Foot Aquifer Subbasin within the City and outside of the Marina Coast Water District service area." On April 16, 2018, MGSA properly filed a notice of its GSA formation with DWR pursuant to Water Code Section 10723.8. DWR duly accepted and posted MGSA's notice of GSA formation on its SGMA Portal.

On July 31, 2019, pursuant to Water Code Section 10727.8(a), the City filed an initial notification of intent to prepare a GSP for its jurisdictional area. This notice provides a written statement describing the manner in which interested parties may participate in the development and implementation of the GSP and contains the other required elements for this initial notice. MGSA also provided the notice to all required persons. MGSA is proceeding forward rapidly with preparation of the GSP and, in its initial notice, specifically identified the MGSA meeting dates and other opportunities for the public to provide comments and other input on the GSP. MGSA's GSP is expected to be completed and submitted to DWR by January 31, 2020.

CALAM'S COMMENT LETTER LACKS ANY LEGAL, FACTUAL OR POLICY BASES TO SUPPORT ITS "REJECTION" REQUESTS.

CalAm's comment letter makes a series of unsupported legal contentions in which it attempts to question the validity of MGSA's formation and to argue that the Salinas Valley Basin Groundwater Sustainability Agency ("SVBGSA") must or should be the exclusive GSA for the entire Subbasin. However, not only do these arguments lack any factual and legal support, but they improperly attempt to undermine decisions already made by DWR and to thwart the ongoing collaborative local processes that are embedded in SGMA.

For the reasons explained below, CalAm's arguments should be disregarded in their entirety. Instead, the processes contemplated by SGMA should continue without the partisan interference reflected in CalAm's letter. We will address each CalAm argument in turn.

A. The MGSA Was Validly Formed In A Timely Manner And There Is No Factual Or Legal Basis For Attempting To "Reject" Its GSA Formation Notice.

CalAm contends that the MGSA should not be recognized as a valid GSA because it was not formed before June 30, 2017. However, CalAm has made several fundamental analytical errors that have led to this spurious contention.

First, SGMA does not contain a mandatory final deadline for the formation of all GSAs, even for medium and high priority basins. The only SGMA mention of the June 30, 2017 date in this context is in Water Code Section 10735.2 (a)(1), which relates to the circumstances under which the State Water Resources Control Board ("State Board") can designate a basin as a probationary basin and thereafter take steps to develop its own interim groundwater sustainability plan for that basin. *See* Water Code §§ 10735.4-10736.6. The June 30, 2017 date is only the trigger date for a potential probationary basin finding if one or more GSAs, or a local agency "alternative" plan, has not been noticed for an entire basin. Contrary to CalAm's contention, it is not a drop-dead date for all GSAs to have been formed and it is not true that no additional GSAs can form in a basin after that date.

Second, CalAm attempts to buttress its erroneous analysis with a quotation, taken out of context from DWR's website, that supposedly stands for the proposition that June 30, 2017 is the absolute deadline for forming a GSA. To the contrary, DWR characterizes the June 30, 2017 date on its website as only an "initial planning milestone" and recognizes that new GSAs can, will and have been formed thereafter as SGMA implementation continues. This portion of the DWR website states in full (emphasis added):

> SGMA required Groundwater Sustainability Agencies (GSAs) to form in the State's high- and medium- priority basins and subbasins by June 30, 2017. Over 260 GSAs in over 140 basins were formed by *SGMA's initial planning milestone*. However, *as SGMA continues to be implemented* and the priorities and boundaries of some basins change, *new GSAs will be formed*, and existing GSAs may want to reorganize, consolidate, or withdraw from managing in all of part of a basin. All GSA notifications are managed on DWR's SGMA Portal.[1]

Thus, the GSA formation process was expected to and has in fact continued after June 30, 2017 as SGMA continues to be implemented. Indeed, after June 30, 2017, at least ten other new GSA formation notices were posted, including those for the Fresno County Pleasant Valley GSA Area, City of Coalinga GSA, Vina GSA, Montecito Groundwater Basin GSA, Owens Valley Groundwater Authority GSA (for two different basin areas), Castaic Basin GSA, Triangle T Water District GSA, Santa Barbara County Water Agency GSA – Goleta Fringe Areas, and Corning Subbasin GSA. It appears that all but one of these post-June 30, 2017 GSA formations cover high or medium priority basins.

In sum, CalAm's assertion that MGSA's GSA formation notice should be rejected because it was filed after June 30, 2017 has no factual or SGMA legal basis. There was not an absolute June 30, 2017 deadline for forming GSAs because this process is intended to be fluid and not frozen in time. Rather, it was an initial planning milestone for determining what basins may qualify for probationary status. Indeed, this has consistently been DWR's position. Although CalAm would like to override both SGMA and DWR's judgment on this point for its own private financial purposes, it cannot do so here.

B. The SVBGSA Never Became The Exclusive GSA For The 180/400 Foot Subbasin.

CalAm makes a tortured and wholly frivolous argument that SVBGSA became the exclusive GSA for the 180/400 Foot Aquifer Subbasin on July 26, 2017, thereby supposedly preventing the City of Marina from forming a GSA or preparing a GSP for any portion of the Subbasin. However, once again, this argument defies the considered judgment of DWR and

[1] This website page is found at https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management/Groundwater-Sustainable-Agencies.

lacks any factual or legal basis.

CalAm's line of reasoning is that, on April 27, 2017, DWR posted the notice of SVBGSA to become the GSA for the entire Subbasin and that, in its view, no other GSA filed a valid GSA notice for this Subbasin within 90 days, thereby essentially resulting in SVBGSA becoming the exclusive GSA for this Subbasin.[2]

In making this argument, CalAm relies on Water Code Section 10723.8, which provides that a local agency notice to become a GSA for a particular basin/subbasin "shall take effect" 90 days after posting if no other local agency has filed a notification of its intent to undertake groundwater management in all or a portion of the same area prior to expiration of this 90-day period. If another agency has such a notice posted before the expiration of this period, the GSA notice shall *not* take effect.

CalAm's first critical error in making this argument is that another local agency – Marina Coast Water District ("MCWD") – did file a GSA formation notice for a portion of the 180/400 Foot Aquifer Subbasin area that SVBGSA claimed in its GSA notice. It is undisputed that, on February 6, 2017, MCWD formed a GSA for the Fort Ord portion of this Subbasin and, on March 14, 2017, DWR posted the notice of this formation (even before SVBGSA filed its notice). Thus, since MCWD filed a GSA formation notice for a portion of the same Subbasin area that SVBGSA's later notice covered, SGMA Section 10723.8 prescribes that SVBGSA's notice did not take effect and SVBGSA never became the exclusive GSA for the Subbasin area it claimed.

CalAm attempts to explain away this complete roadblock to its Section 10723.8 contention by making a convoluted set of arguments that MCWD GSA's notice supposedly was not valid or effective and therefore should be completely ignored for SGMA purposes. It cites to a November 2, 2017 letter authored by a State Board attorney (attached as Exhibit G to its comment letter) that supposedly supports this argument. However, CalAm is mistaken and its citation is misleading.

At the outset, CalAm misrepresents the nature of the State Board letter by implying that it is somehow a dispositive determination by the State Board regarding the status of MCWD's GSA March 14, 2017 formation notice. To the contrary, the letter explicitly states that it is "merely advisory" and that "[t]hese opinions [in the letter] are not a declaratory decision and do not bind the State Water Board in any future determination." Moreover, CalAm also attempts to create the erroneous impression that the letter found that MCWD's GSA notice was void and must be disregarded by DWR. However, in so arguing, CalAm has entirely missed the central point of the letter. Rather than attempting to void MCWD's notice, the State Board letter was

[2] MCWD also formed a separate GSA for another portion of the 180/400 Foot Aquifer Subbasin (Marina Coast Water District GSA – Marina) at the same time and DWR posted notice of this GSA formation on February 24, 2017. This area was excluded from the area SVBGSA claimed in its own GSA formation notice.

explicitly intended to encourage SVBGSA and MCWD GSA to meet and work out their differences: "By way of this letter, I would like to encourage local resolution of the conflicts over groundwater management in Salinas Valley."

Indeed, that is exactly what occurred here. MCWD GSA and SVBGSA negotiated an agreement that resolved most of their various conflicting issues regarding the 180/400 Foot Aquifer Subbasin and Monterey Subbasin. In addition, in the advisory letter, the State Board attorney suggested that, if MCWD could expand its jurisdictional boundaries by annexation to include Fort Ord, it could become the "exclusive GSA" for the Fort Ord area. MCWD thereafter did annex this area with the final approval occurring in or about July 2019. Thus, rather than the MCWD GSA – Fort Ord notice being void (as CalAm contends), this notice eventually led to MCWD establishing its SGMA jurisdiction for the area covered by the GSA formation notice in the 180/400 Foot Aquifer Subbasin.

Notably, DWR does not agree with CalAm's argument regarding SVBGSA's alleged Subbasin exclusivity. To the contrary, DWR has consistently informed all parties that SVBGSA never achieved exclusive GSA status for the Subbasin under Section 10723.8 because of the timely filings of MCWD GSA for this Subbasin. Consistent with the local and collaborative policies contained in SGMA, DWR has encouraged the various GSAs in the Subbasin to work together to resolve any GSP conflicts. And, as prescribed by SGMA, DWR has clearly stated to all parties that no GSPs for Subbasin overlap areas will be accepted until such a resolution has occurred.

Thus, in light of this law and factual context, CalAm's demand that DWR "reject" MGSA's GSA formation and GSP preparation notices based on SVBGSA's alleged "exclusivity" is baseless. CalAm is not trying to further the purposes of SGMA or promote more effective groundwater management. Rather, it is only trying to promote is own narrow corporate agenda.

C. Contrary To CalAm's Innuendos, There Is Every Reason To Believe That MGSA's Sustainable Management of Groundwater In Its Subbasin Area Can And Will Be Effective.

CalAm attempts to create the erroneous impression that MGSA will not be successful in meeting the requirements of SGMA for its jurisdictional area. CalAm states that the covered area is "extremely small," that some of the technical information MGSA may rely on in forming its GSP is supposedly discredited, and that it is unlikely that MGSA will meet the January 31, 2020 deadline for completing the GSP. However, this is no more than the SGMA equivalent of throwing spaghetti against the wall to see if any will stick.

First, SGMA does not contain any minimum or maximum basin size for sustainable groundwater management. Rather, it implicitly recognizes that these sizes may vary substantially. Indeed, some of the GSA formation notices cover very small areas of larger basins. *See, e.g.,* Santa Barbara County Water Agency GSA -- Fringe Areas notice, posted on the SGMA Portal on September 22, 2017. Rather, one of the hallmarks of SGMA is its

recognition that local agencies will be in the best position to determine initially who should manage basins, to analyze local conditions, and to apply SGMA's sustainability criteria to these conditions. SGMA envisions local flexibility and has not mandated any artificial GSA jurisdictional area size requirements.

Second, CalAm complains (incorrectly) that some of the technical data and reports that MGSA may rely on in preparing its GSP "conflicts with the weight of the modeling and science supporting the MPWSP and has been repeatedly rejected by regulatory bodies and courts...." Although CalAm does not identify what reports it means, MGSA assumes that it refers to the Stanford University research studies regarding groundwater basin conditions that cover this exact area of the Subbasin. Unfortunately, CalAm misleads DWR regarding this technical information.

The Stanford University studies used well-accepted scientific methodologies (including state-of-the-art electrical resistance tomography ("ERT") and airborne electromagnetic ("AEM") techniques) to create two- and three-dimensional images of the actual hydrostratigraphic and groundwater quality conditions, and seawater intrusion characteristics, in portions of the 180/400 Foot Aquifer Subbasin, including the MGSA jurisdictional area. In brief, the studies found that there are significant areas of higher quality groundwater in areas of some seawater intrusion, identified an existing freshwater wedge that was retarding seawater intrusion, and identified gaps in the soil layers (aquitards) that are allowing vertical migration of saline water to the deeper aquifers. This is valuable data, gathered by one of our country's leading educational institutions, that should be utilized, along with all other available data, to prepare a GSP for this area.

It is significant that the northward extension of the same datasets are being used by other agencies for SGMA groundwater sustainability planning purposes. For example, in its recent draft GSP for the Santa Cruz Mid-County Subbasin, the Santa Cruz Mid-County Groundwater Agency (MGA) notes the following:

> In May 2017, the MGA successfully completed an offshore Airborne Electromagnetic (AEM) geophysical survey to assess groundwater salinity levels and map the approximate location of the saltwater/freshwater interface in the offshore groundwater aquifers. This important data will inform the assessment of the extent and progress of seawater intrusion into the Basin and the management responses. The MGA anticipates repeating the AEM survey on a five-year interval (2022) to identify movement of the interface and assess seawater intrusion.

This is only one example of the use of this state-of-the-art technology for sustainable groundwater management planning in California.

CalAm appears to be making a ridiculous argument that this Stanford data must be ignored in preparation of the GSP. However, a GSA is not a court of law. Rather, it is a groundwater management agency that has an obligation to gather and evaluate all water basin

data potentially relevant to SGMA's sustainability criteria. By trying to inject an issue regarding what data supposedly supports or contravenes "the weight of the modeling and science" for CalAm's particular project, CalAm is misperceiving the purpose and function of a GSA that is in the midst of preparing a GSP. Further, CalAm's has misled DWR by stating that this technical information "has been repeatedly rejected by . . . courts." In fact, no court has rejected this technical information. Indeed, the one regulatory agency that even considered a small early subset of this data – the California Public Utilities Commission – did not "reject" it.

Third, CalAm asserts that one "practical" ground for rejecting MGSA's GSP preparation notice is that MGSA supposedly will not be able to meet SGMA's January 31, 2020 deadline for submitting a GSP. To the contrary, MGSA has a schedule in place that meets all of SGMA's requirements for public notice and comment, MGSA consideration and decision on the GSP, and timely submittal of the GSP to DWR. Even so, CalAm's uninformed speculation about completion of the GSP is not, of course, a credible ground for rejecting a GSP preparation notice. SGMA does not prescribe any minimum time period for the actual preparation of a GSP. Indeed, given the focused nature of the GSP here, there is every reason to believe that it will be completed in a timely manner.

Finally, CalAm's letter displays a dismissive attitude toward the City of Marina[3] and questions the legitimacy of its interest in managing the groundwater in this Subbasin. In so doing, CalAm ignores the City's long-standing track record in protecting groundwater at the property (sometimes referred to as the "CEMEX" property) that is the subject of the MGSA notices. For example, in 1996, the City entered into an extensive Annexation Agreement and Groundwater Mitigation Framework for Marina Area Lands ("Annexation Agreement") with several other parties, including the CEMEX property owner. The expressed purpose of the Annexation Agreement 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. . . ." The groundwater conditions on the CEMEX property were one main focus of the Annexation Agreement.

The City also worked closely with the California Coastal Commission and the State Lands Commission in a series of combined enforcement actions in 2016-17 to end the current sand mining operation on the CEMEX site by December 31, 2020. After decades of efforts to end this environmentally destructive use, this termination was achieved through a settlement approved by all three agencies. In addition to terminating this mining use at the end of next year and gaining full restoration of the site, the settlement requires CEMEX to transfer the entire site at a reduced purchase price to a non-profit organization or government entity approved by the Coastal Commission and the City. As part of this conveyance, a deed restriction will be put in

[3] The City of Marina has a working class, ethnically diverse population, many of whom do not speak English. Marina is a recognized "disadvantaged community" at state, federal and local government levels. The groundwater under the City is an important and valuable community resource because it is provides a clean, local and affordable groundwater source for City residents.

place to protect the CEMEX property and limit its potential uses to public access, conservation, low-impact passive recreation, and public education.

In sum, the City has a demonstrated interest and a 25-year track record in taking action to identify and protect this groundwater under MGSA's jurisdiction. MGSA expects to file a GSP with DWR by January 31, 2020 that fully complies with the groundwater sustainability requirements of SGMA and results in effective and sustainable groundwater management for many years.

D. CalAm's Articulated "Policy" Reasons For Rejecting MGSA's GSP Notice Are Contrived And Unpersuasive.

CalAm argues that rejection of MGSA's GSP notice is required to eliminate "uncertainty" about SVBGSA's GSA and GSP status and that MGSA's notice of GSP preparation supposedly could cause "significant damage" (unspecified) to the work that SVBGSA has undertaken. This is no more than empty rhetoric. The "uncertainty" that CalAm refers to is inherent in the structure of SGMA and has not been created by MGSA, SVBGSA or DWR. SGMA contemplates that there will be overlapping GSA jurisdictional claims and GSP notices and it contains built-in incentives and provisions for the involved parties to resolve these claims on the local level and, if these are unsuccessful, a resolution process at the State level. At this point, these processes are just beginning and they will be concluded in the manner SGMA contemplates.

Contrary to CalAm's rhetoric, MGSA's notices are not causing any damage, much less "significant damage," to SVBGSA's work. By all appearances, SVBGSA is moving forward in preparing and completing its GSP. Regardless of the outcome of the overlap in the jurisdictional area, SVBGSA's work will be valuable and important to completing its GSP. There is no indication that SVBGSA has violated or will violate the terms of the grants it has received, so CalAm's assertion that SVBGSA could potentially lose or need to return such funds is wholly unsupported and unrealistic.

In contrast, the action that CalAm seeks in its letter (DWR rejection of MGSA's GSA and GSP notices) would be catastrophic to MGSA. MGSA has properly formed, begun preparation of a GSP and committed all of the funds necessary to complete and file its GSP by January 31, 2020. CalAm's request is no more than an unlawful attempt to disenfranchise MGSA of its SGMA rights and would plainly thwart the goals of SGMA.

CALAM'S ATTEMPTED INTERVENTION INTO THE GSA/GSP PROCESS WOULD UNDERMINE SGMA'S LOCAL COLLABORATIVE GSP PROCESSES.

CalAm is a private party with its own narrow corporate interest in promoting a project that it would like to build in Monterey County. It is not a GSA and it is not preparing a GSP to sustainably manage groundwater in the 180/400 Foot Aquifer Subbasin. Rather, it is a member of the public that has been and will be provided with many opportunities under SGMA (which is

notable for its robust public participation provisions) to participate in the preparation of GSPs for the Subbasin and to participate in other ways as the SGMA process proceeds. Apparently not content with this role, CalAm is trying to interfere in and short-circuit the SGMA process. However, this interference is unauthorized and cannot be allowed.

One bedrock set of principles in SGMA is its structural recognition of local control and cooperative local management of groundwater. Its overall goal is to "enhance local management of groundwater." Water Code § 10720.1(b). SGMA also contemplates that state intervention only occur when absolutely necessary. SGMA articulates the Legislature's intent to "manage groundwater basins through the actions of local government agencies to the greatest extent feasible, *while minimizing* state *intervention to only when necessary to ensure that local agencies manage groundwater in a sustainable manner*." *Id.*, § 10720.1(h)(emphasis added). Moreover, "[i]t is the intent of the Legislature to encourage local agencies to work cooperatively to manage groundwater resources within their jurisdiction." *Id.*, § 10750(a).

These themes of local management, minimization of state intervention, and local agency cooperation run throughout SGMA. This is especially the case with regard to formation of GSAs and to basin management through GSPs. SGMA recognizes that multiple GSAs can be formed and multiple GSPs can be prepared to manage a single groundwater basin or subbasin. *See, e.g., id.,* § 10720.7(a)(1)(recognizing that subbasins can be managed by "coordinated groundwater sustainability plans"); *id.*, § 10727(b)(recognizing that multiple GSP's can be used to manage a basin pursuant to a "single coordination agreement"). The SGMA mechanism for achieving this coordination is a coordination agreement, which means "a legal agreement adopted between two or more GSAs that provides the basis for coordinating multiple agencies or groundwater sustainability plans within a basin." *Id.* § 10721(d).

SGMA envisions that, when there are jurisdictional overlaps in a basin, the GSAs first negotiate in good faith with one another to resolve the overlap. If these overlaps are not resolved and both GSAs submit a GSP for the overlap area, the GSPs will not be accepted (as DWR has confirmed). MGSA staff has met with SVBGSA staff and is working in good faith to negotiate a coordination agreement and will continue to do so.

CalAm is attempting to precipitate premature state action to undermine the SGMA collaborative local GSP processes. This would violate the legislative directive to minimize State intervention "to only when necessary to ensure that local agencies manage groundwater in a sustainable manner." *Id.*, § 10720.1(h). At this stage of the process, the MGSA and SVBGSA GSPs have not been prepared and submitted to DWR, and no determination can yet be made as to whether they ensure sustainable groundwater management. CalAm cannot be allowed to subvert these important, ongoing SGMA processes.

CONCLUSION

For all of the reasons set forth above, MGSA respectfully requests that DWR take no action in response to the CalAm August 12, 2019 comment letter. As DWR's regulations state, DWR "is not required to respond to comments, but shall consider comments as part of its

evaluation of a Plan." 23 C.C.R. § 353.8(f). However, if DWR believes that any response is necessary, it should deny in its entirety CalAm's request to "reject" MGSA's GSA formation notice and/or GSP preparation notice.

Very truly yours,

Paul P. "Skip" Spaulding, III

PPS:jla

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EXHIBIT 2

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October 21, 2019

Via E-mail and Mail

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Re: Monterey County's October 9, 2019 SGMA Letter
Marina Sustainable Groundwater Agency Jurisdictional Area

Dear Ms. Ravazzini and Ms. Sobeck:

On behalf of the City of Marina Groundwater Sustainability Agency ("MGSA"), we are responding to Monterey County's October 9, 2019 letter informing the Department of Water Resources ("DWR") and the State Water Resources Control Board ("State Board") of its intent to consider becoming the Groundwater Sustainability Agency ("GSA") for a portion of the 180/400 Foot Aquifer Subbasin ("Subbasin").[1]

INTRODUCTION

In brief, Monterey County ("County") apparently plans to supplant MGSA and become the exclusive GSA for MGSA's jurisdictional area because MGSA and the Salinas Valley Basin GSA ("SVBGSA") have filed overlapping GSA notices for the approximate 400-acre portion of the Subbasin within the City of Marina. DWR and the State Board should firmly reject any County effort to usurp MGSA's GSA authority. The Sustainable Groundwater Management Act ("SGMA") provides for a local agency resolution process to resolve overlapping GSA notices and uncoordinated Groundwater Sustainability Plans ("GSPs"). MGSA and SVBGSA have until January 31, 2020 to negotiate and submit a coordination agreement. Then, if an overlap has not been resolved, SGMA specifies a resolution process implemented by the State Board, which includes a mandatory 180-day negotiation/mediation provision.

[1] In its letter, the County states in several places that it "will consider" taking actions to become the GSA for this property. However, at the end of the letter, the County requests that the agencies let them know if they "have concerns about **the County's plans** to become a GSA for the CEMEX property, as outlined above." (Emphasis added.)

Four independent reasons compel cessation of any Monterey County efforts to become the GSA for this overlap portion of the Subbasin:

- SGMA Section 10724 does not provide a platform for Monterey County to replace MGSA for this area;
- Since it is creating and/or contributing to the overlap, Monterey County cannot invoke Section 10724;
- If it tried to invoke Section 10724, Monterey County would be unlawfully circumventing the explicit local agency coordination requirements and GSP resolution provisions in SGMA; and
- Intervention by DWR or the State Board in support of Monterey County would be premature and inappropriate.

SGMA CONTEXT

Both MGSA and SVBGSA filed notices of their GSA formation and of their intent to prepare GSPs for the Subbasin. While SVBGSA's notice covers the entire Subbasin, MGSA's notice applies only to an approximate 400-acre portion of the Subbasin within the City of Marina's jurisdictional boundaries. Thus, MGSA and SVBGSA have overlapping claims to this portion of the Subbasin.

When competing GSA notices cause overlapping boundaries, SGMA prevents a GSA decision from "tak[ing] effect unless the other notification is withdrawn or modified to eliminate any overlap in the areas proposed to be managed." Cal. Water Code § 10723.8(c). SGMA instructs the local agencies to "seek to reach agreement to allow prompt designation of a groundwater sustainability agency." *Id.* SGMA further requires GSAs "intending to develop and implement multiple groundwater sustainability plans" to "coordinate with other agencies preparing a groundwater sustainability plan within the basin." *Id.* § 10727.6. The GSAs must "jointly submit" their GSPs with a coordination agreement "to ensure the coordinated implementation of the groundwater sustainability plans for the entire basin." *Id.* § 10733.4(b); *see also* Cal. Code Regs. tit. 23, § 357.

Accordingly, when GSAs file overlapping claims, SGMA envisions a process where those agencies negotiate in good faith to reach a compromise and enter into a coordination agreement which they submit with their GSPs. The GSPs and coordination agreement between MGSA and SVBGSA for the Subbasin must be filed by January 31, 2020.

MGSA is complying in all respects with SGMA. It properly formed its GSA, provided the requisite notice of its intent to prepare a GSP, issued a draft GSP on October 8, 2019 and is on schedule to file an approved GSP with DWR by the January 31, 2020 deadline. By

committing the necessary (and significant) financial resources and following the prescribed SGMA process, MGSA has being doing exactly what the law requires and it is entitled to complete this process.

I. SGMA Section 10724 Does Not Apply To This Situation Because Multiple GSAs Have Asserted SGMA Jurisdiction Over The Overlap Area.

The County relies primarily on Water Code Section 10724(a) for its potential plan to eliminate MGSA and take over its SGMA jurisdictional area. This provision states:

> In the event that there is an area within a high- or medium-priority basin **that is not within the management area of a groundwater sustainability agency**, the county within which that unmanaged area lies will be presumed to be the groundwater sustainability agency for that area.

Cal. Water Code § 10724(a) (emphasis added).

The County is mistaken in asserting that this provision is applicable here. As SGMA's legislative history reflects,[2] Section 10724 is intended to cover situations where no GSA asserts jurisdiction over an area within a basin, not where multiple GSAs assert jurisdiction and prepare GSPs for a particular area. When multiple GSAs adopt GSPs to manage such an area, the area is within the management area of several GSAs. Section 10724 comes into play when no local agency shows an interest in a particular basin area (thereby making it "unmanaged") and a county is thereafter given the option to become the GSA of that area. If the county declines, the area will instead be managed by the State Board. No DWR regulations or any judicial decisions interpret this section or alter its plain meaning.

The County argues that this provision should also be applied in a multiple GSA situation. The County attempts to conflate the provisions for establishing an exclusive GSA under SGMA Section 10723.8 with Section 10724 to reach a faulty conclusion that, because of the overlapping area in MGSA's and SVBGSA's GSA notices, the areas should be deemed to be "unmanaged." However, the County inaccurately reads Section 10724(a) as addressing disputes arising under the process for determining an exclusive GSA under Section 10723.8 and incorrectly presumes that where overlapping GSAs jurisdictional claims exist, there is no GSA to manage an area.

MGSA acknowledges that one guidance statement from the State Board opines that "[i]f two or more local agencies overlap, the combined area will be deemed unmanaged" and asserts that a county potentially could become a GSA in this situation. State Board, Frequently Asked

[2] The Legislature intended Section 10724 to apply "in the case of an area where no local agency has ***assumed*** management." S. Rules Comm., Floor Analysis on S.B. 11168 at 4 (Aug. 29, 2014) (emphasis added). In particular, the Legislature linked this provision to whether a local agency has acted to assume management over an area – not whether the local agency has become the exclusive GSA.

Questions on GSAs, at 3 (Nov. 22, 2017) ("SWRCB FAQs"). However, this interpretation is not consistent with the intent, legislative history, and text of Section 10724 and is unsupported by any official regulation or case law. Even so, the State Board attaches an important caveat to this interpretation: if a county is "creating or contributing to the overlap, the county does not become the presumptive GSA." As explained in the next section, this rule disqualifies Monterey County from taking such an action.

In sum, it is not a reasonable interpretation of SGMA to read Sections 10723.8 and 10724 together in this manner, nor does SGMA define its use of the term "unmanaged." Rather, these GSA and GSP provisions are best read as operating at the same time on parallel tracks. Consistent with this interpretation, Section 10724(a) does not require that a basin be within the management area of an exclusive GSA. Where multiple GSAs file to manage the same basin area, the clear text in Section 10724(a) does not support Monterey County's ability to claim the area is unmanaged. This is especially true when, as here, both of the GSAs are on track to submit their GSPs, and a coordination agreement is not due for any overlap areas until the January 31, 2020 GSP submittal deadline.

II. Since Monterey County Is Creating And/Or Contributing To This GSA Overlap, It Is Disqualified From Invoking Section 10724.

Guidance from the State Board and DWR places a very important limitation on Monterey County's authority to become a GSA for an unmanaged area under Section 10724: "If a county is creating or contributing to the overlap, the county does not become the presumptive GSA." SWRCB FAQs at 3; *see also* DWR, *GSA Frequently Asked Questions,* at 4 (May 10, 2019).

The County argues that it is a completely separate entity from SVBGSA and thus could not be creating or contributing to the overlap. However, the facts do not support this claim. Monterey County was a moving force behind SVBGSA's formation and even "pushed for the establishment of the Joint Powers Authority" ("JPA"). SVBGSA Minutes at 2 (Sept. 19, 2019). Monterey County is a member of SVBGSA and the County Administrative Officer position (who authored the County's October 9, 2019 letter) is designated as the official County representative to SVBGSA. (*See* Exhibit A to SVBGSA's JPA Agreement.) Section 10.4 of the JPA Agreement for SVBGSA reflects that the County has provided almost 60% of all initial funding for SVBGSA during the 2017–19 period, totaling $1.34 million. The Monterey County Counsel's office has served as the attorney for SVBGSA as it filed GSA and GSP notices and even prepared the GSP that the County now proposes to adopt after it eliminates MGSA. Indeed, the law reflects that a JPA agreement allows "two or more public agencies by agreement [to] jointly exercise any power common to the contracting parties." Cal. Gov't Code § 6502.

In short, it is wholly unpersuasive for the County to assert that it is a separate entity from SVBGSA and therefore is not creating or contributing to the overlap situation. In actuality, the County, as a member, majority funder and driving force in the SVBGSA, is indisputably creating and/or contributing to the overlap situation and cannot masquerade as a disinterested county

agency coming in under a ministerial application of Section 10724 to resolve a dispute among two local GSA agencies.

This is exactly the kind of conflict situation envisioned by the DWR/State Board guidance where a county is disqualified from attempting to invoke Section 10724. Monterey County's contemplated actions here vividly illustrate these dangers. The County is responding to a request by an affiliated entity (SVBGSA) of which it is the primary funder, to consider using its powers to prevent the City of Marina from exercising its GSA authority. Monterey County has announced its intention to adopt SVBGSA's GSP for the overlap area – the same GSP that the County helped design as a member of SVBGSA. Notably, Monterey County fails to present any groundwater management justification for asserting control over the overlap area. It is exactly to prevent such county conflicts that the "creating or contributing" limitation was adopted.

SVBGSA and the County are being encouraged by California-American Water Company ("CalAm") to take these actions to promote its Monterey Peninsula Water Supply Project ("Project"). In its October 9, 2019 letter to SVBGSA, copied to the Monterey County Administrative Officer, CalAm requests both entities to "defer any action on a coordination agreement" with MGSA and instead requests that the County become the GSA for the overlap area. CalAm takes the ridiculous position that MGSA is only preparing a GSP to stop its Project and attempts to enlist the County so it can build the Project. CalAm is not a GSA and, as a private corporation intent on profit, it has no interest in ensuring sustainable groundwater management in the Subbasin. Rather, it is a third party with no official role in this SGMA process attempting to pressure public agencies to achieve its corporate goals. By advocating to stop any coordination agreement discussions, it is also trying to artificially create an impasse in hopes of a County takeover or state intervention.

As a DWR representative has already informed SVBGSA, the County would need to withdraw from the SVBGSA if it intends to take any action under Section 10724. According to the minutes of the September 19, 2019 SVBGSA Advisory Committee meeting, a DWR representative (Tom Berg) stated to SVBGSA:

> Monterey County can remove itself from the SVBGSA and become the GSA for the unmanaged area and enter into a coordination agreement. The cleaner approach is if Monterey County decides there is an overlap and becomes the GSA for the entire 180/400 Subbasin. **They can become the GSA for only Marina if they do not create the GSA with the intent to take over Marina's portion.** You can resolve the overlap and trust Marina will timely submit their Plan. If the Plan is determined to be insufficient during the two-year review, the Water Board could determine the entire Subbasin to be insufficient. He expects legal fights if Monterey County takes over the Subbasin. **Mr. Berg referenced the determination that Kern County had created**

> **their overlap conflict, and they were prevented from becoming the GSA as a result.**
>
> * * *
>
> Tom Berg stated that during the telephone conversation with Mr. Nordberg, DWR, it was suggested that the cleaner approach is for Monterey County to become the GSA for the entire basin. **If the County becomes the GSA only for Marina, it is no longer ministerial in terms of taking out Marina instead of just trying to clear the overlap.**[3]

Id. at 3–4 (emphasis added).

There are explicit withdrawal provisions in Sections 11.6 and 11.8 of SVBGSA's JPA Agreement that the County could utilize to accomplish this withdrawal. Moreover, after withdrawal, the County would need to assert jurisdiction over all overlap areas in the Subbasin. This would, of course, cause needless and extensive organizational and financial harm to all GSAs with overlapping claims and would completely undercut SGMA's goals.

In actuality, "SGMA requires the agencies to resolve" boundary disputes. SWRCB FAQs at 3. The State Board only deems an area unmanaged until the GSAs resolve their conflict. *Id.* This limitation aligns with the intended purpose of Section 10724 to function as a safety valve, allowing a county to assume the role of a GSA in a ministerial manner as a last resort or as a temporary solution before a local agency can take control. Instead of serving that purpose, Monterey County would be using Section 10724 to target only the City of Marina and block it from exercising its GSA authority and implementing its GSP. This effort would contravene SGMA's emphasis on and processes for local agency cooperation and basin management.

III. Monterey County's Potential Action Would Fatally Undermine SGMA's GSA Collaboration Process.

SGMA specifies a specific process for GSAs who file overlapping notices to coordinate and submit a joint GSP or set of GSPs. *See* Cal. Water Code §§ 10727.6 and 10733.4(b). The Water Code likewise provides a process for resolving disputes, in the event that GSAs fail to coordinate and submit joint GSPs for a critically overdrafted basin by the January 31, 2020 deadline. In that situation, the State Board can designate that basin as probationary. *Id.* §§ 10735.2(a)(2) and 10735.2(a)(3) (providing that the State Board can also make a probationary designation after finding that a GSP is inadequate). The State Board must give the local agencies or GSAs "180 days to remedy the deficiency," and "[t]he board may appoint a mediator or other

[3] The minutes reflect that a representative of Monterey County (Charles McKee) attended this meeting.

facilitator . . . to assist in resolving disputes, and identifying and implementing actions that will remedy the deficiency." *Id.* § 10735.4(a). Disagreements over overlapping portions of the basin are covered by this provision.

If it tried to eliminate MGSA's authority over the overlapping area and intervene as the exclusive GSA, the County would be improperly using Section 10724 to implement the GSP of its affiliated GSA entity, violating State Board and DWR guidance directly on point, and undermining SGMA's dispute resolution processes. This action would set a dangerous precedent that could incentivize the misuse of Section 10724 by counties.

IV. DWR And State Board Intervention Is Premature And Legally Unauthorized.

MGSA and SVBGSA are entering a critical time for collaboration to meet the January 31, 2020 GSP submission deadline. Monterey County's potential plan to assert itself as the GSA for the MGSA jurisdictional area threatens to derail this process. Intervention by DWR or the State Board to support Monterey County would similarly quash any possibility of compromise between the two GSAs. Unfortunately, CalAm is urging a strategy to promote its own narrow agenda, likely because it does not want to comply with the GSP of MGSA or with MGSA oversight of its potential groundwater source. However, MGSA and SVBGSA must negotiate in good faith and be given the opportunity to complete the local agency coordination process prescribed by SGMA. The Water Code specifically provides for State Board intervention if MGSA and SVBGSA cannot meet the January 31, 2020 deadline. *See* Cal. Water Code § 10735.2(a)(2). Any actions that interfere with or undermine these SGMA processes are premature and inappropriate.

CONCLUSION

For the foregoing reasons, DWR and the State Board must immediately inform Monterey County that Section 10724 is not applicable in this situation. The County, as the moving force, member, primary funder and general legal advisor to SVBGSA, has created and or contributed to the overlap situation and is therefore disqualified from using this provision. Supporting CalAm's reluctance to be governed and monitored by the government entity with the overlying interest, does not support SGMA and the intention of the Legislature to sustainably manage groundwater. The City of Marina's formation of MGSA to prepare its own GSP to govern critical groundwater resources within its jurisdiction is consistent with the spirit and language of SGMA.

Thank you for giving MGSA the opportunity to provide comments on this important issue. We are certainly available to discuss these issues with you.

Very truly yours,

Paul P. "Skip" Spaulding, III

PPS:jla

cc: Mark Nordberg, Department of Water Resources
(via e-mail Mark.Nordberg@water.ca.gov)
Charles J. McKee, Monterey County Administrative Officer
(via e-mail mckeecj@co.monterey.ca.us)
Gary Petersen, Salinas Valley Basin GSA
(via e-mail peterseng@svbgsa.org)
Keith Van Der Maaten, Marina Coast Water District GSA
(via e-mail kvandermaaten@mcwd.org)
Layne Long, Marina City Manager
(via e-mail llong@cityofmarina.org)
Marina City Council (via e-mail)
Robert Wellington, Marina City Attorney
(via e-mail rob@wellingtonlaw.com)
Deborah Mall, Marina Assistant City Attorney
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ATTACHMENT 2

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November 21, 2019

Gary Petersen
General Manager
Salinas Valley Basin Groundwater Sustainability Agency

Re: MGSA/SVBGSA Coordination Agreement Discussions

Gary,

I wanted to follow up on our previous discussions regarding a coordination agreement with SVBGSA and next steps to move this forward. I understand from our last telephone conversation that you have received direction that the Salinas Valley Basin Groundwater Sustainability Agency (SVBGSA) will only agree to meet with the Marina Groundwater Sustainability Agency if MGSA "agrees to give up its GSA." From MGSA's viewpoint, this is not a negotiation on a coordination agreement; rather, it is a request that MGSA go out of existence, which is of course not acceptable.

We continue to be ready to have a discussion on a coordination agreement that will comply with the Sustainable Groundwater Management Act. We strongly encourage SVBGSA to negotiate in good faith to achieve this goal.

Sincerely,

Layne Long
City Manager/Executive Director
City of Marina-Marina Groundwater Sustainability Agency

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.

Water Allocation Formula: 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.

Annexations to Zones 2 and 2A: 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.

1993 Fort Ord Annexation to Zones 2 and 2A: 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.

1996 Marina Area Lands Annexation to Zones 2 and 2A: 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. Section 4.4 – Groundwater Hydrology

   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)

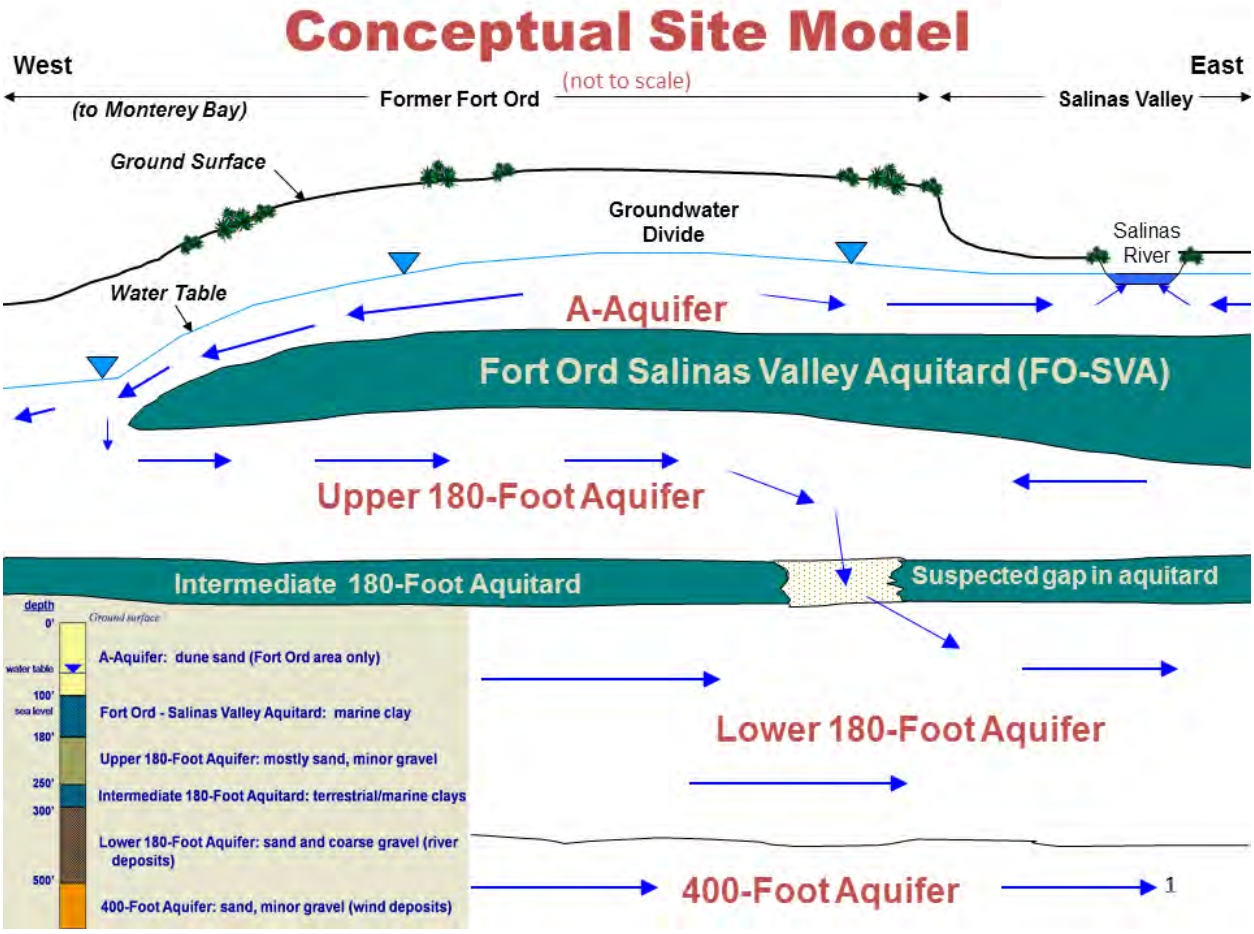
On behalf of the Marina Coast Water District Groundwater Sustainability Agency (MCWD GSA), EKI has reviewed and prepared preliminary comments on the SVBGSA draft 180/400 Foot Aquifer Subbasin and Salinas Valley Integrated Groundwater Sustainability Plans (GSPs) Chapter 5, released January 2019 and updated 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. Section 5.1 – Groundwater Elevations

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. Section 5.2 – Seawater Intrusion

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.

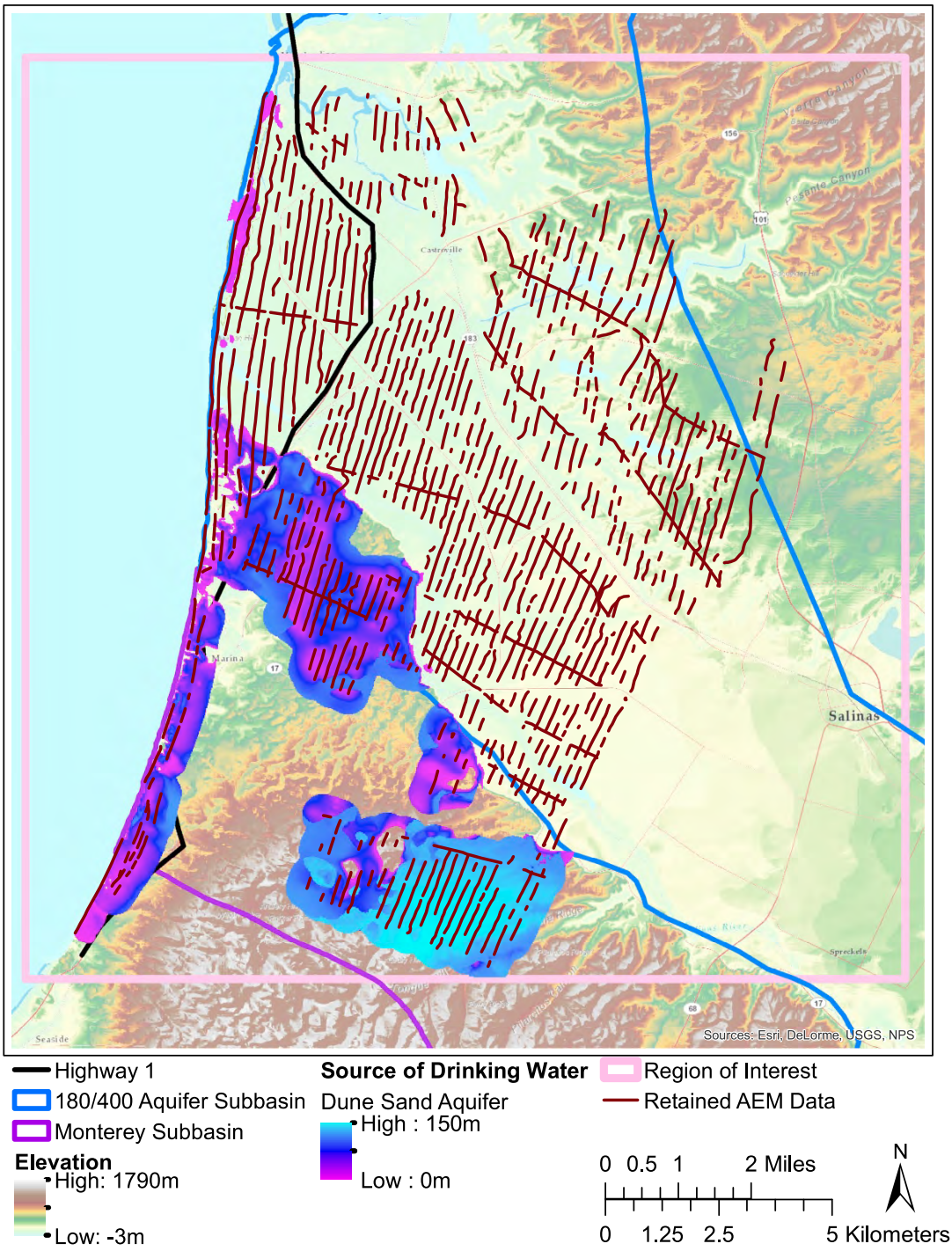


Figure 22: Interpreted thickness of the subsurface containing sources of drinking water within the Dune Sand Aquifer in the region of interest, shown in a color scale ranging from purple to light blue, representing 0 m to 150 integrated meters of the source drinking water, respectively. Overlaying the 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.

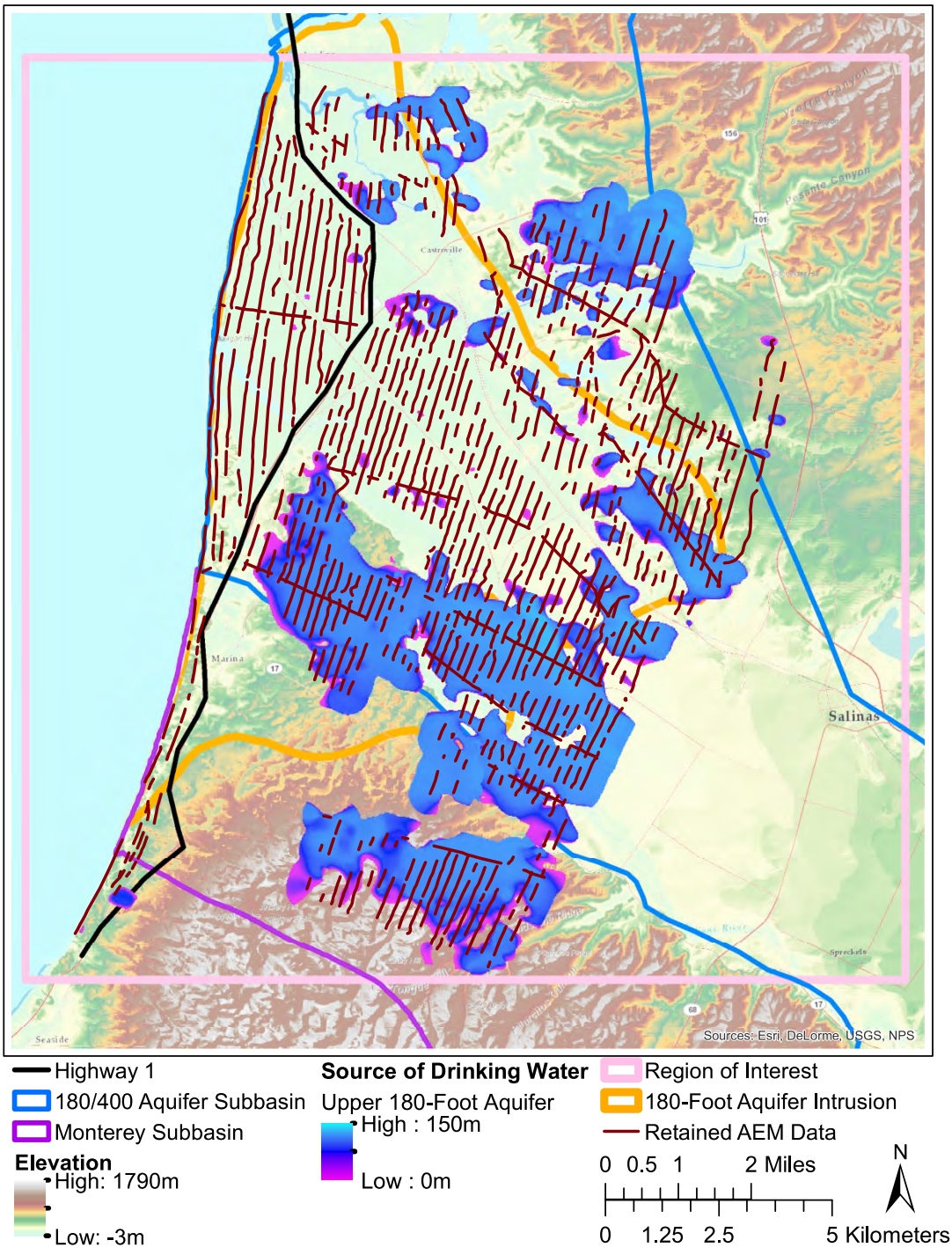


Figure 23: Interpreted thickness of the subsurface containing sources of drinking water within the Upper 180-Foot Aquifer in the region of interest, shown in a color scale ranging from purple to light blue, representing 0 m to 150 integrated meters of the source of drinking water, respectively. Overlaying 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

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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

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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.

---

[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.

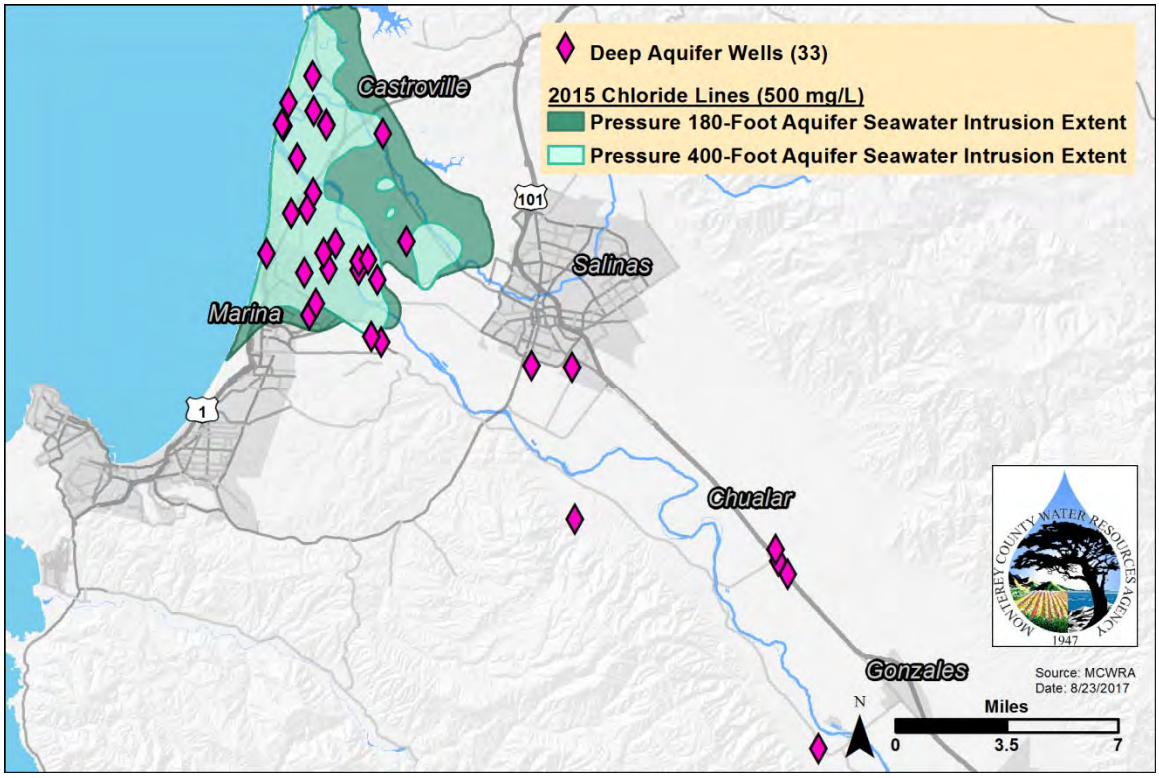


Figure 18- Wells in the Deep Aquifers

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).

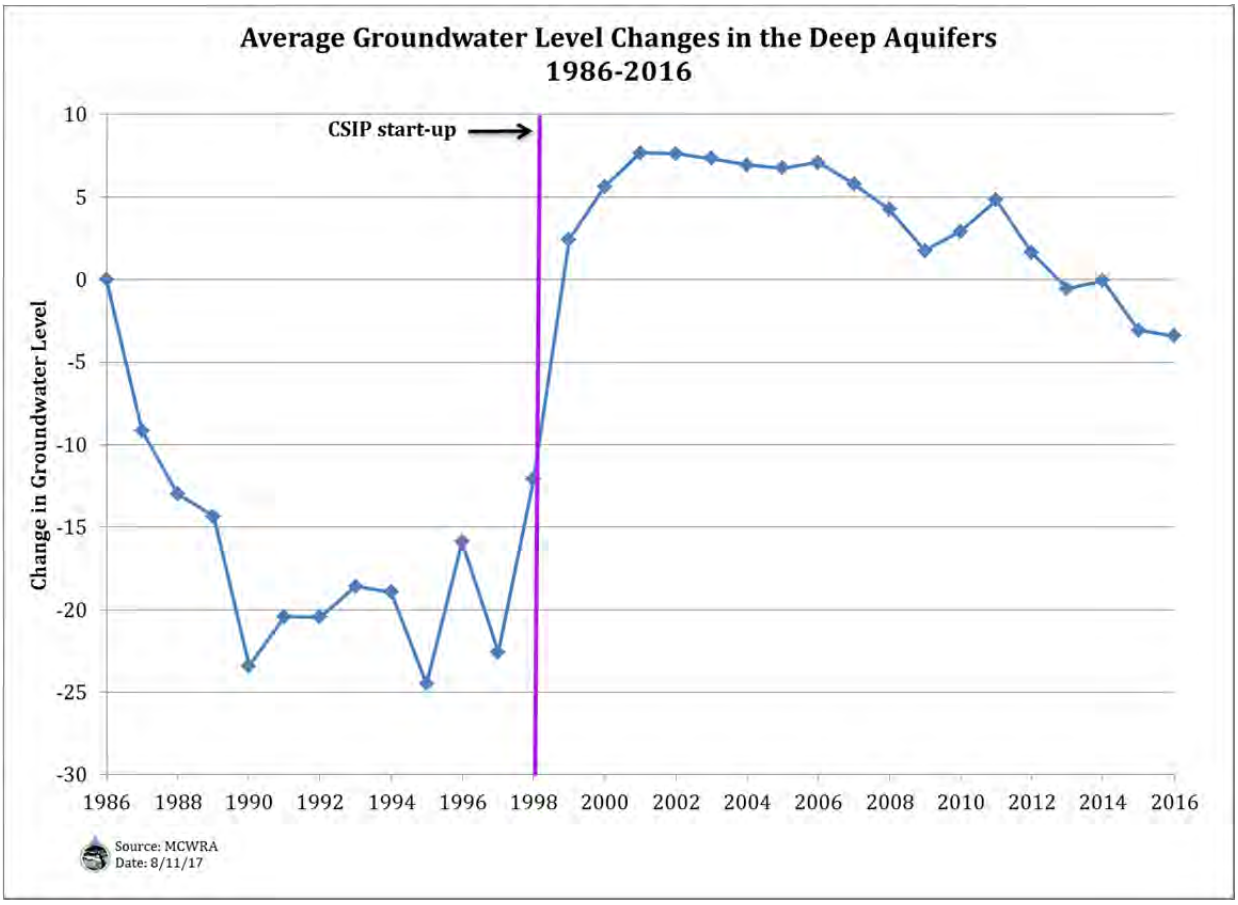


Figure 21 - Average Groundwater Level Changes in the Deep Aquifers (1986-2016)

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).

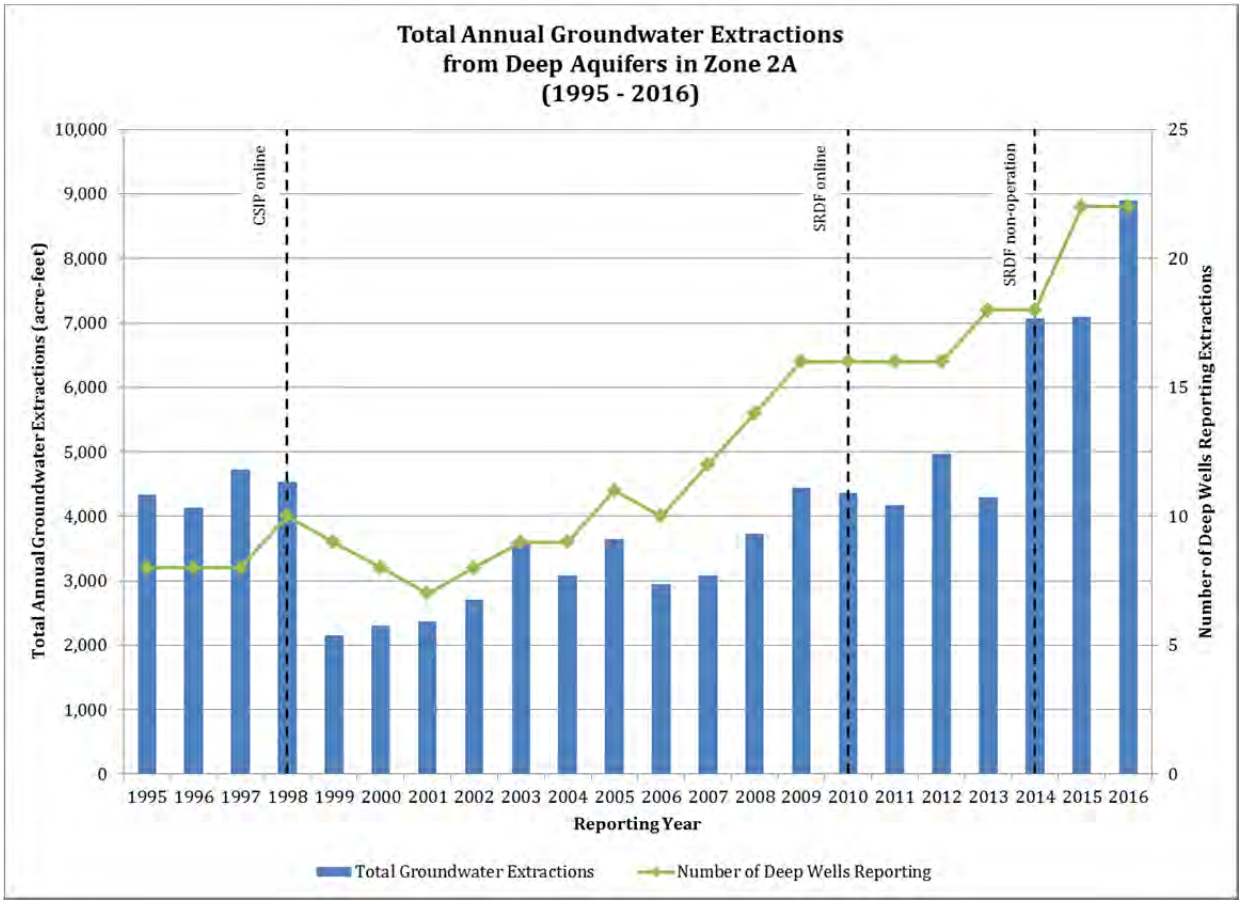


Figure 23 - Total Annual Groundwater Extractions from Deep Aquifers in Zone 2A (1995-2016)

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.

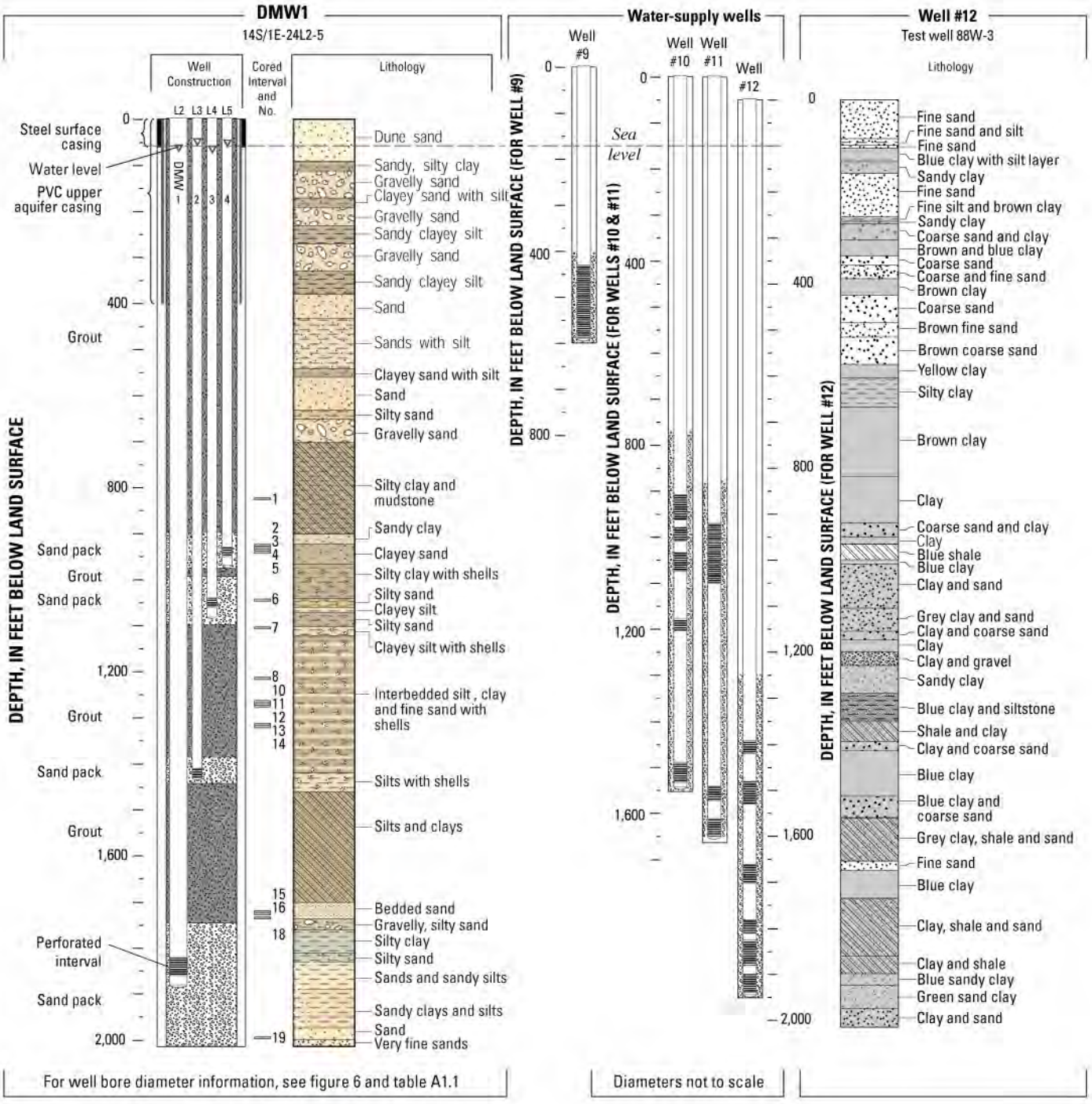
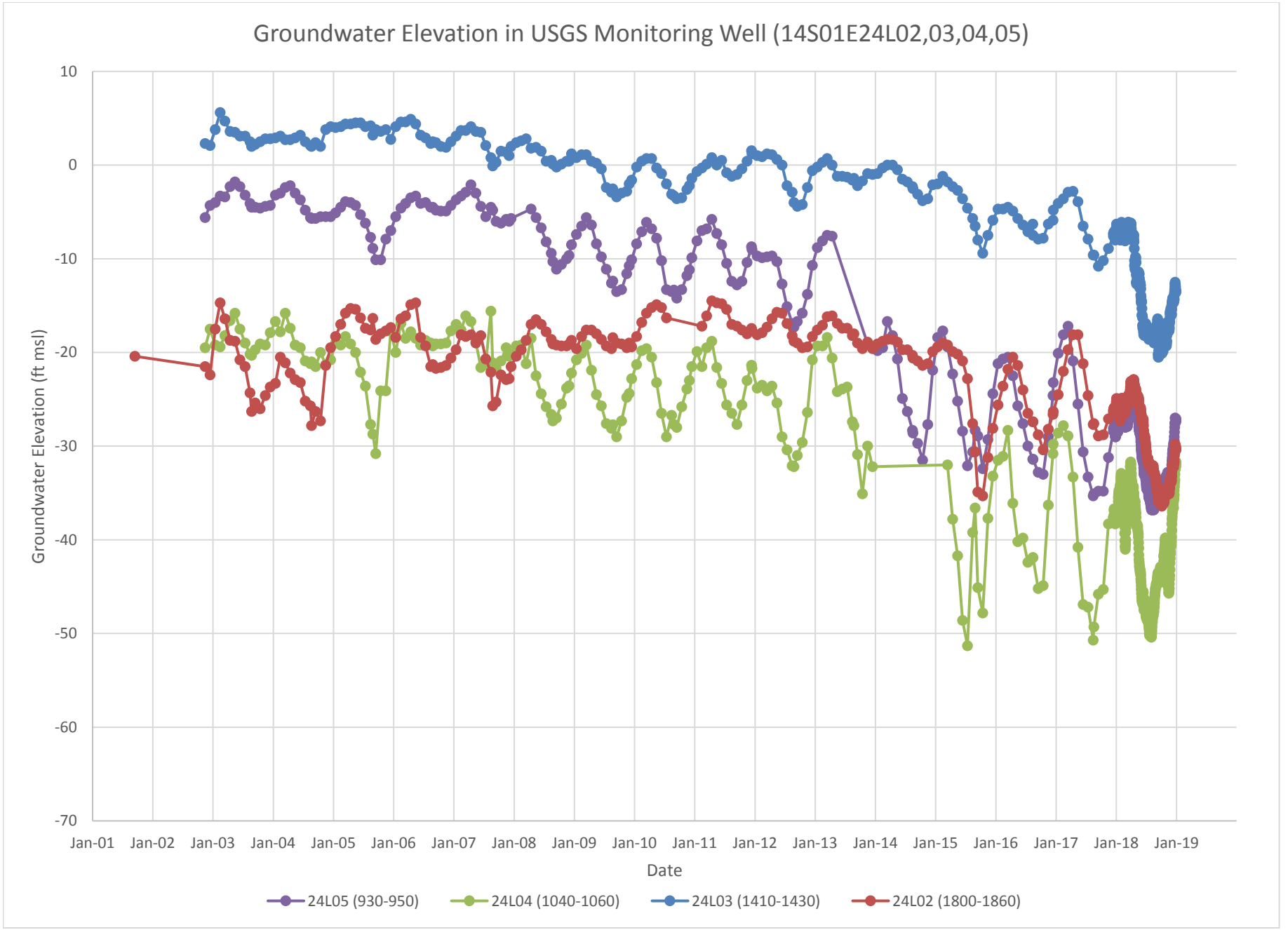


Figure 3. Well construction and lithology for the deep-aquifer monitoring well and selected nearby water-supply wells, Marina, California.

Attachment C

Water Level Data from USGS Monitoring Well (14501E24L02,03,04,05)


Groundwater Elevation in USGS Monitoring Well (14S01E24L02,03,04,05)
Groundwater Elevation (ft msl)
10
0
-10
-20
-30
-40
-50
-60
-70
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

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1 August 2019

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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.

1993 Fort Ord Lands Annexation Agreement: 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.

MCWRA's Obligation to Protect the Deep Aquifer for MCWD's Use: 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

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16 September 2019

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Mr. Derrik Williams
Montgomery & Associates
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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

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November 25, 2019

Mr. Gary Petersen
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Mr. Derrik Williams
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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

City of Marina

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November 25, 2019

Via E-mail (peterseng@svbgsa.org)

Gary Petersen
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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

MEMORANDUM

FORMATION ENVIRONMENTAL

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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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.

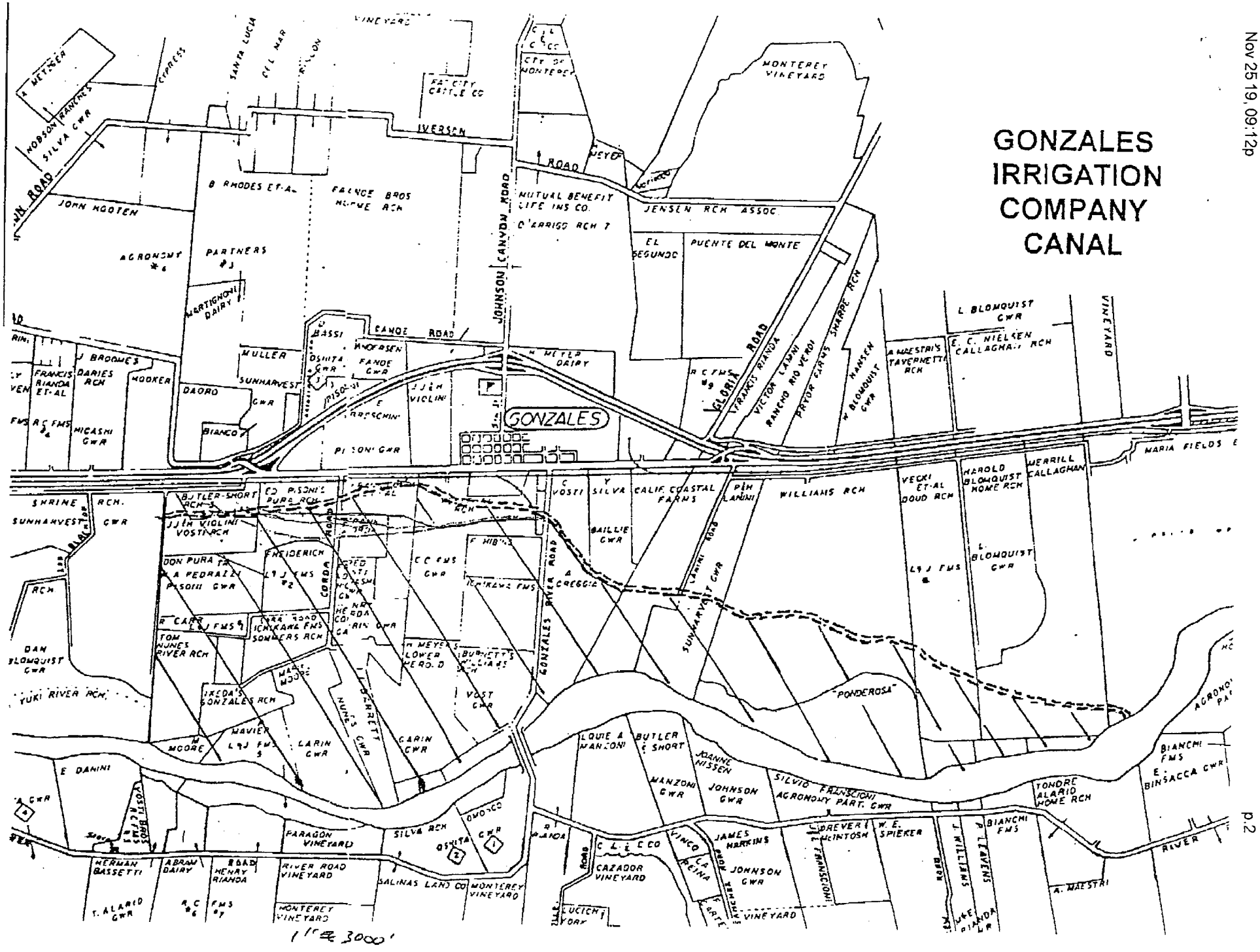
As you know the State Water Resources Board is going to start hearings early next year on the adjudication of water rights for the valley and it may be time for those of us with potential superior rights to prepare to defend our position.

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



RESOURCE CONSERVATION DISTRICT OF MONTEREY COUNTY

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

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]

[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.

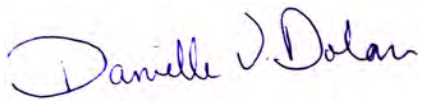
1. Identification of Beneficial Users. This element is meant to ascertain whether and how DACs and groundwater-dependent ecosystems (GDEs) were identified, what standards and guidance were used to determine groundwater quality conditions and establish minimum thresholds for groundwater quality, and how 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.

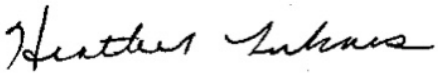
Sincerely,

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.

[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[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?

Selected relevant requirements and guidance
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**

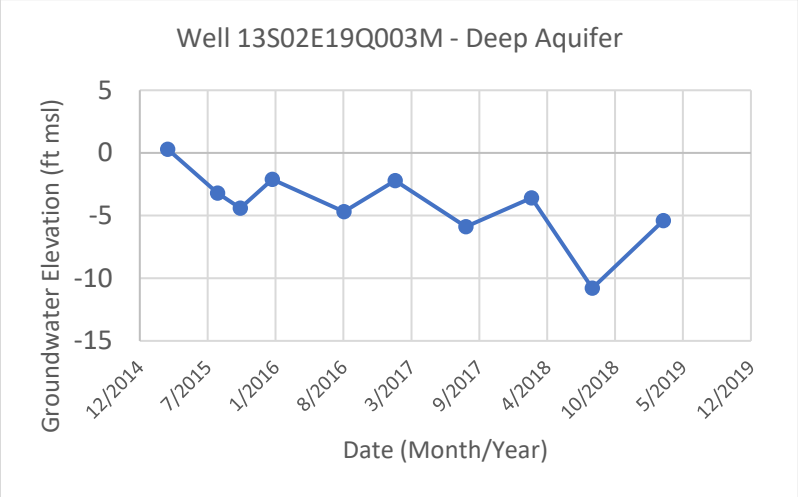
[1] Several Census Block Groups and Tracts extend beyond the boundary of the subbasin, and thus not all of the population represented by the Tract lies within the basin. In addition to the DACs identified through the DWR-provided DAC Mapping tool (based on 2011-2016 estimates), the community of Moss 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

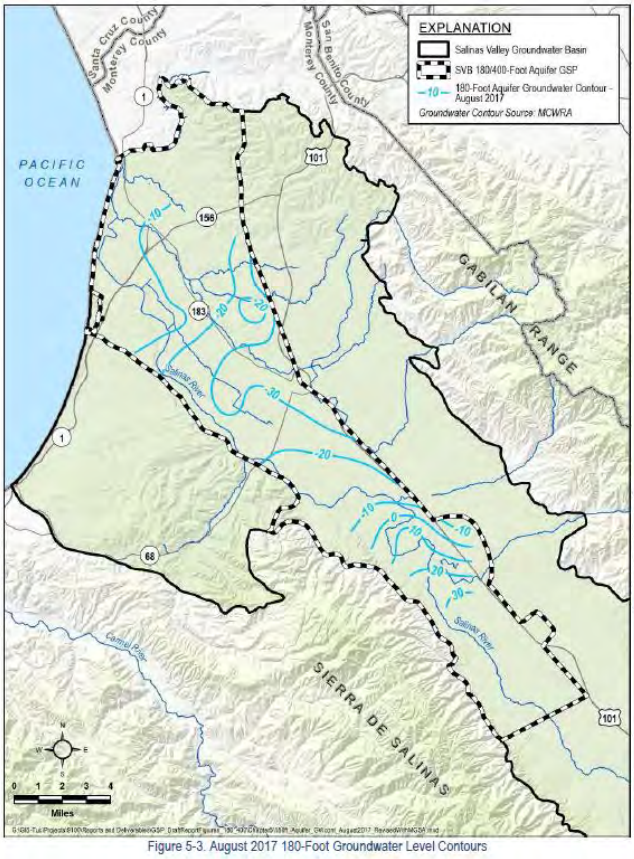


Figure 5-3. August 2017 180-Foot Groundwater Level Contours

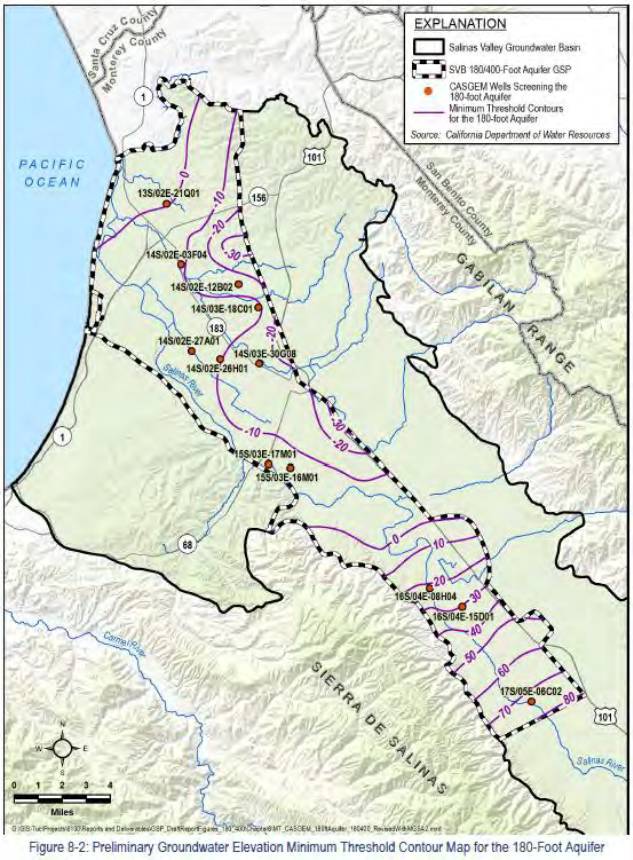


Figure 8-2: Preliminary Groundwater Elevation Minimum Threshold Contour Map for the 180-Foot Aquifer

Comparison of Current Water Level Gradient to MT Water Level Gradient – 400-Foot Aquifer

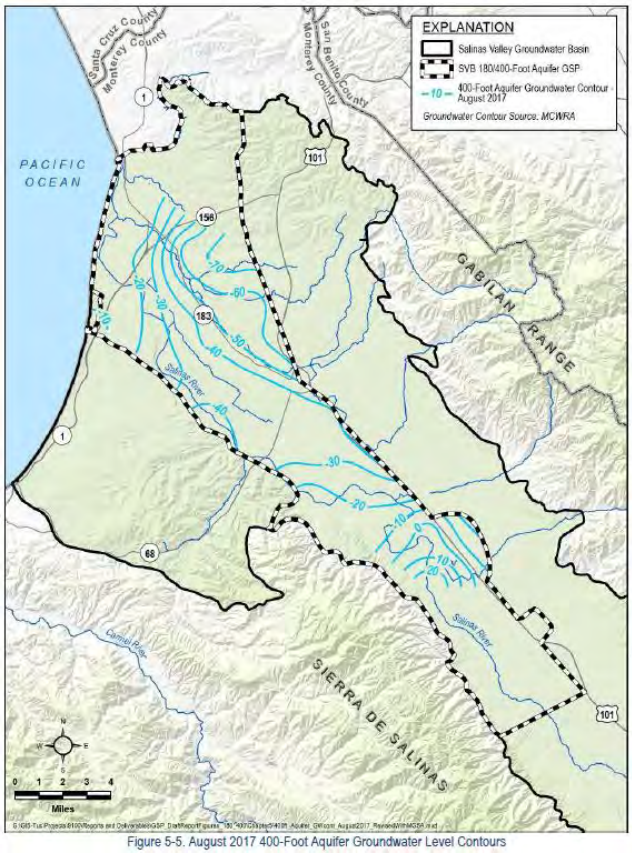


Figure 5-5. August 2017 400-Foot Aquifer Groundwater Level Contours

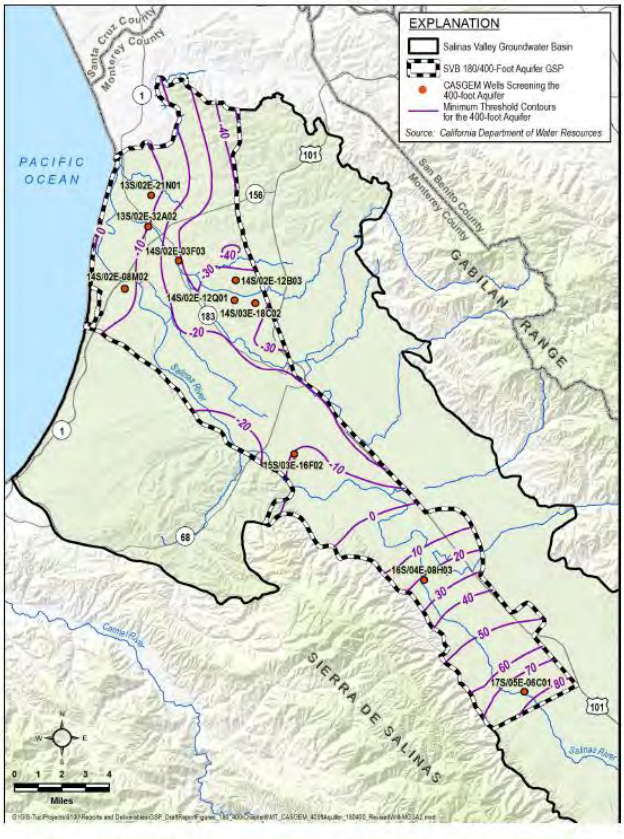


Figure 8-3: Preliminary Groundwater Elevation Minimum Threshold Contour Map for the 400 Foot Aquifer

- **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

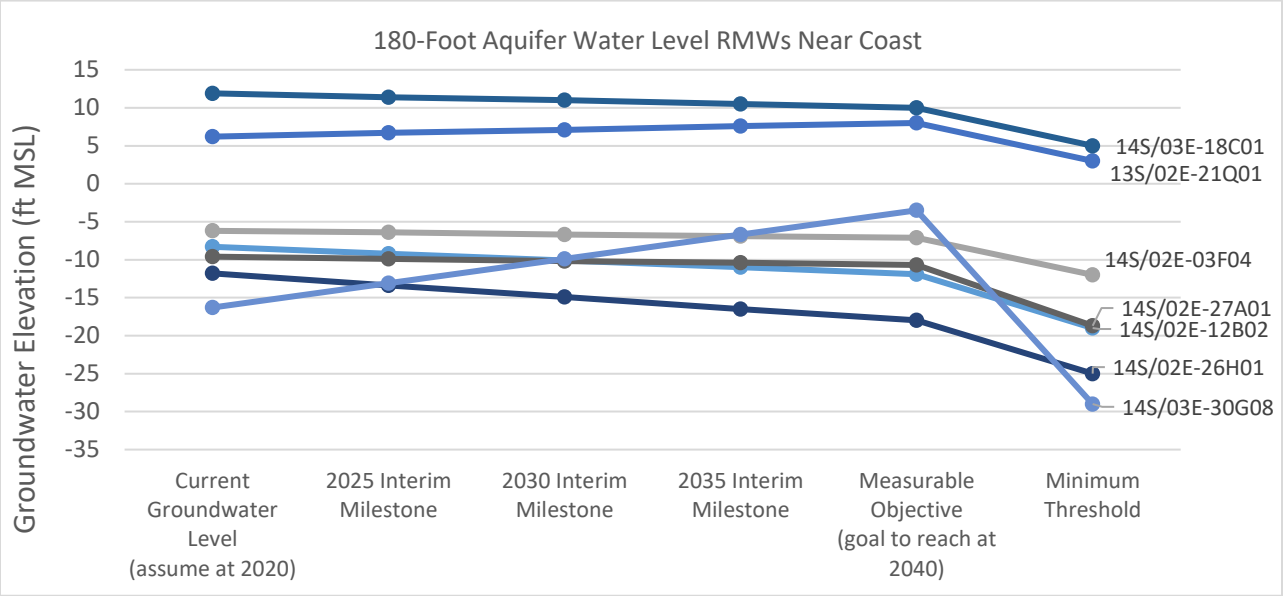
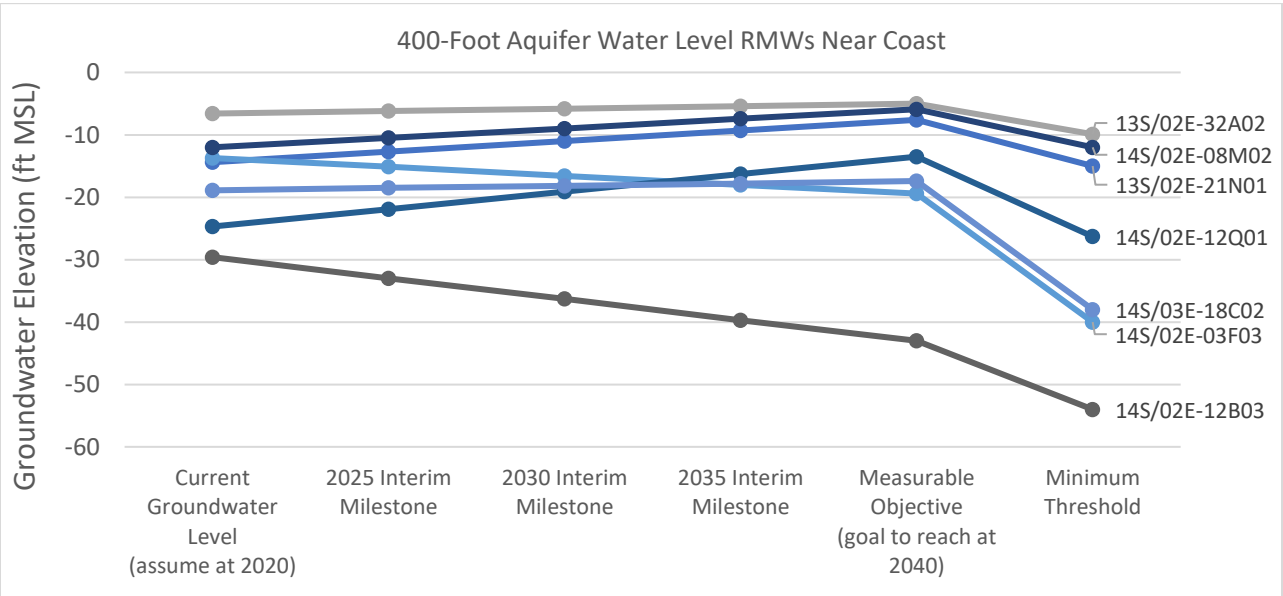


Chart 2b – SMCs for 400-Foot Aquifer Water Level RMWs Near Coast



- 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

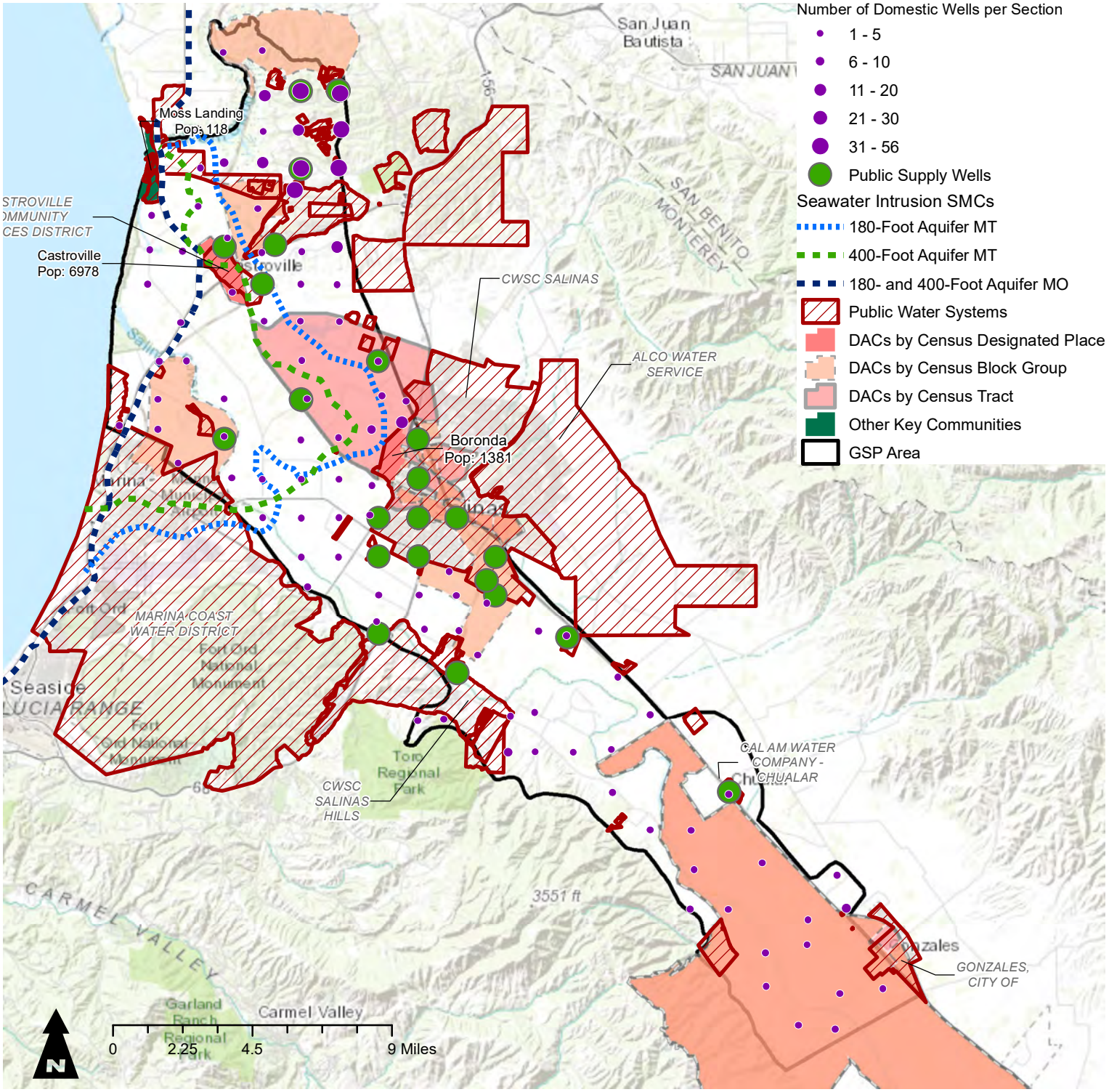
Figure 2 – Representative Monitoring Network for GW Levels Relative to Domestic Wells, Public Supply Wells, DACs, and Community Water System

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

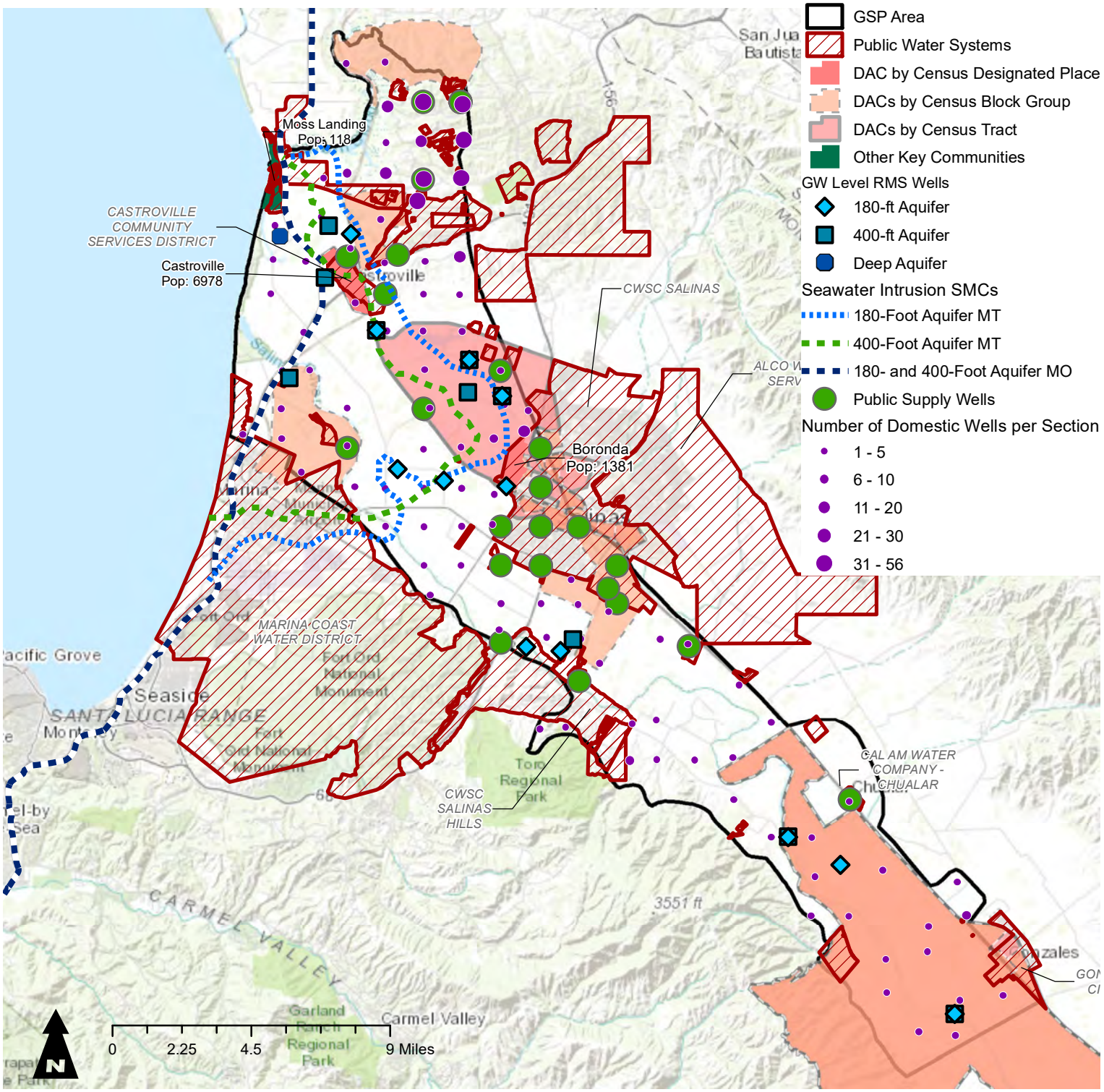
1. All locations are approximate.

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/.
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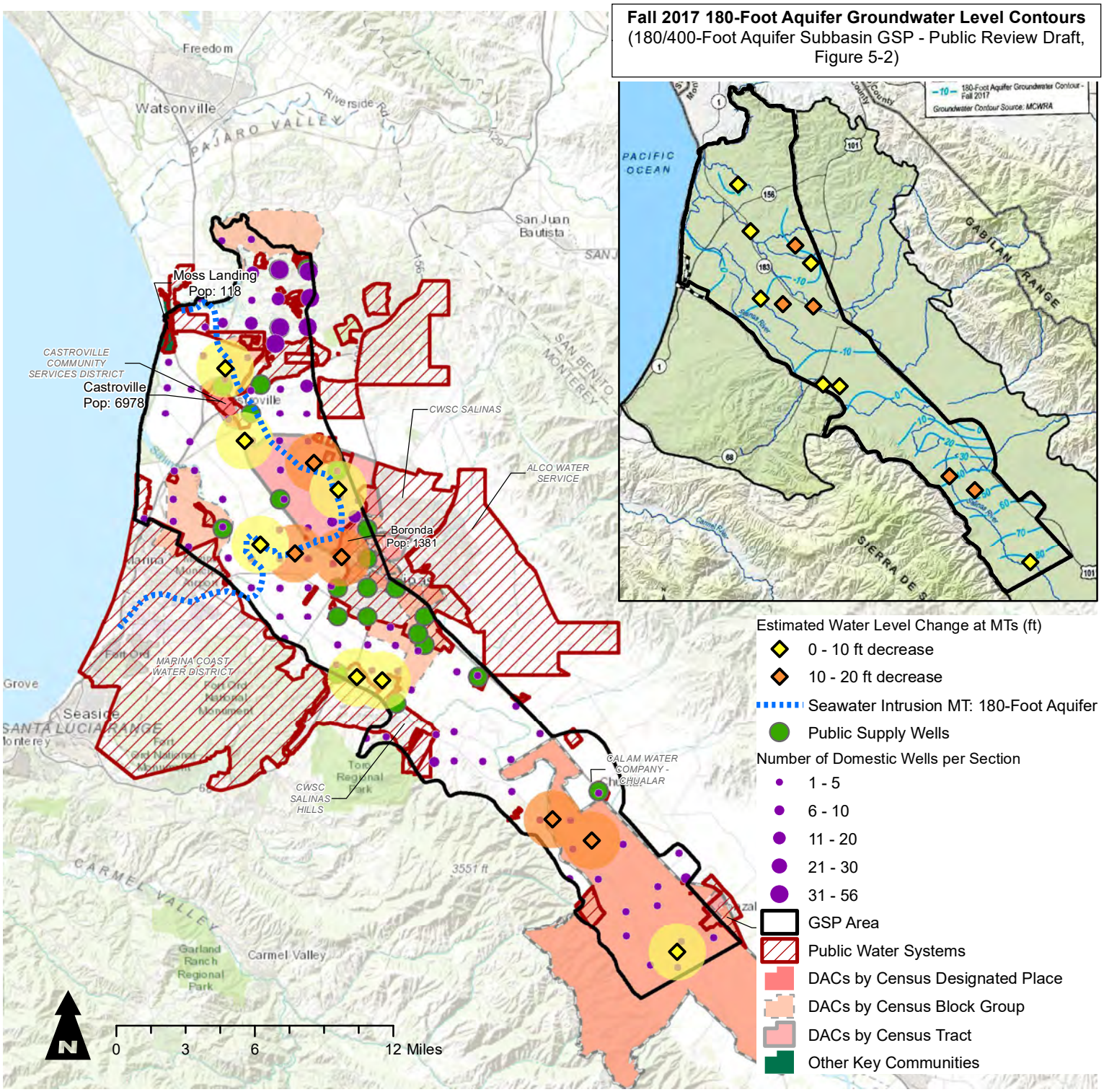
4. Public Water System data: downloaded on August 6, 2019 from Tracking California: https://trackingcalifornia.org/water/map-viewer. The dataset includes "community" and "non-community" water systems.
5. Water Level RMW locations: Table 7-2 of the 180/400-Foot Aquifer Subbasin GSP - Public Review Draft, 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

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2. Location of Water Level Representative Monitoring Site Wells is based on Table 7-2 of the SVBGSA GSP (2019).

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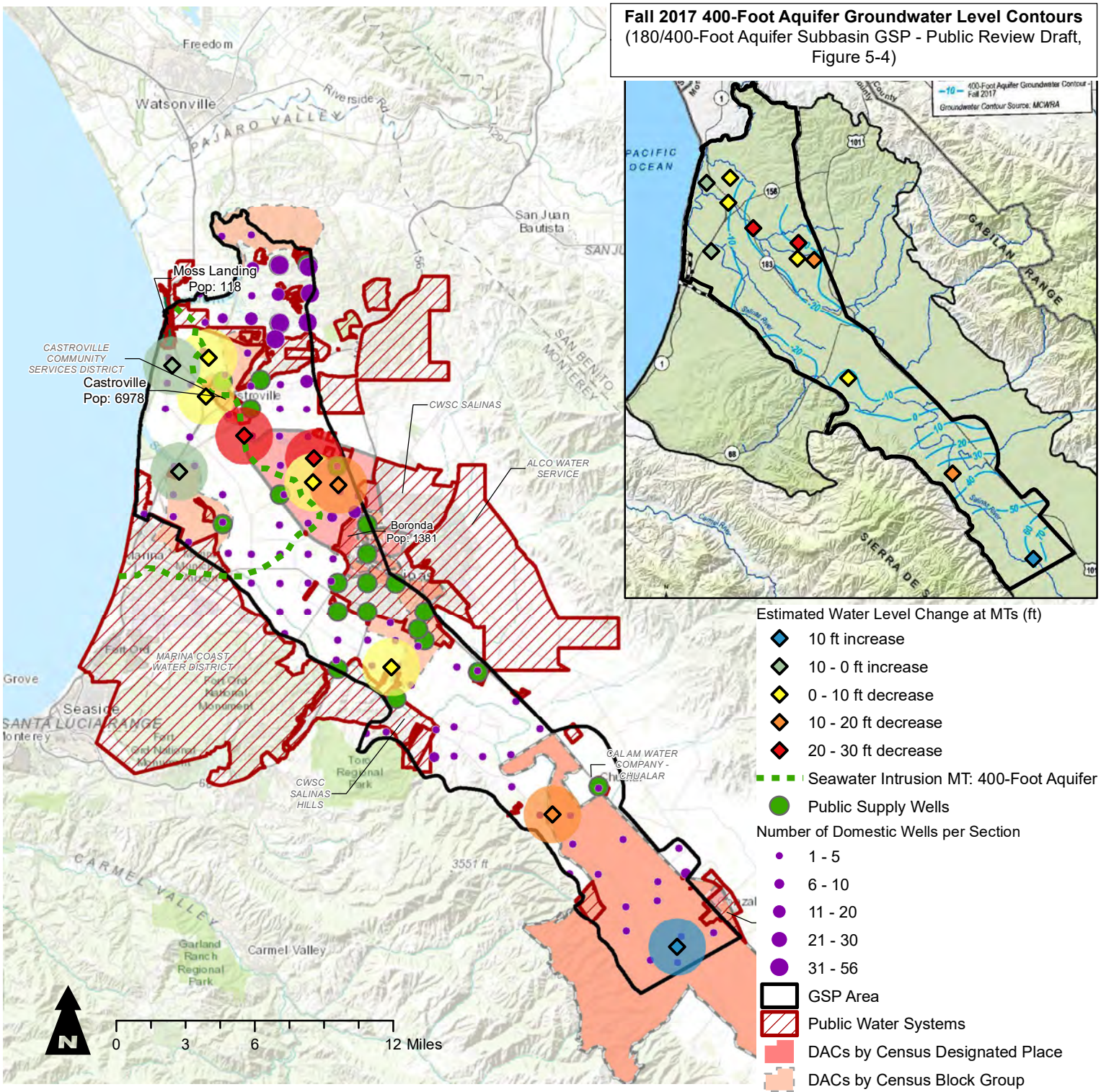
2. Public supply well data: DWR Well Completion Reports downloaded on August 30, 2018 from https://atlas-dwr.opendata.arcgis.com/datasets/.
3. Disadvantaged and other key community data (place, tract, and block group): downloaded on August 6, 2019 from the DAC Mapping Tool: https://gis.water.ca.gov/app/dacs/.
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/.
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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.

From: james sang
Sent: Wednesday, January 8, 2020 8:23 PM
To: Gary Petersen; BoardSVBGSA
Cc: Jane Parker; Luis Alejo; John Phillips; Mary Adams; Chris Lopez; Diane Kennedy; Lois Henry; Ann Camel; Thomas Berg; james sang
Subject: Fw: Is your almond milk latte sinking the California Aqueduct?Well...

Good Evening Everyone,

I wanted to express my opinion about the finalized SVBGSA plan.

I don't think that enough projects are planned for the main topic of groundwater sustainability. The wells are going dry and there is no one plan to increase the supply of aquifer water for these wells. The plan of injection wells for the coast is to keep seawater from infiltrating further into the main aquifers, The eradication of the arundo plants is to increase the water supply in the Salinas River? maybe?

The Managed Aquifer Recharge plan is nonexistent (meaning nothing new planned here), the CISP plan is good. But are these plans enough to keep the entire 1500 wells in this area from going dry. This is why I advocate starting a pilot plan of building ponds and swales around the existing 1500 wells to see if we can help fill the aquifers around these wells.

The idea of retiring agriculture land and limiting water pumping will only partially increase the aquifer level. These two ideas will cause a lot of lawsuits. Farmers will not want to limit their water pumping and retire their agriculture farmland after they have invested thousands and millions of dollars in their business!

I will now quote some articles from SJV Water(The Splash) written by Lois Henry (sjvwater@gmail.com) . Lois puts out a monthy email to her subscribers about the water problems in San Joaquin Valley.

Lawsuit 1. "We are giving options to (ag) pumpers so they understand they have a limited future here and can make the best decisions for their businesses," said Kern County Supervisor Mick Gleason who represents the area and sits on the Indian Wells Valley Groundwater Authority Board. Last week several ag companies fired back with a lawsuit."

Lawsuit 2. The sprawling Semitropic Water Storage District, in the northwest corner of Kern County, has filed an application with the State Water Resources Control Board claiming the Kings River water Association has forfeited two of its floodwater licenses by not using that water. Fight over Kings River flood water heats up."

Lawsuit 3. "The relative lull in lawsuits over Kern River water was broken Dec. 11 when Rosedale-Rio Bravo Water Storage District filed a complaint against the City of Bakersfield.

Let's avoid this by drafting plans that will directly recharge the wells aquifer water .

Thank you for reading this.

I want to encourage everyone to subscribe to Lois Henry's email articles SJV Water (sjvwater@sjvwater.org}

James Sang

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

--

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		Benefits ASGSA Area
	Capital	Annual O&M	
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

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.

Comments on Chapter 5 – Groundwater Conditions

- **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.

Comments on Chapter 10 – Groundwater Sustainability Plan Implementation

- **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.

MONTEREY COUNTY

WATER RESOURCES AGENCY

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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

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