

Notice and Agenda of a Meeting of the Yucaipa Sustainable Groundwater Management Agency

Board Meeting

Wednesday, April 26, 2023 at 10:30 a.m.

(909) 797-2489 | www.yucaipasgma.org

**City of Yucaipa, 34272 Yucaipa Boulevard
Yucaipa, California 92399**

Meeting Broadcast Information

Zoom Online Access - <https://dudek.zoom.us/j/7101150223>

Meeting ID: 710-115-0223

Telephone Access: (929) 205-6099

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- I. **Call to Order**
 - II. **Roll Call**
 - III. **Public Comments** At this time, members of the public may address the representatives of the Yucaipa Groundwater Sustainability Agency on matters within its jurisdiction.
 - IV. **Meeting Minutes**
 - A. To be presented at the next meeting
 - V. **Discussion Items**
 - A. USGS Presentation of FY 22-23 USGS Cooperative Study Items
 - B. Update on Conditions in the Yucaipa Subbasin
 - C. Update on DWR Review of GSP and Discussion on Comment Letter [\[Page 4 of 56\]](#)
 - D. Update on the County Line Road Recharge Facility
 - E. Discussion of Private Well Owner Outreach
 - F. Consideration of Well Ordinance for Yucaipa Subbasin and Resolution to Adopt Well Ordinance [\[Page 33 of 56\]](#)
 - G. Consideration of Dudek proposal to provide support services 2023-2024 [\[Page 51 of 56\]](#)
 - VI. **Topics for Future Meetings**
 - VII. **Comments by Board of Directors**
 - VIII. **Announcements - Future Meetings**

- A. Wednesday, July 26, 2023 at 10:30 am - Board Meeting
- B. Wednesday, October 25, 2023 at 10:30 am - Board Meeting
- C. Wednesday, January 24, 2024 at 10:30 am - Board Meeting
- D. Wednesday, April 24, 2024 at 10:30 am - Board Meeting

IX. Adjournment

Roll Call - Board of Directors

	Present	Primary Representative	Present	Alternative Representative
Purveyors				
South Mesa Water Company		David Armstrong		Brittany Lim
South Mountain Water Company		George Hanson		Rolland Moore
Western Heights Water Company		Mark Iverson		Tim Green
Yucaipa Valley Water District		Joseph Zoba		Jennifer Ares
Municipals				
City of Redlands		John Harris		Kevin Watson
City of Yucaipa				Fermin Preciado
Regionals				
San Bernardino Valley MWD		Bob Tincher		Adekunle Ojo
San Gorgonio Pass Water Agency		Lance Eckhart		Emmett Campbell
* Quorum of the Board of Directors requires a total of five Purveyor, Municipal, Regional Members				
Stakeholders				
County of Riverside		Steve Horn		Jeff Johnson
County of San Bernardino		Bob Page		--
City of Calimesa		Bonnie Johnson		--



April 23, 2022

Paul Gosselin
Deputy Director, Sustainable Groundwater Management Office
California Department of Water Resources
Sacramento, California
Submitted via SGMA GSP Portal

Re: Comments on the Yucaipa Groundwater Sustainability Plan

Dear Deputy Director Gosselin,

On behalf of the above-listed organizations, we appreciate the opportunity to comment on the Groundwater Sustainability Plan (GSP) for the Yucaipa Basin. 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 critical for the resilience of California's water portfolio, particularly in light of climate change. Our review focuses on how well drinking water users, disadvantaged communities, tribes, environment, stakeholder involvement, and climate change were addressed in the GSP.¹ Collectively, these issues are true indicators of sustainability. 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.

Under the requirements of SGMA, Groundwater Sustainability Agencies (GSAs) must consider the interests of all beneficial uses and users of groundwater, including domestic well owners, environmental users, surface water users, state and federal government, California Native American tribes, and

¹ Our organizations are non-tribal NGOs that are providing a review of the identification of federally and state recognized tribes (Data source: SGMA Data viewer) or other tribal interests identified within the GSP. We recognize that there are likely tribal interests that we are not able to detect through mapped lands and stated interests in the GSP. The lack of detection of tribal interests in our analysis should not be taken as evidence for a lack of tribal interests in a basin, but rather that our method could not identify tribal interests. We recommended during our review of draft GSPs that the GSA utilize the DWR's "Engagement with Tribal Governments" Guidance Document to comprehensively address these important beneficial users in their GSP.

disadvantaged communities (DACs).^{2,3} As stakeholders, we reviewed all the draft and final versions of the 2022 GSPs. We appreciate that some basins have consulted us directly via focus groups, workshops, and working groups. Recognizing that GSPs are complicated and resource intensive to develop, we provided technical and policy relevant feedback on each of the 2022 draft GSPs directly to each GSA with the goal of supporting the improvement of GSPs prior to the submission of the final GSP to the California Department of Water Resources (DWR).

Our organizations evaluated the GSPs based on the following nine criteria:

1. Stakeholder engagement
2. Identification of DACs, domestic wells, and tribes
3. Identification of interconnected surface waters (ISWs)
4. Identification of groundwater dependent ecosystems (GDEs)
5. Incorporation of climate change in the water budget
6. Inclusion of ecosystems in the water budget
7. Consideration of impacts to DACs, drinking water users, and environmental users in the sustainable management criteria (SMC)
8. Identification and reconciliation of data gaps
9. Identification of potential impacts to beneficial users in the Projects and Management Actions

Our reviews did not assess the quality of the data provided in the GSP, but analyzed whether data were provided, what data sources were cited, how information about beneficial users of groundwater were used to develop the plan, and whether or not the GSP included plans to reconcile existing data gaps. In our review of the final GSPs, we have specifically looked to see whether the GSA responded to our comments on the draft GSP and whether corresponding edits were made in the final plan.⁴

Based on our evaluation, we found this plan to be **incomplete**, meaning that we found gaps in how beneficial users were addressed within our nine evaluation criteria. Based on this, we recommend that this plan be found incomplete and the GSA be given up to 180 days to address the missing components.

In general, we found the plan to have deficiencies in the following areas:

- Environmental stakeholder engagement during the GSP development process
- Identification of drinking water wells
- Identification of GDEs
- Identification of ISWs
- Inclusion of native vegetation in the water budget
- Consideration of DACs, drinking water users, and environmental users during the establishment of the sustainable management criteria
- Lack of a drinking water well impact mitigation program
- Representative monitoring well locations relative to key beneficial users

Our specific comments related to the GSP in the Yucaipa Basin along with detailed recommendations are provided in **Attachment A**. Please refer to the enclosed list of attachments for additional technical recommendations:

² “The groundwater sustainability agency shall consider the interests of all beneficial uses and users of groundwater” [Water Code 10723.2]

³ “When evaluating whether a Plan is likely to achieve the sustainability goal for the basin, the Department shall consider the following: [...] (4) Whether the interests of the beneficial uses and users of groundwater in the basin, and the land uses and property interests potentially affected by the use of groundwater in the basin, have been considered.” [23 CCR § 355.4(b)(4)]

⁴ “When evaluating whether a Plan is likely to achieve the sustainability goal for the basin, the Department shall consider the following: [...] (10) Whether the Agency has adequately responded to comments that raise credible technical or policy issues with the Plan.” [23 CCR § 355.4(b)(10)]

- Attachment A** GSP Specific Comments
- Attachment B** Freshwater species located in the basin
- Attachment C** Maps of representative monitoring sites in relation to key beneficial users

The success of SGMA - the sustainable management of groundwater for current and future social, economic, and environmental benefits - depends on the inclusion of *all* beneficial users in the development and implementation of GSPs. The degree to which key beneficial users are included in GSPs is a critical indicator of whether a plan is indeed on the path to sustainability. Sustainably managing our groundwater resources is critical to the long-term resilience of California's communities, economy, and environment.

We appreciate the opportunity to comment and are available to respond to any questions you might have.

Best Regards,



Ngodoo Atume
Water Policy Analyst
Clean Water Action/Clean Water Fund



J. Pablo Ortiz-Partida, Ph.D.
Bilingual Senior Climate and Water Scientist
Union of Concerned Scientists



Samantha Arthur
Working Lands Program Director
Audubon California



Roger Dickinson
Policy Director
CivicWell (formerly Local Government
Commission)



E.J. Remson
Senior Project Director, California Water Program
The Nature Conservancy



Melissa M. Rohde
Groundwater Scientist
The Nature Conservancy

Attachment A

Specific Comments on the Yucaipa Basin Final Groundwater Sustainability Plan

This attachment contains our findings for nine criteria used for the evaluation of the basin's draft and final GSP. Here, each of the nine criteria are separated into separate sections and contain a short description of our evaluation criteria and observations.

1. Stakeholder engagement
2. Identification of DACs, domestic wells, and tribes
3. Identification of interconnected surface waters (ISWs)
4. Identification of groundwater dependent ecosystems (GDEs)
5. Incorporation of climate change in the water budget
6. Inclusion of ecosystems in the water budget
7. Consideration of impacts to DACs, drinking water users, and environmental users in the sustainable management criteria (SMC)
8. Identification and reconciliation of data gaps
9. Identification of potential impacts to beneficial users in the Project and Management Actions

A table containing the original evaluation questions for each of the nine criteria are also included under the corresponding section. Within the table, there are a range of three possible answers based on how well the GSP satisfactorily answered the question. In the last column to the right of the table, we also indicate whether or not we saw improvements from the draft GSP for the corresponding question in the final GSP.

1. Stakeholder engagement

The SGMA statute requires that the GSP Notice and Communication chapter identify how stakeholders were actively engaged in the SGMA process.⁵ Stakeholder engagement is critical for the GSAs to fully understand the specific interests and water demands of all beneficial users, and to support the identification and consideration of beneficial users in the development of sustainable management criteria and selection of projects and management actions. To evaluate this, we used the International Association of Public Participation (IAP2) spectrum of public participation referenced in DWR’s “Stakeholder Communication and Engagement” guidance document.⁶ To differentiate between engagement processes for various stakeholders, we considered participation activities that fell under the inform, consult, involve, collaborate, or empower categories. A “Yes” score was given to plans where GSAs proactively identified and targeted outreach to stakeholders to invite stakeholder perspectives into the GSP development process, such as through working groups, advisory committees and GSA board seats. While a “Somewhat” score was given to plans where GSAs had public meetings, email notifications list and public comment process. A “No” score was given to plans where the GSAs failed to identify and engage stakeholders.

However, it is important to note here that it is nearly impossible through reading the plans to decipher whether stakeholder voices are being heard and empowered via these processes. To assess actual engagement, local stakeholders would need to be directly consulted to share their feedback, which was not possible for us to assess during our evaluation of the 2022 GSPs. The expectation is that robust stakeholder engagement includes active and targeted outreach to ensure that stakeholder concerns are consistently understood and stakeholder feedback is incorporated in the decision making process. Because our evaluation of stakeholder engagement across the 2022 GSPs is limited to what is presented in the GSP text, it is possible that despite stakeholders being represented on a GSA board or advisory group that stakeholder feedback was not fully considered and incorporated into the GSP. When stakeholders are considered and empowered in the GSP development process, we would expect to see stakeholder interests adequately reflected throughout the plan.

Table 1 provides a list of questions we used to evaluate how stakeholder engagement was documented in the GSP for key stakeholders, such as DACs, tribes, and the environment. The GSP satisfactorily answered two of five relevant questions for this criteria. Recommendations from our Draft GSP comment letter that have not been addressed in the Final GSP are listed below.

Table 1. Questions used to evaluate stakeholder engagement in the GSP.

Does the GSP engage stakeholders?	No	Somewhat	Yes	Draft vs. Final GSP
Does the GSP document how DAC stakeholders were given opportunities to engage in the GSP development process?	Little to no mention or details of engagement	Inform OR consult	Involve, collaborate, OR empower	No Change
Does the GSP document how tribal stakeholders were given opportunities to engage in the GSP development process?	Little to no mention or details of engagement	Inform OR consult	Involve, collaborate, OR empower	Not Applicable ⁷
Does the GSP document how environmental stakeholders were given opportunities to engage in the GSP development process?	Little to no mention or details of engagement	Inform OR consult	Involve, collaborate, OR empower	No Change

⁵ “A communication section of the Plan shall include a requirement that the GSP identify how it encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin.” [23 CCR §354.10(d)(3)]

⁶ California Department of Water Resources. 2018. Guidance Document for Groundwater Sustainability Plan: Stakeholder Communication and Engagement. Available at: <https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Assistance-and-Engagement/Files/Guidance-Doc-for-GSP---Stakeholder-Communication-and-Engagement.pdf>

⁷ Tribal data according to SGMA Data Viewer tribal lands - <https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#currentconditions>. Non-federally or state recognized tribal interests may exist in the basin.

Does the Stakeholder Communication and Engagement Plan or GSP include outreach to DACs during GSP implementation?	Little to no mention or details of engagement	Inform OR consult	Involve, collaborate, OR empower	Draft Sufficient
Does the Stakeholder Communication and Engagement Plan or GSP include outreach to tribes during GSP implementation?	Little to no mention or details of engagement	Inform OR consult	Involve, collaborate, OR empower	Not Applicable⁷
Does the Stakeholder Communication and Engagement Plan or GSP include outreach to environmental stakeholders during GSP implementation?	Little to no mention or details of engagement	Inform OR consult	Involve, collaborate, OR empower	No Change
Does the GSP include a Stakeholder Communication and Engagement Plan?	Not Included		Included	Draft Sufficient

RECOMMENDATIONS

- In the Public Outreach and Engagement Plan, describe active and targeted outreach to engage all stakeholders throughout the GSP development and implementation phases. Refer to “Collaborating for Success: Stakeholder Engagement for Sustainable Groundwater Management Act Implementation” for specific recommendations on how to actively engage stakeholders during all phases of the GSP process.⁸
- Engage with environmental stakeholders in the basin, which could include California Department of Fish and Wildlife or environmental NGOs.
- Provide documentation on how stakeholder input was incorporated into the GSP development process.
- Continue to utilize DWR’s tribal engagement guidance to comprehensively identify, involve, and address all tribes and tribal interests that may be present in the basin.⁹

⁸ Collaborating for Success: Stakeholder Engagement for Sustainable Groundwater Management Act Implementation. Available at:

https://static1.squarespace.com/static/5e83c5f78f0db40cb837cfb5/t/5f3ca8c136dbe60157dd5664/1597810892937/S_GMA_Stakeholder_Engagement_White_Paper.pdf

⁹ Engagement with Tribal Governments Guidance Document. Available at:

https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Sustainable-Groundwater-Management/Best-Management-Practices-and-Guidance-Documents/Files/Guidance-Doc-for-SGM-Engagement-with-Tribal-Govt_av_19.pdf

2. Identification of DACs, domestic wells, and tribes

The consideration of beneficial uses and users in GSP development is contingent upon adequate identification of *all* beneficial users, including DACs, domestic wells, and tribes.^{1,2} Table 2 provides a list of questions we used to evaluate how these beneficial users were identified in the GSP. These elements are critical for the GSA to fully understand the specific interests and water demands of these beneficial users, and to support their consideration in the development of sustainable management criteria and selection of projects and management actions.

In our review of the identification of DACs, domestic wells, and tribes, we found that the GSP did not map the depth of domestic wells (such as minimum well depth, average well depth, or depth range). This information is necessary to understand the distribution of shallow and vulnerable drinking water wells within the basin.

Table 2 shows the GSP satisfactorily answered four of five relevant questions for this criteria. Recommendations from our Draft GSP comment letter that have not been addressed in the Final GSP are listed below.

Table 2. Questions used to evaluate the identification of DACs, domestic wells, and tribes in the GSP.

Does the GSP identify DACs, domestic wells, and tribes?	No	Somewhat	Yes	Draft vs. Final GSP
Does the GSP identify each DAC by name and location on a map?	Neither mapped NOR identified by name in text	Mapped OR identified by name in text	Mapped AND identified by name in text	Draft Sufficient
Are tribal lands identified and mapped in the basin?	Neither mapped NOR identified in text	Mapped OR identified in text	Mapped AND identified in text	Not Applicable⁷
Does the GSP describe the size of the population in each DAC?	Not included	Vaguely mentioned or mapped	Explicitly mentioned or mapped	Final Improved
Does the GSP map minimum well depth, or depth range of domestic wells?	Neither mapped NOR depth ranges included	Map OR depth ranges included	Map AND depth ranges included	No Change
Does the GSP map the density of domestic wells in the basin?	Not included		Included	Final Improved
Does the GSP identify the water source for DACs?	No mention	Only general reference	Explicit identification	Final Improved

RECOMMENDATIONS

- Include a map showing domestic well locations and average well depth across the basin.

3. Identification of interconnected surface waters

SGMA requires that the GSP identify ISWs in the basin, including estimates of the quantity and timing of depletions.¹⁰ Table 3 provides a list of questions we used to evaluate how well ISWs were identified in the GSP. The complete analysis of ISWs requires mapping of gaining and losing reaches and assessing the temporal variability in stream depletions to account for the inherent variability within California's Mediterranean climate. Since this relies upon seasonal and multiple water years of data, the GSP should discuss the spatial and temporal gaps in data needed to adequately characterize the interaction between groundwater and surface water within the basin. In the absence of data, the GSP should not exclude any segments with data gaps from the ISW map and instead consider and map them explicitly as potential ISWs until data gaps are reconciled. The absence of evidence is not the evidence of absence.

In our review of the identification of interconnected surface waters, we found that the GSP did not provide sufficient evidence to support the conclusions regarding which reaches in the basin are interconnected or disconnected to groundwater. The Final GSP added more detail about the groundwater elevation data and stream flow data used in the modeling analysis, and further discussed temporal variability of the data used to calibrate the model. The Final GSP added a map and labeled stream segments that are considered ISW or potential ISWs. However, it seems the plan does not consider the majority of surface water to be interconnected, even though the groundwater data discussed in the ISW section of the GSP is shallow enough to support ISWs. For example, along the western portion of San Timoteo Creek, the plan does not conclude the creek is interconnected even though groundwater depths range from 14 to 21 feet. Please note that it is common practice to utilize a threshold of 50 feet below groundwater surface to indicate a disconnected stream reach.^{11,12}

Table 3 shows the GSP satisfactorily answered three of five questions for this criteria. Recommendations that would improve the Final GSP are listed below.

Table 3. Questions used to evaluate the identification of ISWs in the GSP.

Does the GSP identify interconnected surface water (ISW)?	No	Somewhat	Yes	Draft vs. Final GSP
Are gaining and losing reaches adequately assessed spatially and temporally?	No ISW map	ISW map with single water year data; unclear methods	ISW map with multiple water year data; clear methods	Final Improved
Are the conclusions of ISWs consistent with the assessment?	Vague and contradictory with analysis OR No evidence to support conclusion.	Lacking some detail and evidence	Coherent with analysis and available data	No Change
Are all shallow principal aquifers acknowledged in defining ISW?	Not acknowledged	Not explicitly or adequately acknowledged	Acknowledged	Draft Sufficient
Were data gaps identified when mapping ISWs?	Not identified	Vague description	Clear identification	Final Improved
In the case of data gaps and uncertainty, were streams mapped and described as potential ISWs in the GSP?	Not described NOR mapped	Vague description OR no map	Clearly described AND mapped temporarily and spatially	No Change

¹⁰ "Each plan shall provide a description of current and historic groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information that includes [...] (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." [23 CCR § 354.16(f)]

¹¹ Jasechko, S. et al. 2021. Widespread potential loss of streamflow into underlying aquifers across the USA. *Nature*, 591: 391-395. doi: <https://doi.org/10.1038/s41586-021-03311-x>

¹² The Nature Conservancy. 2021. ICONS Tool. Available at: <https://icons.codefornature.org/>

RECOMMENDATIONS

- Use a screening depth of 50 feet to determine which stream reaches in the basin are potentially interconnected with groundwater.
- Consider any segments with data gaps as potential ISWs and clearly mark them as such on maps provided in the GSP.
- For the depth-to-groundwater contour maps, use the best practices presented in The Nature Conservancy's "Identifying GDEs under SGMA: Best Practices for using the NC Dataset."¹³ Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a Digital Elevation Model (DEM) to estimate depth-to-groundwater contours across the landscape. This will provide accurate contours of depth to groundwater along streams and other land surface depressions where GDEs are commonly found.

¹³ The Nature Conservancy's "Identifying GDEs under SGMA: Best Practices for using the NC Dataset." Available at: https://groundwaterresourcehub.org/public/uploads/pdfs/TNC_NCdataset_BestPracticesGuide_2019.pdf

4. Identification of groundwater dependent ecosystems

SGMA requires that GDEs be identified in the GSP.^{14,15} Table 4 provides a list of questions we used to evaluate how these beneficial users were identified in the GSP. These elements are critical for the GSA to fully understand the specific interests and water demands of these beneficial users, and to support their consideration in the development of sustainable management criteria and selection of projects and management actions.

In our review of the identification of GDEs, we found that the GSP improperly disregarded some mapped features in the NC dataset.¹⁶ NC dataset polygons were incorrectly removed if Normalized Difference Vegetation Index (NDVI) and Normalized Difference Moisture Index (NDMI) data did not correlate with groundwater level trends. This is an incorrect method, since a lack of a relationship does not preclude that groundwater is providing some of the ecosystem's water needs. NDVI and NDMI data are best utilized in conjunction with groundwater level data to assess how vegetation may be responding to groundwater changes. If the ecosystem is accessing groundwater and the vegetation is not stressed, then NDVI and NDMI will not change. Thus, it is better practice to use groundwater levels to verify the NC dataset than to use NDVI and NDMI trends. NC dataset polygons were also incorrectly removed in areas where previous site investigations indicated that the habitats were sustained by surface water. However, this removal criteria is flawed since GDEs can rely on multiple water sources – including surface water and groundwater – simultaneously and at different temporal/spatial scales. NC dataset polygons adjacent to surface water supplies can still potentially be reliant on shallow groundwater aquifers, and therefore should not be removed solely based on their proximity to these additional water sources.

Furthermore, the GSP did not provide a complete inventory of flora and fauna present in the basin, nor identify threatened and endangered species residing within the basin.

Table 4 shows the GSP satisfactorily answered three of eight questions for this criteria. Recommendations from our Draft GSP comment letter that have not been addressed in the Final GSP are listed below.

Table 4. Questions used to evaluate the identification of GDEs in the GSP.

Does the GSP identify groundwater dependent ecosystems (GDEs)?	No	Somewhat	Yes	Draft vs. Final GSP
Is there an inventory, map, or description of fauna (e.g., birds, fish, amphibian) and flora (e.g., plants) species or habitat types in the basin's GDEs? Please indicate in the notes if threatened and endangered species are identified in the GSP.	No description of flora NOR fauna in GDEs	Some details lacking on flora, fauna OR threatened or endangered species	Includes flora, fauna AND threatened or endangered species	No Change
Were GDEs in the basin identified (mapped) and described in the GSP using best available data (e.g., NC dataset, localized VegMap data)?	No GDE map	GDE map provided, but based on unclear or incorrect data/methods	GDE map included with best available data	Draft Sufficient
Was depth-to-groundwater data from the underlying principal aquifer used to verify the NC dataset?	Not incorporated	Incorporated, but unclear spatial or temporal data	Clearly incorporated and described	No Change

¹⁴ “Each plan shall provide a description of current and historic groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information that includes [...] Identification of GDEs within the basin, utilizing data available from the Department, as specified in Section 353.2, or the best available information.” [23 CCR § 354.16(g)]

¹⁵ Refer to Attachment B for a list of freshwater species located in the basin.

¹⁶ Department of Water Resources. 2018. Natural Communities Commonly Associated with Groundwater dataset (NC Dataset). Available at: <https://qis.water.ca.gov/app/NCDataSetViewer/>.

Did the GSP avoid using any of the following criteria when deciding whether or not to remove NC dataset polygons from the final GDE map: 1) presence of surface water, 2) distance from agricultural fields, 3) shallow principal aquifer was not considered main pumping aquifer, 4) groundwater connection only some percentage of the time, 5) other?	No	Unclear	Yes	No Change
Were multiple water year types (e.g., wet, average, dry) of groundwater level data used to characterize groundwater conditions in the GDEs?	No	Unclear	Yes	Draft Sufficient
Were depth-to-groundwater measurements under GDEs corrected for land surface elevations?	No	Unclear	Yes	No Change
Were data gaps identified when mapping GDEs?	Data gaps not identified	Data gaps described vaguely	Data gaps described clearly	Draft Sufficient
In the case of data gaps and uncertainty, were potential GDEs mapped and described in the GSP?	Not mapped NOR described	No map OR vague description	Clearly mapped AND described	No Change

RECOMMENDATIONS

- Re-evaluate the NC dataset polygons that were incorrectly removed based on NDVI and NDMI trends or proximity to surface water. Refer to best practices for using local groundwater data to verify whether polygons in the NC Dataset are supported by groundwater in an aquifer.¹³
- Provide depth-to-groundwater contour maps, noting best practices.¹³ Specifically, ensure that the first step is contouring groundwater elevations, and then subtracting this layer from land surface elevations from a DEM to estimate depth-to-groundwater contours across the landscape.
- If insufficient data are available to describe groundwater conditions within or near polygons from the NC dataset, include those polygons as “Potential GDEs” in the GSP until data gaps are reconciled in the monitoring network.
- Provide a complete inventory, map, or description of fauna (e.g., birds, fish, amphibian) and flora (e.g., plants) species in the basin and note any threatened or endangered species (see Attachment B in this letter for a list of freshwater species located in the Yucaipa Basin).
- For more information on shallow groundwater conditions in the basin, refer to The Nature Conservancy’s new tool, “SAGE: Shallow Groundwater Estimation Tool”, which uses machine learning and 35 years of satellite data to predict depth to groundwater and determine groundwater level trends for every polygon within the NC Dataset.^{17,18}

¹⁷ Webtool available at: <https://igde-work.earthengine.app/view/sage>

¹⁸ Rohde, M.M., T. Biswas, I.W. Housman, L.S. Campbell, K.R. Klausmeyer, J.K. Howard. 2021. A machine learning approach to predict groundwater levels in California reveals ecosystems at risk. *Frontiers in Earth Science*, doi: 10.3389/feart.2021.784499. Available at: <https://www.frontiersin.org/articles/10.3389/feart.2021.784499/full>

5. Incorporation of climate change in the water budget

The SGMA statute identifies climate change as a significant threat to groundwater resources and one that must be examined and incorporated in the GSPs. The GSP Regulations require integration of climate change into the projected water budget to ensure that projects and management actions sufficiently account for the range of potential climate futures.¹⁹

In our review of climate change in the projected water budget, we found that the GSP did incorporate climate change into the projected water budget using DWR change factors for 2030 and 2070. However, the GSP did not consider multiple climate scenarios (such as the 2070 wet and 2070 extremely dry climate scenarios) in the projected water budget. The GSP would benefit from clearly and transparently incorporating the extremely wet and dry scenarios provided by DWR into projected water budgets or selecting more appropriate extreme scenarios for the basin. While these extreme scenarios may have a lower likelihood of occurring and their consideration is only suggested by DWR, their consequences could be significant and their inclusion can help identify important vulnerabilities in the basin's approach to groundwater management.

The GSP did not clearly describe how climate change was incorporated into imported water inputs of the projected water budget. Furthermore, the GSP does not calculate a sustainable yield based on the projected water budget with climate change incorporated.

Table 5 shows the GSP satisfactorily answered three of six relevant questions for this criteria. Recommendations from our Draft GSP comment letter that have not been addressed in the Final GSP are listed below.

Table 5. Questions used to evaluate whether the GSP accounted for climate change.

Does the GSP account for climate change in the water budget?	No	Somewhat	Yes	Draft vs. Final GSP
Does the GSP incorporate climate change into the projected water budget using DWR change factors or other source?	No	Unclear	Yes	Draft Sufficient
Does the GSP consider multiple climate scenarios (e.g., the 2070 wet and 2070 extremely dry) scenarios in the projected water budget?	No	Somewhat	Yes	No Change
Does the GSP incorporate climate change into precipitation inputs for the projected water budget?	No	Unclear	Yes	Draft Sufficient
Does the GSP incorporate climate change into evapotranspiration inputs for the projected water budget?	No	Unclear	Yes	Draft Sufficient
Does the GSP incorporate climate change into surface water flow inputs (e.g., imported water, streamflow) for the projected water budget?	No	Unclear	Yes	No Change
Does the GSP incorporate climate change into sea level inputs for the projected water budget?	No	Unclear	Yes	Not Applicable
Does the GSP calculate a sustainable yield based on the projected water budget with climate change incorporated?	No		Yes	No Change

¹⁹ "Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow." [23 CCR §354.18(e)]

RECOMMENDATIONS

- Integrate climate change, including extreme climate scenarios, into all elements of the projected water budget to form the basis for development of sustainable management criteria and projects and management actions.
- Integrate climate change into imported water inputs for the projected water budget.
- Calculate sustainable yield based on the projected water budget with climate change incorporated.

6. Inclusion of ecosystems in the water budget

Native vegetation and managed wetlands are water use sectors that are required to be included into the water budget.^{20,21} Based on our review, we found native vegetation was improperly omitted in the historical, current, and projected water budgets. The Final GSP was updated to state that there are no managed wetlands in the basin.

Table 6 shows the GSP did not satisfactorily answer the only relevant question for this criteria. Recommendations from our Draft GSP comment letter that have not been addressed in the Final GSP are listed below.

Table 6. Questions used to evaluate whether the GSP accounted for ecosystems in the water budget.

Does the GSP account for ecosystems in the water budget?	No	Somewhat	Yes	Draft vs. Final GSP
Does the GSP include water demands for native vegetation in the historic, current, and projected water budgets?	No	Vague description	Yes	Final Improved
Does the GSP include water demands for managed wetlands in the historic, current, and projected water budgets?	No	Vague description	Yes	Not Applicable

RECOMMENDATIONS

- Quantify and present all water use sector demands in the historical, current, and projected water budgets with individual line items for each water use sector, including native vegetation.

²⁰ "Water use sector' refers to categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation." [23 CCR §351(a)]

²¹ "The water budget shall quantify the following, either through direct measurements or estimates based on data: (3) Outflows from the groundwater system by water use sector, including evapotranspiration, groundwater extraction, groundwater discharge to surface water sources, and subsurface groundwater outflow." [23 CCR §354.18]

7. Consideration of impacts to DACs, drinking water users, and environmental users in the sustainable management criteria?

The consideration of potential impacts on *all* beneficial users of groundwater in the basin are required when defining undesirable results and establishing minimum thresholds.^{22,23,24} Table 7 provides a list of questions we used to evaluate the consideration of DACs, drinking water users, and environmental users in the sustainable management criteria of the GSP. Adequate consideration of potential impacts on these beneficial users is contingent upon adequate identification and engagement of the appropriate stakeholders, and is essential for ensuring the GSP integrates existing state policies on the Human Right to Water and the Public Trust Doctrine.²⁵

SGMA requires that the sustainable management criteria be consistent with the Human Right to Water policy and avoid significant and unreasonable impacts on drinking water users. The GSP should describe direct and indirect impacts on DACs and drinking water users when defining undesirable results and minimum thresholds for chronic lowering of groundwater levels and degraded water quality.

Disadvantaged Communities (DACs)

The GSP does not provide an analysis of the direct or indirect impacts on DACs when defining undesirable results. In addition, the GSP does not provide an analysis of the impacts of the proposed minimum thresholds nor measurable objectives for the groundwater elevation nor water quality sustainability indicators. This is particularly concerning given the absence of a drinking water well mitigation program in the GSP.

Drinking Water Users

The GSP does not provide an analysis of the direct or indirect impacts on drinking water users when defining undesirable results. In addition, the GSP does not provide an analysis of the impacts of the proposed minimum thresholds nor measurable objectives for the groundwater elevation nor water quality sustainability indicators. This is particularly concerning given the absence of a drinking water well mitigation program in the GSP.

SGMA specifically requires that GSPs include “impacts on groundwater dependent ecosystems” and to assess whether surface water depletions caused by groundwater use are having an adverse impact on beneficial users of surface water and groundwater.^{26,27,28} The GSP should describe direct and indirect impacts on GDEs and instream habitats within ISWs when defining undesirable results and minimum thresholds for chronic lowering of groundwater levels, degraded water quality, and depletion of interconnected surface water.

²² “The description of undesirable results shall include [...] 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.” [23 CCR §354.26(b)(3)]

²³ “The description of minimum thresholds shall include [...] how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.” [23 CCR §354.28(b)(4)]

²⁴ “The description of minimum thresholds shall include [...] how state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the agency shall explain the nature of and the basis for the difference.” [23 CCR §354.28(b)(5)]

²⁵ “The Department shall consider the state policy regarding the human right to water when implementing these regulations.” [23 CCR §350.4(g)]

²⁶ “The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results.” [23 CCR §354.28(c)(6)]

²⁷ “The description of minimum thresholds shall include the following: [...] (4) How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.” [23 CCR §354.28(b)(4)]

²⁸ Water Code §10727.4(l)

Environmental Users

For the depletion of interconnected surface water sustainability indicator, the GSP provides an analysis of the direct or indirect impacts on terrestrial GDEs when defining undesirable results, but does not provide an analysis of the direct or indirect impacts on beneficial users of surface water. The GSP does not provide an analysis of the impacts of the proposed minimum thresholds nor measurable objectives.

For the groundwater elevation and water quality sustainability indicators, the GSP does not provide an analysis of the direct or indirect impacts on GDEs when defining undesirable results. In addition, the GSP does not provide an analysis of the impacts of the proposed minimum thresholds nor measurable objectives.

Table 7 shows the GSP satisfactorily answered none of the eleven questions for this criteria. Recommendations from our Draft GSP comment letter that have not been addressed in the Final GSP are listed below.

Table 7. Questions used to evaluate the consideration of DACs, drinking water users, and environmental users in the sustainable management criteria of the GSP.

Does the GSP consider impacts to DACs, drinking water users, and GDEs in the sustainable management criteria?	No	Somewhat	Yes	Draft vs. Final GSP
Does the GSP analyze direct or indirect impacts on domestic drinking wells when defining Undesirable Results?	No mention	Mentioned, but not well analyzed	Analyzed and described	No Change
Does the GSP analyze direct and indirect impacts on DACs when defining Undesirable Results?	No mention	Mentioned, but not well analyzed	Analyzed and described	No Change
Does the GSP analyze direct and indirect impacts on GDEs when defining Undesirable Results?	No mention	Mentioned, but not well analyzed	Analyzed and described	No Change
Does the GSP evaluate the cumulative or indirect impacts of proposed groundwater elevation and water quality minimum thresholds on drinking water users (e.g., domestic wells, municipal water suppliers)?	No mention	Mentioned, but not well analyzed for all relevant sustainability indicators	Analyzed and described	No Change
Does the GSP evaluate the cumulative or indirect impacts of proposed groundwater elevation and water quality minimum thresholds on DACs?	No mention	Mentioned, but not well analyzed for all relevant sustainability indicators	Analyzed and described	No Change
Does the GSP evaluate the cumulative or indirect impacts of proposed minimum thresholds for groundwater elevations and ISW on GDEs or environmental beneficial users of surface water?	No mention	Mentioned, but not well analyzed for all relevant sustainability indicators	Analyzed and described	No Change
Does the GSP establish Water Quality minimum thresholds and measurable objectives for the identified constituents/contaminants identified in the plan area?	No	Only for some constituents of concern	Yes	No Change
Are Water Quality minimum thresholds based on or within the Maximum Contaminant levels (MCLs)?	No	Only for some constituents of concern	Yes	No Change
Does the GSP consider drinking water users when establishing water quality and groundwater elevation measurable objectives?	No mention	Mentioned, but not well analyzed for all relevant sustainability indicators	Analyzed and described	No Change
Does the GSP consider DACs when establishing water quality and groundwater elevation measurable objectives?	No mention	Mentioned, but not well analyzed for all relevant sustainability indicators	Analyzed and described	No Change

Does the GSP consider GDEs when establishing ISW and groundwater elevation measurable objectives?	No mention	Mentioned, but not well analyzed for all relevant sustainability indicators	Analyzed and described	No Change
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RECOMMENDATIONS

- Describe direct and indirect impacts on drinking water users and DACs when describing undesirable results and defining minimum thresholds for chronic lowering of groundwater levels. Include information on the impacts during prolonged periods of below average water years.
- Consider and evaluate the impacts of selected minimum thresholds and measurable objectives on drinking water users and DACs within the basin. Further describe the impact of passing the minimum threshold for these users. For example, provide the number of domestic wells that would be fully or partially de-watered at the minimum threshold.
- Establish water quality SMC. Set minimum thresholds and measurable objectives for all water quality constituents within the basin that can be impacted and/or exacerbated as a result of groundwater use or groundwater management.
- Describe direct and indirect impacts on drinking water users and DACs when defining undesirable results for degraded water quality.²⁹ For specific guidance on how to consider these users, refer to “Guide to Protecting Water Quality Under the Sustainable Groundwater Management Act.”³⁰
- Evaluate the cumulative or indirect impacts of proposed minimum thresholds for degraded water quality on drinking water users and DACs.
- When establishing SMC for the basin, consider that the SGMA statute [Water Code §10727.4(l)] specifically calls out that GSPs shall include “impacts on groundwater dependent ecosystems.”
- Evaluate impacts on GDEs when establishing SMC for chronic lowering of groundwater levels. When defining undesirable results, provide specifics on what biological responses (e.g., extent of habitat, growth, recruitment rates) would best characterize a significant and unreasonable impact to GDEs. Undesirable results to environmental users occur when ‘significant and unreasonable’ effects on beneficial users are caused by one of the sustainability indicators (i.e., chronic lowering of groundwater levels, degraded water quality, or depletion of interconnected surface water). Thus, potential impacts on environmental beneficial uses and

²⁹ “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.” [23 CCR §354.34(c)(4)]

³⁰ Guide to Protecting Water Quality under the Sustainable Groundwater Management Act https://d3n8a8pro7vhmx.cloudfront.net/communitywatercenter/pages/293/attachments/original/1559328858/Guide_to_Protecting_Drinking_Water_Quality_Under_the_Sustainable_Groundwater_Management_Act.pdf?1559328858

users need to be considered when defining undesirable results in the basin.³¹ Defining undesirable results is the crucial first step before the minimum thresholds can be determined.³²

- Establish SMC for depletion of interconnected surface water. When defining undesirable results, include a description of potential impacts on instream habitats within ISWs when minimum thresholds in the basin are reached.³³ The GSP should confirm that minimum thresholds for ISWs avoid adverse impacts on environmental beneficial users of interconnected surface waters as these environmental users could be left unprotected by the GSP. These recommendations apply especially to environmental beneficial users that are already protected under pre-existing state or federal law.^{22,34}
- To identify beneficial users in the basin that may be at risk to groundwater level declines, refer to The Nature Conservancy's new tool, "SAGE: Shallow Groundwater Estimation Tool", which uses machine learning and 35 years of satellite data to predict depth to groundwater for each polygon within the NC Dataset.^{35,36}

³¹ "The description of undesirable results shall include [...] 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". [23 CCR §354.26(b)(3)]

³² The description of minimum thresholds shall include [...] how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests." [23 CCR §354.28(b)(4)]

³³ "The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results." [23 CCR §354.28(c)(6)]

³⁴ Rohde MM, Seapy B, Rogers R, Castañeda X, editors. 2019. Critical Species LookBook: A compendium of California's threatened and endangered species for sustainable groundwater management. The Nature Conservancy, San Francisco, California. Available at:

https://groundwaterresourcehub.org/public/uploads/pdfs/Critical_Species_LookBook_91819.pdf

³⁵ Webtool available at: <https://igde-work.earthengine.app/view/sage>

³⁶ Rohde, M.M., T. Biswas, I.W. Housman, L.S. Campbell, K.R. Klausmeyer, J.K. Howard. 2021. A machine learning approach to predict groundwater levels in California reveals ecosystems at risk. *Frontiers in Earth Science*, doi: 10.3389/feart.2021.784499. Available at: <https://www.frontiersin.org/articles/10.3389/feart.2021.784499/full>

8. Identification and reconciliation of data gaps

Adaptive Management is at the core of SGMA. SGMA also requires that impacts to beneficial uses or users of groundwater be monitored.³⁷ Beneficial users may remain unprotected by the GSP without adequate monitoring. When data gaps are not identified, particularly in shallow aquifers, impacts disproportionately threaten GDEs, aquatic habitats, and shallow domestic well water users. In addition to monitoring wells, biological monitoring is an important component to ensure impacts to GDEs do not occur.¹⁵ Table 8 provides a list of questions we used to evaluate whether the GSP identified data gaps in the monitoring network and made plans to reconcile them. In many cases, GSPs did not provide adequate mapping to clearly convey whether current and proposed monitoring well locations sufficiently monitored groundwater conditions for key beneficial users. For this reason, we created a set of maps (provided in Attachment C) that we included in the draft GSP comment letters to help us evaluate the questions in Table 8.

In our review, we found that the GSP did not identify and reconcile data gaps for some beneficial users in the basin. Table 8 shows the GSP satisfactorily answered one of four questions for this criteria. Recommendations from our Draft GSP comment letter that have not been addressed in the Final GSP are listed below.

Table 8. Questions used to evaluate whether the GSP identified data gaps and made plans to reconcile them.

Does the GSP identify and reconcile data gaps?	No	Somewhat	Yes	Draft vs. Final GSP
Do the Representative Monitoring Sites (RMS) in the monitoring network adequately represent water quality conditions around DACs, domestic wells, tribes, and GDEs (in the case of data gaps, evaluate proposed monitoring sites)?	Not present within DAC, domestic well, tribal areas, NOR GDEs.	Not adequately cover DAC, domestic well, tribal areas, OR GDEs.	Adequately distributed (<1 mi) across DAC, domestic well, tribal areas, AND GDEs.	No Change
Do the Representative Monitoring Sites (RMS) in the monitoring network adequately represent shallow groundwater elevations around DACs, domestic wells, tribes, and GDEs (in the case of data gaps, evaluate proposed monitoring sites).	Not present within DAC, domestic well, tribal areas, NOR GDEs.	Not adequately cover DAC, domestic well, tribal areas, OR GDEs.	Adequately distributed (<1 mi) across DAC, domestic well, tribal areas, AND GDEs.	Final Improved
Does the GSP include a plan to identify and fill shallow monitoring well data gaps around GDEs and ISWs in the monitoring network?	No	Vague description	Yes	No Change
Does the GSP include any plans to incorporate GDE-related biological monitoring into the monitoring network?	No	Vague description	Yes	No Change

RECOMMENDATIONS

- Increase the number of representative monitoring sites (RMSs) in the shallow aquifer across the basin as needed to map ISWs and adequately monitor all groundwater condition indicators across the basin and at appropriate depths for *all* beneficial users. Prioritize proximity to DACs, domestic wells, GDEs, and ISWs when identifying new RMSs.

³⁷ “The monitoring network objectives shall be implemented to accomplish the following: [...] (2) Monitor impacts to the beneficial uses or users of groundwater.” [23 CCR §354.34(b)(2)]

- Ensure groundwater elevation and water quality RMSs are monitoring groundwater conditions spatially and at the correct depth for *all* beneficial users - especially DACs, domestic wells, and GDEs.
- Further describe biological monitoring that can be used to assess the potential for significant and unreasonable impacts to GDEs or ISWs due to groundwater conditions in the basin.
- Prioritize the installation of new wells around beneficial uses most susceptible to groundwater decline by referring to The Nature Conservancy's new tool, "SAGE: Shallow Groundwater Estimation Tool", which uses machine learning and 35 years of satellite data to predict depth to groundwater for each polygon within the NC Dataset.^{38,39}

³⁸ Webtool available at: <https://igde-work.earthengine.app/view/sage>

³⁹ Rohde, M.M., T. Biswas, I.W. Housman, L.S. Campbell, K.R. Klausmeyer, J.K. Howard. 2021. A machine learning approach to predict groundwater levels in California reveals ecosystems at risk. *Frontiers in Earth Science*, doi: 10.3389/feart.2021.784499. Available at: <https://www.frontiersin.org/articles/10.3389/feart.2021.784499/full>

9. Identification of potential impacts to beneficial users in the Project and Management Actions

Project and Management Actions are essential for ensuring the basin stays within or achieves its sustainable yield and avoids undesirable results for *all* beneficial users in the basin. Therefore, it is important that the GSP identifies benefits or impacts of project and management actions to key beneficial users. Table 9 provides a list of questions we used to evaluate whether benefits and potential impacts to beneficial users were identified in the GSP’s Project and Management Actions. While not all projects and management actions are applicable to every basin, the GSP should include benefits and evaluate impacts to vulnerable beneficial users in all planned projects and management actions, and include a drinking water well mitigation program to protect drinking water. We assessed whether or not the projects had specific plans (such as a timeline and funding) in place during the GSP planning horizon, or whether it was described as a potential future project.

Table 9 shows the GSP satisfactorily answered one of six questions for this criteria. Recommendations from our Draft GSP comment letter that have not been addressed in the Final GSP are listed below.

Table 9. Questions used to evaluate whether potential impacts to beneficial users were identified in the GSP’s Project and Management Actions.

Does the GSP identify potential impacts to beneficial users in the Project and Management Actions?	No	Somewhat	Yes	Draft vs. Final GSP
Does the GSP include any recharge projects with explicit benefits to the environment?	No	Vague description or listed as potential project	Yes	No Change
Does the GSP include any habitat or stream restoration or invasive species removal projects (e.g., to improve water supply in the basin or GDE habitats)?	No	Vague description or listed as potential project	Yes	No Change
Does the GSP identify benefits or impacts of identified projects and management actions to key beneficial users such as GDEs, drinking water users, tribes, DACs?	No	Vague description	Yes	Draft Sufficient
Does the GSP include any recharge projects with explicit benefits to DACs?	No	Vague description or listed as potential project	Yes	No Change
Does the GSP include a drinking water well mitigation program to avoid significant and unreasonable loss of drinking water?	No	Vague description or listed as potential project	Yes	No Change
Does the GSP identify potential impacts to water quality from Projects and Management Actions?	No	Vague description or listed as potential project	Yes	No Change

RECOMMENDATIONS

- For DACs and domestic well owners, include a drinking water well impact mitigation program to proactively monitor and protect drinking water wells through GSP implementation. Refer to “Framework for a Drinking Water Well Impact Mitigation Program” for specific recommendations on how to implement a drinking water well mitigation program.⁴⁰

⁴⁰ Framework for a Drinking Water Well Impact Mitigation Program. Available at: https://static1.squarespace.com/static/5e83c5f78f0db40cb837cfb5/t/5f3ca9389712b732279e5296/1597811008129/Well_Mitigation_English.pdf

- For DACs and domestic well owners, include a discussion of whether potential impacts to water quality from projects and management actions could occur and how the GSA plans to mitigate such impacts.
- Recharge ponds, reservoirs, and facilities for managed aquifer recharge can be designed as multiple-benefit projects to include elements that act functionally as wetlands and provide a benefit for wildlife and aquatic species. For guidance on how to integrate multi-benefit recharge projects into your GSP, refer to the “Multi-Benefit Recharge Project Methodology Guidance Document.”⁴¹

⁴¹ The Nature Conservancy. 2021. Multi-Benefit Recharge Project Methodology for Inclusion in Groundwater Sustainability Plans. Sacramento. Available at: <https://groundwaterresourcehub.org/sigma-tools/multi-benefit-recharge-project-methodology-guidance/>

Attachment B

Freshwater Species Located in the Yucaipa Basin

To assist in identifying the beneficial users of surface water necessary to assess the undesirable result “depletion of interconnected surface waters”, Attachment C provides a list of freshwater species located in the Yucaipa Basin. To produce the freshwater species list, we used ArcGIS to select features within the California Freshwater Species Database version 2.0.9 within the basin boundary. This database contains information on ~4,000 vertebrates, macroinvertebrates and vascular plants that depend on fresh water for at least one stage of their life cycle. The methods used to compile the California Freshwater Species Database can be found in Howard et al. 2015¹. The spatial database contains locality observations and/or distribution information from ~400 data sources. The database is housed in the California Department of Fish and Wildlife’s BIOS² as well as on The Nature Conservancy’s science website³.

Scientific Name	Common Name	Legal Protected Status		
		Federal	State	Other
BIRDS				
<i>Actitis macularius</i>	Spotted Sandpiper			
<i>Agelaius tricolor</i>	Tricolored Blackbird	Bird of Conservation Concern	Special Concern	BSSC - First priority
<i>Aix sponsa</i>	Wood Duck			
<i>Anas acuta</i>	Northern Pintail			
<i>Anas americana</i>	American Wigeon			
<i>Anas clypeata</i>	Northern Shoveler			
<i>Anas crecca</i>	Green-winged Teal			
<i>Anas platyrhynchos</i>	Mallard			
<i>Anas strepera</i>	Gadwall			
<i>Ardea alba</i>	Great Egret			
<i>Ardea herodias</i>	Great Blue Heron			
<i>Aythya affinis</i>	Lesser Scaup			
<i>Aythya americana</i>	Redhead		Special Concern	BSSC - Third priority
<i>Aythya collaris</i>	Ring-necked Duck			
<i>Aythya marila</i>	Greater Scaup			
<i>Bucephala albeola</i>	Bufflehead			
<i>Bucephala clangula</i>	Common Goldeneye			
<i>Butorides virescens</i>	Green Heron			
<i>Calidris minutilla</i>	Least Sandpiper			

¹ Howard, J.K. et al. 2015. Patterns of Freshwater Species Richness, Endemism, and Vulnerability in California. PLoS ONE, 11(7). Available at: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0130710>

² California Department of Fish and Wildlife BIOS: <https://www.wildlife.ca.gov/data/BIOS>

³ Science for Conservation: <https://www.scienceforconservation.org/products/california-freshwater-species-database>

<i>Chroicocephalus philadelphia</i>	Bonaparte's Gull			
<i>Cistothorus palustris palustris</i>	Marsh Wren			
<i>Egretta thula</i>	Snowy Egret			
<i>Empidonax traillii</i>	Willow Flycatcher	Bird of Conservation Concern	Endangered	
<i>Empidonax traillii extimus</i>	Southwestern Willow Flycatcher	Endangered	Endangered	
<i>Fulica americana</i>	American Coot			
<i>Haliaeetus leucocephalus</i>	Bald Eagle	Bird of Conservation Concern	Endangered	
<i>Icteria virens</i>	Yellow-breasted Chat		Special Concern	BSSC - Third priority
<i>Lophodytes cucullatus</i>	Hooded Merganser			
<i>Megaceryle alcyon</i>	Belted Kingfisher			
<i>Mergus merganser</i>	Common Merganser			
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron			
<i>Oxyura jamaicensis</i>	Ruddy Duck			
<i>Pelecanus erythrorhynchos</i>	American White Pelican		Special Concern	BSSC - First priority
<i>Phalacrocorax auritus</i>	Double-crested Cormorant			
<i>Piranga rubra</i>	Summer Tanager		Special Concern	BSSC - First priority
<i>Podilymbus podiceps</i>	Pied-billed Grebe			
<i>Porzana carolina</i>	Sora			
<i>Setophaga petechia</i>	Yellow Warbler			BSSC - Second priority
<i>Setophaga petechia brewsteri</i>	A Yellow Warbler	Bird of Conservation Concern	Special Concern	
<i>Tachycineta bicolor</i>	Tree Swallow			
<i>Tringa melanoleuca</i>	Greater Yellowlegs			
<i>Vireo bellii</i>	Bell's Vireo			
<i>Vireo bellii pusillus</i>	Least Bell's Vireo	Endangered	Endangered	
CRUSTACEANS				
<i>Hyalella</i> spp.	<i>Hyalella</i> spp.			
HERPS				
<i>Actinemys marmorata marmorata</i>	Western Pond Turtle		Special Concern	ARSSC
<i>Anaxyrus boreas boreas</i>	Boreal Toad			
<i>Anaxyrus californicus</i>	Arroyo Toad	Endangered	Special Concern	ARSSC
<i>Pseudacris cadaverina</i>	California Treefrog			ARSSC

Rana draytonii	California Red-legged Frog	Threatened	Special Concern	ARSSC
Rana muscosa	Southern Mountain Yellow-legged Frog	Endangered	Candidate Endangered	ARSSC
Spea hammondii	Western Spadefoot	Under Review in the Candidate or Petition Process	Special Concern	ARSSC
Thamnophis hammondii hammondii	Two-striped Gartersnake		Special Concern	ARSSC
Thamnophis sirtalis sirtalis	Common Gartersnake			
INSECTS & OTHER INVERTS				
Apedilum spp.	Apedilum spp.			
Argia spp.	Argia spp.			
Baetidae fam.	Baetidae fam.			
Baetis adonis	A Mayfly			
Baetis spp.	Baetis spp.			
Baetis tricaudatus	A Mayfly			
Belostomatidae fam.	Belostomatidae fam.			
Chironomidae fam.	Chironomidae fam.			
Chironomus spp.	Chironomus spp.			
Cricotopus spp.	Cricotopus spp.			
Cricotopus trifascia				Not on any status lists
Cryptochironomus spp.	Cryptochironomus spp.			
Ephydriidae fam.	Ephydriidae fam.			
Eukiefferiella spp.	Eukiefferiella spp.			
Fallceon quilleri	A Mayfly			
Hydropsyche spp.	Hydropsyche spp.			
Hydropsychidae fam.	Hydropsychidae fam.			
Hydroptila spp.	Hydroptila spp.			
Hydroptilidae fam.	Hydroptilidae fam.			
Laccobius spp.	Laccobius spp.			
Laccophilus spp.	Laccophilus spp.			
Limnophyes spp.	Limnophyes spp.			
Micropsectra spp.	Micropsectra spp.			
Narpus spp.	Narpus spp.			
Parametricnemus spp.	Parametricnemus spp.			
Paraphaenocladus spp.	Paraphaenocladus spp.			
Pentaneura spp.	Pentaneura spp.			
Polypedilum spp.	Polypedilum spp.			
Pseudosmittia spp.	Pseudosmittia spp.			
Psychodidae fam.	Psychodidae fam.			
Rheotanytarsus spp.	Rheotanytarsus spp.			

Simuliidae fam.	Simuliidae fam.			
Simulium spp.	Simulium spp.			
Sperchon spp.	Sperchon spp.			
Tanytarsus spp.	Tanytarsus spp.			
Tipulidae fam.	Tipulidae fam.			
Zaitzevia spp.	Zaitzevia spp.			
MOLLUSKS				
Physa spp.	Physa spp.			
Pyrgulopsis californiensis	Laguna Mountain Springsnail			V
PLANTS				
Alnus rhombifolia	White Alder			
Arundo donax	NA			
Eleocharis coloradoensis				Not on any status lists
Juncus dubius	Mariposa Rush			
Juncus rugulosus	Wrinkled Rush			
Juncus xiphioides	Iris-leaf Rush			
Myriophyllum aquaticum	NA			
Myriophyllum sibiricum	Common Water-milfoil			
Persicaria lapathifolia				Not on any status lists
Phacelia distans	NA			
Rumex violascens	Violet Dock			

Attachment C

Maps of representative monitoring sites in relation to key beneficial users

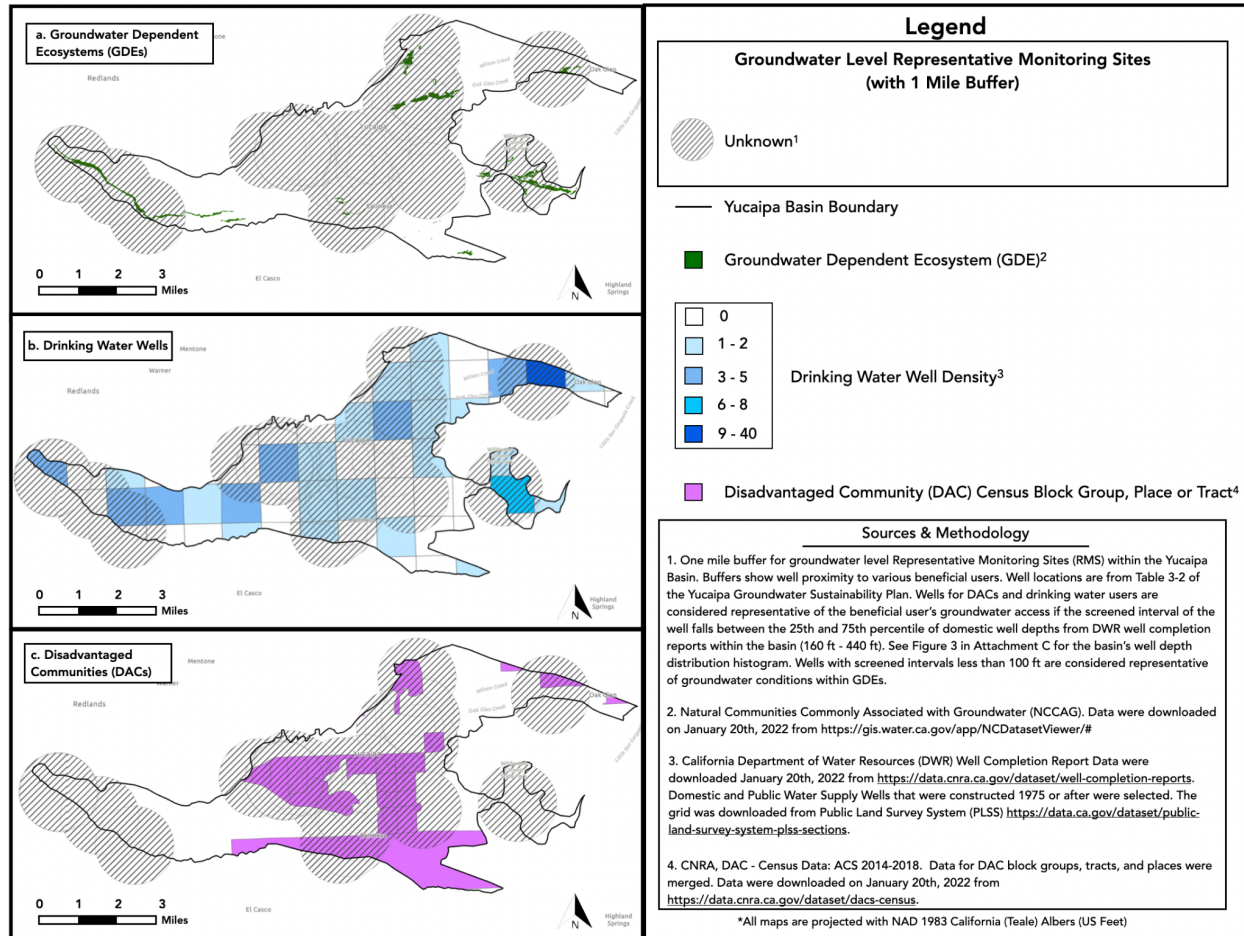


Figure 1. Groundwater elevation representative monitoring sites in relation to key beneficial users: a) Groundwater Dependent Ecosystems (GDEs), b) Drinking Water users, c) Disadvantaged Communities (DACs), and d) Tribes.

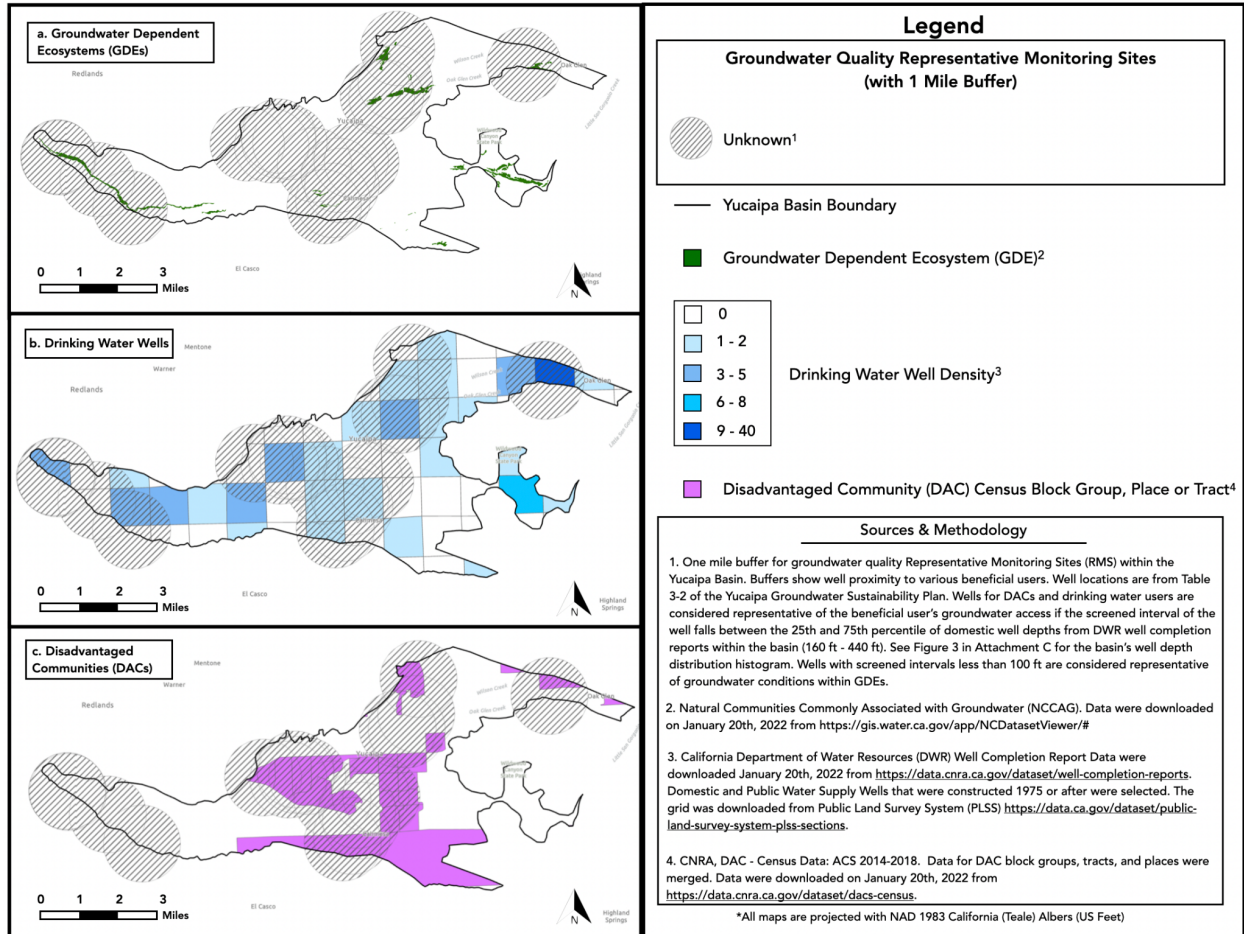


Figure 2. Groundwater quality representative monitoring sites in relation to key beneficial users: a) Groundwater Dependent Ecosystems (GDEs), b) Drinking Water users, c) Disadvantaged Communities (DACs), and d) Tribes.

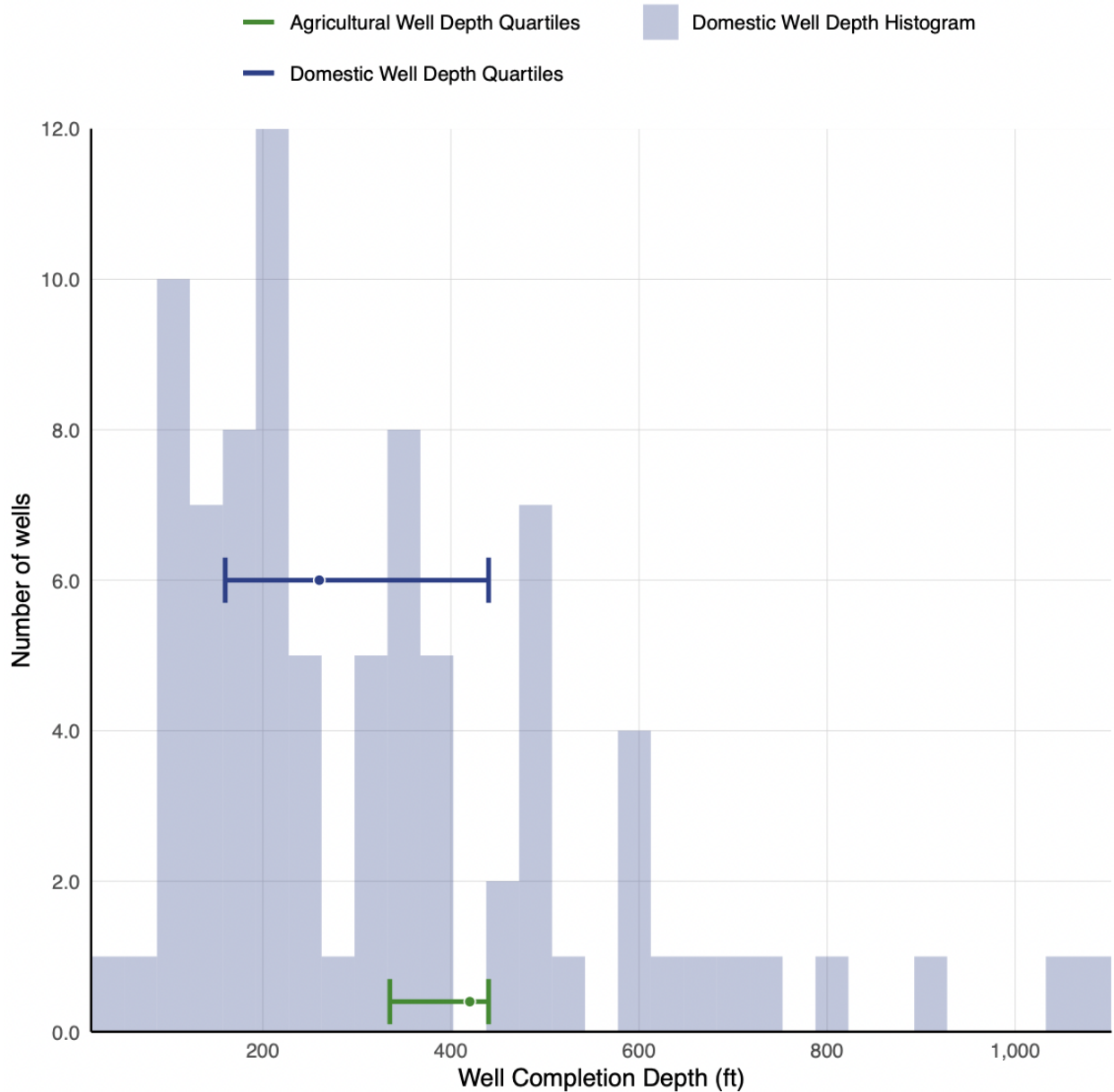


Figure 3. Groundwater well depth histogram for domestic (blue) and agricultural (green) wells. If less than 10 agricultural or domestic wells are present within the basin, the sector histogram is not shown. Data from California Department of Water Resources' Online System for Well Completion Reports (<https://data.cnra.ca.gov/dataset/well-completion-reports>).

RESOLUTION NO. 2023-01

RESOLUTION OF THE YUCAIPA GROUNDWATER SUSTAINABILITY AGENCY TO ADOPT A WELL ORDINANCE FOR THE YUCAIPA SUBBASIN (BASIN NO. 8-002.07)

WHEREAS, on September 16, 2014, Governor Jerry Brown signed into law Senate Bills 1168 and 1319, and Assembly Bill 1739, collectively known as the Sustainable Groundwater Management Act ("SGMA"), codified in certain provisions of the California Government Code, including commencing with Section 65350.5, and codified in Part 2.74 of Division 6 of the California Water Code, commencing with Section 10720, and amending other provisions of the California Government Code and California Water Code; and,

WHEREAS, the SGMA went into effect on January 1, 2015; and,

WHEREAS, various clarifying amendments to the SGMA were signed into law in 2015, including Senate Bills 13 and 226, and Assembly Bills 617 and 939, which were codified in part in California Water Code Section 10723.6(a), authorizing a combination of local agencies to form a Groundwater Sustainability Agency ("GSA") pursuant to a joint powers agreement, a memorandum of agreement, or other legal agreement; and, California Water Code Section 10723.6(b), authorizing water corporations regulated by the California Public Utilities Commission and mutual water companies to participate in a GSA through a memorandum of agreement or other legal agreement; and,

WHEREAS, the legislative intent and effect of the SGMA, as set forth in California Water Code Section 10720.1, includes the following: (1) to provide for the sustainable management of groundwater basins; (2) to enhance local management of groundwater consistent with rights to use or store groundwater and Section 2 of Article X Water of the California Constitution, and to preserve the security of water rights in the state to the greatest extent possible consistent with the sustainable management of groundwater; (3) to establish minimum standards for sustainable groundwater management; (4) to provide local groundwater agencies with the authority and the technical and financial assistance necessary to sustainably manage groundwater; (5) to avoid or minimize subsidence; (6) to improve data collection and understanding about groundwater; (7) to increase groundwater storage and remove impediments to recharge; (8) to manage groundwater basins through the actions of local governmental 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; and (9) to provide a more efficient and cost-effective groundwater adjudication process that protects water rights, ensures due process, prevents unnecessary delay, and furthers the objectives of the SGMA; and,

WHEREAS, the SGMA affords GSAs specific powers to manage groundwater in addition to existing legal authorities, which powers may be used to provide the maximum degree of local control and flexibility consistent with the sustainability goals of SGMA; and,

WHEREAS, the SGMA includes several un-codified findings by the California Legislature, including the determination that the people of the state have a primary interest in the protection, management, and reasonable beneficial use of the water resources of the state, both surface and underground, and that the integrated management of the state's water resources is essential to meeting its water management goals; and,

WHEREAS, the Yucaipa Subbasin (“SUBBASIN”) is identified by the California Department of Water Resources Bulletin 118 as Sub-basin No. 8-002.07 of the Upper Santa Ana Valley Groundwater Basin, and is designated by the California Department of Water Resources (“DWR”) as a high-priority basin; and,

WHEREAS, California Water Code Section 10720.7 requires the SUBBASIN, as a high-priority basin that is not designated by DWR as being subject to critical conditions of overdraft, to be managed by a Groundwater Sustainability Plan (“GSP”) by January 31, 2022; and,

WHEREAS, South Mesa Water Company (“SOUTH MESA”), South Mountain Water Company (“SOUTH MOUNTAIN”), Western Heights Water Company (“WHWC”) and Yucaipa Valley Water District (“YVWD”), herein collectively referred to as the “WATER PURVEYORS”; and the City of Calimesa (“CALIMESA”), the City of Redlands (“REDLANDS”) and the City of Yucaipa (“YUCAIPA”), herein collectively referred to as the MUNICIPALITIES”; and the San Bernardino Valley Municipal Water District (“SBVMWD”) and the San Gorgonio Pass Water Agency (“SGPWA”), herein collectively referred to as the “REGIONALS”, entered into a Memorandum of Agreement (“MOA”) in June 2017 to form a GSA called the Yucaipa Groundwater Sustainability Agency (“YUCAIPA GSA”), and,

WHEREAS, each of the above-described entities is individually referred to as a “PARTY” and are collectively referred to as the “PARTIES”. SOUTH MESA, SOUTH MOUNTAIN and WHWC are collectively referred to as the “MUTUALS”; and, the PARTIES other than the MUTUALS are collectively referred to as the “LOCAL AGENCIES,” and,

WHEREAS, The County of Riverside (“RIVERSIDE”) and the County of San Bernardino (“SAN BERNARDINO”), collectively referred to as the “COUNTIES,” are stakeholders but not PARTIES in the YUCAIPA GSA, and,

WHEREAS, CALIMESA submitted a written Notice of Withdrawal dated November 19, 2018 and the Yucaipa GSA subsequently acknowledged the withdrawal of CALIMESA from the Yucaipa GSA at the January 23, 2019 YUCAIPA GSA Board meeting, and,

WHEREAS, the LOCAL AGENCIES have water supply, water management, and/or land use responsibilities for their respective jurisdictional areas overlying the SUBBASIN and are local agencies as defined by the SGMA in California Water Code Section 10721(n), and thus each is authorized by the SGMA to form a GSA; and,

WHEREAS, the LOCAL AGENCIES’ individually have jurisdictional and/or service areas within and their collective jurisdictional areas and/or service areas that cover the entirety of the SUBBASIN, with no gaps in coverage; and,

WHEREAS, the WATER PURVEYORS, including the MUTUALS, produce groundwater and provide water service within the SUBBASIN; and,

WHEREAS, the REGIONALS are State Water Contractors, and have the rights and duties of such, including for the delivery of State Water Project Water within the

SUBBASIN; and,

WHEREAS, the PARTIES have worked with local stakeholders and interested parties in the SUBBASIN that are not PARTIES in YUCAIPA GSA to carry out the policy, purposes, and requirements of the SGMA in the SUBBASIN; and,

WHEREAS, the YUCAIPA GSA has developed a GSP for the SUBBASIN as required by the SGMA; and,

WHEREAS, the GSP for the SUBBASIN contains all the elements required by Water Code sections 10727.2 and 10727.4; and,

WHEREAS, the YUCAIPA GSA adopted the GSP for the SUBBASIN at a public hearing held on January 26, 2022; and,

WHEREAS, the YUCAIPA GSA, pursuant to its authority under the SGMA, has developed an ordinance to provide minimum standards for the construction, reconstruction, abandonment, and destruction of all wells in the SUBBASIN in order to: (a) protect and sustainably manage the groundwater resources in the SUBBASIN, (b) ensure that the construction and use of groundwater supply wells and monitoring wells are consistent with the groundwater sustainable management criteria and monitoring protocols established in the GSP for the SUBBASIN, and (c) provide safe water for the beneficial use by all groundwater users in the SUBBASIN; and,

WHEREAS, In 1986, the Board of Supervisors for San Bernardino County adopted Ordinance 3105, codified as Article 3 (commencing with Section 33.0630) of Chapter 6 of Division 3 of Title 3 of the San Bernardino County Code of Ordinances (SB Ordinance), which establishes requirements for well permit applications, the conditions for approving or denying well permit applications, the licensing and registration of water well drillers and contractors, the selection of well sites, water well surface construction features, inspections by County staff during certain aspects of well construction and destruction, and references the recommended well standards in DWR Bulletin 74-81 and adopts these standards as the well standards for San Bernardino County; and,

WHEREAS, In 1989, the Board of Supervisors of the County of Riverside adopted Riverside County Ordinance 682, amended in its entirety in 2021 by Ordinance 682.5, entitled "An Ordinance of the County of Riverside Regulating the Construction, Reconstruction, Abandonment and Destruction of Wells and Incorporating by Reference Ordinance No. 725" (Riverside Ordinance); and,

WHEREAS, the YUCAIPA GSA has incorporated by reference the SB Ordinance and the Riverside Ordinance as minimum standards for the construction, reconstruction, abandonment, and destruction of wells in those portions of the SUBBASIN that are within San Bernardino County and Riverside County, respectively; and,

WHEREAS, the YUCAIPA GSA ordinance requires additional information be included in well permit applications submitted to San Bernardino County and Riverside

County, the installation of a sounding tube to measure depths-to-water in the well, a totalizing flow meter to measure and record the rate and total volume of groundwater produced, and a sampling port to collect groundwater quality samples;

NOW, THEREFORE, BE IT RESOLVED:

1. The above Recitals are true and correct.
2. The Yucaipa GSA adopts An Ordinance of the Yucaipa Groundwater Sustainability Agency Regulating the Construction, Reconstruction, Abandonment, and Destruction of Wells and Incorporating by Reference San Bernardino County Code Sections 33.0630 to 33.0645 and Riverside County Ordinance 682.4.

PASSED AND ADOPTED on this 26th day of April, 2023, by the following vote, to-wit:

DRAFT

ORDINANCE 2023-01

An Ordinance of the Yucaipa Groundwater Sustainability Agency Regulating the Construction, Reconstruction, Abandonment, and Destruction of Wells and Incorporating by Reference San Bernardino County Code Sections 33.0630 to 33.0645 and Riverside County Ordinance 682.4

1 Purpose

In 2014, the California State Legislature adopted the Sustainable Groundwater Management Act (Wat. Code § 10720 *et seq.*) (SGMA). In furtherance of the SGMA, the California Department of Water Resources (DWR) promulgated Subchapter 2 (commencing with Section 350) of Chapter 1.5 of Division 2 of Title 23 of the California Code of Regulations (GSP Regulations).

The SGMA empowered local agencies to form Groundwater Sustainability Agencies (GSAs) to develop and adopt Groundwater Sustainability Plans (GSPs). The goal of developing and implementing GSPs is to manage the use of local groundwater resources sustainably for long-term reliability and multiple economic, social, and environmental benefits for current and future users. Among the legislative purposes of the SGMA are for California's groundwater basins to be managed sustainably "through the actions of local government agencies to the maximum extent feasible," and to provide local public agencies acting as GSAs with the authority and technical and financial assistance necessary to achieve basin sustainability (Wat. Code § 10720.1).

The Yucaipa Groundwater Sustainability Agency (Yucaipa GSA) was formed in 2017 to act as the GSA for the Yucaipa Subbasin. The Yucaipa Subbasin lies within the Upper Santa Ana River Basin Hydrologic Region (DWR basin number 8-002.07) and underlies an area of approximately 25,300 acres under portions of the cities of Calimesa, Redlands, and Yucaipa, as well as unincorporated San Bernardino and Riverside Counties. The Yucaipa GSA jurisdictional boundary consists of the entire Yucaipa Subbasin within San Bernardino County and Riverside County (Dudek, 2022).

In January 2022, Yucaipa GSA adopted the Yucaipa Subbasin Groundwater Sustainability Plan (Yucaipa Subbasin GSP) pursuant to the SGMA and the GSP Regulations.

This Ordinance is adopted to provide minimum standards for the construction, reconstruction, abandonment, and destruction of all wells in the Yucaipa Subbasin in order to: (a) protect and sustainably manage the groundwater resources in the Yucaipa Subbasin, (b) ensure that the construction and use of groundwater supply wells and monitoring wells are consistent with the groundwater sustainable management criteria and monitoring protocols established in the

Yucaipa Subbasin GSP, and (c) provide safe water for the beneficial use by all groundwater users in the Yucaipa Subbasin.

2 Authority

Pursuant to the SGMA, including without limitation Water Code section 10725.2, the Yucaipa GSA shall enforce the provisions of this Ordinance within its jurisdiction. This Ordinance shall be in addition to, and not a limitation on, the authority and well permitting requirements by the Riverside County Department of Environmental Health (RCDEH) and the San Bernardino County Department of Environmental Health Services (SBCDEHS) within their respective jurisdictions.

3 Implementation

The Yucaipa Subbasin is primarily in San Bernardino County, with portions of the North Bench, Calimesa and San Timoteo management areas in Riverside County. Both counties adopted ordinances that provided minimum standards for the construction, reconstruction, abandonment and destruction of wells to protect groundwater resources and to provide safe water for persons within their respective jurisdictions. The following summarizes the well ordinances adopted by San Bernardino County and Riverside County.

3.1 San Bernardino County

The Board of Supervisors for San Bernardino County adopted Ordinance 3105 in 1986, codified as Article 3 (commencing with Section 33.0630) of Chapter 6 of Division 3 of Title 3 of the San Bernardino County Code of Ordinances (SB Ordinance). The SB Ordinance establishes requirements for well permit applications, the conditions for approving or denying well permit applications, the licensing and registration of water well drillers and contractors, the selection of well sites, water well surface construction features, and inspections by County staff during certain aspects of well construction and destruction. The Department of Environmental Health Services of the County of San Bernardino (SBCDEHS) is responsible for enforcing the SB Ordinance. The SB Ordinance references the recommended well standards in DWR Bulletin 74-81 and adopts these standards as the well standards for San Bernardino County (DWR, 1981).

The Yucaipa GSA hereby adopts the well standards in the SB Ordinance, as may be amended, as the minimum standards for the construction, reconstruction, abandonment and destruction of wells in those portions of the Yucaipa Subbasin that are within San Bernardino County. The Yucaipa GSA also requires additional well construction details to assess the influence of the new well or altered existing well on conditions in the Yucaipa Subbasin, as set forth in Section 4 of this Ordinance.

3.2 Riverside County

In 1989, the Board of Supervisors of the County of Riverside adopted Riverside County Ordinance 682, amended in its entirety in 2021 by Ordinance 682.5, entitled “An Ordinance of the County of Riverside Regulating the Construction, Reconstruction, Abandonment and Destruction of Wells and Incorporating by Reference Ordinance No. 725” (Riverside Ordinance). The Riverside Ordinance establishes requirements for well permit applications, the conditions for approving or denying well permit applications, the licensing and registration of water well drillers and contractors, the selection of well sites, construction standards, inspections by County staff during certain aspects of well construction and destruction, water quality standards, and minimum well production. The Riverside County Department of Environmental Health (RCDEH) is responsible for enforcing the provisions of the Riverside Ordinance. RCDEH also references the recommended well standards in DWR Bulletin 74-90, in addition to Bulletin 74-81, as the well standards for Riverside County (DWR, 1991).

The Yucaipa GSA hereby adopts the well standards in the Riverside Ordinance, as may be amended, as the minimum standards for the construction, reconstruction, abandonment and destruction of wells in those portions of the Yucaipa Subbasin that are within Riverside County. The Yucaipa GSA also requires additional well construction details to assess the influence of the new well or altered existing well on conditions in the Yucaipa Subbasin, as set forth in Section 4 of this Ordinance.

3.3 Drought Executive Order

In March 2022, Governor Newsom adopted Executive Order N-7-22, also known as the Drought Executive Order, specifying certain requirements to mitigate the effects of the drought on California’s water supply systems. Paragraph 9 of the Drought Executive Order requires local well permitting agencies to forward a well permit application for new wells or for alterations to existing wells in medium to high priority basins to the managing GSA to review and provide written verification that the proposed well will be consistent with the applicable GSP. Paragraph 9 of the Drought Executive Order also requires that the permitting agency assess whether the extraction of groundwater from the proposed well will interfere with the production and functioning of existing nearby wells and will cause land subsidence that will adversely impact or damage nearby infrastructure.

Executive Order N-3-23, adopted on February 13, 2023, withdraws Paragraph 9 of the Drought Executive Order and replaces it with similar text, with the following exception: “This Paragraph shall not apply to permits for wells (i) that will provide less than two acre-feet per year of groundwater for individual domestic users, (ii) that will exclusively provide groundwater to public water supply systems as defined in section 116275 of the Health and Safety Code, or (iii) that are replacing existing, currently permitted wells with new wells that will produce an equivalent quantity of water as the well being replaced when the existing well is being replaced because it has been acquired by eminent domain or acquired while under threat of condemnation.”

As required by Executive Order N-3-23, RCDEH and SBCDEH shall forward a complete well permit application to the Yucaipa GSA for the purpose of evaluating whether the proposed new

well or alteration of an existing well will be consistent with the groundwater resource sustainable management criteria established in the Yucaipa Subbasin GSP (Dudek, 2022).

The following procedures will be implemented by the Yucaipa GSA.

1. The Yucaipa GSA will review the well permit application and provide RCDEH or SBCDEH a completed Yucaipa GSA Executive Order N-3-23 Compliance Form documenting whether the proposed use of the new well or altered existing well will be consistent with the Yucaipa Subbasin GSP (Appendices A and B).
2. The Compliance Form will reference this Ordinance and indicate that the additional well construction requirements listed herein (see Section 4) are included with the RCDEH or SBCDEH well permit applications.
3. No person or entity shall engage in any activity subject to the jurisdiction of this Ordinance without first obtaining a well permit from RCDEH or SBCDEH commensurate with their respective well permit application requirements and fees.
4. Any person who shall commence any work for which a permit is required by RCDEH or SBCDEH without having obtained a permit for emergency work when it was established in writing to the satisfaction of RCDEH or SBCDEH that such work was urgently necessary and that it was not practical to obtain a permit before commencement of the work shall provide well construction, development and testing details to the Yucaipa GSA to assess the use of the well in relation to sustainable groundwater management criteria established in the Yucaipa Subbasin GSP. Nothing in this provision shall relieve the applicant from adhering to the permit requirements stipulated by RCDEH or SBCDEH under all circumstances, including emergency work.
5. Copies of all well permits issued by RCDEH or SBCDEH shall be provided to the Yucaipa GSA within thirty (30) days of issuance by RCDEH or SBCDEH.

4 Information Required by the Yucaipa GSA

To assess the potential effect of the proposed well or alteration to an existing well on groundwater sustainability in the Yucaipa Subbasin, the Yucaipa GSA requests additional information be included with well permit applications submitted to SBCDEHS and RCDEH and post-construction details of the well.

4.1 Additional Information in Well Permit Applications

The following information shall be provided as an addendum to the “Application for Well Permit” submitted to SBCDEHS or the “Water Well Application” submitted to RCDEH.

1. The proposed use of the well (e.g., agriculture, municipal, community, private domestic, monitoring, etc.) and the anticipated long-term production rate in gallons per minute (GPM) and acre-feet per year (AFY).

2. The proposed well depth, including casing size and proposed interval(s) of perforations.
3. The make and model of a totalizing flow meter and location of its installation in the discharge line per specifications by the manufacturer.
4. The proposed specifications and depth of a dedicated sounding tube to facilitate the measurement of a water level in the well casing.
5. The type and location of a sampling port for purposes of collecting representative water quality samples from the discharge stream of the well.

4.2 Post-Construction Details of the New Well or Alteration to an Existing Well

The following information shall be provided to the Yucaipa GSA after the new well is constructed and, if applicable, equipped with a pump and water conveyance system, or if an existing well is altered.

1. Details on the drilling method(s) used to drill the borehole for the conductor casing (if applicable) and well casing.
2. The results of downhole geophysical logging of the borehole, if applicable.
3. Details on the construction of the well, including
 - a. Depth of borehole drilled.
 - b. If applicable, the type of material, wall thickness, and depth of conductor casing installed, and annular sealing material used per requirements in Bulletins 74-81 and 74-90.
 - c. Type of material, wall thickness and depth of well casing, including details on casing perforations (slot size and interval).
 - d. Depth interval and gradation of the filter pack.
 - e. If applicable, details of the placement of a transition zone above the filter pack.
 - f. The type of material and method of placement of the annular seal.
 - g. A schematic of the surface completion for the well, identifying, if applicable, the sounding port to measure depths-to-water, sampling port for collecting water quality samples, and access port for camera tube.
4. Survey results by a licensed surveyor indicating the locations, referenced to the North American Datum of 1983 (NAD83), and elevations, referenced to the North American Vertical Datum of 1988 (NAVD88), for the following points:

- a. Land surface
 - b. Reference point from which depths-to-water will be measured in the well (e.g., top of sounding tube). The reference point shall be clearly and permanently marked.
 - c. Top of well casing (this point shall be clearly and permanently marked).
6. For alterations to existing wells, please provide the details for the alterations (e.g., zone of perforated casing that was sealed off, backfill casing to a certain depth, etc.) made to the existing well and the resulting improvements (e.g, increased production and/or improvement in water quality).

5 References

Department of Water Resources (DWR). 1981. Water Well Standards: State of California. State of California The Resources Agency. Bulletin 74-81. December.

Department of Water Resources (DWR). 1991. California Well Standards. California Department of Water Resources. Bulletin 74-90 (Supplement to Bulletin 74-81). June.

Dudek. 2022. *Final Groundwater Sustainability Plan for the Yucaipa Groundwater Subbasin*. Prepared by Dudek, 605 Third Street, Encinitas, California. Prepared for Yucaipa Groundwater Sustainability Agency, c/o San Bernardino Valley Municipal Water District. January 27, 2022.

Appendix A

Executive Order N-3-23 Compliance Form for Riverside County Department of Environmental Health

DRAFT

**YUCAIPA GROUNDWATER SUSTAINABILITY
AGENCY (“GSA”)
COMPLIANCE WITH GOVERNOR’S EXECUTIVE ORDER N-3-23**

This Form must be completed, signed, and submitted by the Property Owner with each well permit application for a new well or alteration of existing well in the Yucaipa Subbasin of the Upper Santa Ana Valley Groundwater Basin. The Yucaipa Subbasin (8-002.07) has been classified as a high-priority subbasin by the Department of Water Resources (DWR) and is subject to the Sustainable Groundwater Management Act (SGMA) and the Governor’s Executive Order N-3-23. A permit for the construction of a new well or alterations to an existing well cannot be approved by the Riverside County Department of Environmental Health (RCDEH) without this Form.

PROPERTY OWNER INFORMATION	
Name:	E-mail:
Mailing Address:	
City:	State:
Zip Code:	Phone:

TYPE OF WORK (CHECK ONE)	
<input type="checkbox"/> New Well Construction	<input type="checkbox"/> Alteration of Existing Well

WELL SITE INFORMATION		
Site Address:		
City:	APN:	
Township:	Range:	Section:
Well Type (domestic, agricultural, industrial, commercial, monitoring, etc.):		
Wellhead Coordinates (Latitude/Longitude):		Estimated Annual Production (acre-feet):

WELL DRILLER INFORMATION	
Name:	
Phone:	E-mail:
Riv. Co. Registration #:	C-57 License #:
Estimated Project Start Date:	Estimated Project End Date:

PROPERTY OWNER ACKNOWLEDGEMENT

The Property Owner must read the statement and initial each box to confirm acknowledgement and agreement with the statements

	I acknowledge that the SGMA requires groundwater in the Yucaipa Subbasin to be managed by one or more GSAs and that the Yucaipa GSA has groundwater management authority in the Yucaipa Subbasin.
	I acknowledge that the Yucaipa GSA has the authority under the SGMA to limit groundwater extractions within its jurisdiction for the purposes of complying with the Yucaipa Subbasin Groundwater Sustainability Plan (GSP), including extractions from any well permitted pursuant to this Form.
	I acknowledge that a well permit issued by RCDEH does not guarantee the extraction of any specific amount of water now or in the future.
	I acknowledge that the management of the Yucaipa Subbasin includes minimum thresholds as outlined in the GSP and agree that my groundwater extraction will be consistent with these requirements. The Plan is available at: https://yucaipasgma.org/final-gsp .
	I acknowledge that the Yucaipa GSA cannot guarantee the maintenance of any defined water level or level of water quality in the Yucaipa Subbasin.
	I acknowledge that the Yucaipa GSA is not responsible for or otherwise liable for any costs, investments, or payments related to any groundwater well permitted pursuant to this Form including pumping assessments or fees, extraction limits, costs related to well failure, well deepening, increased maintenance, replacement, or operational costs.
	I agree to furnish a copy of the drilling contractor’s DWR well completion report to the Yucaipa GSA 60 days after completion of work.
	I acknowledge that I may not operate and shall not operate the well in a manner that is likely to interfere with the production and functioning of existing nearby wells and may not operate and shall not operate the well in a manner that is likely to cause subsidence that would adversely impact or damage nearby infrastructure.
	I understand that the Yucaipa Subbasin may be replenished to avoid overdraft and ensure sustainability and agree to pay or made to be paid any applicable replenishment or groundwater management assessments or fees levied under the authorities of the Yucaipa GSA.
	I agree to hold the Yucaipa GSA harmless and indemnify the Yucaipa GSA for any liability, including attorney fees, costs, and penalties stemming from or related to RCDEH issuing a well permit pursuant to this Form.

By signing below, the Property Owner certifies that the acknowledgments and agreements made in this Form are understood and accepted.

Printed Name: _____

Signature: _____

Date: _____

FOR GSA USE ONLY

Based on the information contained on this Form, the well permit application made available by RCDEH, and the acknowledgements and agreements accepted by the Property Owner above, and any other relevant information known at the time only, the Yucaipa GSA makes the following determination (check one):

The well permit application is not inconsistent with the sustainable groundwater management program established in the Yucaipa Subbasin Groundwater Sustainability Plan adopted by the Yucaipa GSA to achieve the sustainability goal for the Yucaipa Subbasin.

The drilling of the well identified in this Form and in the associated well permit application is not consistent with the sustainable groundwater management program established in the Yucaipa Subbasin Groundwater Sustainability Plan adopted by the Yucaipa GSA to achieve the sustainability goal for the Yucaipa Subbasin for the following reasons:

[Additional text or information may be included as Attachment A to this Form]

The above determination has been made on behalf of the Yucaipa GSA by the undersigned. This determination is valid for 12 months after the signed date below or until the expiration of the Governor’s Executive Order N-3-23, whichever comes first.

Printed Name:

Title:

GSA:

Signature:

Date:

Appendix B

Executive Order N-3-23 Compliance Form for San Bernardino County Department of Environmental Health Services

DRAFT

**YUCAIPA GROUNDWATER SUSTAINABILITY
AGENCY (“GSA”)
COMPLIANCE WITH GOVERNOR’S EXECUTIVE ORDER N-3-23**

This Form must be completed, signed, and submitted by the Property Owner with each well permit application for a new well or alteration of existing well in the Yucaipa Subbasin of the Upper Santa Ana Valley Groundwater Basin. The Yucaipa Subbasin (8-002.07) has been classified as a high-priority subbasin by the Department of Water Resources (DWR) and is subject to the Sustainable Groundwater Management Act (SGMA) and the Governor’s Executive Order N-3-23. A permit for the construction of a new well or alterations to an existing well cannot be approved by the San Bernardino County Department of Environmental Health Services (SBCDEHS) without this Form.

PROPERTY OWNER INFORMATION	
Name:	E-mail:
Mailing Address:	
City:	State:
Zip Code:	Phone:

TYPE OF WORK (CHECK ONE)	
<input type="checkbox"/> New Well Construction	<input type="checkbox"/> Alteration of Existing Well

WELL SITE INFORMATION		
Site Address:		
City:	APN:	
Township:	Range:	Section:
Well Type (domestic, agricultural, industrial, commercial, monitoring, etc.):		
Wellhead Coordinates (Latitude/Longitude):		Estimated Annual Production (acre-feet):

WELL DRILLER INFORMATION	
Name:	
Phone:	E-mail:
Riv. Co. Registration #:	C-57 License #:
Estimated Project Start Date:	Estimated Project End Date:

PROPERTY OWNER ACKNOWLEDGEMENT

The Property Owner must read the statement and initial each box to confirm acknowledgement and agreement with the statements

	I acknowledge that the SGMA requires groundwater in the Yucaipa Subbasin to be managed by one or more GSAs and that the Yucaipa GSA has groundwater management authority in the Yucaipa Subbasin.
	I acknowledge that the Yucaipa GSA has the authority under the SGMA to limit groundwater extractions within its jurisdiction for the purposes of complying with the Yucaipa Subbasin Groundwater Sustainability Plan (GSP), including extractions from any well permitted pursuant to this Form.
	I acknowledge that a well permit issued by SBCDEHS does not guarantee the extraction of any specific amount of water now or in the future.
	I acknowledge that the management of the Yucaipa Subbasin includes minimum thresholds as outlined in the GSP and agree that my groundwater extraction will be consistent with these requirements. The Plan is available at: https://yucaipasgma.org/final-gsp .
	I acknowledge that the Yucaipa GSA cannot guarantee the maintenance of any defined water level or level of water quality in the Yucaipa Subbasin.
	I acknowledge that the Yucaipa GSA is not responsible for or otherwise liable for any costs, investments, or payments related to any groundwater well permitted pursuant to this Form including pumping assessments or fees, extraction limits, costs related to well failure, well deepening, increased maintenance, replacement, or operational costs.
	I agree to furnish a copy of the drilling contractor’s DWR well completion report to the Yucaipa GSA 60 days after completion of work.
	I acknowledge that I may not operate and shall not operate the well in a manner that is likely to interfere with the production and functioning of existing nearby wells and may not operate and shall not operate the well in a manner that is likely to cause subsidence that would adversely impact or damage nearby infrastructure.
	I understand that the Yucaipa Subbasin may be replenished to avoid overdraft and ensure sustainability and agree to pay or made to be paid any applicable replenishment or groundwater management assessments or fees levied under the authorities of the Yucaipa GSA.
	I agree to hold the Yucaipa GSA harmless and indemnify the Yucaipa GSA for any liability, including attorney fees, costs, and penalties stemming from or related to SBCDEHS issuing a well permit pursuant to this Form.

By signing below, the Property Owner certifies that the acknowledgments and agreements made in this Form are understood and accepted.

Printed Name: _____

Signature: _____

Date: _____

FOR GSA USE ONLY

Based on the information contained on this Form, the well permit application made available by SBCDEHS, and the acknowledgements and agreements accepted by the Property Owner above, and any other relevant information known at the time only, the Yucaipa GSA makes the following determination (check one):

<input type="checkbox"/>	The well permit application is not inconsistent with the sustainable groundwater management program established in the Yucaipa Subbasin Groundwater Sustainability Plan adopted by the Yucaipa GSA to achieve the sustainability goal for the Yucaipa Subbasin.
<input type="checkbox"/>	The drilling of the well identified in this Form and in the associated well permit application is not consistent with the sustainable groundwater management program established in the Yucaipa Subbasin Groundwater Sustainability Plan adopted by the Yucaipa GSA to achieve the sustainability goal for the Yucaipa Subbasin for the following reasons: <p style="text-align: center;">[Additional text or information may be included as Attachment A to this Form]</p>

The above determination has been made on behalf of the Yucaipa GSA by the undersigned. This determination is valid for 12 months after the signed date below or until the expiration of the Governor’s Executive Order N-3-23, whichever comes first.

Printed Name:

Title:

GSA:

Signature:

Date:

April 11, 2023

Yucaipa Groundwater Sustainability Agency
c/o San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, California 92408

Subject: Proposal to Provide Support Services to the Yucaipa Groundwater Sustainability Agency - May 2023 to April 2024

Dear Yucaipa GSA Member Agencies:

Dudek is pleased to present this scope of work and fee to the Yucaipa Groundwater Sustainability Agency (Yucaipa GSA) to provide services from May 1, 2023 to April 30, 2024 in support of the implementation of the Yucaipa Groundwater Sustainability Plan that was adopted by the Yucaipa GSA on January 26, 2022. In summary, Dudek's services will include providing quality assurance of data collected in the field, updating and maintaining the Data Management System, preparing for and participating in GSA meetings, assisting the GSA in developing and conducting an outreach program to engage with private well users in the Plan Area, and assist the GSA in addressing the data gaps identified in the GSP.

The following scope of work and fee details the tasks Dudek will undertake to support the Yucaipa GSA in the implementation of the Yucaipa GSP.

1 Scope of Work

Task 1 Quality Assurance of Data

Dudek will collect, compile and review for quality assurance all data collected by the GSA member agencies and participating stakeholders in the Plan Area. The data includes, but is not limited to, static groundwater elevation measurements, monthly pumping data from active wells, monthly accounting of State Water Project (SWP) water imported into the Plan Area, groundwater quality sampling and reporting, precipitation data obtained from climatic stations maintained by the San Bernardino County Flood Control District (SBCFCD) and National Oceanic and Atmospheric Agency, and stream flow data collected at SBCFCD stations. The data collected will be evaluated against the monitoring and reporting protocols included in the GSP. Data that meets these protocols will be uploaded to the DMS and made available for the GSA member agencies to view and access.

Fee for Task 1..... \$6,210

Task 2 Update and Maintain Data Management System

Data approved under Task 1, Quality Assurance, will be uploaded to the DMS. The data will be formatted, compiled and organized per the current layout design in the GIS-based system. Dudek will also provide services in

maintaining and managing the DMS and will provide support to the GSA member agencies in accessing the DMS and navigating through the database.

Fee for Task 2..... \$5,470

Task 3 Participate in GSA Meetings

Dudek will prepare for and participate in quarterly GSA meetings scheduled for July and October 2023 and the quarterly meetings scheduled for January and April 2024. If Dudek’s participation in any additional meetings is requested by the Yucaipa GSA, then Dudek will submit a change order to the GSA that includes labor hours to prepare for and participate in the requested meeting(s).

Fee for Task 3..... \$14,160

Task 4 Outreach to Private Well Users

Dudek will assist the GSA in developing an outreach program to engage with private well users in the Plan Area. Dudek anticipates developing a letter introducing the GSA and explaining the purpose for reaching out to the owner. Information of interest includes the use of an existing well for domestic and/or agricultural purposes, construction and operation details of the well, and if it is possible to measure a depth-to-water in the well. Each private well owner will be asked to become a participant in the implementation and monitoring program of the GSP.

Fee for Task 4..... \$4,700

Task 5 Address Data Gaps Identified in the GSP

Dudek will assist the GSA in addressing the data gaps identified in the GSP. The data gaps include, in addition to reaching out to private will users (see Task 4), the installation of stream gaging stations to enhance our understanding of stream flow, interconnected surface water in the upper reaches of Wilson Creek and Oak Glen Creek, and the upper reach of Yucaipa Creek in Wildwood Canyon, confirmation of whether “potential” GDEs identified in the GSP are dependent on shallow groundwater, and groundwater level monitoring in the eastern half of the Calimesa management area. Dudek will, under this task, develop a technical memorandum outlining how these particular data gaps may be addressed.

Fee for Task 1.5..... \$2,950

Deliverables

- Draft Introductory Letter for private well users
- Technical memorandum on Addressing Data Gaps

Schedule

The following schedule outlines the anticipated meetings and deliverables:

- **July 26, 2023** – GSA Board Meeting
- **July 31, 2023** – Draft Introductory Letter for Private Well Users
- **September 30, 2023** – Data Gap Technical Memorandum
- **October 25, 2023** – GSA Board Meeting
- **January 24, 2024** – GSA Board Meeting
- **April 24, 2024** – GSA Board Meeting

Fee Summary

The fee presented in this proposal will be charged on a time and materials basis in accordance with Dudek’s 2023 Standard Schedule of Charges. The time and materials fee provided in this proposal represents an estimate of the anticipated level of effort required to complete the tasks described in the proposal. Should the actual effort required to complete the tasks be less than anticipated, the amount billed will be less than the total fee. Conversely, should the actual effort to complete the proposed tasks be greater than anticipated, additional fee authorizations will be requested. No work in excess of the proposed fee or outside of the proposed scope of work will be performed without written authorization from the Yucaipa GSA.

TOTAL FEE.....\$33,490

Dudek appreciates the opportunity to present this proposal to provide support services following the implementation of the GSP. We look forward to continuing our working relationship with the Yucaipa GSA.

If you have any questions regarding this proposal, please call me at 760-415-9079 or email me at sstuart@dudek.com.

Sincerely,



Steven Stuart, PE C79764
Principal Hydrogeologist, Project Manager

Att.: *Table 1. Fee for Dudek Support Services
Dudek 2023 Standard Schedule of Charges*
cc: *Adekunle Ojo, San Bernardino Valley Municipal Water District*

Attachment A

Table 1. Fee for the 2023-2024 Support Services for the Yucaipa GSA Dudek 2023 Standard Schedule of Charges

**TABLE I. FEE FOR SUPPORT SERVICES FOR YUCAIPA GSA
MAY 2023 - APRIL 2024**

		<i>Team Member:</i>	Steven Stuart, PE	Matt Palavido	Sharllyn Pimentel	TOTAL HOURS	LABOR COST	TOTAL
		<i>Project Team Role:</i>	Project Manager	DMS Manager	Hydrogeologist			
		<i>Labor Class:</i>	Principal Hydrogeologist II	Sr. Specialist I	Hydrogeologist II			
		<i>Billable Rate :</i>	\$295	\$195	\$175			
Task 1 - Quality Assurance								
1-1	Quality Assurance of Data	8		22	30	\$ 6,210	\$ 6,210	
	Subtotal Task 1	8		22	30	\$ 6,210	\$ 6,210	
Task 2 - Maintain Data Management System								
2-1	Update and Maintain DMS	4	22		26	\$ 5,470	\$ 5,470	
	Subtotal Task 2	4	22		26	\$ 5,470	\$ 5,470	
Task 3 - Participate in GSA Meetings								
3-1	Prepare for and Participate in Quarterly Meetings	48			48	\$ 14,160	\$ 14,160	
	Subtotal Task 3	48			48	\$ 14,160	\$ 14,160	
Task 4 - Outreach to Private Well Users								
4-1	Draft Introductory Letter to Private Well Users	6			6	\$ 1,770	\$ 1,770	
4-2	Develop Outreach Program	4		10	14	\$ 2,930	\$ 2,930	
	Subtotal Task 4	10		10	20	\$ 4,700	\$ 4,700	
Task 5 - Address Data Gaps Identified in GSP								
5-1	Develop Technical Memorandum	10			10	\$ 2,950	\$ 2,950	
	Subtotal Task 5	10			10	\$ 2,950	\$ 2,950	
Total Hours and Fee		80	22	32	134	\$33,490.00	\$33,490.00	

Engineering Services

Project Director	\$325.00/hr
Principal Engineer III	\$290.00/hr
Principal Engineer II	\$280.00/hr
Principal Engineer I	\$270.00/hr
Program Manager	\$260.00/hr
Senior Project Manager	\$260.00/hr
Project Manager	\$250.00/hr
Senior Engineer III	\$245.00/hr
Senior Engineer II	\$235.00/hr
Senior Engineer I	\$225.00/hr
Project Engineer IV/Technician IV	\$215.00/hr
Project Engineer III/Technician III	\$205.00/hr
Project Engineer II/Technician II	\$195.00/hr
Project Engineer I/Technician I	\$175.00/hr
Senior Designer II	\$195.00/hr
Senior Designer I	\$190.00/hr
Designer	\$180.00/hr
Assistant Designer	\$175.00/hr
CADD Operator III	\$170.00/hr
CADD Operator II	\$160.00/hr
CADD Operator I	\$145.00/hr
CADD Drafter	\$130.00/hr
CADD Technician	\$120.00/hr
Project Coordinator	\$150.00/hr
Engineering Assistant	\$125.00/hr

Environmental Services

Senior Project Director	\$300.00/hr
Project Director	\$265.00/hr
Senior Specialist V	\$250.00/hr
Senior Specialist IV	\$235.00/hr
Senior Specialist III	\$225.00/hr
Senior Specialist II	\$210.00/hr
Senior Specialist I	\$200.00/hr
Specialist V	\$185.00/hr
Specialist IV	\$175.00/hr
Specialist III	\$165.00/hr
Specialist II	\$155.00/hr
Specialist I	\$145.00/hr
Analyst V	\$135.00/hr
Analyst IV	\$125.00/hr
Analyst III	\$115.00/hr
Analyst II	\$105.00/hr
Analyst I	\$95.00/hr
Technician III	\$85.00/hr
Technician II	\$75.00/hr
Technician I	\$65.00/hr

Mapping and Surveying Services

Application Developer II	\$195.00/hr
Application Developer I	\$155.00/hr
GIS Analyst V	\$205.00/hr
GIS Analyst IV	\$165.00/hr
GIS Analyst III	\$145.00/hr
GIS Analyst II	\$130.00/hr
GIS Analyst I	\$115.00/hr
UAS Pilot	\$115.00/hr
Survey Lead	\$185.00/hr
Survey Manager	\$145.00/hr
Survey Crew Chief	\$120.00/hr
Survey Rod Person	\$95.00/hr
Survey Mapping Technician	\$95.00/hr

Construction Management Services

Principal/Manager	\$195.00/hr
Senior Construction Manager	\$185.00/hr
Senior Project Manager	\$175.00/hr
Construction Manager	\$170.00/hr
Project Manager	\$165.00/hr
Resident Engineer	\$160.00/hr
Construction Engineer	\$155.00/hr
On-site Owner's Representative	\$145.00/hr
Prevailing Wage Inspector	\$145.00/hr
Construction Inspector	\$140.00/hr
Administrator/Labor Compliance	\$100.00/hr

Hydrogeology/HazWaste Services

Project Director	\$325.00/hr
Principal Hydrogeologist/Engineer II	\$295.00/hr
Principal Hydrogeologist/Engineer I	\$275.00/hr
Senior Hydrogeologist V/Engineer V	\$260.00/hr
Senior Hydrogeologist IV/Engineer IV	\$250.00/hr
Senior Hydrogeologist III/Engineer III	\$240.00/hr
Senior Hydrogeologist II/Engineer II	\$230.00/hr
Senior Hydrogeologist I/Engineer I	\$220.00/hr
Project Hydrogeologist V/Engineer V	\$205.00/hr
Project Hydrogeologist IV/Engineer IV	\$195.00/hr
Project Hydrogeologist III/Engineer III	\$185.00/hr
Project Hydrogeologist II/Engineer II	\$175.00/hr
Project Hydrogeologist I/Engineer I	\$165.00/hr
Hydrogeologist/Engineering Assistant	\$130.00/hr

District Management & Operations

District General Manager	\$225.00/hr
District Engineer	\$215.00/hr
Operations Manager	\$165.00/hr
District Secretary/Accountant	\$140.00/hr
Collections System Manager	\$140.00/hr
Grade V Operator	\$130.00/hr
Grade IV Operator	\$115.00/hr
Grade III Operator	\$105.00/hr
Grade II Operator	\$85.00/hr
Grade I Operator	\$80.00/hr
Operator in Training	\$75.00/hr
Collection Maintenance Worker	\$75.00/hr

Creative Services

Creative Services IV	\$165.00/hr
Creative Services III	\$150.00/hr
Creative Services II	\$135.00/hr
Creative Services I	\$120.00/hr

Publications Services

Technical Editor IV	\$165.00/hr
Technical Editor III	\$150.00/hr
Technical Editor II	\$135.00/hr
Technical Editor I	\$120.00/hr
Publications Specialist IV	\$125.00/hr
Publications Specialist III	\$115.00/hr
Publications Specialist II	\$105.00/hr
Publications Specialist I	\$95.00/hr
Clerical Administration	\$90.00/hr

Expert Witness – Court appearances, depositions, and interrogatories as expert witness will be billed at 2.00 times normal rates.

Emergency and Holidays – Minimum charge of two hours will be billed at 1.75 times the normal rate.

Material and Outside Services – Subcontractors, rental of special equipment, special reproductions and blueprinting, outside data processing and computer services, etc., are charged at 1.15 times the direct cost.

Travel Expenses – Mileage at current IRS allowable rates. Per diem where overnight stay is involved is charged at cost.

Invoices, Late Charges – All fees will be billed to Client monthly and shall be due and payable upon receipt. Invoices are delinquent if not paid within 30 days from the date of the invoice. Client agrees to pay a monthly late charge equal to 1% per month of the outstanding balance until paid in full.

Annual Increases – Unless identified otherwise, these standard rates will increase in line with the CPI-U for the nearest urban area per the Department of Labor Statistics to where the work is being completed) or by 3% annually, whichever is higher.

The rates listed above assume prevailing wage rates does not apply. If this assumption is incorrect Dudek reserves the right to adjust its rates accordingly.