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A Path Forward for Sustainable Groundwater in the Modesto Subbasin: Leveraging Local Resources for Long-Term Resilience

Dear Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) Board members,

On behalf of the Non-District East (NDE) area stakeholders, we appreciate the opportunity to provide input on the Modesto Subbasin Groundwater Sustainability Plan (GSP) and the proposed groundwater allocation framework. Attached is a detailed comment letter from EKI Environment & Water, Inc. (EKI; see attachment) that provides proposed revisions to the allocation framework. In addition to transmitting those comments, this letter highlights NDE's commitment to sustainable groundwater management and emphasizes prioritizing projects and management actions (P/MAs) that, if advanced alongside the allocation framework, can reduce the scale of demand management needed and increase the benefits of local resources for all basin stakeholders.

Unlike many agricultural regions facing critical shortages, our community benefits from foresight and infrastructure investments made by previous generations. With abundant surface water, a productive aquifer, and established delivery systems, we are uniquely positioned to implement effective, equitable, and forward-looking groundwater strategies.

This letter presents key observations and project opportunities that support and enhance the objectives of the STRGBA. These recommendations aim to maximize existing resources, improve modeling accuracy, and promote regional collaboration for sustainable water use. Many of these projects are initiated or managed by other agencies or entities, yet their success can be amplified through active NDE participation. A well-structured allocation framework will create the agreed-upon accounting needed to support water trading and credit transfers through a fair market approach, allowing benefits from projects in one part of the basin to extend to others, including NDE, without requiring large new conveyance infrastructure. Such trading, managed within the basin's sustainability criteria and SGMA's requirement to avoid undesirable results, can accelerate project implementation, broaden the distribution of benefits, and create new opportunities for collaborative investment.

Furthermore, NDE growers are already taking tangible steps to augment supply through increased surface water use and to reduce groundwater pumping. Several have recently completed or are in the process of completing new surface water access projects, and the upcoming completion of the Paulsell Canal improvements will further decrease reliance on groundwater for both in-district and NDE plantings. These ongoing efforts contribute measurable benefits to basin sustainability and should be accurately represented in the GSP's modeling. Doing so will support better decision-making and enable a fairer distribution of benefits from allocation and future P/MAs.

A few key projects and P/MAs that we want to highlight to be prioritized are as follows:

MID and OID In-Lieu and Direct Recharge Programs

These programs together can deliver up to 80,000 acre-feet per year in wet and above-normal years, with a combined modeled 50-year average benefit of more than 43,000 acre-feet per year. Deliveries replace groundwater pumping in both district and NDE lands, and greater NDE participation will increase subscription to these projects and maximize their benefits. New turnouts, private conveyance, and planned expansions such as the Paulsell Lateral will further extend surface water access. Prioritizing these programs within the GSP will directly support groundwater level recovery, storage improvement, and reduced subsidence risk. NDE stakeholders are committed to maximize the use of these programs.

MID Dry Creek Flood Mitigation and Direct Recharge Project

According to the GSP, this project would divert approximately 5,400 acre-feet from Dry Creek during storm events to private conveyance for direct recharge, directly benefiting nearby NDE lands and reducing flood impacts downstream. Expanding MID's existing recharge activities along Dry Creek and formally documenting them as GSP projects will enhance their contribution to basin sustainability.

Optimizing Pumping and Surface Water Delivery Patterns

This proposed management action would modify pumping and surface water delivery patterns to reduce groundwater extraction in areas along the rivers where pumping can cause depletion of interconnected surface water (ISW). Increased surface water deliveries to these areas would replace pumping, while in other areas with less direct impact on ISWs, groundwater use could be maintained or modestly increased with a corresponding reduction in surface water deliveries. This approach would be implemented with careful balance, since substantial pumping and overdraft anywhere in the basin can create broader sustainability issues. With improved technical tools and monitoring, groundwater use and surface water deliveries can be optimized through the allocation framework's

market opportunities and under SGMA, minimizing impacts to basin sustainability while reducing unnecessary economic impacts on water users.

MID and OID Groundwater Use Reduction

MID has reduced its in-district agricultural pumping from an average of 30,000 acre-feet to 20,000 acre-feet over the last decade, including drought years. Oakdale Irrigation District has also made meaningful reductions, with the Paulsell project expected to eliminate much of the remaining district pumping. Both districts have potential for further targeted reductions through expanded surface water deliveries and operational improvements. Setting measurable goals for these reductions in the GSP will help ensure continued progress. Basinwide groundwater extraction fees will incentivize surface water use and resource capital improvements to facilitate more surface water use.

City of Modesto – Surface Water Treatment Plant Phase II

The Modesto Surface Water Treatment Plant operates below its capacity (currently 50% of 60MGD), while the city continues to draw approximately 20,000 acre-feet of groundwater annually. A capital and operational plan to expand surface water use city-wide, particularly in neighborhoods with limited access, should be developed and included as a priority project. Well head treatment, blending of surface and groundwater to meet tightening standards, and maintenance of older wells are likely significant cost offsets to increased surface water use.

Regional Partnerships to Expand Urban Surface Water Use

With the successful launch of the Turlock ID treatment plant, regional collaboration is proving effective. Modesto's treatment plant is well-positioned to serve neighboring cities like Waterford, Oakdale, Salida, and Riverbank. Utilizing excess treatment capacity for regional benefit will reduce reliance on groundwater basin-wide. Local governments must collaborate to formalize this vision as a flagship GSP goal. For funding, federal, state and local monies can be combined with marketing of groundwater extraction rights to NDE growers.

Additional Recharge Opportunities and Untapped Potential in Existing Infrastructure

Recharge remains a key component of sustainable groundwater strategy. Both the MID and TID reservoirs can be managed closer to full capacity throughout the year. For example, MID’s 28,000 acre-foot reservoir has typically been managed at 20,000–22,000 acre-feet, and TID’s 50,000 acre-foot reservoir is kept below full capacity for hydroelectric operations. Optimizing storage can significantly increase reservoir seepage, which can be marketed to NDE growers to address access challenges far from district canal infrastructure and

provide supplemental supplies in dry years. The unused Waterford Bypass Canal, with its dirt bottom and connection to the MID Main Canal, could also be developed, modeled, and added to the GSP portfolio as a recharge basin in normal to wet years.

NDE stakeholders are ready to work collaboratively with STRGBA member agencies, municipalities, and irrigation districts to ensure these projects and PMAs are implemented effectively. The Modesto Subbasin GSP has a strong foundation, our region has the assets, infrastructure, and local leadership to lead California in groundwater sustainability. By accurately modeling our current conditions, embracing collaborative opportunities, and expanding use of surface water, the combination of robust project implementation, a fair and transparent allocation framework, and an active water market offers the greatest opportunity to meet the basin's sustainability goals while ensuring water security for agriculture, urban communities, and future generations.

We look forward to continuing to work together to refine the allocation framework and to advance the GSP's implementation for the benefit of all basin stakeholders.

Sincerely,

Alexandra Duarte

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PRIVILEGED & CONFIDENTIAL
28 July 2025

To: David Cameron, Atkinson, Andelson, Loya, Ruud & Romo
Julia D. Berry, Stanislaus East Mutual Water Company

From: Anona Dutton, PG, CHg, EKI Environment & Water, Inc. (EKI)
Amir Mani, PhD, PE (EKI)
Wesley Henson, PhD (EKI)

Subject: Technical Evaluation of Proposed Groundwater Allocation and Demand Management Framework by the Stanislaus and Tuolumne Rivers Groundwater Basin Association Groundwater Sustainability Agency

Dear Mr. Cameron and Ms. Berry,

EKI Environment & Water, Inc. (EKI) is pleased to provide this letter summarizing the groundwater allocation framework (Allocation or Framework) presented by the Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) Groundwater Sustainability Agency (GSA) and its technical consultant in a 16 July 2025 workshop (workshop). This letter outlines the anticipated impacts of the Allocation on the Non-District East (NDE) area, identifies key technical and legal concerns, and highlights considerations that the Stanislaus East Mutual Water Company (SEMWC) may wish to raise during upcoming discussions.

While EKI does not offer legal assessments or advice in this letter, we note that allocation frameworks must be consistent with California water rights law, and therefore, questions of legal adequacy are relevant and appropriate to consider.[1] The following findings reflect concerns that, in our view, warrant further discussion, clarification, or adjustment before the Allocation is finalized. While we raise these concerns, we recognize the significant technical effort that has gone into the development of the Framework and appreciate the work of the GSA and its consultants in advancing a comprehensive approach to basin sustainability.

1) Summary of Findings

We recognize and support the GSA's revised management approach to base allocations on total overlying acreage and reallocate surplus water to areas with greater historical reductions. These changes represent meaningful steps toward equitable basin-wide management. At the same time, the following findings reflect issues that, in our view, warrant further discussion, clarification, or adjustment before the allocation framework is finalized:

[1] Specific sections of the letter have been legally reviewed by counsel for SEMWC for accuracy. However, this letter does not constitute legal advice.

Attachment:
EKI Environment and Water's Comments on the Proposed Allocation Framework

- The Sustainable Yield (SY) scenario used as the basis for the Allocation is methodologically flawed and inconsistent with the rest of the framework. It assigns nearly all reductions to NDE, despite overdraft contributions from other areas, and relies on a projected future period while all other allocation components are based on the 2015 to 2024 historical period. This approach introduces unnecessary uncertainty and likely incorporates disproportionate reductions that exceed the basin's actual overdraft.
- The Framework misapplies California water rights principles by allocating an "appropriative" pool to Modesto Irrigation District (MID) and Oakdale Irrigation District (OID) without legal or factual basis. In an overdrafted basin, groundwater use on non-overlying lands equates to a claim of a prescriptive right, which has not been asserted. Furthermore, the factual basis for allocating this amount, and for giving it priority over other rights, is not clear.
- Municipal pumping is deducted from the allocation pool, but municipal acreage remains in the base used to distribute the remaining overlying allocation. This results in a duplicate allocation to municipal areas and gives them a greater share of the sustainable yield. Removing municipal acreage from the overlying allocation calculation would resolve this inconsistency without affecting sufficient municipal access to groundwater.
- The developed water credits for MID and OID reservoir and canal seepage lack transparency and may overstate actual contributions. These credits are a significant portion of the groundwater budget but have not been adequately documented or explained. The method and data used to estimate these credits should be disclosed and independently reviewed.

2) Summary of Proposed Allocation

The Allocation presented by STRGBA on 16 July 2025 is intended to address the Corrective Action outlined by the Department of Water Resources (DWR) for the Modesto Subbasin (Basin) Groundwater Sustainability Plan (GSP). As presented, the framework includes a proposed sustainable yield (SY), a set of deductions based on assumed exemptions, and an allocation approach that assigns the remaining pumping allowances to different areas and categories of use.

The Framework builds upon the estimated SY developed as part of the GSP, which is projected at 267,000 acre-feet per year (AFY). From this total, STRGBA deducts approximately 92,900 AFY as "non-allocatable," including 44,100 AFY classified as developed supplies (primarily seepage from Modesto and Oakdale Irrigation District infrastructure), 13,800 AFY attributed to de minimis use, and 35,000 AFY allocated to municipal pumping. These categories are treated as exempt from the allocation pool. The remaining 174,100 AFY is then distributed between overlying users (155,200 AFY) and appropriative users (18,900 AFY), based on historical use and land-based estimates.

Allocations are distributed to four management areas: MID, OID, Non-District West (NDW), and Non-District East (NDE). Each area's allocation is calculated based on total overlying acreage, and "stewards" for each area are expected to manage and enforce the allocations. Under this method, NDE is assigned 44,200 AFY, compared to historical use of approximately 89,700 AFY, resulting in a proposed 50 percent reduction. This reduction is to be implemented in stages: 25 percent by 2032, 40 percent by 2037, and 50 percent by 2042. The presentation also included a comparison to a developed-area approach, which would have further reduced NDE's allocation to 28,700 AFY, but that method has not been adopted. Depending on how the County of Stanislaus (as NDE steward) chooses to allocate the 44,200 AFY within

the area, it is possible that the allocation could be applied only to developed acreage, effectively increasing the per-acre allocation in NDE from 1.19 AF/acre to 1.83 AF/acre.

3) Key Technical Highlights and Concerns

Proposed Paradigm Shift in Management Approach and Modified Allocation Based on All Overlying Land

As described on page 4 of the presentation, the GSA has adopted a revised management philosophy in response to the DWR's Corrective Action. Under this revised approach, demand management is positioned as the primary tool for ensuring basin sustainability, while projects are treated as a supporting mechanism. We recognize the rationale for this shift and the commitment expressed by both the GSA and Stanislaus County to meet the expectations outlined by DWR.

While we acknowledge the importance of having enforceable demand-management measures in place, particularly in the face of hydrologic uncertainty and implementation delays, we emphasize that, as described in the GSP, effective and timely implementation of projects has the potential to resolve the basin's overdraft and avoid undesirable results (See Scenario 2 Simulation in GSP Section 8.5). Furthermore, recent groundwater level data presented in the Basin's Annual Report indicate that most wells across the basin remain above their interim milestones, and do not show degradation beyond what was projected in the GSP. In light of this, we agree with what was expressed by the GSA and its technical team at the workshop, that regardless of the emphasis on demand management, implementation of projects should remain a priority and serve to offset the need for demand reductions. Doing so will reduce the need for extensive cutbacks under the allocation program and minimize the economic burden of compliance, especially for agricultural users.

We also appreciate the GSA's decision to base allocations on total overlying acreage rather than solely on developed agricultural land. This adjustment results in a more balanced distribution of allocatable pumping. In particular, we support the GSA's reallocation of surplus groundwater from OID and NDW areas to the MID and NDE, where reductions relative to historical use would otherwise be more severe. This adjustment enhances the feasibility of the Framework and supports more equitable progress toward basin-wide sustainability. We further encourage the Framework to allow transfer and trading of allocations between all users and management areas, similar to the surplus redistribution, through a verifiable market mechanism that ensures the Basin's estimated sustainable yield is used as efficiently as possible.

Concerns Regarding Use of the Sustainable Yield Scenario as Allocation Basis

The Framework relies on the estimated SY developed as part of the GSP's SY scenario. This scenario, however, includes a number of methodological flaws that undermine its reliability as a neutral foundation for groundwater allocation. While we understand that the actual SY may not be substantially higher or lower than the estimate used, the way it was derived embeds biases and assumptions that disproportionately affect the NDE area and raise broader questions about basin-wide equity and technical soundness.

First, as defined in the GSP, the SY scenario assumes that all overdraft and associated undesirable results (URs) in the Basin originate from operations within the NDE area, as the only net extractor in the Basin. The modeled scenario addresses these assumed undesirable results entirely through targeted pumping

reductions in NDE, primarily via selective land fallowing. As a result, the scenario imposes a modeled pumping reduction of approximately 47,000 AFY in NDE alone, despite Basin-wide overdraft being closer to 11,000 AFY (calculated as the net annual storage change of the projected baseline scenario). The larger reduction in pumping (47,000 AFY vs. 11,000 AFY) primarily benefits streams that border the Basin (e.g., Stanislaus and Tuolumne) to resolve asserted exceedances of depletion of interconnected surface water (ISW) minimum thresholds (MT). Notably, most of these exceedances occur outside NDE, and at locations geographically closer to the Tuolumne and Stanislaus rivers than where pumping reductions are required in NDE. While NDE's overdraft contributes to ISW exceedances, it is not the sole cause. More efficient ways of addressing ISW exceedances could be made, for example by targeting pumping in areas near the stream reaches of concern. The SY scenario thus operates less as a balanced management approach and more as a model that achieves balance by eliminating NDE's pumping, without evaluating more equitable or optimized reductions across the Basin.

The model's mismatch between where pumping reductions are required and the desired results is reflected in the Allocation's results. The Modesto area is also required to reduce pumping to meet sustainability targets under the Allocation, which would not be necessary if the assumption that NDE is the only cause of overdraft were valid. Instead, the Allocations confirm that multiple areas in the Basin contribute to the problem and that responsibility should be shared proportionately.

Second, every other component of the allocation framework (developed supply, de minimis use, municipal use, and historical groundwater pumping) is based on the 2015–2024 historical period. While this period is relatively short, it is a known dataset that captures actual water use and climate variability, and its use is consistent with approaches taken in other subbasins such as Tule and Kaweah. Using a consistent historical period to define overdraft and then allocating groundwater to reduce that overdraft over time provides a logical and measurable pathway to sustainability.

The use of a projected simulation period to define SY, as was done here, adds complexity and uncertainty. When asked during the workshop, the GSA's consultants stated that the simulation was intended to better account for uncertainty that is missed if historical and current data are used. However, it remains unclear how using a fixed, assumed future period based on exactly repeating the climate of an older historical period, produced by an imperfect model, captures uncertainty more effectively than historical data itself.

In our view, the SY scenario, as currently defined, does not provide a neutral or technically robust foundation for groundwater allocation. We recommend that the Framework be revisited to either (1) use a more realistic and proportionate SY scenario that distributes reductions across contributing areas or (2) base allocations directly on the 2015–2024 historical period, or preferably a longer period such as 2010-2024, consistent with other elements of the framework and common SGMA practice.

<u>Concerns Regarding Application of Water Rights Principles for Appropriative Allocations</u>

The current Framework assigns 18,900 AFY to an "appropriative" use category to MID and OID and which is deducted from the overlying allocation pool. During the workshop, the GSA's technical team explained that this category reflects historical pumping by MID and OID that was used in parts of their districts other than where it was extracted for irrigation. Based on that reasoning, the use was classified by the GSA as appropriative. However, this explanation is not consistent with California water rights law and raises concerns.

California groundwater rights are generally defined by the type of use, not the identity of the user. Groundwater extracted and applied to land overlying the Basin for irrigation is considered an overlying right, regardless of whether the user is a private landowner or an irrigation district. Use of groundwater on land not overlying the Basin may be considered appropriative, but only if the basin is not in overdraft. Because the Modesto Subbasin is in overdraft, classifying any right as appropriative is highly suspect. Nor has a prescriptive right been asserted, and no legal showing has been provided to justify the classification of any portion of MID or OID pumping as a prescriptive right. One nuance to the above is that municipal use of groundwater is, by case law, deemed an appropriative right if there is a surplus, and a prescriptive right if the basin is overdrafted. There is no claim by OID or MID that the 18,900 AF is for municipal use, rather it was confirmed in the workshop that the use is for irrigation on land overlying the Basin.

Even if prescriptive rights were successfully established, they would not automatically take priority over all overlying rights. A prescriptive right could only apply to the portion of an overlying right that was not protected through continued pumping by the overlier during the period of adverse use. Overlying users who continued to exercise their rights during that period would retain their priority. Therefore, any valid prescriptive right would remain junior or on par with protected overlying rights.

This concern is amplified by the fact that both MID and OID receive allocations under the overlying category in addition to the 18,900 AFY appropriative right amount. By also receiving an appropriative allocation, they benefit from two categories of rights. There does not appear to be a factual or legal basis for this double allocation.

Finally, Section 10726.8 subdivision (b) of the Water Code states that GSAs do not have the authority to make legal determinations regarding water rights. By labeling a portion of groundwater as appropriative and giving it seniority above overlying rights, the Framework risks overstepping that statutory limitation and effectuates a quasi-adjudication role that SGMA does not authorize. We recommend that all groundwater use occurring on overlying land be treated as overlying use. We recommend that the 18,900 AFY be added back to the overlying allocation bucket that is accessible by all overlying users in the Basin.

Duplicate Allocation to Municipal Areas

Under the current framework, municipal pumping, estimated at 35,000 AFY, is deducted from the allocatable groundwater pool before the remaining allocation is distributed to overlying users. This approach treats municipal users as a separate category, exempting them from the demand reductions applied to other groundwater users. While this treatment may reflect the need to support municipal supply obligations, the way this exemption is implemented results in a duplication issue that should be addressed.

Although municipal pumping is excluded from the allocation pool, the urban areas served by that pumping are still included in the land base used to apportion the overlying allocation. As a result, the acreage associated with municipal use receives a second allocation, even though it has already been fully accounted for. This provides municipal areas with a greater share of the Basin's estimated sustainable yield than any other group.

When we raised this issue during the workshop, the response was that Section 10726.8 subdivision (b) of the Water Code prohibits GSAs from denying overlying rights, and that municipal lands must therefore be included in the base used to calculate overlying allocations. However, this interpretation does not apply

to the concern raised. Excluding municipal acreage from the calculation would not deny those lands their overlying rights. Rather, it would prevent a double allocation by recognizing that municipal use, including use on the land served by that use, has already been fully accounted for through a separate quantity.

We recommend that the acreage associated with municipal providers be removed from the land base used to distribute the remaining overlying allocation. This adjustment would not affect municipal access to groundwater, but it would ensure that the remaining allocation is distributed fairly among those overlying users who have not already received a separate allocation.

Need for Transparency and Verification of Developed Water Credits

We recognize that both MID and OID hold long-standing rights to surface water developed through their infrastructure, including reservoirs and canal systems (salvaged water according to California Law). Their historical investments in water conveyance and storage facilities justify appropriate credit for water that is actively transported, controlled, and beneficially used. We do not object to the principle of recognizing these supplies as developed water that may be excluded from the common-pool groundwater allocation.

However, the current framework assigns 44,100 AFY as developed supply attributed to seepage from MID and OID facilities. During the workshop, questions were raised regarding the basis for these values, particularly for reservoir and canal seepage. It became apparent that neither the GSA representatives nor their consultants were able to clearly explain how these estimates were derived or whether the values reflect current operating conditions. The GSA confirmed there were no reductions or "leave behind" amounts, and no diminution in quantities even though OID and MID "recovery" facilities are geographically distant from facilities such as Modesto Reservoir. Furthermore, while this data was requested through a Public Records Act request by SEMWC, dated 3 April 2025, no documentation has yet been provided to support the calculations or for EKI to evaluate and assess their fitness.

This is not a minor detail. These quantities represent a significant portion of the total groundwater budget and are being excluded from reduction requirements under the allocation framework. They also reflect surface water rights that fall outside the GSA's regulatory control and may or may not remain within the Basin depending on operational decisions. Given their importance, it is imperative that the values used for developed water credits are accurate, well-documented, and based on a clear and replicable method. Without that transparency, there is a risk that these estimates may overstate the actual water remaining in the Basin and affect the equity and technical integrity of the allocation.

We recommend that the GSA and its consultants provide documentation for the methods and assumptions used to calculate developed water quantities, and that they consider an independent review of these values. Confirming the accuracy of these estimates will strengthen the credibility of the framework and build trust among all stakeholders.

Illustrative Impact of Potential Adjustments on NDE Allocation

The table below presents a high-level comparison of NDE's groundwater allocation, expressed in AFY/acre, under three alternative implementation approaches. It also illustrates the potential effects of reallocating the current appropriative pool, correcting for double-counting of municipal acreage, and redistributing developed water credits under a hypothetical maximum scenario. These values are not proposed targets

but are provided to help illustrate how specific changes to the framework could influence per-acre allocations within NDE.

Table 1. High-level comparison of NDE's allocation under different scenarios and the impact of redistributing allocation based on outlined concerns.

Allocation Approach	Land Base Area (Acres)	Allocated Area (Acres)	Current Pumping (AFY/Acre)	Proposed Allocation (AFY/Acre)	Redistribution of Appropriative Allocation (AFY/Acre)[1]	Redistribution of Municipal Duplicate Overlying Allocation (AFY/Acre)[1,2]	Maximum Redistribution of Developed Water Credits (AFY/Acre)[1,3]
Based on Overlying Area, Allocated to Overlying Area	70,100	70,100	1.27	0.63	0.08	0.11	0.18
Based on Overlying Areas, Allocated to Developed Area	70,100	24,000	3.72	1.84	0.22	0.33	0.52
Based on Developed Area, Allocated to Developed Area	24,000	24,000	3.72	1.20	0.15	0.47	0.34

[1] Redistribution scenarios indicate additional allocation that could be expected on top of the proposed allocation.

[2] Redistribution of municipal duplicate overlying allocation may affect other redistribution values due to changes in the land base and allocated area used in the calculation.

[3] The maximum redistribution shown is hypothetical and not proposed as policy. It is expected that some portion of developed water credits will remain with MID and OID due to legitimate seepage from their infrastructure.