Concern: "My water system has good groundwater quality and supply - how will SGMA impact long term access."
Recommendation: "Consider how to improve groundwater quality for wells above MCL."

During a detailed review of this complete GSP, CWC identified several data gaps and potential significant impacts to public water systems and domestic wells. The current GSP does not adequately consider the groundwater impacts that may affect the supply and beneficial uses of groundwater as required by GSP Regulations Chapter 354.16. As currently written, the GSP is insufficient and is at risk of being deemed inadequate by DWR. The following are concerns that need to be addressed:

- A significant portion of the drinking water supply in the subbasin is at imminent risk of seawater intrusion impacts if seawater intrusion is not halted, including: 1) a high concentration of domestic well users located east of Moss Landing and north of Castroville, 2) domestic well users in and around the DAC of Boranda, 3) public supply wells located near Castroville (a DAC), and 4) public supply wells located near Salinas (which includes DACs).
- Groundwater Level MTs will not halt seawater intrusion and are inconsistent with the seawater intrusion MT, thus drinking water supplies for DACs and other vulnerable populations are not adequately protected (and depend on future projects that are uncertain).
- The GSP does not include the quantification of demand reduction necessary to mitigate overdart and achieve all MTs and undesirable results in this chapter as required by SGMA regulations 354.44.
- Significant data gaps exist in the monitoring network for the shallow aquifer, upon which many small water systems and domestic wells depend. The GSP needs to include these systems in the monitoring network and/or clearly list the data gaps in this GSP.

We recommend the following changes:

- **Undertake a drinking water well impact analysis that adequately quantifies and captures well impacts at the minimum thresholds, measurable objectives, and proposed undesirable results.** Include this analysis during the annual reporting process. We have included CWC Figure 3A and CWCFigure 3B as attachments to this comment letter to illustrate potential changes to water levels at proposed MTs and MOs. This type of analysis should be expanded to include:

- Locations of potentially impacted wells overlayed on a map so the public can better assess well impacts specific to DACs, small water systems, or other beneficial users of water
- Quantify the number of potentially impacted wells of each well type (irrigation, domestic, state/local small water system, public water system) for water quality, water levels, and sea water intrusion MTs
- Quantify the costs associated with impacted wells including desalinization/treatment, lowering pumps, well replacement and increased pumping costs associated with the increased lift at the projected water levels

- **Clarify the process for evaluating minimum threshold exceedance and the potential actions to address exceedance.** This clarification should describe the evaluation process, potential actions taken, and the funding to implement actions. Without an adequate well mitigation plan in place, impacts to wells are significant and unreasonable.
- **Develop and include a plan that outlines steps that will be taken is a drinking water well goes dry, becomes contaminated, or becomes unusable due to sea water intrusion (chloride or TDS levels) as a result of the SVB GSA's management actions and projects.** More detailed recommendations of a drinking water well mitigation program is included in the Projects and Management Actions Section.
- **Analyze how groundwater gradients will influence all MTs and all six undesirables results with and without the proposed seawater extraction barrier.** The importance of understanding groundwater gradients with and without the proposed seawater extraction barrier is described in more detail in our Chapter 6 comments of this comment letter and our July 2019 Comment letter submitted previously (*CWC Attachment 5*). An analysis of groundwater gradients is essential to achieve sustainability in the subbasin.

Groundwater Levels

- **Develop a protective minimum threshold near vulnerable communities, including domestic wells, to avoid localized impacts and ensure the protection of these important water sources.** Near small community water systems and domestic well users, SVB GSA should reconsider the approach of setting MTs as the current proposal may leave key beneficial users in the subbasin, specifically domestic well users and S/DACs vulnerable to significant impacts. It is important to protect vulnerable communities access to a reliable source of water, thus minimum thresholds for groundwater levels should be set at a level above the screen of the shallowest domestic well. If SVB GSA decides to define and reach its sustainability criteria in a way that allows for the dewatering or seawater intrusion of drinking water wells, it must provide a robust drinking water protection program to prevent impacts to drinking water users and mitigate drinking water impacts that occur. Recommendations for this type of program are included in the Management Actions and Projects section of this comment letter.

Sea Water Intrusion

- **Clearly identify the data gaps in sea water intrusion data for the northern part of the subbasin, explain that the GSA plans to fill these data gaps in the monitoring network, and describe plan and timeline to update the seawater intrusion MTs when new data becomes available.**

Specifically, Figure 8-6 and Figure 8-7 showing MTs contours for seawater intrusion should include MCWRA management area boundaries and make data gaps transparent to the reader.

- **Include a map of vulnerable drinking water supplies, monitoring network locations (with current TDS and chloride levels), and the seawater MTs to ensure that these beneficial uses are adequately monitored and protected.** This figure could be placed in Section 8.8.2.4 on "Effects on Beneficial Users and Land Uses."

Groundwater Quality

We are pleased that the draft 180/400 Foot Aquifer Subbasin GSP establishes MTs/MOs based on maximum contaminant levels (MCLs) for contaminants of concern for drinking water supply systems, and that this chapter indicates that state and local small water systems and private domestic wells will be added to the monitoring network with these same MTs/MOs. There are however a few areas in regards to groundwater quality sustainable management criteria that are not clear and could cause significant impacts to drinking water users if not adequately addressed. In order to avoid these challenges, we recommend the following changes:

- **If a contaminant is already above the MCL, this GSP should set a minimum threshold to prevent further degradation or aim to improve groundwater quality conditions where possible.** Increased contamination levels can require water systems to utilize more expensive treatment methods and/or to purchase additional alternative supplies as blending may become more difficult or impossible. Communities reliant on domestic wells who are aware of contamination in their water and use a point of use/point of entry (POU/POE) treatment systems may no longer be able to use their devices if contaminate levels rise too high. Higher contaminant levels can also result in higher costs of waste disposal from certain types of treatment systems. Increased contamination levels result in unreasonable impacts to access to safe and affordable water and are, thus, inconsistent with SGMA and the Human Right to Water.
    - Consider developing management areas to protect areas where drinking water wells have water quality that is currently below the MCLs.
- **For monitoring network wells with contamination less than 75% of the MCL for all contaminants, the GSP should set minimum threshold exceedance action triggers of 75% of the MCLs.** The GSP should include an action trigger at 75% of the MCL so that groundwater can be managed in that area to prevent a minimum threshold exceedance at a representative monitoring well. If the GSA waits until the minimum threshold is exceeded, it may be too late or difficult for actions to be effective. Actions to prevent minimum threshold exceedances should also be clearly explained in this chapter including a description of what action will be taken, what type of evaluation will be used, under what time period action will take place, and how this action will be funded.
- **Clearly identify and describe past and present levels of contamination and salinity at each representative monitoring site (RMS) and attribute specific numeric values for MTs/MOs at each RMS for each contaminant of concern.** Quantitative values need to be established for MTs/MOs for each applicable sustainability indicator at each RMS as required by 23 CCR §354.28 and 23 CCR §354.30. The GSP should include a map and tables that include each individual RMS along with water quality data for each RMS (this data is currently summarized in Table 8-6, Table

8-7, and Table 8-8). This information should be presented clearly so that both the public and DWR can evaluate how the proposed monitoring network and sustainability management criteria (SMCs) relate to their own drinking water well or water supply system.

- **Include more current maps of existing nitrate and other contamination in the 180/400 Foot Aquifer Subbasin and describe potential impacts to drinking water users.** As required by 23 CCR § 354.16, each GSP needs to provide a description of "groundwater quality issues that may affect the supply and beneficial uses of groundwater, including a description and a map of the location of known groundwater contamination sites an plumes." While the maps of nitrate contamination in Chapter 5 present useful information to start to identify nitrate hotspots and trends in the subbasin, these maps do not provide an accurate understanding of current conditions affecting shallow, domestic wells and deeper public supply wells. GSP Figure 5-33 Nitrate Concentrations, 1950-2007 (from MCWRA), does not present current data and it is also unclear what depth of aquifer or well type (irrigation or domestic) that this data represents. GSP Figure 5-32 presents data from the Central Coast Groundwater Coalition includes wells with "multiple sample dates from 2000 to 2014, the maximum nitrate concentrations were used for each well. (page 5, LSCE 2015)[19] - while this map is helpful in identifying potential hot spots for nitrate contamination, it does not provide a clear representation of current conditions, nor are well types or depths distinguished, making it difficult to determine the extent and impact of current contamination. Both the Central Coast Regional Water Quality Control Board and the USGS GAMA groundwater quality assessment and trend analysis would be good additions to better understanding trends and drinking water supply threats in the subbasin, and could also help contribute to a representative monitoring network.
- **Include hexavalent chromium as a contaminant of concern and plan to add emerging contaminants to monitoring network.** While there is currently not a Maximum Contaminant Level for hexavalent chromium, there is still a Public Health Goal and public health threat posed by this contaminant in drinking water. The State is required to adopt an MCL for chromium-6 again and is in the process of updating the method used in the cost analysis. In addition to including hexavalent chromium, the draft GSP would benefit from an explanation of how the plan will be updated to align groundwater monitoring efforts and the sustainable management criteria with any emerging contaminants in the basin and any future new MCLs.
- **Include an analysis of the relationship between changes in groundwater levels and groundwater quality concentrations.** Section 8.9.2.5 of the draft GSP mentions that, "a change in groundwater levels may cause a change in groundwater flow direction which in turn could cause poor water quality to migrate into areas of good water quality." The text should also acknowledge that groundwater pumping can not only cause the movement of contaminant plumes, but can also cause the release of naturally occurring contaminants such as arsenic and chromium, and that pumping from deeper portions of the aquifer and then irrigating can bring up contaminants found in deeper portions of the aquifer and cause them to impact shallow well users. In order to clearly evaluate the relationship between changes in groundwater levels and groundwater quality, SVB GSA should undertake an analysis of the change in water quality

[19] http://www.centralcoastgc.org/wp-content/uploads/2015/08/Northern-Report-and-Figures.pdf

constituent concentrations relative to change in water levels[20], particularly over drought periods, to evaluate the potential relationship between water quality and groundwater management activities[21].

GSP Chapter 9: Projects and Management Actions

The following are community comments that relate to the projects and management actions of the 180/400 Foot Aquifer Subbasin GSP[22] :

Concerns: "No limit on extraction, lack of enforcement, lack of well meters."
Question: "Los rancheros pagan por su uso de agua?" Do the agricultural users pay for their pumping of groundwater?
Recommendations: "Meter every user." "[Require] reduction during drought." "Reducción en riego." Reduce agricultural water usage. "Exigir reducción de todos los usuarios." Require reduction of groundwater pumping for all users.
Recommendation: "Create a water district for long-term solution."
Recommendation: "Put in larger community water system (better than individual wells)."
Recommendation: "Help protect drinking water. Balance need for all beneficial uses."

Community member comments highlight a few key issues. While so many projects are possible and on the horizon, it is important to focus on management actions that can be taken today to move toward

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[20] See P.A.M. Bachand et. al. Technical Report: Modeling Nitrate Leaching Risk from Specialty Crop Fields During On-Farm Managed Floodwater Recharge in the Kings Groundwater Basin and the Potential for its Management https://suscon.org/wp-content/uploads/2018/10/Nitrate_Report_FInal.pdf. See also, Groundwater Recharge Assessment Tool, created by Sustainable Conservation to help groundwater managers make smart decisions in recharging overdrafted basins, including modeling whether a particular recharge project would result in short or long term benefits or harms to water quality, http://www.groundwaterrecharge.org/.

[21] More information about groundwater quality and the relationship between changes in groundwater levels can be found in the following resources:

Stanford, 2019. A Guide to Water Quality Requirements Under the Sustainable Groundwater Management Act. Community Water Center, 2019. Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act. https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858

Community Water Center and Stanford University, 2019. Factsheet "Groundwater Quality in the Sustainable Groundwater Management Act (SGMA): Scientific Factsheet on Arsenic, Uranium, and Chromium" for more information.https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1560371896/CWC_FS_GrndwtrQual_06.03.19a.pdf?1560371896

[22] Community comments were received workshops hosted by CWC and San Jerardo on Drinking Water Protection and Groundwater Planning in the Salinas Valley in July and October 2019.

sustainability. They also highlight the need to look for long-term solution options for vulnerable drinking water users who rely on private wells. **It is not acceptable to wait until 2023 for the water charges framework to start to voluntarily incentivize efficiency and conservation.Well meters, meter calibration, monitoring requirements, and water charges should be implemented immediately to incentivize efficiency and achieve the goals of SGMA. This should happen at the same time that projects and the water charges framework are being developed.**

We recommend the following changes to strengthen this section:

- **Revise Chapter 9 to clarify how the proposed projects and management actions will achieve sustainability by 2040. The GSP should describe the decision-making process and key milestones that will be used to select projects and management actions.** The descriptions of the projects are helpful, but it is still not clear how each project will contribute to the cumulative mitigation needed to achieve sustainability by 2040. It will be important to convene the Seawater Intrusion Working Group, but this group within itself it not a "management action" it is a working group to develop "management actions."

- **Quantify demand reductions necessary to meet all minimum thresholds in the short and long-term.** The GSP should more transparently lay out and quantify the deficit that needs to be addressed by projects and management actions, and also quantify and present the degree of continued seawater that will occur before the projects and management actions are implemented. These two steps are necessary in order to inform immediate measures that the GSA needs to take, and/or to mitigate for damages if these actions are not taken.

- **Immediately adopt management actions based on short-term demand reductions necessary to protect vulnerable drinking water supplies and demonstrate progress for interim milestones, including the following:**
    - Clearly articulate past recommendations from MCWRA and other agencies related to sea water intrusion, barriers to adoption of these measures, and specific actions the GSA can take immediately based on this past body of work and what has been learned during GSP development.
    - Require an additional drinking water impact assessment prior to the construction of new wells with high production capacity. This analysis would include an assessment of potential adverse impacts to drinking water supplies, such as the analysis of how the proposed high production well pumping would influence long-term groundwater level fluctuations and the identification of the zone of influence of the pumping well.
    - Create management zones with pumping restrictions in areas with vulnerable drinking water wells.
    - Require monitoring and reporting for all groundwater extraction in the 180/400 Foot Aquifer Subbasin, fill all gaps in existing monitoring including for the deep aquifer
    - Stop all new agricultural wells from being drilled in the deep aquifer. There has been much discussion about the County Ordinance 5302: County Moratorium on Accepting and Processing New Well Permits during public meetings, especially regarding the inadequacy of the provision which allows replacement wells to be drilled into the "deep aquifer." The Castroville CSD general manager has commented during advisory committee meetings regarding the high number of wells going salty in the 400 foot

aquifer and the frenzy of drilling drilling deeper wells by the coast. The GSA needs to immediately address this and other gaps in the ordinance.
  - Require all wells to be metered and charge fees based on the amount of water pumped (to pay for future projects and incentivize voluntary reductions)
  - Incentivize demand reduction (land fallowing, conservation, etc.)

- **SB GSA should conduct a deep aquifer study or provide funding for MCWRA to conduct the unfunded study that they have planned, as described in Section 9.3.6.** It is not acceptable to have such a critical study be left to uncertain funding, which also indicates an uncertain timeline as discussed in this section. "MCWRA plans to complete this study of the Deep Aquifer over the next three years, when funding becomes available. (GSP Page 09-18)." SVB GSA should take ownership of this study as it is a data gap.

- **Register all wells in the subbasin and begin program to install meters and monitor extraction from all wells by the end of 2020.** Revise Section 9.2.1 to clarify that the well registration program *will be implemented* in the first two year of GSP implementation (not that it will be developed in the first two years).

Improve Seawater Intrusion Project and Clarify Funding Source

- **Provide more information about potential projects to address sea water intrusion including costs, benefits, risks, and uncertainty. Discuss specific cases where these types of projects are currently active, include actual monitoring data and O&M costs of installed projects.** The GSP depends on one of these projects in order to address the biggest threat to sustainability. Yet the proposed projects to stop sea water intrusion, as described in this Chapter, are very uncertain in terms of the following: timeline, effectiveness, how they will impact the water budget of the basin (e.g. how much groundwater will they pull from the ocean-side versus how much will be extracted from the inland side), how the gradient of groundwater may be impacted, how climate change will impact project viability, whether this scale of project will be permitted in the coastal zone, what will be the long-term energy demand, what will this project cost to install, maintain, and monitor, and who will pay. To lessen this uncertainty, the GSA should include evidence that sea water intrusion projects of this scale in similar groundwater basins have been successful. The GSA should include actual operation and maintenance costs, including energy demand, of installed systems to know how much would need to be charged in the water charges framework to cover these costs.
- **Amend the water charges framework text (page 9-3) to clarify whether sustainable pumping allowances will pay for seawater intrusion project capital cost of ~100M and annual O&M of ~$10M in the 180/400 Foot Aquifer Subbasin. If a different of funds will be used, clarify in the text.** Explain the apparent contradiction between the Water Charges framework in which the "sum of all sustainable pumping allowances is the sustainable yield of the subbasin" and the calculation of sustainable yield in Chapter 6 which does not include a calculation of pumping restrictions necessary to address seawater intrusion.
- **Clarify what a "total project yield for the Seawater Intrusion Pumping Barrier" refers to in Section 9.4.3.7.6**. If 30,000 AF/year is the amount of water to be extracted from the subbasin, then it should be subtracted from the projected sustainable yield for the basin (as currently defined).

Consider Partnerships for Multi-Benefit Remediation Projects

- **Consider working with local and regional water agencies or the county to implement groundwater quality remediation projects that could improve both quality as well as levels and to ensure groundwater management does not cause further degradation of groundwater quality.** The strategic governance structure of GSAs can uniquely leverage resources, provide local empowerment, centralize information, and help define a regional approach to groundwater quality management unlike any other regional organization. When implemented effectively, GSAs have the potential to be instrumental in reducing levels of contaminants in their regions, thus reducing the cost of providing safe drinking water to residents. GSAs are the regional agency that can best comprehensively monitor and minimize negative impacts of declining groundwater levels and degraded groundwater quality that would directly impact rural domestic well users and S/DACs within their jurisdictions. When potential projects are proposed, SVB GSA should consider how projects could potentially both positively and negatively impact groundwater quality conditions and should take leadership in coordinating regional solutions.

Design Recharge Projects to Protect Drinking Water

- **Develop criteria for recharge projects that prevent unintended impacts to drinking water.** Groundwater recharge projects can have multiple benefits such as increasing groundwater storage and levels, as well as diluting contaminant plumes and improving groundwater quality. However, if not properly designed, recharge projects may mobilize nitrates, pesticides, and fertilizers, as well as naturally occurring contaminants, and can lead to the further degradation of groundwater quality, impacting drinking water wells. Currently, it is unclear if these proposed projects include precautions of groundwater quality degradation or if groundwater quality is included in the monitoring plan of these projects. In order to develop recharge projects that move the subbasin towards sustainability, avoid the further degradation of groundwater, and improve drinking water conditions, we recommend the following considerations for this recharge criteria[23]:

    1. When selecting sites for on-farm recharge projects, GSAs can work with growers who are implementing some or all of the following in order to minimize the mobilization of pesticides and fertilizers:

        - Using best management practices that optimize chemical use so residuals do not enter recharge water;
        - Growing crops that require fewer fertilizers (e.g. legumes);
        - Recharging during winter months (when less/no fertilizer is being used);
        - Minimizing fall applications of fertilizers and pesticides;

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[23]Community Water Center. Guide to Protecting Drinking Water Quality Under the Sustainable Groundwater Management Act. https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858

- Not surrounded by dairy operations.

2. When implementing on-farm recharge projects, recharge on the same plot of land annually for a consecutive number of years in order to most effectively flush out and dilute residual contaminants (especially nitrate) left behind from previous applications. Continued flushing will also help reduce bicarbonate, calcium, and organic carbon transport which will limit their impact on the dissolution and release of uranium and/or arsenic.

3. Prior to implementing any recharge project, identify all nearby drinking water wells (both public supply and private wells). Additional monitoring wells that collect groundwater quality samples may need to be installed in key areas to protect public health.

4. Prior to implementing any recharge project, collect data to characterize the upper soil zone and groundwater quality, including the amount of fertilizer applied and any naturally occurring contaminants present in the soil. Monitor and adjust the quality of water being recharged in order to limit the mobilization of naturally occurring contaminants (e.g. monitoring oxygen, pH, electrical conductivity, and nitrate levels).

5. Consider recharging through excavated points, ditches/canals, and other designated recharge basins in order to bypass soil layers with naturally occurring contaminants, pesticides, and/or nitrate.

Add Drinking Water Well Mitigation Program

If SVB GSA defines its sustainability criteria in a way that allows for the dewatering of drinking water wells, increased levels of contamination, or seawater intrusion, it must provide a robust drinking water protection program to prevent impacts to drinking water users and mitigate the drinking water impacts that occur. Based on the draft GSP water budget, rural domestic and small water system demand does not contribute substantially to the overdraft conditions, yet the risks imposed on these drinking water users are overlooked and neglected, creating a disproportionate impact on already vulnerable communities. Without any clear actions regarding establishing a groundwater allocation, addressing reductions in groundwater pumping, or addressing seawater intrusion, drinking water users could face significant impacts, particularly if the region faces another drought.

A GSP which lacks a mitigation program to curtail the effects of projects and management actions as to the safety, quality, affordability, or availability of domestic water, violates both SGMA itself and the Human Right to Water. The Human Right to Water (AB 685) (HR2W) was signed in 2012 and added § 106.3 to the California Water Code, declaring, "the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes."[24] The California legislature has recognized that water used for domestic purposes has priority over all other uses since 1913[25] in Water Code § 106, which declares it, "established policy of this State that the use of water for domestic purposes is the highest use of water

[24] WAT § 106.3 (a).
[25] Senate Floor Analysis, AB 685, 08/23/2012.

and that the next highest use is for irrigation."[26] The passage of the Safe and Affordable Drinking Water Act by Governor Newsom indicates a clear State-level commitment in providing safe and affordable drinking water to California's most vulnerable residents. To ensure compliance with the legislature's long established position, the HR2W requires that agencies, including the Department of Water Resources and the State Water Board, must consider the effects on domestic water users when reviewing and approving GSPs[27]. Therefore, GSPs that cause disproportionate impacts to domestic water use are in violation of the HR2W, SGMA, and Water Code § 106.

A Drinking Water Well Mitigation Program could include a combination of different strategies including: replacing impacted wells with new, deeper wells, connecting domestic well users to a nearby public water system, or providing interim bottled water. Key considerations and recommendations, including examples from existing well mitigation program, will be shared with the SVB GSA separately.

GSP Chapter 10: GSP Implementation

- **Include a schedule for immediate actions that the GSA will take in the first months and year of operation in order to protect drinking water supplies and vulnerable users.** While large scale projects need to be developed, many management actions should be taken to protect groundwater today (see our list in GSP Chapter 9 comments). The intent of designating the 180/400 Foot Aquifer as a "critically overdrafted basin" and to have this subbasin on a shorter timeframe than the other nearby subbasins, was to require action and abatement also on a shorter timeline (to match the impacts already happening).
- **Complete the "Registration/ Install Well Meters / DeMinimum Certification" program development by the end of 2020.** Update Figure 10-1 and describe this program in the written text of this chapter as it is the first item scheduled to be completed for the 180/400 Foot Aquifer Subbasin Plan and will set the stage for all other management actions and projects.
- **Include the implementation schedule for major projects in this implementation chapter** and clarify which aspects of these projects the GSA will move forward with immediately in year 1 and according to schedules in chapter 9, and which aspects of the projects will be delayed will until 2023 according to project schedules in chapter 10 (Figure 10-1).

GSP Chapter 11: Stakeholder Engagement and Community Outreach

Public engagement, when done well, goes far beyond the usual participants to include those members of the community whose voices have traditionally been left out of political and policy debates.[28] It invites citizens to get involved in deliberation, dialogue, and action on public issues that are important to them. More importantly, it helps leaders and decision-makers have a better understanding of the perspectives, opinions, and concerns of citizens and stakeholders, especially the underrepresented ones. Barriers to participation of underrepresented stakeholders in the Salinas Valley Basin and in general include:

[26] This policy is also noted in the Legislative Counsel's Digest for AB 685.
[27] WAT § 106.3 (b)
[28] DWR. (2018) Stakeholder Communication and Engagement.

(1) Accessibility - information is accessible, in a language and with sufficient background so that all present can understand what is presented
(2) Self-efficacy - community member participation makes a difference in the outcome of this plan and groundwater management
(3) Time commitment / logistics - meetings are held in familiar locations, close enough to where community members live or work, and at a time when most are available
(4) Relevance - the meeting and information is important enough and relevant for community members to prioritize

We have appreciated the opportunity to participate in many of the GSA public meetings to discuss this GSP - the planning committee, advisory committee, board of directors meetings, as well as the more recent GSP outreach meetings. We have appreciated that GSA staff have hosted outreach meetings and worked to make these forums accessible, in the evenings, and in locations throughout the Salinas Valley. The outreach meetings hosted as part of the GSA formation, and associated outreach, were particularly well done. We appreciate the opportunity to provide comments on this GSP in its entirety.

In this GSP, the SVB GSA can reaffirm your past community engagement practices and also improve by considering the following recommendations for effective public engagement:

- Consider changing the regularly scheduled board and advisory committee meetings for the afternoon outside of work hours so more community members would be able to attend.
- Provide more information regarding how communication and updates related to GSP implementation will take place and how this will be accomplished after the plan is approved.
- Consider developing a Stakeholder and Outreach Communication Strategy (similar to the one in Appendix 11D) for 2020 to 2025. This strategy could include the following:
    - **Continue to provide translation services at public meetings. Continue to provide bilingual (English and Spanish) information and materials on the website and via email. Consider inserting short notices (notices must include key messages, visuals and information that is relevant to the average water user) in water bills and/or community newsletters.** The Dymally-Alatorre Bilingual Services Act requires that public agencies serving over 10% of non-English speaking constituents provide appropriate translation services[29]. At a minimum, this information should be provided during plan updates, and prior to critical decisions. In particular, the draft GSP released during the formal comment period should include bilingual materials highlighting key summaries of the GSP. Critical decision points can also include the adoption of groundwater fees, or the approval of new groundwater projects or management actions.
    - **Identify community social media (Facebook, Instagram, etc.) groups, pages and websites and post information.** Continue to develop media advisories, press releases and work with local media outlets, such as local radio stations, television stations, and local newspapers to captivate a broader audience that are not being reached via the electronic-based outreach currently used.
    - **Identify, and work with key community leaders / trusted messengers to distribute information and encourage community participation.**

[29] California Government Code Section 7290.

- **Partner with other educational programs to leverage resources and explore opportunities to educate different generational groups.**
- **Consider hosting Spanish-only outreach meetings** as it is difficult to realtime translate technical groundwater terms and concepts in a way that is understandable and promotes participation.

- Reinstate the Stakeholder and Outreach Communications committee that helped plan the outreach associated with SVB GSA formation and provide GSA staff support to implement action items from this committee.
- Consider hiring a bilingual Stakeholder and Outreach Communication specialist as part of the SVB GSA staff
- Partner with the Monterey County Health Department to host GSA workshops throughout the Salinas Valley for DAC residents and residents who rely on small water systems and private wells. This stakeholder group is under-represented in the GSA and other public forums.
- Continue to work to make all forums for stakeholder input more inclusive and accessible to all stakeholders.
- Invest GSA staff time and resources to develop a more representative structure within the GSA itself.
    - During GSA formation, limited work was done to engage all DAC residents and small water systems in the nominating group structure. This process could be further developed to move beyond public notification with the goal of having board directors that represent and are accountable to their constituencies. Agricultural representatives have already built this into the structure of their nominating process, but the less organized and under-resourced stakeholders have not.
    - Consider amending the JPA agreement to allow for more balanced representation and power on the board. The GSA includes directors that represent the public, environmental, or small water system/DAC stakeholders that do not hold voting power to impact substantive changes to this GSP including a sense of urgency to act now to address critical overdraft. (Any decision related to imposing fees and/or limitations on well extractions must be approved by a "Super Majority Plus" or "eight of eleven board members, including an affirmative vote by three of the four agricultural representatives.")
- **We request that there be full disclosure to the public regarding the agricultural subbasin working groups, what was discussed at meetings that informed this GSP, when these meetings were held, and why these meetings were not open to the public when they were so influential on all key decisions of this GSP.** The Agricultural Subbasin Working Group meetings and their accompanying meetings notes should be noticed publicly and easily accessible on the website. As active participants in GSA public meetings, it was our experience that the projects, management actions, minimum thresholds, sustainable yield calculation, water budget, and other important GSP elements were brought to the planning committee and advisory committee after consensus had already been reached by the agricultural subbasin specific working groups and that no substantive changes were made with input these public forums. Examples include:

- At the very first public meeting when Chapter 9 on projects and management actions was discussed (planning committee meeting in July 2019), Community Water Center staff asked for more information regarding when "stakeholder" meetings were held to shape the projects selected and prioritized in the project chapter.[30] The GSA consultant responded that they had shaped the recommendations with the agricultural stakeholders, presumably the same agricultural subbasin specific working groups.
- At the most recent advisory committee meeting on November 21, 2019, two advisory committee members (who represent non-agricultural interests) requested changes in the minimum thresholds for water levels stating the current minimum thresholds would cause significant impacts to those relying on small systems and private wells and that the threshold should be revised to a water level during a non-drought time. The GSA consultant responded that these types of "policy" decisions would need to go before the whole board. The advisory committee member asked how and when these "policy" decisions were made since the proposed levels were already decided when the chapter came to the advisory committee.
- GSP Section 8.3 discusses the process for developing sustainable management criteria and mentions "Subbasin Specific working groups (page 8-5)" - it is important here, in the projects chapter, and in the plan in general to be transparent about how "policy" and other decisions are being made.
- It might be a good step to open the agricultural subbasin working groups to the public as part of the GSP review process, as planned, for the other subbasins in the Salinas Valley. We encourage the SVB GSA to think critically about how to make these forums inclusive and accessible for all stakeholders drawing on suggestions in these comments.

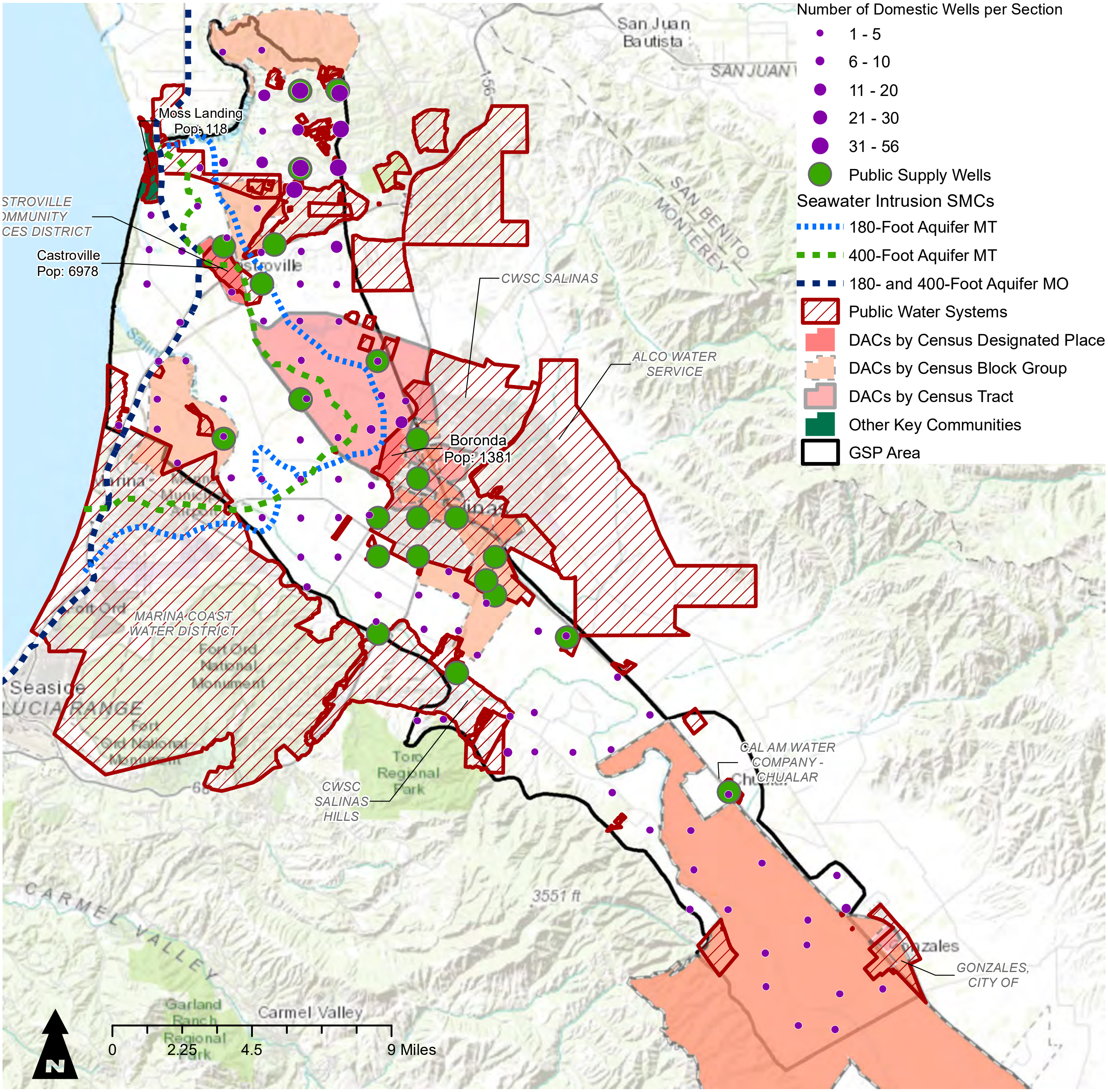
Thank you, again, for reviewing this letter and for the consideration of our comments on the draft GSP. Please do not hesitate to contact us with any questions or concerns, or if you would like to meet to further discuss these important sets of issues.

Attachments to this Comment Letter

1. Figure 1 – Seawater Intrusion SMCs Relative to Domestic Wells, Public Supply Wells, DACs, and Community Water Systems
2. Figure 2 – Representative Monitoring Network for GW Levels Relative to Domestic Wells, Public Supply Wells, DACs, and Community Water System
3. Figure 3A – Estimated Water Level Decline at Minimum Thresholds in the 180-Foot Aquifer
4. Figure 3B – Estimated Water Level Decline at Minimum Thresholds in the 400-Foot Aquifer
5. CWC Comment Letter on Chapter 6: Water Budgets, July 10, 2019

[30] "Eight projects were selected as the most reliable, implementable, cost-effective, and acceptable to stakeholders. (Page 22, July 2019 Draft of Chapter 9 for Planning Committee).

Figure 1 - Seawater Intrusion SMCs Relative to Domestic Wells, Public Supply Wells, DACs, and Community Water Systems
Salinas Valley Basin GSA

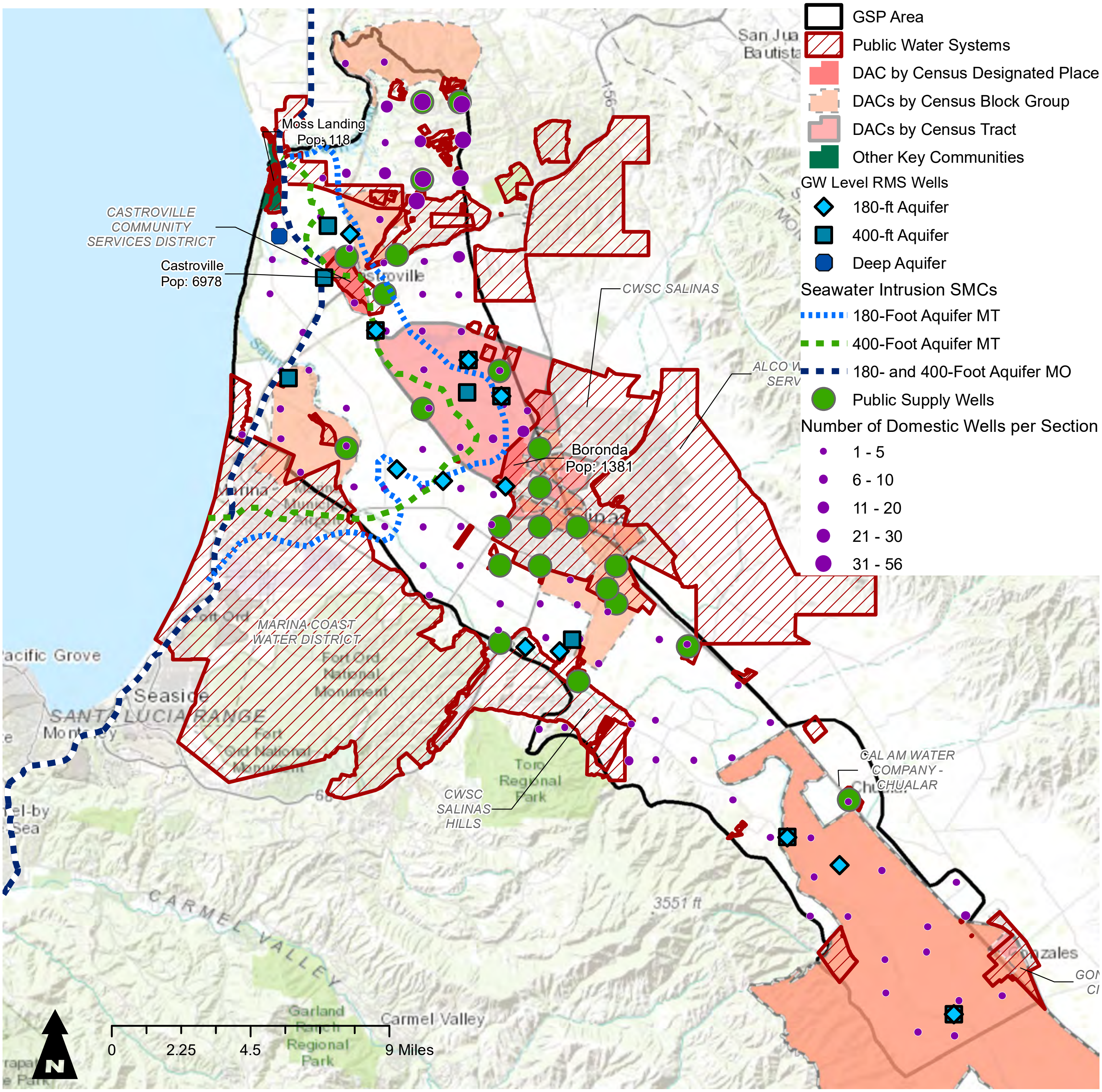


Notes
1. All locations are approximate.

References
1. Domestic Well Densities: Research to develop the CWC Vulnerability Tool draft as of August 6, 2019.
2. Public supply well data: DWR Well Completion Reports downloaded on August 30, 2018 from https://atlas-dwr.opendata.arcgis.com/datasets/.
3. Disadvantaged and other key community data (place, tract, and block group): downloaded on August 6, 2019 from the DAC Mapping Tool: https://gis.water.ca.gov/app/dacs/.
4. Public Water System data: downloaded on August 6, 2019 from Tracking California: https://trackingcalifornia.org/water/map-viewer. The dataset includes "community" and "non-community" water systems.
5. Seawater Intrusion MOs and MTs: Figure 8-6 and Figure 8-7 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.

Figure 2 - Representative Monitoring Network for GW Levels Relative to Domestic Wells, Public Supply Wells, DACs, and Community Water Systems

Salinas Valley Basin GSA



Notes

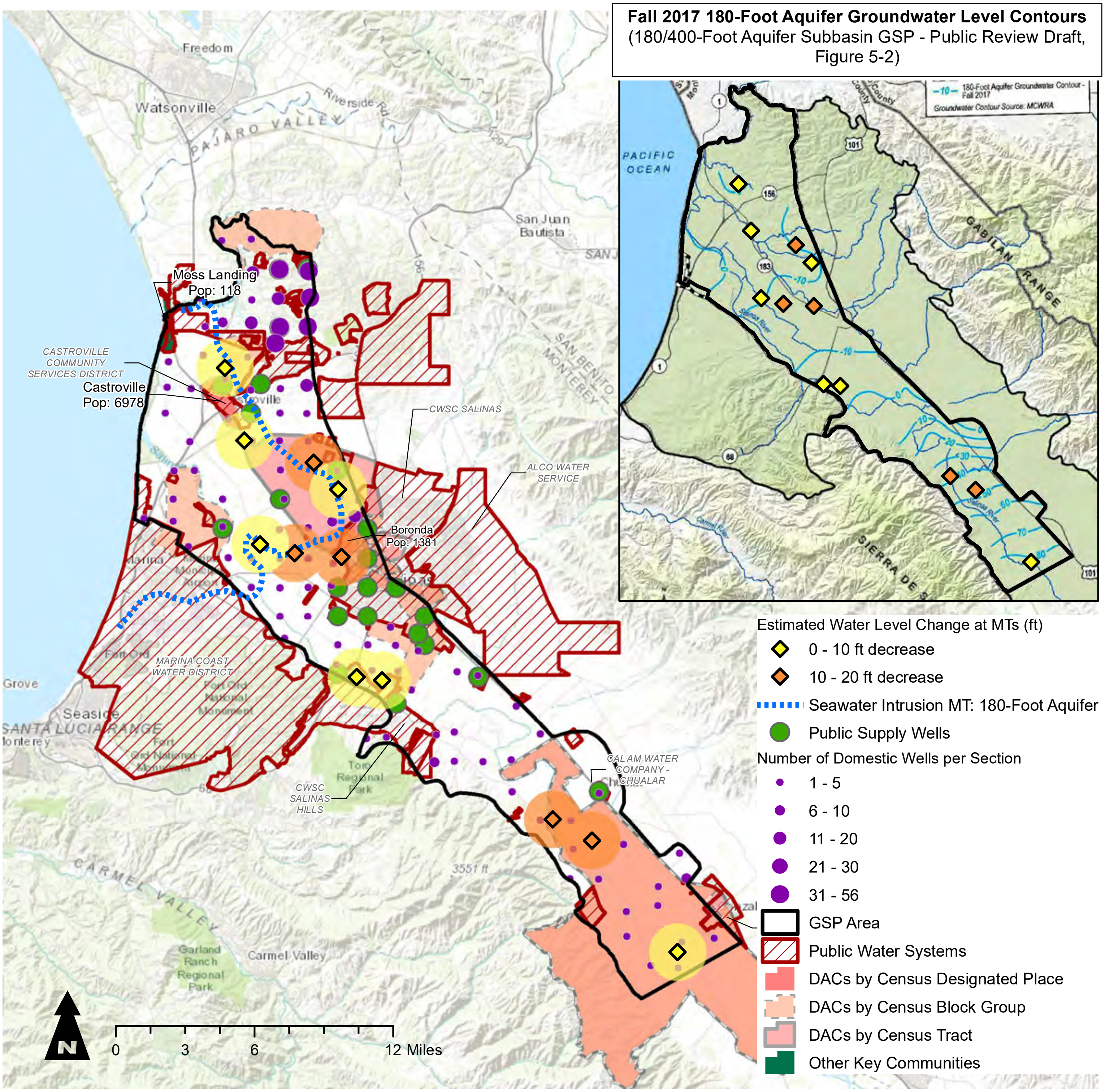
1. All locations are approximate.
2. Location of Water Level Representative Monitoring Site Wells is based on Table 7-2 of the SVBGSA GSP (2019).

References

1. Domestic Well Densities: Research to develop the CWC Vulnerability Tool draft as of August 6, 2019.
2. Public supply well data: DWR Well Completion Reports downloaded on August 30, 2018 from https://atlas-dwr.opendata.arcgis.com/datasets/.
3. Disadvantaged and other key community data (place, tract, and block group): downloaded on August 6, 2019 from the DAC Mapping Tool: https://gis.water.ca.gov/app/dacs/.
4. Public Water System data: downloaded on August 6, 2019 from Tracking California: https://trackingcalifornia.org/water/map-viewer. The dataset includes "community" and "non-community" water systems.
5. Water Level RMW locations: Table 7-2 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.
6. Seawater Intrusion MOs and MTs: Figure 8-6, Figure 8-7, and Section 8.8.3.1 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.

Figure 3A - Estimated Water Level Decline at Minimum Thresholds in the 180-Foot Aquifer

Salinas Valley Basin GSA

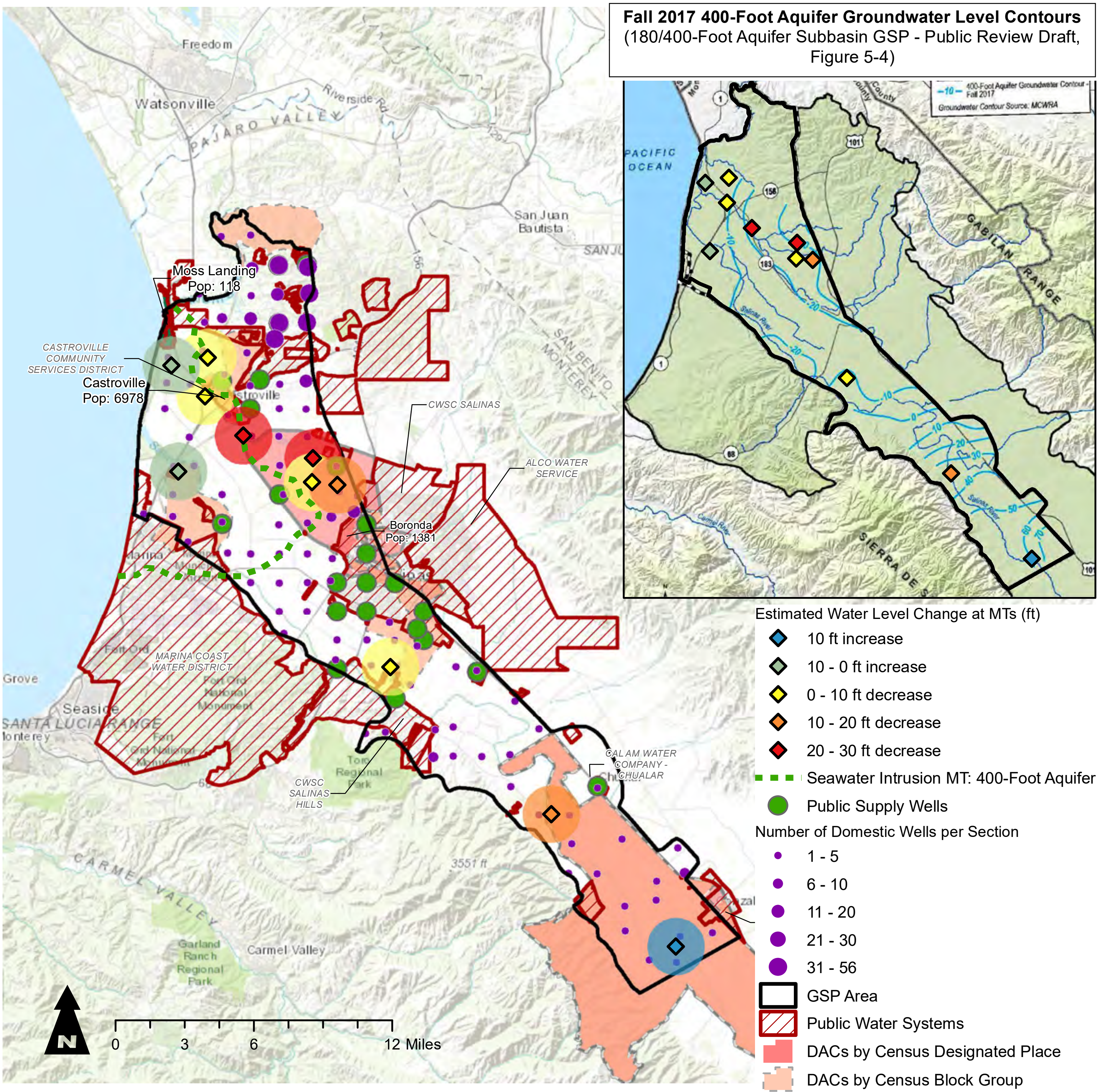


Notes
1. All locations are approximate.
2. Location of Water Level Representative Monitoring Site Wells is based on Table 7-2 of the SVBGSA GSP (2019).

References
1. Domestic Well Densities: Research to develop the CWC Vulnerability Tool draft as of August 6, 2019.
2. Public supply well data: DWR Well Completion Reports downloaded on August 30, 2018 from https://atlas-dwr.opendata.arcgis.com/datasets/.
3. Disadvantaged and other key community data (place, tract, and block group): downloaded on August 6, 2019 from the DAC Mapping Tool: https://gis.water.ca.gov/app/dacs/.
4. Public Water System data: downloaded on August 6, 2019 from Tracking California: https://trackingcalifornia.org/water/map-viewer. The dataset includes "community" and "non-community" water systems.
5. Water Level RMW locations, MTs, and contour map: Tabel 7-2, Table 8-2, and Figure 5-2 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.
6. Seawater Intrusion MTs for the 180-Foot Aquifer: Figure 8-6 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.

Figure 3B - Estimated Water Level Decline at Minimum Thresholds in the 400-Foot Aquifer

Salinas Valley Basin GSA



Notes
1. All locations are approximate.
2. Location of Water Level Representative Monitoring Site Wells is based on Table 7-2 of the SVBGSA GSP (2019).

References
1. Domestic Well Densities: Research to develop the CWC Vulnerability Tool draft as of August 6, 2019.
2. Public supply well data: DWR Well Completion Reports downloaded on August 30, 2018 from https://atlas-dwr.opendata.arcgis.com/datasets/.
3. Disadvantaged and other key community data (place, tract, and block group): downloaded on August 6, 2019 from the DAC Mapping Tool: https://gis.water.ca.gov/app/dacs/.
4. Public Water System data: downloaded on August 6, 2019 from Tracking California: https://trackingcalifornia.org/water/map-viewer. The dataset includes "community" and "non-community" water systems.
5. Water Level RMW locations, MTs, and contour map: Tabel 7-2, Table 8-2, and Figure 5-4 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.
6. Seawater Intrusion MTs for the 400-Foot Aquifer: Figure 8-7 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.

July 10, 2019

Salinas Valley Basin Groundwater Sustainability Agency
Attn: Gary Peterson, General Manager
peterseng@svbgsa.org
VIA ELECTRONIC MAIL

Re: Comments on Draft Chapter 6 ("Water Budgets") for the 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan

Dear Salinas Valley Groundwater Sustainability Agency Board Directors, General Manager Peterson, and Advisory Committee:

We thank you for the opportunity to comment on draft chapters of the Groundwater Sustainability Plan ("GSP") for the 180/400-Foot Aquifer Subbasin of the Salinas Valley Basin.

Recommendation 1: For both practical and legal reasons, we strongly encourage you to revise your calculations of sustainable yield to include and abate all six undesirable results enumerated in the Sustainable Groundwater Management Act (SGMA).

As currently written, Chapter 6's definition of sustainable yield fails to comport with the statutory definition. SGMA defines sustainable yield as "the maximum quantity of water . . . that can be withdrawn annually from a groundwater supply without causing an undesirable result." Water Code § 10721(w). SGMA explicitly requires that groundwater be managed in a way that avoids negative impacts to beneficial users *and* all six undesirable results. Those undesirable results include: (1) chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon; (2) significant and unreasonable reduction of groundwater storage; (3) significant and unreasonable seawater intrusion; (4) significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies; (5) significant and unreasonable land subsidence that substantially interferes with surface land uses; and (6) depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of that surface water. *Id.* § 10721(x). The undesirable results are cumulative, not disjunctive. GSPs must evaluate all six undesirable results, and any interactions between those results, to satisfy SGMA.

Despite SGMA's clear definition of sustainable yield and sustainable groundwater management, the current draft of Chapter 6 relies on only one indicator of sustainability and one undesirable result. The proposed draft defines sustainable yield as "an estimate of the quantity of groundwater that can be pumped on a long-term average annual basis without causing a net decrease in storage." *See* Draft Chapter 6 180/400-Foot Aquifer Subbasin GSP page 24, section 6.8.4 (June 17, 2019, included in advisory committee meeting packet). There is no legal or scientific basis for that definition of sustainable yield.

We are concerned that the current sustainable yield calculation fails to inform the public and GSA of the actual net amount of water that can be extracted from the subbasin while avoiding all six undesirable results. Establishing a sustainable yield that adequately takes into consideration all undesirable results is a foundational step for developing appropriate sustainable management criteria and for accurately planning for the management actions and projects necessary to meet sustainable management criteria. For example, during the project development phase, the GSA will need to understand the scale and size of recharge or other projects required to stop seawater intrusion. At a minimum, the sustainable yield calculation must adequately consider all undesirable results in order to provide a reliable foundation for setting and meeting minimum thresholds and measurable objectives, determining extraction and recharge levels, and monitoring.

The Department of Water Resources' (DWR) Draft Best Management Practices for Sustainable Management Criteria ("Draft BMP")[1] states that "[s]ustainable yield can only be reached if the basin is not experiencing undesirable results . . . [u]ndesirable results must be eliminated through the implementation of projects and management actions, and progress toward their elimination will be demonstrated with empirical data (e.g., measurements of groundwater levels or subsidence)." From a practical perspective, the 180/400-foot aquifer subbasin GSP already faces several undesirable results, and it will need to develop projects and regulations that rely on the sustainable yield measure to avoid exacerbating all six undesirable results. As currently drafted, the sustainable yield calculation does not provide the GSA with the information it needs to be able to prevent or improve groundwater conditions that cause those undesirable results.

Moreover, the Groundwater Sustainability Plan Regulations ("Regulations") do not recognize change in storage as an acceptable proxy for the other sustainability indicators or undesirable results. The Regulations clearly state that only groundwater elevation may be used as a proxy

[1]https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-6-Sustainable-Management-Criteria-DRAFT.pdf

716 10th Street, Suite 300
Sacramento, CA 95814
(916) 706-3346

900 West Oak Avenue
Visalia, CA 93291
(559) 733-0219

406 Main Street, Suite 421
Watsonville, CA 95076
(831) 288-0450

metric for the sustainability indicators for minimum thresholds and measurable objectives. 23 CCR §§ 354.28(d) & 354.30(d). Groundwater elevation can only be used as a proxy metric if both of the following conditions are met:

> (1) Significant correlation exists between groundwater elevations and the sustainability indicators for which groundwater elevation measurements serve as a proxy. (2) Measurable objectives established for groundwater elevation shall include a reasonable margin of operational flexibility taking into consideration the basin setting to avoid undesirable results for the sustainability indicators for which groundwater elevation measurements serve as a proxy. 23 CCR § 354.36(b)).

By focusing solely on groundwater storage, draft Chapter 6 fails to identify the relationship between the water budget, current undesirable results, and the possibility of worsening all six undesirable results if the water budget is improperly calculated. As a result, the draft water budget reinforces current unsustainable groundwater uses, risks further degradation of groundwater supplies, and fails to adequately prioritize beneficial uses and protect groundwater stakeholders' interests.

The calculation of sustainable yield is at the heart of all Groundwater Sustainability Plans, and those Plans derive all other components from this important determination. Because the draft GSP ties sustainable yield to an improper metric that is not recognized by statute or regulation as acceptable, it is likely that DWR will find the draft 180/400-Foot Aquifer Subbasin GSP to be inadequate, creating the risk that the Basin will fall under probationary status.

Recommendation 2: We request that you release the data and assumptions underlying Chapter 6's sustainable yield calculations, water budget calculations, and groundwater model. We encourage the GSA to ensure compliance with SGMA and California administrative law by releasing the data, methodologies, technical appendices, model assumptions, model inputs/outputs, sources, and all other relevant model parameters when draft chapters are released to the public for review and comment. We request that the GSA ensure that all relevant data is released concurrently with draft chapters for all future draft chapters.

SGMA, California administrative law, and the Brown Act require GSAs to release to the public all data, research, sources, assumptions and inputs, outputs, the formulae applied to those inputs, and the ultimate results of a formula or model as part of the public comment process.

716 10th Street, Suite 300
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900 West Oak Avenue
Visalia, CA 93291
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406 Main Street, Suite 421
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(831) 288-0450

23 CCR §§ 352.4(f) & 354.14. DWR's Draft BMP also encourages transparency in the use and disclosure of models used to support SGMA's requirements.

In the context of GSPs, the purpose of public comment is to allow the public to engage meaningfully in the public decision making process, which in turn will strengthen the reliability and accuracy of GSPs. That data must be publicly accessible and is a critical factor in gaining consensus on groundwater projects, groundwater pumping restrictions, potential groundwater fees, prioritization of beneficial uses, and other groundwater regulations. Draft Chapter 6 currently fails to provide the GSA and the public with sufficient background information to support the chapter's sustainable yield calculations and the groundwater model itself.

Timely disclosing source material and key assumptions is necessary to ensure the GSP is accurate and that the public is able to ground truth those assumptions. For example, during the June 20, 2019, advisory committee meeting, the GSA's consultant informed the public that the proposed "sustainable yield" calculation assumes that the Castroville Seawater Intrusion Project (CSIP) will function "perfectly." Many of those in attendance questioned that assumption, as it is impossible to ensure a project will operate perfectly. Failure to account for the reality that the project will not always operate "perfectly" introduces unquantified uncertainty into the sustainable yield calculation. As a result, the proposed calculation may be inaccurate, which may exacerbate undesirable results—including seawater intrusion—in the subbasin. At a minimum, the GSP must consider alternative calculations that account for the reasonable and foreseeable possibility that the project may operate below "perfect" performance in order to create an accurate accounting of sustainable yield. In fact, in its Draft BMP, DWR explicitly notes that GSPs must acknowledge uncertainty and address how the plan will address that uncertainty. By failing to disclose to the public the assumptions incorporated in draft Chapter 6, the GSP may rely on any number of faulty assumptions that undermine the reliability, reality, and accuracy of the sustainable yield calculation and groundwater model.

We are asking the GSA to make all assumptions transparent and clear in the plan itself, to engage stakeholders and the public in discussion of those parameters and assumptions, and to make decisions with knowledge of the limitations of whatever formulae or models are adopted. When DWR reviews plans, it will assess "[w]hether the projects and management actions are feasible and likely to prevent undesirable results and ensure that the basin is operated within its sustainable yield." 23 CCR § 355.4(b)(5). Failure to account for and disclose the assumptions in the sustainable yield calculation places the basin at substantial risk of failing to pass DWR's evaluation or to ensure sustainable yield is met.

716 10th Street, Suite 300
Sacramento, CA 95814
(916) 706-3346

900 West Oak Avenue
Visalia, CA 93291
(559) 733-0219

406 Main Street, Suite 421
Watsonville, CA 95076
(831) 288-0450

It is challenging to provide feedback regarding Chapter 6's models and its sustainable yield calculation without publicly available supporting documentation on how calculations have been made. We request that the GSA immediately:

1. Disclose the technical appendix, supporting documentation and research, groundwater model,, sustainable yield formula, methodologies for the groundwater model and sustainable yield formula, and model assumptions and limitations at the time it releases draft Chapter 6 for public review and comment. Disclosure should be made by posting this information to the GSA website and contacting all interested parties.
2. Update its timeline to ensure technical appendices, supporting data and research, and all related information are released when public comment opens for each draft chapter and the final draft GSP;
3. Distribute a revised draft Chapter 6 that includes the Advisory Committee and stakeholders' requested changes.

We look forward to working with the Salinas Valley Basin GSA to ensure that the GSP complies with its legal obligations, that the GSP adequately addresses drinking water needs, and that stakeholders and the public have access to the information necessary to be able to engage in this process.

Sincerely,

Heather Lukacs
Community Water Center

Camille Pannu
Founding Director, UC Davis Aoki Water Justice Clinic

ARROYO SECO GROUNDWATER SUSTAINABILITY AGENCY

599 Camino Real Greenfield CA 93927 | 831-647-5591

November 25, 2019

Board of Directors
c/o Gary Petersen GM
Salinas Valley Basin GSA
1441 Schilling Place
Salinas CA, 93902

Subject: ASGSA Comments SVBGSA Groundwater Sustainability Plan – Pressure 180/400 Basin

Dear Members of the Board,

We provide the following comments with the intent to improve planning efforts between both organizations, and acknowledge the SVBGSA efforts to conclude the negotiations of our Coordination Agreement. Our preference would be to have our technical teams collaborate under a Coordination Agreement framework, and address the comments like the following between technical team members in lieu of producing multi-page comment letters.

General Comments

The draft 180/400 Foot Aquifer Subbasin GSP repeatedly oversteps its appropriate geographic scope, which should be limited to the 180/400 Foot Aquifer Subbasin. It is written as if it were the "Valley-Wide Plan". The SVBGSA may develop a Valley-wide plan, but it is not appropriate for a single basin plan. Valley-wide planning has not yet even commenced, much less reached a point that results can be published. There has been negligible coordination between SVBGSA and ASGSA regarding data, methods and groundwater conditions outside the 180/400 Foot Subbasin, and there has been no discussion of sustainability criteria or management actions. If interbasin agreements had been developed as part of the 180/400 Foot Aquifer GSP process, it would be appropriate to discuss those in this GSP. However, no agreements have been reached. It is premature to discuss valley-wide problems and solutions in this document. Its geographic scope should be the 180/400 Foot Aquifer Subbasin.

Under SGMA, each subbasin is to prepare its own GSP, which is an acknowledgement of the unique hydrogeologic, water balance and sustainability conditions in each subbasin. The draft 180/400 Foot GSP does not present analysis to justify the inclusion of the other subbasins in a valley-wide plan. It fails to address the nexus between the other subbasins—particularly the Forebay and Upper Valley Subbasins—on sustainability in the 180/400 Foot Subbasin. The technical chapters (1 through 8) are nearly silent with respect to the Forebay and Upper Valley Subbasins, but Chapter 9 suddenly sweeps them into a valley-wide plan for solving problems in the 180/400 Foot Subbasin.

It would be simple for the draft GSP to achieve a narrower geographic focus because only two of the five management actions (reservoir reoperation and agricultural BMP educational outreach) and one of the nine projects (*Arundo* eradication) would involve or benefit the ASGSA area or Upper Valley Subbasin, and only two additional projects would benefit non-ASGSA parts of the Forebay Subbasin. Furthermore, the water charges framework is unnecessary in the ASGSA area because reductions in pumping are not needed to address sustainability concerns.

Almost all of the activities and all of the benefits of the management actions and projects described in the draft GSP are local to the 180/400 Foot Subbasin (in some cases with spillover effects in the Monterey and Eastside Subbasins). Therefore, the GSP should describe implementation of those activities within the 180/400 Foot Subbasin. By the same token, the water charges framework should be implemented within the 180/400 Foot Subbasin to appropriately reflect the geographic extent of the projects and benefits. To the extent that the Monterey and Eastside Subbasins benefit from any projects, the water charge program could be extended to those areas in the context of their forthcoming GSPs.

The proposed water charges framework should not even be considered for implementation outside the coastal subbasins unless 1) the physical nexus between water use in those areas and seawater intrusion has been quantified, and 2) the amounts of the proposed charges are spelled out and are proportional to whatever impacts Forebay and Upper Valley water users might have on intrusion. Even if a physical nexus is eventually established, it is unacceptable to propose water charges without support technical analysis.

Although the draft GSP repeatedly implies that management actions and projects would provide benefits and achieve sustainability throughout the Salinas Valley, the actions are in reality very focused on water balance and seawater intrusion problems near the coast. As a package, there is little benefit to the rest of the valley. To illustrate, the management actions and projects are listed in **Table 1**, grouped by whether they involve or benefit the ASGSA area.

Table 1. Proposed Actions in 180/400 Foot Aquifer Subbasin GSP

180/400 Foot Aquifer Proposed Action	Estimated Cost: Capital	Estimated Cost: Annual O&M	Benefits ASGSA Area
Water charges framework[a]	$0	$300,000	X
Management Actions			
1 Agricultural Land and Pumping Allowance Retirement	?	?	X
2 Outreach and Education for Agricultural BMPs	$0	$100,000	✓
3 Reservoir Reoperation	$150,000	$0	✓
4 Restrict Pumping in CSIP Area	$100,000	?	X
5 Restrictions on Additional Deep Aquifer Wells	$160,000		X
Projects			
1 Invasive Species Eradication	$35,230,000	$325,000	✓
2 Optimize CSIP Operations	$16,400	$200,000	X
3 Modify M1W Recycled Water Plant	$0	$0	X
4 Expand Area Served by CSIP	$73,366,000	$480,000	X
5 Maximize Existing SRDF Diversion[b]	$0	$2,552,000	X
6 Seawater Intrusion Pumping Barrier	$102,389,000	$9,800,000	X
7 11043 Diversion Facilities Phase I: Chualar	$47,654,000	$2,296,000	X
8 11043 Diversion Facilities Phase II: Soledad	$60,578,000	$5,050,000	X
9 SRDF Winter Flow Injection	$51,191,000	$7,629,000	X
Total	$370,834,400	$28,732,000	
ASGSA percentage of Salinas River length[c]	6.4%		
ASGSA percentage of valley-wide irrigated cropland[d]	9.2%		
Subtotal possibly benefitting ASGSA[e]	$2,278,536	$30,060	
ASGSA reasonable share of total cost	0.61%	0.10%	

Notes:

[a] Assume three full-time staff members to administer metering, charges and collections.

[b] Per Section 9.4.4.6 approximately 11,600 AFY would be delivered at a cost of $220/AF.

[c] The ASGSA area fronts 6.3 miles of the 98-mile length of the Salinas River within the Salinas Valley.

[d] The ASGSA area contains 19,655 acres of the 214,411 valley-wide acres of irrigated cropland, based on 2014 land use mapping.

[e] Invasive species eradication pro-rated based on river miles. Reservoir reoperation and agricultural BMP outreach pro-rated based on irrigated cropland.

Only two of the management actions and one of the projects would possibly benefit the ASGSA area. If the capital and annual costs of those items are pro-rated on the basis of Salinas River frontage (Arundo eradication) or irrigated cropland (reservoir reoperation and agricultural BMP outreach), the reasonable share of total costs attributable to ASGSA would be 0.6% of the capital costs and 0.1% of the annual costs. These tiny percentages suggest that the "valley-wide plan" is not a plan to address valley-wide problems. The proposed actions target the coastal area, and the cost of implementation should be borne there, also.

Instead of passively accepting SVBGSA-proposed actions that could potentially benefit the ASGSA area, ASGSA would prefer to implement similar actions on its own. With respect to reservoir reoperation, ASGSA might have different priorities and seek different outcomes than affected parties from other parts of the valley. ASGSA would send its own delegates to negotiate with MCWRA. Similarly, agricultural BMPs identified as high-priority in the ASGSA area focus on reducing salt load and energy use. These might be different priorities than in other parts of the valley. Finally, ASGSA could as easily take responsibility for *Arundo* eradication in its area as contribute to a valley-wide eradication program. Therefore, the benefits of the program proposed in the 180/400 Foot Subbasin GSP are not essential for ASGSA. There is no compelling need for ASGSA to participate in that program.

Specific Comments

Section 9.1, 3rd paragraph. This is the first of many passages referring to groundwater planning for the entire Salinas Valley. Those passages should be removed because they overreach the appropriate geographic scope of the 180/400 Foot Subbasin GSP. This GSP should address actions that will be implemented within the 180/400 Foot Subbasin and explain how groundwater users within the subbasin will pay for them. When GSPs are subsequently prepared for other Salinas Valley subbasins, some of the same actions may be included to the extent that they also benefit those subbasins. The text implies that costs will be shared among all subbasins. This would only be acceptable to the extent that benefits occur in the other subbasins.

Other references to valley-wide planning that overreach the scope of the 180/400 Foot Subbasin GSP and that should be deleted include the following:

- Section 9.1, 4th paragraph. It is premature to discuss cost sharing with other subbasins that may receive no benefit. The 180/400 Foot Subbasin GSP must assume that costs will be paid by water users within that subbasin unless external subbasins agree otherwise.
- Section 9.2, 2nd paragraph.
- Section 9.2, 3rd paragraph. Note that the text implies that water charges need only be approved by SVBGSA, which is not correct.
- Section 9.2, 2nd paragraph after bullets.
- Section 9.2.2, 1st bullet. The first paragraph incorrectly assumes that pumping in other subbasins exceeds the sustainable yield. The draft GSP presents no analysis to support this statement. In fact, analysis completed by ASGSA demonstrates that pumping within the ASGSA area is sustainable, and no reduction is needed.
- Section 9.3.1, entire section.
- Section 9.3.1, 2nd paragraph. The text characterizes the proposed management actions and projects as “acceptable to stakeholders”. SVBGSA has not engaged in coordination discussions with ASGSA regarding the actions, almost none of which provide benefits in the ASGSA area. Also, the text asserts that the first three management actions would “benefit the entire Salinas Valley”. Land retirement is unnecessary to achieve sustainability in the ASGSA area and is clearly not locally beneficial. ASGSA does not accept the slate of actions as proposed.
- Section 9.3.2.1, all four bullets. None of these benefits apply to the ASGSA area, where seawater intrusion is a non-issue, long-term inelastic subsidence has not been detected, and water levels

and storage are within the sustainable range except low water levels during major droughts that are directly caused by reservoir operations, not groundwater pumping.

- Section 9.3.3, 1st paragraph.
- Section 9.3.3.1, 1st bullet
- Section 9.3.3.2, 1st paragraph.
- Section 9.3.4.1, 1st bullet. See below comment about reservoir reoperation objectives. Groundwater levels in the Forebay and Upper Valley Subbasins do not need to be raised in general. They only need to be higher during the third and subsequent years of reservoir release curtailment.
- Section 9.4.2, entire section.
- Section 9.4.3. This section should be retitled "Selected Priority Projects for Achieving Sustainability in the 180/400 Foot Subbasin". Reference to the "six Salinas Valley GSPs" in the first paragraph should be deleted.
- Section 9.4.3.2, 4th paragraph. This GSP should address *Arundo* eradication in the 180/400 Foot Subbasin. It can mention that such a program would be consistent with eradication efforts in other subbasins.
- Section 9.4.3.2.2, "Expected Benefits". Discussion of eradication in other subbasins should be omitted.
- Section 9.4.3.9.2, "Expected Benefits". If the 11043 diversion at Soledad project would not benefit the 180/400 Foot Subbasin, it should not be included in this GSP.

Section 9.3.4, 1st paragraph. Reservoir reoperation. The description of the objectives of reservoir reoperation are too vague. They appear to simply want more water more of the time, which is not possible. Based on its own analysis of water levels and simulations of reservoir reoperation, ASGSA has identified a specific reoperation objective, which is to avoid more than two consecutive years without major releases (for steelhead passage, conservation or SRDF diversions) from Nacimiento and San Antonio Reservoirs.

Section 9.3.4, 2nd paragraph. If one of the two goals of reservoir reoperation is "to allow summer flows to better reach the SRDF", then the 180/400 Foot Subbasin is also a major beneficiary of reoperation.

Section 9.3.4.1, last bullet. Conservation of mass dictates that Salinas River flows cannot be higher year-round, at least not in all years. A more specific and feasible reoperation objective needs to be proposed.

Section 9.3.4.2, 1st paragraph. During droughts, major releases during summer would be as beneficial as increased releases during winter, because both would retard the cumulative multi-year decline in groundwater levels. Summer releases supported by increased year-to-year carryover storage should be considered in addition to increased winter releases (for steelhead or conservation). Winter releases are somewhat more efficient for recharge due to lower riparian ET losses.

Section 9.4.3.2.2, "Expected Benefits" of Arundo eradication. The estimated evapotranspiration rate of 20 feet per year is unrealistic. The "Literature Review of Evapotranspiration Studies on Arundo Donax" released by The Nature Conservancy was not sufficiently critical in its evaluation of the wide range of numbers. There clearly is a problem with the leaf porometry method that results in values many times larger than the water balance and energy balance methods. Basically, the latter methods show that there is neither sufficient energy nor sufficient overall water consumption to support the numbers obtained by the porometry method. It would be more realistic to assume values closer to the low end of the range stated in the draft GSP (that is, in the neighborhood of 4 ft/yr).

Section 9.4.3.2.8, "Expected Costs". The estimated yield of 20,000 AFY assumes an *Arundo* consumptive use of 11.1 ft/yr, which is unrealistically high (see preceding comment).

Section 9.4.3.3.2, "Expected Benefits" of optimizing CSIP operations. It is unlikely that reduced pumping in CSIP would affect groundwater levels in the Forebay and Upper Valley Subbasins. The statement regarding external benefits needs to be re-written more precisely, as follows: "This project might benefit water levels in the Monterey and Eastside Subbasins by reducing pumping that impacts neighboring subbasins."

Section 9.4.3.4.2, "Expected Benefits" of Monterey One winter use. Same as preceding comment. The text should be more precise in stating that water level benefits might spread to the Eastside and Monterey Subbasins, without implying that Forebay or Upper Valley areas would benefit.

Figures 9-21 and 9-22, effects of 11043 diversion at Soledad. The figures need to be expanded to show the entire region where water levels would be affected. Water levels in the ASGSA area are sustainable except during successive years of reservoir release curtailment during major droughts. During those droughts, there would not be Salinas River flows to support the proposed diversions, and consequently benefits to ASGSA water levels would be negligible during droughts.

Section 9.4.3.10, 1st paragraph. Delete "other subbasins, such as" so that the geographic scope of possible benefits from SRDF injection is correctly limited to the Eastside and Monterey Subbasins.

Section 9.4.3.10, 3rd paragraph. This discussion needs to clarify whether only natural flows would be diverted, or whether Nacimiento and San Antonio Reservoirs would be reoperated to supply the diversions.

Section 9.4.4.1.2, "Expected Benefits" of extraction barrier. Delete "other subbasins, such as" so that the geographic scope of possible benefits is correctly limited to the Eastside and Monterey Subbasins.

Section 9.4.4.2, recharge of runoff from eastside range. This project area includes the northern part of the Forebay Subbasin, but it would have no benefit on ASGSA water levels. ASGSA water levels already benefit from their own local recharge source: the Arroyo Seco. Undesirably low water levels occur only in part of the ASGSA area and only during consecutive years of reservoir release curtailment during major droughts. The small Gabilan Range watersheds will produce negligible amounts of runoff during major droughts and hence would not raise ASGSA area water levels at the only times when higher water levels would be beneficial.

Section 9.4.4.2.2, "Expected Benefits" of local runoff recharge. If the project provides no benefit to the 180/400 Foot Subbasin, it should not be included in this GSP.

Section 9.4.4.3.2, "Expected Benefits" of winter potable water injection. Omit "other basins, such as" so that the geographic scope of possible benefits of winter injection is correctly limited to the Eastside and Monterey Subbasins.

We welcome the opportunity for additional discussion of these issues and others at your convenience.

Sincerely,

Curtis V. Weeks
General Manager
Arroyo Seco Groundwater Sustainability Agency

cc: James Thorp, Chairman ASGSA

City of Marina

City of Marina
211 HILLCREST AVENUE
MARINA, CA 93933
831- 884-1212; FAX 831-384-0425
www.ci.marina.ca.us

November 25, 2019

Via E-mail (peterseng@svbgsa.org)

Gary Petersen
General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1411 Schilling Place
Salinas, CA 93901

Re: Comments on SVBGSA Draft Groundwater Sustainability Plan

Dear Mr. Petersen:

The City of Marina (City or Marina) and the Marina Groundwater Sustainability Agency (MGSA) hereby jointly submit the following comments regarding the Draft Groundwater Sustainability Plan (Draft GSP) prepared by the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) for the 180/400 Foot Aquifer Subbasin (Subbasin). These comments consist of this letter and the individual comments and attachments prepared by Formation Environmental, LLC on the Draft GSP attached hereto as Exhibit A.

I. Introduction

The City formed MGSA to prepare a groundwater sustainability plan (GSP) for an approximately 400-acre portion of the Subbasin at the CEMEX property (MGSA Area). MGSA has developed a locally-focused GSP to ensure sustainable groundwater management in the MGSA Area, to support regional efforts to address seawater intrusion and other undesirable results, and to return the Subbasin to sustainable groundwater management. The City of Marina considers these objectives a top priority because the City depends entirely on groundwater resources in this Subbasin and the adjacent Monterey Subbasin. Over the last 18 months, the City has met with SVBGSA staff and held public hearings on a number of occasions to discuss its concerns and objectives for sustainable groundwater management in the coastal region of the Subbasin.

Together MGSA, SVBGSA, and the Marina Coast Water District Groundwater Sustainability Agency (MCWD GSA) are the three major groundwater sustainability agencies (GSAs) with jurisdiction in the Subbasin. MGSA remains committed to entering into a Coordination Agreement with SVBGSA to ensure that the two GSPs developed for the Subbasin by SVBGSA and MGSA will result in coordinated basin-wide sustainable groundwater management. To this end, MGSA has met with SVBGSA staff on several occasions to discuss GSP coordination; prepared, approved, and transmitted to SVBGSA in August 2019 a proposed Coordination Agreement using the template recommended by SVBGSA Staff; and attempted in good faith to finalize this Agreement with SVBGSA.

This letter summarizes some of the key modifications in the Draft GSP that the City and MGSA believe must be made to ensure that it is a comprehensive document that will harmonize and work together with the MGSA GSP to ensure sustainable groundwater management for the Subbasin. At present, the Draft GSP does not properly characterize, monitor, or manage the groundwater resources south of the Salinas River in the coastal region or recognize the important municipal, domestic, groundwater dependent ecosystems (GDEs), and other beneficial uses or users in this area.

To meet the requirements of the Sustainable Groundwater Management Act (SGMA), the Draft GSP must address the following issues, among others: (1) it must utilize the newest and best available science regarding the seaward portion of this Subbasin; (2) it must designate, protect, and manage the Dune Sand Aquifer as a principal aquifer; (3) it needs to provide further protections against ongoing or worsening seawater intrusion; (4) it must recognize, address, monitor, and manage GDEs as a beneficial groundwater use in a more meaningful way; (5) it must consider state and federal protections for habitats and species in and near the MGSA Area; and (6) it must expand SVBGSA's proposed monitoring network in the coastal portion of the Subbasin. We will address each of these subject areas below.

II. Particular Comment Areas

A. SVBGSA Must Evaluate And Incorporate The Best Available Science Regarding The Coastal Portion Of the Subbasin Into The Draft GSP.

GSAs must base GSPs on "the best available information." Cal. Code Regs. tit. 23, §§ 354.14(b)(4)(B), 354.16, 354.18(e). As outlined in further detail below and in the attached comments, the Draft GSP fails to acknowledge and utilize critical scientific studies regarding the coastal portion of the Subbasin.

In particular, the Draft GSP fails to discuss the state-of-the-art airborne electromagnetic (AEM) investigations performed by Stanford University researchers and others that have generated three-dimensional groundwater maps and cross-sections identifying large zones of high-quality groundwater in and beneath the Dune Sand Aquifer, much of which contains less than 3,000 milligrams per liter (mg/L) of total dissolved solids (TDS). These studies identify local complexities in the aquifer system that are essential to understanding the ongoing vertical migration of seawater intrusion. They also include water quality cross-sections and visualization tools that depict the nature and extent of seawater intrusion in the nearshore area of the Subbasin. This information reveals the relationship of the shallow low-TDS groundwater, the deeper dense saline water wedge, and the freshwater-saline water interface described by the Ghyben-Herzberg Principle.

To base its GSP on the best available information and science, SVBGSA must utilize these site-specific studies, which contain a wealth of directly relevant data, to protect against seawater intrusion and ensure sustainable management of the entire Subbasin.

B. The Draft GSP Must Designate, Evaluate, And Manage The Dune Sand Aquifer As A Principal Aquifer.

SGMA regulations define principal aquifers as "aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems." Cal. Code Regs. tit. 23, § 351(aa). GSPs must identify minimum thresholds and design monitoring networks for principal aquifers. *See* Cal. Code Regs. tit. 23, §§ 354.28(c)(3), 354.34(c). The Dune Sand Aquifer stores substantial amounts of high-quality groundwater available for beneficial uses, yields significant quantities of groundwater to sustain protected GDEs, and plays an important role in retarding seawater intrusion by supplying a fresh groundwater recharge that exerts a stabilizing force on the saline water wedge entering the upper aquifer system from the Pacific Ocean. However, the Draft GSP fails to identify the Dune Sand Aquifer as a principal aquifer. It also inaccurately describes the Dune Sand Aquifer as having a low yield and a poor connection to the underlying productive aquifers.

The Dune Sand Aquifer is the uppermost aquifer in the MGSA Area and occurs in highly permeable dune sand deposits southwest of the Salinas River. The Draft GSP should identify the Dune Sand Aquifer as a principal aquifer because it qualifies for beneficial use as a municipal and domestic water supply. In particular, Stanford University's AEM investigations have mapped large zones of low-TDS groundwater in and beneath the Dune Sand Aquifer. This groundwater contains less than 3,000 mg/L of TDS, as also confirmed by monitoring data, which qualifies it as suitable or potentially suitable for municipal and domestic water supply under State Water Resources Control Board Resolution No. 88-63 (SWRCB Resolution No. 88-63). This high-quality groundwater zone is recharged through the Dune Sand Aquifer and extends downward into the 180-Foot and 400-Foot Aquifers. The Dune Sand Aquifer alone is estimated to contain approximately 200,000 acre-feet of groundwater suitable or potentially suitable for municipal and domestic water supply. The anti-degradation policy outlined in State Water Resources Control Board Resolution No. 68-16 (SWRCB Resolution No. 68-16) protects the quality of existing high-quality surface water and groundwater like this from further degradation.

Furthermore, the Dune Sand Aquifer yields significant quantities of water to GDEs, which consist of unique vernal pool and wetland habitats that are protected under the California Coastal Act and host threatened and endangered species. These factors, along with the Dune Sand Aquifer's high rate of recharge and importance for maintaining nearshore seawater intrusion dynamics, require that the Draft GSP recognize the Dune Sand Aquifer as a principal aquifer and that SVBGSA monitor and manage this aquifer under the sustainable management criteria in SGMA. The MGSA GSP addresses and manages the aquifer in this manner, and the City and MGSA encourage SVBGSA to adopt MGSA's GSP's minimum thresholds for the Dune Sand Aquifer.

C. The Draft GSP Fails To Protect Groundwater With Beneficial Uses From Saltwater Intrusion.

The California Department of Water Resources (DWR) has designated the Subbasin as one of only 21 critically over-drafted groundwater basins in California. Chronic over-pumping in the inland part of the Subbasin has led to seawater intrusion, which has moved inland up to seven miles in some areas. Investigations by the Monterey County Water Resources Agency (MCWRA), the United States Geological Survey (USGS), a team of researchers from Stanford University, and several expert hydrogeological consultants have revealed that groundwater conditions in the nearshore area of the Subbasin are more complex and dynamic than previously thought. Indeed, local resources, water supplies, and inland aquifers could all be at risk of damage from drawdown or further seawater intrusion without appropriate local management actions under SGMA.

SGMA's regulations require GSPs to include seawater intrusion controls "where appropriate." Cal. Water Code § 10727.4(a); Cal. Code Regs. tit. 23, § 354.8. Further, each GSP must describe "current and historical groundwater conditions in the basin," including seawater intrusion conditions "based on the best available information." Cal. Code Regs. tit. 23, § 354.16(c). In its current form, the Draft GSP fails to discuss all of the best available information regarding seawater intrusion or prescribe adequate controls or management actions to address seawater intrusion in the seaward portion of the Subbasin.

In the nearshore area, the Draft GSP proposes to establish the minimum threshold for seawater intrusion at Highway 1— inside the currently unintruded Deep Aquifer. Further, the Draft GSP only includes a single well to monitor water levels in the Deep Aquifer, and that well lies in the shoreward area of the Subbasin far north of the City of Marina. No seawater intrusion or water quality monitoring wells are identified for the Deep Aquifer. This is identified as a data gap, but suitable wells included are available and are being monitored by the MCWRA. The Deep Aquifer is in important local water supply and the only water supply for the MCWD's Central Marina Service Area. SVBGSA must revise its proposed sustainable management criteria and monitoring network for seawater intrusion into the Deep Aquifer to meet the sustainability goals for the Subbasin.

1. Best Available Information

The Draft GSP fails to base its seawater intrusion analysis "on the best available information." Cal. Code Regs. tit. 23, § 354.16(c) (requiring a GSP to "include[e] maps and cross-sections of the seawater intrusion front for each principal aquifer"). Seawater intrusion occurs by density-driven flow in the nearshore portion of a coastal aquifer and by advection of a solute front in inland areas. Although SGMA's regulations require minimum thresholds for seawater intrusion to be defined based on the location of the inland solute intrusion front (the chloride isocontour), the dynamic controlling density-driven flow closer to the coast must also be understood for adequate sustainable management. Both the water quality data gathered for the Monterey Peninsula Water Supply Project monitoring well investigation and Stanford University's AEM studies provide vital scientific insight into the seawater intrusion conditions and dynamics in the nearshore area of the Subbasin. These two data sources identify a zone of low-TDS groundwater that recharges through the Dune Sand Aquifer as well as a dense saline water intrusion wedge that intrudes into the Subbasin. These features represent important components of the nearshore dynamics of seawater intrusion, and SVBGSA's GSP must discuss them.

2. Seawater Intrusion Controls

Two elements of the Draft GSP fail to protect the nearshore aquifers from degradation. First, MGSA strenuously objects to the Draft GSP's minimum threshold for seawater intrusion into the Deep Aquifer. As noted above, the GSP defines the seawater intrusion minimum threshold for the Deep Aquifer based on the arrival of a 500 mg/L chloride isoconcentration contour at Highway 1. However, the Deep Aquifer is currently unintruded, and allowing intrusion into this aquifer at all puts the City of Marina's primary water supply at risk, violates the State Water Code and violates the Regional Water Quality Control Board's Water Quality Control Plan. Placing the minimum threshold this far inland thus also fails to represent the chloride concentration isocontour minimum threshold "where seawater intrusion may lead to undesirable results." Cal. Code Regs. tit. 23, § 354.28(C)(3). Furthermore, because the Deep Aquifer currently yields high-quality groundwater and is unintruded, any significant groundwater quality degradation would violate SWRCB's anti-degradation policy. Accordingly, as MGSA's GSP provides, any detectable seawater intrusion into the currently unintruded Deep Aquifer represents a significant and unreasonable impact that would exceed the minimum threshold for seawater intrusion into this important local aquifer.

Second, the Draft GSP's proposed seawater intrusion pumping barrier project could also jeopardize the City of Marina's drinking water supply in the Deep Aquifer and violate SWRCB's anti-degradation policy. SVBGSA proposes constructing this seawater intrusion barrier parallel to Highway 1 and near the current dynamic interface between a dense saline water wedge and inland low-TDS water that retards seawater intrusion. Locating the barrier here could induce migration of this interface and would likely adversely affect the deeper and inland groundwater supplies.

Evaluating and designing this project requires modeling tools capable of simulating density-driven flow and groundwater flow in the complex and heterogeneous nearshore aquifer system. However, these tools do not currently exist, and there are no concrete plans to develop them. SVBGSA must also address the data gap regarding the potential for vertical seawater intrusion from the 400-Foot Aquifer into the Deep Aquifer, which has been identified as a regional data gap. Therefore, similar to the Draft GSP's minimum threshold, the seawater intrusion pumping barrier project unnecessarily risks seawater intrusion into the currently unintruded Deep Aquifer, which would represent a significant and unreasonable impact. Inclusion of this project in the Draft GSP is premature and risks undesirable results. We therefore urge SVBGSA to remove it.

D. The Draft GSP Must Recognize, Monitor, And Take Management Actions For Groundwater Dependent Ecosystems As A Beneficial Water Use.

GSPs must include "[i]mpacts on groundwater dependent ecosystems." Cal. Water Code § 10727.4(l); Cal. Code Regs. tit. 23, § 354.8. However, the Draft GSP fails to identify and describe the "groundwater dependent ecosystems within the basin, utilizing data available from

[DWR] . . . or the best available information." Cal. Code Regs. tit. 23, § 354.16(g). Specifically, the Draft GSP does not adequately incorporate The Nature Conservancy (TNC) and DWR's cooperative evaluation of GDEs based on the Natural Communities Commonly Associated with Groundwater dataset (NC Dataset). The NC Dataset identifies over 3,000 acres of actual and potential groundwater-dependent wetland and vegetation habitat within the Subbasin, including GDEs that are likely dependent on shallow groundwater in the Dune Sand Aquifer. Until and unless further investigation verifies that some of these GDEs are not actually groundwater dependent, the best available information requires that they be recognized and managed as GDEs.

MGSA has applied TNC's best practices for assessing the NC Dataset to determine whether potential GDEs included in that database near the MGSA Area are likely to be groundwater dependent and confirmed that significant GDEs exist near the MGSA Area. These GDEs include vernal ponds located near the City of Marina, which are unique coastal wetland communities protected under the California Coastal Act and management plans developed by the City of Marina and environmental stakeholders. As a result, the Draft GSP should recognize, monitor, and take management actions for GDEs as a beneficial use of groundwater.

E. The Draft GSP Should Recognize And Consider State and Federal Protections For Habitats And Species In And Near The MGSA Area.

The Draft GSP fails to recognize state and federal protected lands and habitats or associated jurisdictional areas, monitoring requirements, and land use management plans. The MGSA Area falls within the California Coastal Zone and contains a unique Flandrian dune habitat and other habitat protected under the California Coastal Act. This habitat supports special-status plant and animal species and is considered Environmentally Sensitive Habitat Areas (ESHA) under both the Coastal Act and the City's Local Coastal Program. Among other factors, critical habitat for western snowy plover exists along the western shoreline of the MGSA Area. And the Salinas River Wildlife Refuge and mouth of the Salinas River also host critical habitat for tidewater goby. The Draft GSP must fully describe and consider these legal protections.

F. SVBGSA Must Expand The GSP's Proposed Monitoring Network.

The Draft GSP contains significant gaps in its nearshore monitoring network. Specifically, the monitoring networks' description: (1) includes only a single well completed in the 400-Foot Aquifer south of the Salinas River in the nearshore area within four miles of the coast; (2) does not include any wells within or near the MGSA Area; (3) does not include any monitoring of the shallow Dune Sand Aquifer; (4) includes only one groundwater level well (and no seawater intrusion or water quality wells) in the Deep Aquifer in the northwest portion of the Subbasin, away from the primary area of municipal groundwater use by the City of Marina, and (5) does not include any interconnected surface water monitoring network. The MGSA Area plays a critically important role for groundwater resources and GDEs in the Subbasin, partially because of the Dune Sand Aquifer recharges and discharges in that area. Indeed, shallow groundwater in the Dune Sand Aquifer is in communication with surface water in the vernal ponds within and near the City of Marina. Thus, the existing monitoring system includes significant data gaps, especially near the MGSA Area.

The MGSA GSP's proposed monitoring program addresses the data gaps in the nearshore area by adopting key wells from MCWRA's coastal monitoring program. This program includes nested monitoring wells in the 400-Foot, 180-Foot, and Dune Sand Aquifers at 13 locations, as well as an additional 14 Deep Aquifer wells. MGSA's GSP also adopts inductance logging planned by MCWRA at the 13 nearshore well clusters to assess changes and trends in the nearshore seawater intrusion dynamics. These wells will serve as an early warning to detect seawater intrusion into the unintruded Deep Aquifer and to assess surface-groundwater interaction and shallow water table drawdown in the vicinity of the identified GDEs in the area.

In light of the gaps in the Draft GSP's monitoring network, SVBGSA should either adopt wells from MCWRA's coastal monitoring program or acknowledge that the MGSA GSP's monitoring program will address existing monitoring data gaps in the nearshore area.

III. Conclusion

The City of Marina and MGSA urge SVBGSA to incorporate each of the attached comments and proposed revisions into its Final GSP to meet the requirements of SGMA. Additionally, it is important for our respective GSPs to be closely congruent to achieve sustainable management of groundwater in the Subbasin. MGSA remains committed to coordinating with SVBGSA and MCWD GSA to ensure that the two GSPs developed for the Subbasin protect the groundwater supplies for the entire Subbasin. We are prepared to meet with you to review our mutual comments on each other's GSPs and develop a coordinated approach that addresses these issues. Fortunately, many of the gaps identified in our comments are addressed by MGSA's GSP, which was prepared and intended to complement the SVBGSA's regional plan contained in the Draft GSP.

Sincerely,

Brian McMinn, P.E., P.L.S.

Public Works Director/City Engineer
on behalf of the City of Marina and the
Marina Groundwater Sustainability Agency

cc: Marina City Council
Layne Long, City Manager and MGSA Representative
Robert Wellington, City Attorney
Deborah Mall, Assistant City Attorney
Robert Rathie, Assistant City Attorney
Paul P. (Skip) Spaulding, III

Exhibit A

Comments Prepared By Formation Environmental , LLC (the MGSA Hydrogeologic Consultant) On SVBGSA's Draft Groundwater Sustainability Plan

FORMATION ENVIRONMENTAL

MEMORANDUM

COMMENTS ON THE SVBGSA PUBLIC REVIEW DRAFT GROUNDWATER SUSTAINABILITY PLAN FOR THE 180/400-FOOT AQUIFER SUBBASIN

PREPARED FOR:	Brian McMinn, PE, PLS Public Works Director/City Engineer City of Marina
PREPARED BY:	Mike Tietze, PG, CEG, CHG, Formation Environmental, LLC Stephen Carlton, PG, CHG, Formation Environmental, LLC Myra Lugsch, PG, Formation Environmental, LLC
DATE:	November 25, 2019

OVERVIEW

The Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) provided Update No. 1 to the Draft Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (Draft GSP) for public review and comment on October 1, 2019. Formation Environmental has reviewed the Draft GSP and has prepared a number of technical comments. Attached please find the following:

- Comments on the SVBGSA Public Review Draft Groundwater Sustainability Plan for the 180/400 Foot Aquifer Subbasin
- Supporting Attachments
    1. Relevant Land Use Plans for the Coastal Areas of the 180/400 Foot Aquifer Subbasin;
    2. Protected Lands Under Federal, State, Local, or Other Agency Jurisdiction;
    3. Groundwater Dependent Ecosystems; and
    4. Hydrogeologic Conceptual Model Data Regarding Aquifer Systems Near the Coast in the 180/400 Foot Aquifer Subbasin

SVBGSA and the City of Marina Groundwater Sustainability Agency (MGSA) must execute and implement a Coordination Agreement to ensure sustainable groundwater management for the 180/400 Foot Aquifer Subbasin, and our comments focus on supporting coordination between the two agencies and their respective GSPs. We believe that the SVBGSA's Draft GSP needs to recognize, monitor, and manage the groundwater resources south of the Salinas River in the shoreward portion of the Subbasin for the municipal domestic, groundwater dependent ecosystems, and other beneficial uses in this area. To meet the requirements of the Sustainable Groundwater Management Act (SGMA), the Draft GSP should use all of the best information and science available, recognize the Dune Sand Aquifer as a principal aquifer, and expand the monitoring network to include the coastal area near the City of Marina. The Draft GSP also needs to provide further protections against seawater intrusion. Finally, the Draft GSP must recognize, monitor, and manage GDEs as a beneficial water use and consider federal and state protections for sensitive environmental habitats and threatened and endangered species.

PROFESSIONAL CERTIFICATION

The following certified professional has reviewed the comments on the Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan prepared by the Salinas Valley Basin Groundwater Sustainability Agency. His signature and stamp appear below.

Mike Tietze, PG, CEG, CHG
Senior Engineering Geologist/Hydrogeologist
Formation Environmental LLC
November 25, 2019

Comments on the SVBGSA Draft Groundwater Sustainability Plan for the 180/400 Foot Aquifer Subbasin

Comment No.	Section, Page No.	Comment
1	Section 2; p. 2-4	Subbasin Governance: This section states that Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) developed this Groundwater Sustainability Plan (GSP) for the 180/400 Foot Aquifer Subbasin of the Salinas Valley Groundwater Basin (Subbasin) with input and assistance from Marina Coast Water District (MCWD) GSA; however, the GSP should also recognize the City of Marina Groundwater Sustainability Agency (MGSA) and document its efforts to coordinate with SVBGSA. MGSA has met with SVBGSA representatives on several occasions over the last eighteen months to discuss concerns about groundwater management issues in and near the Marina area. Most recently, MGSA worked with SVBGSA staff to draft and approve an intra-basin coordination agreement, which it provided to SVBGSA in early August 2019, and met with SVBGSA staff on several occasions to discuss preparation and coordination of the two agencies' GSPs. These coordination efforts should be memorialized in the GSP.
2	Section 2.3.2, p. 2-8	Coordination Agreements: This section describes coordination agreements and is confusing and incomplete as currently worded. We recommend the following edits to clarify the status and need for coordination agreements in the Subbasin (recommended additions in ***bold italics***). "In accordance with California Water Code § 10727.6 et seq., a coordination agreement between ***SVBGSA and MGSA is required to describe how preparation and implementation of*** the two GSPs prepared for the Subbasin ***will be coordinated***. Since the SVBGSA is developing one GSP for the 180/400-Foot Aquifer Subbasin with the input of MCWD, a coordination agreement ***between these two GSAs*** is not required; however, as noted above, the agencies developed agreements to cooperatively develop this GSP."
3	Section 3.1, p. 3-10	Subbasin Governance: The SVBGSA GSP states that "*This GSP covers the entire 180/400-Foot Aquifer Subbasin*" and "*When this report refers to the 180/400-Foot Aquifer Subbasin, it refers to the area under the jurisdiction of the SVBGSA, including the area under the jurisdiction of the MGSA.*" This section fails to recognize that SVBGSA and MGSA have filed overlapping jurisdictional claims for a 400-acre portion of the Subbasin at the CEMEX property (MGSA Area), which requires SVBGSA and MGSA to engage in good faith discussions to reach a mutually acceptable coordination agreement by the January 31, 2020 deadline for submittal of their respective GSPs. Assuming the overlapping claims over the MGSA portion of the 180/400 Foot Aquifer Subbasin are resolved, this section should be revised to state that the SVBGSA GSP covers the entire 180/400 Foot Aquifer Subbasin except for the MGSA Area, and Figure 3-1 should be revised to show that the MGSA Area is covered by a separate GSP.
4	Section 3.3, pp. 3-13 to 3-15	Jurisdictional Areas: The SVBGSA GSP only covers governmental agencies with water management responsibilities and fails to mention local parks, preserves, and other protected areas with environmentally sensitive habitat that may be groundwater-dependent, particularly along the coast and in the Salinas River Valley. All wetlands, open space, and local parks and preserves with potentially groundwater-connected aquatic resources and habitat should be identified. SGMA regulations require the following additional jurisdictions to be mapped and described (23 CCR § 354.8), and they should be included in this section of the GSP:

Comment No.	Section, Page No.	Comment
		• Cities and areas with relevant general plans. Section 3.3.4 incorrectly implies that the regulations do not require identification and description of city and local jurisdictions with land management responsibility in a GSP unless they have water management jurisdiction. The GSP regulations make no such distinction and require a "summary of general plans and other land use plans governing the basin" (CCR §354.8(f)(1). The DWR's *"Groundwater Sustainability Plan (GSP) Emergency Regulations Guide,"* dated July 2016, states "Land use agencies provide land and water use projection data, and may speak on behalf of unrepresented land use sectors, de minimis pumpers, and disadvantaged communities." These entities are important constituents with planning authorities that overlap the GSP and are therefore required to be identified and discussed. This additional information should be provided in Section 3.3.4 or in an additional section if SVBGSA elects to focus this section only on the portion of the regulation that requires description of water management agencies. This would include the City of Marina and other jurisdictions with land use plans listed in Attachment 1. • Existing land use designations and the identification of water use sector and water source type. This category should include federal, state and local protected lands that could contain aquatic, riparian, and other potentially groundwater-dependent habitat; however, only federal protected lands and a partial list of state-managed lands is provided. Protected lands, preserves, designated critical habitat, protected wetlands and other sensitive habitats, and lands under local or other regulatory agency jurisdiction should be described. Among other areas, this includes several vernal ponds identified as being groundwater dependent that are located near the City of Marina and are subject to protection under California Coastal Act the Local Coastal Plan and a management plan required to be implemented by the City of Marina. Please refer to Attachment 2 for a list of protected lands within the 180/400 Foot Aquifer Subbasin near the MGSA Area and a brief description of each.
5	Section 3.3.2, p. 3-13	Jurisdictions and Land Use: The "State Jurisdiction" section should include the California Coastal Commission, which has authority under the California Coastal Act to protect coastal resources, shoreline public access, and recreation. In addition, the following areas are located near the City of Marina and managed by the California Department of Parks and Recreation should be discussed and shown on Figure 3-3: Marina State Beach, Marina Dunes Natural Preserve, and Fort Ord Dunes State Park.
6	Section 3.4, p. 3-16	Land Use: Table 3-1 of the SVBGSA GSP lists the number of acres of land designated by DWR for each land use category within the 180/400 Foot Aquifer Subbasin but does not describe the categories other than to say that *"The majority of land in the Subbasin is used for agriculture."* It is important to recognize that while agricultural land use represents the main beneficial use of groundwater in the Subbasin on a volume basis, by not describing the other types of land uses, the section appears oriented only to deal in a meaningful manner with agricultural uses. Other significant beneficial uses include environmental and municipal uses. Further description of land use categories within

Comment No.	Section, Page No.	Comment
		the 180/400 Foot Aquifer Subbasin related to these additional beneficial uses is required to provide objective background and a balanced perspective for the GSP. • The Natural Communities Commonly Dependent on Groundwater dataset (NC Dataset) was prepared by The Nature Conservancy (TNC) and DWR specifically to support analysis of land uses that represent potential environmental beneficial users of groundwater. It can be accessed on DWR's NC Dataset Viewer site (https://gis.water.ca.gov/app/NCDatasetViewer/) and indicates there are over 3,000 acres of actual and potential groundwater-dependent wetland and vegetation habitat within the 180/400-Foot Aquifer Subbasin. This land use category is a significant potential beneficial user of groundwater and must be specifically mentioned. • The "Conservation" land use category is particularly important in terms of Environmentally Sensitive Habitat Areas (ESHAs) within the Coastal Zone of California that are protected under the California Coastal Act and the City of Marina Local Coastal Program (LCP), as well as other protected lands that are potential beneficial users of groundwater. With respect to the area near the MGSA, several important protected wetlands and vernal ponds have been identified near the City and represent beneficial groundwater users that would likely be adversely affected by significant groundwater withdrawals if they are not adequately characterized, monitored and managed under a GSP. Additional information regarding these groundwater dependent ecosystems (GDEs) is included in Attachment 3.
7	Section 3.4.1, Figure 3-6	Beneficial Uses/Users: Missing from the municipal areas shown on Figure 3-6 are the Central Marina and Ord Community service areas that are entirely reliant on groundwater supplied by MCWD.
8	Section 3.4.2, p. 3-20	Beneficial Uses/Users: In the description of water use sectors, the SVBGSA GSP states *"Groundwater use by native vegetation is minimal"* and fails to mention or identify GDEs. As described in Attachment 3, the NC Dataset indicates that there are over 3,000 acres of actual or potential GDEs located within the Subbasin. Information about specific GDEs identified near the MGSA Area is also presented in this attachment. No data, scientific analysis, or reference to studies is provided to support the statement that groundwater use by environmental beneficial users is "minimal." This statement appears to be used improperly as a justification for omitting further discussion of GDEs in this chapter, as required under 23 CCR § 354.8(g) and Water Code § 10727.4 unless GDEs are insignificant. The GSP Regulations include specific requirements to identify and evaluate GDEs (23 CCR § 354.16(g)) using data provided by DWR (e.g., the NC Dataset) or best available information. SGMA thus requires these evaluations prior to dismissing GDEs as "minimal." TNC has developed best practices for the assessment of data from the NC Dataset to determine whether potential GDEs included in that database are likely to be groundwater dependent. MGSA has applied this procedure near the MGSA Area and confirmed that significant GDEs are present. For these reasons, the GSP must list GDEs in this section as a beneficial user of groundwater. In addition, this section mentions the potential presence of *Arundo donax*

Comment No.	Section, Page No.	Comment
		in wetland areas along the Salinas River but does not mention any of the other wetland and riparian species confirmed to be present and mapped in the NC Dataset. Additional information regarding the nature of the potential GDE areas and the communities present should be included as a separate subsection of this GSP pursuant to 23 CCR § 354.8(g), and an evaluation based on data provided by DWR or best available data should be included in Chapter 5 of the GSP and referenced in this section.
9	Section 3.6, pp. 3-25 to 3-31	Existing Monitoring and Management Programs: The discussion of groundwater level monitoring programs in this section omits a significant coastal aquifer monitoring program that is being implemented and expanded by the Monterey County Water Resources Agency (MCWRA) in the seaward portion of the Subbasin. This program is described in the *Integrated Coastal Groundwater Monitoring Program and Plan for Monterey County Water Resources Agency* by Zidar and Feeney, dated May 2019. This program includes 40 nested monitoring wells completed in the Dune Sand, 180-Foot and 400-Foot Aquifers, an additional 10 wells completed in the Dune Sand Aquifer, eight wells completed in the 180-Foot Aquifer, five wells completed in the 400-Foot Aquifer, and 14 wells completed in the Deep Aquifer. This monitoring program will provide critical data to assess seawater intrusion trends in the nearshore area, and must be fully described in this section. This section of the GSP is limited to discussion of existing groundwater level and quality monitoring programs, and a brief mention of gauging stations located within the Subbasin. The SGMA regulations require discussion of "existing water resources monitoring and management programs" (23 CCR § 354.8(c)). For the GSP to comply with this requirement and provide the appropriate context to assure integration of GSP implementation with other ongoing regulatory programs, a description of jurisdictions related to aquatic resources, interconnected surface waters, instream flow requirements, and GDEs that could be affected by groundwater withdrawals is needed. Programs that should be described include the following: • Vernal pond and wetland habitat that is monitored and managed under the City of Marina's LCP and adopted monitoring programs as discussed in Attachment 1. • National wildlife refuges, coastal preserves, sensitive habitats, and critical riparian and aquatic habitat areas that are managed and monitored under the oversight of the relevant agencies, including the United States Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and local entities, which conduct monitoring as necessary, which are listed in Attachment 2. • Critical habitat for Western snowy plover that exists along the western shoreline of the MGSA Area, extending to the north and south. • Critical habitat for tidewater goby (*Eucyclogobius newberryi*) within the Salinas River National Wildlife Refuge and mouth of the Salinas River.

Comment No.	Section, Page No.	Comment
10	Section 3.6.5, p. 3-31	Incorporation of Existing Monitoring Programs: This section describes the existing monitoring program adopted in the GSP. The monitoring network adopted for the GSP in Chapter 7 currently includes only a single well completed in the 400-Foot Aquifer in the nearshore area south of the Salinas River within four miles of the coast. There is only one water level monitoring well in the Deep Aquifer and no water quality or seawater intrusion monitoring wells. This is identified as a data gap in the GSP, but there are existing wells in the MCWRA's monitoring program that could be added at this time. This is a serious flaw in the GSP because it does not recognize, monitor, or address groundwater impact issues south of the Salinas River. The City of Marina is entirely dependent on groundwater resources extracted from Subbasin aquifers in this area. In addition, several protected GDEs have been identified in this area. As conceived, SVBGSA's monitoring program does not include wells at a sufficient spatial distribution to evaluate the effects and effectiveness of plan implementation in the nearshore portion of the Subbasin, or meet the objective of monitoring impacts to the municipal and environmental beneficial uses and users of groundwater in this area (23 CCR §354.34(b)). SVBGSA must add sufficient monitoring wells in this area from MCWRA's existing coastal monitoring program to its monitoring networks (1) to assess seawater intrusion into the Dune Sand, 180-Foot, and400-Foot Aquifers in the nearshore area, (2) to serve as an early warning to detect seawater intrusion into the as yet unintruded Deep Aquifer, and (3) to assess surface-groundwater interaction and shallow water table drawdown in the vicinity of the identified GDEs in this area.
11	Section 3.10, pp. 3-39 to 3-50	General Plans and Land Use Plans: General plan descriptions should include a description of relevant environmental policies related to wetlands and riparian areas, which are beneficial users of groundwater in the Subbasin. SGMA regulations require a summary of "other land use plans governing the basin" (23 CCR § 354.8(f)(1)). Other land use plans that are relevant to the GSP should be described, including local coastal plans, and other resource management plans, such as the resource management plan for the GDEs identified near the City of Marina. Please refer to Attachment 1 for a list and description of relevant general and local land use plans near the MGSA Area.
12	Section 3.10.4, pp. 3-46 to 3-47	City of Marina General Plan: The description of the City of Marina General Plan in the GSP fails to include information regarding open space policies for protection of important habitat and scenic areas that are relevant to the management of surface-groundwater interaction and GDEs (City of Marina General Plan Section 2.3, Number 3, Open Space and Section 2.7 Open Space). Lands designated as "Habitat Reserve and Other Open Space" in the General Plan include: • Approximately 1,600 acres west of Highway 1 designated as Habitat Reserve (City of Marina General Plan Section 2.10, Number 2, Coastal Strand and Dunes); and • An area of 80 acres on the Armstrong Ranch property between Del Monte Boulevard and Highway 1 designated as Habitat Reserve due to the presence of "vernal ponds" (City of Marina General Plan Section 2.10, Number 4, Wetlands).

		The City of Marina has an approved Local Coastal Program (LCP), certified by the California Coastal Commission, that consists of a Local Coastal Land Use Plan (LCLUP) (*City of Marina Local Coastal Program Volume I Land Use Plan*, November 2013) and a Local Coastal Implementation Plan (LCIP) (*City of Marina Local Coastal Program Volume II Implementation Plan*, November 2013) to conserve coastal dependent land use and environmentally sensitive habitat areas including vernal ponds. The LCLUP provides for habitat protection for rare and endangered species and for wetlands protection. The policies of the LCLUP as well as the land use designations address these concerns and resolve them in terms of the mandates of the California Coastal Act for the beach, dunes, and vernal ponds. Policies related to habitat management relevant to the GSP are as follows: • **Vernal Ponds –** To protect and encourage the restoration of the vernal ponds to their original state and allow only those uses adjacent, which will reinforce and conserve the unique habitat qualities of these ponds. • **Dunes –** To protect the habitat of recognized rare and threatened/endangered species found in the coastal dune area. The emphasis of the LCLUP is to maximize public access consistent with the environmental sensitivity of the dune habitat and resident rare and threatened/endangered plants and animals. See Attachment 1 for further description of the goals and policies of the LCLUP. Marina also has a Comprehensive Management Plan (CMP) which was adopted in 1994 in response to development pressures that could affect the City's vernal pond resources (*Coastal/Vernal Pond Comprehensive Management Plan*, February 15, 1994). The plan provides for the preservation, management and enhancement of the coastal and vernal ponds and wetlands resources. See Attachment 1 for a description of the goals and management and enhancement actions of the CMP. City of Marina is preparing an updated CMP for the coastal and/or vernal ponds that will identify guidelines for the preservation, management, and enhancement of the region's wetland resources (City of Marina 2013). The plan will include both public and privately owned ponds, including those owned and managed by City of Marina, California Department of Parks and Recreation, and Marina Coast Water District.
13	Section 4.4, p. 3-17 to 3-19	Subbasin Hydrogeology: 23 CCR § 354.14 (a) requires that *"Each Plan shall include a descriptive hydrogeologic conceptual model of the basin based on technical studies and qualified maps that characterizes the physical components and interaction of the surface water and groundwater systems in the basin."* The interaction of the shallow aquifers, including the Dune Sand Aquifer, with the surface water is sparingly described, and the mechanism by which recharge percolates from the Salinas River into the aquifer system is not discussed. An expanded discussion of these important conceptual hydrogeologic conceptual model components is included in Attachment 4. Please expand the discussion in the GSP to include these facts.
14	Section 4.4.1	Principal Aquifers and Aquitards: The description of the Shallow Aquifer in the introductory paragraph of this section does not accurately describe the Dune Sand Aquifer, which is a significant part of the shallow aquifer system near the City of Marina. Specifically, the generalization that the shallow aquifer is of low yield and poorly connected to the

		underlying productive aquifers inaccurately characterizes the Dune Sand Aquifer. This significant local aquifer is comprised of highly permeable dune sands and could yield significant quantities of water to wells. Additional discussion is provided in Attachment 4. Airborne electromagnetics (AEM) investigations performed by Stanford University researchers and others (Gottschalk *et al.* 2018) indicate that the Dune Sand Aquifer stores nearly 200,000 acre-feet of groundwater designated under State Water Resources Control Board Resolution No. 88-63 (SWRCB Resolution No. 88-63) as having a designated beneficial use for municipal and domestic supply.
15	Section 4.4.1, p. 4-17	Principal Aquifers and Aquitards: This section identifies the principal aquifers in the Subbasin. Under SGMA regulations, principal aquifers are defined as *"aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems"* (23 CCR § 351 (aa)). GSPs must identify sustainable management criteria and designate monitoring networks to sustainably manage groundwater resources in all principal aquifers. The Dune Sand Aquifer in the shoreward portion of the Subbasin is an important local aquifer that should be identified as a principal aquifer because (1) it yields significant quantities of water to GDEs that include unique habitat for threatened and endangered species and are protected under the California Coastal Act and local management plans, (2) it stores a substantial quantity of groundwater with low concentrations of total dissolved solids (TDS) that has designated beneficial uses as domestic and municipal supply, (3) it is an important source of low-TDS groundwater recharge stored in aquifers below it, and (4) it stores low-TDS groundwater in equilibrium with an intruding saline water wedge deeper in the aquifer system, thus retarding seawater intrusion. Additions details are presented in Attachment 4 and include the following: • The City of Marina has, over 25 years, closely monitored local wetlands under the *Costal/Vernal Ponds Comprehensive Management Plan* that was developed by the City in 1994 in collaboration with several environmental non-governmental organizations (NGOs). There are seven wetlands identified for special consideration under the plan. The wetlands are supported by runoff and the shallowest groundwater-bearing unit, which in the area of Marina is the Dune Sand Aquifer. • Recent AEM geophysical studies conducted by a team including researchers from Stanford University (Gottschalk *et al.* 2018) estimate that the Dune Sand Aquifer alone stores 188,000 acre feet of groundwater with a designated beneficial use as a municipal and domestic supply within and adjacent to the Subbasin. • AEM data (Gottschalk *et al.* 2018), studies conducted by MCWRA (2017a), and investigations performed for the Monterey Peninsula Water Supply Project (MPWSP) by the Hydrogeology Working Group (HWG 2016) indicate that groundwater levels in the Dune Sand Aquifer can be drawn down by groundwater extraction from the underlying 180-Foot Aquifer.
16	Sections 4.4.1.1 to 4.4.1.4, pp. 3-17 to 3-18	Principal Aquifers and Aquitards: This section also provides a generalized description of the aquifer system and recognizes that local variations exist but fails to recognize that most of the local variations occur in the nearshore area near the City of Marina. Additional clarification is needed to support an adequate conceptual understanding for sustainable groundwater management in this part of the Subbasin (see Attachment 4). The Salinas Valley Aquitard is described as laterally continuous, but pinching out in certain areas (Kennedy/Jenks 2004, and Harding ESE 2001).

		Investigations performed by Stanford (Gottschalk *et al.* 2018) and MCWRA (2017a) and permitting studies for the proposed MPWSP (HWG 2016) indicate that near the City of Marina the Salinas Valley Aquitard is thin or absent in many locations, and the Dune Sand Aquifer is in hydraulic communication with the underlying 180-Foot Aquifer. In these locations, the 180-Foot Aquifer is not confined and groundwater extraction from this aquifer can affect groundwater levels and storage in the overlying Dune Sand Aquifer. Similarly, the 180/400-Foot Aquitard is described as overlying and confining the 400-Foot Aquifer, but being of variable thickness and quality and absent in some areas. The areas where MCWRA has determined that this aquitard is thin or absent are generally in the seaward portion of the Subbasin.
17	Section 4.4.1.5, p. 3-18	Principal Aquifers and Aquitards: The description of the Deep Aquifers omits several important established facts which should be included in the description (see Attachment 4): • The Deep Aquifers are not seawater intruded; • The Deep Aquitard is heterogeneous and includes water-producing intervals at some locations; • Evidence indicates that the Deep Aquifers are recharged with leakance from the overlying 400-Foot Aquifer; and • In part because of uncertainty regarding the potential for leakance of seawater intruded groundwater from the overlying 400-Foot Aquifer through the Deep Aquitard into the Deep Aquifers, MCWRA has recommended, and Monterey County has adopted, restrictions on the construction of new wells in the Deep Aquifers until further characterization can occur.
18	Section 4.4.3, pp. 4-20 to 4-22	Natural Recharge Areas: The GSP inaccurately generalizes that *"recharge to the productive zones of the Subbasin is very limited because of the low permeability Salinas Valley Aquitard."* This statement is inconsistent with the mapping conducted by MCWRA (https://montereycountyopendata-12017-01-13t232948815z-montereyco.opendata.arcgis.com/datasets/recharge-areas-1), which identifies most of the area at and near Marina (south of the Salinas River and north of the Subbasin boundary) as a recharge area. The area is underlain by highly permeable, well sorted dune sand deposits and soil survey data indicate most of the area is underlain by well to excessively drained soils (USDA 2019). Notably, design standards for the City of Marina assume infiltration capacities of 12 inches per hour; as a result of this rapid infiltration capacity, the City of Marina does not operate stormwater outfalls and there are no mapped surface drainages in this area. Furthermore, the Salinas Valley Aquitard is thin or absent in much of this area. It is possible that the Soil Agricultural Groundwater Banking Index (SAGBI) rating for this area, on which the incorrect statement in the GSP appears to be based, is due to incorrect assumptions about the subsurface stratigraphy. The high recharge rate in this area has important implications regarding water quality in the Dune Sand and 180-Foot Aquifers and seawater intrusion processes in the nearshore area. For these reasons, this section should be modified to accurately reflect the high recharge rates in this area. Note, the Figure 4-12 title and content are inconsistent. The title is "Piper Diagram of Groundwater General Mineral Chemistry for the 180/400-Foot Aquifer;" however, the legend presents "Potential Aquifer Recharge Areas" with a

		reference to "Rossenberg and Feeney, 2001". The potential aquifer recharge area shown on this figure is consistent with the recharge information cited above on the MCWRA web site. The information shown on Figure 4-12 should be incorporated into the GSP.
19	Section 4.4.4, p. 4-23	Natural Discharge Areas: As discussed below in Comment 22, the methodology used to eliminate potential GDEs identified in the NC Dataset downstream of the river reach near Chualar is flawed. There are insufficient shallow groundwater data at most locations to assume that the potential GDEs are not underlain by a shallow water table or to assess the potential connection of shallow groundwater to the regional aquifers. As such, the best available information regarding GDEs is the NC Dataset, and the potential GDEs identified in the NC Dataset should all be retained and identified as groundwater discharge locations. Whether or not these GDEs are dependent on groundwater that can be affected by groundwater withdrawals should be addressed as a separate question. To that end, as discussed in Comment 24 and Attachment 3, the vernal pond GDEs near the City of Marina have been confirmed as being potentially affected by groundwater extraction from the Dune Sand, 180-Foot and 400-Foot Aquifers. The remaining GDEs in the Subbasin identified in the NC Dataset should be considered potential GDEs until/unless further testing verifies that they are not connected to the underlying production aquifers because the available data are insufficient to eliminate them from consideration. Further, the type of GDE, its sensitivity to groundwater level changes, and the seasonal and interannual variations in groundwater levels should be evaluated. The City of Marina is conducting long-term monitoring of the seven vernal ponds under its 1994 CMP plan (see Attachment 1), and the SVBGSA GSP should include long-term monitoring of GDEs within the Subbasin to assure that they are not adversely impacted by groundwater withdrawals.
20	Section 4.5, p. 4-25	Surface Water Bodies: While it is beyond the scope of the GSP to address restoration of natural flow to the Salinas River, there is value in evaluating reoperation of the dams and reservoirs for recharge, as is discussed in Section 9.3.4. It is also worth noting in Section 4.5 that reservoir reoperation is a proposed project in the GSP and will be discussed later in the document.
21	Section 4.6.2, p. 4-28	Seawater Intrusion: This section presents a brief summary of seawater intrusion in the basin. The following significant details are very important to understanding the process of seawater intrusion in this Subbasin and should be added: • Seawater intrusion processes near the shore are dominated by density-driven flow and dynamic equilibrium conditions at the interface between dense, highly saline groundwater intruding from the ocean and overlying low-TDS groundwater that is recharged near the shore (see Attachment 4). Disturbance of this equilibrium and movement of the saline water wedge can affect seawater intrusion further inland. • The fact that SWRCB Resolution No. 88-63 assigns a potential beneficial use as municipal and domestic supply to all groundwater containing less than 3,000 milligrams per liter (mg/L) TDS must be mentioned.
22	Section 4.7, p. 4-29	Data Gaps: Several known data gaps are not described in this section and should be discussed: • The GSP has identified the need for additional field reconnaissance regarding GDEs. The following data gaps are associated with GDEs and should be recognized in this section: shallow groundwater conditions near

		GDEs, the nature of the GDE communities and their reliance on groundwater, and seasonal and interannual groundwater level fluctuations near the GDEs. • The GSP has identified that limited groundwater level data are available to assess surface water – groundwater interaction, and SVBGSA is planning to install wells to better understand the hydraulic connection.
23	Appendix 4A, p. 3	The methodology for identification makes reference to assessment of whether or not a potential GDE identified in the NC Dataset is "underlain by a shallow unconfined or perched aquifer that has been delineated as being part of a Bulletin 118 principal aquifer in the Subbasin." We note that Bulletin 118 does not delineate or designate principal aquifers for the purposes of SGMA compliance. The assessment presented in the GSP improperly assumes the lateral continuity of the Salinas Valley Aquitard which, as discussed above, is now known to be absent or discontinuous in the area near the coast to the south of the Salinas River (Gottschalk *et al.* 2018, MCWRA 2017a, and HWG 2016). In addition, no hydrologic, groundwater level, or other data are presented to verify the competence of the aquitard beneath the identified potential GDEs. As such, the elimination of potential GDEs downstream of the river reach near Chualar is inappropriate given the available data. In addition, the vernal ponds near the MGSA Area must be recognized as GDEs, and in areas which are underlain by the Salinas Valley Aquitard the existence of GDEs should be identified as a data gap pending additional verification.
24	Section 5.1, pp. 5-1 to 5-30	Groundwater Levels and Gradients. One large and important omission from the GSP is a close analysis, using the best information available, of the groundwater levels and gradients of the area south of the Salinas River, including the seaward portion of the Subbasin. This section of the GSP presents a regional-level analysis of current and historical groundwater levels and gradients. Notably missing is a level of detail necessary to understand processes in the seaward portion of the Subbasin, where seawater intrusion originates. In addition, no monitoring or characterization data are provided for the shallow aquifer, including the Dune Sand Aquifer, which contains a low-TDS groundwater zone that plays an important role in retarding density-driven seawater intrusion, as explained in Attachment 4. This additional detail should be provided, or a reference made to the MGSA GSP as complementing the SVBGSA GSP with additional data in this area.
25	Section 5.2.1, p 5-31	Seawater Intrusion Data Sources: Two additional data sources are critical to understanding seawater intrusion conditions and dynamics in the Subbasin's nearshore area: water quality data gathered for the MPWSP monitoring well investigation (GeoSciences Support Service, Inc. 2019); and the nearshore AEM study (Gottschalk *et al.* 2018). These data sources represent a part of the "best available information" that is required to be used to characterize groundwater conditions under 23 CCR § 354.16. These two data sources identify the presence of a zone of low-TDS groundwater that is recharged through the Dune Sand Aquifer and is juxtaposed against a dense saline water intrusion wedge that intrudes into the Subbasin as described in Attachment 4. These features represent an important component of the nearshore dynamics of seawater intrusion and must be discussed in this section of the GSP.
26	Section 5.2.2, pp.	Seawater Intrusion Maps and Cross Sections: The MCWRA map shown on Figure 5-24 depicts several "chloride islands" that have resulted from the vertical migration of seawater intrusion through gaps in the 180/400-Foot

	5-31 to 5-34	Aquitard. This important migration pathway for seawater intrusion has been described in reports prepared by MCWRA (2017a and 2017b) and should be discussed in the GSP.
27	Section 5.2.2, pp. 5-31 to 5-34	Seawater Intrusion Maps and Cross Sections: The AEM study (Gottschalk *et al.* 2018) includes water quality cross sections and produced visualization tools depicting the nature and extent of seawater intrusion in the nearshore area of the Subbasin. These tools assist in understanding the relationship of the shallow low-TDS groundwater, the deeper dense saline water wedge, and the freshwater-saline water interface described by the Ghyben-Herzberg Principal. AEM study graphics should be included in the seawater intrusion discussion.
28	Section 5.6.2, pp. 5-56 to 5-57	Interconnected Surface Water: The shallow aquifer supports vernal ponds and wetlands within the Subbasin at and near the City of Marina as described in Attachment 3. These GDEs represent surface water resources that should be mentioned in this section of the GSP. This section identifies the assessment of surface water – groundwater interaction as a data gap to be addressed by groundwater modeling. Without shallow monitoring well data to calibrate the performance of the groundwater flow model, its ability to accurately characterize surface water – groundwater interactions will be significantly limited. The seaward portion of the Subbasin near the MGSA Area includes nested monitoring wells that span from the 400-Foot Aquifer to the Dune Sand Aquifer at eight locations, and additional wells are planned at five more locations. These wells should be utilized to characterize surface-groundwater interactions in this area and calibrate the groundwater flow model.
29	Section 6, p. 6-1	Water Budgets: As is noted in Section 4.7 (Data Gaps), very little is known about the hydrostratigraphy of the Deep Aquifer. Therefore, very little is known about the regional groundwater inflow and outflow for the Deep Aquifers. The Deep Aquifers are a critical water supply source; therefore, this data gap should be noted in the introduction to Section 6, and it should be discussed in each section with respect to how the Deep Aquifer data gap impacts the ability to estimate the water budget components.
30	Section 6.2.2; p. 6-4	Groundwater Budget: Evapotranspiration from GDEs should be identified as a groundwater budget outflow component.
31	Section 6.6.2; p. 6-19	Groundwater Evapotranspiration. This section discusses riparian evapotranspiration and omits several important facts: • As explained above, GDEs have been identified in the form of vernal ponds and riparian systems (Attachment 3). These GDEs are important beneficial groundwater users. The discussion in this section should be broadened to include a description of the types of GDEs that exist in the Subbasin, their potential habitat value, and their potential sensitivity to groundwater level drawdown. The GSP should identify any data gaps and discuss plans to fill them in the sections of the GSP that discuss monitoring networks, projects and management actions, and plan implementation. • The NC Dataset identifies many different native wetland and riparian vegetation species in the Subbasin, yet the discussion in the GSP mentions only *Arundo donax*. The focus on a single, non-native, invasive species while omitting discussion of other species known to be present is inadequate to characterize these beneficial

		groundwater users, their value, and the degree of their reliance on groundwater and sensitivity to drawdown. A more comprehensive discussion of GDE communities should be included, including the vegetation species present, their rooting depths, and their ability to adapt to groundwater level fluctuations. In addition, the potential presence of any threatened or endangered species should be discussed. Any data gaps should be identified and plans to fill them discussed in the sections of the GSP that discuss monitoring networks, projects and management actions, and plan implementation.
32	Section 7, pp. 7-1 to 7-28	Monitoring Programs: The SVBGSA GSP presents monitoring networks for each of the six sustainability indicators that are relevant to the 180/400 Foot Aquifer Subbasin. • A key flaw in the GSP is that none of the monitoring networks described in the SVBGSA GSP include wells within or near the MGSA Area. The MGSA Area is important particularly to groundwater resources and GDEs in the Subbasin because it is where the Dune Sand Aquifer is recharged and discharged and is an area that is affected by seawater intrusion. • None of the monitoring networks include monitoring of the shallow Dune Sand Aquifer. Because this aquifer supports GDEs, it should be considered a principal aquifer and wells screened in this aquifer should be added to the network. • The SVBGSA GSP has identified Data Gaps in the monitoring networks in the vicinity of the City of Marina and in other areas and has identified the need for additional groundwater monitoring wells in these areas. In order to determine if groundwater in the various aquifers is connected and the extent of the dense saline wedge, new wells in the Marina area should target the Dune Sand, 180-Foot, 400-Foot, and Deep Aquifers. This is currently planned under MCWRA's coastal monitoring program • The SVBGSA GSP does not include an interconnected surface water monitoring network. Shallow groundwater in the Dune Sand Aquifer is in communication with surface water in vernal ponds within the City of Marina and nearby. Monitoring of interconnected surface water should be considered a Data Gap in the SVBGSA GSP. The SVBGSA's GSP should either adopt wells from MCWRA's coastal monitoring program or acknowledge that MGSA's proposed monitoring program addresses these data gaps.
33	Section 7.2; pp. 7-2 to 7-15	Monitoring Networks: The proposed monitoring network includes only a single well completed in the 400-Foot Aquifer in the nearshore portion of the Subbasin south of the Salinas River and only one well completed in the Deep Aquifers anywhere. These omissions severely undermine the GSP because they fail to monitor aquifers that are critical to protecting the groundwater supply, beneficial uses, and GDEs of the communities south of the Salinas River. Thus, the existing monitoring system includes significant data gaps beyond those discussed in this section of the GSP, especially near the MGSA Area. The proposed MGSA monitoring program addresses these data gaps in the nearshore area by adopting key wells of MCWRA's coastal monitoring program. This includes nested monitoring wells in the 400-Foot, 180-Foot, and Dune Sand Aquifers at 13 locations, and an additional 14 Deep Aquifer wells. The SVBGSA's GSP should include recognition that MGSA's monitoring program will address existing monitoring data gaps in the nearshore area.

34	Section 7.4; pp. 7-17 to 7-22	Seawater Intrusion Monitoring: Similar to the groundwater level monitoring program, the GSP's seawater intrusion monitoring network includes no wells in the nearshore area and no Deep Aquifer wells. In contrast, the monitoring program in the MGSA's GSP includes four nearshore monitoring wells in the 180-Foot, 400-Foot and Dune Sand Aquifers, and 14 additional Deep Aquifer wells. In addition, the MGSA's GSP adopts inductance logging planned by MCWRA at the 13 nearshore well clusters to assess changes and trends in the nearshore seawater intrusion dynamics. This section of the GSP should acknowledge that MGSA's program fills these data gaps in SVBGSA's plan or should adopt these plan components to fill data gaps in its monitoring network.
35	Section 8.6.1 and 8.6.2; pp. 8-8 to 8-20	Chronic Decline in Groundwater Levels: The sustainable management criteria for the Chronic Decline in Groundwater Levels sustainability indicator should consider all beneficial uses and users of groundwater, including the municipal water supply and GDEs. GDEs are a beneficial user of groundwater and should be considered in the definition of Undesirable Results in Section 8.6.1 and the establishment of Minimum Thresholds in Section 8.6.2.
36	Section 8.6.4.3; p. 8-26	Effects on Beneficial Users of Groundwater: The GSP states that *"If the exceedances [of Measurable Objectives] are clustered in a small area, it will indicate that significant and unreasonable effects are being born by a localized group of landowners. To avoid this, the monitoring system is designed to have broad geographic coverage; ensuring that minimum threshold exceedances cannot be clustered in a single area."* We note that this approach will decrease the ability to detect undesirable effects but will do nothing to prevent their occurrence or decrease the extent of the effects on beneficial users. For example, near the MGSA Area, groundwater drawdown would likely result in significant and unreasonable effects on sensitive and regulated GDEs, but SVBGSA's monitoring network would not detect these drawdowns. Similarly, potential seawater intrusion into the Deep Aquifer would not be detected by the proposed monitoring system until the near-coastal municipal supply wells relied upon by the City of Marina are affected. The GSP Regulations require that *"Each Plan shall include . . . an explanation of how the network will be developed and implemented to monitor groundwater and related surface conditions, and the interconnection of surface water and groundwater, with sufficient temporal frequency and spatial distribution to evaluate the affects and effectiveness of Plan implementation. The monitoring network objectives shall be implemented to accomplish the following: . . . Monitor impacts to the beneficial uses or users of groundwater."* (23 CCR § 354.34(b)). The proposed monitoring network is insufficient to comply with these requirements in the vicinity of the MGSA Area and possibly in other areas of the Subbasin. SVBGSA must augment the monitoring network with sufficient additional monitoring wells from the MCWRA's coastal monitoring program to assure that the GSP's sustainability objectives are met for all beneficial uses and users in the Subbasin, including municipal and environmental uses near the coast.
37	Section 8.8.2; p. 8-33	Minimum Threshold for Seawater Intrusion: The GSP sets the Minimum Threshold for seawater intrusion into the Deep Aquifers as advancement of the 500 mg/L chloride isoconcentration contour to Highway 1. The City of Marina and MGSA strenuously objects to this definition. The Deep Aquifers are currently unintruded, and allowing intrusion into this aquifer violates the State's anti-degradation policy (State Water Resources Control Board Resolution No. 68-16) and puts the City of Marina's primary water supply at risk. Since the aquifer currently yields high quality

		groundwater and is unintruded, any significant groundwater quality degradation would violate this policy; therefore, the only acceptable Minimum Threshold would be a statistically significant degradation of water quality. This is the threshold that was adopted in MGSA's GSP.
38	Section 8.11; pp. 8-61 to 8-70	Sustainable Management Criteria for Interconnected Surface Water: MGSA has determined that GDEs exist near the MGSA Area in the seaward portion of the Subbasin, and these GDEs are connected to the Dune Sand Aquifer. Based on investigations of the local hydrostratigraphy, groundwater extraction from the 180-Foot and 400-Foot Aquifer could adversely affect these protected habitats. These facts, and likelihood that similar conditions could occur at other locations, should be considered in the establishment of sustainable management criteria for this sustainability indicator.
39	Section 9.4.3.7; p. 9-50	Seawater Intrusion Barrier Project: SVBGSA proposes to adopt construction of a seawater intrusion barrier as a priority project as soon as funding is available, lands and rights of way are acquired, and permits are obtained. MGSA notes that the dynamics of seawater intrusion in the nearshore area are controlled by density-driven flow, the occurrence of local recharge and the extent of low-TDS water in the upper aquifer system, and the heterogeneity of the aquifer system, including significant gaps in the intervening aquitards. A model that simulates these conditions is not yet available, and while the need for such a model is being discussed, there are no concrete plans to develop one yet. In addition, the competence of the aquitard that separates the upper aquifer system from the Deep Aquifers, and the potential for vertical seawater intrusion downward from the 400-Foot Aquifer into the Deep Aquifers has been identified as a significant data gap. At the same time, GDEs have been identified that could be adversely affected by the withdrawal of groundwater in the nearshore area. Without the appropriate tool to evaluate the potential effects of this ambitious project or a resolution to the longstanding data gap regarding the vulnerability of the Deep Aquifers to vertical seawater intrusion, it is premature to include the Seawater Intrusion Barrier as a priority project in the GSP. Not only is the design and location of the project in question (for example, the wells should probably be located as close the coastline as possible to decrease adverse impacts to the water quality of inland aquifers), but the potential for significant and unreasonable effects on the coastal aquifers, the drinking water supplies of coastal cities, and nearshore GDEs are completely unknown. We therefore urge SVBGSA to remove this ill-advised project from consideration as a priority project in the GSP at this time.

ATTACHMENT 1 – RELEVANT LAND USE PLANS FOR THE COASTAL AREAS OF THE 180/400 FOOT AQUIFER SUBBASIN

The GSP Regulations include specific requirements to provide a summary of general plans and other land use plans governing the basin (23 CCR §354.8(f)). As described below, land use is an important factor in water management. The City of Marina has land use authority over the incorporated areas of the City of Marina, which includes the Coastal Zone and the Marina Groundwater Sustainability Area (MGSA) Area. Marina has developed and adopted both a General Plan and a Local Coastal Land Use Plan. Additionally, Monterey County has land use authority over the unincorporated areas of the County and considers the general plans of all the cities within the County to allow for cooperative planning. Table 1-1 provides a list of relevant land use plans for the coastal areas of the 180/400 Foot Aquifer Subbasin and a summary of goals and policies related to groundwater and the protection of environmental beneficial uses and users.

Table 1-1. Relevant General Plans and Other Land Use Plans

Land Use Plan	Year	Goals/Policies Related to Environmental Beneficial Uses
City of Marina General Plan	2010	The overall goal of the City of Marina General Plan is "the creation of a community which provides a high quality of life for all its residents; which offers a broad range of housing, transportation, and recreation choices; and which conserves irreplaceable natural resources" (City of Marina 2010). One of the general framework goals of the plan is particularly relevant to the SVBGSA GSP—"Community development which avoids or minimizes to the greatest extent possible the consumption or degradation of nonrenewable natural resources including natural habitats, water, energy, and prime agricultural land." The General Plan specifies open space policies to ensure retention of land with significant natural resource value and includes habitat reserves and other open space to protect important habitat and scenic areas. Habitat reserve and open space include coastal strand and dune areas adjacent to Monterey Bay as well as wetlands, which provide habitat for rare and threatened wildlife and plant species.
City of Marina's Coastal/Vernal Ponds Comprehensive Management Plan (CMP)	1994	The Coastal/Vernal Ponds CMP identifies the hydrologic conditions, biological resources, and land uses of the seven vernal/coastal ponds within the City of Marina. The plan also identifies specific measures to be conducted at each pond to preserve, protect and enhance sensitive resources. The management and enhancement actions include the following: • Control of urban runoff through stormwater filtration devices and retention basins, • Removal of invasive, non-native plant species, • Revegetation of degraded areas with native plant species,

Land Use Plan	Year	Goals/Policies Related to Environmental Beneficial Uses
		• Repair of construct fencing to restrict dog access, • Control spread of non-native plant species, • Provide controlled pubic access at selected locations, • Provide interpretation and education of pond resources at public access locations, • Coordinate with mosquito abatement personnel on biologically compatible abatement measures, and • Prepare an educational brochure for City residents on pond resources and best management practices. The goals of the Coastal/Vernal Ponds CMP are derived from the City of Marina Local Coastal Program with input from the technical advisory group, the public and the project consultants and include the following: • Preserve, enhance and restore the natural resource values of the ponds and adjacent upland habitat, including dune areas. • Reduce the impacts of human activities (including water quality, sedimentation, and erosion) on the City's pond resources. • Provide passive recreational uses of the ponds and adjacent habitat where compatible with natural resource management. • Develop "Best Management Practices" (BMPs) for the ponds and immediate vicinity.
City of Marina Local Coastal Program Land Use Plan (LCLUP)	2013	The City of Marina has an approved Local Coastal Program, certified by the California Coastal Commission, to conserve coastal dependent land use and environmentally sensitive habitat areas including vernal ponds. The LCLUP provides for habitat protection for rare and endangered species and for wetlands protection. The foredune, dune, and grassy inland areas of the Coastal Zone all contain potential habitat for rare and endangered plants and animals. Site-specific studies are needed in these areas before any development can take place. Policies included in the LCLUP (City of Marina 2013, p. 15) for habitat protection include: • Before any use or change in use, areas identified as potential habitat for rare and endangered plant or animal species shall be investigated by a qualified biologist to determine the physical extent of primary habitat areas. • Primary habitat areas shall be protected and preserved against any significant disruption of habitat values and only uses dependent on those resources shall be allowed within those areas. • Potential secondary or support habitat areas to the primary habitats identified on the site should also be defined. All development in this area must be designed to prevent significant adverse impacts on the primary habitat areas.

Land Use Plan	Year	Goals/Policies Related to Environmental Beneficial Uses
		• In concert with State law, City ordinances shall require environmental review and appropriate mitigation of identified impacts for all development in the Coastal Zone, including the assurance of long-term mitigation and maintenance of habitat through the use of appropriate acreage replacement/restoration ratios for any unavoidable direct impacts to habitat areas (Resolution No. 2001-118 (October 16, 2001); approved by CCC November 14, 2001). • Development in wetlands shall be prohibited. • Where habitats of rare and endangered species are located on any parcel, owners and/or operators shall, at such time that development is proposed, develop and execute a Management Plan which will protect identified rare and endangered plant and animal communities. Policies included in the LCLUP (City of Marina 2013, p. 16) for wetlands protection include: • Because of their fragile geology, no new structures shall be allowed within a vernal pond itself. The only new structure allowed in the wetland area should be those designed for public access for nature observation. No access structure should be allowed without a thorough investigation by a qualified biologist and geologist. Design should include mitigation for all impacts identified by these specialists. • No development within the drainage areas of a vernal pond shall be approved without investigation by a qualified biologist as well as other necessary specialists. Grading setbacks, reduction of impervious surface coverage, siltation basins, and other appropriate measures shall be employed to protect the ponds and their wetlands. • A 100-foot riparian setback shall be established from the edge of all wetlands.
City of Marina Local Coastal Program Implementation Plan (LCIP)	2013	The City of Marina LCIP describes the various measures needed to carry out the City of Marina's LCLUP. The LCIP includes measures for the following: • Beach access by vertical accessways, lateral access or vernal pond accessways; • Standards for coastal protection structures; • Habitat protection; • Housing; and • Administrative procedures for coastal permits.
Monterey County General Plan	2010	Planning efforts in Monterey County have resulted in growth primarily in and around existing population areas and cities; however, the main objectives are to "provide direction for growth that supports continued viability of agricultural production and preserves as much of the County's scenic and environmental resources as possible."

Land Use Plan	Year	Goals/Policies Related to Environmental Beneficial Uses
		The Monterey County General Plan includes the following goals and policies related to land use, conservation and open space that are relevant to the SVBGSA GSP: • Land Use - Promote appropriate and orderly growth and development while protecting desirable existing land uses (GOAL LU-1). • Land Use - Encourage the provision of open space lands as part of all types of development including residential, commercial, industrial, and public (GOAL LU-8). • Open Space - Conserve listed species, critical habitat, as well as habitat and species protected in area plans (GOAL OS-5). Avoid, minimize, and mitigate significant impacts to biological resources (GOAL OS-5). • Agriculture - Ensure compatibility between the County's agricultural uses and environmental resources (GOAL AG-5).

ATTACHMENT 2 – PROTECTED LANDS UNDER FEDERAL, STATE, LOCAL, OR OTHER AGENCY JURISDICTION

There are numerous protected lands, preserves, designated critical habitat, protected wetlands, and other sensitive habitats within and adjacent to the 180/400 Foot Aquifer Subbasin. These lands fall under federal, state, local, or other regulatory agencies' jurisdictions. Among these areas are several groundwater-dependent vernal ponds located near the City of Marina and subject to protection under the California Coastal Act, the City of Marina's Local Coastal Program, and a management plan required to be implemented by the City of Marina. Table 2-1 provides a list of protected lands within the 180/400 Foot Aquifer Subbasin near the MGSA Area and a brief description of each.

Table 2-1. Description of Protected Lands

Protected Lands	Jurisdictional Agency	Description
FEDERAL JURISDICTION		
Elkhorn Slough National Estuarine Research Reserve	National Oceanic and Atmospheric Administration and California Department of Fish and Wildlife	A 1,700-acre nature reserve established to promote the environmental education, research, and protection of ecosystems, wildlife and habitats in the Elkhorn Slough salt marsh and surrounding watershed.
Monterey Bay National Marine Sanctuary	National Oceanic and Atmospheric Administration	Federally protected marine preserve that stretches along the central coast from San Francisco to Cambria and includes beaches, tide pools, kelp forests, an underwater canyon, and other marine features.
Salinas River National Wildlife Refuge	US Fish and Wildlife Service	A 367-acre federally protected wildlife refuge that encompasses sand dunes, pickleweed salt march, river lagoon, riverine habitat and a saline pond and provides habitat for several threatened and endangered species. The refuge also provides food and shelter for thousands of birds traveling along the Pacific Flyway during the spring and fall migrations.
STATE JURISDICTION		
Elkhorn Slough State Marine Conservation Area	California Department of Fish and Wildlife	One of the few coastal wetlands remaining in California that shelters an abundance of marine life and is a state marine-protected area.
Elkhorn State Marine Reserve	California Department of Fish and Wildlife	State marine-protected area that is home to marine mammals and over 340 species of birds.
Fort Ord Dunes State Park	California Department of Parks and Recreation	State park along four miles of coastline on Monterey Bay created from part of the now-closed Fort Ord.
Marina State Beach	California Department of Parks and Recreation	State protected beach on Monterey Bay within the City of Marina City Limits that winds through the Marina Dunes Natural Preserve.
Moro Cojo Slough State Marine Reserve	California Department of Fish and Wildlife	A ½-square mile marine protected area established to protect the wildlife and habitats in Moro Cojo Slough.

Protected Lands	Jurisdictional Agency	Description
Moss Landing State Beach	California Department of Parks and Recreation	A long sandy beach backed by dunes just north of the Moss landing Harbor Channel entrance in the town of Moss Landing.
Moss Landing Wildlife Area	California Department of Fish and Wildlife	A 728-acre state-protected area that includes part of the largest unaltered salt marsh on the California coast.
Salinas River Dunes Natural Preserve	California Department of Parks and Recreation	State protected reserve in Monterey County south of the town of Moss Landing
Salinas River State Beach	California Department of Parks and Recreation	An exposed sandy coastline between the Salinas River and the town of Moss Landing at Elkhorn Slough.
LOCAL AND OTHER JURISDICTION		
Lock-Paddon Wetland Community Park	Monterey Peninsula Regional Park District	A 17-acre wetland area that holds a freshwater vernal pond that provides habitat for a range of avian wildlife within the City of Marina.
Marina Dunes Natural Preserve	Monterey Peninsula Regional Park District	Narrow strip of land consisting of coastal strand and dune habitat adjacent to and south of the 180/400-Foot Aquifer Subbasin that contains a large area of environmentally sensitive habitat that extends to the north in the Marina Dunes.

ATTACHMENT 3 – GROUNDWATER DEPENDENT ECOSYSTEMS

REGULATORY REQUIREMENTS AND GDEs IN THE 180/400 FOOT AQUIFER SUBBASIN

SGMA requires that all beneficial uses and users, including environmental users of groundwater, be considered in the development and implementation of GSPs (Water Code § 10723.2). The GSP Regulations include specific requirements to identify and consider groundwater-dependent ecosystems (GDEs) (23 CCR §354.16(g)) when determining whether groundwater conditions have potential effects on beneficial uses and users. GSAs must also assess whether sustainable management criteria may cause adverse impacts to beneficial uses and users, which include environmental uses, such as plants and animals. The Nature Conservancy (TNC) recommends using the Natural Communities Commonly Associated with Groundwater Dataset (NC Dataset) provided online[1] by the Department of Water Resources (DWR), as a starting point for preparation of a GDE map. The NC Dataset was developed through a collaboration between DWR, the California Department of Fish and Wildlife (CDFW) and TNC. TNC also recommends using GDE Pulse[2] and the California Natural Diversity Database (CNDDB) provided by CDFW to look up species occurrences within GSP areas. The NC Dataset viewer identifies 3,026 acres of land occupied by wetland or vegetation communities commonly associated with groundwater.

GDEs NEAR THE MARINA GROUNDWATER SUSTAINABILITY AGENCY AREA

There are no GDEs directly within the MGSA Area, but an analysis following guidelines developed by TNC for identification of GDEs (TNC 2018) identified several likely GDEs in the area east of the MGSA Area, and similar GDEs occur to the north and south. These GDEs have been identified as coastal or vernal ponds and consist of palustrine and emergent wetlands. They are Environmentally Sensitive Habitat Areas (ESHAs) under the City of Marina Local Coastal Program (LCP) Land Use Plan (City of Marina 2013), which are designated protected areas within the Coastal Zone of California under the California Coastal Act. Groundwater development within the MGSA Area could affect these GDEs. The biodiversity and unique features of coastal vernal ponds in the vicinity of the MGSA Area are protected under the 1994 City of Marina Comprehensive Management Plan (CMP), which also provides for long-term monitoring of seven vernal ponds. (The Habitat Restoration Group 1994). Potential GDEs near the MGSA Area, and in the SVBGSA GSP area include riverine wetlands and riparian habitat along the banks of the Salinas River, and palustrine and emergent wetland areas that are seasonally flooded in depressions a short distance east of the MGSA Area, north in the Salinas River National Wildlife Refuge, and south in the City of Marina.

Several of the potential GDEs identified near the MGSA Area are managed under the *Coastal/Vernal Ponds Comprehensive Management Plan* that was developed by the City in 1994 (The Habitat Restoration Group 1994). Despite their sometimes seasonal nature, these GDEs are considered

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[1] *The Department of Water Resources' Natural Communities Commonly Associated with Groundwater dataset is available at: https://gis.water.ca.gov/app/NCDatasetViewer/*

[2] *The Nature Conservancy tool GDE Pulse is available at https://gde.codefornature.org/#/home*

coastal wetlands that provide habitat and cover for migratory waterfowl and a number of animals, including the endangered black legless lizard. Table 3-1 lists the location and current ownership / management of several of the vernal ponds in the City of Marina. The plan was developed to identify guidelines for the preservation, management and enhancement of Marina's wetland resources, and the plan identifies specific measures to be conducted at each pond to preserve, protect, and enhance sensitive resources.

Table 3-1. Vernal Ponds in Marina

Pond	Location	Current Ownership/Management
Pond 1	West of Lake Drive	City of Marina
Pond 2	Reservation Road and Seaside Avenue	City of Marina
Pond 3	Reservation Road and Beach Road	Private/City
Pond 4	North of Reservation Road West of Hwy 1	Marina Coast Water District
Pond 5	South of Reservation Road West of Hwy 1	CA Department of Parks and Recreation
Pond 6	West of Hwy 1	Private (unincorporated land outside City of Marina Limits)
Pond 7	West of Lake Drive	City of Marina

Source: City of Marina Local Coastal Program Land Use Plan (City of Marina 2013)

Ponds 3, 5, and 6 are located closest to the MGSA Area: Pond 6 – Armstrong Ranch Complex Ponds are immediately to the east of the MGSA Area; Pond 5 – Marina Coast Water District Pond is south of the MGSA Area; and Pond 3 – Marina Landing Pond is south east of the MGSA Area. They are described in City of Marina planning documents as "vernal ponds," which are areas where water pools that expand during the wet season and support marshy wetlands that provide habitat for plants and animals much of the year (City of Marina 2013). These fresh and brackish water ponds are unique along the California coast and are present when a combination of circumstances (*i.e.,* a depression within the fast-draining sandy soils, a lens of less pervious soil, and a high water table) occur simultaneously.

To evaluate whether these potential GDEs are in fact groundwater dependent and whether they may be affected by groundwater extraction in the MGSA Area, the following information was considered. The Dune Sand Aquifer is the uppermost aquifer in the area and is hydraulically connected to the 180-Foot Aquifer in the MGSA Area. Modeling of the potential groundwater resources effects associated with the proposed Monterey Peninsula Water Supply Project (MPWSP) indicates pumping from the Dune Sand and 180-Foot Aquifers to supply water for the project from the MGSA Area is expected to result in drawdown ranging from one to five feet in the Dune Sand Aquifer in the area between the MPWSP and the Salinas River (ESA 2018). While the actual amount of drawdown is uncertain, the results of this analysis strongly demonstrate the nexus between groundwater extraction in the MGSA Area and groundwater elevations in the Dune Sand Aquifer. Consistent with the guidance developed by TNC (TNC 2018), MGSA conducted an evaluation to assess the connection of the potential GDEs identified near the MGSA Area (Pond 6) and the Dune Sand Aquifer. Groundwater elevations interpolated from monitoring data in the Dune Sand Aquifer in an area within and east of the MGSA Area (Pond 6) were subtracted from land surface elevations derived from the United States Geological Survey's digital elevation model to determine the depth to groundwater beneath areas where potential GDEs were mapped. In the areas where groundwater elevation data were available, MGSA found that the mapped palustrine and emergent wetlands (coastal vernal ponds) occurred in the areas where the shallowest groundwater elevations were found to exist (zero to five feet below ground level), strongly suggesting that these features are groundwater connected and dependent.

The Armstrong Ranch Ponds are located approximately 300 to 1,000 feet southeast of the MGSA Area and include a series of seasonal wetlands with ponded water in the winter and wet herbaceous meadows likely subsisting on shallow groundwater during the dry season (The Habitat Restoration Group 1994). A representative analysis of evapotranspiration (ET) was conducted for the MGSA GSP for one of these ponds (City of Marina 2019). Summer (June, July, and August) evapotranspiration was calculated using the surface energy balance method (Paul *et al.* 2018) from remote sensing data generated by the Landsat Satellite mission by Formation Environmental under contract with DWR. The results indicate that the summer ET ranged from approximately five to ten inches from 2010 to 2013, then decreased to approximately one to five inches in 2014 and 2015 and one to three inches in 2016. In 2017, ET increased to approximately three to ten inches, and in 2018, ET was approximately five to twelve inches. The decline in ET from 2014 to 2016 occurred during a period of severe drought; however, the test slant well pumping test was also conducted from April 2015 to February 2018 (Geoscience Support Services 2019). Hydrographs for well MW-4S indicate that the seasonal fluctuation in groundwater elevations in this well was approximately two feet and suggest that pumping-induced drawdown was approximately one foot. The lowest groundwater elevations were observed in the summer of 2016 and averaged about two feet higher in summer 2017 and summer 2018.

The above ET analysis demonstrates the correlation between groundwater levels and ET from this wetland and illustrates its sensitivity to groundwater level declines. The existence of a GDE at this location is therefore considered confirmed, and the remaining vernal ponds are also assumed to be GDEs for the purposes of this GSP. ET, and by correlation biomass productivity, rebounded with groundwater levels; however, it is not known whether the stress induced in the GDE resulted in a change in the vegetation community, habitat degradation, or habitat succession that is not readily reversible. Based on this data, it is not possible to determine the extent to which the drawdown induced during the test slant well pumping test resulted in significant and unreasonable impacts to the GDE, or whether the results were temporary and reversible.

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ATTACHMENT 4 – HYDROGEOLOGIC CONCEPTUAL MODEL DATA REGARDING AQUIFER SYSTEMS NEAR THE COAST IN THE 180/400 FOOT AQUIFER SUBBASIN

AQUIFER SYSTEMS

Previous hydrogeological studies in and around the coastal region of the 180/400 Foot Aquifer Subbasin provide detailed background information about the regional hydrostratigraphy (Fugro West Inc. 1995, Harding ESE 2001, Kennedy/Jenks Consultants 2004, MACTEC 2005; Geoscience Support Services 2014, Hopkins Groundwater Consultants 2016). Historically, in hydrostratigraphic investigations, the region that lies north of the Salinas River, which comprises most of the Salinas Valley Basin, has been discussed separately from the region south of the Salinas River, which includes the Marina and Fort Ord areas. While there are geological and geographic differences between the two regions, most of the equivalent aquifers produced for beneficial uses in each region are believed to be hydraulically connected. Here, we present a brief review of the hydrostratigraphy in the coastal region of interest, noting major differences between the regions north and south of the Salinas River. The units are discussed roughly in order of highest to lowest elevation. Much of this discussion is adapted from Gottschalk *et al.* (2018). Though these aquifer-system units are referred to here as "aquifers," they generally constitute heterogenous assemblages of fine- and coarse-grained deposits (Hanson *et al.* 2002).

DUNE SAND AQUIFER

The Dune Sand Aquifer is present south of the Salinas River and is the predominant unconfined aquifer in the Marina and Fort Ord areas. It is composed of fine to medium grained, well sorted aeolian sand of Pleistocene to Recent age that extends offshore and up to four miles inland. It also extends to depths up to 85 to 95 feet beneath the ground surface at the coast in the MGSA Area. While the Dune Sand Aquifer is laterally continuous at and in the vicinity of the MGSA Area, it is not commonly used for drinking water or agricultural irrigation. However, the Dune Sand Aquifer is connected to surface water systems and yields significant quantities of groundwater to groundwater-dependent ecosystems (GDEs), stores a substantial quantity of low-TDS groundwater with designated beneficial uses, is an important source of low-TDS groundwater recharge to aquifers below it, and contains low-TDS groundwater in equilibrium with an intruding saline water wedge deeper in the aquifer system. Therefore, the Dune Sand Aquifer is considered a principal aquifer because of its local importance.

Within much of the Marina and Fort Ord areas, the Dune Sand Aquifer overlies a clay layer known in Fort Ord groundwater investigations as the Fort Ord- Salinas Valley Aquitard (FO-SVA) and known more regionally as part of the Salinas Valley Aquitard (SVA). When underlain by the SVA, the Dune Sand Aquifer is also referred to as the Perched Dune Sand Aquifer (Hopkins Groundwater Consultants 2016) or the A-Aquifer (Ahtna Environmental Inc. 2017). The underlying SVA or other aquitards, where present, are considered to create a perched or semi-perched condition for the Dune Sand Aquifer. Near the coast and south of the Salinas River, the SVA thins out, bringing the Dune Sand Aquifer and the underlying 180-Foot Aquifer into hydraulic connection. The thinning of the SVA is coincident with a drop in the hydraulic head in the Dune Sand Aquifer. Here, the groundwater enters the underlying Upper 180-Foot Aquifer and flows southeastward, according to the hydraulic gradient (Ahtna Environmental.Inc. 2017). In the MGSA Area, the Dune Sand Aquifer is seawater intruded; however, high recharge rates have resulted in a large zone of groundwater containing lower concentrations of TDS immediately east of, and extending into the eastern portion of, the MGSA Area. The seaward discharge of low-TDS groundwater from this area and the flow of groundwater from the Dune Sand Aquifer to the Upper 180-Foot Aquifer appears to mound groundwater in the Dune Sand and Upper 180-Foot Aquifers near the coast, creating a local groundwater barrier against encroaching seawater intrusion.

As a result of the relatively high permeability of the Dune Sand Aquifer, it supports high recharge rates and has little to no runoff. It is notable that south of the Salinas River, there are no major creeks, streams or rivers that drain at and in the vicinity of the MGSA Area which relates to the high permeability, high recharge rate of the Dune Sand Aquifer. Groundwater occurs at depth beneath the tall, active dunes at the coast but can be relatively shallow further inland and beneath hollows and depressions. Near the MGSA Area, the Dune Sand Aquifer is hydraulically connected to and supports local GDEs, including palustrine and emergent wetlands which support protected species.

Salinas Valley Aquitard (SVA)

The SVA is a laterally extensive clay and sandy clay layer covering much of the Salinas Valley Basin, east of Fort Ord, and from the Monterey Bay south past Salinas. It is approximately 100 feet thick west of Salinas (Kennedy/Jenks 2004). South of the Salinas River, a similar unit of clay is locally called the FO-SVA as discussed previously. Harding ESE (2001) concluded that the SVA and the FO-SVA are "either the same or at least hydraulically equivalent." The two units are referred to collectively as the SVA. In the Salinas Valley Basin, the SVA is thicker and relatively flat, while in the Fort Ord area, the SVA is higher in elevation and dips more steeply toward the coast (*ibid*). Near the coast and south of the Salinas River, the SVA thins out, bringing the Dune Sand Aquifer and the underlying 180-Foot Aquifer into hydraulic connection.

180-Foot Aquifer

The 180-Foot Aquifer underlies the SVA and is the uppermost regional aquifer that has historically been used as a groundwater supply. Near the MGSA Area, it is seawater intruded; however, due to recharge from the overlying Dune Sand Aquifer, it contains a zone of groundwater with relatively low concentrations of TDS east of the MGSA Area. The aquifer ranges from 50 to 150 feet in thickness, and within the Salinas Valley basin, the top is often encountered 100 to 150 feet below ground surface (ft bgs) (Kennedy/Jenks 2004). The 180-Foot Aquifer extends across more than one stratigraphic or geologic unit, and various interpretations have correlated it to different combinations of stratigraphic units depending on the investigator, the area under study, and the investigator's interpretation. In the MGSA Area, it has been correlated with the lower portions of the Quaternary Alluvium and the upper portions of the Aromas Sand (ESA 2018). The Upper 180-Foot Aquifer, believed to be 20 to 60 feet thick (Harding ESE 2001), is considered to be in hydraulic connection with the Dune Sand Aquifer near the coast, as the SVA thins out. The Intermediate 180-Foot Aquitard, a sequence of silty and clayey beds, hydraulically separates the sandy Upper 180-Foot Aquifer from the gravelly Lower 180-Foot Aquifer in the Marina and Fort Ord area. Geophysical studies reported by Gottschalk *et al.* (2018) have confirmed this aquitard is discontinuous in the vicinity of the MGSA Area.

180/400-Foot Aquitard

The 180/400-Foot Aquitard separates the 180-Foot Aquifer from the underlying 400-Foot Aquifer throughout much of the Subbasin. It is a zone of "discontinuous aquifers and aquitards," of which the aquitards, where present, comprise an aquitard that separates the 180-Foot Aquifer from the underlying 400-Foot Aquifer (Geoscience 2014). The discontinuous nature of the 180/400-Foot Aquitard was documented first by Monterey County Flood Control and Water Conservation District (MCFCWCD 1960) and was a subject of focused studies by Kennedy/Jenks (2004) north of the Salinas River. South of the Salinas River, the 180/400-Foot Aquitard is relatively thin and has been recorded to pinch out at the Main Garrison area of the former Fort Ord (Harding ESE 2001). Geophysical studies reported by Gottschalk *et al.* (2018) have confirmed this aquitard is discontinuous in and near the MGSA Area, and its hydraulic connection to the overlying 180-Foot Aquifer in the vicinity of the MGSA Area is substantiated by available hydrographs.

400-Foot Aquifer

This aquifer is regionally extensive. It is composed of sand and gravel packages and is typically encountered between 275 and 460 ft bgs (Kennedy/Jenks, 2004). It is correlated with the Aromas Sand and the upper portion of the Paso Robles Formation (ESA 2018). The thickness and depth of the aquifer are variable throughout the Subbasin. Near Salinas, the aquifer is largely continuous; whereas, near Castroville, it is comprised of multiple sandy packages, separated by thin clay layers. South of the Salinas River, the 400-Foot Aquifer consists mostly of sand. In regions where the 180/400-Foot Aquitard thins out or is absent, the 180-Foot Aquifer and the 400-Foot Aquifer are in direct hydraulic communication. Hydraulic connection allows groundwater to flow unhindered from the aquifer with higher hydraulic head to the aquifer with lower hydraulic head in these areas. Generally speaking, the 400-Foot Aquifer has a lower hydraulic head than the 180-Foot Aquifer. In areas of hydraulic connection between these two aquifers, saline groundwater in the 180-Foot Aquifer, which has been recorded farther inland than in the 400-Foot Aquifer, has been documented to migrate vertically into the 400-Foot Aquifer, deteriorating water quality in the 400-Foot Aquifer (MCWRA 2017).

400-Foot/Deep Aquitard

Beneath the 400-Foot Aquifer is an aquitard that can be up to "several hundred feet thick" (Kennedy/ Jenks 2004). Logging of a boring in the City of Marina conducted by the United States Geological Survey (USGS) interpreted a zone of silty clay and mudstone from about 700 to 900 ft bgs (Hanson et al. 2002). More variable lithology has been interpreted from other deep well geophysical logs in the area (MCWRA 2017), and as discussed below, the USGS acknowledged the stratigraphic interval in which this aquitard was encountered has also been identified as containing transmissive units locally referred to as the 900-Foot Aquifer. As such, while substantial units of low permeability appear to exist within and beneath the lower portions of the upper aquifer system in the Paso Robles Formation, their regional continuity and competence are not well understood.

Deep Aquifer

The Deep Aquifer has received different definitions from various reports and consists of a system of aquifers. Kennedy/Jenks (2004) define the Deep Aquifer as the group of deep aquifers located between the depths of approximately 780 and 1,500 ft msl. Previous investigators delineated the Deep Aquifer system as the interval between 1,300 and more than 2,000 ft bgs (Geoconsultants, Inc. 1993) based on data from the MCWD deep-aquifer system water-supply wells. USGS (Hanson et al. 2002) states the basal part of the upper aquifer system, encountered from approximately 670 to 955 ft bgs at a deep boring in the City of Marina, is locally referred to as the 900-Foot Aquifer, which is generally considered part of the Deep Aquifer system. They conclude this part of the Deep Aquifer system may constitute terrestrial sediments of the Plio-Pleistocene Paso Robles Formation (stratigraphically equivalent to the aquitard described above). ESA (2018) states that in the MGSA Area, the 900-Foot Aquifer correlates with the Paso Robles Formation. The majority of the Deep Aquifer system appears to consist of interbedded sands, silts and clays of the Mio-Pliocene Purisima Formation that were deposited in a marine shelf environment (Hanson et al. 2002, ESA 2018). Aquifers within this formation are known to extend to a depth of approximately 2,000 feet. The basal, or lowermost, unit of the Purisima Formation is reported to consist of relatively impermeable clay and shale (ESA 2018). Portions of the Purisima Formation that correlate with the Deep Aquifer system crop out in the submarine Monterey Canyon several miles offshore.

To date, seawater intrusion has not been documented in the Deep Aquifer, even though groundwater elevations in the Deep Aquifer are consistently below sea level. This lack of seawater intrusion in the Deep Aquifer may be due, at least in part, to the geologic setting (Feeney and Rosenberg 2003). Groundwater pumping from wells in the Deep Aquifer is thought to be supported primarily by leakance from the overlying aquifer system (i.e., the 180-Foot Aquifer and 400-Foot Aquifer). Some groundwater pumping is derived from depletion of groundwater storage, but hydraulic properties of the Deep Aquifer (specifically storage coefficients) suggest that while some groundwater may come from storage immediately following the onset of pumping a well, very little groundwater is removed from storage over time. Therefore, increases in groundwater pumping in the Deep Aquifer are likely supported by increased leakance from the overlying aquifers (Feeney and Rosenberg 2003). As a result of these findings, the Monterey County Board of Supervisors voted on May 18, 2018, to place a moratorium on the construction of new wells in the Deep Aquifer as a preventive measure because, at present, seawater intrusion has not been observed in the Deep Aquifer.

WATER QUALITY AND SEAWATER INTRUSION

The distribution of water quality impacts near the MGSA Area was investigated by a team of researchers from Stanford University in 2017 using Airborne Electromagnetics (AEM) (Gottschalk *et al.* 2018). AEM relies on well-proven and long-established geophysical techniques, which have recently been deployed using helicopters. It has been used in other SGMA studies in the state, is an integral part of the SWRCB Regional Monitoring Program for salinity mapping conducted by USGS in areas of oil and gas well stimulation, and is proposed to be used for ongoing monitoring of seawater intrusion under the GSP adopted for the Santa Cruz Mid-County Groundwater Basin. The AEM data were considered together with groundwater quality monitoring data and investigations performed by MCWRA (2017a) and others to assess the aquifer stratigraphy, water quality, and interaction dynamics of seawater and groundwater with lower concentrations of TDS within the aquifers at the western edge of the 180/400 Foot Subbasin.

The MGSA Area is at the seaward edge of the area affected by seawater intrusion in the 180-Foot and 400-Foot Aquifers. The 2017 AEM survey identified a saline groundwater wedge juxtaposed against a zone of lower TDS groundwater (<3,000 mg/L TDS) underlying the high recharge area in the dune sand deposits that occur between the MGSA Area and the Salinas River. This interface between dense, saline groundwater and the low-TDS zone extends downward into the 180-Foot and 400-Foot Aquifers east of the MGSA Area. The dynamics of such interfaces in coastal aquifers have been extensively studied since the late 19th century, and it has been determined that under equilibrium conditions the extent of saline water intrusion is directly proportional to the thickness of the overlying low-TDS water zone and the difference in density between the two zones. This is known as the Ghyben Herzberg Relationship. Groundwater flow is seaward in the overlying low-TDS zone and discharges to the ocean, and flow is landward in the intruding saline groundwater wedge. At the saline/low-TDS groundwater interface, the saline groundwater circulates and mixes with the over-riding low-TDS groundwater. Although this equilibrium may have been disturbed at the MGSA Area by the CEMEX well's pumping, the test slant well's pumping, and by recharge of saline water in the CEMEX ponds, the geometry of a saline groundwater wedge dipping beneath an over-riding low-TDS zone is clearly identifiable and consistent with the Ghyben-Herzberg model.

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744 La Guardia Street, Building A, Salinas, CA 93905 (831) 975-7775

November 25, 2019

From: Paul Robins
Executive Director
RCD of Monterey County

To: Gary Peterson
General Manager
Salinas Basin Groundwater Sustainability Agency

Subject: Brief comments regarding the Groundwater Sustainability Plan, Chapter 9

My comments are limited to two work areas with which the Resource Conservation District is actively engaged: agricultural water conservation and Salinas River invasive species management.

Agricultural water use efficiency

Agricultural water use efficiency is briefly referenced as an activity with beneficial outcomes relative to the GSP in section 9.3.3 “Priority Management Action 2: Outreach and Education for Agricultural BMPs” starting on page 9-12. According to personal communication with local UC Cooperative Extension Farm Advisors (Drs. M. Cahn and R. Smith), they have observed potential agricultural water use efficiency increases of 10% on average among the farmers they have surveyed and/or with whom they have conducted water use efficiency trials while factoring in necessary leaching fractions and maintaining comparable yields. We actively engage in local producer and irrigator trainings for water use efficiency. However, beyond simply providing outreach and education, we need to invest in critical tools for guiding more efficient irrigation management decisions. Placement of additional weather stations throughout the valley that better reflect the variable microclimates that farmers experience moving west to east and north to south is a relatively low-cost project with substantial potential benefit. Such stations can be installed relatively cheaply (around $10k each) and connected to the CA Dept of Water Resources’ California Irrigation Management Information System (CIMIS) for easy online access and incorporation of weather and reference evapotranspiration data for informing day-to-day water management on area farms. Support for more stations in the Salinas Valley could be a low-expense relative to impact project for the GSP.

Invasive Species Control

We are pleased to hear that our work treating *Arundo donax* and other water-thirsty riparian weeds has been recognized for its substantial water conservation benefit along with habitat improvement and flood risk reduction in the context of Section 9.4.3.2 “Preferred project 1: Invasive Species Eradication” starting on page 9-24. As this work is understandably important to us, we offer the following simple comments and questions for clarification.

1. The RCD’s official name is the ‘Resource Conservation District *of* Monterey County (RCDMC)’ rather than the ‘Monterey County Resource Conservation District (MCRCD).’

2. There are two programs currently underway on the river: the RCD's Arundo Control Program, and the Salinas River Stream Maintenance Program (SMP). While we work very closely and compatibly, and in-fact do have substantial interconnectivity between the two programs, they are, in fact, distinct, with separate lead agencies and separate environmental permits. The RCD is CEQA lead and holds all permits for the Arundo Control Program, and Monterey County Water Resources Agency is the CEQA lead and holds the primary permits for the SMP. It is a bit confounding that the RCD is the CDFW permittee on behalf of the SMP, and that arundo control is a valuable mitigation option for SMP participants. That's a blessing of a history of positive collaboration between two mutually-beneficial programs developed somewhat in parallel in the first half of this decade. The majority of arundo control work on the river is being conducted under the RCD's program.
3. It's important to acknowledge the pivotal role that the Monterey County Agricultural Commissioner's Office has played in the genesis, development and continuity of the RCD's Arundo Control Program. They provided the initial funding and encouragement to initiate the program in 2009 and remain a critical partner to the RCD in this endeavor. As such, they are also an important partner for the GSA.
4. On page 9-27, reference is made to the wide range of estimated potential water savings to be garnered from arundo eradication. We have communicated to GSA consultants that there is research needed to better understand the actual water conservation benefits on the Salinas River and that we have pursued research partnerships with Cal State University Monterey Bay (CSUMB) and UC Santa Barbara for this purpose, both at very different scales. CSUMB is currently funded through one of our Wildlife Conservation Board grants to use satellite imagery and data to estimate differences in evapotranspiration rates on Salinas River lands with and without arundo. UCSB is measuring water use on individual plants, a method that would provide the highest level of accuracy for understanding water consumption on-site, but for which we have not yet been able to develop or fund a collaboration. We would encourage GSA consideration of inclusion of research funding to better understand the actual water conservation benefits of arundo control along with seeking funding for the arundo control and maintenance work itself.
5. On this same topic, figures 9-2 and 9-3 on pages 9-28 and 9-29, respectively, show modeled groundwater elevation benefits from arundo eradication within the 180/400-Foot aquifer subbasin, but it is not clear what base numbers (4 ac-ft/ac/year or 20 ac-ft/ac/year?) were used for informing the model, and the units for the groundwater level benefit gradations (feet?) are not identified.

We are proud of our work and honored to be considered a valuable potential partner in helping Monterey County reach its water balance goals. Thank you for your consideration of our comments, and please contact me or Emily Zefferman, RCDMC Ecologist, with any questions regarding this letter or related matters.

Sincerely,

Paul Robins
Executive Director

MONTEREY COUNTY
WATER RESOURCES AGENCY

PO BOX 930
SALINAS, CA 93902
(P): 831-755-4860
(F): 831-424-7935

BRENT BUCHE
GENERAL MANAGER

STREET ADDRESS
1441 SCHILLING PLACE, NORTH BUILDING
SALINAS, CA 93901

November 25, 2019

Gary Petersen, General Manager
Salinas Valley Basin Groundwater Sustainability Agency
c/o Regional Government Services
PO Box 1350
Carmel Valley, CA 93924

Re: Groundwater Sustainability Plan for the 180/400 Foot Aquifer Subbasin

Dear Mr. Petersen:

Monterey County Water Resources Agency (MCWRA) staff has reviewed the Groundwater Sustainability Plan for the 180/400 Foot Aquifer Subbasin released by the SVBGSA on October 10, 2019 and the update released on October 21, 2019.

MCWRA believes conflict exists between this Draft Groundwater Sustainability Plan (GSP) and the Draft Groundwater Sustainability Plan released for review by the City of Marina Groundwater Sustainability Agency. The development of Groundwater Sustainability Plans is addressed in California Code of Regulations; Title 23 (Waters); Division 2 (Department of Water Resources); Chapter 1.5 (Groundwater Management); Subchapter 2 (Groundwater Sustainability Plans); Article 1 (Introductory Provisions). Multiple sections within Article 1 address the consideration and/or impact of a GSP on adjacent basins. MCWRA believes that the apparent conflict between the two draft GSPs may indicate a deficiency in the SVBGSA's GSP for the 180/400-Foot Aquifer in terms of plan principles, evaluation criteria and interbasin coordination. MCWRA has provided specific comments on the Draft GSP in the enclosure.

MCWRA appreciates the opportunity to comment on the GSP for the 180/400 Foot Aquifer Subbasin. If you have any questions regarding the enclosed comments, please contact MCWRA at 831-755-4860.

Sincerely,

FOR:

Brent Buche
General Manager

MCWRA Comments on Draft Groundwater Sustainability Plan for 180/400-Foot Aquifer Subbasin

Monterey Water Resources Agency; Global Comments

1. It is of the opinion of the Monterey County Water Resources Agency (MCWRA) that conflict exists between this Draft Groundwater Sustainability Plan, and the Draft Groundwater Sustainability Plan released for review by the City of Marina Groundwater Sustainability Agency. The development of Groundwater Sustainability Plans is addressed in California Code of Regulations; Title 23 (Waters); Division 2 (Department of Water Resources); Chapter 1.5 (Groundwater Management); Subchapter 2 (Groundwater Sustainability Plans); Article 1 (Introductory Provisions). Within Article 1 the following subsections define areas the MCWRA believes may indicate a deficiency in the Salinas Valley Basins Groundwater Sustainability Agency's Groundwater Sustainability Plan regarding elements of plan principals, criteria and interbasin coordination:

350.4 - General Principles (f) - A Plan will be evaluated, and its implementation assessed, consistent with the objective that a basin be sustainably managed within 20 years of Plan implementation without adversely affecting the ability of an adjacent basin to implement its Plan or achieve and maintain its sustainability goal over the planning and implementation horizon.

354.28 - Minimum Thresholds GSP must address (3) - How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.

355.4 - Criteria for Plan Evaluation (7; Referring to what DWR will consider when evaluating a GSP...) - Whether the Plan will adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of its sustainability goal.

357.2 - Interbasin Agreements - Interbasin agreements may be included in the Plan to support a finding that implementation of the Plan will not adversely affect an adjacent basin's ability to implement its Plan or impede the ability to achieve its sustainability goal.

2. The GSP refers frequently to the "Eastside" subbasin. Bulletin 118 uses a two-word naming of this subbasin: East Side.

3. The GSP refers to the "Deep", "deep aquifer", "Deep Aquifer", and "Deep Aquifers". Suggest that this be standardized to 'Deep Aquifers' for consistency with MCWRA nomenclature.

Comments on Executive Summary

- **Section ES-1, page 1** – Paragraph three begins with "The Salinas Groundwater Valley". Suggest changing to "The Salinas Valley Groundwater Basin".
- **Section ES-1, page 3** – "Spreckles" should be corrected to "Spreckels".
- **Section ES-1, page 3** – Paragraph two states that *"The primary water use sector is agriculture, which uses 85% of the water in the Subbasin."* Data from the 2015 Groundwater Extraction Summary report published by MCWRA in April 2017 indicates that 88% of groundwater extractions in the 180/400-Foot Aquifer Subbasin were attributed to agriculture.
- **Section ES-1, page 4** – paragraph 3 states *"...the 180-Foot Aquifers and the 400-Foot Aquifer are relatively transmissive aquifers with very good well yields."* The phrase "very good" is open to wide interpretation. Perhaps a couple of examples, or a range of well yields for the subbasin, could be used instead. Also, it is critical that the treatment of the Shallow Aquifer is consistent throughout. As it is not a principal aquifer, it should not be included in water budgets. Important gaps in the Salinas Valley Aquitard have been reported (e.g., Kennedy Jinks' 2004 report; *"Hydrostratgraphic Analysis of the Northern Salinas Valley")* that create important connectivity between the Shallow Aquifer and the 180-Foot Aquifer that must be also be addressed. Additionally, the MCWRA does not agree with the statement, *"...the 400-Foot Aquifer is a single permeable bed approximately 200 feet thick."* This disagreement in the characterization of the 400-Foot Aquifer is illustrated in analysis from Kennedy Jinks, 2004 and cross sections from Section 4 of this report. And, it will be important that the statement; *"Recharge to the productive zones of the Subbasin is very limited due to the low permeability of the Salinas Valley Aquitard, meaning it is unlikely that any significant surficial recharge in the Subbasin would reach the productive 180-Foot and 400-Foot Aquifers"* is consistent with this reports and future water budgets.
- **Section ES-1, page 4, paragraph 4** – Consider adding some discussion of induced vertical recharge to the Deep Aquifers from overlying aquifers. Also, consider including the Deep Aquifers in the list of "productive" aquifers of the Subbasin.
- **Section ES-1, page 6** – Are domestic purposes included in the list of applications used to determine change in groundwater storage? Only municipal, industrial, and agricultural purposes are listed.
- **Section ES-1, page 6** - *"High groundwater levels in 1983 suggest groundwater levels previously had the capacity to recover to earlier levels in response to recharge events, but decline since then provides no indication that they can recover to pre-1983 levels."* The MCWRA believes this statement to be incorrect and/or too simplistic. See detailed comments to Section 5.1.3 page 15.
- **Section ES-5, page 8** – Acronym for the Salinas Valley Integrated Hydrologic Model in paragraph two should be SVIHM.
- **Section ES-5, page 9** – What is the source of the groundwater pumping data shown in Figure 2? For many of the years, the agricultural/urban/domestic totals shown on the graph appear to be lower than the published values of total pumping in the Pressure area from the annual Groundwater Extraction Summary Reports published by MCWRA.
- **Section ES-5, page9, Figure2** - Percolation of streamflow plus percolation of precipitation and excess irrigation frequently provides over 100,000 afy of inflow to groundwater, which doesn't correspond to earlier statements about stream connectivity and recharge to the aquifers. Please

state what is included in the water budgets and reconcile that with the description of the conceptual model.

- **Section ES-5, page 10** – The section on Projected Water Budgets refers to the "projected SVIHM". Does this mean the provisional, "operational" version of the SVIHM? Consider differentiating between the historical SVIHM and operational SVIHM for clarity, as both versions of the model are being used for projects within Monterey County. The statement; *"The average changes in storage due to groundwater level fluctuations during the historical and current periods are approximately 400 AF/yr. and 600 AF/yr., respectively"*, does not indicate whether this is a positive or negative change in storage. The statement; *"The difference between the storage calculated based on groundwater budgets and storage estimated based on groundwater levels shows the uncertainty of the budgets"* is one measure of uncertainty within the budgets, but it should not be inferred to capture the full extent of uncertainty within the budget.
- **Section ES-5, Table 1** - Only comparing the calculated difference between the budget and estimated storage changes to the outflow seems to underestimate the "error". This is not a true measurement of error, although it is referred to that way in the text.
- **Section E-5, Table 2** - Under the "Groundwater Storage" heading, Groundwater Level Change is positive and Seawater Intrusion is negative, giving a total that is positive. The Change in Storage based on the budget components is negative. These should be reconciled.
- **Section ES-5, page 12** – GSP states that "...pumping will need to be reduced by about 7% to meet the sustainable yield." What years(s) are the basis for determining the 7% reduction? That is, a 7% reduction compared to what? Does this consider how much of the action (stream leakage, groundwater ET, and lateral fluxes) is taking place in the Shallow Aquifer, which is not used for water supply? Water that is cycled above the production aquifers should probably not be considered in the calculation of sustainable yield.
- **Section ES-6, page 13** – Consider using groundwater level data from the monitoring wells that have been, and others that are expected to be, installed as part of the Monterey Peninsula Water Supply Project in addition to CASGEM wells.
- **Section ES-7, Table 3** - The aspirational goal (Measurable Objective) for groundwater levels is 2003, but the Minimum Threshold for seawater intrusion is the 2017 extent of intrusion. What is not addressed in this GSP is; was seawater intrusion actively progressing in 2003? If so (it was), the Measurable Objective for groundwater level should reconcile what is hoped to achieve for seawater intrusion? Also, it would be clearer if the Sustainable Management Criteria stated that *pumping* is to be limited to the long-term future sustainable yield. As it stands, this could be read as suggesting that the reduction in groundwater storage could be 112,000 afy.
- **Section ES-8, page 17** – One of the management actions refers to *"MCWRA restrictions on additional wells in the Deep Aquifers."* The existing limitation on new wells in the Deep Aquifers is the result of a County ordinance (Ord. No. 5302) and is not a restriction set in place by MCWRA.
- **Section ES-8, page 18** – Section on Mitigation of Overdraft lists "optimizing CIP". Assume this should this be corrected to "CSIP".

Comments on Chapter 2 – Agency Information

- **Section 2.1, page 2-6** – The name of the "Salinas Valley Groundwater Sustainability Agency" is missing the word "Basin".

Comments on Chapter 3 – Description of Plan Area

- **Section 3.6.1.3, page 3-25** – Statement; *"These pumping depressions occur in the 180-Foot and 400-Foot Aquifers between the City of Salinas and the coast."* Figure 5-3 and 5-5 show the deepest water levels in both aquifers being approximately along the western edge of the City of Salinas, whereas the text implies that they would be found further west. Although it is understood that this GSP is only for the 180/400-Foot Aquifer subbasin, it seems like the water level monitoring should be contextualized by stating that the far deeper groundwater troughs are located further east, in the East Side. Or, remove this sentence entirely.
- **Section 3.6.1.4, page 3-25** – Most CASGEM wells are monitored monthly, except for a few that are monitored twice per year.
- **Section 3.8** – Consider including Monterey County Water Resources Agency Ordinance No. 3709 which prohibits groundwater extractions and the drilling of new groundwater extraction facilities in certain portions of the 180-Foot Aquifer after January 1, 1995.
- **Section 3.8.9, page 3-39** – This section mentions the Habitat Conservation Plan under development by MCWRA. Was consideration given to any potential impacts to operational flexibility from regulatory documents that are currently in place?

Comments on Chapter 4 – Hydrogeologic Conceptual Model

- **Section 4.3.1.1, page 4-9** – Statement; *"Previous studies of groundwater flow across this boundary indicate that there is restricted hydraulic connectivity between the subbasins."* While groundwater flow might be "restricted" it may be significant. The HBA calculated something like 8,000 afy of exchange (from Pressure to East Side).
- **Section 4.4, page 4-13** – Groundwater in the 180/400 Foot Aquifer Subbasin is increasingly being produced from the Purisima and Santa Margarita Formations that comprise the Deep Aquifers. Also, statement; *"These three cross sections are adapted from the Final report, hydrostratigraphic analysis of the Northern Salinas Valley (Kennedy-Jenks, 2004)."* I believe that Figure 4-6 is adapted from Brown and Caldwell (2015).
- **Section 4.4.1.4, page 4-18** - Statement; *"Near Salinas, the 400-Foot Aquifer is a single permeable bed approximately 200 feet thick; but in other areas the aquifer is split into multiple permeable zones by clay layers (DWR, 1973)."* This is an important qualification statement that should be used in the Executive Summary for clarification.
- **Section 4.4.3, page 4-21** – Statement; *"It is unlikely that any significant surficial recharge in the 180/400-Foot Aquifer Subbasin reaches the productive 180-Foot Aquifer or the 400-Foot Aquifer."* "Significant" should be defined. For example, in Section 6 (Water Budgets) net deep percolation to groundwater of precipitation and irrigation is about 20,000 afy, equivalent to lateral inflows from adjoining subbasins and about 20% of the total inflow to the subbasin. If just considering

recharge of precipitation, that amounts to 8,500 afy in the historical water budget, about 10% of the total inflow.

- **Section 4.6.1, page 4-28** – The caption of the figure and content of the figure do not match.

<u>**Comments on Chapter 5 – Groundwater Conditions**</u>

- **Section 5.1.1, page 5-2** – Data collected from privately-owned CASGEM wells is not available prior to 2015 when permission for data sharing was granted by the well owner.
- **Section 5.1.3, page 5-15** – Statement; *"The high groundwater levels observed in 1983 suggest that groundwater levels previously had the capacity to recover to earlier levels in response to significant recharge events."* This implies that recharge can affect water levels in the 180/400 over a period of several years. There was a statement earlier (Section 4.4.3) that local recharge is "very limited" but that seems inconsistent with the text here. Unless we're to believe that it only takes a few years for groundwater to flow in laterally from adjoining subbasins that don't have aquitards, or that this results from a decrease of pumping during wet years (very little decrease in agricultural pumping is observed in wet periods).
- **Section 5.1.3, page 5-17** – Statement; *"Groundwater levels have declined since 1983 with no indication that they will recover to pre-1983 levels."* The data does not necessarily support this conclusion. There hasn't been an extended wet period like that seen in the late 1970's/early 1980's, therefor to conclude that it would not occur again is unsupported. The last period where 2 consecutive years of +1 standard deviation on rainfall occurred was 1982-1983.
- **Figures 5-10 through 5-18, pages 5-18 through 5-15** – It is difficult to read the figures due to text/ image quality. Placement of vertical axis at 110' artificially dampens changes. Maximum range in data is approximately 85'.
- **Section 5.1.4, page 5-29** – Statement; *"Figure 5-22 illustrates how the vertical gradients at representative well pairs vary throughout the subbasin."* Is this pattern present in other well pairs in the subbasin (i.e., are these well pairs truly representative)? There should be additional support in the text for reaching this conclusion, beyond the two illustrated well pairs.
- **Section 5.2.1, page 5-31** – The 500 mg/L chloride concentration is also significant in that it represents a level that is approximately 10 times greater than native background chloride levels in the groundwater of the 180/400 Foot Aquifer.
- **Section 5.2.2, page 5-34** – Statement; *"Figure 5-23 shows that the extent of seawater intrusion in the 180-Foot Aquifer has nearly reached a local cone of depression, as represented by the small circular water level contour with a -20 foot msl label. This partially explains why the rate of seawater intrusion has slowed in recent years: the seawater intrusion is reaching a local low point and is not being drawn further inland."* The closed -20 foot msl contour does not represent a local cone of depression, it represents a local high in water level. The closed contour is between the -20 and -30 feet msl contours, which means that anything outside of the closed contour is below -20 feet msl. Therefore, the area inside the closed contour must be *above* -20 feet msl. This statement is incorrect.
- **Figure 5-25** – Consider stating the year associated with the seawater intrusion data on the figure.

- **Section 5.2.3, page 5-37** – Some of the increase in area of seawater intrusion in the 400-Foot Aquifer between 2013 and 2015 was also due to additional data points that made contouring possible, particularly in the Marina area.
- **Section 5.2.3, page 5-37** – Thin/discontinuous aquitards and improperly constructed/improperly abandoned wells may also contribute to the vertical migration of seawater intruded groundwater.
- **Section 5.3.2, page 5-37** – Seawater intrusion likely occurs preferentially along pathways determined in part by geology so the rate of advancement of the seawater intrusion "front" can be highly variable.
- **Section 5.2.3, page 5-40** – Suggest changing "Deeper Aquifers" to "Deep Aquifers".
- **Section 5.2.3, page 5-40** – Restrictions on new wells in the Deep Aquifers was also driven by previous modeling which suggests that increased pumping in the Deep Aquifers will lead to increased vertical flow from the overlying aquifers (WRIME, 2003).
- **Section 5.2.3, page 5-40** - Statement; *"The volume of seawater flowing into the subbasin every year does not strictly correspond to the acreages overlying the seawater-intruded area that is shown in Figure 5-27 and Figure 5-28. As the seawater intrusion front approaches pumping depressions, the front will slow down and stop at the lowest point in the pumping depression. The seawater intrusion front will then appear to stop; and no more acreage will be added every year. However, seawater will continue to flow in from the ocean towards the pumping depression."* There are several reasons that the volume of SWI will never correspond to the acreage intruded. For example, the area behind the mapped SWI front has variable concentrations of chloride (an acre-foot of seawater, with about 22,000 mg/L chloride, could translate to about 44 acre-feet of intruded groundwater at 500 mg/L). Also, the aquifer thickness is quite variable in the subbasin. Regarding the appearance of the SWI front to "slow or stop at pumping depressions", it is not the opinion of the MCWRA that this mechanism is a driver of the rate of SWI in the subbasin. The presented understanding of how the seawater intrusion front reacts at a pumping depression is not relevant in this situation. And in fact, a gradient toward the pumping depression will not necessarily prevent intrusion from continuing.
- **Section 5.3.1, page 5-40** – MCWRA estimates of annual change in groundwater elevation are made on a Subarea (MCWRA management zones) basis rather than for Bulletin 118 subbasins.
- **Section 5.3.2, page 5-41** – The 2015 State of the Basin report from Brown and Caldwell was prepared for Monterey County, not MCWRA.
- **Section 5.3.2, page 5-43** - It would make more sense to divide into periods based on significant change in the management of the groundwater basin (i.e., up to the beginning of operation of Nacimiento Reservoir in 1957, San Antonio Reservoir in 1967; then introduction of the CSIP in 1998 and the SVWP in 2010). This would be an approach that is defensible as it is based on known fundamental shifts in groundwater management.
- **Section 5.3.2, page 5-43** - The variation in storage from 1947 to 1998 has seen large increases in storage during wet periods, along with a cumulative positive storage change from 1949 to 1998. During the period from 1947 to 1998, there were 28 years of negative storage change and 24 years of positive storage change; while technically that indicates that "most" years had decreasing storage, it's very close to an equal number of negative and positive years. Consider revising the statement indicating a trend of steadily-decreasing groundwater storage in most years.

- **Figure 5-29** – Suggest clarifying if the figure depicts data from the 180/400 Foot Aquifer Subbasin or MCWRA's "Pressure Subarea".

Comments on Chapter 6 – Water Budgets

- **Section 6.3.1, page 6-7** - Statement; *"The BCM-reported average annual precipitation in the 180/400-Foot Aquifer Subbasin is 114,100 AF for the historical water budget period and 106,600 AF for the current water-budget period. As shown in Table 6-1, the runoff for the historical and current periods was 1,100 and 1,700 AF/yr., respectively; equivalent to approximately 1 to 2% of precipitation."* It is unclear from the text whether this analysis is limited to runoff generated within the 180/400-Foot Aquifer subbasin, or includes tributary inflow from the hills to the west (not otherwise quantified).
- **Section 6.3.1, Table 6.1 and 6.2** – It is confusing that runoff would be higher during the Current period compared to the Historical period, when precipitation is lower? In contrast, flow in the Salinas River during the Current period was substantially lower than during the Historical period (Table 6-2).
- **Section 6.3.2, page 6-7** – Statement; *"As reported by MCWRA, the Salinas River depletion during September 2017 between Soledad and Gonzales, near the Subbasin boundary, was 134 cubic feet per second (cfs). The Salinas River depletion between Gonzales and the Chualar gauge was 79 cfs. Therefore, approximately 63% of the Salinas River depletion between Soledad and the Chualar gauge occurred in the Forebay Subbasin, above Gonzales; and 37% of the Salinas River depletion occurred in 180/400-Foot Aquifer Subbasin, below Gonzales."* This stream depletion is based on a single day's measurement which may not be representative. If this analysis conclusion is used there should be a discussion of the limitations of applying a single data point to annual stream loss calculations.
- **Section 6.5.3, page 6-15** – The "Pressure Management Area" is more commonly referred to as the "Pressure Subarea". Also, when discussing CSIP deliveries, it is worth noting that SRDF diversions did not begin until 2010.
- **Section 6.5.4, page 6-17 and Table 6-11** – Statement; *"Based on groundwater flow directions and hydraulic gradients at the Subbasin boundaries, subsurface inflow to the 180/400-Foot Aquifer Subbasin from the Forebay Subbasin has been estimated as approximately 17,000 AF/yr. (Montgomery Watson, 1997; MCWRA, 2006; Brown and Caldwell, 2015)."* The Brown and Caldwell reference is incorrect in this context. This reference should also be removed from Table 6-11. The correct reference would be Montgomery Watson, 1998.
- **Figure 6-5, page 6-29** – Either the vertical scale or data shown on the graph for agricultural and urban pumping seem incorrect. For example, in 1998, total (agricultural and urban) pumping reported by MCWRA was 104,916 AF. The data in Figure 6-5 seems to suggest that total pumping was less than 100,000 AF for that year.
- **Section 6.6.2, page 6-19** – Was any consideration given to capturing variation in ET by crop type? Perhaps data reported through ranch maps could be used as a coarse approximation to group crops and provide a more refined ET value for the basin. Also, the stated ET for Arundo donax of 16 AF/year/acre should be referenced. Regarding riparian ET included with the groundwater, it is the opinion of the MCWRA that riparian ET has a more significant impact on surface water flows.

- **Section 6.6.2, page 6-19** – The estimate of riparian ET for the subbasin (12,000 AFY) differs from the calculated value of 4,277 AFY determined by the Agency in a 1997 exercise. Changes to reservoir operations and channel maintenance practices have changed since 1997, surely influencing the extent of some phreatophytes, however, does SVBGSA believe that there has there been enough of a change in coverage to account for a nearly three-fold increase in riparian ET?

- **Section 6.6.3, page 6-19 and Table 6-15** – Statement; *"The combined outflow to these two subbasins has been estimated at approximately 8,000 AF/yr. (Brown and Caldwell, 2015)."* The correct reference here and in Table 6-15 is Montgomery Watson, 1998.

- **Section 6.8.1, Table 6-17 -** This section should include a discussion of why there is a substantial difference (5% for historical, 15% for current) between the surface water inflows and outflows for an average year. There is no substantial storage change in the surface water system. (Section 6.9 discusses the differences in terms of uncertainty, and that section should be summarized or referenced here.)

- **Section 6.8.1 and 6.8.2, pages 6-21 to 6-28** – In reviewing the annual water budgets given in Appendix 6, it appears the streamflow percolation to groundwater is set based on the Salinas River outflow to Monterey Bay rather than the Salinas River inflow (as indicated in Section 6.4.4). This results in 7 years where streamflow percolation is zero, even though none of those years had zero inflow from the Forebay subbasin. According to that water budget, there were only 8 years with Salinas River inflow below 80,000 afy, so almost every year should have 80,000 or 90,000 af of streamflow percolation. If the intent is to set streamflow percolation based on Salinas River *outflow*, then it seems unreasonable to think that a year like 2002, when there was 82,900 af of inflow and zero af of outflow (a difference of 82,900 af), would see no streamflow percolation.

- **Section 6.8.3, page 6-30** – Statement; *"A review of water supply sources in the 180/400-Foot Aquifer Subbasin shows that surface water supplies, as measured by the San Antonio and Nacimiento Reservoir releases to the Salinas River, allow for a stable supply in wet and normal years."* Direct diversions of reservoir releases provide a very small portion of the water supply for the 180/400-Foot Aquifer subbasin, and only since 2010. The Maximum diversion capacity of the SRDF is approximately an order of magnitude lower than total pumping in this subbasin. This statement should be revised.

- **Section 6.8.5, page 6-32** – Statement; *"Based on the water budget components, the sustainable yield of the Subbasin is 97,200 AF/yr., which represents a 10% reduction in total pumping relative to the average annual historical pumping rate."* Using the average annual storage change of -39,700 afy derived from Table 6-19, the sustainable yield would be 68,400 afy, representing a pumping decrease of 37%.

- **Section 6.9, page i** – The difference between groundwater inflow and outflow for the historical budget is referred to twice, with different totals: 39,700 AF and 39,900 AF.

- **Section 6.10.5, page xi and Table 6-31** – Statement; *"For example, the total pumping used to calculate the historical sustainable yield is 86,500 AFY, while the pumping used to estimate the projected sustainable yields varies between 115,300 and 120,600 AFY."* Total pumping from Table 6-21 is 108,100 afy, not 86,500 afy. Review value given in Table 6-31.

Comments on Chapter 7 – Monitoring Networks

- **Section 7.2.2, page 7-3** – The CASGEM network consists entirely of wells that are either owned by MCWRA or were monitored by MCWRA prior to the initiation of the CASGEM program, rather than "primarily" as stated.
- **Section 7.3.2, page 7-17** – "During implementation...the SVBGSA will verify well completion information and location." Does SVBGSA intend to collect location data for all wells during the effort to acquire an accurate accounting of wells in the subbasin? MCWRA has done some preliminary work on the availability of GPS location data for wells and may be able to assist with defining data gaps in this area.
- **Section 7.3.2, page 7-17** – "A potential data gap is the accuracy and reliability of reporting pumping rates." Is this referring to data reported to MCWRA through GEMS? If so, a clarification of what is meant by "pumping rates" would be helpful. Data reported through GEMS is done so annually and includes monthly totals of water usage but not a 'gallons per minute' type of pumping rate for each well.
- **Section 7.7, page 7-29** – Statement; "As described in Section 5.5, there is little to no connection between the 180-Foot, 400-Foot, or Deep Aquifer and surface water in the 180/400-Foot Aquifer Subbasin. However, the Salinas River is potentially in connection with groundwater in the shallow water-bearing sediments that do not constitute a principal aquifer. The shallow sediments are not used for any significant extraction, and have very little monitoring data. Therefore, the level of interconnection is unclear." According to the water budget, stream percolation accounts for 50,000 afy of the 90,000 afy of annual inflow to the subbasin, more than half the total. This indicates either that the water budget includes the Shallow Aquifer sediments, or that the River is better connected to the 180-Foot Aquifer than is indicated by the text. As stated earlier in the GSP, there are recognized gaps in the Salinas Valley Aquitard.

Comments on Chapter 8 – Sustainable Management Criteria

- **Table 8-1, page 8-6** – The Undesirable Result for Sustainability Indicator "Reduction in Groundwater Storage" refers to a "long-term average". Suggest defining how the period of time for "long-term" will be determined.
- **Table 8-1, page 8-6** – Sustainability Indicator "Seawater Intrusion" has interim milestones that suggest measurements will be made relative to some starting point, e.g. "one third of the way". Suggest clarifying the starting point, as the seawater intrusion front consists of irregularly-shaped contours or, in the case of the 400-Foot Aquifer, multiple non-contiguous contours.
- **Section 8.6.2.1, page 8-17** – Fall groundwater level contour maps are developed from data collected from October through December.
- **Section 8.8.2.1, page 8-34** – MCWRA seawater intrusion contours are developed using data from privately-owned wells and dedicated monitoring wells, not only "dedicated monitoring wells near the coast" as stated in paragraph 3.
- **Figure 8-7, page 8-36** – Suggest showing the 2017 contours as depicted by MCWRA as part of the overall front illustrated on the figure.
- **Section 8**-11, page 8-61 – The Salinas River is a losing river, independent of the year type or season.

Comments on Chapter 9 – Projects and Management Actions

- **Section 9.3:** Through its extensive experience and knowledge of facilities operation, MCWRA can provide valuable insights to aid the SVBGSA in the implementation of Management Actions. MCWRA looks forward to a cooperative approach in the assessment and implementation of Management Actions.
- **Section 9.3.2**: The SVBGSA should evaluate the impact of Prime Agricultural Land designation or Agricultural Preservation Zones prior to the development of policies or ordinances related to agricultural land retirement.
- **Section 9.3.4:** The MCWRA Board of Directors adopted a Reservoir Operations Policy in February of 2018 after a robust stakeholder process. As stated on page 2 of the policy, *"As a multi-use facility, Nacimiento Dam and Reservoir is operated with consideration to many factors including dam safety, flood protection, groundwater recharge, operation of the SRDF, water supply, fish migration, fish habitat requirements, agriculture, and recreation. This Operation Policy defines parameters and describes guidelines and requirements the Agency will follow to operate the Dam and meet the challenges of balancing the sometimes competing interests involved in operating this multi-use facility."* The MCWRA is undertaking a Habitat Conservation Plan (HCP) to update the operations of the reservoirs. The HCP will be developed through an extensive stakeholder process and robust scientific analysis that evaluate a wide range of environmental and operational considerations. The MCWRA anticipates the SVBGSA will play a significant role in the development of a Habitat Conservation Plan for future reservoir operations.
- **Section 9.3.5, page 9-16** – This management action has the potential to duplicate or conflict with parts of MCWRA Ordinance No. 3790.
- **Section 9.3.6, page 9-18** – Ordinance No. 5302 is a Monterey County ordinance. Restrictions on wells in the Deep Aquifers are not MCWRA's restrictions.
- **Section 9.4.3.1:** MCWRA will actively participate in the pre-design phase of all projects related to existing MCWRA infrastructure.
- **Section 9.4.3.2:** The RCD of Monterey County spearheads an arundo eradication project that is not considered mitigation for impacts. It is a comprehensive program that has systematically addressed this invasive species from the upstream to the downstream sections of the Salinas River. The long-term benefits of invasive species eradication will decrease as native vegetation grows in its place. The Salinas River Stream Maintenance Program allows for consistent vegetation treatment to increase flow capacity of the river and will reduce evapotranspiration for the longer term. Additional river flows as considered in Section 9.3.4 will make vegetation management actions even more critical since vegetation will thrive under those conditions.
- **Section 9.4.3.2.2, page 9-28** – Statement; *"Model results suggest that this project reduces seawater intrusion by approximately 890 AF/yr. on average."* First mention of a groundwater model, not referenced in Appendix 9C.
- **Section 9.4.3.3:** The CSIP system has integrated recycled water, well water and river diversion supply through the sharing of infrastructure. As it is currently configured, the recycled water and river diversion water share a storage pond near the treatment facilities. The wells are located out in the irrigation system and therefore serve as a critical link to distributing water when there are peak demands. Substituting more recycled water or river water does not always reduce well use as the previous two compete to fill the storage pond. Irrigation demands are dependent on many

other factors such as crop type, stage of growth, and climate conditions. Shifting the irrigation demand to when the water is available may not meet the objectives of optimal plant growth and productivity. Water storage could be from recycled water since there is a diurnal demand that could allow for some off-peak production of recycled water. Additional research should address if and when SRDF water can be stored. The storage should be limited in time to reduce any algae growth or water rights restrictions.

- **Section 9.4.3.3, page 9-31** – Supplemental wells are responsible for most pumping in the CSIP zone for the reason specified here. Private wells in the CSIP area are standby wells and can be pumped for specified circumstances.
- **Section 9.4.3.4:** MCWRA is a sister agency to M1W and the agencies work collaboratively on operating and maintaining the tertiary treatment facility (SVRP). Modifications to produce tertiary treated recycled water when demands are low is needed at the SVRP site. All wastewater is treated to the secondary level without any modifications necessary. Groundwater pumping is currently necessary for meeting demand as well as addressing pressure issues in the system. These modifications would need to be coupled with the hydraulic modeling and other system improvements described in the previous section to be most effective at reducing groundwater pumping. This project is not currently funded nor have the CSIP customers approved an increased charge. New funding estimates are $7-10 million and additional funding resources should be identified to implement this project.
- **Section 9.4.1.3, page 9-72** – Statement; *"The desalination alternative project is one of five alternative projects that may provide additional water to the Subbasin. The project will only be implemented after all five alternative projects have been refined. The most cost-effective project of the five will be selected to supply additional water to the Subbasin."* There are only four Alternative Projects listed in 9.4.4.
- **Section 9.4.3.5:** Other possible approaches to CSIP expansion should be considered moving forward. A thorough analysis of distribution system upgrades and some reliance of existing wells must be considered. Storage of recycled water may not be able to meet peak demands and SRDF water is not available every year. Areas for expansion should consider more factors than seawater intrusion. Expansion may decrease the need for the SVRP modifications described previously.
- **Section 9.4.3.6:** Scheduling irrigation deliveries to reduce peak demands and re-operating the SVRP storage pond could help increase SRDF efficiency. Additional analysis to understand how the water would be used in the system is necessary. In years when SRDF diversions are not available, an alternate back up supply, such as groundwater, will be needed. As the system is currently configured, when SVRP usage increases SRDF reduces and vice versa as they are sharing facilities that limit the amount of water that can be delivered. Capital expenditures may be necessary to accomplish the increased use of SRDF water.
- **Section 9.4.3.7**: Preferred Project 6 (Seawater Intrusion Pumping Barrier) has the potential to conflict with the GSP submitted by the City of Marina for the Marina Area of the 180/400 Foot Aquifer.
- **Section 9.4.3.7, page 9-50** - GSP States that "Supplemental water to replace the extracted water would come from one of a number of other sources" but does not elaborate on what those other sources might be.

- **Section 9.4.3.7, page 9-51** - GSP includes assumptions about the pumping rates of wells in the 180- and 400-Foot Aquifer but does not explain the origin of these assumptions, subsequently making it difficult to evaluate the validity of the assumptions and the project as a whole.
- **Section 9.4.3.9:** Preferred Project 8 (11043 Diversion Facilities Phase II: Soledad) should include coordination with MCWRA and consultation on construction and operation of a diversion facility.
- **Section 9.4.3.9.2, page 9-60** – Consider including water quality as a relevant measurable objective for this project.
- **Section 9.4.3.10:** The SRDF is a point of re-diversion from Nacimiento and San Antonio Reservoir's two water right licenses and permit. Permit 21089 is a right to store and use water from the Nacimiento River. Changes to all three would be necessary to change the time of year water could be rediverted, along with the addition of an additional storage component. These changes are currently in conflict with the amount of water available to redivert at the SRDF from April 1st to October 31st, when demands are at their peak. The reservoirs have a limit on the amount of water that can be stored on an annual basis; and the water right licenses and permits have restrictions as to how much is withdrawn from storage annually. Additionally, treatment of river water should must comply with all state and federal regulations for injection into the groundwater aquifers.

<u>**Comments on Chapter 10 – Groundwater Sustainability Plan Implementation**</u>

- **Section 10.3, page 10-8** – Statement; *"To develop better estimates of aquifer properties, the SVBGSA will identify up to three wells in the 180-Foot Aquifer and up to three wells in the 400-Foot aquifer for aquifer testing. Each well test will last a minimum of 8 hours, and will be followed by a 4-hour monitored recovery period. Wells for testing will be identified using the following criteria."* It is the opinion of the MCWRA that three data points and the minimum test period in each aquifer will do little to refine the hydrogeologic properties of this subbasin. At a minimum, the MCWRA would recommend six to eight additional data points in the Deep Aquifers with an additional four to six data points in each of the 180-Foot and 400-Foot Aquifers. Pumping for the tests should last for a minimum of 12 hours, with a six to eight-hour recovery period in order to derive aquifer properties beyond the immediate vicinity of each well (data point).
- **Section 10-4** – Numbering errors in subsections
- **Section 10-1-9 (see previous comment), page 10-8** – Two Shallow wells adjacent to the Salinas River are inadequate to characterize level of interconnection.

25 November 2019

Mr. Gary Peterson
General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1441 Shilling Place
Salinas, CA 93901

Dear Mr. Peterson,

This letter provides California Water Service Company's (Cal Water's) comments on the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan (GSP) Public Review Draft, dated 21 October 2019. Our comments focus on the GSP's Section 9.2 – Water Charges Framework.

We understand that SVBGSA plans to implement a "Water Charges Framework", which includes assigning pumping allowances to groundwater users and collecting fees based on their use relative to the assigned allowances. Section 9.2 of the GSP describes the Water Charges Framework as a tiered rate structure where Tier 2 and Tier 3 charges (i.e., charges on pumping above a user's sustainable pumping allowance) will fund projects or purchases of additional water. As stated in Section 9.2 (Page 9-3) of the GSP:

> *"These allowances … are pumping amounts that form the basis of a financial fee structure to both implement the regulatory functions of the SVBGSA and fund new water supply projects… Tier 2 and Tier 3 funds are used to build projects and pay annual costs of purchasing and treating water that have a defined benefit to individuals or groups."*

It is unclear from the GSP's description who will be the beneficiaries for each proposed project and how the tiered rates structure reasonably collects funding from project beneficiaries. *"All of the integrated projects and management actions for the Salinas Valley are included in this GSP, although the benefit may be limited in this Subbasin* (Section 9.1)", therefore, it appears that fees collected in other Salinas Valley subbasins may also be used to fund the 180/400 Subbasin GSP's proposed projects or vice versa. It is also unclear how the Water Charges Framework could incorporate additional funding sources for projects, including direct investments in projects or water management efforts by an individual agency. The mechanisms of the planned Water Charges Framework are highly uncertain at this stage and could have significant impacts on groundwater users (including Cal Water and our customers) both in the near- and long-term.

We understand that SVBGSA plans to develop the Water Charges Framework during the first three years of GSP implementation with Salinas Valley Basin stakeholders. As stated in Section 9.2 (Page 9-2) of the GSP,

> *"The stakeholders of the Salinas Valley Basin will develop the water charges framework during the first three years of GSP implementation as an agreement approved by the SVBGSA."*

Cal Water srongly supports the SVBGSA's stated intention to vigorously engage stakeholders during development of the Water Charges Framework. We recommend the following to be considered and defined in the Water Charges Framework:

1. Recognition of a groundwater user's share of a basin's native safe yield and the benefits and/or effects of previous efforts undertaken by the user to augment basin supplies (e.g., investment in water supplies and conservation);
2. The ability to incorporate and preserve the projects and water management efforts that are implemented by individual agencies that result in additional supplies to the basin;
3. A mechanism by which a projects' yield can be reasonably allocated to those who have contributed to the project, either via the tiered rate structure or through direct investment;
4. Flexibility for groundwater users that are located in multiple Salinas Valley subbasins and are willing to invest in projects. Specifically, given the integrated nature of the Salinas Valley subbasins, **groundwater users should receive credit for projects and water management efforts across subbasins where there are demonstrable benefits (i.e. each subbasin's issues do not need to be entirely addressed through projects in that subbasin)**.

We appreciate the opportunity to comment and look forward to participating in GSP implementation.

Sincerely,

Michael Hurley
Water Resources Manager, California Water Service Company

ALISAL WATER CORPORATION

A California Corporation
dba ALCO WATER SERVICE

Thomas R. Adcock
President
(831) 424 - 0441 Phone

249 Williams Road
Salinas, CA 93905
(831) 424 - 0611 Fax

November 25, 2019

SVBGSA
c/o Regional Government Services
P.O. Box 1350
Carmel Valley, CA 93924

SENT VIA EMAIL TO peterseng@svbgsa.org

RE: Comments of Alisal Water Corporation, dba Alco Water Service, on the Groundwater Sustainability Plan for the 180/400 Foot Subbasin

Dear SVBGSA Board of Directors,

Alisal Water Corporation, dba Alco Water Service ("Alco") is a water supplier located in the Salinas Valley in and around the Eastern portion of the City of Salinas and providing water for human consumption, domestic purposes, and fire protection and irrigation purposes.

Alco is regulated by both the California Public Utilities Commission ("CPUC") and State Water Resources Control Board ("SWRCB").

The CPUC is an administrative agency upon which the California Constitution and the Legislature has conferred broad authority, including broad legislative and judicial powers, to regulate utilities, including the power to fix rates, establish rules, determine the requirements for public utility practices, equipment facilities and service, and hold various types of hearings, and establish its own procedures for the execution of such authorities. CPUC defines Alco as a public utility water corporation that owns and operates a water system.[1]

SWRCB is an administrative agency upon which the Legislature has conferred the authority to regulate the water quality and the health and safety of public drinking water systems' water provided and their water system facilities. SWRCB defines Alco as a public water system and an urban water supplier.

[1] Alco, California Water Service Company and California American Water and Little Bear Water Company are all water utilities that are regulated directly by the CPUC.

Both agencies, the CPUC and SWRCB, have the responsibility to ensure that the water systems that they regulate have sufficient water supply to adequately serve the public and meet its health and safety requirements. These agencies are also obligated to ensure that the water systems meet the requirements of California Water Code § 106.3 (a) and (b)[2].

For purposes of the proposed Sustainability Plan drafted by SVBGSA for the 180/400 Foot Aquifer Subbasin, Alco is included in the group defined as municipal water provider.

As such, the following comments of Alco on the SVBGSA's draft Groundwater Sustainability Plan for 180/400 Foot Aquifer Subbasin ("Plan") reflect Alco's obligations under its CPUC, SWRCB and Legislative requirements as described above and Alco wants to ensure that the Plan, as well as future Plans, do not conflict with these obligations.

ALCO'S COMMENTS:
Page 9-4:
9.2.2 Pumping Allowances

Sustainable allowances for municipal and industrial groundwater pumpers will be addressed when sustainable pumping allowances are being developed for agricultural pumpers. Because these allowances are not water rights, municipal and industrial water users will be able to pump groundwater even without a quantified sustainable allowance. However, if municipal and industrial groundwater pumpers are not provided a sustainable allowance, any groundwater pumping by these entities will be subject to the Tier 2 Transitional Pumping Charge and Tier 3 Supplemental Pumping Charge.

Because the California Legislature has already declared, in California Water Code § 106[3], that the highest use of water is for that of domestic purposes, which is the type of water that Alco and all other municipal water providers provide, Alco believes that municipal water providers must be allowed a Tier 1 sustainable allowance, which should be based on historical groundwater pumped by municipal water providers. Courts, including the California Supreme Court and Federal Courts, have upheld California Water Code § 106's declaration that the highest use of water is domestic use and that this is binding upon all California agencies. Please refer to the cited cases, below:

Provision of this section declaring that use of water for domestic purposes is the highest use to which water can be devoted is binding on every California agency, ... City of Beaumont v. Beaumont Irrigation District (1965) 46 Cal.Rptr. 465, 63 Cal.2d 291, 405 P.2d 377.

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[2] *(a) It is hereby declared to be the established policy of the state that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.*
(b) All relevant state agencies, including the department, the state board, and the State Department of Public Health, shall consider this state policy when revising, adopting, or establishing policies, regulations, and grant criteria when those policies, regulations, and criteria are pertinent to the uses of water described in this section.
[3] *It is hereby declared to be the established policy of this State that the use of water for domestic purposes is the highest use of water and that the next highest use is for irrigation.*

And,

Provisions of this section declaring general state policy that use of water for domestic purposes is the highest and best use and in §106.5 that rights of municipalities are to be protected to extent necessary for existing and future uses, do not merely regulate administrative action which state engineer might take on applications to appropriate surplus water, but they constitute part of substantive law of California delineating rights of users of water. Rank v. Krug, S.D.Cal.1956, 142 F.Supp. 1.

Therefore, Alco believes that the SVBGSA's Plan should establish Tier 1 sustainable pumping allowances for all municipal water providers and not subject their usage entirely to Tier 2 and Tier 3 charges.

ALCO'S COMMENTS:
Pages 9-8 to 9-9:
9.2.7 Details to be Developed

The sections above present an initial structure for the water charges framework; however, stakeholders must agree to a number of details before the SVBGSA initiates the water charges framework. An initial list of details that must be negotiated are presented below to provide SVBGSA members and stakeholders an understanding of the range of specifics that are open for negotiation.

- *Are de-minimis pumpers that pump less than two AF/yr. for domestic purposes exempt from the water charge framework and other management actions?*
- *Are any class of pumpers other than de-minimis pumpers exempt from the water charge framework and other management actions?*
- *How are sustainable pumping allowances set?*
- *How are transitional allowances phased out in the Subbasin? Over what time frame are pumping allowances ramped down?*
- *What is the Tier 1 Sustainable Pumping Charge?*
- *What is the Tier 2 Transitional Pumping Charge?*
- *What is the Tier 3 Supplemental Pumping Charge?*
- *What is an equitable balance between the Tier 1 Sustainable Pumping Charge collected in the 180/400-Foot Aquifer Subbasin and the Tier 1 Sustainable Pumping Charge collected in other subbasins?*
- *What is an equitable balance between the Tier 2 Transitional Pumping Charge collected in the 180/400-Foot Aquifer Subbasin and the Tier 2 Transitional Pumping Charge collected in other subbasins?*
- *What is an equitable balance between the Tier 3 Supplemental Pumping Charge collected in the 180/400-Foot Aquifer Subbasin and the Tier 3 Supplemental Pumping Charge collected in other subbasins?*
- *How is currently non-irrigated (e.g., fallowed) land addressed?*

- *How are municipalities addressed?*
- *What are the limits and parameters of the carryover and recharge options?*
- *What in involved in approving relocation or transfer of pumping credits?*

As Alco has previously stated, when the SVBGSA is establishing water allowances and water charges framework for municipal water providers, it must take into consideration the obligations of California Water Code § 106.3, the requirements of the CPUC (in the case of water utilities like Alco that are regulated by that agency) and SWRCB on municipal water providers. Alco believes that the Tier 1 sustainable water allowance for municipal water providers should be based on the providers' historical pumping information. Also, the municipal water providers should be able to carry over any excess pumping allowances into future years. Municipal water providers should be able to obtain all pumping credits and/or Tier 1 and Tier 2 pumping allowances for irrigated and fallow lands to which the municipal water provider provides water service in excess of the amounts that are pumped on these lands, if any.

ALCO'S COMMENTS:
Page 9-7:
9.2.4 Relocation and Transfer of Pumping Allowances

Relocation and Transfer of Pumping Allowances Pumping allowances may be moved between properties temporarily or permanently. Such relocation of pumping allowances is subject to review by the SVBGSA to ensure that such relocation or transfer does not prevent the sustainability goal from being met. The SVBGSA will model the effects of the relocation to assess any significant and unreasonable impacts from the proposed relocation. Relocating pumping allowances provides pumpers with flexibility to manage their land, water resources, and finances as they desire. Pumping allowances could also be permanently or temporarily transferred between different owners, and could be used for another pumping purpose.

Alco believes that there should be a mechanism for the transfer of pumping credits and/or Tier 1 and Tier 2 pumping allowances for 1) lands or any portion thereof that are converted from agricultural use (or fallow lands) to development to which the municipal water provider provides service and 2) agricultural lands (or fallow lands) to which the municipal water provider provides water service in excess amounts of the amounts that are pumped on these lands, if any.

ALCO'S COMMENTS:
9.4 PROJECTS

Alco believes that SVBGSA's Plan should clearly state that any party, be it a municipal water provider or agricultural users, who directly funds a project independent of the fee and charges framework developed by the Plan, and such project will supplement the 180/400 Foot Aquifer Subbasin's groundwater supplies or limit seawater intrusion (over and above the amounts of water already accounted for in this Plan), should be allowed to use such recharged water without paying any pumping fees for the amount of added water, on an annual basis. As an example, if Alco were to directly fund a project that recharged an additional 100 acre-feet per year that would not have otherwise been available, Alco should have the legal authority to pump that much water annually without charges being assessed. The benefit of allowing parties to directly fund such projects is that the SVBGSA will not have to expend the time, monies and efforts to implement a tax and/or go through the Proposition 218 process. Additionally, the tax burden and/or fees to landowners and residents of the Salinas Valley Basin will subsequently be reduced.

Thank you for the opportunity to provide Alco's comments on the SVBGSA's draft Groundwater Sustainability Plan for 180/400 Foot Aquifer Subbasin. If you have any questions, you may contact me at (831) 424-0441.

Sincerely,

Adnen Chaabane
Operations Engineer

AC/ams

Salinas Valley Water Coalition
33 El Camino Real • Greenfield, CA 93927
(831) 674-3783 • FAX (831) 674-3835

TRANSMITTED VIA EMAIL

Salinas Valley Groundwater Sustainability Agency
Atten: Mr. Gary Petersen, General Manager November 25, 2019

Re: SVBGSA 180/400 Aquifer GSP

Dear Mr. Petersen

We again thank you for this opportunity to comment on the Salinas Valley Basin Groundwater Sustainability Agency's ("SVBGSA") Groundwater Sustainability Plan ("GSP") for the 180/400 Foot Aquifer Subbasin ("180/400 Subbasin"). Our comments previously submitted on September 10, 2019; the notes from your meeting held in Greenfield on July 18, 2019 and the various comments made by Nancy Isakson during the SVBGSA's committee and/or Board meetings, are incorporated herein by reference.

We also believe that many of the comments made by others, including those submitted by LandWatch and Mr. Thomas Virsik, should be carefully and thoughtfully addressed as to whether further changes should be made to the 180/400 GSP and/or whether there would be potential impact to the 180/400 GSP by not addressing the concerns expressed.

The SVWC's comments are summarized below along with comments to specific sections of the 180/400 GSP.

Global comments:

- Many of the references to the other Sub-Basins within the text of the 180/400 GSP should be deleted as they are confusing as to whether they apply other subbasins and/or how they would apply. This GSP is specific to the 180/400 Aquifer Subbasin and it should be clear to the reader that the various thresholds, standards, projects and/or management actions work to provide the needed and required sustainability to the 180/400 Aquifer Subbasin.
- Data gaps and lack of data: Section ES-5, Historical and Current Water Budgets states the historical and current water budgets are based on "best available data and tools", but goes on to state that "no groundwater model is available that produces an accurate historical and current water budget." That is, there are significant data gaps due to the unavailability of a groundwater model. We understand that it is anticipated that the water budgets will be updated to reflect the SVIHM output when it is released. The water budgets are key to this critically overdrafted subbasin. It is difficult to fully know what management actions and projects are needed to bring this subbasin into sustainability without having accurate historical and current water budgets.

  This is an important element of the entire GSP. Because of the lack of accurate data and tools, it is important to look at what management actions and projects should be implemented in the near-term (immediately) and the short-term (within 6 months to one year) and the long-term in order to bring the 180/400 subbasin into sustainability as soon as possible while preparing to meet long-term sustainability.

  This section also states that the "relatively high percentage error emphasizes the need to adopt the modeled historical groundwater budget when the historical SVIHM becomes available." It is because of this statement, in part, that it is difficult to understand the extent of the existing seawater intrusion problem in the 180/400 subbasin and the level of management actions and/or projects needed to meet sustainability, and whether the ones presented in the GSP will provide it.

  Table 1 on page 10 demonstrates the level of uncertainty of using the 'best available data and tools', and only further confuses the matter and the reader.

ES-8 Projects and Management Actions:

- **Water Charges Framework:** The water charges framework discussion should be geared only for the 180/400 GSP. While this type of framework may work for the other subbasins, this plan is ONLY for the 180/400 subbasin and what management actions and projects need to be implemented to meet the required sustainability for this critically overdrafted subbasin. Any contemplated water charges for implementing management actions and/or projects to address the seawater intrusion issue in this subbasin, should not be applied to the other subbasin unless

Mission Statement: The water resources of the Salinas River Basin should be managed properly in a manner that promotes fairness and equity to all landowners within the basin. The management of these resources should have a scientific basis, comply with all laws and regulations, and promote the accountability of the governing agencies.

and until it is shown how, and if, the other subbasins contribute to the seawater intrusion of the 180/400 subbasin and how they will benefit from the implementation of the management actions and/or projects.

  - Please know that the Salinas Valley Water Coalition supports all lands within the entire SVGBGSA paying fees to meet the overall administrative costs. However, they do not support blanket implementation of pumping charges to offset costs of implementing management actions and/or projects within the 180/400 subbasin; the costs for implementing these actions and projects should be paid for by those who would benefit from them – i.e. those within the 180/400 subbasin.

- **Management Actions:** This section identifies six management actions that "are most reliable, implementable, cost-effective, and acceptable to stakeholder." The GSP then goes on to state "the first three would benefit the entire Salinas Valley; the last three are specific to the 180/400 Aquifer Subbasin."
  - "Agricultural land and pumping allowance retirement". The SVWC does not believe that the Salinas Valley, other than the 180/400 Aquifer Subbasin will benefit from such pumping allowances and/or agricultural land retirement. Science and 'accurate' data has shown that areas outside of the 180/400 Aquifer do not contribute to seawater intrusion in the 180/400 and/or will the Salinas Valley, other than the 180/400, benefit from stopping seawater intrusion – except and to the extent of being a good neighbor and wanting to see this problem in the northern end of the Salinas Valley solved. Science and data have shown that this problem can only be solved by those within the 180/400 Aquifer Subbasin.
  - Reservoir reoperation. While SVWC believes reoperation of the reservoirs may benefit the entire Salinas Valley, we believe this is more than simply a 'management action'. There are potentially many benefits to reoperating the reservoirs, but there are also potentially many impacts – especially to existing projects, such as the Salinas Valley Water Project (SVWP).
    - Rather than including reoperation of the reservoirs, we suggest considering how the existing SVWP can be fully implemented to provide the benefits to the landowners as promised – including those within the 180/400 Aquifer.
  - Restrict pumping in CSIP area. This is a critical management action. It should be considered within regards to what level of restriction would be required in the near-term, the short-term and then the long-term IF other management actions and/or projects are not implemented.
- **Direct recharge through recharge basins or wells:** The SVWC has supported the consideration of, and the potential implementation of, the existing MCWRA Permit 11043. We would like to see additional information provided on this project, where it is in process with the State Water Resources Control Board and what actions need to occur to be able to implement it. We also believe that further project development utilizing Permit #11043 would be better suited during the development of the Eastside Subbasin GSP.
- **Indirect recharge through decreased evapotranspiration or increased infiltration.** We would like the GSP to consider the inclusion of other species as well.

Process

Without offering a tracked changes version for each document, it is difficult for the public to sift through all text, figures and tables to determine what has been changed. Although the SVB GSA website is a repository for all documents, not all previous versions of Chapters are easily accessible to the public. On the GSP Valley Wide page, only Chapter 7 (released 5/16/19), Chapter 5 ((released 3/14/19) and Chapter 4 ((released 1/10/19) are available.[1] The 180/400 page lists a simple one page "Update No. 1" description of a few high level changes. [2]

Instead, one has to look through old meeting agendas and packets to find previous versions of documents. Unfortunately, many of these documents, although included as part of a dated agenda, do not have a date and the bottom of the document.

For example, to find changes made to Chapter 9, arguably one of the more important chapters, a reader would have to find drafts at the flowing locations:

- First Draft: Advisory Committee Meeting, July 18, 2019[3]
- Second Draft: Board of Directors Meeting, August 8, 2019[4]

[1] https://svbgsa.org/groundwater-sustainability-plan/valley-wide-integrated-groundwater-sustainability-plan/
[2] https://svbgsa.org/wp-content/uploads/2019/10/1-Update-No.-1-to-180-400-GSP.pdf
[3] https://legistarweb-production.s3.amazonaws.com/uploads/attachment/pdf/395302/Draft_Ch_9_Projects_and_Management_7_12_2019_for_Advisory_Committee_87642_.pdf
[4] https://legistarweb-production.s3.amazonaws.com/uploads/attachment/pdf/405668/7e_SVBGSA_Draft_180_400_GSP_Ch_9_20190802.pdf

- Third Draft: October 10, 2019 Release of 180/400 Draft[5]

Chapter 9 Implementation

9.2 Water Charges Framework: As mentioned above, the water charges framework should be considered for implementation **only** within the 180/400 Aquifer Subbasin. It should not be assumed to apply and be appropriate for the entire Salinas Valley. The GSP should also include other types of funding mechanisms to fund the implementation of management actions and projects for this GSP – but again, it should only consider such funding mechanisms as needed for the 180/400 Aquifer Subbasin, and not the entire Salinas Valley. Each subbasin should be allowed to consider other funding mechanisms as need to support implementation of their individual GSP.

The following are specific comments as to the text:

- as described, it is a "proposed" framework, still needs BOD approval
- Any votes related to cost of water shall require ¾ agricultural members voting for it
- Pg 9-3 – if the goal/benefit of the WCF is to incentivize reduction of groundwater pumping, won't the program eventually defund itself? This has happened in other utilities. *"Tier 2 and Tier 3 funds are used to build projects and pay annual costs of purchasing and treating water that have a defined benefit to individuals or groups."*
    - These statements should be further clarified so it is clear to the reader that the Tier 2 and Tier 3 charges will only be considered for implementation in other subbasins of the Salinas Valley once the GSP's for the other subbasins are completed and cost/benefit analysis of potential projects have been defined.
- What economic analysis will be required to price water at the three levels at the correct amounts with varying fluctuations of crop and land values, availability of new project water, etc.? This will take significant economic study, yet the budget in table 10-2 seems to have an imbalance, giving a facilitator a budget of $450K over 3 years but allows for a technical budget of only $120K over three years. It would seem that the technical analyses is critical to providing the needed information for the stakeholders/landowners to understand the benefits to be provided.
- If the Water Charges Framework is not adapted for all sub-basins, at some point, the budget item should be moved from Table 10-2 and distributed to the sub basins that are using it.

9.2.6 Administration, Accounting and Management: This section states "the SVBGSA would use Water Charges revenues to fund project that develop new water supplies for the benefit of the 180/400-Foot Aquifer Subbasin." These water charges should only be applied to the 180/400 Aquifer Subbasin as they will be ones who benefit.

* This section also states that agriculture pumping "will be metered", and that pumping will be reported directly to either the MCWRA or the SVBGSA.

Note: The SVWC has not taken a position as to whether to support or not support the requirement of agricultural meters, we do believe that whichever agency requires the meters should also collect the reports to maintain consistency.

9.2.7 Details to be Developed

- As we have stated above, this section should add: "Which financing method will fund GSA functions and projects for the 180/400 sub basin"
    - The option for multiple funding sources is clearly stated earlier, but at this point the document is making it sound as if WCF is already finalized and that it will be applied throughout all subbasins in the Salinas Valley—when it should only be applied within the 180/400 Aquifer Subbasin for this GSP and then may be considered within the other subbasins as their GSP's are developed and implemented.
    - Page 9-2: *"Depending on the outcome of the negotiations, long-term GSP implementation **<u>may be</u>** <u>funded by the water charges framework,</u> **<u>other financing method</u>** as permitted by SGMA and other state law, or a combination thereof."*
- The GSP states, *"What is an equitable balance between the Tier 1 Sustainable Pumping Charge collected in the 180/400-Foot Aquifer Subbasin and the Tier 1 Sustainable Pumping Charge collected in other subbasins? "*
    - However, this seems to conflict with what is stated on Page 9-2: *"Therefore, <u>actual costs seen by growers</u> **<u>are proportional to individual needs</u>** <u>project water</u>."*
    - This statement assumes that other subbasins will have Tiered WCF similar to the 180/400, as we have stated, this may not be the case. The 180/400 Aquifer Subbasin GSP should clearly state that the water charges framework will be applied to the 180/400

[5] https://svbgsa.org/wp-content/uploads/2019/10/5-Updated-Volume-3.pdf

Aquifer Subbasin GSP and "may' be considered for implementation in other subbasins as their GSP's are developed.

9.3.2 Agricultural Land and Pumping Allowance Retirement

- We support the right of landowners to do as they please with their lands in terms of wanting to continue farming, temporarily fallowing or permanently retiring agricultural lands under SGMA. However, we find this section lacking in detail and therefore may not garner the attention from landowners that may be interested. The cost analysis is also incorrect and needs revision. In a basin that has seawater intrusion and facing a long list of expensive projects, we believe it warrants a more proactive and thoughtful approach than the proposed "let's see if anyone's interested."
- The assumption of Chapter 9 is that a combination of reduced pumping *and* projects are likely needed, however, doesn't state how we may be able to achieve our goal with reduced pumping alone. The 180/400 Aquifer Subbasin GSP should state what other action(s) would be needed if projects are not supported and approved – this would be comparable to including a 'no project' alternative. The 180/400 GSP should inform landowners and growers of a more comprehensive cost/benefit analysis and should clearly state:
  - How many acre feet do we need to reduce pumping in the 180/400 Aquifer Subbasin to come into balance and provide sustainability without any projects?
    - How many acres in the 180/400 Aquifer Subbasin would have to be fallowed to bring the subbasin in balance and be sustainable?
    - What percent of acres in the 180/400 Aquifer Subbasin of total current cropped acres is this?
  - To clarify it for the public, we suggest that you add here or in section 9.6: "Pumping reductions of XX,XXX AFY in the 180/400 Aquifer Subbasin would be required to mitigate all overdraft without any projects. This would be the equivalent of reducing XX% of total annual pumping from the basin or fallowing XX acres of land annually."
  - Although the total loss of farmland may be infeasible and undesirable for the 180/400 Aquifer Subbasin, this information would help land owners and farmers understand their options and it may especially be a useful strategy when a cost/benefit analysis is presented for other basins that are closer to sustainability (e.g. it may be better to fallow a small amount of acreage vs. invest in new projects).
- SGMA requires projects and management actions to have quantified benefits. Management Action #1 is the only Management Action that has potential water savings, therefore it should either state those savings or be moved to the Projects section in the Final Draft. It should consider, and be limited to, opportunities for such savings within the 180/400 Aquifer. The "Project" would be for SVB GSA staff or consultants to conduct a geospatial analysis to assess the best areas to potentially purchase lands for retirement, study the economic value of the land *and* water, and proactively contact the specific landowners to see if there is interest. For example priority areas could include:
  - Specific areas within the 180/400 Aquifer where reductions in pumping would significantly reduce seawater intrusion.
  - Farmed areas within the 180/400 Aquifer that are distant from CSIP services (cost/AF delivered vs. retirement cost-benefit analysis).
  - Areas within the 180/400 Aquifer where SVBGSA wants to co-locate other SVBGSA projects (recharge basins, injection wells)
  - Areas within the 180/400 Aquifer where other public funding could be sourced to drive down cost of agreement
    - Wetlands/riparian or other areas for habitat restoration
    - Steeply sloped areas that pose erosion, sedimentation and water quality problems
- In order provide a full understanding as to what it would be mean to the 180/400 Aquifer if NO projects were approved and implemented, at the minimum, the Permanent Retirement estimated cost calculations (9.3.2.8) needs to be refined:
  - Cost estimate is simply calculated land cost divided by one year of water savings. These numbers ($8,700, $23,300) are essentially meaningless and should be deleted from the document as "retirement" is permanent. As written:
    - $26,000/acre / 3 AF saved = $8,700/AF low estimate
    - $70,000/acre / 3 AF saved = $23,300/AF high estimate
  - Water savings is permanent: While comparing 25 years to 25 years for structural projects is somewhat useful, it isn't useful to neglect that water savings continues (without cost) beyond year 25. Assuming the land is permanently retired, the simple cost per acre foot water for 100 years (saving 3AF/year *100 years) is as follows:
    - $26,000/acre / 300 AF saved = $86/AF low estimate
    - $70,000/acre / 300 AF saved = $233/AF high estimate

- Cost is one-time event:
  - Years 2-25: No ongoing staffing, facilities or O&M costs beyond year 1.
  - Years 25+: No significant future costs – replacing machinery, structures etc.
- There is no mention that funding could be sourced from other grant programs such as water quality, habitat, conservation easements etc., further driving down the cost of the Management Actions.

- Future development of the GSP should address some challenging questions:
  - How do you weigh retirement of acres with new acreage being planted?
  - Is the range of land costs accurate, and include both the cost of agricultural land retirement *and* water savings for the sub-basin?
- Education for land owners: This could be tied to Management Action #2, SVB GSA should provide landowner education on potential funding sources for land sales, tax benefits of conservation easements etc.

Relevant Measurable Objectives - Why isn't Water Quality Objective mentioned in any of these sections?

- The GSP should state that it is the intent to collaborate with other agencies, entities, including the Regional Water Quality Control Board to promote water quality objectives.

Preferred Project #3 – M1Water
9.4.3.4.6 Estimated Cost
"The project cost will be covered through delivery charges to existing CSIP customers. Because a funding mechanism for this project has already been identified, these costs will not be incorporated into the Water Charges Framework."

- Seems that this would apply to PP2 and PP5 as well. Shouldn't optimizing CSIP be paid by those who would benefit, and expanding CSIP be paid by those who benefit? Would all growers in the 180/400 pay into PP2 and PP5 or just those that receive water from CSIP?
- Page 9-2: *"Therefore, actual costs seen by growers* ***are proportional to individual needs*** *project water."*

9.4.3.6 Preferred Project 5: Maximize Existing SRDF Diversion

9.4.3.6.6 Estimated Cost – SRDF

" The estimated projected yield for the project is 11,600 AF/year. "The yield for this project is the same yield that is identified in Priority Project #2 and a portion of the yield identified in Priority Project #3."

- What does this statement mean, does it mean it is the same water saved (it cannot be double-counted)?
- If this is the case, why is the project yield AF related to CSIP projects listed separately in Table 9-5 if the water saved is the same?
- The 3 CSIP-related projects need to be clarified for the public, growers and land owners to understand
  - How are they interrelated?
  - How many acre-feet exactly result from the separate projects of 2,3 and 5?
  - What is the intention of separating projects vs. combining all into one if they have overlapping water savings?
  - Could these projects be listed as one project to be implemented in phases?

9.4.3.7 Preferred Project 6: Seawater Intrusion Pumping Barrier

Does the cost estimate include environmental review under CEQA? PG&E costs? Where will brackish water go? There are many unanswered questions that require significant analysis before a decision can be made as to whether this project can work. It might be helpful to also compare this project to a desal plant.

"Project yield is 30,000 AFY"

- Does the cost estimate include desalination so it can be used? If not, it is not a "yield" of water for the basin to use. Although the seawater intrusion wells may pump this amount per year, none of this water will be useful for irrigation or domestic purposes. Therefore a reader cannot easily make an "apples to apples" comparison from this to other Preferred Projects, such as PP2,3,4,5. Even PP1, Invasive Species removal, which is of a different category, still has the supposed end result that less water is taken up by evapotranspiration and therefore more water will be left in the river or groundwater basin that could be available to recharge. To the contrary, PP6 takes brackish water out of the basin and discharges it into the ocean, so where is the water savings?

- Whether environmentally and politically possible, the cost-benefit analysis of this proposed project does not seem to be correct. Specifically:
    - If the project yield is 30,000 AFY, why is it stated that it extracts 22,000 AFY in the notes below Table 9-5?
    - If project yield and costs calculation use the denominator 30,000 AFY, why is it listed as a value of only -11,000 AFY in table 9-5? If this is the actual value to the basin, shouldn't the cost be divided by 11,000 AF?
    - If the value is negative 11,000 AFY (and other projects are positive) how exactly does this add up to helping mitigate overdraft? Again, it is hard to compare apples to oranges.
- Why is PP6 the same cost as PP9, when capital costs are $50 million higher and annual O&M is $6Million higher/year? (Again, the 30,000 AF "yield" of PP6 does not increase water in the aquifer – it takes it out, therefore you cannot divide by yield in PP6 similarly to PP9).
    - **PP6 Seawater Intrusion Pumping Barrier: "**Capital cost for the Seawater Intrusion Pumping Barrier project is estimated at $102,389,000. This includes 44,000 LF of 8-inch to 36-inch pipe and rehabilitation of the existing M1W outfall. Annual O&M costs are anticipated to be approximately $9,800,000. The total projected yield for the Seawater Intrusion Pumping Barrier is 30,000 AF/yr. **The cost of water for this project is estimated at $590/AF."**
    - **PP9 SRDF Winter Flow Injection:** "The majority of the costs are for the construction of the injection wells. Capital costs are assumed to be $51,191,000 for construction of an injection well field consisting of 16 wells as well as construction of a 4-mile conveyance pipeline between the SRDF site and the injection well system. Annual O&M costs are estimated at $3,624,000 for the operation of the injection well field. Total annualized cost is $7,629,000. **Based on a project yield of 12,900 AF/yr., the unit cost of water is $590/AF/yr."**

9.4.3.10 Preferred Project 9: SRDF Winter Flow Injection

- This project proposes injection wells, have groundwater recharge basins been considered? This would include a water savings from taking ground out of production (3 af/acre) and no major ongoing O&M/capital costs.
- Why is there 4 miles of pipeline? Could you contact landowners closer to facilities, purchase land, permanently fallow ground closer to region to be served and reduce fee. Compare the cost/mile pipe vs. land costs.

9.6 Mitigation of Overdraft - There is a lack of transparency for reader to understand overall goal.

- The GSP should clearly restate the total acre-feet needed to bring the 180/400 Aquifer Subbasin in balance upfront. Ideally, should be stated at the beginning of the projects section to frame the menu of options to chose from.
    - **What is the current demand in the 180/400 Aquifer Subbasin? What is the sustainable yield for Subbasin? What is the overdraft of the Subbasin?**
        - According to 5.3.4 Total Change in Groundwater Storage, the basin is over drafted by 11,700 AFY.
        - According to 9.6 Mitigation of Overdraft, the historical subbasin overdraft estimated in Chapter 6 is 12,600 AF/yr.
        - If we have to add on to the overdraft as a "buffer" to stop seawater intrusion, what is the target goal? 20,000 AFY?
- What is the cumulative impact of multiple projects? If all projects were put in place, or a certain combination of projects in place, would there be enough water for it?
- Suggestion: combine AF/year in Table 9-5 with Table 9-1.
- Table 9-5 – total in table is -58,201, but this appears to be incorrect, if added the total is 40,800 AF
    - The negative value is somewhat confusing given all of the projects except for seawater intrusion barrier are listed as +.
    - The three CSIP related projects (in red) seem to have overlapping water savings yet they are listed as separate line items. Needs clarification and potential revision.

	Table 9-5, Potential Yield AFY
Invasive Species Eradication	6,000
Optimize CSIP	5,500
Modify M1W	1,100
Expand CSIP	9,900
Maximize SRDF	11,600
Seawater Intrusion Barrier	-11,000
SRDF Winter Flow Injection	17,700
SUM	40,800

Chapter 10, Budget concerns - Cost of Management Actions
Our members are sensitive to total costs to implement SGMA, especially for Management Actions that may be lumped into the shared Valley Wide budget. Between the First and Second drafts of Chapter 9 (between July 18 and August 8, 2019, as described in Process section above), the two Management Actions (MAs) have been added and the cost for existing MAs have increased in both years, cost per year and total cost. In total we have calculated that annual costs for these MAs have gone up +$255,000 and assuming MA #2 education lasts 5 years, total costs increase by $1,000,000. On the "Public Comment" document, there is no apparent public comment on these MA changes, most of the comments were around the Water Charges Framework and Projects.[6] Since the release of the August draft and the October draft, there doesn't seem to be substantial changes despite the extensive comments received. **See table below.**

	9.3.2 MA1: Agricultural Land and Pumping Allowance Retirement		9.3.3 MA2: Outreach and Education for Agricultural BMPs*		9.3.4 MA3: Reservoir Reoperation		9.3.5 MA4: Restrict Pumping in CSIP Area		9.3.6 MA5: Restrictions on Additional Wells in the Deep Aquifers		9.3.7 MA6: Seawater Intrusion Working Group	
	D1	D2/3	D1	D2/3	D1	D2/3	D1	D2/3	D1	D2/3	D1	D2/3
# years			N/A	??	2	3	1	2	1	4	N/A	2
$/ year			$0	$100,000	$50,000	$50,000	$20,000	$50,000	$40,000	$40,000	$0	$125,000
Total Cost			$0	$500,000	$100,000	$150,000	$20,000	$100,000	$40,000	$160,000	$0	$250,000
$/AF low	$500	$680										
$/AF high	$1,350	$1,820										
Total Cost increase	4% interest rate, 30 years	6% interest rate, 25 years		**$500,000**		**$50,000**		**$80,000**		**$120,000**		**$250,000**

Assuming MA#2 education may last 5 years, the total cost of increased budget is $1,000,000.

D1: Draft 1: July 18, 2019 draft.

D 2/3: Draft 2 and 3: August 8, 2019 and Oct 5, 2019.

Total Cost	D1	D2/3	**Change**
$/year	$110,000	$365,000	**$255,000**
Total Cost	$160,000	$1,160,000	**$1,000,000**

Questions on the changes in Management Actions:

- Why did MA 1 change from a 4% 30 year mortgage to a 6% 25-year mortgage?
- How many years is MA #2 expected to take?
- Why has the number of years gone up for MA #3, 4, 5?
- Why has the cost per year gone up for MA #4?
- MA6 creating a Seawater Intrusion Working Group (SIWG) was recently added, and while this may be a good idea, it is the most expensive Management Action. It also isn't clear as to the level of inclusion of stakeholders – they need to be included in any working group.
  - Why is there $250,000 on Tale 10-1 for "Seawater Intrusion Working Group" and an additional $200,000 on Table 10-2 for "Coordinate SIWG? If total budget is $250,000+$200,000, why aren't these costs stated in Chapter 9?
  - Table 10-2: We have $1.2 million for Operational Costs, why is SWIG listed as a separate line item whereas other Management Actions are assumed to be included under Operational Costs?
- It states that the SVB GSA is only providing "oversight" for many of the Management Actions and even some Projects. Will these be overseen by other agencies? If so, would SVBGSA have any authority over these actions and projects?
  - If it is just to primarily stay informed and attend meetings, why is the cost to GSA so high (especially MA 3,4,5)?
  - Has SVB-GSA Board of Directors approved expansion to its staffing?
  - If not, will salaries of two existing staff be significantly increasing?

[6] https://svbgsa.org/wp-content/uploads/2019/10/Website-Update-Appendix-11E-Public-Review-Comments.pdf

Table 10-1 and 10-2 – Budgets: Other cost questions

- Are all Management Actions assumed to be included under Table 10-2 Operational Costs ($1.2M)?
    - We have $1.2 million for Operational Costs, why is SWIG listed as a separate line item if other Management Actions are assumed to be included under Operational Costs?
- All 180/400 planning, operational costs and specific actions should be put under table 10-1, not 10-2. This is important because the basin is different both scientifically and in the eyes of the State Water Board. It is considered a high priority basin and therefore has different regulatory time schedule for the implementation of 180/400 projects. Because saltwater intrusion issue it faces is more challenging than other sub-basins, the potential need for complex and multiple projects will also drive up the costs for compliance for this sub-basin. For example,
    - Why is SIWG ($200,000) listed on “Valley-wide” planning cost Table 10-2 when seawater intrusion isn’t a valley-wide issue?
    - Why is Refine Projects and Actions ($460,000) on table 10-2 if other basins may have no need for projects, or the projects they may partake in (such as PP#1 Invasive Species Removal) already exist?
    - While the cost/benefit analysis of projects for the 180/400 may have some interaction with other basins such as the Forebay, to put a generic placeholders on table 10-2 and claim that they are “Whole Valley” line items is erroneous.
- There appears to be an addition error in Table 10-2 as the ‘***Total’ of $9,422,600.00 is not correct – but rather it should be $2,921,800.00 according to our addition.*** This is a significant error as it distorts the overall total costs of the projects, and then distorts the average annual cost and hence, the potential costs to be paid by landowners. Table 10-1 also appears to be added incorrectly, calling into question the integrity of the document.

We again thank you for the opportunity to submit comments. We ask that your Board consider these comments for incorporation and revision to 180/400 Aquifer Subbasin GSP.

Thank you for your consideration,

N. Isakson

Nancy Isakson, President

November 25, 2019

Sent via email to peterseng@svbgsa.org

Re: Comments on Draft Groundwater Sustainability Plan for Salinas Valley – 180/400-Foot Aquifer Subbasin

Dear Mr. Peterson,

On behalf of the above-listed organizations, we would like to offer the attached comments on the draft Groundwater Sustainability Plan for the Salinas Valley – 180/400-Foot Aquifer Subbasin. Our organizations are deeply engaged in and committed to the successful implementation of the Sustainable Groundwater Management Act (SGMA) because we understand that groundwater is a critical piece of a resilient California water portfolio, particularly in light of our changing climate. Because California's water and economy are interconnected, the sustainable management of each basin is of interest to both local communities and the state as a whole.

Our organizations have significant expertise in the environmental needs of groundwater and the needs of disadvantaged communities.[1]

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[1] The Nature Conservancy, in collaboration with state agencies, has developed several tools (https://groundwaterresourcehub.org/) for identifying groundwater dependent ecosystems in every SGMA groundwater basin and has made that tool available to each Groundwater Sustainability Agency.

- Local Government Commission supports leadership development, performs community engagement, and provides technical assistance dealing with groundwater management and other resilience-related topics at the local and regional scales; we provide guidance and resources for statewide applicability to the communities and GSAs we are working with directly in multiple groundwater basins.
- Audubon California is an expert in understanding wetlands and their role in groundwater recharge and applying conservation science to develop multiple-benefit solutions for sustainable groundwater management.
- Clean Water Action and Clean Water Fund are sister organizations that have deep expertise in the provision of safe drinking water, particularly in California's small disadvantaged communities, and co-authored a report on public and stakeholder engagement in SGMA. (https://www.cleanwater.org/publications/collaborating-success-stakeholder-engagement-sustainable-groundwater-management-act)
- Community Water Center (CWC) acts as a catalyst for community-driven water solutions through organizing, education, and advocacy. CWC seeks to build and enhance leadership capacity and local community power around water issues, create a regional movement for water justice in California, and enable every community to have access to safe, clean, and affordable drinking water. CWC has supported SGMA implementation through hosting several technical capacity building workshops, developing SGMA education materials, and supporting local leadership and community engagement.
- The Union of Concerned Scientists has been working to ensure that future water supply meets demand and withstands climate change impacts by supporting stakeholder education and integration, and the creation and implementation of science-based Groundwater Sustainability Plans.

Because of the number of draft plans being released and our interest in reviewing every plan, we have identified key plan elements that are necessary to ensure that each plan adequately addresses essential requirements of SGMA. A summary review of your plan using our evaluation framework is attached to this letter as Appendix A. Appendix B provides a more detailed evaluation of the water quality and drinking water elements of the Plan. Our hope is that you can use our feedback to improve your plan before it is submitted in January 2020.

This review does not look at data quality but instead looks at how data was presented and used to identify and address the needs of disadvantaged communities (DACs), drinking water and the environment. In addition to informing individual groundwater sustainability agencies of our analysis, we plan to aggregate the results of our reviews to identify trends in GSP development, compare plans and determine which basins may require greater attention from our organizations.

Key Indicators

Appendix A provides a list of the questions we posed, how the draft plan responds to those questions and an evaluation by element of major issues with the plan. Below is a summary by element of the questions used to evaluate the plan.

1. Identification of Beneficial Users. This element is meant to ascertain whether and how DACs and groundwater-dependent ecosystems (GDEs) were identified, what standards and guidance were used to determine groundwater quality conditions and establish minimum thresholds for groundwater quality, and how environmental beneficial users and stakeholders were engaged through the development of the draft plan.
2. Communications plan. This element looks at the sufficiency of the communications plan in identifying ongoing stakeholder engagement during plan implementation, explicit information about how DACs were engaged in the planning process and how stakeholder input was incorporated into the GSP process and decision-making.
3. Maps related to Key Beneficial Uses. This element looks for maps related to drinking water users, including the density, location and depths of public supply and domestic wells; maps of GDE and interconnected surface waters with gaining and losing reaches; and monitoring networks.
4. Water Budgets. This element looks at how climate change is explicitly incorporated into current and future water budgets; how demands from urban and domestic water users were incorporated; and whether the historic, current and future water demands of native vegetation and wetlands are included in the budget.
5. Management areas and Monitoring Network. This element looks at where, why and how management areas are established, as well what data gaps have been identified and how the plan addresses those gaps.
6. Measurable Objectives and Undesirable Results. This element evaluates whether the plan explicitly considers the impacts on DACs, GDEs and environmental beneficial users in the development of Undesirable Results and Measurable Objectives. In addition, it examines whether stakeholder input was solicited from these beneficial users during the development of those metrics.
7. Management Actions and Costs. This element looks at how identified management actions impact DACs, GDEs and interconnected surface water bodies; whether mitigation for impacts to DACs is discussed or funded; and what efforts will be made to fill identified data gaps in the first five years of the plan. Additionally, this element asks whether any changes to local ordinances or land use plans are included as management actions.

Conclusion

We know that SGMA plan development and implementation is a major undertaking, and we want every basin to be successful. We would be happy to meet with you to discuss our evaluation as you finalize your Plan for submittal to DWR. Feel free to contact Suzannah Sosman at suzannah@aginnovations.org for more information or to schedule a conversation.

Sincerely,

Jennifer Clary
Water Program Manager
Clean Water Action/Clean Water Fund

Danielle V. Dolan
Water Program Director
Local Government Commission

Samantha Arthur
Working Lands Program Director
Audubon California

Heather Lukacs, PhD
Director of Community Solutions
Community Water Center

Sandi Matsumoto
Associate Director, California Water Program
The Nature Conservancy

J. Pablo Ortiz-Partida, Ph.D.
Western States Climate and Water Scientist
Union of Concerned Scientists

Appendix A
Review of Public Draft GSP

Groundwater Basin/Subbasin: Salinas Valley – 180/400-Foot Aquifer Subbasin (DWR 3-004.01)
GSA: Salinas Valley Basin GSA
GSP Date: October 2019 Public Review Draft

1. Identification of Beneficial Users

Were key beneficial users identified and engaged?

Selected relevant requirements and guidance:
GSP Element 2.1.5, "Notice & Communication" (§354.10):
(a) A description of the beneficial uses and users of groundwater in the basin, including the land uses and property interests potentially affected by the use of groundwater in the basin, the types of parties representing those interests, and the nature of consultation with those parties.
GSP Element 2.2.2, "Groundwater Conditions" (§354.16):
(d) Groundwater quality issues that may affect the supply and beneficial uses of groundwater, including a description and map of the location of known groundwater contamination sites and plumes.
(f) Identification of interconnected surface water systems within the basin and an estimate of the quantity and timing of depletions of those systems, utilizing data available from the Department, as specified in Section 353.2, or the best available information.
(g) Identification of groundwater dependent ecosystems within the basin, utilizing data available from the Department, as specified in Section 353.2, or the best available information.
GSP Element 3.3, "Minimum Thresholds" (§354.28):
(4) How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.

Review Criteria		Yes	No	N/A	Relevant Info per GSP	Location (Section, Page[1])
1. Do beneficial users (BUs) identified within the GSP area include:	a. Disadvantaged Communities (DACs)	X			The Salinas Valley Groundwater Stakeholder Issue Assessment identifies that DACs are among the beneficial users in the basin, but does not identify what DACs this includes, how many community members this represents, where the DACs are located, etc.	Appendix 11C, Page 875
	b. Tribes		X			
	c. Small community public water systems (<3,300 connections)	X			Public water systems are represented on the Board and on the Advisory Committee, though it is not clear from the text which systems have fewer than 3,300 connections.	Appendix 11A, Page 855 Appendix 11B, Page 856
2. What data were used to identify presence or absence of DACs?	d. DWR DAC Mapping Tool[2]		X		The data source is not clear from the GSP.	
	i. Census Places		X			
	ii. Census Block Groups		X			
	iii. Census Tracts		X			
	e. Other data source		X			
3. Groundwater Conditions section includes discussion	f. Drinking Water Quality	X			"Data were summarized by groundwater basin/subbasin and well type: - On-farm domestic wells: tend to be of shallower depths and represents	5.5.3, Page 165

[1] Page numbers refer to the page of the PDF.
[2] DWR DAC Mapping Tool: https://gis.water.ca.gov/app/dacs/

of:					water used for domestic drinking water supply - Irrigation supply wells: tend to be of intermediate depths and represents water used for primarily for agricultural supply beneficial uses.”	
	g. California Maximum Contaminant Levels (CA MCLs)[3] (or Public Health Goals where MCL does not exist, e.g. Chromium VI)	X			Section 5.5.3 discusses groundwater quality data in comparison to MCLs for all constituents included; the GSP focuses primarily on nitrate.	5.5.3, Page 165-169
4. What local, state, and federal standards or plans were used to assess drinking water BUs in the development of Minimum Thresholds (MTs)?	h. Office of Environmental Health Hazard Assessment Public Health Goal (OEHHA PHGs)[4]		X			
	i. CA MCLs[3]	X			Groundwater quality MTs for municipal wells, small water system wells, and domestic well constituents in ILRP wells were developed based on MCLs/SMCLs.	Table 8-5, Page 300
	j. Water Quality Objectives (WQOs) in Regional Water Quality Control Plans	X			Groundwater quality MTs for agricultural irrigation constituents in ILRP wells were developed based on WQOs.	Table 8-5, Page 300
	k. Sustainable Communities Strategies/ Regional Transportation Plans[5]		X			
	l. County and/or City General Plans, Zoning Codes and Ordinances[6]		X			
5. Does the GSP identify how environmental BUs and environmental stakeholders were engaged throughout the development of the GSP?			X		The Joint Exercise of Powers Agreement (Appendix 2A) lists the Board of Directors that includes a Director representing environmental users and interests. This is the only mention of environmental users in Chapter 11. No details are given as to the types and locations of environmental uses and habitats supported, or the designated beneficial environmental uses of surface waters that may be affected by groundwater extraction in the Subbasin.	Appendix 2A, Page 479

Summary/ Comments

It is recommended that the GSP provide more detailed descriptions of all beneficial users of groundwater.

The GSP should provide much more thorough information on DACs. For example: which communities are DACs? where are these communities located? what data sources were used to identify the presence of DACs? The GSP also does not discuss how and to what extent DAC members rely on groundwater. For example: how much of the population relies on private domestic wells for drinking water? how much of the population relies on small community water systems? are those community water systems solely depending on groundwater? how many connections do the small water systems serve? This information is valuable for the reader to understand the scale of the vulnerable population dependent on groundwater for drinking water. DACs are defined by California Water Code §79505.5 as communities with an annual median household income that is less than 80 percent of the statewide annual median household income. The DWR DAC Mapping Tool can be used to help identify the locations of these communities and their populations: https://gis.water.ca.gov/app/dacs/

The GSP does not identify whether native American tribes are present in the GSA area, and/or what sources were used to support that conclusion.

[3] CA MCLs: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/MCLsandPHGs.html
[4] OEHHA PHGs: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/MCLsandPHGs.html
[5] CARB: https://ww2.arb.ca.gov/resources/documents/scs-evaluation-resources
[6] OPR General Plan Guidelines: http://www.opr.ca.gov/planning/general-plan/

The draft GSP identifies numerous constituents that have been detected in groundwater above drinking water standards, but, with the exception of nitrate, does not present these data spatially or even in tabular format. Even though the draft GSP sets water quality MTs for these constituents (Table 8-6 through 8-9), the supporting data are not presented, and no analyses of spatial or temporal water quality trends are presented. This does not present a clear and transparent assessment of current water quality conditions in the subbasin with respect to drinking water beneficial use (23 CCR § 354.16(d)). It is recommended that the GSP include specific discussions supported by maps and charts, of the spatial and temporal water quality trends for constituents that have exceeded drinking water standards.[7]

The GSP should provide details on the types and locations of environmental uses and habitats supported, and the designated beneficial environmental uses of surface waters that may be affected by groundwater extraction in the Subbasin (https://groundwaterresourcehub.org/sgma-tools/environmental-surface-water-beneficiaries/).

To identify environmental users, please refer to the following:

- Natural Communities Commonly Associated with Groundwater dataset (NC Dataset) – (https://gis.water.ca.gov/app/NCDatasetViewer/) which identifies the potential presence of groundwater dependent ecosystems in this basin.
- The list of freshwater species located in the 180/400-Foot Aquifer Subbasin can be found here: https://groundwaterresourcehub.org/sgma-tools/environmental-surface-water-beneficiaries/. Please take particular note of the species with protected status.
- Lands that are protected as open space preserves, habitat reserves, fisheries, wildlife refuges, conservation areas or other lands protected in perpetuity and supported by groundwater or ISWs should be identified and acknowledged.

Refer to the Critical Species Lookbook (https://groundwaterresourcehub.org/sgma-tools/the-critical-species-lookbook/) to review and discuss the potential groundwater reliance of critical species in the basin. The GSP should include a discussion regarding the management of critical habitat for these aquatic species and its relationship to the GSP.

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[7] Stanford, 2019. *A Guide to Water Quality Requirements Under the Sustainable Groundwater Management Act,* Spring 2019. (https://stacks.stanford.edu/file/druid:dw122nb4780/A%20Guide%20to%20Water%20Quality%20Requirements%20under%20SGMA.pdf)

2. Communications Plan

How were key beneficial users engaged and how was their input incorporated into the GSP process and decisions?

Selected relevant requirements and guidance:
GSP Element 2.1.5, "Notice & Communication" (§354.10):
Each Plan shall include a summary of information relating to notification and communication by the Agency with other agencies and interested parties including the following:
(c) Comments regarding the Plan received by the Agency and a summary of any responses by the Agency.
(d) A communication section of the Plan that includes the following:
(1) An explanation of the Agency's decision-making process.
(2) Identification of opportunities for public engagement and a discussion of how public input and response will be used.
(3) A description of how the Agency encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin.
(4) The method the Agency shall follow to inform the public about progress implementing the Plan, including the status of projects and actions.

DWR Guidance Document for GSP Stakeholder Communication and Engagement[8]

Review Criteria	Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1. Is a Stakeholder Communication and Engagement Plan (SCEP) included?	X			Appendix 11D. Stakeholder Outreach and Communication Strategy (no date)	Appendix 11D, Page 883
2. Does the SCEP or GSP identify that ongoing engagement will be conducted during GSP implementation?	X			"The SVBGSA will routinely provide information to the public about GSP implementation and progress towards sustainability and the need to use groundwater efficiently. The SVBGSA website will be maintained as a communication tool for posting data, reports, and meeting information. This website features a link to an interactive mapping function for viewing Salinas Valley Groundwater Basin-wide data that were used during GSP development."	10.1.3, Page 419
3. Does the SCEP or GSP specifically identify how DAC beneficial users were engaged in the planning process?	X			DACs are represented on the Board by Primary Director Ron Stefani (Alternate Director position currently vacanti). DACs are also represented on the Advisory Committee by CHISPA and Environmental Justice Coalition for Water. Communication tools include "Radio interviews and features, particularly Spanish radio".	Appendix 11A, Page 855 Appendix 11B, Page 856 Appendix 11D, Page 892
4. Does the SCEP or GSP explicitly describe how stakeholder input was incorporated into the GSP process and decisions?	X			Section 11.3 and 11.4 describes how stakeholder input was incorporated. "From 2015 through 2017, local agencies and stakeholders worked with the Consensus Building Institute (CBI) to facilitate the formation of the SVBGSA. CBI began by conducting a Salinas Valley Groundwater Stakeholder Issue Assessment (Appendix 11C), which included interviews and surveys, and	11.3-11.4, Page 432-438

[8] DWR Guidance Document for GSP Stakeholder Communication and Engagement https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Guidance-Document-for-Groundwater-Sustainability-Plan---Stakeholder-Communication-and-Engagement.pdf

				resulted in recommendations for a transparent, inclusive process for the local implementation of SGMA and the formation of the GSA." "The SVBGSA is required to develop a GSP for each separate subbasin. Given the critical overdraft identification of the 180/400-Foot Aquifer Subbasin, initial planning efforts have focused on the development of this GSP in order to meet the January 31, 2020 deadline for submittal. The SVBGSA Board has also determined that another level of planning, not required by SGMA Legislation, would be completed. This plan, identified as the Integrated Sustainability Plan (ISP), identifies overarching issues that are common to all subbasins as well as identifying opportunities for all subbasin stakeholders to share resources. Several chapters of the ISP have been developed concurrently with chapters for the critically over drafted basin." "Phase 2 began for this subbasin in 2017 and will continue until the GSP is submitted to DWR by January 31, 2020. In 2018 and 2019, the development of the GSP has been undertaken by the SVBGSA Board of Directors, SVBGSA, Advisory Committee, Planning Committee and stakeholders for feedback and input. During 2018 and 2019, a series of community workshops were held in the Salinas Valley to educate and inform stakeholders about SGMA and the GSP process, while also soliciting feedback and input. Phase 2 of the GSP planning and development process has included outreach and education activities that involve stakeholders affected by water management in the Basin. The outreach and education process have informed and educated them about SGMA, groundwater management, and the GSP planning process; and, solicit and address issues and opportunities to improve groundwater management for the Salinas Valley Sub-basins the following activities have been undertaken by the SVBGSA: • Identify existing notification lists that could be used to reach the various social, cultural, and economic elements of the Salinas Valley Basin population. • Develop and provide information regarding SGMA, GSP planning, and groundwater management. • Solicit stakeholder and public input on groundwater analysis and modeling, sustainability goals, management actions, and implementation plans. • Provide and summarize stakeholder and public input for the Advisory Committee, the Planning Committee and the SVBGSA Board throughout the GSP process. • Identify and provide opportunities for public input at key project milestones Developed a website that includes access to maps and data and allows stakeholders to register in order to receive meeting notifications and relevant	

				documents."	

Summary/ Comments

The GSP does not provide specific details on how the public was engaged through the GSP development process, such as how many meetings were held, when and where the meetings were held, and how the meetings were noticed to the public other than through the website.

It is important that stakeholder engagement be maintained through the development of future projects and management actions and other SGMA compliance and implementation steps.

GSP Appendix 11 identifies the Board Alternate Director as David Morisoli. However, it is our understanding that this alternate director position is currently vacant. The GSP should be revised to reflect the current board members and representatives.

3. Maps Related to Key Beneficial Uses

Were best available data sources used for information related to key beneficial users?

Selected relevant requirements and guidance:
GSP Element 2.1.4 "Additional GSP Elements" (§354.8):
Each Plan shall include a description of the geographic areas covered, including the following information:
(a) One or more maps of the basin that depict the following, as applicable:
(5) The density of wells per square mile, by dasymetric or similar mapping techniques, showing the general distribution of agricultural, industrial, and domestic water supply wells in the basin, including de minimis extractors, and the location and extent of communities dependent upon groundwater, utilizing data provided by the Department, as specified in Section 353.2, or the best available information.

GSP Element 3.5 Monitoring Network (§354.34)
(b) Each Plan shall include a description of the monitoring network objectives for the basin, including an explanation of how the network will be developed and implemented to monitor groundwater and related surface conditions, and the interconnection of surface water and groundwater, with sufficient temporal frequency and spatial density to evaluate the affects and effectiveness of Plan implementation. The monitoring network objectives shall be implemented to accomplish the following:
(c) Each monitoring network shall be designed to accomplish the following for each sustainability indicator:
(1) Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features by the following methods:
(A) A sufficient density of monitoring wells to collect representative measurements through depth-discrete perforated intervals to characterize the groundwater table or potentiometric surface for each principal aquifer.
(4) Degraded Water Quality. Collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues.
(6) Depletions of Interconnected Surface Water. Monitor surface water and groundwater, where interconnected surface water conditions exist, to characterize the spatial and temporal exchanges between surface water and groundwater, and to calibrate and apply the tools and methods necessary to calculate depletions of surface water caused by groundwater extractions. The monitoring network shall be able to characterize the following:
(A) Flow conditions including surface water discharge, surface water head, and baseflow contribution.
(B) Identifying the approximate date and location where ephemeral or intermittent flowing streams and rivers cease to flow, if applicable.
(C) Temporal change in conditions due to variations in stream discharge and regional groundwater extraction.
(D) Other factors that may be necessary to identify adverse impacts on beneficial uses of the surface water.
(f) The Agency shall determine the density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends based upon the following factors:
(3) Impacts to beneficial uses and users of groundwater and land uses and property interests affected by groundwater production, and adjacent basins that could affect the ability of that basin to meet the sustainability goal.

Review Criteria		Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1. Does the GSP Include Maps Related to Drinking Water Users?	a. Well Density	X			Figure 3-7. Density of Domestic Wells Figure 3-9. Density of Municipal Wells	Figure 3-7, Page 50 Figure 3-9, Page 52
	b. Domestic and Public Supply Well Locations & Depths		X		No maps are provided other than the well density maps. Well depths appear to be used when analyzing impacts of MTs on domestic wells, but are not otherwise provided in the document.	

	i. Based on DWR Well Completion Report Map Application[9]?	**X**			"The DWR data were used for simplicity and consistency with other DWR data used in this GSP. DWR's Well Completion Report Map Application classifies wells as domestic, production, and municipal; the majority of wells classified as production wells are assumed to be used for agricultural irrigation, with some production wells used for industrial purposes."	3.5, Page 48
	ii. Based on Other Source(s)?		**X**		Other sources are identified, but not used in the GSP. "Other data sources are available from MCWRA or other sources, and they may result in different well densities. The DWR data were used for simplicity and consistency with other DWR data used in this GSP."	
2. Does the GSP include maps related to Groundwater Dependent Ecosystem (GDE) locations?	a. Map of GDE Locations	**X**			Decisions to remove, keep, or add polygons from the NC dataset into a basin GDE map should be based on best available science in a manner that promotes transparency and accountability with stakeholders. Any polygons that are removed, added, or kept should be inventoried in the submitted shapefile to DWR, and mapped in the plan. We recommend revising Figure 4-10 to reflect this change. Please note the following best practices for depth to groundwater contour maps: ● Are the wells used for interpolating depth to groundwater sufficiently close (<5km) to NC Dataset polygons to reflect local conditions relevant to ecosystems? ● Are the wells used for interpolating depth to groundwater screened within the surficial unconfined aquifer and capable of measuring the true water table? ● Is depth to groundwater contoured using groundwater elevations at monitoring wells to get groundwater elevation contours across the landscape? This layer can then be subtracted from land surface elevations from a Digital Elevation Model (DEM) to estimate depth-to-groundwater contours across the landscape. This will provide much more accurate contours of depth-to-groundwater along streams and other land surface depressions where GDEs are commonly found. Depth to groundwater contours developed from depth to groundwater measurements at wells assumes that the land surface is constant, which is a poor assumption to make. It is better to assume that water surface elevations are constant in between wells, and then calculate depth to groundwater using a DEM of the land surface to contour depth to groundwater. If insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons in	Figure 4-10, Page 102

[9] DWR Well Completion Report Map Application: https://www.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37

					the GSP until data gaps are reconciled in the monitoring network.	
	b. Map of Interconnected Surface Waters (ISWs)		X		The groundwater levels shown on Figure 5-35 are irrelevant to the discussion of ISWs since they do not map the shallow water table. The use of piezometric head from confined aquifers should be eliminated from these ISW mapping efforts, since they do not adequately reflect the position of the true water table. Mapping ISW locations would be best done using contours of depth to groundwater measured from multiple points in time (different seasons and water year types) rather than only from Fall 2013. Groundwater conditions evaluated across the range of seasonal and interannual time frames provides a more representative view of ISWs. It is unclear on Figure 5-35 whether missing groundwater levels along certain reaches of the Salinas River are due to groundwater levels >20 feet bgs or due to data gaps in groundwater levels. Mapping the position of wells used for the interpolation of groundwater elevation data used to map groundwater level contours near surface water would help provide further clarification.	
	i. Does it identify which reaches are gaining and which are losing?		X			
	ii. Depletions to ISWs are quantified by stream segments.		X			
	iii. Depletions to ISWs are quantified seasonally.		X			
3. Does the GSP include maps of monitoring networks?	a. Existing Monitoring Wells	X			Figure 7-1. Current 180-Foot Aquifer CASGEM Monitoring Network for Water Levels Figure 7-2. Current 400-Foot Aquifer CASGEM Monitoring Network for Water Levels Figure 7-3. Current Deep Aquifer CASGEM Monitoring Network for Water Levels Figure 7-7. 180-Foot Aquifer Monitoring Network for Seawater Intrusion Figure 7-8. 400-Foot Aquifer Monitoring Network for Seawater Intrusion Figure 7-9. Locations of Wells in the Groundwater Quality Monitoring Network for Public Water Supply Wells Figure 7-10. Locations of ILRP Wells Monitored under Ag Order 3.0	Figure 7-1, Page 231 Figure 7-2, Page 232 Figure 7-3, Page 233 Figure 7-7, Page 243 Figure 7-8, Page 244 Figure 7-9, Page 248 Figure 7-10, Page 249
	b. Existing Monitoring Well Data sources: i. California Statewide Groundwater Elevation Monitoring (CASGEM)	X			"A CASGEM network has already been established by MCWRA for the 180/400-Foot Aquifer Subbasin (MCWRA, 2015b)"	7.2, Page 224-232
	ii. Water Board Regulated monitoring sites	X			"There are multiple sites at which groundwater quality monitoring is conducted as part of investigation or compliance monitoring programs through the Central Coast Regional Water Quality Control Board."	3.6.3.2, Page 55
	iii. Department of Pesticide Regulation (DPR) monitoring wells		X			
	c. SGMA-Compliance Monitoring Network	X			"All of the monitoring sites shown in figures and tables in this Chapter are considered RMS [representative monitoring sites] (except where noted)."	See above.
	i. SGMA Monitoring Network map includes identified DACs?		X			
	ii. SGMA Monitoring Network map includes		X			

	identified GDEs?					

Summary/ Comments

The GSP should provide the locations and depths of all domestic and public supply wells in the GSA area using the best available information, and present this information on maps along with the proposed SGMA-compliance monitoring network so that the public can evaluate how well the monitoring network addresses these key beneficial users. If no better source is available, DWR has made well construction records available through its Well Completion Report Map application website:
https://www.arcgis.com/apps/webappviewer/index.html?id=181078580a214c0986e2da28f8623b37

There are no water level representative monitoring wells (RMWs) located in the northernmost portion of the subbasin, in an area with a high concentration of domestic well users. Thus, the water level monitoring network is inadequate to properly monitor for these sensitive beneficial users, as required under 23 CCR §354.34 (b)(2).

The draft GSP does not clearly identify what wells will specifically be used as water quality RMWs, but rather lists MTs by general type of well. As required under 23 CCR §354.34(h), the GSP must clearly identify on both a map and in tabular form each of the wells to be used as RMWs for water quality. Without this information, the public cannot review and assess the adequacy of the proposed GSP to monitor impacts to beneficial users of groundwater, in particular those reliant on domestic wells for drinking water purposes.

Providing maps of the monitoring network overlaid with location of DACs, GDEs, and any other sensitive beneficial users will also allow the reader to evaluate adequacy of the network to monitor conditions near these beneficial users.

Refer to TNC's guidance on Identifying GDEs Under SGMA (https://groundwaterresourcehub.org/public/uploads/pdfs/TNC_NCdataset_BestPracticesGuide_2019.pdf) for best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer.

The GSP should present or refer to a depth to groundwater map in Section 4.4.4. Only wells screened in the shallow unconfined aquifer should be used to develop the depth to groundwater maps. If there are insufficient groundwater level data in the shallow aquifer, then the GDE polygons in these areas should be included as GDEs in the GSP until data gaps are reconciled in the monitoring network.

The GSP should clarify how the light blue shaded area shown in Figure 4A-3 (depth to water < 30 ft south of Chualar) is used for the GDE analysis. The figure implies an incorrect interpretation of the GDE Guidance.

Care should be taken when considering rooting depths of vegetation. The GSP should list the species in each GDE, and whether the GDE was eliminated or retained based on the 30-foot standard, and provide evidence for the decision.

We highly recommend using depth to groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) to determine the range of depth to groundwater around NC dataset polygons.

The GSP should include a description of the types of species (protected status, native versus non-native), habitat, and environmental beneficial uses and assign an ecological value to the GDEs.

While groundwater in the 180- and 400-foot Aquifers is generally not considered to be hydraulically connected to the Salinas River or its tributaries, the Shallow Aquifer (which resides above the Salinas Valley Aquitard) likely does. To address this, interconnections of surface water with groundwater in the Shallow Aquifer should be evaluated in Section 5.6 of the GSP, since the Shallow Aquifer is within the 180/400-Foot Aquifer Subbasin. Where data gaps exist, cite them here or refer to a subsequent section of the GSP. Cite

cross-sections that relay the conceptual understanding of the shallow aquifer interaction with surface water. It is recommended that the ISW be mapped using contours of depth to groundwater measured from multiple points in time. The position of wells should also be included. The GSP should elaborate on how depth to groundwater contours were developed for Figure 5-19 and on Figure 5-35. It is recommended to map the gaining and losing reaches onto Figure 5-19 using the data from Figure 5-23. If this is not possible due to insufficient data, then as with the first bullet above, the data gaps would be best addressed by the Monitoring Network.

4. Water Budgets

How were climate change projections incorporated into projected/future water budget and how were key beneficial users addressed?

Selected relevant requirements and guidance:
GSP Element 2.2.3 "Water Budget Information" (Reg. § 354.18)
Each Plan shall include a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical, current and projected water budget conditions, and the change in the volume of water stored. Water budget information shall be reported in tabular and graphical form.

Projected water budgets shall be used to estimate future baseline conditions of supply, ***demand****, and aquifer response to Plan implementation, and to identify the uncertainties of these projected water budget components. The projected water budget shall utilize the following methodologies and assumptions to estimate future baseline conditions concerning hydrology, water demand and surface water supply availability or reliability over the planning and implementation horizon:*
(b) The water budget shall quantify the following, either through direct measurements or estimates based on data:
(5) If overdraft conditions occur, as defined in Bulletin 118, the water budget shall include a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions.
(6) The water year type associated with the annual supply, demand, and change in groundwater stored.
(c) Each Plan shall quantify the current, historical, and projected water budget for the basin as follows:
(1) Current water budget information shall quantify current inflows and outflows for the basin using the most recent hydrology, water supply, ***water demand****, and land use information.*

DWR Water Budget BMP[10]
DWR Guidance for Climate Change Data Use During GSP Development and Resource Guide[11]

Review Criteria	Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1. Are climate change projections explicitly incorporated in future/ projected water budget scenario(s)?	X			"The projected water budget is extracted from the SVIHM projected hydrologic conditions with climate change simulations."	6.10, Page 212
2. Is there a description of the methodology used to include climate change?	X			Section 6.10.1 provides details on the methodology. "Several modifications were made to the SVIHM in accordance with recommendations made by DWR in their Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development (DWR, 2018). Three types of datasets were modified to account for 2030 and 2070 projected climate change: climate data (precipitation and reference evapotranspiration, ET0), streamflow, and sea level." The GSP then describes in more detail how climate change factors were applied to climate data, streamflow, and sea level rise.	6.10, Page 212-221

[10] DWR BMP for the Sustainable Management of Groundwater Water Budget:
https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/BMP-4-Water-Budget.pdf
[11] DWR Guidance Document for the Sustainable Management of Groundwater Guidance for Climate Change Data Use During GSP Development:
https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Climate-Change-Guidance_Final.pdf

3. What is used as the basis for climate change assumptions?	a. [DWR-Provided Climate Change Data and Guidance](https://water.ca.gov/)[12]		X			"Several modifications were made to the SVIHM in accordance with recommendations made by DWR in their Guidance for Climate Change Data Use During Groundwater Sustainability Plan Development (DWR, 2018)."	6.10.1.2.1, Page 213
	b. Other			X			
4. Does the GSP use multiple climate scenarios?				X		"Two projected water budgets are presented, one incorporating estimated 2030 climate change projections and one incorporating estimated 2070 climate change projections."	6.10, Page 212
5. Does the GSP quantitatively incorporate climate change projections?			X			Section 6.10.3 to 6.10.5 discusses and presents in tables the quantitative results of climate change projections. "Three types of datasets were modified to account for 2030 and 2070 projected climate change: climate data (precipitation and reference evapotranspiration, ET0), streamflow, and sea level."	6.10.3-6.10.5, Page 214-221
6. Does the GSP explicitly account for climate change in the following elements of the future/projected water budget?	a. Inflows:	i. Precipitation	X			Water budget components are listed in Sections 6.10.3 and 6.10.4. "There is no water imported into the 180/400-Foot Aquifer Subbasin from outside the Salinas River watershed."	6.10, Page 212-221
		ii. Surface Water	X				
		iii. Imported Water			X		
		iv. Subsurface Inflow	X				
	b. Outflows:	i. Evapotranspiration	X				
		ii. Surface Water Outflows (incl. Exports)	X				
		iii. Groundwater Outflows (incl. Exports)	X				
7. Are demands by these sectors (drinking water users) explicitly included in the future/projected water budget?	a. Domestic Well users (<5 connections)			X		It is not clear from the GSP if demands by which or all of these water systems were considered. The GSP states that "Total groundwater extraction including municipal, agricultural, and rural domestic pumping". However, in Table 6-30, rural-domestic water use was "considered minimal" and was set as zero. The GSP also does not identify the size (number of connections) of the various public water systems present in the basin.	6.10.4, Page 220
	b. State Small Water systems (5-14 connections)			X			
	c. Small community water systems (<3,300 connections)			X			
	d. Medium and Large community water systems (> 3,300 connections)			X			
	e. Non-community water systems			X			
8. Are water uses for native vegetation and/or wetlands explicitly included in the current and historical water budgets?			X			"The groundwater budget outflows include: • Groundwater pumping • Riparian evapotranspiration • Subsurface outflows to adjacent subbasins" Table 6-14: Riparian Evapotranspiration in Historical and Current Water	6.2.2, Page 179 6.6.2, Page 194 6.10.1, Page 213
9. Are water uses for native vegetation and/or wetlands explicitly included in the projected/future water budget?			X				

[12] DWR Guidance Document for the Sustainable Management of Groundwater Guidance for Climate Change Data Use During GSP Development:
https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Climate-Change-Guidance_Final.pdf
DWR Resource Guide DWR-Provided Climate Change Data and Guidance for Use During GSP Development:
https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Resource-Guide-Climate-Change-Guidance_v8.pdf

				Budgets "Three types of datasets were modified to account for 2030 and 2070 projected climate change: climate data (precipitation and reference evapotranspiration, ET0), streamflow, and sea level."	

Summary/ Comments

Given the uncertainties of climate change, the GSP should include and analyze the effects of multiple climate scenarios, such as single dry years and multiple dry years.

The GSP should clearly identify and quantify water demands of all drinking water users in the projected water budget, including domestic well users, as well as the small and large public water systems.

The GSP should provide more detail on the various public water systems in the basin, including number of connections, population served, and current, historical, and projected demands by each system.

The draft GSP identifies three principal aquifers, i.e., the 180-Foot Aquifer, the 400-Foot Aquifer, and the Deep Aquifers. However, despite this, the draft GSP lumps all three aquifers together in its evaluation of the water budget, and does not appear to account for lag time and flows between aquifers, or the effects of differential pumping rates and changes in pumping rates between aquifers. Given this, it is not clear that the projected water budget, as developed in the draft GSP, is sufficiently robust and representative of subbasin conditions for purposes of fully assessing sustainable yield.

5. Management Areas and Monitoring Network

How were key beneficial users considered in the selection and monitoring of Management Areas and was the monitoring network designed appropriately to identify impacts on DACs and GDEs?

Selected relevant requirements and guidance:
GSP Element 3.3, "Management Areas" (§354.20):

(b) A basin that includes one or more management areas shall describe the following in the Plan:
(2) The minimum thresholds and measurable objectives established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.
(3) The level of monitoring and analysis appropriate for each management area.
(4) An explanation of how the management area can operate under different minimum thresholds and measurable objectives without causing undesirable results outside the management area, if applicable.
(c) If a Plan includes one or more management areas, the Plan shall include descriptions, maps, and other information required by this Subarticle sufficient to describe conditions in those areas.

CWC Guide to Protecting Drinking Water Quality under the SGMA[13]
TNC's Groundwater Dependent Ecosystems under the SGMA, Guidance for Preparing GSPs[14]

Review Criteria	Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1. Does the GSP define one or more Management Area?	X			The subbasin is managed as one management area. "At this time, management areas have not been defined for the 180/400-Foot Aquifer Subbasin."	7.1.3, Page 224
2. Were the management areas defined specifically to manage GDEs?			X		
3. Were the management areas defined specifically to manage DACs?			X		
a. If yes, are the Measurable Objectives (MOs) and MTs for GDE/DAC management areas more restrictive than for the basin as a whole?			X		
b. If yes, are the proposed management actions for GDE/DAC management areas more restrictive/ aggressive than for the basin as a whole?			X		
4. Does the GSP include maps or descriptions indicating what DACs are located in each Management Area(s)?		X			
5. Does the GSP include maps or descriptions indicating what GDEs are located in each Management Area(s)?	X			Figure 4-10. Groundwater Dependent Ecosystems	Figure 4-10, Page 102
6. Does the plan identify gaps in the monitoring network for DACs and/or GDEs?	X			"To develop the needed empirical data regarding the extent and timing of hydrologic connection, the SVBGSA will install two shallow wells along the Salinas River in the 180/400-Foot Aquifer Subbasin, as discussed in Chapter	7.7, Page 251

[13] CWC Guide to Protecting Drinking Water Quality under the SGMA: https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858
[14] TNC's Groundwater Dependent Ecosystems under the SGMA, Guidance for Preparing GSPs: https://www.scienceforconservation.org/assets/downloads/GDEsUnderSGMA.pdf

a. If yes, are plans included to address the identified deficiencies?	X			10." Section 7.7 states that "… there is little to no interconnection between the 180-Foot, 400-Foot or Deep Aquifer and surface water in the 180/400-Foot Aquifer Subbasin." However, the section further states that "the Salinas River is potentially in connection with groundwater in the shallow water bearing sediments" and Section 8.11.2 states that the average annual surface water depletion of the Salinas River is 67,000 acre feet. The GSP should explain how this amount of recharge can be redistributed through the aquifer system without any significant interconnection between the shallow and deeper aquifer systems. Furthermore, it is our understanding that the rate of surface water depletion from the Salinas River is in fact correlated historical groundwater level declines in the shallow and 180-Foot aquifer systems which have also resulted in seawater intrusion into the subbasin. The installation of two groundwater monitoring wells is insufficient to characterize surface-groundwater interactions across the entire subbasin. The BMP cited in section 7.2 instructs GSAs to "Monitor surface water and groundwater … to characterize the spatial and temporal exchanges between surface water and groundwater, and to calibrate and apply the tools and methods necessary to calculate depletions of surface water caused by groundwater extractions." Per the BMP, 13 to 14 monitoring wells would be more adequate to achieve this objective. Please revise this section to (1) reflect what is known and published regarding potential surface-groundwater interactions in the subbasin and related groundwater level and budget trends, (2) identify the existing data gaps, and (3) provide recommendations for an adequate number of monitoring wells to assess surface-groundwater interaction and shallow groundwater level trends. The wells listed in Table 7.2 and proposed for monitoring do not include any wells completed in the Shallow Alluvial or Dune Sand Aquifers. As such, the proposed monitoring well network is inadequate to assess the potential effects of groundwater pumping and management on ISWs and GDEs. This fact should be acknowledged with a cross reference to Section 7.2.4 which describes the proposed actions to remedy this situation. The GSP Regulations (23 CCR §354.34 (a) and (b)) require that monitoring must address trends in groundwater and related surface conditions (emphasis added). This includes "the tools and methods necessary to calculate depletions" and "[o]ther factors that may be necessary to identify adverse impacts on beneficial uses of the surface water," including impacts to GDEs. Please specify what other monitoring data and methods will be implemented to inform a determination whether significant and unreasonable impacts to GDEs are occurring, and explain how they will adequately meet the requirements of 23 CCR §354.34(c)(6) relative to GDEs and ISWs.	

Summary/ Comments

If management areas are defined in the future, care should be taken so that they and the associated monitoring network are designed to adequately assess and protect against

impacts to all beneficial users, including GDEs and DACs. The GSP should revise Section 7.7 to (1) reflect what is known and published regarding potential surface-groundwater interactions in the subbasin and related groundwater level and budget trends, (2) identify the existing data gaps, and (3) provide recommendations for an adequate number of monitoring wells to assess surface-groundwater interaction and shallow groundwater level trends. The GSP should specify what monitoring data and methods will be implemented to inform a determination whether significant and unreasonable impacts to GDEs are occurring, and explain how they will adequately meet the requirements of 23 CCR §354.34(c)(6) relative to GDEs and ISWs.

6. Measurable Objectives, Minimum Thresholds, and Undesirable Results

How were DAC and GDE beneficial uses and users considered in the establishment of Sustainable Management Criteria?

Selected relevant requirements and guidance:
GSP Element 3.4 "Undesirable Results" (§ 354.26):
(b) The description of undesirable results shall include the following:
(3) Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results

GSP Element 3.2 "Measurable Objectives" (§ 354.30)
(a) Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin within 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

Review Criteria	Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1. Are DAC impacts considered in the development of Undesirable Results (URs), MOs, and MTs for groundwater levels and groundwater quality?	X			Water Level MTs: "The comparison showed: • In the 180-foot aquifer, 89% of all domestic wells will have at least 25 feet of water in them as long as groundwater levels remain above minimum thresholds; and 91% of all domestic wells will have at least 25 feet of water in them when measurable objectives are achieved. • In the 400-foot aquifer, 79% of all domestic wells will have at least 25 feet of water in them as long as groundwater levels remain above minimum thresholds; and 82% of all domestic wells will have at least 25 feet of water in them when measurable objectives are achieved." "Domestic land uses and users. The groundwater elevation minimum thresholds are intended to protect most domestic wells. Therefore, the minimum thresholds will likely have an overall beneficial effect on existing domestic land uses by protecting the ability to pump from domestic wells. However, shallow domestic wells may become dry, requiring owners to drill deeper wells. Additionally, the groundwater elevation minimum thresholds may limit the number of new domestic wells that can be drilled in order to limit future declines in groundwater levels caused by more domestic pumping." Water Level URs: "Over the course of any one year, no more than 15% of the groundwater elevation minimum thresholds shall be exceeded in any single aquifer. Additionally, the minimum threshold in any one well shall not be exceeded for more than two sequential years." Water Quality MTs: "Domestic land uses and users. The degradation of groundwater quality minimum thresholds generally provides positive benefits to the Subbasin's	8.6.2.2, Page 271 8.6.4.1, Page 280 8.9.2.7, Page 308

				domestic water users. Preventing constituents of concern in additional drinking water supply wells from exceeding MCLs or SMCLs ensures an adequate supply of groundwater for domestic supplies." Water Quality URs: "During any one year, no groundwater quality minimum threshold shall be exceeded when computing annual averages at each well, as a direct result of projects or management actions taken as part of GSP implementation." Seawater Intrusion MTs: "Urban land uses and users. The seawater intrusion minimum thresholds generally provide positive benefits to the Subbasin's urban water users. Preventing additional seawater intrusion will help ensure an adequate supply of groundwater for municipal supplies. Domestic land uses and users. The seawater intrusion minimum thresholds generally provide positive benefits to the Subbasin's domestic water users. Preventing additional seawater intrusion will help ensure an adequate supply of groundwater for domestic supplies." Seawater Intrusion URs: "On average in any one year there shall be no mapped seawater intrusion beyond the 2017 extent of the 500 mg/L chloride isocontour."	 8.9.4.1, Page 309 8.8.2.4, Page 293 8.5, Page 261
2. Does the GSP explicitly discuss how stakeholder input from DAC community members was considered in the development of URs, MOs, and MTs?	X			"The SMC presented in this chapter were developed using publicly available information, feedback gathered during public meetings, hydrogeologic analysis, and meetings with GSA staff and Advisory Committee members. The general process included: • Presentations to the Board of Directors on the SMC requirements and implications. • Presentations to the Advisory Committee and Subbasin Specific working groups outlining the approach to developing SMC and discussing initial SMC ideas. The Advisory Committee and working groups provided feedback and suggestions for the development of initial SMC. • Discussions with GSA staff and various Board Members. • Modifying minimum thresholds and measurable objectives based on input from GSA staff and Board Members."	8.3, Page 260
3. Does the GSP explicitly consider impacts to GDEs and environmental BUs of surface water in the development of MOs and MTs for groundwater levels and depletions of ISWs?		X		Section 8.11: Please integrate the following information into this section of the GSP to appropriately establish SMC for ISWs in a way that achieves the basin's sustainability goal to balance all beneficial users of the basin: ● The shallow aquifer is indeed a principal aquifer that needs SMC established to prevent adverse impacts to surface water beneficial users, as defined in 23 CCR § 351 (aa). In addition, more nested/clustered wells are needed in the 180-400 Foot Aquifer area to determine vertical groundwater gradients and whether pumping in the deeper aquifers are causing groundwater levels to lower in the shallow aquifer and deplete surface water.	
4. Does the GSP explicitly consider impacts GDEs and environmental BUs of surface water and recreational lands in the discussion and development of Undesirable Results?		X			

				• The shallow aquifer in the 180/400 Foot Aquifer and Monterey Subbasins are likely to be supporting GDEs and interconnecting with the Salinas River. Thus, pumping in deeper aquifers can still cause adverse impacts to environmental beneficial users reliant on shallow groundwater. Even if pumping is not occurring in shallow groundwater aquifers, SGMA still requires GSAs to sustainably manage groundwater resources in shallow aquifers, especially those that support springs, surface water and GDEs for current and future uses. • Several published references indicate that the 180-Foot aquifer is in direct hydraulic communication with the overlying Dune Sand Aquifer or Shallow Alluvial Aquifer where the Salinas Valley Aquitard is thin or absent. These same references indicate aquitards within the 180/400 Foot aquifer system are known to be locally discontinuous. In addition, the fact that the Salinas is a losing stream and that 67,000 acre feet are recharged from the stream to the groundwater basin in an average year strongly suggests that the shallow aquifer is hydraulically connected to the underlying pumped aquifer systems. Section 8.11.1 and 8.11.2: Please include a discussion of how baseline conditions, current trends and potential adverse impacts to GDEs were considered in the definition of significant and unreasonable conditions and establishment of Minimum Thresholds and Measurable Objectives. A discussion of applicable state, federal and local standards, policies and guidelines applicable to the GDE species and habitats identified should also be provided. The section should explain how, in light of the nature and condition of the GDEs, these Sustainable Management Criteria will prevent undesirable results related to damage to GDE resources. Any data gaps and the means to address them should be identified. The listing of beneficial uses of interconnected surface water is limited to instream resources of the Salinas River alone. Please expand the listing of beneficial uses and users to address GDEs and ecosystems that are located adjacent to the river and its tributaries. We recommend the streamflow requirements set by the NMFS should be explicitly stated or referenced in the GSP. In addition, any other state, federal or local standards, requirements and guidelines pertaining to the GDE habitats and species identified in the NC dataset or the list of species included in Freshwater Species Located in the 180/400-Foot Aquifer Subbasin should also be discussed or referenced. Model estimates should be monitored more closely than every five years in order to detect potentially significant effects in a time frame that allows for rapid response and alleviation of ecosystem decline. Please discuss how the	

				minimum threshold will be measured in a way that assures protection of GDEs and instream environmental beneficial users. Section 8.6.2: Table 8-2 does not include a single well completed in the Shallow Alluvial or Dune Sand Aquifer. Please identify the lack of shallow aquifer monitoring wells as a data gap, and cross reference your plans discussed in Chapter 7 to install a sufficient number of shallow monitoring wells to assess potential undesirable results to GDEs. Please revise Section 8.6.2.3 and 8.7.2.2 to include a discussion regarding the effects of potential groundwater level declines on GDEs and limitations of groundwater level monitoring alone to assess potential undesirable results to GDEs. Please include a discussion explaining how GDEs, ISWs and recreational uses may benefit or be protected by implementation of the proposed Minimum Thresholds and Measurable Objectives. Section 8.6.4: TNC's GDE Pulse Tool shows declining ecosystem conditions along the Salinas River west of Salinas between 2014 and 2018. This section should be revised to use these data as a basis for addressing how the proposed compliance strategy will address significant and undesirable decline of GDEs at the spatial scale already observed in the GDE Pulse data.	
5. Does the GSP clearly identify and detail the anticipated degree of water level decline from current elevations to the water level MOs and MTs?	X			The water level MTs were set at 1 foot above 2015 levels, so the anticipated water level change to reach MTs should be +1 foot over drought levels.	8.6.2, Page 264
6. If yes, does it include: a. Is this information presented in table(s)?		X		Hydrographs with MTs and MOs were provided in Appendix 8A.	Appendix 8A, Page 810
b. Is this information presented on map(s)?		X			
c. Is this information presented relative to the locations of DACs and domestic well users?		X			
d. Is this information presented relative to the locations of ISW and GDEs?		X			
7. Does the GSP include an analysis of the anticipated impacts of water level MOs and MTs on drinking water users?	X			"The comparison showed: • In the 180-foot aquifer, 89% of all domestic wells will have at least 25 feet of water in them as long as groundwater levels remain above minimum thresholds; and 91% of all domestic wells will have at least 25 feet of water in them when measurable objectives are achieved. • In the 400-foot aquifer, 79% of all domestic wells will have at least 25 feet of water in them as long as groundwater levels remain above minimum thresholds; and 82% of all domestic wells will have at least 25 feet of water in them when measurable objectives are achieved." "Domestic land uses and users. The groundwater elevation minimum thresholds are intended to protect most domestic wells. Therefore, the minimum thresholds will likely have an overall beneficial effect on existing domestic land uses by protecting the ability to pump from domestic wells.	8.6.2.2, Page 271 8.6.2.5, Page 274

				However, shallow domestic wells may become dry, requiring owners to drill deeper wells. Additionally, the groundwater elevation minimum thresholds may limit the number of new domestic wells that can be drilled in order to limit future declines in groundwater levels caused by more domestic pumping.”	
8. If yes: a. On domestic well users?		X		Analyses were reported as the basis of MT development, but are not clearly illustrated with maps and tables, and does not clearly identify what communities will be most affected by these impacts.	
b. On small water system production wells?		X			
c. Was an analysis conducted and clearly illustrated (with maps) to identify what wells would be expected to be partially and fully dewatered at the MOs?		X			
d. Was an analysis conducted and clearly illustrated (with maps) to identify what wells would be expected to be partially and fully dewatered at the MTs?		X		See above. Analyses were conducted but were not clearly illustrated with maps and tables.	
e. Was an economic analysis performed to assess the increased operation costs associated with increased lift as a result of water level decline?		X			
9. Does the sustainability goal explicitly include drinking water and nature?	X			“The goal of this GSP is to manage the groundwater resources of the 180/400-Foot Aquifer Subbasin for long-term community, financial, and environmental benefits to the Subbasin’s residents and businesses. This GSP will ensure long-term viable water supplies while maintaining the unique cultural, community, and business aspects of the Subbasin. It is the express goal of this GSP to balance the needs of all water users in the Subbasin.”	8.2, page 258

Summary/ Comments
The GSP should explicitly consider impacts to GDEs and environmental BUs in the development of MOs, MTs, and URs. See above for detailed comments.

For many of the RMWs located in and near the areas of seawater intrusion, the MTs represent a substantial decline in water levels from the assumed conditions in 2020, to levels well below sea level. Given that current conditions are resulting in significant seawater intrusion conditions, it is unclear from the draft GSP how such declines in water levels will result in sustainability for the beneficial uses and users of the subbasin, and how seawater intrusion will be limited to 2017 limits (i.e., the seawater intrusion MTs).

The SMCs for seawater intrusion and chronic lowering of groundwater levels are in opposition of each other. Section 8.6.2.3 of the draft GSP indicates that “A significant and unreasonable condition for seawater intrusion is seawater intrusion in excess of the extent delineated by MCWRA in 2017. Lower groundwater elevations, particularly in the 180- and 400-Foot Aquifers, could cause seawater to advance inland. The groundwater elevation minimum thresholds are set at or above existing groundwater elevations. Therefore, the groundwater elevation minimum thresholds will not exacerbate, and may help control, seawater intrusion.” However, as shown in Figure 8-2 and 8-3 of the draft GSP, the proposed water level MTs are set at 0 feet above mean sea level (ft MSL) along the coastline, and decrease farther east for both the 180- and 400-Foot Aquifers. Given that the inland water level MTs are below sea level, an easterly groundwater flow gradient will remain and seawater intrusion will continue. While the rate of seawater intrusion would likely be slower than observed historically, even if the water level MTs were met today, seawater intrusion will still continue within the subbasin, threatening the drinking water supplies for DACs and other vulnerable populations. The GSP should adequately describe the “relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators,” pursuant to 23 CCR § 354.28 (b)(2).

Based on the seawater intrusion maps in the GSP, there is significant uncertainty regarding the extent of seawater intrusion in the northern and southern portions of the impacted area for both the 180-Foot and 400-Foot Aquifers. As these data are used as the basis for MTs, the GSP should clearly and transparently present this uncertainty so that the public could better evaluate to what degree the proposed seawater intrusion MTs are protective of beneficial users in these areas. The MTs for water quality constituents are based on selective sampling that may not fully represent the conditions of domestic or small system wells. The draft GSP does not present a monitoring network that is sufficient to monitor for impacts to beneficial users who rely on domestic wells and small water systems for drinking water (pursuant to 23 CCR § 354.34(b)(2)) and the draft GSP does not fully evaluate how these selective MTs will affect the interests of these beneficial users (pursuant to 23 CCR §354.28(b)(4)). It is recommended that the GSP present a thorough and robust analysis, supported by maps, that identifies the location of the likely impacted wells with respect to DACs and other communities and systems dependent on groundwater. A proactive assistance program should be developed for potentially impacted beneficial users, including DACs, small water systems, and domestic wells, to mitigate potential future adverse impacts, particularly to water quality resulting from agricultural impacts and seawater intrusion.

7. Management Actions and Costs

What does the GSP identify as specific actions to achieve the MOs, particularly those that affect the key BUs, including actions triggered by failure to meet MOs? What funding mechanisms and processes are identified that will ensure that the proposed projects and management actions are achievable and implementable?

<u>Selected relevant requirements and guidance</u>
GSP Element 4.0 Projects and Management Actions to Achieve Sustainability Goal (§ 354.44)
(a) Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.
(b) Each Plan shall include a description of the projects and management actions that include the following:
(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action.

Review Criteria			Yes	No	N/A	Relevant Info per GSP	Location (Section, Page)
1.	Does the GSP identify benefits or impacts to DACs as a result of identified management actions?			X		Several projects are noted in the GSP as expected to improve water quality, including the (1) SRDF Winter Flow Injection, (2) Recharge Local Runoff from Eastside Range, and (3) Winter Potable Reuse Water Injection. The potential benefits and impacts specific to DACs were not explicitly discussed in the GSP.	
2.	If yes:	a. Is a plan to mitigate impacts on DAC drinking water users included in the proposed Projects and Management Actions?		X			
		b. Does the GSP identify costs to fund a mitigation program?		X			
		c. Does the GSP include a funding mechanism to support the mitigation program?		X			
3.	Does the GSP identify any demand management measures in its projects and management actions?		X				
4.	If yes, does it include:	a. Irrigation efficiency program	X			9.3.3 Priority Management Action 2: Outreach and Education for Agricultural BMPs	9.3.3, Page 341
		b. Ag land fallowing (voluntary or mandatory)	X			9.3.2 Priority Management Action 1: Agricultural Land and Pumping Allowance Retirement "Agricultural land retirement relies on willing sellers."	9.3.2, Page 339
		c. Pumping allocation/restriction	X			9.2 Water Charges Framework 9.3.5 Priority Management Action 4: Restrict Pumping in CSIP Area	9.2, Page 331 9.3.5, Page 345
		d. Pumping fees/fines	X			9.2 Water Charges Framework	9.2, Page 331
		e. Development of a water market/credit system	X			9.3.2 Priority Management Action 1: Agricultural Land and Pumping Allowance Retirement	9.3.2, Page 339
		f. Prohibition on new well construction	X			9.3.6 Priority Management Action 5: Support and Strengthen MCWRA Restrictions on Additional Wells in the Deep Aquifers	9.3.6, Page 347
		g. Limits on municipal pumping		X		The GSP does not appear to have limits on municipal pumping.	
		h. Limits on domestic well pumping		X		The GSP does not appear to have limits on domestic well pumping.	

	i. Other		X				
5.	Does the GSP identify water supply augmentation projects in its projects and management actions?	X				9.4, Page 351-413
6. If yes, does it include:	a. Increasing existing water supplies	X			9.4.3.3 Preferred Project 2: Optimize CSIP Operations, 9.4.3.6 Preferred Project 5: Maximize Existing SRDF Diversion, etc.	
	b. Obtaining new water supplies	X			9.4.3.5 Preferred Project 4: Expand Area Served by CSIP, 9.4.3.8 Preferred Project 7: 11043 Diversion Facilities Phase I: Chualar, 9.4.3.9 Preferred Project 8: 11043 Diversion Facilities Phase II: Soledad	
	c. Increasing surface water storage	X			9.4.3.3 Preferred Project 2: Optimize CSIP Operations	
	d. Groundwater recharge projects – District or Regional level	X			9.4.3.10 Preferred Project 9: SRDF Winter Flow Injection, etc.	
	e. On-farm recharge	X			9.4.4.2 Alternate Project 2: Recharge Local Runoff from Eastside Range	
	f. Conjunctive use of surface water	X			Several projects listed here also involve conjunctive use of surface water.	
	g. Developing/utilizing recycled water	X			9.4.3.4 Preferred Project 3: Modify Monterey One Water Recycled Water Plant – Winter, etc.	
	h. Stormwater capture and reuse	X			9.4.4.2 Alternate Project 2: Recharge Local Runoff from Eastside Range	
	i. Increasing operational flexibility (e.g., new interties and conveyance)	X			Several projects listed here also involve increasing operational flexibility.	
	j. Other		X			
7.	Does the GSP identify specific management actions and funding mechanisms to meet the identified MOs for groundwater quality and groundwater levels?	X			As discussed under the "Relevant Measurable Objectives" sections, Priority Management 1 to 5 address groundwater level MOs. Groundwater quality MOs are not explicitly identified.	9.3, Page 339-351
8.	Does the GSP include plans to fill identified data gaps by the first five-year report?	X			10.3 Implementation Activity 3: Address Identified Data Gaps	10.3, Page 420
9.	Do proposed management actions include any changes to local ordinances or land use planning?	X			"To promote use of CSIP water, the SVBGSA will pass an ordinance preventing any pumping for irrigating agricultural lands served by CSIP." "SVBGSA will work with the MCWRA to extend this ordinance to prevent any new wells from being drilled into the Deep Aquifers until more information is known about the Deep Aquifers' sustainable yield."	9.3.5, Page 345 9.3.6, Page 347
10.	Does the GSP identify additional/contingent actions and funding mechanisms in the event that MOs are not met by the identified actions?	X			"Alternative Projects: The alternative projects are the generally less cost-effective projects. Depending on the efficacy of the priority projects, one or more of the alternative projects may be implemented to meet the SMCs." Funding mechanisms are not clear from the GSP.	9.4, Page 350
11.	Does the GSP provide a plan to study the interconnectedness of surface water bodies?	X			"Adequate monitoring sites for interconnected surface water monitoring is identified as a data gap in Chapter 7. The monitoring network for interconnected surface water monitoring will be enhanced, as described in Section 10.4.6. The enhanced monitoring network will be incorporated into MCWRA's existing monitoring system, which will replace the CASGEM system after GSP submission. After the enhanced monitoring network is established, SVBGSA will annually download the interconnected surface water data from the CASGEM system, prepare summary tables and figures, and compare the data to sustainability goals."	10.1.1.6, Page 418 10.1.9, Page 423

12. If yes: a. Does the GSP identify costs to study the interconnectedness of surface water bodies?		X			
b. Does the GSP include a funding mechanism to support the study of interconnectedness surface water bodies?		X			
13. Does the GSP explicitly evaluate potential impacts of projects and management actions on groundwater levels near surface water bodies?	X			9.3.4 Priority Management Action 3: Reservoir Reoperation “Interconnected surface water measurable objective. By allowing more flows to stay in the Salinas River year-round, the areas that are interconnected would stay connected to groundwater and benefit all beneficial users on the river.”	9.3.4, Page 344

Summary/ Comments

The GSP should identify the potential impacts of the proposed projects or management actions on DACs. If impacts are expected, the GSP should include plans to monitor for, prevent, and/or mitigate against such impacts, provide the estimated costs, and identify the funding sources.

The GSP does not appear to include any plans to address impacts to domestic well users if these wells are dewatered or if water quality in these wells is degraded in the future from surface or seawater impacts. The GSP should include plan to monitor for and mitigate impacts to DAC drinking water users, particularly due to sea water intrusion.

The GSP identifies a plan to study interconnected surface water, but does not clearly identify the anticipated costs or funding mechanism to support this work. The GSP should lay out a clear implementation timeline and plan to fund and implement this work within the next 5 years.

The draft GSP identifies an estimated groundwater storage deficit of up to 9,600 AFY under 2030 conditions and up to 10,300 AFY under 2070 conditions (Table 6-29), which represents roughly 8.5% of agricultural pumping and 6% of total pumping in the basin (Table 6-30). In order to arrest and roll back seawater intrusion to 2017 levels, significant projects and management actions will need to be implemented. The draft GSP identifies several potential options but does not select one clear path forward.

The draft GSP identifies a seawater intrusion pumping barrier and estimates that operation will require withdrawing up to 30,000 AFY of groundwater, which would then be conveyed to discharge into the Pacific Ocean or to a new or existing desalination plant (Section 9.4.3.7). The draft GSP also states that an “optional barrier using injection instead of extraction was also considered” and that this option would require injection of approximately 46,000 AFY of water to create a protective mounding effect. While it is clear that one of these options is necessary to achieve the seawater intrusion MTs, the draft GSP does not consider and fully articulate impacts of these options on the projected water budget or sustainable yield. Implementation of either an extraction or a recharge barrier will, by definition, change the localized groundwater flow gradients. An extraction barrier will result in localized seaward flow gradients, and some portion (likely significant) of the estimated 30,000 AFY extracted will be of freshwater from the subbasin. Based on the numbers presented in the draft GSP, implementation of a pumping barrier will exacerbate the existing overdraft conditions and result in an annual storage deficit on the order of 40,000 AFY under 2070 climate change conditions. This represents approximately 40% of the agricultural pumping and approximately 28% of the total pumping in the subbasin, based on table 6-30. Therefore, the draft GSP significantly underrepresents the actual deficit and needs of the subbasin in order achieve sustainability.

The draft GSP contemplates “Agricultural Land and Pumping Allowance Retirement [sic]” as a management action (Section 9.3.2), but does not actually quantify the scale or expected benefit of such a management action. Based on our review of the information presented in the draft GSP, the future overdraft conditions including implementation of a pumping barrier represent approximately 40% of agricultural pumping. The draft GSP also identifies several potential recharge projects to augment the groundwater supply, but these projects, along with the pumping barrier, require construction of infrastructure and will take years to implement even under the best circumstances. In order to achieve the seawater intrusion MTs and to avoid further degradation of the subbasin, more immediate action is necessary. Thus, the draft GSP should: 1) more transparently lay out and quantify the deficit that needs to be addressed by projects and management actions; 2) provide a clear plan for implementing pumping restrictions and agricultural land retirement with specific targets; 3) clearly articulate how much pumping will need to be reduced in the subbasin; and 4) quantify and present the degree of continued seawater

that will occur before the projects and management actions are implemented. The 180/400-Foot Aquifer Subbasin includes GDEs and ISWs that are beneficial uses and users of groundwater and may include potentially sensitive resources and protected lands. Environmental beneficial users and uses should be considered in establishing project priorities. For projects that construct recharge basins, please consider identifying if there is habitat value incorporated into the design and how the recharge basins will be managed to benefit environmental users. In addition, consistent with existing grant and funding guidelines for SGMA-related work, consideration should be given to multi-benefit projects that can address water quantity as well as providing environmental benefits or benefits to disadvantaged communities. Please include environmental benefits and multiple benefits as criteria for assessing project priorities. If ISWs and GDEs will not be adequately protected by the projects listed, please include and describe additional management actions and projects targeted for protecting ISWs and GDEs. It is recommended that the GSP considers adding Management Actions, which include education and outreach for protection of GDEs and ISWs as well as specific management of these ecosystems and the species they provide for.

Focused Technical Review:

October, 1 2019 Draft Salinas Valley: 180/400-Foot Aquifer Subbasin Groundwater Sustainability Plan (GSP)

As shown on **Figure 1**, a significant proportion of the 180/400-Foot Aquifer Subbasin (subbasin) is designated as Disadvantaged Communities (DACs), totaling a population of roughly 50,000 people based on DWR-provided Census data.[1] Members of these DACs and other communities receive their drinking water from roughly 500 domestic wells located within the subbasin and a variety of public water systems, including approximately 30 separate community water systems.

Figure 1 also shows the proposed Minimum Threshold (MT) contours for seawater intrusion for the 180-Foot and 400-Foot aquifers. According to Section 8.8.2 of the draft GSP, these MT contours represent "the 2017 extent of the 500 mg/L [milligrams per liter] chloride concentration isocontour as mapped by MCWRA [Monterey County Water Resources Agency]," and thus represent near-current seawater intrusion conditions. Based on these data, a significant portion of the drinking water supply in the subbasin is at imminent risk of seawater intrusion impacts if seawater intrusion is not halted, including: 1) a high concentration of domestic well users located east of Moss Landing and north of Castroville, 2) domestic well users in and around the DAC of Boranda, 3) public supply wells located near Castroville (a DAC), and 4) public supply wells located near Salinas (which includes DACs). **For the reasons discussed further below, the draft GSP does not lay out a clear and robust plan to achieve sustainability, and protect drinking water for these vulnerable beneficial uses and users.**

Groundwater Conditions

- Based on the seawater intrusion maps developed by the MCWRA, there is significant uncertainty regarding the extent of seawater intrusion in the northern and southern portions of the impacted area for both the 180-Foot and 400-Foot Aquifers.[2] These uncertainties are not reflected in the draft GSP's presentation of MCWRA's historical seawater intrusion boundaries (Figure 5-23 and 5-24), or in the draft GSP's adoption of these boundaries as the basis for its seawater intrusion MTs. Therefore, it is not known how far seawater has actually intruded in the areas of Castroville and north of Castroville (DACs) and it is not known to what degree the proposed seawater intrusion MTs are protective of beneficial users in these areas. **This uncertainty is not clearly and transparently reflected in the draft GSP, which is of particular significance as these data are used as the basis for MTs.**

- The draft GSP includes hydrographs for numerous wells in the 180-Foot and 400-Foot Aquifers, but, as the draft GSP acknowledges, does not include any such data for the Deep Aquifer, which represents a significant data gap. Well 13S02E19Q003M,[3] listed in Table 7-2 of the draft GSP, is part of the California Statewide Groundwater Elevation Monitoring (CASGEM) monitoring network and water level data are available. The draft GSP should at least consider and include data from this well. While limited data are available for this well, as shown in the hydrograph below, water levels at this well show a declining trend over the available period (2014 – 2019). **In order to develop a better understanding of the subbasin, the interaction between aquifers, and the conditions of the Deep Aquifer, the Salinas Valley Basin**

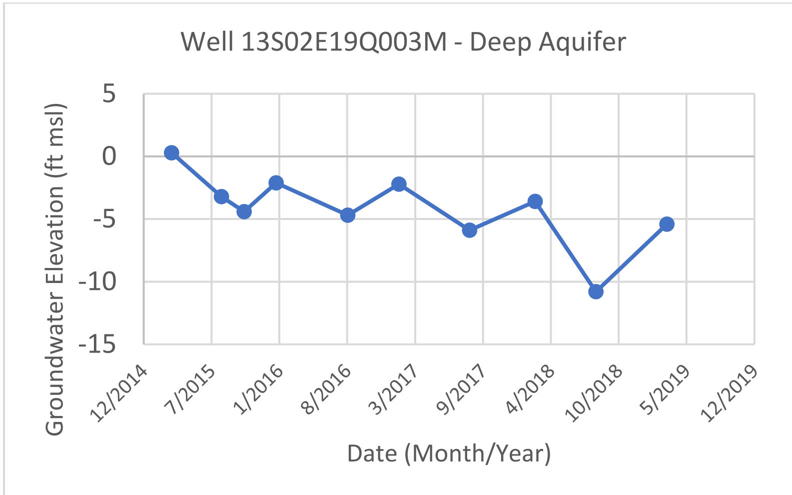
[1] Several Census Block Groups and Tracts extend beyond the boundary of the subbasin, and thus not all of the population represented by the Tract lies within the basin. In addition to the DACs identified through the DWR-provided DAC Mapping tool (based on 2011-2016 estimates), the community of Moss Landing, which had insufficient data when the tool was developed, has been determined to be a DAC. Thus, the total population based on DWR-provided census data for the Block Groups and Tracts located within and across subbasin boundaries, and Moss Landing is 49,244.

[2] MCWRA Historical Seawater Intrusion Maps, April 2018.
180-Foot Aquifer: https://www.co.monterey.ca.us/home/showdocument?id=63713
400-Foot Aquifer: https://www.co.monterey.ca.us/home/showdocument?id=63715

[3] Total well depth of 1,562 feet, per Table 7-2.

Groundwater Sustainability Agency (SVGSA) should work to fill this data gap and at a minimum, should include the limited available data in the draft GSP.

Chart 1 – Hydrograph of Deep Aquifer Well



- The review of water quality data in the groundwater conditions section of the draft GSP (Section 5.5) is very limited and focused almost entirely on nitrate. The draft GSP identifies numerous constituents that have been detected in groundwater above drinking water standards, but, with the exception of nitrate, does not present this data spatially or even in tabular format. Even though the draft GSP sets water MTs for these constituents (Table 8-6 through 8-9), the supporting data are not presented, and no analyses of spatial or temporal water quality trends are presented. This does not present a clear and transparent assessment of current water quality conditions in the subbasin with respect to drinking water beneficial use (23 CCR § 354.16(d)). **It is therefore recommended that the GSP include specific discussions supported by maps and charts, of the spatial and temporal water quality trends for constituents that have exceeded drinking water standards.**[4]

Water Budget and Sustainable Yield

- The draft GSP identifies three principal aquifers, i.e., the 180-Foot Aquifer, the 400-Foot Aquifer, and the Deep Aquifers, and notes that the subbasin's "aquitards and aquifers have long been recognized, and are the distinguishing features of this subbasin" (Section 4.4.1). However, despite this, the draft GSP lumps all three aquifers together in its evaluation of the water budget, and does not appear to account for lag time and flows between aquifers, or the effects of differential pumping rates and changes in pumping rates between aquifers. **Given this, it is not clear that the projected water budget, as developed in the draft GSP, is sufficiently robust and representative of subbasin conditions for purposes of fully assessing sustainable yield.**

- The projected sustainable yield values presented in Table 6-31 of the draft GSP reflect a roughly 7% reduction in groundwater pumping, but still reflect an annual change in storage deficit of approximately 4,700 acre-feet per year (AFY). It is not clear how the sustainable yield of a subbasin already severely impacted by seawater intrusion can include continued decline in storage, particularly when the proposed inland groundwater flow gradients under the water level sustainable management criteria (SMCs) will allow for continued seawater intrusion into the subbasin. This sustainable yield value also does not take into account of the effects of a hydraulic barrier, which the draft GSP highlights as necessary to achieve

[4] Stanford, 2019. *A Guide to Water Quality Requirements Under the Sustainable Groundwater Management Act,* Spring 2019.

the seawater intrusion SMCs. [5] **Thus, the sustainable yield values presented in Section 6.10.5 do not appear to be reflective of the sustainability conditions outlined elsewhere in the draft GSP.** It is important that the sustainable yield values take into consideration all factors that will lead to long-term sustainability of the subbasin, especially given that these values form the basis for the Water Charges Framework described in Section 9.2.

Sustainable Management Criteria

- In its discussion of the relationship between the water level MTs to other sustainability indicators, Section 8.6.2.3 of the draft GSP indicates that "A significant and unreasonable condition for seawater intrusion is seawater intrusion in excess of the extent delineated by MCWRA in 2017. Lower groundwater elevations, particularly in the 180- and 400-Foot Aquifers, could cause seawater to advance inland. The groundwater elevation minimum thresholds are set at or above existing groundwater elevations. Therefore, the groundwater elevation minimum thresholds will not exacerbate, and may help control, seawater intrusion." However, as shown in Figure 8-2 and 8-3 of the draft GSP, the proposed water level MTs are set at 0 feet above mean sea level (ft MSL) along the coastline, and decrease farther east for both the 180- and 400-Foot Aquifers. Figure 8-2 and 8-3 are excerpted below and shown alongside the August 2017 groundwater level contours (Figure 5-3 and 5-5 from the draft GSP). As illustrated here, while the groundwater flow gradient would be less steep, the direction is consistent with the conditions that have resulted in seawater intrusion. Given that the inland water level MTs are below sea level an easterly groundwater flow gradient will remain and seawater intrusion will continue. **While the rate of seawater intrusion would likely be slower than observed historically, even if the water level MTs were met today, seawater intrusion will still continue within the subbasin, threatening the drinking water supplies for DACs and other vulnerable populations.** Therefore, even if the water level MTs are met, the seawater intrusion MTs will be exceeded, as seawater intrusion continues inland. **Thus, the SMCs for seawater intrusion and chronic lowering of groundwater levels are in opposition of each other, and the draft GSP does not adequately describe the "relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators," pursuant to 23 CCR § 354.28 (b)(2).**

[5] The draft GSP identifies a seawater intrusion pumping barrier and estimates that operation will require withdrawing up to 30,000 AFY of groundwater, which would then be conveyed to discharge into the Pacific Ocean or to a new or existing desalination plant (Section 9.4.3.7). The draft GSP also states that an "optional barrier using injection instead of extraction was also considered" and that this option would require injection of approximately 46,000 AFY of water to create a protective mounding effect.

Appendix B
Focused Technical Review of Public Draft GSP

Comparison of Current Water Level Gradient to MT Water Level Gradient – 180-Foot Aquifer

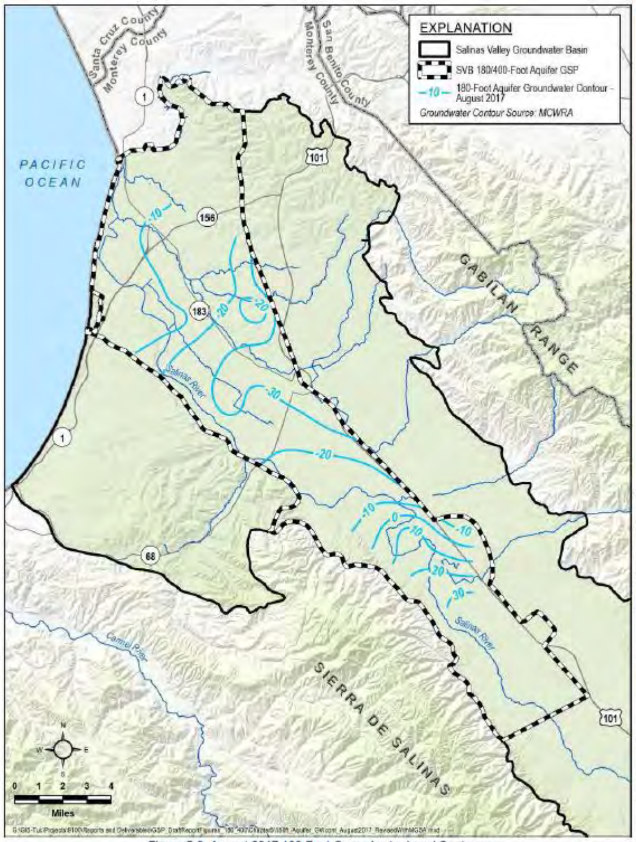


Figure 5-3. August 2017 180-Foot Groundwater Level Contours

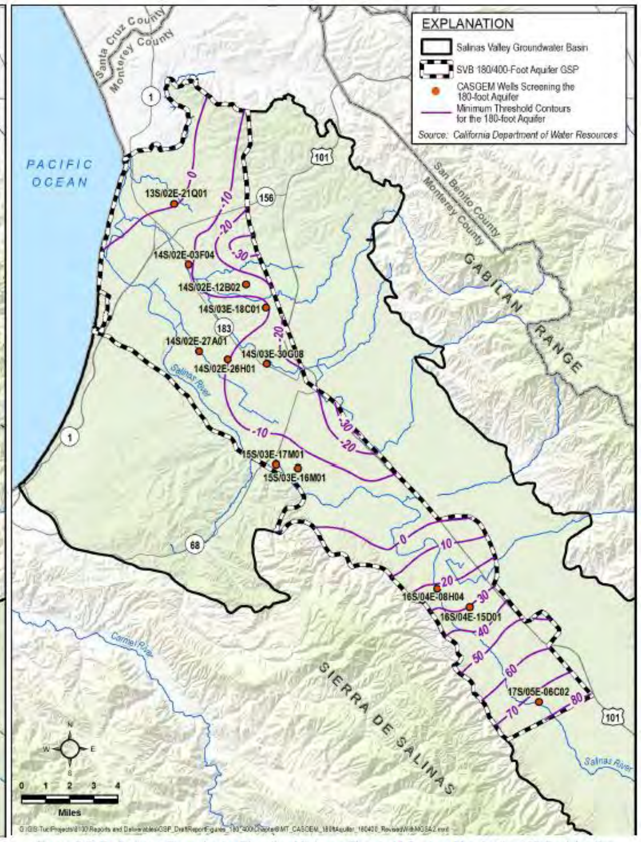


Figure 8-2: Preliminary Groundwater Elevation Minimum Threshold Contour Map for the 180-Foot Aquifer

Comparison of Current Water Level Gradient to MT Water Level Gradient – 400-Foot Aquifer

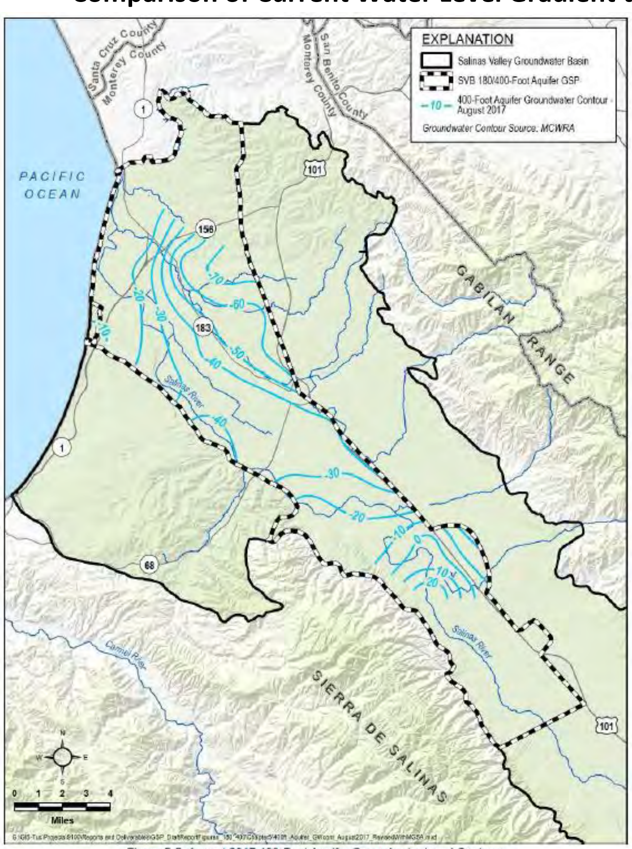


Figure 5-5. August 2017 400-Foot Aquifer Groundwater Level Contours

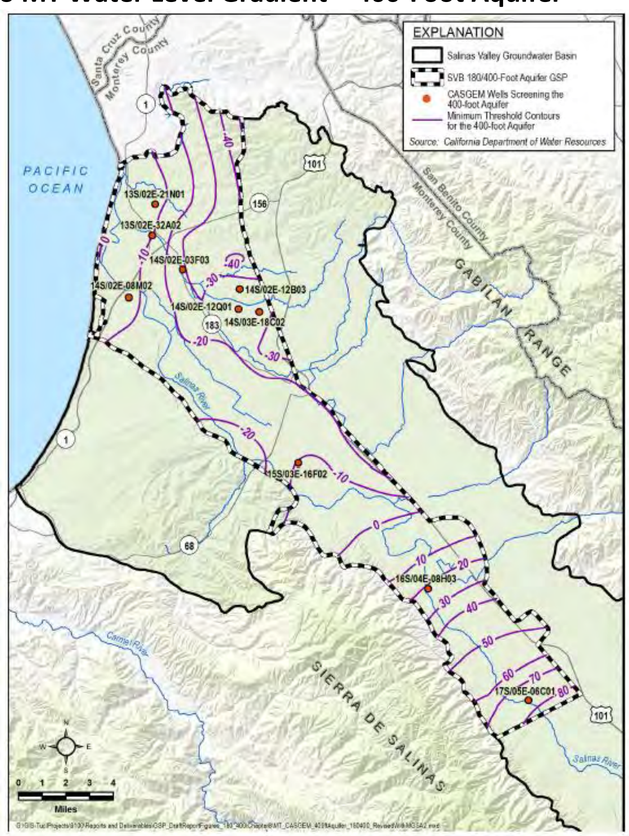


Figure 8-3: Preliminary Groundwater Elevation Minimum Threshold Contour Map for the 400 Foot Aquifer

- **Charts 2a** and **2b** below reflect the proposed SMCs (per Table 8-3 of the draft GSP) for the 180-Foot and 400-Foot Aquifer water level representative monitoring wells (RMWs) located in and near the areas of seawater intrusion (wells identified on excerpted Figures 8-2 and 8-3 above). If the measurable objectives (MOs) are met, this represents a relatively small decline in water levels from current conditions in most wells, and in some wells an increase in water levels. However, the MTs in most cases represent a substantial decline in water levels from current conditions, to levels well below sea level. **Given that current conditions are resulting in significant seawater intrusion conditions, it is unclear from the draft GSP how such declines in water levels will result in sustainability for the beneficial uses and users of the subbasin, and how seawater intrusion will be limited to 2017 limits (i.e., the seawater intrusion MTs).**

Chart 2a – SMCs for 180-Foot Aquifer Water Level RMWs Near Coast

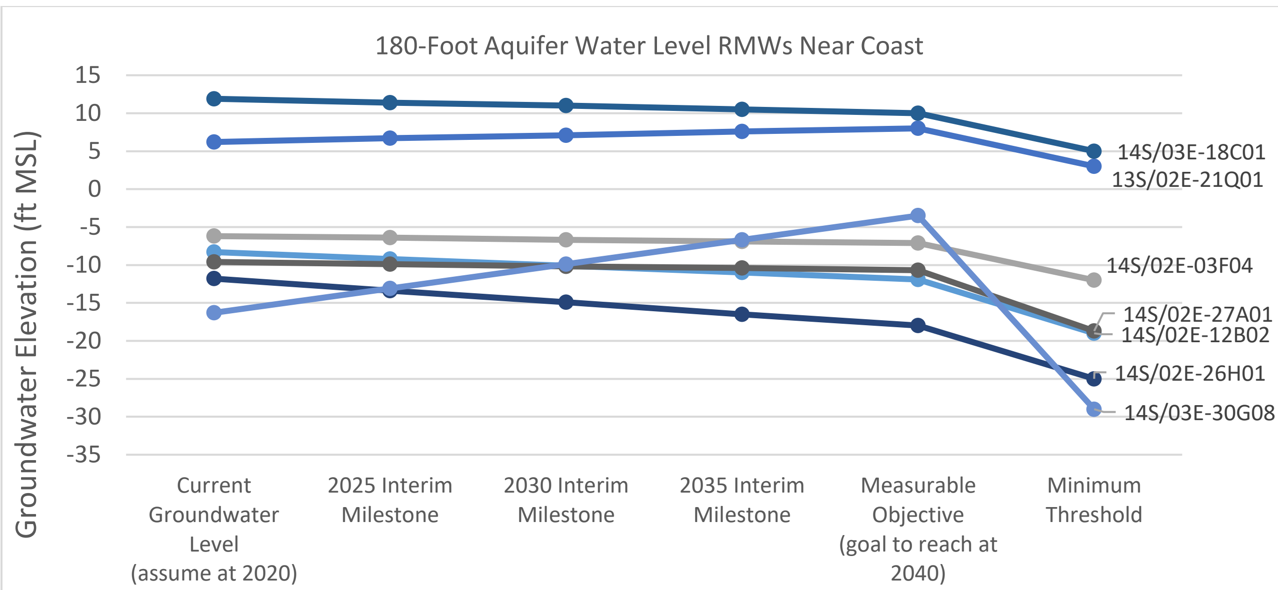
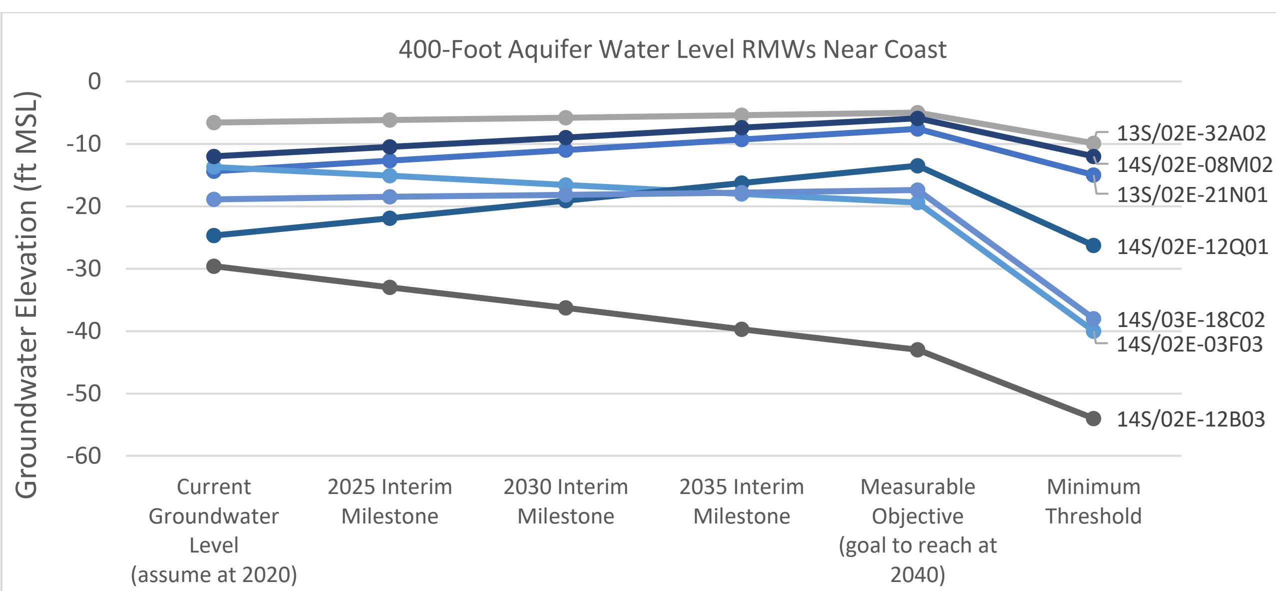


Chart 2b – SMCs for 400-Foot Aquifer Water Level RMWs Near Coast



- The draft GSP definition for degraded water quality identifies constituents of concern (COCs) as those that have an established level of concern or affect crop production and have been found in the subbasin above those levels of concern (Section 8.9.2). Further, the list of monitored COCs is dependent on the water quality constituent that each type of well is monitored for independent of the Sustainable Groundwater Management Act (SGMA). As illustrated in Tables 8-6 through 8-9 of the draft GSP, many COCs have been detected in municipal supply wells that have not been detected in domestic or small system wells, because these wells are not routinely tested for as many constituents as municipal supply wells. **Given this selective sampling and establishment of MTs for water quality constituents, the draft GSP does not present a monitoring network that is sufficient to monitor for impacts to beneficial users who rely on domestic wells and small water systems for drinking water (pursuant to 23 CCR § 354.34(b)(2)) and the draft GSP does not fully evaluate how these selective MTs will affect the interests of these beneficial users (pursuant to 23 CCR §354.28(b)(4)).**

Monitoring Network

- **Figure 2** shows the RMWs for water levels as well as the locations of domestic wells, public supply wells, DACs and public water systems in the subbasin, and the seawater intrusion MO and MTs. There are no water level RMWs located in the northernmost portion of the subbasin, in an area with a high concentration of domestic well users. **Thus, the water level monitoring network is inadequate to properly monitor for these sensitive beneficial users, as required under 23 CCR §354.34 (b)(2).**

- **Figures 3A** and **3B** show the estimated water decline from current conditions that would occur at each RMW if water levels reach the MTs for the 180-Foot and 400-Foot Aquifers, respectively. As shown in Figure 3B, the MTs for two RMWs (14S/02E-03F03 and 14S/02E-12B03) located along the 2017 seawater intrusion line/seawater intrusion MT are more than 20 feet below current groundwater conditions. **The GSP should explain how continued water level declines in areas already or imminently impacted by seawater intrusion will result in sustainable conditions for beneficial users.**

- The draft GSP does not clearly identify what wells will specifically be used as water quality RMWs, but rather lists MTs by general type of well (i.e., Municipal Supply Wells, Small Systems Supply Wells, Irrigated Lands Regulatory Program (ILRP) Domestic Wells, and Agricultural Use in ILRP Wells) in Tables 8-6 through 8-9, and states that the MOs are the same as the MTs (Section 8.9.3).[6] However, under 23 CCR §354.34(h), the GSP must include "The location and type of each monitoring site within the basin displayed on a map, and reported in tabular format, including information regarding the monitoring site type, frequency of measurement, and the purposes for which the monitoring site is being used." **Thus, the GSP must clearly identify on both maps and in tabular form each of the wells to be used as RMWs for water quality.** Without this information, the public cannot review and assess the adequacy of the proposed GSP to monitor impacts to beneficial users of groundwater, in particular those reliant on domestic wells for drinking water purposes.

- Table 7-2 of the draft GSP tabulates the locations and well depths of existing CASGEM wells and Table 7-4 of the draft GSP tabulates the locations and well depths of seawater intrusion RMWs. However, the well locations and well depths are different between these two tables for a given well (based on the State Well

[6] Section 7.5 of the draft GSP states that "The public water supply wells included in the monitoring network were identified by reviewing data from the State Water Resources Control Board (SWRCB) Division of Drinking Water. Wells were selected that had at least one of the constituents of concern reported from 2015 or more recently, and totaled 51 wells (Burton and Wright, 2018). These wells are listed in Appendix 7E and shown in Figure 7-9." However, the table in Appendix 7E lists 76 wells, rather than 51 wells, and Appendix 7E does not seem to be inclusive of all of the wells identified in Tables 8-6 through 8-9.

Number [SWN]).[7] **Therefore, it is unclear what well information is accurate, and as a result the draft GSP does not fulfill the requirement of 23 CCR § 354.34(h).**

Projects and Management Actions

- The draft GSP identifies an estimated groundwater storage deficit of up to 9,600 AFY under 2030 conditions and up to 10,300 AFY under 2070 conditions (Table 6-29), which represents roughly 8.5% of agricultural pumping and 6% of total pumping in the basin (Table 6-30). In order to arrest and roll back seawater intrusion to 2017 levels, significant projects and management actions will need to be implemented. The draft GSP identifies several potential options but does not select one clear path forward. The options include a hydraulic barrier, which "can be operated as a recharge barrier, wherein water is injected into the wells and the resulting water level mound creates the hydraulic barrier. Or the barrier can be operated as an extraction barrier, wherein the wells are pumped and the resulting water level trough creates the hydraulic barrier" (Section 9.4.1.4). The draft GSP identifies a seawater intrusion pumping barrier and estimates that operation will require withdrawing up to 30,000 AFY of groundwater, which would then be conveyed to discharge into the Pacific Ocean or to a new or existing desalination plant (Section 9.4.3.7). The draft GSP also states that an "optional barrier using injection instead of extraction was also considered" and that this option would require injection of approximately 46,000 AFY of water to create a protective mounding effect. While it is clear that one of these options is necessary to achieve the seawater intrusion MTs, the draft GSP does not consider and fully articulate impacts of these options on the projected water budget or sustainable yield. Implementation of either an extraction or a recharge barrier will, by definition, change the localized groundwater flow gradients. An extraction barrier will result in localized seaward flow gradients, and some portion (likely significant) of the estimated 30,000 AFY extracted will be of freshwater from the subbasin. Based on the numbers presented in the draft GSP, implementation of a pumping barrier will exacerbate the existing overdraft conditions and result in an annual storage deficit on the order of 40,000 AFY under 2070 climate change conditions. This represents approximately 40% of the agricultural pumping and approximately 28% of the total pumping in the subbasin, based on table 6-30. **Therefore, the draft GSP significantly underrepresents the actual deficit and needs of the subbasin in order achieve sustainability.**
- The draft GSP contemplates "Agricultural Land and Pumping Allowance Retirement [sic]" as a management action (Section 9.3.2), but does not actually quantify the scale or expected benefit of such a management action. The draft GSP states "Because it is unknown how many landowners will willingly enter the land retirement program, it is difficult to quantify the expected benefits at this time….direct correlation between agricultural land retirement and changes in groundwater levels is likely not possible because this is only one among many management actions and projects that will be implemented in the Subbasin" (Section 9.3.2). As identified above, the future overdraft conditions including implementation of the pumping barrier represents approximately 40% of agricultural pumping. The draft GSP also identifies several potential recharge projects to augment the groundwater supply, but these projects, along with the pumping barrier, require construction of infrastructure and will take years to implement even under the best circumstances. In order to achieve the seawater intrusion MTs and to avoid further degradation of the subbasin, more immediate action is necessary. **Thus, the draft GSP should: 1) more transparently lay out and quantify the deficit that needs to be addressed by projects and management actions; 2) provide a clear plan for implementing pumping restrictions and agricultural land retirement with specific targets; 3) clearly articulate how much pumping will need to be reduced in the subbasin; and 4) quantify and present the degree of continued seawater that will occur before the projects and management actions are implemented.**

[7] For purpose of the attached figures, we have used Table 7-2 for location of water level RMWs and Table 7-4 for location of seawater intrusion RMWs.

Attachments

Figure 1 – Seawater Intrusion SMCs Relative to Domestic Wells, Public Supply Wells, DACs, and Community Water Systems

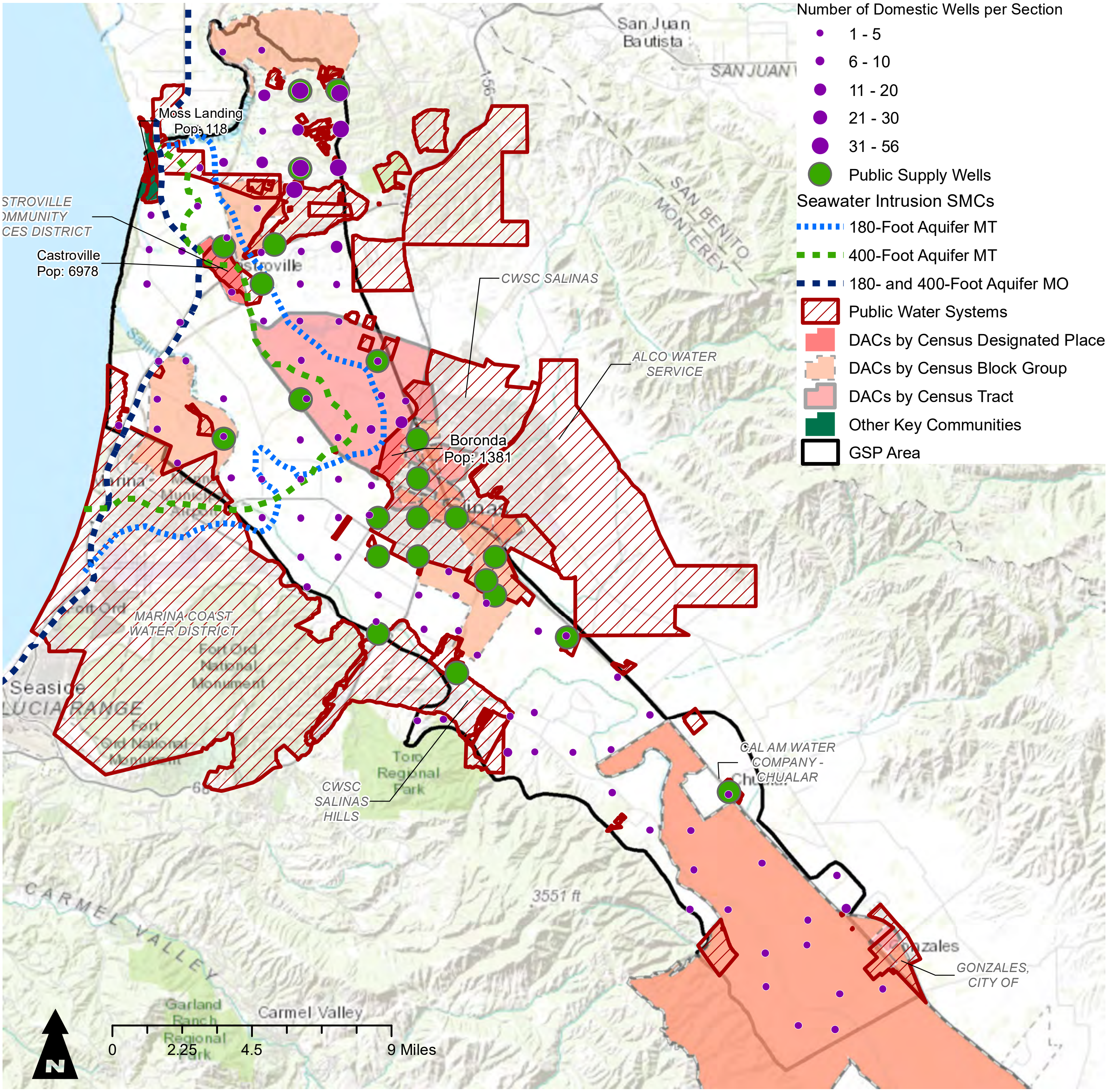
Figure 2 – Representative Monitoring Network for GW Levels Relative to Domestic Wells, Public Supply Wells, DACs, and Community Water System

Figure 3A – Estimated Water Level Decline at Minimum Thresholds in the 180-Foot Aquifer

Figure 3B – Estimated Water Level Decline at Minimum Thresholds in the 400-Foot Aquifer

Figure 1 - Seawater Intrusion SMCs Relative to Domestic Wells, Public Supply Wells, DACs, and Community Water Systems

Salinas Valley Basin GSA

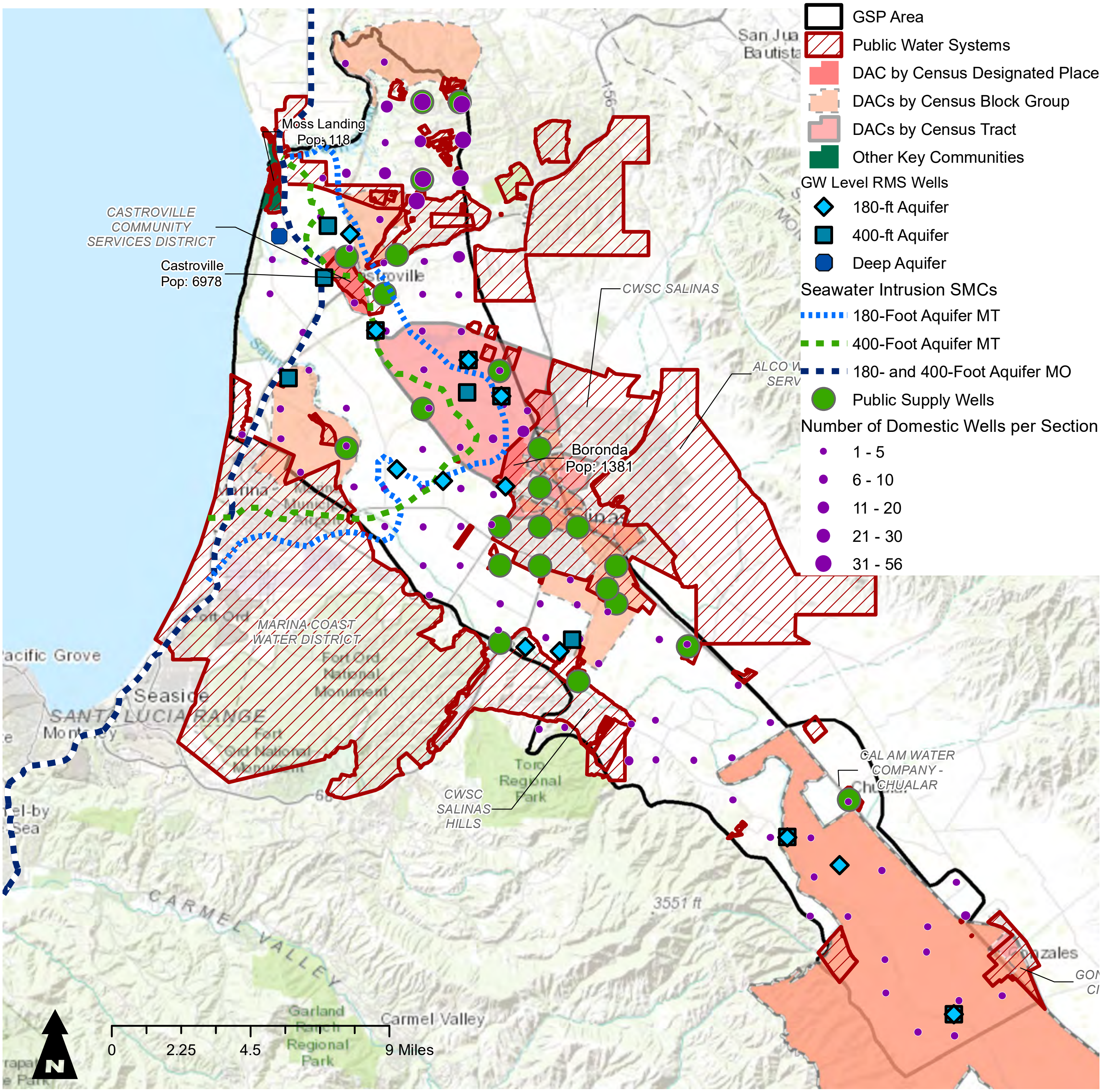


Notes
1. All locations are approximate.

References
1. Domestic Well Densities: Research to develop the CWC Vulnerability Tool draft as of August 6, 2019.
2. Public supply well data: DWR Well Completion Reports downloaded on August 30, 2018 from https://atlas-dwr.opendata.arcgis.com/datasets/.
3. Disadvantaged and other key community data (place, tract, and block group): downloaded on August 6, 2019 from the DAC Mapping Tool: https://gis.water.ca.gov/app/dacs/.
4. Public Water System data: downloaded on August 6, 2019 from Tracking California: https://trackingcalifornia.org/water/map-viewer. The dataset includes "community" and "non-community" water systems.
5. Seawater Intrusion MOs and MTs: Figure 8-6 and Figure 8-7 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.

Figure 2 - Representative Monitoring Network for GW Levels Relative to Domestic Wells, Public Supply Wells, DACs, and Community Water Systems

Salinas Valley Basin GSA

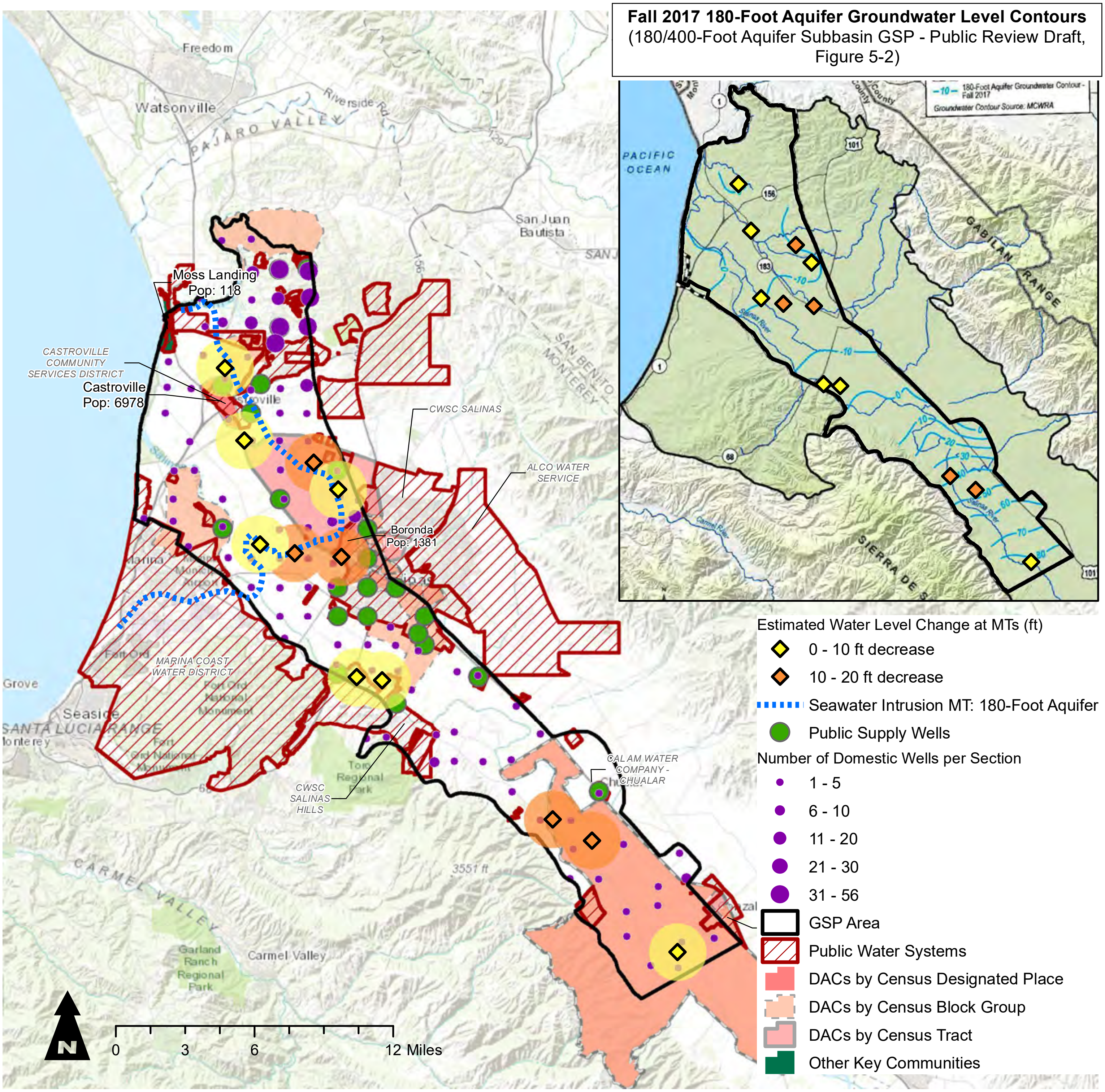


Notes
1. All locations are approximate.
2. Location of Water Level Representative Monitoring Site Wells is based on Table 7-2 of the SVBGSA GSP (2019).

References
1. Domestic Well Densities: Research to develop the CWC Vulnerability Tool draft as of August 6, 2019.
2. Public supply well data: DWR Well Completion Reports downloaded on August 30, 2018 from https://atlas-dwr.opendata.arcgis.com/datasets/.
3. Disadvantaged and other key community data (place, tract, and block group): downloaded on August 6, 2019 from the DAC Mapping Tool: https://gis.water.ca.gov/app/dacs/.
4. Public Water System data: downloaded on August 6, 2019 from Tracking California: https://trackingcalifornia.org/water/map-viewer. The dataset includes "community" and "non-community" water systems.
5. Water Level RMW locations: Table 7-2 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.
6. Seawater Intrusion MOs and MTs: Figure 8-6, Figure 8-7, and Section 8.8.3.1 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.

Figure 3A - Estimated Water Level Decline at Minimum Thresholds in the 180-Foot Aquifer

Salinas Valley Basin GSA



Notes

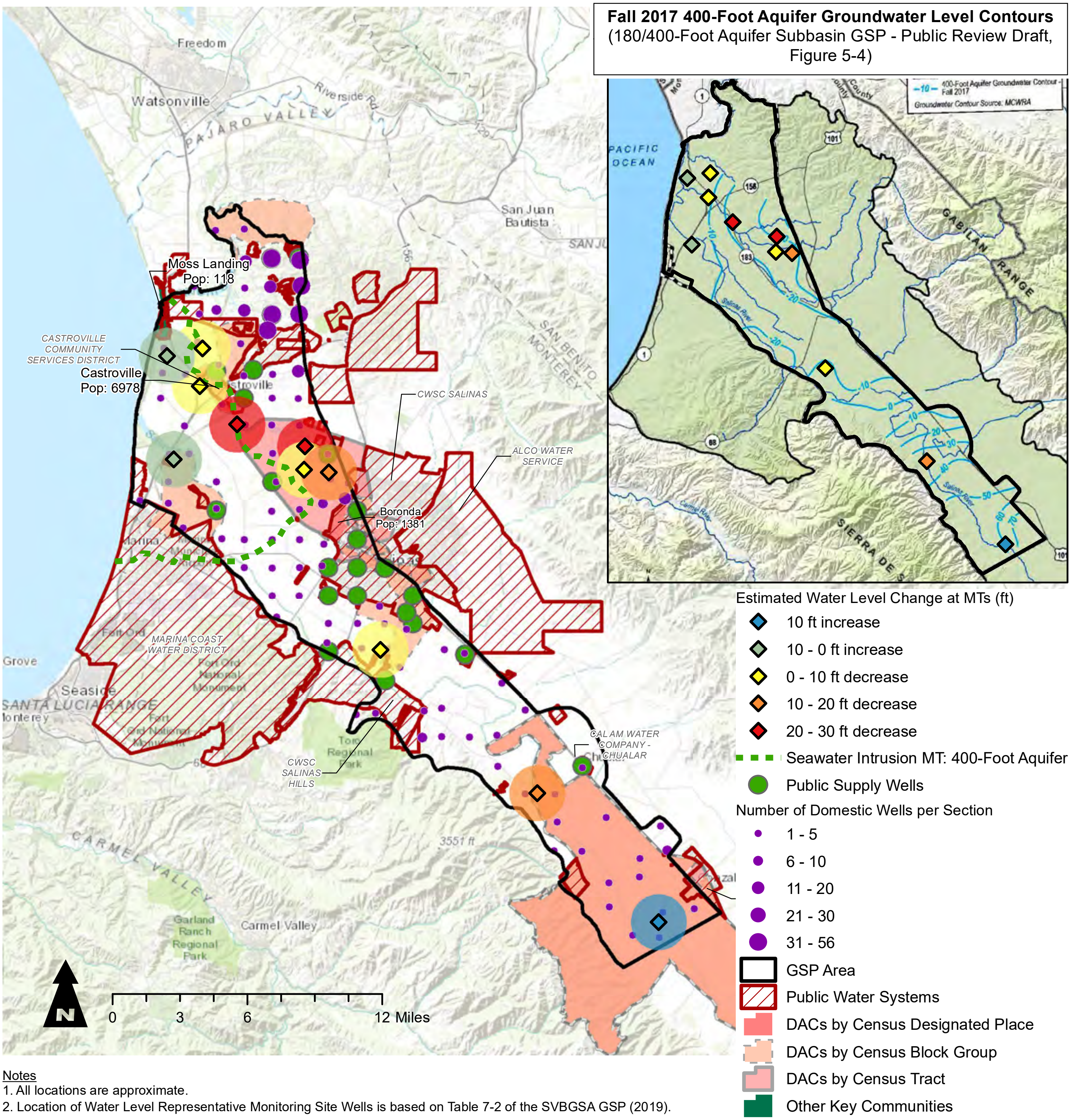
1. All locations are approximate.
2. Location of Water Level Representative Monitoring Site Wells is based on Table 7-2 of the SVBGSA GSP (2019).

References

1. Domestic Well Densities: Research to develop the CWC Vulnerability Tool draft as of August 6, 2019.
2. Public supply well data: DWR Well Completion Reports downloaded on August 30, 2018 from https://atlas-dwr.opendata.arcgis.com/datasets/.
3. Disadvantaged and other key community data (place, tract, and block group): downloaded on August 6, 2019 from the DAC Mapping Tool: https://gis.water.ca.gov/app/dacs/.
4. Public Water System data: downloaded on August 6, 2019 from Tracking California: https://trackingcalifornia.org/water/map-viewer. The dataset includes "community" and "non-community" water systems.
5. Water Level RMW locations, MTs, and contour map: Tabel 7-2, Table 8-2, and Figure 5-2 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.
6. Seawater Intrusion MTs for the 180-Foot Aquifer: Figure 8-6 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.

Figure 3B - Estimated Water Level Decline at Minimum Thresholds in the 400-Foot Aquifer

Salinas Valley Basin GSA



Notes
1. All locations are approximate.
2. Location of Water Level Representative Monitoring Site Wells is based on Table 7-2 of the SVBGSA GSP (2019).

References
1. Domestic Well Densities: Research to develop the CWC Vulnerability Tool draft as of August 6, 2019.
2. Public supply well data: DWR Well Completion Reports downloaded on August 30, 2018 from https://atlas-dwr.opendata.arcgis.com/datasets/.
3. Disadvantaged and other key community data (place, tract, and block group): downloaded on August 6, 2019 from the DAC Mapping Tool: https://gis.water.ca.gov/app/dacs/.
4. Public Water System data: downloaded on August 6, 2019 from Tracking California: https://trackingcalifornia.org/water/map-viewer. The dataset includes "community" and "non-community" water systems.
5. Water Level RMW locations, MTs, and contour map: Tabel 7-2, Table 8-2, and Figure 5-4 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.
6. Seawater Intrusion MTs for the 400-Foot Aquifer: Figure 8-7 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, dated October 2019.

November 25, 2019

Mr. Gary Petersen
General Manager,
Salinas Valley Basin Groundwater Sustainability Agency
P.O. Box 1385
Carmel Valley, CA 93924

VIA: E-mail to peterseng@svbgsa.org

RE: Public Comments on Draft Groundwater Sustainability Plan for 180/400 Sub-Basin of the Salinas Valley Groundwater Basin

Dear Mr. Petersen,

We would like to personally thank you and your team for the work you have done on the plan for the 180/400 Sub-Basin. It has taken a lot of collaboration, compromise and understanding to gain mutual support over a plan to manage our groundwater.

We are a small family farm in Gonzales that has been in business since the early 1900s. We have seen and been a part of many of the changes within our industry and community- water law being one of them. There are just a few comments and notes we wanted to be considered in public comment.

How are water rights, specifically appropriated water rights being considered in the plan for the 180/400 Sub-Basin? Especially when it comes to allocation and pumping.

What are the details or ideas on specifics for well extraction limits? Can previously held water rights be mandated with limits? Legal ramifications will need to be considered.

Specifically in Gonzales, please consider the jurisdiction of the former Gonzales Irrigation Company- there are special preliminary water rights in this region from this case. These pre-1914 water rights could take precedent over other rights on other parcels in Monterey County. In drought instances if there is a shortage of water, holders of these rights may have first call on river water even if it is not taken directly from the river. (See letter to Clarence "Toots" Vosti and map enclosed).

Supporting the invasive species issue in the Salinas River should not just stop at Arundo donax- a more thorough examination and analysis of the species in the river should conclude other finds that with their removal can also gain additional water to help with replenishing our aquifer. Other ways to help penetration and replenishment would be additional clearing of our river channels.

How will this plan handle well drilling rights or replacement wells?

In cases of financial hardships, there should not be a penalty or cease of water rights and/or access.

Be aware of Ag Order 4.0 on its jurisdiction of groundwater. Part of the new regulations, specifically in Table 5, is crossing into SGMA territory by requiring *irrigated* riparian habitats/buffers. Most of the irrigated water in the Salinas Valley is groundwater. It is in the best interest of landowners, farmers and SVBGSA to monitor this cross over of regulatory agencies.

And a final note, please consider or make sure to be aware of the SVPOLA- Salinas Valley Property Owners for Lawful Assessments v. County of Monterey (Monterey County Superior Court Case No. M66890). From this court case there may need to be reconsideration of the responsibility for salt water intrusion for those represented land parcels whose owners won the ruling of this case. Most of these parcels are in the southern portion of the Pressure Area, which does not fall under the same category or jurisdiction of other parcels in the Pressure Area.

Thank you for your time and consideration. We look forward to the final plan.

Sincerely,

Wayne Gularte
President
Rincon Farms, Inc.

WILLIAMS RANCHES

Chunn Ranch LLC Williams Sisters Trust

October 8, 1997

Dear Toots,

The enclosed map is a rough out line the Gonzales Irrigation Company Canal about 1901. The crosshatched area represents those acres that were irrigated by the canal. At that time the owners of the company filed for and were granted water rights for some 230,000 acre feet of water from the Salinas River. The company was dissolved in the early 30's but those who can trace a continuity of ownership to the canal have, theoretically, a right to the portion of that water that they have put to reasonable and practical use.

These pre-1914 water rights take precedence over the rights that the county currently holds to the water they are keeping behind the dams which theoretically means that in times of drought or other instances when there is a shortage of water, holders of these rights would have first call on river water before others, even if it is not taken directly from the river.

This is all based upon what several lawyers have told me and if you asked some lawyers on the other side I am sure you could get another opinion. It is interesting to note, however, that the county's legal staff has chosen to ignore the issue and move on to less controversial topics.

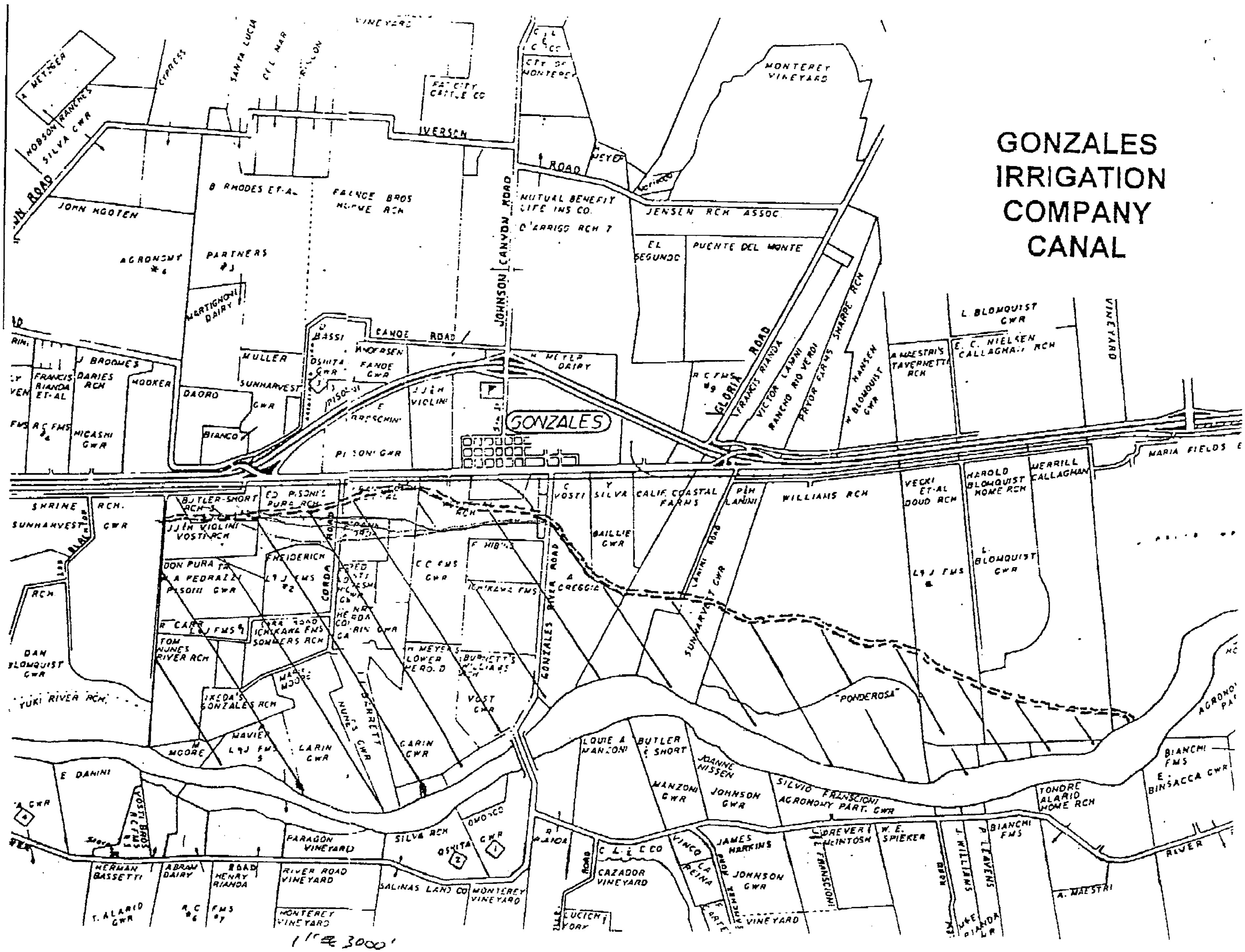
As you know the State Water Resources Board is going to start hearings early next year on the adjudication of water rights for the valley and it may be time for those of us with potential superior rights to prepare to defend our position.

Please take a look at the attached map and let me know what you think about the whole situation.

Thanks,

Fred Sammis

77 Hazel Avenue, Larkspur, California 94939 - Box 883, Salinas, CA 93902
FAX (415) 927-9043


GONZALES
IRRIGATION
COMPANY
CANAL
GONZALES
IVERSEN
JOHNSON CANYON ROAD
MUTUAL BENEFIT LIFE INS CO.
JENSEN RCH ASSOC
MONTEREY VINEYARD
PUENTE DEL MONTE
EL SEGUNDO
GLORIA ROAD
FANOE ROAD
GONZALES RIVER ROAD
CORDA ROAD
WILLIAMS RCH
"PONDEROSA"
MARIA FIELDS
L. BLOMQUIST GWR
E. C. NIELSEN CALLAGHAN RCH
JOHN HOOTEN
PARTNERS #3
B RHODES ET-AL
FANOE BROS HOME RCH
SHRINE RCH.
SUNHARVEST
JJ&H VIOLINI VOSTI RCH
CALIF COASTAL FARMS
SILVA RCH
FARAGON VINEYARD
RIVER ROAD VINEYARD
MONTEREY VINEYARD
SALINAS LAND CO
CAZADOR VINEYARD
JOHNSON GWR
JAMES HARKINS
W. E. SPIEKER
SILVIO FRANSCIONI AGRONOMY PART. GWR
TONORE ALARID HOME RCH
BIANCHI FMS
E. BINSACCA GWR
A. MAESTRI
HERMAN BASSETTI
ABRAM DAIRY
HENRY RIANDA
E DANINI
MOORE
LARIN GWR
NUNES GWR
BARRETT
VOST GWR
LOUIE A MANZONI
BUTLER & SHORT
JOANNE NISSEN
MANZONI GWR
RIVER
1" = 3000'

p.2

MARINA COAST WATER DISTRICT

11 RESERVATION ROAD, MARINA, CA 93933-2099
Home Page: www.mcwd.org
TEL: (831) 384-6131 FAX: (831) 883-5995

November 25, 2019

Mr. Gary Petersen
General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1441 Shilling Place
Salinas, CA 93901

Mr. Derrik Williams
Montgomery & Associates
1232 Park Street, Suite 201B
Paso Robles, CA 93446

Dear Mr. Peterson and Mr. Williams,

The MCWD GSA has reviewed the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan (GSP) Public Review Draft, 21 October 2019. Our comments are provided herein. Comments 4 and 5 reiterate issues discussed in our previous comment letter regarding GSP draft Chapter 8. Comments 1 through 5 identified herein are critical to MCWD's acceptance of the 180/400 Foot Aquifer Subbasin GSP. We would like the opportunity to discuss these comments with you to resolve any remaining issues and come to an agreement on how they can be addressed. We are available to meet on, or before, 2 or 3 December 2019.

1. Table 9-5 Total Potential Water Available for Mitigating Overdraft

The total in Table 9-5 is incorrect and should sum up to positive 40,800 AFY.

2. Section 3.3.1 Federal Jurisdiction

Section 3.3.1 states:

> *"A portion of the Fort Ord former Army base lies in the Subbasin. Although this land is currently operated by the City of Marina as an airport, the DWR land use dataset depicts this as Federal land."*

Most of the former Fort Ord property has been transferred for civilian use and no long under federal jurisdiction as of 2019, including the airport. This area should be removed from Figure 3-3 and the above statement should be revised to state:

> *"A portion of the Fort Ord former Army base lies in the Subbasin and encompasses the Marina Municipal Airport. Although the DWR land use dataset depicts this area as federal land, this land has been transferred to civilian use and is no longer under federal jurisdiction."*

3. Section 6.10.5

The first paragraph of Section 6.10.5 states:

> *"The net pumping shown on this table is the total pumping in Table 6-27 less the well interflow shown on Table 6-26."*

Please provide a definition of "well interflow" and clarify why it was subtracted from total pumping.

4. Section 8.6.2.3 Relationship between Individual Minimum Thresholds and Relationship to Other Sustainability Indicators

Section 8.6.2.3 states

> *"The groundwater elevation minimum thresholds are set at or above existing groundwater elevations. Therefore, the groundwater elevation minimum thresholds will not exacerbate, and may help control, seawater intrusion."*

It is not accurate to state that groundwater elevation minimum thresholds, which are set below mean sea level and will maintain landward gradients "will not exacerbate and may help control seawater intrusion". The seawater intrusion front will continue to migrate inland if water levels remain below mean sea level and inland gradients persist. At a minimum, Section 8.6.2.3 should be modified to state:

> *"The groundwater elevation minimum thresholds are set at or above existing groundwater elevations. Therefore, the groundwater elevation minimum thresholds are intended to not exacerbate, and may help control, the rate of seawater intrusion."*

5. Various Locations: Effect of Minimum Thresholds on Neighboring Basins and Subbasins

Section 8.6.2.4, and similarly Sections 8.7.2.3, 8.8.2.3, 8.9.2.6, 8.10.2.3 states:

> *"The SVBGSA is either the exclusive GSA, or is one of two coordinating GSAs for the adjacent Langley, Eastside, Forebay, and Monterey Subbasins. Because the SVBGSA covers all of these subbasins, the GSA Board of Directors opted to develop the minimum thresholds and measurable objectives for all of these neighboring subbasins in a single process that is coordinated with the 180/400-Foot Aquifer Subbasin. These minimum thresholds are designed to ensure that all the subbasins can be managed sustainably in a coordinated fashion. Therefore, the minimum thresholds for the 180/400-Foot Aquifer Subbasin will not prevent the neighboring subbasins from achieving sustainability, by design."*

We understand that the SVBGSA intends to coordinate sustainable management criteria development as the managing GSA for each of the adjacent subbasin. However, it is premature to state that the minimum threshold of the 180/400-Foot Aquifer Subbasin has taken sustainable management of adjacent basins into full consideration, as those subbasins are still in their early phases of GSP development.

Therefore, the following caveat should be included, and the following would replace the entire paragraph:

> *"The SVBGSA is either the exclusive GSA, or is one of two coordinating GSAs for the adjacent Langley, Eastside, Forebay, and Monterey Subbasins. Because the SVBGSA covers all of these subbasins, the GSA Board of Directors opted to develop the minimum thresholds and measurable objectives for all of these neighboring subbasins in a single process that is coordinated with the 180/400-Foot Aquifer Subbasin. These neighboring subbasins are in the process of GSP*

development for submittal in January 2022. Minimum thresholds for the 180/400 Foot Aquifer Subbasin will be reviewed relative to information developed during the preparation of neighboring subbasins GSPs and will be updated, as appropriate, to ensure that these minimum thresholds will not prevent the neighboring subbasins from achieving sustainability."

We appreciate SVBGSA's consideration of these comments. These comments are consistent with comments letters submitted previously to SVBGSA which are listed below and attached to the end of this letter.

- Preliminary Comments Regarding Salinas Valley Basin Groundwater Sustainability Agency Draft Groundwater Sustainability Plan Chapters 1 through 3, submitted by EKI Environment & Water, Inc. (EKI) on behalf of MCWD, dated November 21, 2018;
- Preliminary Comments Regarding Salinas Valley Basin Groundwater Sustainability Agency Draft Groundwater Sustainability Plan Chapter 4, submitted by EKI on behalf of MCWD, dated March 26, 2018;
- Preliminary Comments Regarding Salinas Valley Basin Groundwater Sustainability Agency Draft Groundwater Sustainability Plan Chapter 5, submitted by EKI on behalf of MCWD, dated April 18, 2018;
- Letter to SVBGSA regarding 180/400 Foot Aquifer Subbasin GSP Chapter 6, dated July 2, 2019;
- Letter to SVBGSA regarding 180/400 Foot Aquifer Subbasin GSP Chapter 8, dated May 24, 2019;
- Letter to SVBGSA regarding 180/400 Foot Aquifer Subbasin GSP Chapter 9, dated August 1, 2019; and
- Letter to SVBGSA regarding 180/400 Foot Aquifer Subbasin GSP Chapter 9 and Chapter 10, dated September 16, 2019.

We look forward to hearing from you and appreciate the opportunity to discuss these comments further.

Sincerely,

Keith Van Der Maaten
General Manager, Marina Coast Water District

November 21, 2018

MEMORANDUM

To: Gary Peterson, Salinas Valley Basin Groundwater Sustainability Agency
Derrik Williams, P.G., C.Hg., Montgomery & Associates

From: Keith Van Der Maaten, P.E., Marina Coast Water District
Patrick Breen, Marina Coast Water District
Vera Nelson, P.E., EKI Environment and Water, Inc.
Tina Wang, P.E., EKI Environment and Water, Inc.

Subject: Preliminary Comments Regarding Salinas Valley Basin Groundwater Sustainability Agency Draft Groundwater Sustainability Plan Chapters 1 through 3
(EKI B60094.03)

The Marina Coast Water District Groundwater Sustainability Agency (MCWD GSA) prepared the following preliminary comments on the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) draft 180/400 Foot Aquifer Subbasin and Salinas Valley Integrated Groundwater Sustainability Plans (GSPs) Chapters 1 through 3 ("Draft Chapters"), dated October 2018.

We understand that SVBGSA is preparing a revised version of the Draft Chapters for the 180/400 Foot Aquifer Subbasin for the Board Meeting on December 13th. Comments received by the week of November 19 will be considered for incorporation in the revised draft.

These preliminary comments are for SVBGSA's consideration and incorporation into its revised version of Draft Chapters for the December 13th Board Meeting.

PRELIMINARY COMMENTS FOR DRAFT 180/400 FOOT AQUIFER SUBBASIN GSP, CHAPTERS 1 – 3

Page/Section	Comment
1, last ¶	GSP developed with cooperation with MCWD. The word "coordination" needs to be substituted for "cooperation".
Top of p. 2	Need to add City of Marina to list.
4	Reword the 2nd sentence to read, "None of these three GSAs are exclusive GSAs for the entire Subbasin; however, MCWD is an exclusive GSA for that portion of the Subbasin within its jurisdictional boundaries."
6, § 2.1	Recommend including contact and website information for each agency, similar to how they are presented in the SVIGSP.
8, §2.3.1.2	Reword the last sentence to read, "MCWD is an exclusive GSA for a portion of the Subbasin. MCWD also has existing rights as a county water district to manage groundwater within its service areas."
10, §3.1, 2nd ¶	The City of Marina needs to be added to the sentence: "The Subbasin contains the municipalities of …."
10, §3.2, 2nd ¶	2nd sentence: The reference should be to Figure 2-1, not Figure 3-1.
11, Fig. 3-1	The Marina city limits need to be shown on the map.
13, §3.3.1	Add the following to the end of the paragraph: "Within the former Fort Ord, Marina Coast Water District is the exclusive water purveyor to all non-Federal lands and to the Army for all Army and Federal facilities within the former Fort Ord. By a 2001 deed from the Army through the Fort Ord Reuse Authority, Marina Coast Water District owes all of the water infrastructure within the former Fort Ord."
13, §3.3.4	Amend the entire paragraph as follows: "The cities of Salinas, Gonzales, and Marina have water management authority in their incorporated areas. The Castroville Community Service District provides water and sewer collection services in the town of Castroville. The Marina Coast Water District provides water and sewer collection services within its jurisdictional boundaries and within its Ord Community service area, which consists of the former Fort Ord. As a county water district, MCWD has water management authority over those areas. MCWD has filed an application with LAFCO to include all of the Ord Community service parcels that currently receive potable water or that have received final land use development approvals by the applicable land use jurisdiction. Marina Coast Water District is an exclusive GSA for a small portion of the 180/400-Foot Aquifer Subbasin. The jurisdictional boundaries of these areas are shown on Figure 3-4."
14, Fig. 3-3	The area shown on the map as Federal Jurisdiction is now within the City of Marina.
19, Fig. 3-6	The map needs to show the 180/400 Subbasin areas within the Marina City Limits that are dependent on groundwater.

Page/Section	Comment
25-30, §3.6	Please provide references for existing monitoring programs, such as monitoring plans and monitoring program websites.
27, §3.6.3.1	It states that the MCWRA monitors 121 "monitoring" wells located in the 180/400 Subbasin. Are the location and depths of these wells known? If so, then their locations and depths (but not well owner's names) should be included in the technical chapters .
28, §3.6.3.2	Add the following fourth bullet: "Required CalAm and MCWRA monitoring wells for CalAm's proposed source wells for the Monterey Peninsula Water Supply Project (MPWSP)."
28, §3.6.3.2	Please state how many of the USGS GAMA wells are environmental monitoring wells, irrigation wells, and public water supply wells.
36, §3.7.3.2	Substitute along the following lines for: **3.7.3.2 Marina Coast Water District Urban Water Management Plan [180/400]** **3.7.3.3 Marina Coast Water District Urban Water Management Plan [Valley-wide]** Marina Coast Water District (MCWD), a county water district, was formed in 1960. Today MCWD serves municipal and industrial water uses within the City of Marina and the former Fort Ord. Pursuant to the 1996 Marina Area Lands Annexation Agreement (Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands dated March 1996), MCWRA allocated to MCWD the right to 3,020 AFY of potable groundwater. Under the 1993 Fort Ord Annexation Agreement (Agreement concerning the Annexation of Fort Ord into Zones 2 and 2A of the MCWRA dated September 21, 1993), MCWRA allocated to the Army the right to 6,600 AFY of potable groundwater. In 2000, the Army entered into an exclusive contract with MCWD to meet all potable water demands by the Army and the BLM within the former Fort Ord and authorized MCWD to use the Army's reserved groundwater rights to meet those demands. In October 2001, the U.S. Army transferred to the Fort Ord Reuse Authority (FORA) and FORA in turn transferred to MCWD title to all of the Army's then existing water and sewer infrastructure and the 6,600 AFY of potable groundwater, except for 1,577 AFY reserved by the Army to meet Federal water demands within the former Fort Ord. In 2007, the California Department of Public Health granted MCWD's request to combine the Central Marina and Ord Community services areas into one combined water system permit. Consequently, MCWD owns or manages 9,620 AFY of potable groundwater rights to serve its combined Central Marina and Ord Community service areas.

Page/Section	Comment
	As a retail water service provider, MCWD is required to periodically prepare an UWMP. The 2010 UWMP was updated in 2015 (Schaff & Wheeler, 2016). [Continue with the rest of the existing paragraph,] [Move the existing 3rd ¶ to here.] The MCWD UWMP includes a number of demand management measures including: [Continue with the existing bullet list] MCWD's implementation of demand management measures resulted in MCWD receiving state-wide recognition of its water conservation achievements during the last drought. MCWD currently relies solely on groundwater. However, in 2019, MCWD will receive the first 600 AFY of advanced treated water from the Pure Water Monterey (PWM) Project out of MCWD's total 1,427 AFY PWM entitlement. In addition, MCWD is working with FORA and Monterey One Water (M1W) to identify new water sources (including recycled water, brackish water desalination, stormwater flows, water conservation) to develop an additional 927 AFY for the Fort Ord Base Reuse Plan. MCWD is also a key water transmission hub owner connecting the Central Marina and North Ord areas with the yet to be developed South Ord area, which includes portions of the Cities of Seaside, Del Rey Oaks, and Monterey. MCWD owns the potable water transmission pipeline, which MCWD will use to serve the South Ord area. The pipeline is currently being used by CalAm for its Carmel River ASR Project to convey injection water and to convey recovered water to its Monterey District, but MCWD has the first priority of use as the pipeline's owner. The pipeline will also be used to convey recovered PWM water for direct use in CalAm's Monterey District. MCWD also owns the new 10-mile transmission pipeline for the PWM Project, which will deliver advanced treated water to MCWD recycled water customers and to the PWM injection wells in the Seaside Groundwater Basin.
37, §3.8.1	Insert the new §3.8.1, District Act/Agency Act – Pre-SGMA Foundation of Groundwater Management within Monterey County, following this table and renumber other subsections.

Page/Section	Comment
38, §3.8.3	Add to the end of the 2nd ¶: "The SWRCB's Sources of Drinking Water Policy adopted in Resolution No. 88-63 and incorporated in its entirety in the CCRWQCB's Basin Plan provides that water with water quality equal to or less than 3,000 mg/L TDS is considered suitable or potentially suitable for drinking water beneficial uses." Add to the end of the 3rd ¶: "and the prevention or repelling of seawater intrusion."
39, §3.9	Substitute the revised Section 3.9, Conjunctive Use Programs, following this table.
40-51, §3.10	Please provide references and document dates for land use plans discussed.
40-51, §3.10	Please provide a discussion of FORA's Base Reuse Plan as a land use plan in the GSP plan area, per § 354.8 (f) of GSP Regulations.
49, §3.10.4	Please ask City of Marina to review this discussion of its General Plan. The City should also include a discussion about any Local Coastal Plan restrictions on new groundwater wells.
49, §3.10.5	A description of the existing prohibitions and restrictions on well drilling within the 180/400 Foot Aquifer Subbasin needs to be added, including the County's 2018 Interim Ordinance, the County's Well Prohibition in Fort Ord (Ordinance No. 04011), MCWD's Well Ordinance (Municipal Code Chapter 3.32), and ordinances by other municipalities in the 180/400 Foot Aquifer Subbasin, if any. Check the Monterey County General Plan on additional restrictions on drilling new wells within the Coastal Zone. Possible placeholder description of the County's Moratorium: County Moratorium on Accepting and Processing New Well Permits. On May 22, 2018, the Monterey County Board of Supervisors adopted Ordinance No. 5302 pursuant to Government Code Section 65858. The ordinance imposed a moratorium on the County Health Department accepting and processing new well permits; it was not a moratorium on additional groundwater pumping from existing wells. The ordinance was an Interim Urgency Ordinance, which took effect immediately upon adoption. The ordinance prohibits the acceptance or processing of any applications for new wells in the defined "Area of Impact" with stated exceptions, including municipal wells and replacement wells. Pursuant to Section 65858, the ordinance was originally only effective for 45 days to July 5, 2018, but at the June 26 Board meeting, the Board of Supervisors on a 4-1 vote extended the ordinance to May 21, 2020, by adoption of Ordinance No. 5303. During the moratorium, the County has indicated that it will conduct studies. [Insert map of "Area of Impact."]

[Comment: Insert the following as a new Subsection 3.8.1 and renumber following subsections. Note that we are seeking a copy of the Final Allocation Formula Information Report from the Clerk to the Board of Supervisors and will provide to SVBGSA once received.]

3.8.1. District Act/Agency Act – Pre-SGMA Foundation of Groundwater Management within Monterey County

The Monterey County Flood Control and Water Conservation District Act (District Act) was enacted by Chapter 699 of the Statutes of 1947. The original District Act provided for the establishment of zones to finance projects and to take actions to prevent or deter seawater intrusion. The Zone 2 benefit assessment zone was established to fund the construction of Nacimiento Reservoir, construction of which was completed in 1957. The Zone 2A benefit assessment zone was established to fund the construction of San Antonio Reservoir, construction of which was completed in 1967.

In 1990, the District Act was repealed and replaced by the existing Monterey County Water Resources Agency Act (Agency Act); however, much of the District Act was carried over into the Agency Act. For example, Agency Act §52.21 (or §21)[1] quoted below in Section 3.8.2 and Agency Act §22, Action to prevent or deter intrusion of underground seawater, are based upon similar provisions in the District Act.

<u>Water Allocation Formula</u>: Agency Act §45 was added and, in 1991, was amended to read as follows:

> Section 45. Water allocation formula
>
> The board shall appoint a task force to recommend a water allocation formula for urban and agricultural areas in the county that are not within the jurisdiction of the Monterey Peninsula Water Management District and the Pajaro Valley Water Management Agency. An urban allocation formula is necessary to preserve agricultural access to an adequate water supply and to preserve agriculture as a mainstay of the Salinas Valley economy. The task force shall make the recommendation to the agency on or before January 1, 1992.

Board of Supervisors Resolution 91-476 adopted September 24, 1991, directed MCWRA staff to prepare information for a water allocation formula for Zone 2 and 2A and bring it back to the Board on or before January 1, 1992, and further directed MCWRA staff to prepare an emergency

[1] MCWRA cites to sections of the Agency Act as § 52.___. This is apparently an editorial carryover from when the District Act was referred to as "Chapter 52." Deering's California Codes cites to the Agency Act as Water – Uncodified Act 600.

allocation ordinance for Zones 2 and 2A for consideration by the Board no later than April 1, 1992. [Comment: Please insert MCWRA colored map of Zones 2 and 2A.]

On page 9 of the January 1992 draft, entitled "Revised Draft Allocation Formula Information," the report states:

> The Pressure Area is recharged primarily from the unconfined aquifer beneath the Forebay Area. Therefore, streambed percolation and deep percolation of excess irrigation water account for relatively minimal groundwater recharge to the main water supplying aquifers in the Pressure Area.

As stated in Section 3.1, MCWRA's Pressure Subarea consists of three DWR subbasins: the 180/400-Foot Aquifer Subbasin, the Monterey Subbasin, and the Seaside Subbasin.

Construction of the Interlake Tunnel Project connecting Nacimiento Reservoir to San Antonio Reservoir is mentioned in the 1992 Revised Draft Allocation Formula Information report.

<u>Annexations to Zones 2 and 2A</u>: The MCWRA Board of Directors adopted an Annexation Policy dated March 29, 1993, which provided for the process for lands not then included within Zones 2 and 2A to be annexed into both zones subject to the annexation process in Agency Act § 43, the preparation of final environmental documents, and the setting of annexation fees.

Certain public entities, such as the City of Salinas and the Castroville Community Services District, did not need to need to seek annexation since they were originally included in Zones 2 and 2A. Since the adoption of the Annexation Policy, there have been _______ annexations to Zones 2 and 2A [Comment: Please check the number of annexations with MCWRA]. Prominent among them was the 1993 Fort Ord Annexation and the 1996 Marina Area Lands Annexation, which include some lands within the 180/400-Foot Aquifer Subbasin.

<u>1993 Fort Ord Annexation to Zones 2 and 2A</u>: Under the "Agreement between the United States of America and the Monterey County Water Resources Agency concerning Annexation of Fort Ord into Zones 2 and 2A of the Monterey County Water Resources Agency, Agreement No. A-06404", dated September 21, 1993, the MCWRA annexed the Fort Ord lands into Zones 2 and 2A and allocated to the Army 6,600 acre-feet per year of potable groundwater from the Salinas Valley Groundwater Basin. In 1993, the Seaside Groundwater Basin was considered to be hydraulically separate from the Salinas Valley Groundwater Basin even though Zone 2A included the Seaside Groundwater Basin within the Pressure Subarea. The Army paid an annexation fee of $7.4 million to be used by MCWRA to complete the design of the Castroville Seawater Intrusion Project (CSIP). In addition, the Army received a $400,000 credit for money spent on planning and information for the EIR/EIS for CSIP, the Salinas Valley Reclamation Project, and the Fort Ord Annexation. The September 10, 1993 "Annexation Assembly and Evaluation Report for the

Annexation of Fort Ord by the Monterey County Water Resources Agency," which was incorporated as Appendix D to the 1993 Annexation Agreement, provides the background and justification for the annexation. The Executive Summary to that report states in part the following:

> The purpose of this annexation by [MCWRA] is to provide the basis for a long term, reliable, potable water supply to supply the Army's residual mission at Fort Ord after it is realigned per the Base Closure and Realignment Act of 1990. Annexation will also facilitate the disposal and reuse of the portions of Fort Ord not needed to support the Army's residual mission.

In 2001, the Army through FORA deeded to MCWD the 6,600 AFY allocation except for reserving 1,577 AFY to meet Federal water demands within the former Fort Ord. Under an exclusive potable water contract, the Army provides its reserved water right to MCWD to meet Army and other Federal Agency potable water demands within the former Fort Ord.

<u>1996 Marina Area Lands Annexation to Zones 2 and 2A</u>: Under the "Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands" dated March 1996 (1996 Annexation Agreement), among the MCWRA, the Marina Coast Water District, J.G. Armstrong Family Members, RMC Lonestar (now CEMEX), and the City of Marina, the MCWRA annexed MCWD's Central Marina service area into Zones 2 and 2A and allocated to MCWD 3,020 AFY from the Salinas Valley Groundwater Basin for use in the Central Marina service area. MCWD paid a net annexation fee of $2,449,410 after receiving a $400,000 credit against the annexation fee. Section 1.1, Purpose, of the 1996 Annexation Agreement stated:

> The purpose of this Agreement and Framework is to help reduce seawater intrusion and protect the groundwater resource and preserve the environment of the Salinas River Groundwater Basin through voluntary commitments by the Parties to limit, conserve and manage the use of groundwater from the Salinas River groundwater basin, and to provide the terms and conditions for the annexation of certain territory in the Marina area to the [MCWRA's] benefit assessment Zones 2 and 2A as a financing mechanism providing additional revenues to the [MCWRA] to manage and protect the groundwater resource in the Salinas River Groundwater Basin and to reduce seawater intrusion.

Under the 1996 Annexation Agreement, additional groundwater supply would be made available to MCWD for use within the Armstrong Ranch and the RMC Lonestar (now CEMEX) properties north of Marina when those properties exercised their respective rights to annex into Zones 2 and 2A. For example, in the early 1990s, RMC Lonestar pumped 500 AFY of non-potable water for its overlying sand mining operation. In the 1996 Annexation Agreement, RMC Lonestar agreed to limit its overlying groundwater right to 500 AFY in exchanged for the right to receive 500 AFY of potable water from MCWD upon annexation to MCWD and the payment of Zone 2 and 2A annexation fees to MCWRA. MCWD would then have the right to withdraw an additional 500 AFY from the Salinas Valley Groundwater Basin to serve that property.

The 1996 Annexation Agreement, like the 1993 Annexation Agreement, provided for MCWRA to develop a replacement potable water supply, such that most groundwater pumping within Fort Ord and Marina Area Lands could be curtailed. However, by Resolution 00-172 adopted on April 25, 2000, the Board of Supervisors decreed that the MCWRA has no contractual obligation to fund a potable water system for Fort Ord and the Marina Area Lands. MCWD will endeavor to develop its own new water supplies to supplement its groundwater rights.

MCWRA Recycled Water Projects. Please see the discussion in Section 3.9.1 on the Monterey County Water Recycling Projects, a combination of the Salinas Valley Reclamation Project (recycled water) and the Castroville Seawater Intrusion Project (CSIP) (distribution and supplemental well system), funded through the establishment of Zone 2B to fight seawater intrusion in the 180/400-Foot Aquifer Subbasin. Construction began in 1995 and delivery of recycled water to fields near Castroville started in 1998.

In summary, as stated in the 1993 Annexation Agreement, the Salinas Valley Groundwater Basin has had a problem with seawater intrusion since the 1940s. The prevention of seawater intrusion was a principal reason for the enactment of the District Act in 1947. Since then, the MCWRA has developed projects and program to reduce the adverse impacts from pumping and seawater intrusion within the 180/400-Foot Aquifer Subbasin. Unfortunately, the results of those efforts did not prevent DWR in January 2016 from classifying the subbasin as being Critically Overdrafted. The District Act and then the Agency Act have been the foundation of groundwater management within Monterey County. Now in the SGMA era, that foundation needs to be recognized and integrated into and coordinated with this GSP for the 180/400-Foot Aquifer Subbasin.

[Substitute the following for the entire Section 3.9]

3.9 CONJUNCTIVE USE PROGRAMS

3.9.1. Monterey county Water Recycling Projects

The Monterey County Water Recycling Projects are a combination of the Salinas Valley Reclamation Project (recycled water) and the Castroville Seawater Intrusion Project (CSIP) (distribution and supplemental well system). They are funded through the establishment of Zone 2B to fight seawater intrusion in the 180/400-Foot Aquifer Subbasin. Construction began in 1995 and delivery of recycled water to fields near Castroville started in 1998.

CSIP is the only existing conjunctive use project that operates in the 180/400-Foot Aquifer Subbasin serving some 12,000 acres of farmland within the subbasin. The extend of the current CSIP distribution area is shown in Figure 3-6. Even with CSIP providing two-thirds of the growers' water needs, there continued to be a heavy reliance on pumping groundwater for irrigation. The Salinas River Diversion Facility (SRDF) was constructed to provide filtered and chlorinated river water and began operations in April 2010. During non-drought periods, the operation of the SRDF can significantly reduce the needed by growers to pump groundwater except in periods of extremely high irrigation demand. When river water is available and the SRDF is operating, grower groundwater pumping has been reduced by about 80% during peak irrigation demand periods. However, additional direct and in-lieu groundwater recharge projects are needed, and potential projects will be identified and discussed in the GSP for the subbasin.

3.9.2 Pure Water Monterey Groundwater Replenishment Project

The Pure Water Monterey (PWM) Groundwater Replenishment Project is an advance water recycling project jointly developed by Monterey Peninsula Water Management District (MPWMD), Monterey One Water (M1W), and MCWD. Advance treated recycled water (ATW) will be produced at M1W Wastewater Treatment Plant's (WWTP) Advanced Water Treatment Facility and The project will provide (1) 600 AFY of ATW to MCWD for non-potable irrigation uses and in-lieu groundwater recharge within MCWD's service areas (including portions of the 180/400-Foot Aquifer Subbasin, and (2) up to 3,700 AFY of ATW to MPWMD for injection to the Seaside Subbasin for later recovery for direct use within CalAm's Monterey District service area. This latter process is known as Indirect Potable Reuse (IPR). The project also allows for conjunctive use among project beneficiaries. The project is currently under construction with a planned commercial operations date in mid-2019. MCWD is entitled to a total of 1,427 AFY of ATW and the 600 AFY is the first phase. The second phase of 827 AFY will be developed depending upon future demand and funding.

The PWM Project supplements existing wastewater inflows to the M1W WWTP from the following new sources: (1) wastewater from the City of Salinas industrial wastewater system which is mostly referred to as the agricultural wash water system, (2) storm water flows from the southern part of Salinas, (3) surface water and agricultural tile drain water that is captured in the Reclamation Ditch, and (4) surface water and agricultural tile drain water that flows in the Blanco Drain. These new sources should also produce additional tertiary treated recycled water (not ATW) for use in CSIP.

The PWM project includes a conjunctive use component between CSIP users and CalAm. During wet and normal years, the project provides an additional 200 AFY of ATW for injection in the Seaside Subbasin, creating a banked groundwater reserve. During dry years, the project may deliver less than 3,500 AFY to the Seaside Subbasin, while CalAm will draw from its bank reserved to make up the difference to its supplies up to 3,500 AFY. This allows additional recycled water to be provided to CSIP agricultural users during dry years.

3.9.3 Armstrong Ranch Water Supply Augmentation Study and Additional Studies

The MCWD is conducting an assessment of water supply augmentation and groundwater recharge projects for MCWD's Central Marina and Ord Community service areas. This effort also includes working jointly with FORA and M1W to identify additional water supply options needed to meet an additional 973 AFY of demand identified in the Fort Ord Base Reuse Plan (BRP). Efforts to date assessed technical feasibility, permitting requirements, and costs of augmenting water supplies through Indirect Potable Reuse and the diversion of surplus surface water from the Salinas River available during winter months.

MCWD already owns lands within the Armstrong Ranch located within the 180/400-Foot Aquifer Subbasin and next to M1W's WWTP and ATW Facility. Excess Salinas River water could be diverted to the Armstrong Ranch site (1) for possible treatment in a water treatment plant and (2) for onsite groundwater recharge through either percolation or injection and for later recovery for direct potable use. A Southern Component would serve potable water to MCWD's service areas. A potential North Component could serve potable and non-potable water to areas north of the Salinas River within the subbasin. The Armstrong Ranch study began in 2016 and is anticipated to continue as part of the MCWD/FORA/M1W BRP study.

3.9.4 Options to Meet the Additional 2,400 AFY of Demand in the Fort Ord Base Reuse Plan

The Fort Ord Reuse Authority (FORA) is responsible for the oversight of the closure and economic redevelopment of the former Fort Ord. Redevelopment is performed pursuant to the Fort Ord Base Reuse Plan (BRP), adopted by FORA 1997 and reassessed in 2012. As described in 3.7.3.2 above, within the former Fort Ord, MCWD has been designated as the exclusive (1) water and sewer collection service provider and (2) developer and implementer of all new water supplies for all non-Federal lands. Under an exclusive contract with the Army, MCWD is responsible for providing water and sewer collection services for the Army and other Federal agencies within the former Fort Ord.

The Final Environmental Impact Report (EIR) for the Fort Ord BRP projected a total water demand of 9,000 AFY at buildout, in excess of the 6,600 AFY groundwater supply allocated under the 1993 Annexation Agreement (see Section 3.8.1). Development of the 2,400 AFY of additional water supply was identified as one of the mitigation measures for redevelopment of Fort Ord. FORA and MCWD have conducted extensive studies and environmental reviews of options to supply that additional 2,400 AFY. FORA agreed that the 2,400 AFY would be met through 1,200 AFY of recycled water and 1,200 AFY of desalinated water. Subsequently, MCWD with FORA's approval secured an entitlement to 1,427 AFY of advanced treated water (ATW) from the Pure Water Monterey Project. FORA, MCWD, and M1W agreed to participate and fund a joint three-party planning process to identify water supply options to meet the 973 AFY shortfall. The three-party study began in 2018 and is anticipated to be completed in 2019. Water supply options to be studied include brackish water and seawater desalination, increased water conservation measures, the Armstrong Ranch Project, ASR, and additional ATW.

PRELIMINARY COMMENTS TO DRAFT VALLEY-WIDE INTEGRATED GSP, CHAPTERS 1 – 3

Note that some of the comments below are repeats of the draft 180/400 GSP comments.

Page/Section	**Comment**
4	The Section 2 introduction needs to identify (1) what areas the SVBGA and MCWD are designated by DWR as the exclusive GSA and (2) what areas where there are overlaps. It is good that the draft at least recognizes that there are overlap areas.
6, §3.1	The City of Marina needs to be added to the sentence: "The Subbasin contains the municipalities of …."
9, §3.3.4	In the first sentence, the City of Marina needs to be added. Words along the following lines need to be substituted for the third sentence: "The Marina Coast Water District provides water and sewer collection services within its jurisdictional boundaries and within its Ord Community service area, which consists of the former Fort Ord. As a county water district, MCWD has water management authority over those areas. MCWD has filed an application with LAFCO to include all of the Ord Community service parcels that currently receive potable water or that have received final land use development approvals by the applicable land use jurisdiction."
20, §3.6.1.4	MPWMD is also a CASGEM monitoring entity within the Monterey Subbasin and is responsible for areas within the former Seaside Subbasin prior to the2016 basin boundary modification.
22, §3.6.3.2	Add the following fourth bullet: "Required CalAm and MCWRA monitoring wells for CalAm's proposed source wells for the Monterey Peninsula Water Supply Project (MPWSP)."
22, §3.6.3.2	Please state how many of the USGS GAMA wells are environmental monitoring wells, irrigation wells, and public water supply wells.
20-26, §3.6	The GSP needs to provide references for existing monitoring programs, such as monitoring plans and monitoring program websites.
22, §3.6.3	MCWD and the Army monitors groundwater levels and quality at the former Fort Ord for control of groundwater contamination.
32, §3.7.3.3	See language above in 180/400 comments.

Page/Section	Comment
33, §3.8	Substitute then entire existing Section 3.8, Conjunctive Use Programs with the new Section 3.9, Conjunctive Use Programs, for the 180/400 GSP.
33-48, §3.9	Please provide references and document dates for the land use plans discussed.
33-48, §3.9	Please provide a discussion of FORA's Base Reuse Plan as a land use plan in the GSP plan area, per § 354.8 (f) of GSP Regulations.
42, §3.9.4	Please ask the City of Marina to review this discussion of its General Plan. The City should also include a discussion about any Local Coastal Plan restrictions on new groundwater wells.
46, § 3.9.8	A description of the existing prohibitions and restrictions on well drilling within the 180/400 Foot Aquifer Subbasin needs to be added, including the County's 2018 Interim Ordinance, the County's Well Prohibition in Fort Ord (Ordinance No. 04011), MCWD's Well Ordinance (Municipal Code Chapter 3.32), and ordinances by other municipalities in the 180/400 Foot Aquifer Subbasin, if any. Check the Monterey County General Plan on additional restrictions on drilling new wells within the Coastal Zone. Possible placeholder description of the County's Moratorium: County Moratorium on Accepting and Processing New Well Permits. On May 22, 2018, the Monterey County Board of Supervisors adopted Ordinance No. 5302 pursuant to Government Code Section 65858. The ordinance imposed a moratorium on the County Health Department accepting and processing new well permits; it was not a moratorium on additional groundwater pumping from existing wells. The ordinance was an Interim Urgency Ordinance, which took effect immediately upon adoption. The ordinance prohibits the acceptance or processing of any applications for new wells in the defined "Area of Impact" with stated exceptions, including municipal wells and replacement wells. Pursuant to Section 65858, the ordinance was originally only effective for 45 days to July 5, 2018, but at the June 26 Board meeting, the Board of Supervisors on a 4-1 vote extended the ordinance to May 21, 2020, by adoption of Ordinance No. 5303. During the moratorium, the County has stated that it will conduct further studies. [The "Area of Impact" map should be inserted.]

26 March 2019

MEMORANDUM

To: Gary Peterson, Salinas Valley Basin Groundwater Sustainability Agency
Derrik Williams, P.G., C.Hg., Montgomery & Associates

From: Keith Van Der Maaten, P.E., Marina Coast Water District
Patrick Breen, Marina Coast Water District
Vera Nelson, P.E., EKI Environment and Water, Inc.
Tina Wang, P.E., EKI Environment and Water, Inc.

Subject: Preliminary Comments Regarding Salinas Valley Basin Groundwater Sustainability Agency Draft Groundwater Sustainability Plan Chapter 4 (EKI B60094.03)

On behalf of the Marina Coast Water District Groundwater Sustainability Agency (MCWD GSA), EKI has reviewed and prepared preliminary comments on the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) draft 180/400 Foot Aquifer Subbasin and Salinas Valley Integrated Groundwater Sustainability Plans (GSPs) Chapter 4, dated 30 November 2018 and updated 3 January 2019.

EKI has provided a majority of these comments during SVBGSA's December 6 Planning Committee Meeting and received concurrence from SVBGSA as identified below.

Comments for 180/400 Foot Aquifer Subbasin GSP, Chapter 4

1. <u>Section 4.4.1 – Principal Aquifers and Aquitards</u>

   The GSP Regulations specifically define the term "Principal Aquifer" (California Code of Regulations (CCR) §351 (aa)) and have plan development as well as monitoring network requirements for identified Principal Aquifers. Currently, GSP Section 4.4.1 appears to have included all alluvial deposits/valley fill deposits from ground surface to the bottom of the subbasin in a single Principal Aquifer.

   As agreed upon during the December 6 Planning Committee Meeting, the 180/400 Foot Aquifer Subbasin GSP should define multiple Principal Aquifers given the definable layers of aquifer and aquitard units in the subbasin. At least one Principal Aquifer should be defined for the Deep Aquifers (i.e. the 900-Foot and 1,500-Foot Aquifers). Per GSP Regulations, groundwater elevation contours, hydrographs, minimum thresholds for seawater intrusion, sufficient monitoring network coverage, etc. should be developed for each Principal Aquifer identified in this GSP.

2. Section 4.4.1 – Principal Aquifers and Aquitards

   In addition to the comment above, this section discusses extensive continuous clay layers within the 180/400 Foot Aquifer Subbasin. However, there are existing wells and abandoned wells that are potentially acting as "conduits" for saline water to flow to the lower aquifers[1]. Airborne electromagnetic analysis conducted in the northern Salinas Valley Basin also showed that there are gaps in the 180/400-Foot Aquitard in the 180/400-Foot Aquifer Subbasin near the coast.

   Please add a discussion of potential conduits of vertical flow in the Subbasin. This comment was not provided during the December 6 Planning Committee Meeting.

3. Section 4.4.2 – Aquifer Properties

   In addition to defining multiple Principal Aquifers, the 180/400 Foot Aquifer Subbasin GSP should provide aquifer properties for each of the defined Principal Aquifers. The GSP should provide storativity, conductivity (per CCR §354.14 (b)(4)(B)), and transmissivity for each Principal Aquifer. We understand that Section 4.7 of the January 2019 update discussed aquifer parameters as a data gap. As agreed upon during the Planning Committee meeting, SVBGSA will obtain these aquifer property parameters from the Water Resources Agency to include in this section.

   This section could benefit from either a table or description on an aquifer and aquitard basis compiling all the relevant data (e.g. from field tests or models) and tabulating ranges for each aquifer or aquitard.

4. Figures 4-6, 4-7, and 4-8 – Cross-Sections

   The Deep Aquifers are unrepresented in cross-sections. Please provide a discussion if this is a data gap.

   This comment has been noted by and concurred to by SVBGSA during the Planning Committee Meeting. Section 4.7 of the January 2019 update has included information on the deep aquifer as a data gap.

5. Section 4.6.2 – Seawater Intrusion

[1] Monterey County Water Resources Agency. Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin, October 2017.

Please add the following text after the second paragraph on Page 33. This comment was not provided during the December 6 Planning Committee Meeting.

"Groundwater with a total dissolved solid of 3,000 mg/L or less, is groundwater that is considered to be suitable, or potentially suitable, for beneficial uses in accordance with SWRCB Resolution No. 88-63 as adopted in its entirety in the Central Coast Regional Water Quality Control Board's Basin Plan. California Code of Regulations, Title 23, Section 659 – 669 lists the beneficial uses of surface water, which is also applicable to groundwater. Those beneficial uses include (1) domestic use, (2) irrigation use, (3) power use, (4) frost protection use, (5) municipal use, (6) mining use, (7) industrial use, (8) fish and wildlife preservation and enhancement use, (9) aquaculture use, (10) fish and wildlife protection and enhancement, (11) recreational use, (12) water quality use, and (13) stock watering use. In addition, Water Code Section 1242 states that the storing of water underground constitutes a beneficial use."

Comments for Salinas Valley Integrated Subbasin GSP, Chapter 4

1. <u>Section 4.4 – Groundwater Hydrology</u>

   On Page 17, the GSP states

   "The presence of laterally continuous clay layers distinguishes the 180/400-Foot Aquifer Subbasin from the other subbasins in the Valley. As described in the following two subsections, the presence of continuous clay layers affects the following aspects of the basin hydrogeology:
   - *A near-surface clay layer creates relatively shallow confined conditions in the 180/400-Foot Aquifer Subbasin, in contrast to the unconfined conditions over most of the basin*
   - *Deeper clay layers create definable aquifers in the 180/400-Foot Aquifer Subbasin, whereas most of the basin includes only a single undifferentiated aquifer."*

   This section implies that the 180/400 Foot Aquifer Subbasin contains definable aquifer layers, whereas other subbasins in Salinas Valley do not have definable aquifer layers. However, definable aquifers also exist throughout the Monterey Subbasin and throughout most of the Forebay Aquifer Subbasin to just north of King City.

   Additionally, this section should provide a discussion of the sediments across the basin that are stratigraphically equivalent. For example, the shallow zone and deep zones in the Eastside Subbasin "are generally time-stratigraphically equivalent to the Pressure 180-Foot and Pressure 400-Foot Aquifers".[2]

[2] Brown and Caldwell, 2015. State of the Salinas River Groundwater Basin, dated 16 January 2015.

2. Section 4.7.2 – Seawater Intrusion

   Please add the following text on Page 35. This comment was not provided during the December 6 Planning Committee Meeting.

   "Groundwater with total dissolved solids of 3,000 mg/L or less, is groundwater that is considered to be suitable, or potentially suitable, for beneficial uses in accordance with SWRCB Resolution No. 88-63 as adopted in its entirety in the Central Coast Regional Water Quality Control Board's Basin Plan. California Code of Regulations, Title 23, section 659 – 669 lists the beneficial uses of surface water, which is also applicable to groundwater. Those beneficial uses include (1) domestic use, (2) irrigation use, (3) power use, (4) frost protection use, (5) municipal use, (6) mining use, (7) industrial use, (8) fish and wildlife preservation and enhancement use, (9) aquaculture use, (10) fish and wildlife protection and enhancement, (11) recreational use, (12) water quality use, and (13) stock watering use. In addition, Water Code Section 1242 states that the storing of water underground constitutes a beneficial use."

18 April 2019

MEMORANDUM

To: Gary Peterson, Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA)
Derrik Williams, P.G., C.Hg., Montgomery & Associates

From: Keith Van Der Maaten, P.E., Marina Coast Water District (MCWD)
Patrick Breen, MCWD
Vera Nelson, P.E., EKI Environment and Water, Inc. (EKI)
Tina Wang, P.E., EKI

Subject: Preliminary Comments Regarding Salinas Valley Basin Groundwater Sustainability Agency Draft Groundwater Sustainability Plan Chapter 5 (EKI B60094.03)

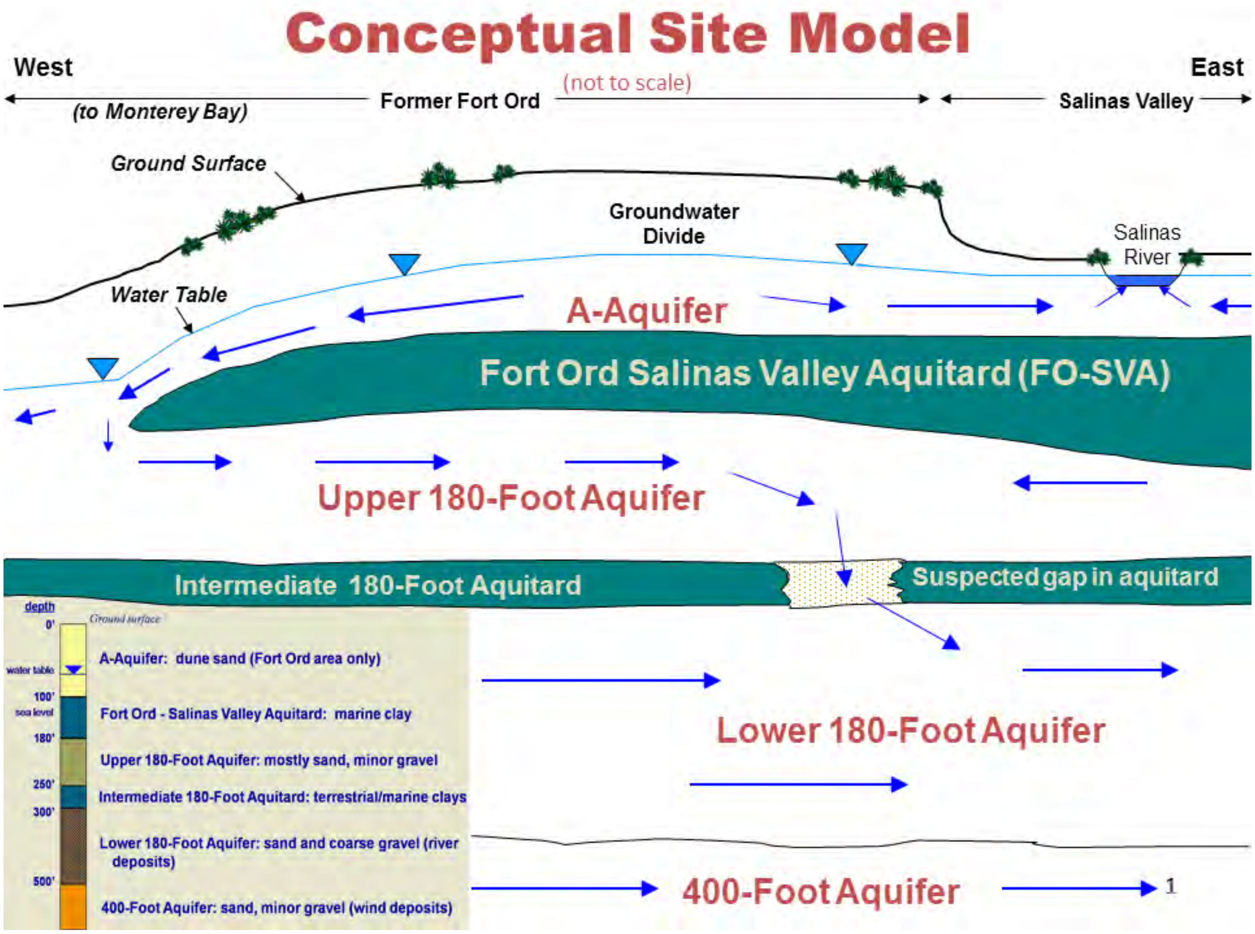
On behalf of the Marina Coast Water District Groundwater Sustainability Agency (MCWD GSA), EKI has reviewed and prepared preliminary comments on the SVBGSA draft 180/400 Foot Aquifer Subbasin and Salinas Valley Integrated Groundwater Sustainability Plans (GSPs) Chapter 5, released January 2019 and updated February 2019.

1. General Comment

We understand that SVBGSA has solicitated input during its February 7 Planning Committee regarding the inclusion of the Dune Sand Aquifer in its GSPs. Although the Dune Sand Aquifer exists only south of the river and thus encompasses a small portion of the 180/400 Foot Aquifer Subbasin, we request that the 180/400 Foot Aquifer Subbasin GSP characterize the Dune Sand Aquifer for the following reasons.

(1) The Dune Sand Aquifer is an important source of freshwater and recharge to deeper aquifers south of the Salinas River.

- Groundwater level data and groundwater quality data obtained from Fort Ord indicate that groundwater with low TDS concentrations from the Dune Sand Aquifer seeps down into the upper portion of the 180-Foot Aquifer, upgradient of the coast and then “U-turns” and flows back into the basin. This process is illustrated in figures presented on Fort Ord’s website:



Source: http://fortordcleanup.com/programs/groundwater

- Recent airborne electromagnetic (AEM) data collected in the northern Salinas Valley (see Attachment A) has confirmed that freshwater exists in the Dune Sand Aquifer and underlying portions of the Upper 180-Foot Aquifer in 180/400-Foot Aquifer Subbasin.

(2) The Dune Sand Aquifer is likely a water source for shallow wells in the Corral de Tierra area in the adjacent Monterey Subbasin, which should be further confirmed by SVBGSA in its preparation of GSP components of the Corral de Tierra area.

(3) Chemical impacts exist within the Dune Sand Aquifer, which could impact other underlying aquifers.

- Volatile organic compounds (VOCs) and other constituents have been detected in groundwater within the Dune Sand Aquifer at the Monterey Peninsula Landfill (Geotracker ID L10005501051).

- Groundwater quality data obtained from Monterey Peninsula Water Supply Project (MPWSP) shallow monitoring wells suggest that nitrate impacts may exist in the Dune Sand Aquifer.

(4) Multiple Projects have been proposed within the Dune Sand Aquifer in the 180/400-Foot Aquifer Subbasin.
- Several studies have been completed by MCWD and Fort Ord Reuse Authority (FORA) to evaluate the potential infiltration and storage of Advanced Treated wastewater or excess surface water from the Salinas River within the Dune Sand Aquifer at Armstrong Ranch.
- MPWSP slant wells are screened across and will draw water from the Dune Sand Aquifer.

Therefore, the 180/400 Foot Aquifer Subbasin GSP should characterize the Dune Sand Aquifer and develop a plan to manage current as well as planned groundwater activities in the Dune Sand Aquifer. Moreover, MCWD will coordinate with SVBGSA to develop Sustainable Management Criteria (SMCs) for Dune Sand Aquifer in the Monterey Subbasin GSP, given the Dune Sand Aquifer's importance in water source and groundwater recharge. It is important that the Dune Sand Aquifer is properly characterized in both the 180/400 Foot Aquifer Subbasin GSP and the Monterey Subbasin GSP, so that a coordinated set of SMCs are developed for the Dune Sand Aquifer in both GSPs.

2. <u>Section 5.1 – Groundwater Elevations</u>

Draft chapter 5 of the 180/400 Foot Aquifer Subbasin GSP states that "Insufficient data currently exist to map flow directions and groundwater elevations in the deep aquifer" (Page 17) and "Hydrographs are not available for wells completed in the Deep Aquifer" (Page 18). However, MCWRA's 2017 *Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin* states that there are 32 active productions wells and eight monitoring wells screened in the deep aquifers, and that MCWRA monitors groundwater levels at thirteen locations in the Deep Aquifers "with varying frequency", a majority of which are located in the 180/400 Foot Aquifer Subbasin. Figure 21 of the document showed average groundwater level changes in the deep aquifers from 1986 to 2016. We suggest that the SVBGSA obtain this information from MCWRA and provide groundwater elevation and/or elevation trend information in the Deep Aquifer.

3. <u>Section 5.2 – Seawater Intrusion</u>

Per GSP Regulations Section 354.16 (c), a GSP should provide "seawater intrusion conditions in the basin, including maps and cross sections of the seawater intrusion front for each principal aquifer". The GSPs should address this requirement and provide cross-sections. AEM data collected by MCWD should be incorporated into these cross-sections[1].

Attachments

Attachment A. Selected Figures from Gottschalk et al. Interpretation of Hydrostratigraphy and Water Quality from AEM Data Collected in the Northern Salinas Valley, CA, dated 15 March 2018.

[1] Gottschalk et al. Interpretation of Hydrostratigraphy and Water Quality from AEM Data Collected in the Northern Salinas Valley, CA, dated 15 March 2018.

Attachment A

Selected Figures from Gottschalk et al. Interpretation of Hydrostratigraphy and Water Quality from AEM Data Collected in the Northern Salinas Valley, CA, dated 15 March 2018.

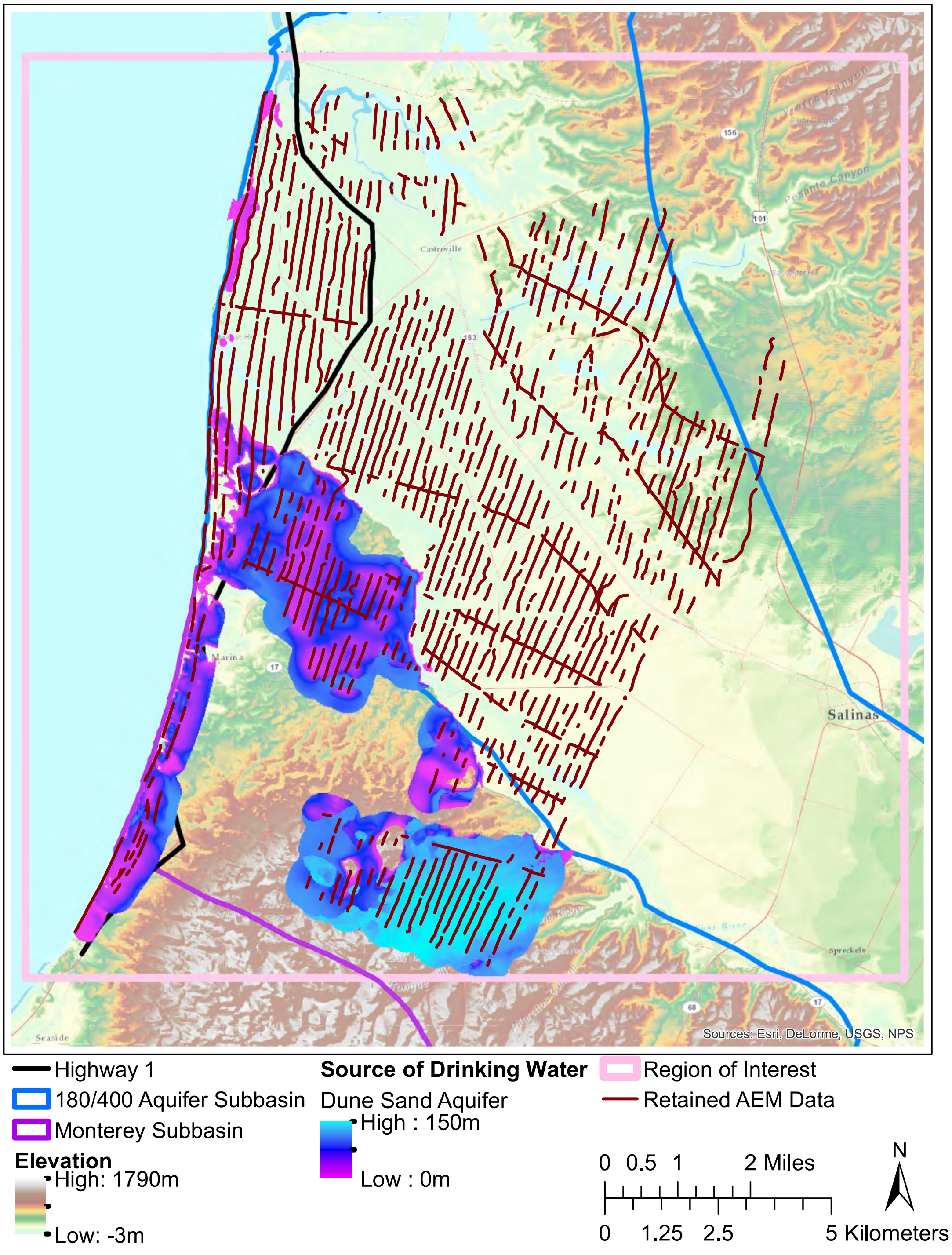


Figure 22: Interpreted thickness of the subsurface containing sources of drinking water within the Dune Sand Aquifer in the region of interest, shown in a color scale ranging from purple to light blue, representing 0 m to 150 integrated meters of the source drinking water, respectively. Overlaying the thickness of sources of drinking water are the locations where AEM data were collected and retained for processing, shown as red lines. The Dune Sand Aquifer lies south of the Salinas River, aside from the dune sand deposits along the coast within the Salinas Valley basin, which are also treated as part of the Dune Sand Aquifer here. The boundaries used in calculating the regions containing sources of drinking water, Highway 1, the 180/400 Aquifer Subbasin, and the Monterey Subbasin, are shown as black, blue, and purple lines, respectively.

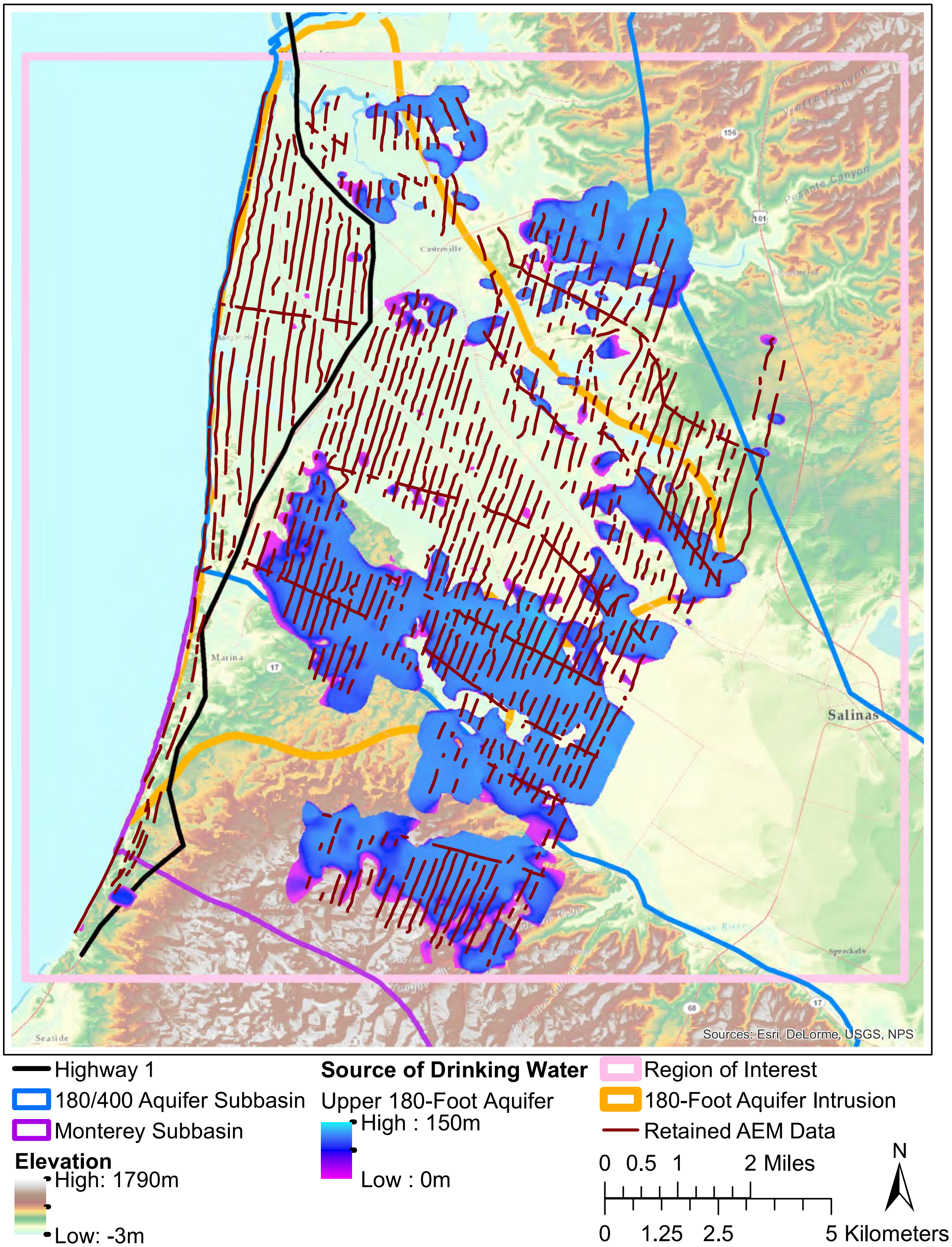


Figure 23: Interpreted thickness of the subsurface containing sources of drinking water within the Upper 180-Foot Aquifer in the region of interest, shown in a color scale ranging from purple to light blue, representing 0 m to 150 integrated meters of the source of drinking water, respectively. Overlaying the thickness of sources of drinking water are the locations where AEM data were collected and retained for processing, shown as red lines. The extent of saltwater intrusion in the 400-Foot Aquifer, as measured by the Monterey County Water Resources Agency, is shown as an orange line. The boundaries used in calculating the regions containing sources of drinking water, Highway 1, the 180/400 Aquifer Subbasin, and the Monterey Subbasin, are shown as black, blue, and purple lines, respectively.

MARINA COAST WATER DISTRICT

11 RESERVATION ROAD, MARINA, CA 93933-2099
Home Page: www.mcwd.org
TEL: (831) 384-6131 FAX: (831) 883-5995

2 July 2019

Mr. Gary Peterson
General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1441 Shilling Place
Salinas, CA 93901

Mr. Derrik Williams
Montgomery & Associates
1232 Park Street, Suite 201B
Paso Robles, CA 93446

Dear Mr. Peterson and Mr. Williams,

Thank you for taking the time to meet with us and our SGMA consultant EKI Environment & Water Inc. regarding Draft Chapter 6 (Water Budgets) of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan (180/400 Subbasin GSP) on June 19, 2019. This letter provides a written summary of our comments on Draft Chapter 6. These comments incorporate information discussed during our meeting and provide suggested draft language for inclusion in Chapter 6, based upon our discussions.

MAJOR COMMENTS

1. **Estimated Sustainable Yield Inconsistent with Sustainable Groundwater Management Act (‘SGMA”)**

The term “sustainable yield” is defined under Sustainable Groundwater Management Act (SGMA) as “the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result.”

Additionally, on Page 24 of Department of Water Resources’ Best Management Practices for the Sustainable Management of Groundwater states the following:

> “[w]ater budget accounting information should directly support the estimate of sustainable yield for the basin and include an explanation of how the estimate of sustainable yield will allow the basin to be operated to avoid locally defined undesirable results. The explanation should include a discussion of the relationship or linkage between the estimated sustainable yield for the basin and local determination of the sustainable management criteria (sustainability goal, undesirable results, minimum thresholds, and measurable objectives).”

However, as discussed during our meeting, we understand that due to modeling limitations, data gaps, and uncertainties regarding future projects and management actions, the GSP will not attempt to estimate the "sustainable yield" of the 180/400 Subbasin, as defined under SGMA. Rather, the GSP will provide a gross estimate of the total current and future fresh groundwater inflows[1], in the absence of any additional groundwater augmentation project (defined herein as the "GSP Sustainable Yield"). The GSP Sustainable Yield effectively provides an "upper bound" on the sustainable yield of the basin (i.e., assuming no water is added to the basin), but it does not represent the actual amount of groundwater that can be extracted without creating undesirable results within the 180/400 Subbasin. The GSP Sustainable Yield will also not meet all of the sustainable management criteria identified in Chapter 8, and does not address inland gradients that will limit the Monterey Subbasins to achieve sustainability. For example, the information presented in Chapter 6 indicates that seawater intrusion will continue to occur under the identified sustainable yield, the management objective for seawater intrusion identified in Chapter 8 is the 500 milligrams per liter (mg/L) chloride contour at Highway 1.

We understand that SVBGSA intends to propose projects to halt seawater intrusion (e.g., groundwater extraction/injection barriers) and that such projects will affect the Sustainable Yield of the basin. Given that such projects will affect the sustainable yield, we understand that these values cannot be finalized before completing the project and management actions analyses, and selecting which projects will ultimately be implemented. As such we recommend that, the draft water budget chapter include additional language that stresses the difference between the estimated GSP Sustainable Yield and the quantity of groundwater that can be withdrawn without causing undesirable results and meeting sustainable management criteria.

We recommend that the following language be included:

The "sustainable yield estimate" presented in the draft Water Budget chapter does not consider all of the sustainability indicators or sustainable management criteria. As such, it is not equivalent to the quantity of groundwater that can be extracted without causing undesirable results. The plan for achieving sustainability in the basin will be addressed through projects and management actions, where SVBGSA will compare the projected and actual outcomes of project and management actions against sustainable management criteria and ultimately evaluate how much groundwater can be extracted, based upon the projects and management actions that are selected and implemented.

2. The 180/400 Subbasin GSP must not preclude the Monterey Subbasin from Achieving Sustainability

A summary of the historical, current, and future water budget calculations presented in Chapter 6 is included in Attachment A. As shown in Attachment A, net groundwater inflows from the Monterey Subbasin to the 180/400 Subbasin were assumed to be 3,000 acre-feet per year (AFY) in the historical and current water budgets, and estimated to be 5,500 to 6,200 AFY in the projected water budgets. The historical net groundwater inflow estimates appear to be based upon data collected from 1970 to 1994. Review of current data indicates that these values likely underestimate cross-boundary flows from the Monterey Subbasin, and likely do not include flows in the Deep Aquifer where inland gradients exist.

[1] These inflows represent the amount of groundwater that can be withdrawn without decreasing the overall groundwater storage in the basin.

As stated in our comments to draft Chapter 8, the 180/400 Subbasin GSP must address inland gradients and cross-boundary groundwater flows from the Monterey Subbasin into the 180/400 Subbasin. The GSP fails to mention that current and projected increases in groundwater extraction in the 180/400 Subbasin are being sustained, in part, by cross-boundary groundwater flows from the Monterey Subbasin, where seawater intrusion is already occurring. The GSP for the 180/400 Subbasin may not create conditions that preclude the Monterey Subbasin from reaching sustainability.

As stated in our comments to draft Chapter 8, unless alternative water supplies are provided by SVBGSA to the Monterey Subbasin, groundwater inflows to the Monterey Subbasin must be adequate to sustain groundwater extraction by Marina Coast Water District (MCWD) from its water production wells.

We recommend that the following language be added to the GSP*:*

Pursuant to GSP Regulation 350.4 (f), the 180/400 Subbasin GSP will consider the effects of its implementation on the adjacent Monterey Subbasin, and its ability to achieve and maintain sustainability.

> *"A Plan will be evaluated, and its implementation assessed, consistent with the objective that a basin be sustainably managed within 20 years of Plan implementation without adversely affecting the ability of an adjacent basin to implement its Plan or achieve and maintain its sustainability goal over the planning and implementation horizon."*

The Monterey and 180/400 Subbasins are hydraulically connected. Therefore, the sustainable yield and sustainable management criteria for the 180/400 Subbasin and the Monterey Subbasin must consider the effects of cross-boundary groundwater flows between subbasins and/or the provision of alternative water supplies. The Monterey Subbasin GSP will also include projects and management actions that could benefit both subbasins.

In addition, we recommend that the following information/language be added to the GSP regarding:

(a) the 1993 Fort Ord Annexation Agreement[2] and the 1996 Marina Lands Annexation Agreement[3]

(b) groundwater use by MCWD and others within the Monterey Subbasin.

1993 Fort Ord Annexation Agreement

Under the 1993 Fort Ord Annexation Agreement the MCWRA annexed the Fort Ord lands into Zones 2 and 2A and allocated to the Army 6,600 acre-feet per year of potable groundwater from the Salinas Valley Groundwater Basin. The Army paid an annexation fee of $7.4 million to be used by MCWRA to complete the design of the Castroville Seawater Intrusion Project (CSIP). In addition, the Army received a $400,000 credit for money spent on planning and information for the EIR/EIS for CSIP, the Salinas Valley Reclamation Project, and the Fort Ord Annexation. The September 10, 1993 "Annexation Assembly and Evaluation Report for the Annexation of Fort Ord by the Monterey County Water Resources Agency,"

[2] "Agreement between the United States of America and the Monterey County Water Resources Agency concerning Annexation of Fort Ord into Zones 2 and 2A of the Monterey County Water Resources Agency, Agreement No. A-06404", dated September 21, 1993,

[3] "Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands" dated March 1996 (1996 Annexation Agreement), among the MCWRA, the Marina Coast Water District, J.G. Armstrong Family Members, RMC Lonestar (now CEMEX), and the City of Marina,

which was incorporated as Appendix D to the 1993 Annexation Agreement, provides the background and justification for the annexation. The Executive Summary to that report states in part the following:

> The purpose of this annexation by [MCWRA] is to provide the basis for a long term, reliable, potable water supply to supply the Army's residual mission at Fort Ord after it is realigned per the Base Closure and Realignment Act of 1990. Annexation will also facilitate the disposal and reuse of the portions of Fort Ord not needed to support the Army's residual mission.

Section 4, Terms and Conditions of the 1993 Annexation Agreement state the following:

> 4.c. After execution of this agreement and until Project Implementation[4], Fort Ord/POM Annex/RC may withdraw a maximum of 6,600 acre-feet of water per year from the Salinas Basin, provided no more than 5,200 acre-feet per year are withdrawn from the 180-foot aquifer and 400-foot aquifer. The 6,600 and 5,200 acre-feet thresholds correspond to the annual peak (1984) and recent average (1988-1992) amounts of potable water Fort Ord has withdrawn from the Salinas Basin (does not-include pumpage-from the-non-potable golf course well in the Seaside Basin). …The MCWRA agrees not to object to any Fort Ord/POM Annex/RC withdrawal under 6,600 acre-feet per year, except in compliance with California Water Code Appendix, Chapter 52, Section 22.
>
> 4.g. Should future litigation, regulation or other unforeseen action diminish the total water supply available to the MCWRA, the MCWRA agrees that it will consult with the Fort Ord/POM Annex Commander. Also, in such an event, the MCWRA agrees to exercise its powers in a manner such that Fort Ord/POM Annex/RC shall be no more severely affected in a proportional sense than the other members of the Zones.
>
> 4.h. If prior to Project Implementation, any Fort Ord/POM Annex well (including any located in the Seaside Basin) becomes contaminated with seawater, or is adversely affected by regulatory or legal action, the MCWRA: shall cooperate with the Government in finding an interim water supply; shall assist the Government in any permit processes necessary to obtain such an interim water supply; and shall provide the same services to the Government as it would to any other municipal water supplier in the Zones under similar circumstances. The Government will bear the costs of obtaining such an interim water supply. Such costs will not include the cost of MCWRA staff time in providing services to the Government hereunder. The MCWRA will continue to monitor the rate of seawater intrusion, and will keep the Fort Ord/POM Annex Commander informed as to: the rate of seawater intrusion; the progress of plans for its Project; and the estimated remaining life of the Fort Ord/POM Annex wells. The MCWRA shall pass to the Fort Ord/POM Annex Commander

---

[4] As defined in paragraphs 2.j. and 2.k. of the Agreement:

> 2.j. Project: A future, long term, reliable, potable water system for the POM Annex/RC and other areas; the Project will provide at least 6,600 acre-feet per year which will permit all Salinas Basin wells on Fort Ord Lands to be shut down except during emergencies; stopping all pumping from the Salinas Basin on Fort Ord Lands is necessary to mitigate seawater intrusion; the MCWRA is currently developing such a Project to supply water to the Fort Ord Lands, Marina, Salinas, Toro Park, and perhaps other areas in north Monterey County; it is also possible that another water agency, district, utility, or purveyor could develop a smaller scale Project to supply water for just the Fort Ord Lands;
>
> 2.k. Project Implementation: The potable water system cited in paragraph 2.j. shall be considered "implemented" upon both the completion of construction and the deli very of potable water to POM Annex/RC from the completed water system;

> any information they may obtain related to the continuing yield of Fort Ord/POM Annex wells located in the Seaside Basin.

1996 Marina Lands Annexation Agreement

Under the 1996 Marina Lands Annexation agreement the MCWRA annexed MCWD's Central Marina service area into Zones 2 and 2A and allocated to MCWD 3,020 AFY from the Salinas Valley Groundwater Basin for use in the Central Marina service area. MCWD paid a net annexation fee of $2,449,410 after receiving a $400,000 credit against the annexation fee. Section 1.1, Purpose, of the 1996 Annexation Agreement states:

> The purpose of this Agreement and Framework is to help reduce seawater intrusion and protect the groundwater resource and preserve the environment of the Salinas River Groundwater Basin through voluntary commitments by the Parties to limit, conserve and manage the use of groundwater from the Salinas River groundwater basin, and to provide the terms and conditions for the annexation of certain territory in the Marina area to the [MCWRA's] benefit assessment Zones 2 and 2A as a financing mechanism providing additional revenues to the [MCWRA] to manage and protect the groundwater resource in the Salinas River Groundwater Basin and to reduce seawater intrusion.

Terms and conditions in Sections 5 and 8 of the Agreement states:

> 5.1.1 Commencing on the effective date of this Agreement and Framework and continuing until Mitigation Plan Implementation, MCWD will limit its withdrawal of potable groundwater from the Basin for land in the Marina area and outside the former Fort Ord Military Reservation to 3,020 afy of potable groundwater, and only such additional quantities as are permitted by this paragraph 5.1. MCWRA's groundwater resource planning for the existing MCWD service area will be based on the latest information and projections contained in the MCWD Water Plans, using 3,020 afy as a planning guideline for potable water use.

> 5.1.1.1 After Compliance with all applicable requirements of law, including but not limited to CEQA, MCWD may improve the interconnection between the MCWD water system and the water system serving Fort Ord, to provide for join, conjunctive and concurrent use of all system facilities to serve Fort Ord and other areas served by MCWD, and the other Parties will cooperate on MCWD's increased withdrawal of potable groundwater by up to 1,400 afy from the 900-foot aquifer to enable the increased withdrawals from 5200 afy to 6600 afy for use on Fort Ord, as provided in paragraph 4.c. of the September 1993 Agreement between the The United States of America and the MCWRA.

> 5.2. No objection by MCWRA to MCWD withdrawals except pursuant to section 22 of Agency Act. The MCWRA shall not object to any withdrawal by MCWD which is mentioned in section 5.1 above, except in compliance with section 22 of the Agency Act. All groundwater withdrawn from the Basin by MCWD may be used only within the Basin.

> 8.1. Equal treatment by MCWRA and MCWD. If future litigation, regulation or other unforeseen action diminishes the total water supply available to MCWRA, MCWRA agrees that it will exercise its powers so that MCWD, Armstrong and Lonestar shall be no more severely affected in a proportional sense than other lawful users of water from the Zones, based on the right before the imposition of any uniform and generally applicable restrictions as described in paragraph 8.2 to use

> at least the quantities of water from the Basin described in paragraphs 5.1., 6.9., and 7.2. MCWRA shall not at any time seek to impose greater restrictions on water use from the Basin by MCWD, Armstrong or Lonestar than are imposed on users either supplying water for use or using water within the city limits of the City of Salinas. MCWD, Armstrong and Lonestar will comply with any basin-wide or area-wide water allocation plans established by the MCWRA which include MCWD, Armstrong and Lonestar, and which do not impose on use of water on the lands described in Exhibits "B", "C", and "D" restrictions greater than are imposed on users either supplying water for use or using water within the City of Salinas, and which satisfy the requirement of paragraph 5.2 of this Agreement and Framework.

Groundwater Use by MCWD within the Monterey Subbasin for Fort Ord Lands and Marina Lands

On October 23, 2001, the U.S. Government through the Secretary of the Army made an economic development conveyance by quitclaiming the following assets to FORA and the next day on October 24, 2001, FORA deeded those very same assets to MCWD: (1) all of Fort Ord's water and sewer infrastructure; (2) under the 1993 Fort Ord Annexation Agreement, 4,871 AFY of the Army's 6,600 AFY of MCWRA groundwater allocation with the Army reserving 1,729 AFY; and (3) 2.22 MGD of the Army's prepaid wastewater treatment capacity under the Army-MRWPCA Agreement. The Army and MCWD have a long-term water supply contract whereby MCWD is authorized to use the Army's reserved groundwater allocation to serve Federal activities within the former Fort Ord. Consequently, MCWD either owns or manages the 9,620 AFY of the MCWRA groundwater allocations for the benefit of both Fort Ord Lands and Marina Lands.

MCWD has produced 4,300 AFY of groundwater, on average, over the 15 years prior to the historic drought of 2014-2017. Approximately, 1,300 AFY has been produced from the lower 180-foot and 400-foot aquifers, and 2,000 AFY has been extracted from the deep aquifers. Total groundwater extraction from the Monterey Subbasin over the 5 years prior to the historical drought is estimated to be approximately 4,500 AFY on average[5]. Annual production by MCWD for the period between 2000 and 2018 are provided in Attachment B.

3. Uncertainty in Water Budget Estimate of Groundwater Inflow Components

As part of the groundwater inflow components of the water budget, three components entail percolation of water from the land surface down to groundwater, including Streamflow Percolation (Section 6.5.1), Deep Percolation of Precipitation (Section 6.5.2), and Deep Percolation of Excess Applied Irrigation (Section 6.5.3). The fourth source of groundwater inflows included in the groundwater budget is Subsurface Inflows from Adjacent Subbasins (Section 6.5.4), which come from the Forebay Subbasin and the Monterey Subbasin.

There appears to be significant uncertainty in the quantity of each of these inflows as evidenced by the variability in the estimate of deep percolation between the Historical (97,300 AFY) and Future Projected (148,000 to 153,000 AFY) water budgets (see Attachment A). Further, the conceptualization of sources of inflow to the groundwater system is at odds with the description of recharge sources in the Draft Chapter 4. Specifically, Chapter 4 (Section 4.4.3) describes recharge in the 180/400 Subbasin as follows:

[5] Estimated based on Public Water Systems Statistic Survey (i.e. Form 38) data obtained from the Department of Water Resources.

> "Although Figure 4-9 shows some areas of good potential recharge in the 180/400-Foot Aquifer Subbasin, recharge to the productive zones of the Subbasin is very limited because of the low permeability Salinas Valley Aquitard. It is unlikely that any significant surficial recharge in the 180/400-Foot Aquifer Subbasin reaches the productive 180-Foot Aquifer or the 400-Foot Aquifer."

The amount of recharge stated to occur from the deep percolation sources (97,300 AFY) far outweighs the amount coming from subsurface inflow (20,000 AFY total), which is inconsistent with the description of the recharge sources in Chapter 4.

We understand that there is insufficient information currently available to accurately assess these inflow components. As such, we recommend that the GSP acknowledge this uncertainty and identify it as a data gap. The GSP should provide a plan to further assess both deep percolation and other basin inflow components. Doing so may reveal significantly different recharge sources for the shallow unconfined aquifer system versus the deeper aquifer system which could have important management implications and be critical for evaluating the effectiveness of potential recharge projects.

4. Water budget Information Should be Developed for each Principal aquifer

Water budget information for each principal aquifer is necessary to verify that proposed future operations of the basin, including implementation of projects and management actions, will not lead to undesirable results in each principal aquifer. Seawater intrusion is occurring in both the 180 Foot Aquifer and the 400 Foot Aquifer, and inland gradients exist within the Deep Aquifer. In order to reach sustainability, hydraulic gradients in each of these aquifers will need to be reversed either through decreasing groundwater extraction and/or future supply augmentation projects. As such, water budgets for each aquifer must be established to verify that undesirable effects do not occur.

We understand that information related to groundwater extraction within individual aquifer zones is currently limited and that water budgets cannot be developed for each principal aquifer zone. As such, we recommend that the GSP acknowledge this uncertainty and identify it as a data gap. The GSP should provide a plan to further assess rates of extraction and inflows within principal aquifer zones so undesirable results, such as seawater intrusion can be mitigated. This information is critical, as achieving sustainability in the basin requires implementation of projects and management actions, which will need to be evaluated against sustainable management criteria in each principal aquifer.

5. Inclusion of "Baseline Condition" Projected Water Budget

Historic and projected water budgets presented in the GSP are summarized in attached Attachment A. As shown on this attachment, there is significant variability between groundwater inflow components estimated on the basis of historical versus projected future conditions. It is our understanding based upon our discussion, that this discrepancy is related to the method of analysis versus actual projected change in climate[6]. As such, we recommend that the GSP include a future water budget assuming historical "baseline hydrologic conditions" in addition to the 2030 and 2070 climate change scenarios. This information is critical to understanding how much climate change uncertainties affect the basin's projected sustainable

[6] Historical conditions are estimated on the basis of an analytical model and projected future water budgets are estimated utilizing the SVIHM Operational Model.

yield, given the significant differences in the methods of analysis and the dramatic increase in estimated deep percolation in future water budget, as discussed above.

Inclusion of this scenario is consistent with GSP Regulations 354.18, (c) (3), which state:

> "Projected water budgets shall be used to estimate future baseline conditions of supply, demand, and aquifer response to Plan implementation, and to identify the uncertainties of these projected water budget components. The projected water budget shall utilize the following methodologies and assumptions to estimate future baseline conditions concerning hydrology, water demand and surface water supply availability or reliability over the planning and implementation horizon:
>
> (A) Projected hydrology shall utilize 50 years of historical precipitation, evapotranspiration, and streamflow information as the baseline condition for estimating future hydrology. The projected hydrology information shall also be applied as the baseline condition used to evaluate future scenarios of hydrologic uncertainty associated with projections of climate change and sea level rise."

6. Qualification of Data Gaps and Uncertainty

It is understandable that a GSP due January 31, 2020, will have data gaps and will be subject to modeling limitations, which create uncertainty. The District understands that SVBGSA intends to prepare this GSP based on the current best available science and information, per the State policy of sustainable, local groundwater management (Water Code § 113). It is important that each data gap, the scope of the resulting uncertainty caused by the data gap specific to the decisions being made in this GSP, and the steps to close the data gap be identified in the GSP. MCWD will work with the SVBGSA to help close the data gaps for adaptive, sustainable management of the 180/400 and Monterey Subbasins.

OTHER COMMENTS AND QUESTIONS

Section 6.2

It appears that in the historical water budget, the surface water budget is limited to just the river channels (i.e., Salinas River, other tributaries, and agricultural drains). It seems that there should be a land surface balance, like there is in the SVIHM-based Projected Water Budget, that estimates precipitation and irrigation percolation based on evapotranspiration (ET) and land use.

Section 6.6.2

Riparian ET rates were described to be 20 AFY/acre per personal communications with Rhode, whose detailed information was not provided in the Chapter's references. The rates were then assumed to be 16 AFY/acre in the water budget calculation without further justification. Riparian ET rates should be better substantiated, especially since the resulting riparian ET values are significant compared to the average change in storage over the historical period.

In addition, it is unclear why riparian ET is considered as an outflow from groundwater, rather than from surface water.

Sections 6.8.4, 6.9, 6.10.5, 6.10.6 and associated tables

Estimated annual seawater water intrusion inflows and annual changes in storage are subtracted from total groundwater pumping to estimate the sustainable yield. This methodology is somewhat confusing to the reader, as it presumes that the change in storage is negative. To avoid confusion, we recommend that changes in storage and seawater intrusion be identified as negative in throughout the chapter, or further clarifying language be included. For example:

- Tables 6-20 and 6-31: We recommend that these tables show the change in storage and seawater intrusion as negative values.
- Table 6-22: A note should be added to Table 6-22 indicating that although seawater intrusion is identified as an inflow to quantify the overall basin water budget, it is not considered part of the sustainable yield.
- Tables 6-27 and 6-28: It is unclear why seawater intrusion is not shown as an inflow component on these tables, given that it is shown as an inflow component in Table 6-25. These tables should be made consistent and clarify that although seawater intrusion is an inflow, it is not considered part of the usable groundwater or sustainable yield.
- Section 6.10.5 and Table 6-30: We suggest clarifying that change in groundwater storage discussed here are decreases in groundwater storage.

Table 6-22

Table 6-22 shows a decrease of only 600 AFY, on average, of groundwater in storage based on water level declines during the "current period" (2015-2017). This implies no real decline in water levels – is that what is seen?

Sincerely,

Keith Van Der Maaten

General Manager, Marina Coast Water District

Attachment A: Summary of SVBGSA 180/400 Foot Aquifer Subbasin Draft Groundwater Budget Calculations

Attachment B: MCWD Groundwater Production by Aquifer, 2000 - 2018

Attachment A. Summary of SVBGSA 180/400 Foot Aquifer Subbasin Draft Groundwater Budget Calculations

Groundwater Budget in Average Years		**Historical**	**Current (a) (Table 6-19)**	**Current (a) (Table 6-22)**	**Future**	**Future**
	Budget Period	***1995-2014***	***2015-2017***	***2015-2017***	***2030***	***2070***
Streamflow Deep Percolation	I-1	73,300	31,100	NR	71,541	71,706
Precipitation Deep Percolation	I-2	12,300	11,600	NR	76,333	81,777
Irrigation Deep Percolation	I-3	11,700	4,500	NR	-	-
Subsurface Inflows	I-4	20,000	20,000	NR	30,411	31,706
Total Freshwater Inflow	**I = sum I-1 to I-4**	**117,200**	**67,200**	**67,100**	**178,285**	**185,189**
Pumping	O-1	108,300	109,300	NR	115,349 (b)	120,644 (b)
Riparian Evapotranspiration	O-2	12,000	12,000	NR	-	-
Drain Flows	O-3	-	-	-	7,100	8,024
Flow to Streams	O-4	-	-	-	1,833	1,921
Groundwater ET	O-5	-	-	-	35,127	36,652
Subsurface Outflows	O-6	9,500	3,200	NR	25,440	24,887
Total Freshwater Outflow	**O = sum O-1 to O-5**	**129,800**	**124,400**	**130,800**	**184,849**	**192,128**
Seawater Intrusion	SI	-10,500	-10,500	-10,500	-3,465	-3,852
Change in Storage	DS = DFS - SI	-2,100	-46,800	-53,200	-4,584	-4,653
Change in Freshwater Storage	**DFS = I - O**	**-12,600**	**-57,300**	**-63,700**	**-8,049**	**-8,505**
Sustainable Yield	SY = O-1 + SC	95,700	52,000	NR	107,300	112,139
Error (c)		*1%*	*NR*	*40%*	*1%*	*1%*
Net flow from Monterey (d)		*3,000*	*3,000*	*NR*	*5,502*	*6,208*

Notes:

- = Items not applicable to the specific calculation method

NR = not reported

(a) Values are reported differently on Tables 6-19 and 6-22.

(b) This summary shows values from Table 6-27 and after. Values are reported differently on Table 6-26 .

(c) Calculated as the water budget imbalance as a percentage of outflow. For the current water budget, change in storage estimated from water levels were -600 AFY compared to -53,200 AFY as estimated by balancing the water budget.

(d) Net subsurface flow from the Monterey Subbasin as assumed or estimated in the analyses.

Attachment B. MCWD Groundwater Production by Aquifer, 2000 - 2018

Year	Groundwater Production (AFY)		
	180-Foot and 400-Foot Aquifers	Deep Aquifer	Total
1999	2,396	2,021	4,417
2000	2,371	2,194	4,565
2001	2,228	2,150	4,378
2002	2,137	2,239	4,376
2003	2,144	2,162	4,306
2004	2,423	2,261	4,684
2005	1,994	2,194	4,188
2006	2,509	1,786	4,295
2007	2,941	1,622	4,563
2008	2,269	1,833	4,102
2009	2,076	1,962	4,038
2010	2,389	1,744	4,133
2011	2,348	1,698	4,047
2012	2,345	1,829	4,174
2013	2,420	2,011	4,431
2014	1,658	2,368	4,026
2015	1,258	1,970	3,228
2016	1,195	1,830	3,025
2017	1,159	2,079	3,239
2018	1,129	2,276	3,405
Pre-drought Average, 2000-2014	*2,283*	*2,004*	*4,287*

MARINA COAST WATER DISTRICT

11 RESERVATION ROAD, MARINA, CA 93933-2099
Home Page: www.mcwd.org
TEL: (831) 384-6131 FAX: (831) 883-5995

24 May 2019

Mr. Gary Peterson
General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1441 Shilling Place
Salinas, CA 93901

Mr. Derrik Williams
Montgomery & Associates
1232 Park Street, Suite 201B
Paso Robles, CA 93446

Dear Mr. Peterson and Mr. Williams,

Thank you for taking the time to meet with us and our SGMA consultant EKI Environment & Water, Inc. The purpose of this letter is to:

(1) Summarize agreements reached regarding coordination with Marina Coast Water District Groundwater Sustainability Agency (MCWD GSA) representatives during development of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan (180/400 Subbasin GSP); and
(2) Provide a written summary of MCWD GSA General comments on Draft Chapter 8 of the 180/400 Subbasin GSP.

COORDINATION WITH MCWD GSA

It was agreed that MCWD GSA and SVBGSA staff members and technical consultants would meet monthly to aid coordination efforts between these entities during the preparation of the SVBGSA 180/400 Subbasin GSP. The following schedule has been established for these meetings:

- Day: 2nd Thursday of every month
- Time: 10:30 a.m.
- Location: MCWD offices located at 11 Reservation Road, Marina, California

If GSA representatives and/or their consultants are unavailable, alternative arrangements may be made.

The purpose of these meetings will be to:

- Discuss 180/400 Subbasin GSP draft chapters that have been released, and
- discuss comments provided by MCWD GSA, and how and/or if they will be incorporated into the GSP.

This schedule has been established to allow MCWD representatives to review and provide draft comments to SVBGSA on draft chapters released to the Planning Committee at the beginning of each month, and allow for incorporation of such comments, to the extent they are agreed upon, prior to presentation of the Draft Chapter to the SVBGSA Board the following month.

GENERAL COMMENTS REGARDING 180/400 SUBBASIN GSP DRAFT CHAPTER 8: SUSTAINABLE MANAGEMENT CRITERIA

MCWD GSA concurs with draft saltwater intrusion sustainable management criteria (SMC) identified for the 180/400 Subbasin. These SMC are summarized in Table 1 below:

TABLE 1
180/400 Subbasin Sustainable Management Criteria for Seawater Intrusion

	180 Foot Aquifer	400 Foot Aquifer	Deep Aquifer
Minimum Threshold	500 mg/L chloride concentration isocontour as mapped by MCWRA[1] for 2017	500 mg/L chloride concentration isocontour as mapped by MCWRA for 2017	500 mg/L chloride concentration isocontour as defined by Highway 1.
Measurable Objective	Move 500 mg/L chloride concentration isocontour to Highway 1	Move 500 mg/L chloride concentration isocontour to Highway 1	500 mg/L chloride concentration isocontour as defined by Highway 1.
Undesirable Result	"On average in any one year there shall be no exceedances of any minimum threshold."	"On average in any one year there shall be no exceedances of any minimum threshold."	"On average in any one year there shall be no exceedances of any minimum threshold."

However, as discussed during our meeting, draft groundwater elevation SMC are not consistent with draft salt water intrusion SMC. Draft groundwater elevation SMC are below mean sea level and will maintain landward gradients that will exacerbate salt water intrusion in the 180/400 Foot Aquifer Subbasin and the Monterey Subbasin. Based upon our discussion, it is our understanding that SVBGSA intends to propose projects that will address saltwater intrusion (e.g., extraction barrier and/or injection barriers). In order for such projects to achieve draft salt water intrusion SMC, seaward gradients within the 180 Foot Aquifer and 400 Foot Aquifer will need to be established. Although, there are several methods by which seaward gradients can be established, all of these methods will require modifications to the proposed water level SMC. For example, even if an extraction barrier is proposed, water level elevation SMC will need to be reduced near the ocean. Although SMC at individual monitoring wells may not yet be available, Chapter 8 should clearly articulate that currently identified SMC will not achieve the saltwater intrusion SMC and stop undesirable results, and will need to be updated on the basis of identified projects.

[1] Monterey County Water Resource Agency (MCWRA)

As currently presented, the groundwater elevation SMC will draw saltwater further inland. These groundwater elevation SMC will also eliminate any potential sustainable groundwater extraction within the Monterey Subbasin. Pursuant to GSP Regulation 350.4 (f), cited below, the 180/400 Subbasin GSP is required to consider the effects of its implementation on the adjacent Monterey Subbasin, and its ability to achieve and maintain sustainability.

> *"A Plan will be evaluated, and its implementation assessed, consistent with the objective that a basin be sustainably managed within 20 years of Plan implementation without adversely affecting the ability of an adjacent basin to implement its Plan or achieve and maintain its sustainability goal over the planning and implementation horizon."*

The Monterey and 180/400 Subbasins are hydraulically connected, therefore the SVBGSA SMC for the 180/400 Subbasin must address inland gradients and cross-boundary groundwater flows from the Monterey Subbasin into the 180/400 Foot Subbasin. Unless alternative water supplies are provided by SVBGSA, groundwater inflows to the Monterey Subbasin must be adequate to sustain groundwater extraction by MCWD from its water production wells at levels established under the 1996 Marina Area Lands Annexation Agreement (Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands dated March 1996), and the 1993 Fort Ord Annexation Agreement (Agreement concerning the Annexation of Fort Ord into Zones 2 and 2A of the MCWRA dated September 21, 1993)[2].

As such, cumulative freshwater cross-boundary flows into the Monterey Subbasin must be adequate to support production of 9,620 AFY from MCWD Wells without inducting inland gradients.

Groundwater modeling should be utilized to establish minimum thresholds for groundwater levels and hydraulic gradients within each aquifer zone to yield adequate cross-boundary flows between the 180/400 Subbasin and the Monterey Subbasin. Such modeling should incorporate the effects of projects proposed as part of the 180/400 Subbasin GSP. Modeling should be utilized to verify that these cross-boundary flows will allow MCWD to extract potable groundwater from its existing wells consistent with the 1996 and 1993 Annexation Agreements or that alternative water supplies will be provided to MCWD. The model should also consider groundwater use in the Corral de Tiera area, which is being managed by SVBGSA. Finally, an adequate groundwater monitoring network will need to be established along the 180/400 Subbasin and Monterey Subbasin boundary, to assess water levels and hydraulic gradients and verify that minimum thresholds and sustainability goals are being achieved and maintained.

MCWD GSA is willing to collaborate and discuss modeling results, potential distribution of groundwater extractions by aquifer, and anticipated projects in the Monterey Subbasin to assist with SVBGSA in developing a GSP that allows Sustainable Groundwater Management Act compliance in both basins.

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[2] Under the 1996 Marina Area Lands Annexation Agreement, Monterey County Water Resources Agency (MCWRA) allocated 3,020 AFY of potable groundwater to MCWD. Under the 1993 Fort Ord Annexation, MCWRA allocated 6,600 AFY of potable groundwater to the Army. In 2000, the Army entered into an exclusive contract with MCWD to meet all potable water demands by the Army and the BLM within the former Fort Ord and authorized MCWD to use the Army's reserved groundwater allocation to meet those demands. In October 2001, the U.S. Army transferred to the Fort Ord Reuse Authority (FORA) and FORA in turn transferred to MCWD title to all of the Army's then existing water and sewer infrastructure and the 6,600 AFY of potable groundwater, except for 1,577 AFY reserved by the Army to meet Federal water demands within the former Fort Ord. In 2007, the California Department of Public Health granted MCWD's request to combine the Central Marina and Ord Community services areas into one combined water system permit. Consequently, MCWD owns or manages 9,620 AFY of potable groundwater allocations to serve its combined Central Marina and Ord Community service areas.

DEEP AQUIFER

No SMC are currently identified for the Deep Aquifer. We recognize that limited information is available for the Deep Aquifer and that much of it is proprietary. However, as noted in our comments on Chapter 5 of the GSP, cumulative hydrographs from existing monitoring wells should be presented and total rates of extraction from the deep zone identified. MCWRA's report entitled "2017 Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin" (2017 MCWRA Report")[3] states that there are 32 active productions wells and eight monitoring wells screened in the deep aquifers, and that MCWRA monitors groundwater levels at thirteen locations in the Deep Aquifers "with varying frequency", a majority of which are located in the 180/400 Foot Aquifer Subbasin. Figure 18 of the 2017 MCWRA Report identifies the general location of these wells and Figure 21 depicts average groundwater level changes in the Deep Aquifer from 1986 to 2016 (Attachment A).

Figure 21 shows that average groundwater levels in the Deep Aquifer gradually decreased between 1986 and 1997, rebounded after CSIP start-up in 1998, and have gradually decreased again over the past two decades. Hydrographs from the United States Geologic Survey ("USGS") Deep Aquifer nested Monitoring well (14501E24L02,03,04,05) in Marina[4], located along the coast of the Monterey Subbasin (Attachment B), also show that water level declines in the Deep Aquifer (Attachment B), particularly since 2015. This decline is consistent with increased production from the Deep Zone in the 180/400 foot Aquifer Subbasin. Deep Zone production rates are presented on Figure 23 of the 2017 MCWRA Report (Attachment A). Based upon this information, SMC should be established for the Deep Aquifer to stop further water level declines. Water levels in this aquifer are below sea level and declining; therefore, the potential for salt-water intrusion into this aquifer is increasing. Given that the Deep Aquifer provides the only source of potable water in salt-water intruded areas other than the Castroville Seawater Intrusion Project (CSIP), projects should be prioritized to provide alternative water supplies to these areas or management actions should be implemented to reduce withdrawals from the Deep Aquifer.

Sincerely,

Keith Van Der Maaten

General Manager, Marina Coast Water District

Attachment A: Selected Figures from 2017 MCWRA Report
Figure 18 – Wells in the Deep Aquifers
Figure 21 - Average Groundwater Level Changes in the Deep aquifers from 1986 to 2016
Figure 23 – Total Annual Groundwater Extractions from the Deep Aquifers in Zone 2A (1995 – 2016)

[3] MCWRA, 2017. Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin" Special Reports Series 17-01, Dated October 2017.
[4] USGS, 2002. Geohydrology of a Deep-Aquifer System Monitoring Well Site at Marina, Monterey County, CA, Water Resources Investigations Report 02-4003 prepared by RT Hanson, Rhett R. Everett, Mark W. Newhouse, Steven M. Crawford, M. Isabel Pimentel, and Gregory A. Smith in cooperation with the MCWRA, dated 2002.

Attachment B: USGS, 2002. Geohydrology of a Deep-Aquifer System Monitoring Well Site at Marina, Monterey County, CA, Water Resources Investigations Report 02-4003
Figure 1 - Location of Deep Aquifer system Monitoring Well
Figure 2 – Well Construction and Lithology for the Deep Aquifer Monitoring Well

Attachment C: Water level data from USGS Monitoring Well (14501E24L02,03,04,05)

Attachment A

Selected Figures from 2017 MCWRA Report (Recommendations to Address the Expansion of Seawater Intrusion in the Salinas Valley Groundwater Basin" Special Reports Series 17-01, Dated October 2017).

Figure 18 – Wells in the Deep Aquifers

Figure 21 - Average Groundwater Level Changes in the Deep aquifers from 1986 to 2016

Figure 23 – Total Annual Groundwater Extractions from the Deep Aquifers in Zone 2A (1995 – 2016)

5.2.4 Wells in the Deep Aquifers

The use of the Deep Aquifers for groundwater production has been driven by the need to drill deeper in order to avoid seawater intrusion, with wells being installed to subsequently deeper elevations with fresh-water-bearing materials (Feeney and Rosenberg, 2003). Most available hydrogeologic data on the Deep Aquifers have been obtained through well drilling activities and related well or aquifer testing rather than through an intentional aquifer-wide study. Wells of all types have been installed in the Deep Aquifers, including production wells for agricultural purposes; domestic, industrial, and municipal water supply wells; and monitoring wells.

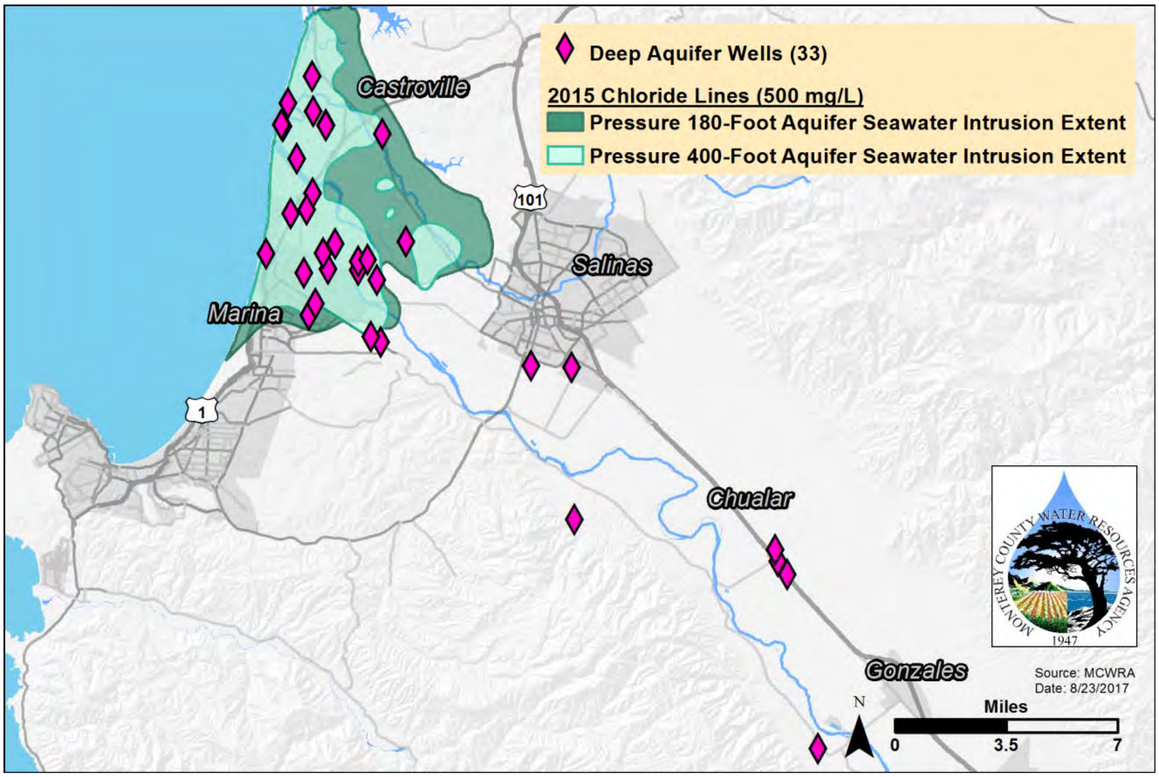


Figure 18- Wells in the Deep Aquifers

5.2.5 Well Installation History in the Deep Aquifers

The first production well in the Deep Aquifers was installed in 1974. As of August 1, 2017, a total of 41 wells have been installed in the Deep Aquifers: 33 production wells and 8 monitoring wells (Figure 19). One of the production wells was destroyed in 2004, so 40 wells remain in the Deep Aquifers at present. Of the 32 existing production wells, 18 are agricultural wells, 7 are municipal wells, 3 are residential wells, 3 are industrial wells, and one has an unknown usage.

Well Completion Reports for wells in the Deep Aquifers are provided in Appendix E and a table detailing installation dates, depths, and well types for the Deep Aquifers can be found in Appendix F.

the Deep Aquifers rapidly increased and then leveled off until approximately 2006, when groundwater levels began to decline once again (Figure 21).

To date, seawater intrusion has not been documented in the Deep Aquifers, even though groundwater levels in the Deep Aquifers are consistently below sea level. This lack of seawater intrusion in the Deep Aquifers may be due, at least in part, to the geologic setting (Feeney and Rosenberg, 2003).

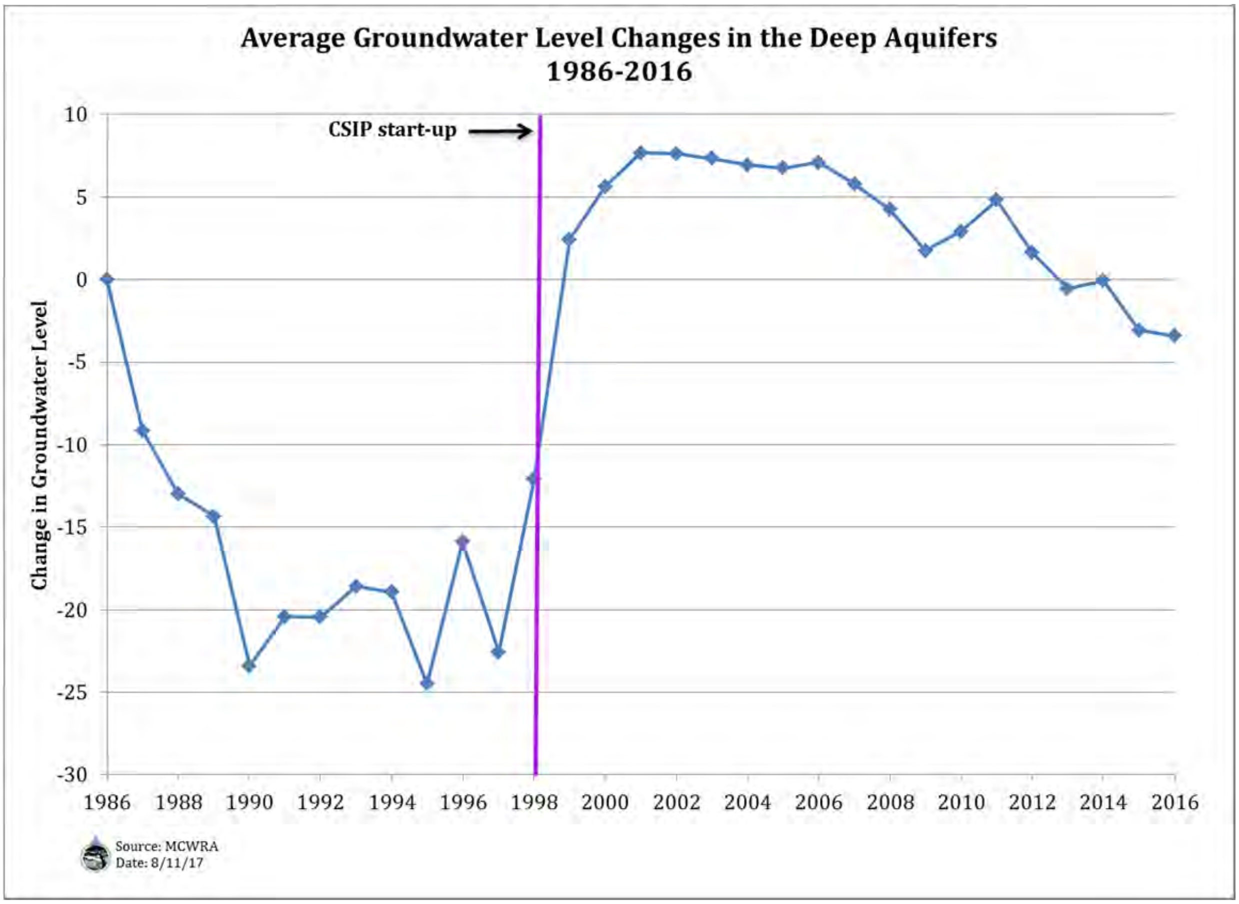


Figure 21 - Average Groundwater Level Changes in the Deep Aquifers (1986-2016)

5.2.8 Groundwater Quality in the Deep Aquifers

Water quality in the Deep Aquifers has been monitored by the Agency since 1976. Data are collected during two sampling events that occur annually in the summer. Samples are collected from seventeen wells in the Deep Aquifers and analyzed for major cations and anions.

Native groundwater in the Deep Aquifers has a distinct character, with a higher pH than groundwater in the overlying aquifers, relatively low calcium and high sodium concentrations, and an elevated temperature. The Piper diagram in Figure 22 illustrates the similarities in the chemical compositions of native groundwater in the Pressure 180-Foot and Pressure 400-Foot Aquifers

5.2.9 Extraction from Wells in the Deep Aquifers

The Agency receives data on groundwater extractions from wells in the Deep Aquifers as part of its Groundwater Extraction Management System (GEMS) program. These data, which exist from 1993 to present, indicate that groundwater pumping in the Deep Aquifers decreased for a short period following startup of CSIP in 1998 (Figure 23). However, since 2002, total annual pumping from the Deep Aquifers has been generally increasing as more wells are installed. Total annual extractions from the Deep Aquifers, for the period 1995 through 2016, range from 2,151 acre-feet (in 1999) to 8,901 acre-feet (in 2016).

Groundwater pumping from wells in the Deep Aquifers is thought to be supported primarily by leakage from the overlying aquifer system, i.e. the Pressure 180-Foot Aquifer and Pressure 400-Foot Aquifer (Feeney and Rosenberg, 2003). Some groundwater pumping is derived from depletion of groundwater storage, but hydraulic properties of the Deep Aquifers (specifically storage coefficients) suggest that while some groundwater may come from storage immediately following the onset of pumping a well, very little groundwater can be removed from storage over time. Therefore, increases in groundwater pumping in the Deep Aquifers will likely be supported by increased leakage from the overlying aquifers (Feeney and Rosenberg, 2003).

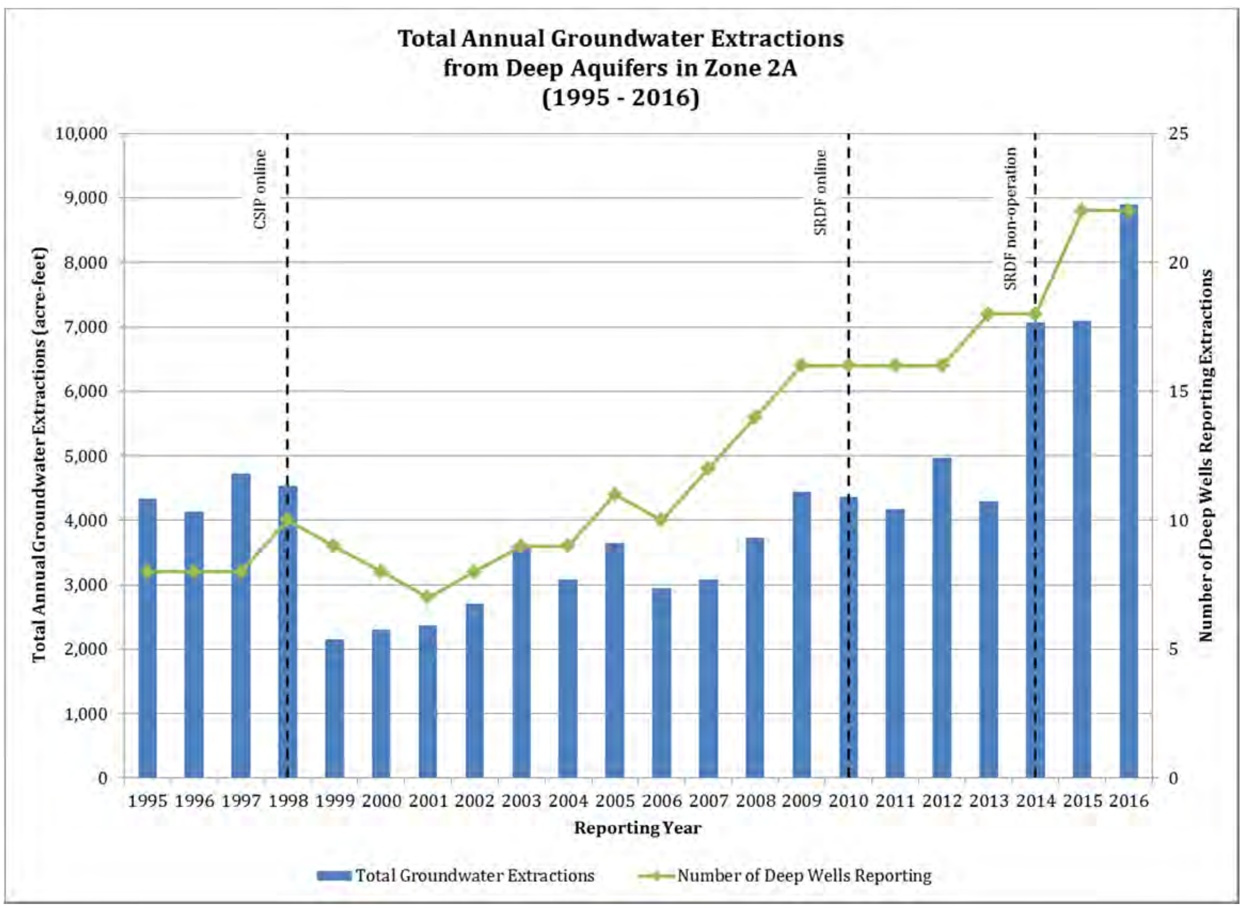


Figure 23 - Total Annual Groundwater Extractions from Deep Aquifers in Zone 2A (1995-2016)

Attachment B

USGS, 2002. Geohydrology of a Deep-Aquifer System Monitoring Well Site at Marina, Monterey County, CA, Water Resources Investigations Report 02-4003

Figure 1 - Location of Deep Aquifer system Monitoring Well
Figure 3 – Well Construction and Lithology for the Deep Aquifer Monitoring Well

Figure 1. Location of deep-aquifer system monitoring-well site in the Salinas Valley at Marina, California.

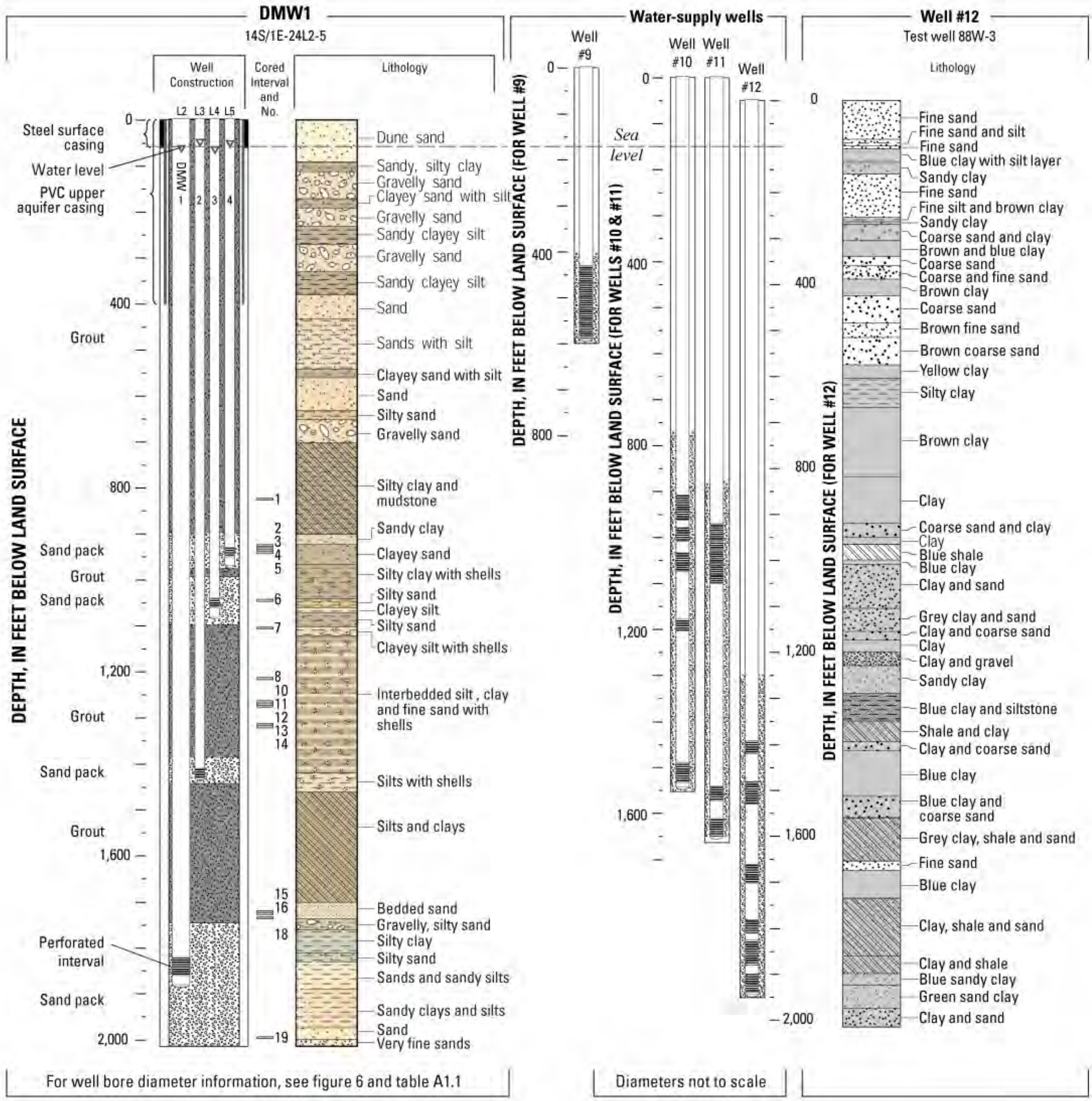
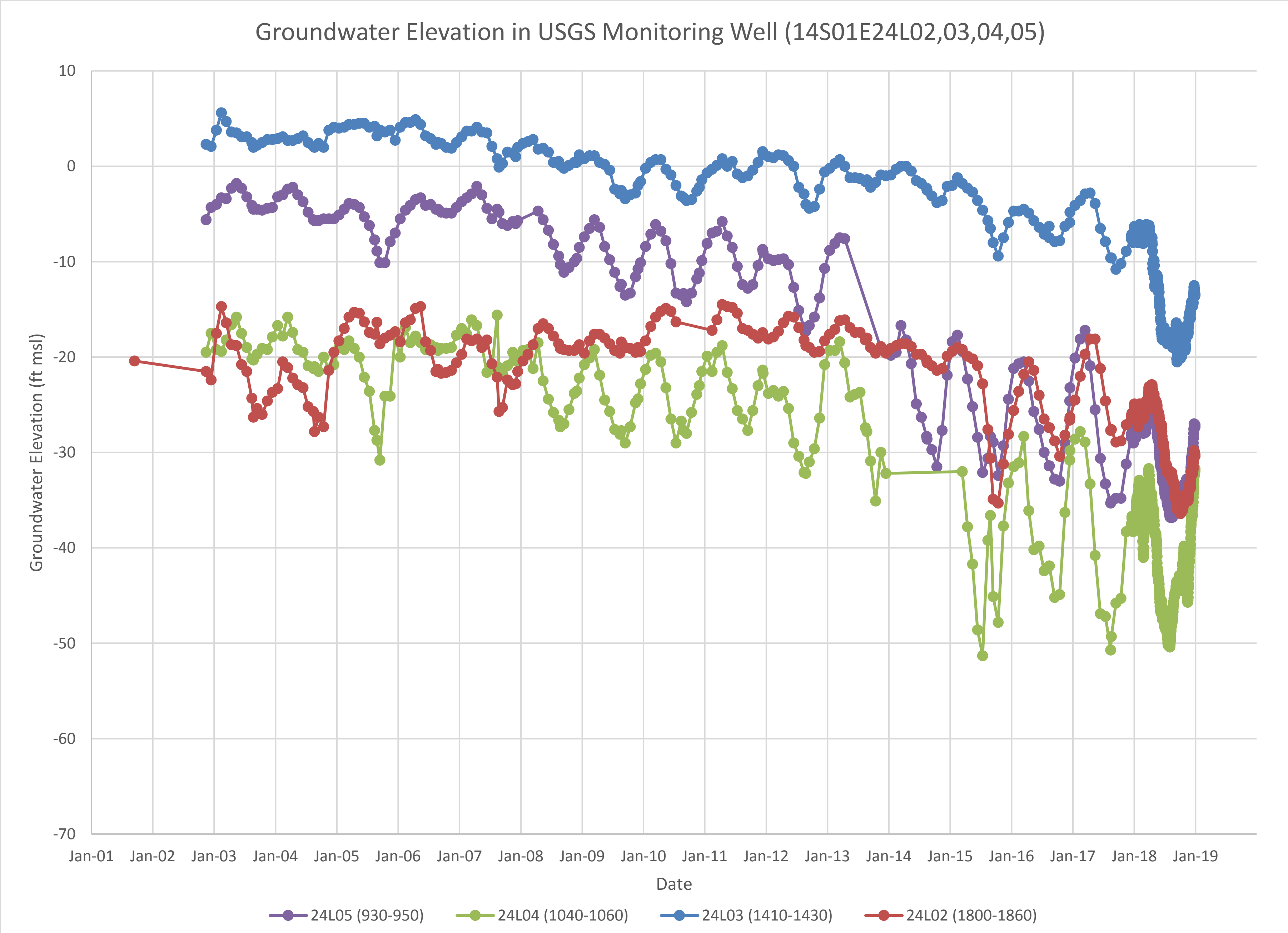


Figure 3. Well construction and lithology for the deep-aquifer monitoring well and selected nearby water-supply wells, Marina, California.

Attachment C

Water Level Data from USGS Monitoring Well (14501E24L02,03,04,05)



Groundwater Elevation in USGS Monitoring Well (14S01E24L02,03,04,05)
10
0
-10
-20
-30
-40
-50
-60
-70
Groundwater Elevation (ft msl)
Jan-01
Jan-02
Jan-03
Jan-04
Jan-05
Jan-06
Jan-07
Jan-08
Jan-09
Jan-10
Jan-11
Jan-12
Jan-13
Jan-14
Jan-15
Jan-16
Jan-17
Jan-18
Jan-19
Date
24L05 (930-950)
24L04 (1040-1060)
24L03 (1410-1430)
24L02 (1800-1860)

MARINA COAST WATER DISTRICT

11 RESERVATION ROAD, MARINA, CA 93933-2099
Home Page: www.mcwd.org
TEL: (831) 384-6131   FAX: (831) 883-5995

1 August 2019

Mr. Gary Petersen
General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1441 Shilling Place
Salinas, CA 93901

Mr. Derrik Williams
Montgomery & Associates
1232 Park Street, Suite 201B
Paso Robles, CA 93446

Dear Mr. Peterson and Mr. Williams,

Thank you for taking the time to meet with us and our SGMA consultant EKI Environment & Water, Inc. regarding Draft Chapter 9 (Projects and Management Actions) of the 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan (180/400 Subbasin GSP) on 10 July 2019. Based upon further review of Draft Chapter 9, we have expanded our comments beyond those discussed during the meeting. This letter provides MCWD GSA's initial comments on Draft Chapter 9. We realize that the actions and projects described in Chapter 9 will be refined and new actions and projects added through an iterative process involving all of the stakeholders.

1. Pumping Allowance (Section 9.2.2)

As written, the document implies that municipalities may not receive a sustainable pumping allowance and will need to pay more than agricultural users to pump their base amount. Municipal water purveyors, such as MCWD, have acquired appropriative rights through pumping, which pumping has prescripted against overlying rights. The GSP needs to provide that MCWD's MCWRA groundwater allocations are the sustainable pumping allowances for Fort Ord Lands and Marina Area Lands pursuant to the annexation agreements described below.

<u>1993 Fort Ord Lands Annexation Agreement</u>: On September 21, 1993, the U.S Government, as represented by the U.S. Army, entered into the Agreement between the United States of America and the Monterey County Water Resources Agency concerning Annexation of Fort Ord into Zones 2 and 2A of the Monterey County Water Resources Agency (1993 Annexation Agreement). The annexed Fort Ord Lands consisted of all lands within the then existing boundaries of Fort Ord, which included all of the lands that were later transferred to the Fort Ord Reuse Authority. MCWRA allocated 6,600 AFY of groundwater within the then defined Salinas Basin for use within the Fort Ord Lands and recognized withdrawals from the Seaside Basin by Fort Ord of 424 AFY. In consideration for the annexation, the U.S. Government paid MCWRA an annexation fee of $7,400,000. Federal lands were exempt from Zone 2 and 2A assessments, but lands transferred for non-Federal uses, such as for Base Reuse, were required to pay those assessments.

The MCWRA Backstop: Section 4g stated, "Should future litigation, regulation or other unforeseen action diminish the total water supply available to the MCWRA, the MCWRA agrees that it will consult with the Fort Ord/POM Annex Commander. Also, in such an event, the MCWRA agrees to exercise its powers in a manner such that Fort Ord/POM Annex/RC shall be no more severely affected in a proportional sense than the other members of the Zone."

Section 4i recognized that the Federal Government was "considering transferring the ownership and operation of the Fort Ord wells and water distribution system to a successor water purveyor, utility, or agency. Under such a transfer, the MCWRA agrees that the ***Government, in its sole discretion, may transfer its applicable water rights under this agreement to the successor water purveyor, utility, or agency***." [Emphasis added.] By quitclaim deed dated October 23, 2001, the Federal Government transferred all of the Government's ownership in the Fort Ord water system infrastructure and 4,871 AFY of 6,600 AFY of groundwater under the 1993 Annexation Agreement to the Fort Ord Reuse Authority (FORA). On October 24, 2001, FORA in turn quitclaimed all of that infrastructure and the 4,871 AFY of groundwater to MCWD.

MCWD intends to use the 4,871 AFY of groundwater to provide water service to those jurisdictions within MCWD's Ord Community Service Area, which are entitled to water service under those rights pursuant to the Fort Ord Base Reuse Plan.

1996 Marina Area Lands Annexation Agreement: In March 1996, the Monterey County Water Resources Agency, MCWD, the J.G. Armstrong Family Members, RMC Lonestar (now CEMEX), and the City of Marina entered into the Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands. Section 1.1 states,

> "The purpose of this Agreement and Framework is to help reduce seawater intrusion and protect the groundwater resource and preserve the environment of the Salinas River Groundwater Basin through voluntary commitments by the Parties to limit, conserve and manage the use of groundwater from the Salinas River groundwater basin, and to provide the terms and conditions for the annexation of certain territory in the Marina area to the Monterey County Water Resources Agency's benefit assessment Zones 2 and 2A as a financing mechanism providing additional revenues to the Monterey County Water Resources Agency to manage and protect the groundwater resources in the Salinas River Groundwater Basin and to reduce seawater intrusion."

The agreement provided for a potable groundwater allocation of 3,020 AFY for use by MCWD for its Central Marina service area. The agreement also provided for 920 AFY for non-agricultural use on the Armstrong Ranch upon annexation to Zones 2 and 2A. Under the 1996 Annexation Agreement, Lonestar agreed to limit its overlying groundwater right to not more than its historic use of 500 AFY of non-potable water on the overlying CEMEX property in exchange for MCWRA agreement on specified annexation fees when Lonestar requested annexation to the Zones.

The 1996 Annexation Agreement established "a contractual process for the exercise of regulatory authority by the MCWRA under Water Code App. Section 52-22, and the MCWD under Water Code section 31048." (MCWRA Negative Declaration re: Annexation of Marina Area Lands to Zones 2/2A, dated February 21, 1996, at p. 4.)

The 1996 Annexation Agreement (Sec. 5.9) required MCWD to pay a $2,849,410 annexation fee to MCWRA less a credit of $400,000. Standby charges and assessments were then levied and collected by the MCWRA on an annual basis on all Marina Area Lands. Section 8.4, Use of Annexation Fees, states, "Annexation fees from the MCWD service area, the Armstrong Ranch and the Lonestar Property shall be used by MCWRA to pay the costs of a BMP [Salinas River Basin Management Plan] process that includes mitigation plans for the Marina Area based on the planning guidelines contained in this Agreement and Framework. Such annexation fees shall also be used for management and protection of the '900-foot aquifer.'"

In 2003, Zones 2 and 2A were replaced by a new Zone 2C to collect assessments for the operation and maintenance of Nacimiento and San Antonio Dams to reduce flooding impacts on the Salinas River and provide water conservation with consideration given to recreation, and for dam administration, Salinas River Channel maintenance, construction of the Salinas River Diversion Facility (rubber dam), and cloud seeding.

The Fort Ord Lands and the Marina Area Lands have yet to receive any direct benefits from the Nacimiento and San Antonio Reservoirs.

<u>MCWRA's Obligation to Protect the Deep Aquifer for MCWD's Use</u>: Section 5.3, Management of 900-foot aquifer, provides, "The Parties agree that the '900-foot' aquifer should be managed to provide safe, sustained use of the water resource, and to preserve to MCWD the continued availability of water from the '900-foot' aquifer." Section 5.9 further stated that the annexation fees paid by MCWD "shall also be used for management protection of the '900-foot aquifer.'"

Section 8.1, Equal treatment by MCWRA and MCWD, provides in part, "MCWRA shall not at any time seek to impose greater restrictions on water use from the Basin by MCWD, Armstrong or Lonestar than are imposed on users either supplying water for the use or using water within the city limits of the City of Salinas."

For the above reasons, the SVBGSA needs to assign as the sustainable pumping allowances for Fort Ord Lands and Marina Area Lands the groundwater allowances provided in the 1993 and 1996 Annexation Agreements.

As agreed upon during our meeting, the GSP should state that the appropriative and prescriptive groundwater rights of municipal water purveyors, previous water management agreements with the MCWRA, as well as previous payments to zones of benefit will be considered in the development of sustainable allowances for municipalities.

2. Water Charges Framework (Section 9.2)

The water charges framework outlined in Section 9.2 states that:

> *A similarly structured water charges framework will be implemented in all Salinas Valley subbasins in Monterey County. However, details such as pumping allowance quantities, pumping fees, and tier structures will be different for each subbasin. These differences will reflect the fact that each subbasin's water charges framework is based on the specific hydrogeology and conditions of that subbasin.*

> *Sustainable Pumping Allowances are a base amount of groundwater pumping assigned to each non-exempt groundwater pumper. The sum of all sustainable pumping allowances is the sustainable yield of the subbasin after all projects have been implemented.*

The sustainable pumping allowances cannot be tied to "sustainable yield of the subbasin after all projects have been implemented", because some projects will have more localized benefits and/or losses to certain subbasins versus others. For example, if water is recharged or extracted from a given subbasin as part of a large-scale basin-wide project, that project will significantly impact the sustainable yield of that subbasin. Therefore, SVBGSA could effectively determine the sustainable yield of a subbasin depending upon which projects are implemented. Further, given existing inland cross boundary flows, subbasins such as the Monterey Subbasin, could be allocated no sustainable yield. We recommend that SVBGSA consider using some estimate of the "natural safe yield" within each subbasin (i.e. pre-groundwater extraction) to determine the sustainable pumping allowance for each basin. This methodology has been used in multiple adjudications throughout California and is being utilized as part of SGMA within the Kern Subbasin.

3. Management Actions, Projects, and Alternative Projects (collectively, Actions/Projects); Replenishment Water

It is universally agreed that a major key to achieving groundwater sustainability within an overdrafted subbasin is Replenishment Water to the extent Replenishment Water can be made available.

It is recommended that the primary objectives of the Actions/Projects should be:

(1) Provide Replenishment Water to North County in substitution for groundwater. For example, a 10% substitution by 2030 and a 25% substitution by 2040.

(2) Repeal seawater intrusion – a mission that the MCWRA has had since the 1940's.

The Chapter 9 list of Actions/Projects are a good start. However, there are combinations of Actions/Projects that appear to produce greater synergy, i.e., Actions/Project when implemented in combination appear to be more water-efficient and cost-effective in reducing undesirable results and producing Replenishment Water for use within the 180/400 Foot Aquifer Subbasin with benefits for the Monterey, Eastside, and potentially Seaside Subbasins. In other words, synergistic combinations of Actions/Projects, consisting of Chapter 9 and other projects, could produce "more bang for the buck." The "bang" is producing and delivering Replenishment Water and reducing undesirable results.

Draft Chapter 9 mentions implementing combinations of Actions/Projects. The following are first cut, suggested combinations of Actions/Projects for consideration for inclusion in Chapter 9:

3.1. Direct Replenishment Water - Actions/Projects #1: The following are suggested combinations of Actions/Projects to reduce groundwater pumping in the 180/400 Foot Aquifer Subbasin by the direct use of recycled water and surplus Salinas River water during the irrigation season (Direct Replenishment Water):

- MA2: Reservoir Reoperation
- PP1: Invasive Species Eradication
- PP2: Optimize CSIP Operations

- PP3: Improve SRDF Diversion (including installing Radial Collectors to increase ability to divert more water when water is available)
- PP5: Expand Area Served by CSIP
- PP6: 11043 Diversion Facilities
- PP5: Expand Area Served by CSIP

The Salinas Valley has evolved over time to become dependent upon groundwater for approximately 95% of the water use within the Salinas Valley and upon the Salinas River and the Nacimiento and San Antonio Reservoirs to provide river flows to seep into the groundwater aquifers for recharge and not for direct irrigation and municipal and industrial uses. As stated in MA2, that type of operation mostly benefits the Upper Valley and Forebay Subbasins, which are closest to the reservoirs, and with little benefits to either the East Side (subbasin with the highest CASEGEM score) or the Critically Overdrafted 180/400 Foot Aquifer Subbasins, yet all non-Federal landowners within the Pressure Zone pay benefit assessments to the MCWRA for Nacimiento and San Antonio Reservoirs.

Salinas River water operations to provide seepage flows for groundwater recharge is diametrically different from water operations in the Sacramento Valley and the North San Joaquin Valley where direct delivery of surface water for irrigation is the core agricultural water source for farms within agricultural water districts. For example, within the Modesto Subbasin and Turlock Subbasin, the Modesto, Turlock, and Oakdale Irrigation Districts in average water years will divert approximately 1,000,000 AF of Tuolumne and Stanislaus River water for delivery to their farmers. MCWD's general counsel Griffith & Masuda is also general counsel to the Turlock Irrigation District.

The synergy of Reservoir Reoperation, Invasive Species Eradication, Improve SRDF Diversion, and 11043 Diversion Facilities could efficiently and effectively provide additional river Replenishment Water for the 180/400 Foot Aquifer Subbasin thereby reducing pumping and assisting in halting seawater intrusion without reducing benefits to the Upper Valley and Forebay Subbasins.

Section 9.4.4.7, Preferred Project 6: 11043 Diversion Facilities, incorrectly states that diversions under this permit can only occur at the two diversion locations (near Soledad (within Forebay Aquifer) and Chualar) identified in the original July 11, 1949 Water Rights Application 13225. Points of diversions under a permit can be changed or a new point of diversion added with the filing of a change petition pursuant to Water Code Sections 1701.2, et seq. MCWRA's Amended Water Rights License 7543, Amended License 12624, and Amended Permit 21089 already designate the SRDF Diversion as an authorized point of rediversion. Those licenses and permits were amended to comply with the NMFS' Biological Opinion. Therefore, water stored under those water rights is already authorized to be diverted at the SRDF. The Reservoir Reoperation Management Action already has the stated goal of operating the two reservoirs so as to "Allow both natural and surplus flows to better reach the SRDF diversion." Adding the SRDF as an additional point of diversion under Permit 11043 would conform that permit with the authorized points of redivision in MCWRA's other water rights licenses and permit and comply with the Biological Opinion. As the result of the SWRCB's action to revoke Permit 11043, under new permit terms granted by the SWRCB on September 18, 2013, the MCWRA has submitted a petition for an extension of time to put the water under the permit to beneficial use. A petition to add a new point of diversion could be added to that petition.

3.2. Indirect Replenishment Water - Actions/Projects #2: The following are the Actions/Projects that would use winter treated sewer flows and winter Salinas River flows for groundwater recharge to be later extracted for agricultural and municipal uses:

- PP3: Improve SRDF Diversion
- PP6: 11043 Diversion Facilities
- PP5: Expand Area Served by CSIP
- AP2: Winter Potable Reuse Water Injection
- AP3: Extract Winter Flows Using Radial Collector(s) and Inject into 180- and 400-Foot Aquifers
- AP5: Use the Upper Portion of the 180/400 Foot Aquifer Subbasin for Seasonal Storage

These are complementary projects to Actions/Projects #1. This synergy of these Actions/Projects is to use winter water, e.g., treated sewer flows and winter Salinas River flows, for groundwater recharge during the winter and to later extract that water for delivery in the summer. Any water to be injected must be treated. MCWD has performed a feasibility study on constructing a water treatment plant and spreading basins at its Armstrong Ranch property near the SRDF. That study will be made available to the SVBGSA. Treated water could also be conveyed north across the river to the Castroville area.

3.3. Seawater Intrusion/Replenishment Water - Actions/Projects #3: The following are suggested combinations of Actions/Projects to stop and reverse seawater intrusion and to produce Replenishment Water:

- PP8: Seawater Intrusion Pumping Barrier
- AP1: Desalinate water from the Seawater Barrier Extraction Wells

Combined Projects PP8 and AP1 are discussed in detail in Section 4 below.

3.4. Regulatory - Actions/Projects #4: The following are the regulatory Actions/Projects listed in Chapter 9:

- MA1: Agricultural Land and Pumping Allowance Retirement
- MA3: Restrict Pumping in CSIP Area
- MA4: Support and Strengthen MCWRA Restrictions on Additional Wells in the Deep Aquifer

MA1 is a “willing seller, willing buyer” program, which MCWD GSA can support. Proposed MA3 as described is to prevent all agricultural pumping in the CSIP Area. We would observe that during the 25% driest water years, some agricultural pumping may very well be necessary. Formation of pump improvement districts or private community pumps for designated areas within CSIP could be considered for use during the driest water years. MCWD GSA comments on MA4 is in Section 5 below.

4. **Combined Seawater Intrusion Pumping Barrier (PP8) with Desalinate Water from the Seawater Barrier Extraction Wells (with or without reinjection) (AP1) Project**.

a. **Combined Project Description from draft Chapter 9**:

Chapter 9 describes the combined project as follows:

[PP8] Seawater intrusion will be arrested using a pumping barrier along the coast. The barrier will be approximately 8.5 miles in length between Castroville and Marina. The intrusion barrier comprises 22 extraction wells; although this number may change as the project is refined. Supplemental water to replace the extracted water would come from one or a number of other sources such as those identified in Preferred Project 3 or Alternative Projects 1, 2, 4, and 5.

*** * *** Alternatively, the extracted water or a portion thereof could be conveyed to a new or existing desalination facility where it can be treated for potable and/or agricultural use. The water extracted from these wells will be brackish due to historical seawater intrusion, therefore, the extraction will serve to remove the brackish water and allow replacement for fresh water from other sources, most likely a combination of desalinated water, excess surface water from the Salinas River, and/or purified recycled water.

* * * The project will stop and reverse seawater intrusion, helping to remediate and restore the 180/400-foot aquifer subbasin.

*** * *** [AP1] This project would treat water extracted from the seawater intrusion barrier and allow for its reinjection in the 180-Foot Aquifer and 400-Foot Aquifer.

Injection barriers are the most common method employed to halt seawater intrusion. Injection barriers have been used in Southern California basins to control saltwater intrusion for over 30 years. They are the most common, technically demonstrated method employed to stop seawater intrusion around the world. But they add another layer of costs and infrastructure.

A pure extraction barrier project with no reinjection of treated water, with similar groundwater hydrology to North County, may not exist. Alameda County Water District's Newark Desalination Facility could be studied to determine if it can possibly be used as a model for the Pumping Barrier. ACWD's Desalination Facility is part of ACWD's Aquifer Reclamation Program which began in 1974 with the goal of reclaiming those portions of the Niles Cone Groundwater Basin affected by saltwater intrusion from San Francisco Bay in the early 20th century. The District pumps brackish water from the groundwater basin so that freshwater from other parts of the basin can move in to take its place. A key component of this project has been the addition of replenishment water to the basin, which brought mean water levels above sea level prior to the initiation of extraction. Since 2003, brackish water which was once allowed to flow back into San Francisco Bay is now diverted to the Desalination Facility so that it can be put to beneficial use in the Tri-City area.

b. **Project Phasing**:

There is a lot of uncertainty relating to costs, who pays, where are the optimum locations for the extraction wells, and whether an injection barrier would also be needed as envisioned in AP1. It is suggested that the combined project be broken up into possibly 4 phases with each phase consisting of 4 to 6 extraction wells and a modular brackish water desalination plant with the 1st Phase starting at the northern end of the 180/400-Foot Aquifer Subbasin.

A study would be performed during 2020 and 2021 to determine the specific depths, locations, spacing and rates of extraction of the brackish water extraction wells to make the project most effective, and to assess, among other things, (1) the effectiveness of these wells to halt salt-water intrusion, (2) evaluate other potential subbasin impacts, and (3) the best location for the brackish water desalination plant.

A majority of the project area has been the subject of intense hydrogeological study within the last decade and most recently the focus of a high-quality Airborne Electromagnetic (AEM) survey (data-collection effort) that has generated valuable information about subsurface conditions over a significant section of the coastline and inland areas and is available for use in project design and implementation. MCWD conducted its first AEM overflight in May 2017 (AEM 1.0) and its second in April 2019 (AEM 2.0). Both AEM studies covered the North County area and should be used to focus well locations and well design that would target the main pathways of seawater intrusion into and within the multi-aquifer system of the 180/400 Foot Aquifer Subbasin. The use of this technology has grown to be an effective tool in California as shown by other AEM studies that have been conducted in Tulare County, Eastern Kern County, and Butte and Glenn Counties.

The MCWD GSA plans to request Proposition 68 funding to facilitate the development of a numerical model that can account for variable density of seawater and fresh water to further evaluate the Pumping Barrier project. The modeling will be utilized to evaluate the potential effects of the barrier on groundwater flow within the Monterey Subbasin. The model will be used to evaluate alternative well spacing and design within the Monterey Subbasin to allow independent removal of groundwater containing lower concentrations of total dissolved solids (TDS) from the Dune Sand Aquifer and Upper 180-Foot Aquifer for potential treatment and potable use. Prioritizing treatment of groundwater with lower concentrations of TDS is likely to be more cost effective and reduce brine discharge quantities. Salinity information obtained from the AEM Study and Fort Ord well sampling will be utilized in the development of the numerical model and aid in the design of the barrier wells within the Monterey Subbasin. The results of these numerical analyses will be shared with SVBGSA to aid in the evaluation and potential design of the Pumping Barrier.

c. **Potential Project Benefits**: The potential project benefits could be considerable, including: (1) stop and reverse seawater intrusion within the 180/400 Foot Aquifer Subbasin and Monterey Subbasin; (2) provide supplemental drinking water to Castroville; (3) provide supplemental drinking water to the City of Salinas to decrease the known pumping depressions within the Eastside Subbasin and to help restore seaward gradients and groundwater flow within the 180 Foot Aquifer and 400 Foot Aquifer; (4) provide supplemental drinking water to Marina, Fort Ord and the Monterey Peninsula, and potentially groundwater recharge within the Seaside Subbasin; (5) provide desalinated water for an injection barrier located landward of the extraction barrier and inland of the seawater intrusion front to increase the benefit of the extraction barrier and halt the further inland movement of seawater; and (6) avoid pumping and building new infrastructure within Environmentally Sensitive Habitat Areas (ESHA).

d. **Project Elements**:

<u>Location of Brackish Water Extraction Wells</u>:

PP8 proposes a Pumping Barrier of approximately 8.5 miles in length between Castroville and Marina. Assuming that the project will be phased, it is recommended that the Phase 1 extraction wells be located west of Castroville for the protection of the area that suffers both seawater intrusion and the counter flow of groundwater east to the East Side pumping depressions.

Location of Brackish Water Desalination Plant: The location of the desalination plant will need to be determined by an optimization study using various factors, including identified Project Benefits and their prioritization. For example, a plant located north of the Salinas River would be located (1) nearer to Castroville, (2) nearer to the City of Salinas and the East Side pumping depressions, and (3) within the North County agricultural area. However, it would be further away from the Monterey Peninsula. In contrast, a plant located south of the Salinas River would be located nearer to the Monterey Peninsula but further away from, Castroville, City of Salinas, and the North County agricultural area. AP1 lists the following possible desalination plants: Monterey Peninsula Water Supply Project (MPWSP) (6.4 mgd/ 7,100 AFY); Deep Water Desalination Plant (22 mgd/ 25,000 AFY); and People Water Supply Project (12 mgd/ 13,400 AFY).

Desalination Capacity of Brackish Water Plant: The desalination capacity of the brackish water plant will initially depend upon the pumping capacity of the extraction wells and how the plant's product water will be allocated among Project Benefits c(2) through (5) or any other uses. It is common for these types of facilities to be constructed for future expansion in a modular design that will allow for incremental growth as additional feedwater is made available. The design capacities of the pipelines bringing brackish water in and of the pipelines carrying product water out will need to take into consideration future expansion for the ultimate project buildout.

e. **Groundwater Rights Issues**: Because the 180/400-Foot Aquifer Subbasin has been designated as a Critically Overdrafted Subbasin, the necessary groundwater rights that would support the project will need to be assessed. Returning water to the Salinas Valley Groundwater Basin to comply with the Monterey County Water Resources Agency Act's export prohibition does not confer a groundwater right, only compliance with the Agency Act.

5. Restriction on Additional Wells in the Deep Aquifer (Priority Management Action 4)

MCWD supports implementation of Priority Management Action 4: Support and Strengthen MCWRA Restrictions on Additional Wells in the Deep Aquifer. As presented in our comments for Chapter 8, groundwater elevations in the Deep Aquifer are below sea level and declining, suggesting that extraction from this aquifer exceeds the sustainable yield of this aquifer zone.

This issue is very important to MCWD because in the 1996 Annexation Agreement, MCWRA agreed to protect the Deep Aquifer for MCWD's use, but MCWRA did not take any protective action until the recent adoption of Ordinance 5302. Section 5.3, Management of 900-foot aquifer, of the 1996 Annexation Agreement provides, "The Parties agree that the '900-foot' aquifer should be managed to provide safe, sustained use of the water resource, and to preserve to MCWD the continued availability of water from the '900-foot' aquifer." Section 5.9 further stated that the annexation fees paid by MCWD "shall also be used for management protection of the '900-foot aquifer.'"

MCWD will work with MCWRA pursuant to the 1996 Annexation Agreement on MCWRA's Deep Aquifer study.

6. Winter Potable Reuse Water Injection (Alternative Project 2)

For Alternative Project 2: Winter Potable Reuse Water Injection, the document should include an option (or separate alternative) for year-round potable reuse water injection by MCWD, as described in its Grant Application, provided to SVBGSA on 20 June 2019. MCWD has rights to recycled water on a year-round basis. Per discussions during the meeting on 11 July 2019, MCWD provided the following language for inclusion in the GSP:

> *"MCWD is currently conducting a feasibility study on injection of purified recycled water into the Monterey Subbasin. The project proposes to use purified recycled water available to MCWD from the AWPF, some of which is available year-round per the district's agreement with M1W, for indirect potable reuse and prevention of further seawater intrusion. This project is consistent with and can readily be implemented in conjunction with the winter potable reuse project identified herein."*

7. Extract Winter Flows using Radial Collectors and Inject into 180- and 400-Foot Aquifers (Alternative Project 3)

Alternative Project 3 is the winter extension of Preferred Project 3, Improve SRDF Diversion. While under Alternative Project 3, the new radial collector system would only operate from November through March, the system would be operated from April through October under Preferred Project 3. There may be even steelhead benefits to also operating the system during April through October in conjunction with the SRDF.

Section 9.4.5.3 correctly observes that a significant volume of water may be available for diversion or extraction from the Salinas River during the winter. However, securing and clarifying water rights is not a constraint on this proposed project. As discussed above, MCWRA's Amended Water Rights License 7543, Amended License 12624, and Amended Permit 21089 already designate the SRDF Diversion as an authorized point of rediversion. Those licenses and permits were amended to comply with the NMFS' Biological Opinion. Therefore, water stored and released under those water rights is already authorized to be diverted at the SRDF. The Reservoir Reoperation Management Action already has the stated goal of operating the two reservoirs so as to "Allow both natural and surplus flows to better reach the SRDF diversion." Adding the SRDF as an additional point of diversion under Permit 11043 pursuant to a change petition under Water Code Sections 1701.2, et seq., would conform that permit with the authorized points of redivision in MCWRA's other water rights licenses and permits and comply with the Biological Opinion.

Salinas River provided to CSIP is not required to be treated, but river water to be injected must first be treated and those costs must be included where applicable.

Additionally, an alternative should include direct piping of SRDF radial collector water to MCWD during winter months. This alternative may be less expensive than injection. We suggest that benefits discussion of this project to be slightly modified to:

> *"This project could benefit other subbasins, such as the Monterey and East Side subbasins by providing treated potable water to these subbasins for direct recharge and/or municipal potable use."*

Thank you for this opportunity to provide these comments. We look forward to working with you to discuss, evaluate, and refine the proposed Chapter 9 actions and projects.

Sincerely,

Keith Van Der Maaten
General Manager, Marina Coast Water District

MARINA COAST WATER DISTRICT

11 RESERVATION ROAD, MARINA, CA 93933-2099
Home Page: www.mcwd.org
TEL: (831) 384-6131 FAX: (831) 883-5995

16 September 2019

Mr. Gary Petersen
General Manager
Salinas Valley Basin Groundwater Sustainability Agency
1441 Shilling Place
Salinas, CA 93901

Mr. Derrik Williams
Montgomery & Associates
1232 Park Street, Suite 201B
Paso Robles, CA 93446

Dear Mr. Peterson and Mr. Williams,

Thank you for taking the time to meet with our SGMA consultant EKI Environment & Water, Inc. on 15 August 2019. This letter

(1) Provides MCWD GSA's comments on draft 180/400 Foot Aquifer Subbasin Groundwater Sustainability Plan (GSP) Public Review Draft Chapter 9 (dated 2 August 2019) and Draft Chapter 10 (dated 28 July 2019); and
(2) Summarize agreements reached regarding coordination with MCWD GSA representatives Proposition 68 grant application for the 180/400 Foot Aquifer Subbasin and Monterey Subbasin.

COMMENTS TO CHAPTER 9 PROJECTS AND MANAGEMENT ACTIONS

1. Water Charges Framework (Section 9.2)

The sentence below was added to Public Review Draft Chapter 9, Section 9.2 Water Charges Framework:

> *"The fee structures in each subbasin will be developed in accordance with all existing laws, judgements, and established water rights."*

We understand that SVBGSA will further revise this sentence to include existing water management agreements as part of the basis for developing fee structure and pumping allowances, pursuant to our discussion during the 10 July 2019 meeting and MCWD's comment letter for Chapter 9 dated 1 August 2019. We understand that SVBGSA has received the comment letter but have yet to incorporate those comments into Chapter 9.

Additionally, it appears that this sentence and the associated paragraph discuss the fee structure as well as the sustainable pumping allowance. Therefore, the sentence should be revised to begin with "The fee structures and pumping allowance in each subbasin…"

2. Pumping Barrier Extraction Rate Calculation (Appendix 9-C)

Appendix 9-C mentions that the estimated pumping rates of the barrier project is calculated based on an analytical solution published by Javandel and Tsang (1987). This analytical solution assumes a constant background gradient. However, it is highly unlikely that a constant background gradient will be maintained over the project lifetime, because once sea water intrusion is stopped water levels inland of the barrier will begin to decline as seawater stops recharging the basin. As recognized in the GSP, numerical modeling is needed to assess rates of groundwater extraction that will be required to halt saltwater intrusion.

As discussed in Comment #5 to Chapter 10 below, the SVIHM will likely not have the resolution or adequate calibration in proposed project area and cannot be used to model density driven flow. Therefore, the GSP should acknowledge that alternative models will likely be required to evaluate the proposed pumping barrier project.

3. Estimated Pumping Barrier Extraction from Monterey Subbasin (Appendix 9-C)

Appendix 9-C estimates that the pumping barrier will have a total extraction volume of 30,000 AFY; 22,500 AFY of which would be extracted from the 180/400 Foot Aquifer Subbasin. Per discussion, it is understood that the remaining 7,500 AFY would be extracted from the Monterey Subbasin.

4. Mitigation of Overdraft (Section 9.6 and Table 9-5)

Section 9.6 discusses the overdraft estimated in Chapter 6 and stated that "[t]he priority projects include more than ample supplies to mitigate existing overdraft, as presented in Table 9-5." As agreed during the meeting, SVBGSA should add a discussion that Section 9.6 is included per requirements of GSP Regulations (and cite relevant sections) and that mitigating the overdraft as estimated does not meet all of the basin's sustainable management criteria. Specifically, without a hydraulic barrier, seawater intrusion will continue to occur if groundwater extraction within the basin occurs at the identified sustainable yield. As SVBGSA stated in Chapter 6, "simply reducing pumping to within the sustainable yield is not proof of sustainably, which must be demonstrated via Sustainable Management Criteria (SMC)."

Additionally, given the technical uncertainties of the proposed seawater intrusion pumping barrier project and the potential project cost that may not be approved by groundwater basin users, the GSP should provide an estimate of the sustainable yield of the 180/400 Foot Aquifer Subbasin (or the larger Salinas Valley Basin) without the pumping barrier project. This estimate is required under SGMA, which defines "Sustainable Yield" as "the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result."

We understand that due to modeling limitations and data gaps, SVBGSA is reluctant to provide an estimate the "sustainable yield" of the basin when sustainable management criteria for seawater intrusion are considered. However, analytical methods, similar to those used to estimate extraction rate of the pumping barrier project, could be utilized to provide a preliminary estimate of the Sustainable Yield of the basin if the extraction barrier is not installed. For example, previous studies conducted on this topic by Geoscience (2013), *Protective Elevations to Control Sea Water Intrusion in the Salinas Valley,* estimated that approximately 60,000 AFY would be needed for the Salinas Valley Water Project to recharge the Salinas Valley Basin sufficiently to stop seawater intrusion. Alternatively, the GSP could compare and discuss the volume of water needed for an injection barrier, as presented in Appendix 9-C.

COMMENTS TO CHAPTER 10 GSP IMPLEMENTATION

5. Additional Data Gaps and Analyses to be Addressed (Section 10.3)

As discussed in our comments to the previous chapters, the following additional data gaps and analyses should be identified Chapter 10:

- Seawater intrusion cross-sections (Chapter 5 comments dated 18 April 2019)
  Per GSP Regulations Section 354.16 (c), a GSP should provide "seawater intrusion conditions in the basin, including maps and cross sections of the seawater intrusion front for each principal aquifer". The GSP should commit to development of such cross-sections, once data gaps have been filled. These data are needed to inform placement of seawater intrusion barrier wells.

- Groundwater extraction within individual aquifers (Chapter 6 comments dated 2 July 2019)
  We suggest that SVBGSA collect information needed to identify groundwater extraction from each principal aquifer, to allow the development of a water budget for each aquifer. As discussed in MCWD's Chapter 6 comments dated 2 July 2019:

  "Water budget information for each principal aquifer is necessary to verify that proposed future operations of the basin, including implementation of projects and management actions, will not lead to undesirable results in each principal aquifer. Seawater intrusion is occurring in both the 180 Foot Aquifer and the 400 Foot Aquifer, and inland gradients exist within the Deep Aquifer. In order to reach sustainability, hydraulic gradients in each of these aquifers will need to be reversed either through decreasing groundwater extraction and/or future supply augmentation projects. As such, water budgets for each aquifer must be established to verify that undesirable effects do not occur.

  We understand that information related to groundwater extraction within individual aquifer zones is currently limited and that water budgets cannot be developed for each principal aquifer zone. As such, we recommend that the GSP acknowledge this uncertainty and identify it as a data gap. The GSP should provide a plan to further assess rates of extraction and inflows within principal aquifer zones so undesirable results, such as seawater intrusion can be mitigated. This information is critical, as achieving sustainability in the basin requires implementation of projects and management actions, which will need to be evaluated against sustainable management criteria in each principal aquifer."

  However, as discussed and agreed upon during the meeting, this data gap may be extremely difficult to fill and water level data/gradients in each aquifer may serve as a proxy for evaluating the effectiveness of projects and management actions to address saltwater intrusion within each of these zones. However, given the uncertainties associated with groundwater recharge and groundwater levels within the Deep Aquifer (consistent with data gaps identified in Section 10.3), quantification of all groundwater extraction from the Deep Aquifer, should be clearly identified as a Data Gap that will be filled as under the GSP.

We further recommend that the GSP identify actions that will be implemented to allow:

- Development of Sustainable Management Criteria for the deep aquifer; and

- Development of Sustainable Management Criteria that consider project implementation. For example, alternative groundwater elevation Sustainable Management Criteria will be required near the coast if a pumping barrier is constructed.

6. Plans to Refine and Evaluate the Seawater Intrusion Barrier Project (Sections 10.6 and 10.7)

The GSP should acknowledge that alternative models will likely be required to evaluate certain projects, such as the pumping barrier or injection wells, because the SVIHM does not have the resolution or adequate calibration in proposed project areas and cannot model density driven flow.

Further, The GSP states that SVIHM model will be available for use within one year. Per discussion during the meeting, we understand that within one year, the SVIHM model will be released for public use by USGS. Additionally, we understand that the model will be made publicly available consistent with GSP Regulations Section 352.4 (f)(3), "[g]roundwater and surface water models developed in support of a Plan after the effective date of these regulations shall consist of public domain open-source software."

PROPOSITION 68 GRANT COORDINATION

MCWD is considering applying for Proposition 68 Grant (SGM Grant Round 3) for Monterey Subbasin. We understand that SVBGSA is also planning to apply for this grant for other basins under its jurisdiction. As agreed, both parties will coordinate and support each other in grant funding processes.

Thank you for this opportunity to provide these comments. We look forward to working with you to discuss, evaluate, and refine the proposed Chapter 9 actions and projects.

Sincerely,

Keith Van Der Maaten
General Manager, Marina Coast Water District

To: SVBGSA Board

From: Robin Lee, SVBGSA Advisory Committee

Re: Comments on GSP draft

Date: 11/14/2019

It is my opinion that the ground water level of sustainable yield has been set at an unsustainable level. The level for sustainable yield should be set at the average depth of domestic wells. This would assure a majority of residential water users would be assured of access to ground water. Ground water depths set near the end of the worst drought in California will not give ground water access to the majority of residential systems. Also, the lower level would put tremendous strains on ground water connected ecosystems.

For projects, a scalping plant should be used for the east side of Salinas. This plant would be closer to connecting the much disrupted hydrologic cycle on the east side, making the scalping plant both an economical and efficient project.

Looking at and correcting the ordinances that prevent the recommendations stated in the GSP from being implemented, should be listed as an administrative project in GSP.

Thank you.

Robin Lee, Environmental Caucus seat, Advisory Committee