

Diamond Valley Groundwater Management Plan

Executive Summary

For over 40 years, annual groundwater pumping has exceeded the perennial yield of Diamond Valley, located in southern Eureka County, Nevada. Groundwater levels since 1960 have declined on average two feet per year. In 2015, the State Engineer designated Diamond Valley as a Critical Management Area (CMA). By law, this designation provides 10 years for groundwater rights holders to develop a Groundwater Management Plan (GMP) to remove the basin from CMA designation.

If the GMP is not developed, supported by a majority of water right holders, approved by the State Engineer, and implemented in that timeframe, the State Engineer is mandated to regulate the groundwater basin by strict priority. Junior groundwater rights and domestic wells (after about May 1960) would be prohibited entirely or severely restricted from pumping.

The Diamond Valley Groundwater Management Plan applies to groundwater rights that serve an irrigation purpose and mining or milling rights that have an irrigation base water right. Priority (seniority) is factored into these rights using a formula which converts the rights to a set amount of shares. The shares are used on a year-to-year basis for calculating the volume of water (annual allocation in acre-feet of water per share) allowed to be used, sold, traded and banked. The GMP does not apply to vested water rights (including mitigation rights), municipal, industrial, stockwater, or existing domestic wells.

The GMP provides an alternative approach to ensure that over time groundwater levels stabilize. Existing water users may continue to use water in proportion to their water rights and seniority. The GMP requires reductions in pumping over time. This is accomplished by a system of shares with annual allocations (acre-feet of water per share) of water being available based on a formula.

$$WR * PF = SA$$

Where:

WR = Total groundwater right volume as recognized by DWR, accounting for total combined duty (i.e., overlapping places of use) (measured in acre feet)

PF = Priority Factor based on seniority

SA = Total groundwater Shares

Using the formula, shares are set for each water right and do not change. However, annual allocations (acre-feet of water per share) are reduced each year under the GMP to meet the required pumping reductions. Water rights holders and users can use the table in Appendix F and cross reference to the pumping reduction table in Appendix G to calculate the water allocation for any given year under the Plan.

Share calculation example using 160 acres with a duty of 4 acre-feet per acre:

Most senior water right: 640 acre-feet x 1.0 = 640 shares

Mid senior water right: 640 acre- feet x 0.90 = 576 shares

Least senior water right: 640 acre-feet x 0.80 = 512 shares

Year of GMP	Allocation in acre-feet per share (Appendix G)	Most Senior (water in acre-feet)	Mid Senior (water in acre-feet)	Least Senior (water in acre-feet)
1	0.661	423	381	338
5	0.562	360	324	288
10	0.463	296	267	237
15	0.430	275	248	220
20	0.397	254	229	203
25	0.364	233	210	186
30	0.331	212	191	169
35	0.298	191	172	153

The Plan creates a system to track water allocations and use. The State Engineer will administer and manage the Plan while being advised by a locally elected Advisory Board. The State Engineer is authorized to hire a Water Manager to assist.

The approval of the GMP by the State Engineer requires that a majority of the groundwater rights holders sign a petition requesting approval.

This Executive Summary provides a reference to the most important aspects of the plan but it is highly encouraged that all affected water right holders read and understand the entire document.

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The State Engineer has the authority to take appropriate actions regarding groundwater withdrawals that may conflict with existing rights or domestic wells or impacts to vested claims.

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The State Engineer administers and enforces the GMP and considers recommendations of the GMP Advisory Board (AB). The State Engineer may hire a Water Manager to coordinate with the AB and carry out the Plan. The State Engineer has the ultimate decision-making authority, but his decisions are subject to an appeals process and judicial review as provided under state law.

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The GMP Advisory Board has seven members, elected by the Shareholders subject to the GMP. The AB may make specific recommendations to the State Engineer to address any issue or concern. This section describes the composition, election, and replacement of Advisory Board members.

Section 12. Groundwater Shares and Share Register

All groundwater rights within the scope of the GMP receive groundwater Shares according to the formula. The formula takes into account the priority date or seniority of the permit or certificate.

The formula is: $WR * PF = SA$

Where:

WR = Total groundwater right volume as recognized by DWR, accounting for total combined duty (i.e., overlapping places of use) (measured in acre feet)

PF = Priority Factor based on seniority

SA = Total groundwater Shares

The shares are recorded in the Share Register by owner. The registry is maintained by the State Engineer. Appendix F is a preliminary table/spreadsheet of the groundwater rights and corresponding Shares projected.

Section 13. Annual Groundwater Allocations and Groundwater Account

An Annual Groundwater Allocation is the amount of groundwater allocated to each Share each year in acre-feet per Share. Each Allocation is placed into a Groundwater Account or Accounts as determined by the base water rights holder and linked to the Share Register. The State Engineer

makes Annual Allocation assignments to each Groundwater Account in February. Groundwater subject to this GMP may be withdrawn from Diamond Valley for any beneficial purpose under Nevada law as long as the groundwater use is linked to and withdrawn from a Groundwater Account with a positive balance and consistent with all of the provisions of the GMP. Water Allocations can be used, traded or sold, or banked for future use. Banked water carried over to the next year will be reduced to account for natural losses based on location within the basin. Year 1 is introductory to allow water users a better understanding of how their groundwater use and management coordinates with the GMP. Section 13.15 provides information on how new and previously existing mining pit lakes are considered.

Section 14. Well Use Approvals

This section explains how existent and future wells in the planning area will be approved and managed including exemption from NRS required abandonment procedures if the well is used to pump water from the Annual Allocation. This does not apply to water uses separate from the GMP. (See Section 8.2)

Section 15. Groundwater Use Metering and Reporting

All groundwater pumped under the GMP shall be metered using an approved Smart-capable flow meter or equivalent, for uniformity, standardization, and to ensure high quality data and accurate reporting.

Section 16. Overdrawing a Groundwater Account

If a Groundwater Account is overdrawn, the water user is responsible for transferring groundwater Allocations from another account. After 30 calendar days, the overdrawn Groundwater Account is subject to penalty.

Section 17. Other Penalties

Penalties may apply for violations of any provision of the GMP. Fines and fees are appealable to the State Engineer through a petition process, and are subject to judicial review.

Section 18. Groundwater Uses Without Allocations.

Groundwater uses within Diamond Valley not expressly included within this GMP remain under the provisions of Title 48 of the Nevada Revised Statutes. Water conservation best management practices by these water users could reduce use of groundwater.

Section 19. Non-Consumptive Groundwater Uses

Some groundwater withdrawals, such as mine pit dewatering, are non-consumptive because much of the groundwater is returned to the Diamond Valley aquifer through injection or infiltration. Non-consumptive groundwater withdrawals remain under the authority of the State Engineer.

Section 20. Funding of GMP

Implementation, management and administration of the GMP will be primarily funded through the State Engineer special annual assessment authority where groundwater rights in Diamond Valley are assessed to cover expense in management of groundwater used. The base right receiving Shares will continue to be the avenue for levying of the assessment through the County tax roll.

Section 21. Relinquishment of Groundwater Rights or Allocations

Groundwater rights may be relinquished with the written consent of all parties with an interest in the right of Allocation.

Section 22. Lands Retired from Irrigation

Funds raised through the special annual assessment may be used for land stabilization and weed and rodent control on lands retired from irrigation (permanently and temporarily) in order to prevent land degradation and detrimental impacts on neighboring lands.

Section 23. Other Land Management

The State Engineer shall work with land management agencies to enhance groundwater recharge.

Section 24. Annual Meeting

The State Engineer and AB shall hold a joint annual public meeting between November 1 and December 15.

Section 25. GMP Publically Accessible

The approved GMP shall be posted on the State Engineer’s website and any other website that may be developed for the GMP.

Section 26. GMP Review, Modification or Discontinuation

Amendment or discontinuance of the GMP must be done by following state law. In Year 6, the State Engineer and the AB must review the Plan. Section 26.5 states that many appendices to the GMP are living documents that will change as the Plan progresses. Updates to any appendix are not amendments to the GMP.

Appendices and Footnotes

The appendices and the footnotes provide detailed information and background, and are useful to a full understanding of the GMP.

Appendix A is the petition signed by a majority of water holders, for submission to the State Engineer.

Appendix B is the GMP Scoping Report by Walker and Associates.

Appendix C outlines the GMP process.

Appendix D covers the hydrologic setting of Diamond Valley.

Appendix E contains a basic model of the job description for the Water Manager.

Appendix F is a table of groundwater rights and shares included in the GMP.

Appendix G contains the groundwater allocation and pumping reduction tables.

Appendix H is flow meter water testing results.

Appendix I is the groundwater flow modeling report supporting banking depreciation.

1. Defined Terms

Acre-foot: The amount of water it takes to cover an acre of land with water to a depth of 1 foot. It is equivalent to 325,900 gallons of water. The annual duty of a water right is commonly defined in terms of acre-feet per year.

Agricultural Positions: the Groundwater Management Plan Advisory Board (AB) Members who represent groundwater rights holders whose water rights are used for irrigation purposes

Annual Groundwater Allocation (Allocation): the amount of groundwater allocated to each Share each year (measured in acre feet) in accordance with Section 13

Aquifer: An underground layer of porous rock, sand, or gravel containing amounts of water in sufficient quantity to constitute a usable supply for wells and springs.

At-Large Positions: the positions on the AB that may be held by any Shareholder after Year 8 in accordance with Section 11.4

Allocation and Benchmark Reduction Table: the table of preliminary annual groundwater Allocations and benchmark pumping reductions contained in Appendix G.

Base Water Right: The original groundwater right in good standing according to the records of the State Engineer converted to Shares in this GMP.

Critical Management Area (CMA): Critical Management Area within the meaning of NRS 534.037 and NRS 534.110.

Eureka Conservation District (ECD): Eureka Conservation District

ET Depreciation: the rate of annual depreciation of a banked Allocation (expressed in a percentage) to account for evapotranspiration.

Evapotranspiration: The combined processes by which water is transferred from the earth surface to the atmosphere; evaporation of liquid or solid water plus transpiration from plants. Evapotranspiration occurs through evaporation of water from the surface, evaporation from the capillary fringe of the groundwater table, and the transpiration of groundwater by plants whose roots tap the capillary fringe (phreatophytes) of the groundwater table.

Division of Water Resources (DWR): the Nevada Division of Water Resources, a division of the Nevada Department of Conservation and Natural Resources

Groundwater Management Plan (GMP): this Groundwater Management Plan

Groundwater Account: the account tied to the Share Register held by a groundwater user for all of that groundwater user's Allocations, as described in Section 13.2

Groundwater Management Plan Advisory Board (AB): the Advisory Board initially elected by the participants in the GMP development as described in Section 4 and that shall thereafter be elected and serve in accordance with Section 11

Mining Position: the AB Member who represents groundwater rights holders whose water rights are used for mining and milling purposes

MOU: Memorandum of Understanding; the to-be-drafted document that may be executed between the DWR and the Advisory Board in accordance with Section 10

Perennial Yield: The maximum amount of groundwater that can be salvaged each year over the long term without depleting the groundwater reservoir. Perennial yield is ultimately limited to the maximum amount of natural discharge that can be salvaged for perennial use. The perennial yield cannot be more than the natural recharge to a groundwater basin and in some cases is less. If the perennial yield is exceeded, groundwater levels will [continue to] decline and steady state conditions will not be achieved, a situation commonly referred to as groundwater mining.

Phreatophyte: Plants whose roots tap the capillary fringe of the groundwater table.

Priority Factor (PF): the percentage that is used to convert a groundwater right to a Share, in accordance with Section 12.4

Recharge: The process by which water is added to an aquifer, including natural recharge by which precipitation or stream flow makes its way into the groundwater supplies, secondary recharge by which water used for irrigation or other purposes infiltrates the ground and adds to the groundwater

supplies, or artificial recharge which includes actions specifically designed to increase groundwater supplies.

Senior Positions: the AB Members who represent groundwater rights holders who hold water rights with a priority date within the first 30,000 acre feet appropriated in Diamond Valley

Share: the product of multiplying the groundwater right volume (measured in acre feet) by the Priority Factor, in accordance with Section 12.3, resulting in the number of Shares a groundwater right holder receives under this GMP. This results in the unit used to calculate an amount of groundwater received under this GMP

Share Register: the database of all Shares that shall be maintained by DWR in accordance with Section 12.8

Shareholder: a person or entity who holds one or more Shares of groundwater that is subject to the GMP

Smart meter: an electronic flow meter that has the capability to record water pumping in desired intervals (including near-real-time) and to communicate that information back to an entity (user or regulatory agency) for monitoring, billing, and administration. Smart meters may enable two-way communication between the meter and the central system.

State Engineer: the Nevada State Engineer

Vested Position: the AB Member who represents groundwater rights holders claiming vested rights to springs in Diamond Valley

Vested Water Right: The water right to use either surface or groundwater acquired through water put to beneficial use prior to the enactment of water law pertaining to the source of the water (i.e., prior to 1905 for surface water)

Water Manager: the employee or independent contractor of the DWR whose role and responsibilities are specified in Section 10

Year X: The word “Year” followed by a number refers to the year following GMP approval, starting on January 1.

2. Diamond Valley Background

Diamond Valley is a major groundwater-reliant farming area in the Diamond Valley Hydrographic Basin, Basin 153 and collectively referred to as “Diamond Valley” in this Groundwater Management Plan (GMP). There are about 25,000 acres of irrigated land, which primarily produce premium-quality alfalfa and grass hay. In 2013, it was estimated that approximately 110,000 tons of hay are produced annually for a total farming income of approximately \$22.4 million¹.

About 126,000 acre-feet of irrigation groundwater rights are appropriated in Diamond Valley while the perennial yield recognized by the State Engineer is 30,000 acre-feet per year.² Groundwater

¹ Hansford Economic Consulting, June 2013.

² This perennial yield is based on Harrill (1968). The recent 2016 U.S. Geological Survey Scientific Investigations Report on the Diamond Valley Flow System (Berger et al. 2016) defines the pre-development groundwater discharge, often used by the State Engineer to establish perennial yield, to be 35,000 acre-feet annually. <http://dx.doi.org/10.3133/sir20165055>.

pumping as of 2016, was about 76,000 acre-feet per year. While the primary groundwater usage is irrigation, nearly two-thirds of Eureka County's residents receive their domestic water needs from groundwater in Diamond Valley, including most of the water needed by the Town of Eureka (which serves numerous businesses and the Eureka County schools), two General Improvement Districts, and domestic wells. Groundwater in Diamond Valley also supplies water needs for mines and other commercial and industrial uses. There are also multiple stockwatering wells that supply the water for many livestock production operations.

For over 40 years, annual groundwater pumping has exceeded the perennial yield of Diamond Valley, and groundwater levels since 1960 have declined at an average rate of approximately two feet per year.

3. Need for a Groundwater Management Plan (GMP)

Recognizing the continuing decline of the groundwater resource in Diamond Valley, on August 25, 2015, the State Engineer used his authority³ to designate Diamond Valley a Critical Management Area (CMA) through Order #1264. By statute, this designation provides a ten-year period in which the groundwater rights holders may come together to develop a Groundwater Management Plan (GMP) to remove the basin from CMA designation. If a GMP is not developed, approved by the State Engineer, and implemented by the end of ten years, the State Engineer is mandated by law to regulate by strict priority. At the expiration of this 10-year period following CMA designation, the law does not provide the State Engineer with any discretion or flexibility other than to regulate by priority⁴. In this case, NRS 534.110(7)(b) would require prohibiting the pumping of junior groundwater rights and domestic wells that were appropriated more recently than a date determined by the State Engineer to bring the withdrawals below the perennial yield. State water law allows development of a GMP in a hydrographic basin designated as a CMA and defers to the GMP on the processes needed to remove the basin from the CMA designation. With or without the CMA designation, the drafters of this GMP recognize that a concerted effort to reduce pumping in Diamond Valley to sustainable levels is needed for protection of the resource itself.

4. GMP Process

Well before CMA designation, many groundwater rights holders, primarily irrigators, came together to start making progress towards a GMP in anticipation that the State Engineer would designate Diamond Valley as the State's first CMA⁵. In March 2014, this group held a meeting and decided to

³ NRS 534.110(7)(a)

⁴ NRS 534.110(7)(b)

⁵ AB 419, which passed in the 2011 Nevada legislative session, created the CMA and GMP statutes. Much of the testimony received during the session on AB 419 was how this could be a tool applied in Diamond Valley. Additionally, the State Engineer held a workshop in Eureka on February 25, 2014 outlining his desire that local solutions be developed through a GMP, regardless of CMA designation. Groundwater rights holders were well aware that CMA designation was likely.

request that the Eureka Conservation District (ECD), a locally elected, third-party, local government entity⁶, take the lead role in facilitating development of a GMP. At its meeting in March 2014, the ECD officially accepted the role of facilitating the development of a GMP.

ECD contracted with Walker & Associates (Walker) in May 2014 to assist in scoping the GMP. ECD sent a letter to every groundwater right holder and all known domestic well holders in Diamond Valley to inform them that Walker would be hosting facilitated workshops and private meetings (if requested) to scope the issues, hurdles, and opportunities that stakeholders believed were relevant to development of a GMP, including potential strategies to reduce pumping. Walker held many facilitated public workshops and private meetings. The results of Walker's work are in Appendix B.

Nevada Revised Statute 534.037(1) requires that a GMP must receive the signatures (through petition) of a majority of groundwater rights holders before it can be officially submitted to the State Engineer for approval⁷. ECD and the groundwater rights holders who attended the various meetings chose to involve everybody who might be affected by a GMP and to build consensus on its content. In April 2015, ECD approached a respected facilitator with the University of Nevada Cooperative Extension, Dr. Steve Lewis, along with Mr. Steve Walker of Walker & Associates and ECD leadership, to assist ECD leadership in this process. Many efforts were made to ensure all groundwater right holders in Diamond Valley were informed of meetings and opportunities to engage in the process. Certified letters were sent to every groundwater right holder in the Diamond Valley hydrographic basin on record with the State Engineer and every documented domestic well owner. An article was also published in the local newspaper, the Eureka Sentinel, about the GMP meetings, encouraging interested and affected persons to attend. Over the course of ten months between April 2015 and February 2016, seven facilitated workshops were held, at which major portions of the GMP were developed.

In February 2016, participants in these GMP development meetings elected a Groundwater Management Plan Advisory Board (AB) by nomination and majority vote. Thereafter, the AB took over much of the responsibility for facilitating GMP development from the professional facilitators. The AB made recommendations for consideration to the entire group of groundwater rights holders who were participating in the GMP process. From February 2016 until submittal of the GMP to the State Engineer, there were an additional twenty-three formal Advisory Board meetings and twenty formal full-group meetings.

During this process, the groundwater rights holders received presentations on the potential development and implementation of a water market-based system meant to provide ultimate flexibility in using water, while incentivizing conservation and allowing willing participants' quick

⁶ See NRS 548 for more information on the duties and powers of a conservation district.

⁷ NRS 534.037

sale, lease, trade, etc. of water in times when needed⁸. This GMP was developed adapting these concepts to local needs, desires, and constraints.

All meeting reminders, sign-in sheets, meeting notes, outlines, etc. developed at these meetings are included in Appendix C.

5. Nevada Statutory Criteria for GMP Approval

NRS 534.037(1) requires that a GMP submitted for approval to the State Engineer must be accompanied by a petition for approval signed by a “majority of the holders of permits or certificates to appropriate groundwater in the basin that are on file in the Office of the State Engineer...” This GMP is submitted to the State Engineer for approval, accompanied by the required petition, included as Appendix A.

The only statutory requirement for a GMP is that it “must set forth the necessary steps for removal of the basin’s designation as a critical management area.”⁹ Only basins where “withdrawals of groundwater consistently exceed the perennial yield of the basin” may be designated as a critical management area,¹⁰ as has occurred in Diamond Valley.

NRS 534.037(2) further identifies, without limitation, elements the State Engineer “shall consider” when “determining whether to approve a groundwater management plan submitted pursuant [NRS 534.037(1)]...” These include:

- (a) The hydrology of the basin;
- (b) The physical characteristics of the basin;
- (c) The geographic spacing and location of the withdrawals of groundwater in the basin;
- (d) The quality of the groundwater in the basin;
- (e) The wells located in the basin, including, without limitation, domestic wells;
- (f) Whether a groundwater management plan already exists for the basin; and
- (g) Any other factor deemed relevant by the State Engineer.

Appendix D was developed and included to assist the State Engineer’s consideration of these required considerations.

6. GMP Goals

- A. Remove the basin’s CMA designation within 35 years by stabilizing groundwater levels in Diamond Valley

⁸ See Young, M. (2015) Unbundling Water Rights: A Blueprint for development of robust water allocation systems in the western United States. NI R 15-01 Durham, NC. Duke University. <http://nicholasinstitute.duke.edu/publications>.

⁹ NRS 534.037(1)

¹⁰ NRS 534.110(7)(a)

- B. Reduce consumptive use to not exceed perennial yield
- C. Increase groundwater supply
- D. Maximize the number of groundwater users committed to achieving GMP goals
- E. Preserve economic outputs from Diamond Valley
- F. Maximize viable land-uses of private land
- G. Avoid impairment of vested groundwater rights
- H. Preserve the socio-economic structure of Diamond Valley and southern Eureka County

7. GMP Boundary and Out-of-Basin Transfers

- a. The GMP shall apply to those groundwater uses within the Diamond Valley Hydrographic Basin that come within the scope of the GMP, as discussed in Section 8.1.
- b. Out-of-basin transfers of groundwater that is subject to the GMP are prohibited¹¹.

8. Scope of Groundwater Included in the GMP

- a. The GMP applies only to the following groundwater rights that exist at the time the GMP is approved by the State Engineer:
 - i. Groundwater rights that serve irrigation purposes;
 - ii. Groundwater rights that serve mining and milling purposes if they have irrigation base rights; and
 - iii. Groundwater that is imported to Diamond Valley only if it is injected or infiltrated into the Diamond Valley aquifer.
- b. The following are not subject to the requirements of the GMP and will remain within the purview of the State Engineer's administrative jurisdiction and standard regulatory scheme:
 - i. Vested water rights, including spring vested rights that have been mitigated with groundwater rights through State Engineer or court order, ruling, decree or other legal decision;
 - ii. Groundwater rights that exist at the time of GMP approval that are not irrigation groundwater rights (including stockwater, municipal, commercial, and mining groundwater rights without an irrigation source permit); and
 - iii. Domestic wells, as defined by NRS 534.013.

¹¹ Out-of-basin groundwater transfers may be considered by the State Engineer in the future should (1) a majority of groundwater rights holders petition the State Engineer under the provisions of NRS 534.037(1) to approve an amendment to the GMP that authorizes out-of-basin transfers and (2) only when groundwater levels have reached some threshold of stabilization, as determined under the provisions of this GMP.

9. Authority of State Engineer to Analyze Potential for Conflicts

- a. Nothing in this GMP shall impair or supersede the authority of the State Engineer to analyze or take appropriate actions regarding groundwater withdrawals that may conflict with existing rights or domestic wells or impacts to vested rights (or claims).
- b. The well-use approval process in Section 14 of this GMP is the mechanism for the State Engineer to complete conflict analyses for new wells or increases in diversion rate in existing wells higher than permitted under the base right.

10. Diamond Valley Groundwater Management Plan Administration and Enforcement

- a. This GMP will be administered and enforced by the State Engineer, who will consider the recommendations of the AB.
- b. The shareholders agree that a Water Manager employed or contracted by the State Engineer may be charged with managing the terms and conditions of the GMP. If a Water Manager is necessary, the Water Manager shall be employed or contracted by the DWR with job role and responsibilities, funding, administration of penalty provisions, etc. clearly spelled out in a to-be-drafted Memorandum of Understanding (MOU) executed between the AB and DWR. A proposed job description of the Water Manager is included in Appendix E. Whenever this GMP references “State Engineer” this may include the Water Manager or State Engineer designee, as determined through State Engineer discretion.
- c. The State Engineer in coordination with the AB will conduct annual meetings as set forth in Section 24. In addition to the annual meeting, the State Engineer may meet with the AB as often as deemed necessary and appropriate, within the State Engineer’s discretion and, except as otherwise stated herein, shall conduct GMP meetings and business in an open forum with advance notice provided of these meetings but not less than three business days before the meeting.
- d. The State Engineer may task the Water Manager with preparing agendas, taking notes, and preparing meeting minutes or may hire a secretary for these duties, depending on funding availability.
- e. All decisions by the State Engineer shall be in accordance with this GMP and the State Engineer retains ultimate decision making authority over the GMP.
- f. Any person aggrieved by a final decision of the State Engineer under this GMP, which includes any penalties imposed, may appeal the decision to the State Engineer within 30 calendar days after the final decision. The appeal must be in writing and must outline the specific actions requested to be taken by the State Engineer. The State Engineer shall provide detailed, documented reasoning regarding any appealed decision the State Engineer modifies or supersedes. This provision does not waive the judicial review process established in NRS 533.450.

11. GMP Advisory Board

- a. The Advisory Board (AB) shall consist of seven members elected by the Shareholders subject to this GMP.
- b. In addition to other duties specifically outlined in the GMP, the AB is tasked with keeping apprised of local issues and concerns related to the GMP and communicating these issues and concerns to the State Engineer. The AB may make specific recommendations to the State Engineer to address any issue or concern.
- c. The AB in place at the time of the GMP submittal to the State Engineer for approval consisted of eight (8) seats as follows¹²:
 - Seat 1; One person representing mining groundwater rights holders (Mining Position)
 - Seat 2; One person representing groundwater rights holders with primary interests in ranching in Diamond Valley and representing claimants with vested spring rights claims on the valley floor (Vested Position)
 - Seats 3 through 6; Four farmers with both senior and junior rights (Agriculture Positions)
 - Seats 7 and 8; Two farmers with all of their groundwater rights being within the first 30,000 acre-foot to have been appropriated in Diamond Valley (Senior Positions)

Except for one of the Senior Positions, Seat 8 which shall expire upon GMP approval, AB members in place at the time shall maintain their positions on the AB for the first two (2) years following GMP approval. After GMP approval, the AB shall consist of the seven remaining seats - Seats 1 through 7.

- d. After the end of Year 8 of the GMP,¹³ the AB shall consist of the Mining Position, two Agriculture Positions, and four open seats (i.e., groundwater allocation used for any use) (At-Large Positions) according to the following step-wise progression:
 - i. At the end of Year 2, Seats 3, 4, and 5 shall be open for election to a four-year term and shall be filled by individuals representing agriculture (i.e., groundwater allocation used for agriculture).
 - ii. At the end of Year 4, Seats 1, 2, 6, and 7 shall be open for election to a four-year term. Seat 1 shall be filled by an individual representing mining (i.e., groundwater allocation used for mining) and Seats 2, 6 and 7 representing agriculture (i.e., groundwater allocation used for agriculture).
 - iii. At the end of Year 6, Seats 3, 4, and 5 shall be open for election to a four-year term. Seats 3 and 4 shall be filled by an individual representing agriculture (i.e., groundwater allocation used for agriculture) and Seat 5 shall

¹² The specific AB members at GMP submittal: Ari Erickson (Seat 1), Ira Renner (Seat 2), Mark Moyle (Seat 3), Bob Burnham (Seat 4), Russell Conley (Seat 5), Marty Plaskett (Seat 6), Jim Gallagher (Seat 7), and Vickie Buchanan (Seat 8).

¹³ References to events that occur following GMP approval are designated Year 1, Year 2, Year 3, etc., with the year commencing on January 1 following approval by the State Engineer.

be filled with any groundwater right holder (i.e., groundwater allocation used for any use).

- iv. At the end of Year 8, Seats 1, 2, 6, and 7 shall be up for election to a four-year term. Seat 1 shall be filled by an individual representing mining (i.e., groundwater allocation used for mining) and Seats 2, 6, and 7 filled with any groundwater right holder (i.e., groundwater allocation used for any use).
- e. Elections occurring after the eighth year of the implementation of this GMP shall be held every two years for each position in which the four-year term has expired.
- f. All AB elections shall be held at the annual meeting described in Section 24 at which all groundwater rights holders under this GMP may attend, make nominations, and cast their vote in-person¹⁴. Nominations shall be made from the floor, and votes shall be weighted according to number of Shares held by a voting water rights holder. Counting of the votes shall be open to view by all attending the meeting and recorded in the minutes.
- g. Any AB seat that becomes vacant before the expiration of a term shall be filled by appointment by the remaining AB members. The term of the appointment expires at the end of the term of the vacant seat.
- h. The AB may meet as often as it deems necessary and appropriate, within its discretion, and meetings shall be in an open forum with advance notice provided of these meetings but not less than three business days before the meeting.
- i. A secretary may be hired to assist with preparing agendas, taking notes, and preparing meeting minutes on behalf of the AB.

12. Groundwater Shares and Share Register

- a. All groundwater rights within the scope of this GMP as set forth in Section 8.1 and that are in good standing according the records of the State Engineer, upon approval of this GMP, shall receive groundwater Shares according to the formula specified in this Section. Calculation of the number of Shares issued for a mining groundwater right with an irrigation base permit shall be established by the volume of the irrigation base permit, not the volume of the mining permit.
- b. The base right receiving the Shares shall continue to be tied to the specific land and well(s) described in the respective permits or certificate at the time of GMP approval. Shares shall not be severable from the base permit or certificate they are attached to.
- c. The State Engineer shall record the number of Shares for each permit or certificate number (and associated owner of record) and link this information to a Share register that shall be established according to the provisions of this GMP.

¹⁴ No votes by proxy allowed

- d. The formula used to calculate the number of Shares for each groundwater permit or certificate under the GMP shall take into account the priority date (i.e., seniority) of the permit or certificate. The formula being:
- i. $WR * PF = SA$
Where:
WR = Total groundwater right volume as recognized by DWR, accounting for total combined duty (i.e., overlapping places of use) (measured in acre feet)
PF = Priority Factor based on seniority
SA = Total groundwater Shares
- e. The Priority Factor (PF) for the Share formula shall be determined by seniority of any given groundwater right, where the spread between the most senior groundwater right and the most junior groundwater right shall be 20%. All irrigation groundwater rights and mining groundwater rights with an irrigation base permit and that are in good standing according to the records of the State Engineer, shall be sorted according to seniority, and each total groundwater right multiplied by its relative senior percentage, resulting in the most senior right receiving a PF of 1.0 and the most junior right receiving a PF of 0.80.
- f. Some separate groundwater rights in Diamond Valley share the same priority date. Rights sharing the same priority date will have their PF averaged and this average PF applied to each right with the same date.
- g. A preliminary table/spreadsheet of the groundwater rights and the corresponding number of Shares projected at the time of GMP submittal to the State Engineer is included in Appendix F. This table shall be considered preliminary due to the fact that groundwater rights in Diamond Valley continue to be used and managed in various ways, including potential transfer of ownership, during GMP development. The official record of groundwater rights used for the purpose of establishing Shares shall be groundwater rights as they exist at the time of GMP approval by the State Engineer. Upon approval of the GMP by the State Engineer, the final table/spreadsheet will substituted for the preliminary version in Appendix F.
- h. After Shares are issued, the State Engineer, in coordination with the AB, shall send certified letters to notify each appropriator of record of the following:
- A. That the GMP has been approved and groundwater use in Diamond Valley within the scope of the GMP must follow the GMP;
 - B. Of the status of the owner's groundwater right, the official appropriator name on record, and the number of Shares that shall be assigned to each permit or certificate;
 - C. That all appropriators of record should work with the DWR to address, clarify and correct any discrepancies asserted in groundwater rights or name of record and file any

necessary documents required by NRS 533.384 and consistent with NRS 533.024(2);
and

- D. Of any other information deemed appropriate by the State Engineer, in consultation with the AB.
- i. Any certified letter that is returned as undeliverable shall be reviewed by the State Engineer and AB, and every reasonable effort shall be made to contact the groundwater right holder to ensure receipt of the letter.
 - j. The State Engineer in coordination with the AB shall oversee creation of a Share Register and shall use all reasonably available technology in the maintenance of the Share Register. The State Engineer will make reasonable efforts to provide for the integrity of the register.
 - k. The Share Register shall be accessible by the groundwater right owner of record.
 - l. When there is a change of ownership of a base right under the scope of the GMP, the associated change shall be made in the register. The same process for change of ownership under the requirements of NRS 533.384 and consistent with NRS 533.024(2) shall be applicable to any change of ownership of a base right under the scope of the GMP.
 - m. New Shares shall not be issued after initial Share issuance unless physical, “new” groundwater is imported into Diamond Valley or the issuance of new Shares is legally required (i.e., ordered by a court with jurisdiction). If physical groundwater is imported into Diamond Valley, additional groundwater Shares may be issued if the imported water is injected or infiltrated into the Diamond Valley aquifer and applying the respective ET Depreciation factor. The base water right in the source basin remains under the authority of the State Engineer, not this GMP.

13. Annual Groundwater Allocations and Groundwater Account

- a. An Annual Groundwater Allocation (Allocation) is defined as the amount of groundwater allocated to each Share each year in acre-feet per Share.
- b. The State Engineer shall place each Allocation into a Groundwater Account or Accounts, as determined by the base water rights holder, and link it to the Share register.
- c. The State Engineer shall be the custodian of documents and records for the transfer and record of groundwater Allocations as maintained by the Division of Water Resources.
- d. The Division of Water Resources will manage the transfer and banking of groundwater Allocations. This management may be contracted to a third-party if it is determined that outside assistance is needed or is better suited to managing the transfer and banking.
- e. Requests to access or make changes to a Groundwater Account may incur a nominal fee sufficient to recover the cost of maintaining the account. Any fee, if established,

shall be set by the State Engineer through an open and transparent process in coordination with the AB.

- f. The State Engineer shall determine and make Annual Allocations and assign to the appropriate Groundwater Account by January 1 each year. After January 15 and by February 1 each year, Groundwater Accounts will be reconciled to account for ET Depreciation (see Section 13.9) and any relevant overdraw penalties (Section 16) using the previous year's fourth-quarter pumping data.
- g. A summary of information in the overall Groundwater Account (e.g., amount of groundwater used or unused at any given time period) may be aggregated and made available to the public provided personal identifying information is not disclosed pursuant to NRS 603A.040.
- h. Groundwater subject to this GMP may be withdrawn from Diamond Valley for any beneficial purpose under Nevada law as long as the groundwater use is linked to and withdrawn from a Groundwater Account with a positive balance and consistent with all of the provisions of the GMP¹⁵.
- i. Any unused Allocation shall remain as a balance in the Groundwater Account (i.e., banked) for use in a subsequent year and shall not be subject to future reduction except as otherwise provided herein. There shall be no restrictions on the volume of groundwater that can be banked. Banked groundwater Allocations for use in subsequent years shall depreciate to account for natural losses through evapotranspiration (ET Depreciation). The Diamond Valley hydrographic basin shall be divided between the main farming area and the groundwater discharge area as depicted in Figure 1 and described in Appendix I. Banked groundwater shall be reduced at seventeen percent (17%) annually for water banked north of the dividing line and one percent (1%) annually for water banked south of the dividing line. These ET Depreciation factors are based on numerical flow modeling analysis completed to justify and support the amount. A report on this analysis is included in Appendix I.
- j. All or part of any Allocation in any individual Groundwater Account may be transferred to any other individual groundwater account through confirmed willing-party transactions in a format prescribed by the State Engineer. Notification of any transaction completed will be confirmed and provided back from the State Engineer to above said parties.
- k. All liens, encumbrances, notices of pledge, other security interests, leases and sales on all or part of any Allocation shall be recorded in the register to provide a mechanism for creditor or beneficiary tracking and recording.

¹⁵ Includes metering with the approved flow meter using a legal well with a well use approval as discussed in this GMP.

- l. Both benchmark and most-aggressive pumping reductions and associated preliminary¹⁶ annual groundwater Allocations are outlined in the table in Appendix G. While pumping reductions are outlined in the table for 35 years for benchmark reductions, and stabilization of the water table and net-pumping in Diamond Valley reaching perennial yield are expected to be reached within 35 years¹⁷, a more, or less, aggressive reduction schedule may be followed (see Section 13.13 below). If it is determined that the most aggressive pumping reduction schedule is to be followed, net-pumping reaching perennial yield would occur around year 22 of this GMP.
- m. Two goals of the GMP are to (1) stabilize groundwater levels of the aquifer and (2) reduce consumptive groundwater use to the perennial yield. To provide some certainty for water users, and since groundwater level trends may take years to determine, annual Groundwater Allocations shall be firmly set for the first ten years of the GMP. Annual Allocations after Year 10 are anticipated to follow the benchmark reductions (1% cumulative reduction per year) but may be adjusted up or down by the State Engineer, in consultation with the AB, as informed by groundwater level monitoring data multi-year trends. However, after Year 10, annual Allocations cannot exceed a cumulative adjustment of plus or minus (+/-) two (2) percent (%)¹⁸.
- n. Year 1, expected to be 2019, shall be considered “introductory” to allow water users to develop a better understanding of how their groundwater use and management coordinates with the GMP and will provide opportunities to fine-tune GMP management and administration. Groundwater users who do not use a full Year 1 Allocation in any specific Groundwater Account may rollover (i.e., bank) any unused Year 1 Allocation with the respective ET Depreciation factor. No penalties shall accrue nor shall replacement water be required for any individual Groundwater Account that is overdrawn during Year 1, provided that the user does not exceed the permitted duty allowed under the base water right permit.
- o. All mining operations and other man-made excavations extending below the groundwater table (and therefore creating a pit lake after cessation of dewatering) which did not possess a state or federally approved Plan of Operations by the date the GMP was approved by the State Engineer will be required to dedicate groundwater rights (with associated Shares and Allocations) to account for estimated

¹⁶ As previously noted, a preliminary table/spreadsheet of the groundwater rights and the Share projected at the time of GMP submittal to the State Engineer for approval is included in Appendix F. Groundwater rights in Diamond Valley continue to be used and managed in various ways, including potential transfer of ownership, during GMP development until GMP approval. The annual groundwater allocation table shall also be considered preliminary due to the fact that annual allocations are calculated based on the total groundwater Shares available in Diamond Valley. Groundwater rights as they exist at the time of GMP approval by the State Engineer shall be the official rights converted to groundwater Shares in which the final, official annual allocation table will be based.

¹⁷ Water table monitoring is an important component of the GMP and future studies may refine perennial yield to be different than what is known at GMP approval.

¹⁸ Reduction percentages are cumulative beginning in Year 1. Year-to-year reduction percentages may be more or less than cumulative pumping adjustments.

evaporative losses from the surface of the water body. Groundwater rights dedicated for pit lake groundwater evaporation will be placed into special category of the Share Register and will continue to receive annual groundwater allocations. The quantification of the evaporative loss of groundwater will be determined by the State Engineer case-by-case and based upon the best available science and data. The mining operator or property owner will be invited to offer input into the evaporative loss calculation. The quantification of evaporative groundwater losses from a pit lake shall be calculated at the rate of evaporation when the lake is in equilibrium with the groundwater system. The total number of groundwater rights dedicated must have an estimated Allocation at Year 30 of the projected reduction table in Appendix F equal to or greater than the calculated evaporation rate. The dedication of groundwater rights (and associated Allocations) to account for pit lake evaporative losses must be in place when water is first present in the pit bottom after the cessation of mine dewatering activities. The liability of addressing the projected effects to water rights resulting from pit lake evaporative losses is assignable to successor operators and companies or future property owners. If the GMP be discontinued, the operator at the time of cessation will then relinquish water rights in accordance with the process outlined in the November 1, 2016 letter from the State Engineer regarding Pit Lake Evaporation. Payment of the annual assessment for Shares dedicated to evaporative losses is outlined in Section 20.7.

14. Well Use Approvals

- a. Any well (and its associated meter system components) used, or anticipated to be used, to withdraw groundwater in Diamond Valley for uses required to have an Allocation under the GMP shall be linked to a specific Groundwater Allocation Account before any groundwater withdrawal occurs.
- b. Wells kept active and linked to a Groundwater Allocation Account shall be exempt from well abandonment requirements pursuant to NRS 534 and NAC 534. Any well that is kept active, but unused, must have a secure cap or other covering acceptable to the State Engineer to prevent exposure to open air or sources of contamination or otherwise enable a pollutant to be carried to the waters of the State as prohibited by NRS 445A.465.
- c. Wells not kept active and linked to a Groundwater Allocation Account will be subject to well abandonment pursuant to NRS 534 and NAC 534. Waivers for well abandonment requirements may be requested to allow any well not intended for use by the well owner to be used as a monitoring well, if needed, as determined by the State Engineer.
- d. Any well withdrawing groundwater under the GMP must comply with the requirements of the GMP and NRS 534 and NAC 534.

- e. All well construction activities shall be in accordance with applicable well drilling laws and regulations pursuant to NRS 534 and NAC 534.
- f. As provided in Chapters 533 and 534 of the NRS, the State Engineer may deny any application to drill a new well if the State Engineer determines that withdrawal of groundwater from the proposed well will create a conflict with existing rights or domestic wells.
- g. The State Engineer may disallow additional withdrawals from an existing well that exceeds the volume and flow rate that was initially approved under the base permit if the State Engineer determines that the additional withdrawal would create a conflict with existing water rights, domestic wells, or existing uses under the GMP.
- h. Before any new wells or additional withdrawals from an existing well that exceeds the volume or flow rate that was initially approved under the base permit are used, the proposed new well use or additional withdrawal shall be provided to the State Engineer for review. The State Engineer will evaluate the new well use or additional withdrawal within 14 calendar days to determine if the new use or additional withdrawal is in the public interest and would not impair the water rights held by other persons. If the new well use or additional withdrawal is not denied within this 14 calendar days, the new well use or additional withdrawal would be deemed approved by the State Engineer for a period not to exceed one (1) year.
- i. For new wells or additional withdrawals proposed for periods exceeding one (1) year or which the State Engineer determined within the 14 calendar days outlined above may not be in the public interest or may impair the water rights held by other persons, the regular procedures under NRS 533 and NRS 534 for changing the point of diversion or diversion rate shall be required, including publication and protest provisions.¹⁹

15. Groundwater Use Metering and Reporting

- a. All groundwater pumped from Diamond Valley that is subject to this GMP shall be metered using an approved Smart²⁰ flow meter. A specific, approved flow meter²¹ is required under this GMP for uniformity, standardization, and to ensure high quality data and accurate and reliable reporting.

¹⁹ This Section follows a process consistent with NRS 533.345(2) through (4).

²⁰ A Smart meter is an electronic flow meter that has the capability to record water pumping in intervals that are near-real-time and communicate that information back to an entity (user or regulatory agency) for monitoring, billing, and administration. Smart meters may enable two-way communication between the meter and the central system.

²¹ The approved Smart meter at GMP approval is the Siemens SITRANS F MAGFLO MAG 5100W. This magnetic flow meter has been rigorously and independently tested the Utah Water Research Laboratory (UWRL), a National Institute of Standards and Technology (NIST) traceable lab in Logan, Utah. At the time of GMP development, this flow meter was the best performing meter for accuracy and reliability. The USU results of the testing of this and other flow meters is included as Appendix H.

- b. The approved flow meter shall be properly installed, fully operational, and certified for use, as required by this GMP, before any groundwater subject to the GMP may be put to use.
- c. Metered water use data shall be linked to the appropriate Groundwater Account using the data reporting mechanism and frequency as determined by the State Engineer in coordination with the AB²².
- d. The approved Smart meter shall be installed at or near the point of diversion and shall meet manufacturer installation specifications.
- e. A variance for use of the required Smart meter may be considered on a case-by-case basis through petition to the State Engineer. The State Engineer, in consultation with the AB, may require site-specific engineering to justify consideration of any variance petition. At a minimum, the State Engineer shall require that any variance in use of the approved meter ensure an alternate Smart meter that is as accurate as, or otherwise is better suited to the application, than the meter otherwise authorized by this GMP. If a petition for variance is submitted and granted, the groundwater user bears the risk of whether the alternative meter will perform as expected. If an alternative meter approved for a variance by the State Engineer is later found by the State Engineer, in the State Engineer's discretion, to be inadequate, the variance shall be withdrawn and the water user shall install another acceptable meter at its expense within the deadline established by the State Engineer.
- f. Owners or operators who are granted a variance under Section 15.5 and install the approved flow meter without the minimum straight length spacing requirements, or otherwise inconsistent with manufacturer's specifications, shall provide an adequate testing section of straight pipe located somewhere on the diversion system either upstream or downstream of the installed flow meter. This testing section may be excavated pipeline as long as the section of pipe carries all groundwater being measured through the installed flow meter. Groundwater users choosing to expose pipe must excavate the pipe at their expense.
- g. After installation of any approved flow meter, the meter and installation shall be field-tested by the State Engineer, through the Water Manager or other designee (e.g., DWR staff) using the meter manufacturer's "field verifier" and a portable standard flow meter authorized by the State Engineer to ensure the meter is properly installed and functioning and accurate to within $\pm 10\%$ of the rate of flow and volume measured with a portable standard flow meter. The State Engineer, through the Water Manager or other designee, is authorized to conduct other field checks of

²² At the inception of the GMP, State Engineer December 8, 2017 Order 1292 will be used as the mechanism to collect pumping data and manage the GMP. Order 1292 requires monthly pumping data to be reported at the end of each calendar quarter. Groundwater Accounts will be updated quarterly using this reported data and reconciling of accounts will be completed with year-end data. As the GMP progresses and penalties or other administrative actions are imposed, data reporting and GMP management may be required through automatic transmission of data (e.g., cellular or radio transmission) or a combination of methods.

installed meters as it deems appropriate. If a meter does not pass an initial installation test or any other field check, the State Engineer may require the groundwater user to replace the meter at the groundwater user's expense and within the deadline established by the State Engineer.

- h. The State Engineer, in consultation with the AB, is authorized to adopt different approved flow meters, data transmission modules, data reporting mechanisms, or groundwater account linkage devices as new technologies or other alternatives become available that are as accurate as, or otherwise are better suited to accurately measure or administer groundwater use subject to this GMP.
- i. Groundwater users shall maintain the installed and certified approved flow meter system (meter and data recording and transmission devices) in proper operating condition within measurement guidelines as set forth in Section 15.4.
- j. If a groundwater user is aware of or is notified that its meter system is not operating correctly, the user shall have seven calendar days to remedy the issue or replace the meter or meter system component. Failure to remedy the issue within seven calendar days may result in the State Engineer requiring that all pumping through that system cease and desist until the issue is fully remedied. The State Engineer within its discretion, on a case-by-case basis, may allow for short-term remedies to extend past seven calendar days if extenuating circumstances exist (e.g., a specific part may not be available and installation may not be possible within seven calendar days). For example, a portable flow meter (e.g., clamp-on ultrasonic meter) may be installed, if appropriate, as determined by the State Engineer, until the approved flow meter system can be serviced, replaced, or otherwise becomes certified as fully operational. The State Engineer, through the Water Manager or designee, may at the groundwater user's expense, assist the groundwater user to remedy issues that arise in a metering system.
- k. Within its discretion, the State Engineer may fill any pumping data gaps due to failed or faulty metering systems using power data and/or average pumping rates on that system before a meter system failure arose.

16. Procedures and Penalties for Overdrawing a Groundwater Account

- a. If a Groundwater Account is overdrawn, the water user that holds the overdrawn account shall be responsible to immediately take actions so as to enable the transfer of groundwater Allocations from another account to the overdrawn account (i.e., buys or borrows water credit from someone else's account). A Groundwater Account that remains in a deficit for greater than 30 calendar days is subject to penalty.
- b. At a minimum, the State Engineer shall withhold or reduce or prohibit use of the immediate next year's groundwater Allocation, if applicable, of the overdrawn

Groundwater Account until any overdrawn account is fully settled as outlined in Sections 16.3 and 16.4.

- c. Any water right user whose Groundwater Account becomes overdrawn shall have 30 calendar days from the time overdraw of the account occurs to transfer groundwater Allocations from another account to the overdrawn account at a 1:1 ratio. If sufficient replacement groundwater cannot be secured from another account before the end of the 30-calendar-day period, the water user may elect to replace any remaining overdraw with up to 5% of that groundwater user's immediate next year Allocation (calculated based on the Groundwater Allocation and benchmark reduction table) at a 2:1 ratio as long as this occurs within this 30-calendar-day period.
- d. If an overdrawn groundwater account is not fully balanced within 30 calendar days from the time overdraw of the account occurs, the groundwater user shall be required to replace the overdrawn volume of groundwater at a ratio of 2:1 at least 30 calendar days prior to use of the immediate next year Allocation, or February 1, whichever is later. If sufficient replacement groundwater cannot be secured from another account at least 30 calendar days prior to use of the immediate next year Allocation, or February 1, the groundwater user may elect to replace any remaining overdraw with up to 5% of that groundwater user's immediate next year Allocation (calculated based on the Groundwater Allocation and Benchmark Reduction Table) at a 3:1 ratio, so long as this occurs within the 30 calendar days prior to use of the immediate next year Allocation, or February 1, whichever is later.

17. Other Penalties

- a. Penalty provisions under NRS Chapter 534.170-534-195 may be applied to individuals violating any of the provisions of the GMP.²³ While the State Engineer holds the authority to impose penalties under NRS Chapter 534, the State Engineer will consult with the AB before imposing any penalties as set forth in the MOU. Nothing in this GMP shall be construed to alter the authority conferred on the State Engineer under NRS 534.195.
- b. Tampering of a meter or meter system or bypassing or attempting to bypass groundwater use through the approved meter system is prohibited and shall be considered an egregious and purposeful violation. Such violations shall be considered for penalty at the maximum fine amount of \$10,000 per day for each violation (NRS 534.193(1)(a)).

²³ Such penalties may include the following non-exhaustive list: violators may be guilty of a misdemeanor for violating any provision of NRS Chapter 534; the State Engineer, after notice and opportunity for hearing, may impose a fine not to exceed \$10,000 per day for each violation; the State Engineer may require any violator to pay the costs of any proceeding, including investigative costs and attorney's fees; and the State Engineer may seek injunctive and other relief against violators.

- c. Any groundwater user who is subjected to a fine or assessment of fees resulting from any violation of any provision of this GMP may petition the State Engineer for reconsideration, elimination, or reduction of the fine or fee. Before making any such recommendation, the State Engineer shall accept and consider information submitted by the petitioner and shall consult with the AB. Any order imposing a monetary penalty is subject to judicial review under NRS 533.450.

18. Groundwater Uses without Allocations

- a. As set forth in Section 8.2, this GMP expressly excludes certain specified water rights within Diamond Valley. Water rights expressly excluded from this GMP include vested water rights, including spring vested rights that have been mitigated with groundwater rights²⁴, other groundwater rights existing at GMP approval that are not irrigation groundwater rights, including stockwater, municipal, commercial, mining groundwater rights without an irrigation source permit, and domestic wells. These water rights expressly excluded from this GMP will not receive groundwater Shares and are not required to receive an Allocation before being used under this GMP.^{25 26}
- b. Groundwater uses within Diamond Valley not expressly included within this GMP shall remain under the provisions of Title 48 of the Nevada Revised Statutes. These uses cannot receive Shares or Allocations and cannot be used for groundwater uses required to have an Allocation (i.e., these GMP-excluded uses must remain under the manner of use under the respective permit at GMP approval)²⁷.
- c. After approval of this GMP, any proposal approved by the State Engineer to convert use of a water right that is already under the GMP to a use under one of the groundwater rights categories listed in Section 18.1 (either through a new or change application) will require an Allocation and Shares, as applicable, and shall fall under all requirements of the GMP. If applicable, the Allocation and Benchmark Reduction Table in Appendix G will be used to project maximum groundwater needs for the life of any project or use (which may be in perpetuity) and would require that a sufficient amount of groundwater be dedicated for this period of time.²⁸

²⁴ Through State Engineer or court order, ruling, decree or other legal decision.

²⁵ Based on State Engineer records, all of these uses combined, not including vested rights, account for less than 5% of the total groundwater appropriations and less than 3% of the total groundwater pumped in Diamond Valley at the time of the GMP submission to the State Engineer.

²⁶ Since expressly excluded from this GMP, these uses cannot receive groundwater Shares or Allocations and non-vested water uses under Section 18.1 cannot be used for new groundwater uses required to have an Allocation (i.e., non-vested GMP-excluded uses must remain under the manners of use under the permit at GMP approval).

²⁷ It is understood that valid vested rights for irrigation or mining purposes and mining rights without an irrigation base permit will continue to be used for irrigation or mining purposes.

²⁸ Example: A developer buys a farm, subdivides the land, and proposes a housing development. This developer would need to dedicate water rights to cover the water use of the homes, which is an “excluded” use under Section 18.1. However, this is a “new” use that did not exist at GMP approval. The developer would need to convert an irrigation

- d. This GMP makes the following recommendations to encourage groundwater conservation for those uses that do not fall under the GMP:
- Full consideration of the options described under NRS 534.090(2) and (3) by the State Engineer for the uses listed in Section 18.1 to minimize unnecessary groundwater use (e.g., waive “use it or lose it”).
 - Enforcement by the State Engineer of the statutory requirements for domestic wells at the maximum total allowable withdrawal and for domestic purposes only (i.e., single-family residence only with no commercial use). NRS 534.180.
 - Enforcement by the State Engineer of permit terms for all groundwater rights not receiving Shares or otherwise within the scope of the GMP.
 - With the State Engineer’s support, the AB will request of and work with Eureka County to:
 - Relinquish (to the Diamond Valley basin) any County groundwater rights not reasonably needed in the foreseeable future;
 - Implement effective tiered-rates on municipal use to incentivize groundwater conservation;
 - Waive hookup fees for groundwater users near the municipal groundwater system to incentivize hookups and reduce new domestic wells;
 - Offer domestic well credits to those abandoning current domestic wells and hooking into a municipal water system and potentially assist in cost-sharing to abandon any old domestic well in accordance with Nevada law;
 - Invest in infrastructure to better enable hookups to a municipal system; and
 - Amend the County groundwater dedication ordinance for new parcels to require groundwater rights and/or Allocations in an amount that equals two acre-feet per year for the life of this GMP (based on the Allocation and Benchmark Reduction Table).
 - The State Engineer and AB should work with appropriate entities to:
 - Develop and distribute educational materials on groundwater conservation practices, especially for domestic and municipal uses;
 - Develop and distribute educational materials to domestic well users outlining typical domestic use at or below two acre-feet per year; and

base water right to a quasi-municipal use through the application and permitting process of the State Engineer. If approved by the State Engineer, this “new” quasi-municipal use would fall under all provisions of the GMP including metering and pumping reduction requirements. The State Engineer would require enough water to be dedicated in perpetuity for this new use, considering the future pumping reductions required under the GMP.

- Pursue and implement incentive programs for groundwater conservation (e.g., xeriscaping, turf removal, irrigation scheduling).

19. Non-Consumptive Groundwater Uses

- a. Some groundwater withdrawals, such as mine pit dewatering, are non-consumptive because much of the groundwater is returned to Diamond Valley aquifers through injection or infiltration. Groundwater withdrawals that are non-consumptive will remain under the authority of the State Engineer.
- b. Based on net-consumption analysis by the State Engineer, the consumptive use portion of the groundwater withdrawal will require a Groundwater Allocation, but non-consumptive groundwater use will not.
- c. The State Engineer, working with any entity proposing withdrawing groundwater in Diamond Valley and then returning groundwater to Diamond Valley, will consult with the AB to develop measures, as feasible, that return water to Diamond Valley in a manner that provides a net-benefit to the alluvial aquifer.

20. Funding of GMP

- a. Implementation, management, and administration of the GMP will be primarily funded through the State Engineer special annual assessment authority²⁹ where groundwater rights in Diamond Valley are assessed to cover expenses in managing groundwater use. The base right receiving Shares will continue to be the avenue for levying of the assessment through the County tax roll.
- b. DWR will require continued funding to manage groundwater in Diamond Valley. In coordination with the AB, the State Engineer will develop a fair annual assessment that will adequately fund GMP administration and other DWR costs to manage Diamond Valley groundwater. Through an annual budget process, the State Engineer shall endeavor to set the annual assessment in an amount that does not exceed the annual cost of GMP administration to avoid large annual roll-overs of funds from one fiscal year to the next.
- c. The State Engineer shall develop an annual budget that outlines expected revenues and expenditures for the year in which the annual assessment will be based, which will include consideration of recommendations from the AB.
- d. The portion of the annual assessment used for GMP administration and any other administrative fees collected under the GMP shall only be used for GMP administration and related expenses, as determined by the State Engineer, which may include, without limitation:
 - Maintenance of the Share register and water trading system;

²⁹ NRS 534.040

- Compensation of the Water Manager and any other necessary staff or consultants;
 - Office space;
 - Office supplies;
 - Field vehicles;
 - Field equipment;
 - Travel expenses;
 - Groundwater conservation grants; and
 - Fallow land stabilization (e.g., cover crop planting, weed control, rodent control).
- e. Annual special assessments must be fully paid in order to receive subsequent annual Groundwater Allocations under any Account. Annual Groundwater Allocations will not be made to any account associated with an over-due special assessment until the delinquency is settled. Allocations made once overdue special assessments are fully paid will be depreciated at five (5) percent and an additional one (1) percent for each month of delay or fraction thereof after every day the assessment became due. The State Engineer, in consultation with the AB, if satisfied the delay was excusable, may remit any part of the penalty.
- f. For water rights dedicated to the State Engineer for evaporative groundwater losses from applicable pit lakes or other man-made surface water bodies as outlined in Section 13.15, an average of all past annual assessments at the time water rights are dedicated will be calculated and that average amount multiplied by 15 and assessed to the water right/allocation holder to account for 15 subsequent years of assessments. Payment can be made at the time that water is dedicated or continue to be paid on an annual basis by the operator/owner. In lieu of paying the 15-year projected assessment, water allocations may be dedicated to the evaporative loss at 2:1 where the additional associated annual allocations above the amount of evaporation will become available and equally disbursed to the remaining groundwater users under the GMP.

21. Relinquishment of Groundwater Rights or Allocations

- a. Groundwater rights (with the associated Shares) or any portion of an already received Allocation under the GMP may be relinquished with the written consent of all parties with an interest in the right or Allocation³⁰.

³⁰ There have been efforts by other parties in Diamond Valley to acquire funding to purchase and retire groundwater rights as an effort to reduce pumping. As an example, the Eureka Producers Cooperative entered into an agreement with General Moly, Inc. to establish the Diamond Valley Agricultural Sustainability Trust which, when funded, is anticipated to be potentially used for this purpose.

- b. Any groundwater right or Allocation relinquished in Diamond Valley shall be removed from the Share Register and Groundwater Account, respectively, and shall not be re-issued.
- c. If any groundwater right or Allocation under the GMP is relinquished, the State Engineer shall update the Groundwater Allocation and Benchmark Reduction Table (Appendix G) to reflect this change and future annual Groundwater Allocations shall be divided among the remaining overall groundwater Shares.

22. Lands Retired from Irrigation

- a. There are likely lands in Diamond Valley that will be retired from irrigation (permanently and temporarily). This GMP expresses a preference that these lands retain a beneficial land use and be managed to prevent land degradation due to soil erosion, weeds, and rodents and to avoid detrimental impacts on neighboring lands. The State Engineer and AB will rely on, and may work with, the relevant entities that already have legal jurisdiction over these issues including, but not limited to, Eureka County, Eureka Conservation District, Diamond Valley Weed Control District, Diamond Valley Rodent Control District, and Nevada Department of Agriculture.
- b. Funds raised through the special annual assessment may be used for land stabilization projects, weed control, and rodent control, but any expenditure of special assessment funds for these purposes shall go through the annual, public budgeting processes as described in Section 20.
- c. Separate funds may be pursued from grants, gifts, etc. and spent by the State Engineer, in coordination with the AB, for land stabilization projects, weed control, and rodent control.
- d. The GMP does not mandate that owners of fallow lands plant cover crops and control weeds and rodents. However, any funding acquired and spent through this GMP for these purposes or to retire groundwater shall require that landowners, before receiving any funding assistance, sign a contractual agreement accepting these responsibilities as condition of receiving funding. The State Engineer shall perform at least an annual inspection of grant recipient projects to ensure that funds were used according to the grant terms. The State Engineer, on recommendation from the AB, may demand reimbursement from grant recipients who failed to use funds according to grant terms. The State Engineer, with input from the AB, shall develop standard criteria to evaluate the use of grant funding by funding recipients.
- e. This GMP recommends that funding mechanisms outside of the GMP (e.g., Agricultural Sustainability Trust, NRCS Farm Bill programs) require that fallowed lands in Diamond Valley be subjected to weed and rodent control and cover crop requirements.

23. Other Land Management

- a. The State Engineer, in coordination with the AB, shall work with appropriate entities, including land management agencies, to enhance groundwater recharge in Diamond Valley. This may include, but is not limited to:
 - Vegetation management (e.g., pinyon and juniper removal) in areas where vegetation grows outside its desired ecological state or impairs groundwater recharge;
 - Directing surface runoff to catchment basins where surface water can infiltrate to benefit the alluvial aquifer;
 - Use of aerators or infiltration equipment (i.e., rotary subsoiler); and
 - Cloud seeding.
- b. No groundwater Shares or Allocations shall be issued for any land management activities intended to enhance groundwater recharge in Diamond Valley³¹.

24. Annual Meeting

- a. In addition to any other meetings held by the State Engineer or AB, the State Engineer and AB shall hold a joint annual meeting each year between the dates of November 1 and December 15.
- b. Notice shall be posted at least two weeks in advance of the meeting.
- c. The annual meeting shall be a public meeting where the State Engineer and AB shall:
 - Accept input from Shareholders and groundwater users on ways to improve GMP management and administration;
 - Present the proposed upcoming year's Allocation with a special focus on proposed changes from the benchmark reductions (after Year 10);
 - Present the proposed GMP budget, including the proposed annual special assessment, for the upcoming fiscal year;
 - Conduct AB elections, if in an election year, as described in Section 11;
 - Present groundwater level monitoring results;
 - Present any other relevant data or information, as the State Engineer and AB deem necessary and appropriate; and
 - Conduct any other business as the State Engineer and AB deem necessary and appropriate.
- d. The State Engineer, with input from the AB, may take final action on items at the annual meeting or may elect to postpone final action if desired, based on input received at the meeting.

³¹ This prohibition does not apply to import of physical groundwater into Diamond Valley.

25. GMP Publically Accessible

- a. The approved GMP shall be posted on and downloadable from the State Engineer's website and any other website that may be developed for the GMP.
- b. Upon request, the State Engineer shall provide a copy of the GMP so long as the requestor pays any associated costs that may be charged by the State Engineer.

26. GMP Review, Modification, or Discontinuation

- a. This GMP may be amended at any time according to the requirements of NRS 534.037(5) or any other pertinent provision of Nevada law that may now exist or exist in the future, subject to State Engineer approval and potential judicial review.
- b. At a minimum, the State Engineer, in coordination with the AB, shall review this GMP in Year 6. At that time, the State Engineer and AB shall jointly send a letter to every groundwater right and Water Account holder in Diamond Valley informing them of the review and requesting input as to whether this GMP should continue, be amended, or be discontinued. The letter shall set a date for a joint State Engineer and AB meeting to discuss the GMP review and provide a 30-day deadline for written responses. The joint State Engineer and AB meeting shall be held on the date and time identified in the letter, at which the State Engineer and AB shall accept input, discuss and consider whether to continue, amend, or discontinue this GMP.
- c. Discontinuation of the GMP, if desired by the groundwater rights holders, shall follow the same rules as an amendment of a GMP pursuant to NRS 534.037(5).
- d. Should the GMP be discontinued, groundwater management shall revert back to the base groundwater right with the same status that existed at the time of GMP approval and any subsequent changes in the base right during GMP implementation. It is required that holders of water rights ensure proper paperwork is filed with the State Engineer to reflect any change in ownership or location of the associated groundwater right (e.g., point of diversion or place of use of the base right) that occur during the period of GMP operation.
- e. Many appendices to the GMP are, by nature, living documents that must change as the GMP progresses. Reasonable updates to any appendix shall not be deemed an amendment to the GMP.
- f. Specific references to Nevada law in this GMP may change as the GMP progresses. Updates in legal citations or added references to other pertinent provisions of Nevada law that may now exist or exist in the future shall not be deemed as amendments to the GMP.

Appendix A – GMP Petition to State Engineer

This will include the GMP petition for approval signed by a majority of the holders of certificates or permits.

Appendix E – Basic Job Description of Water Manager

***This job description is intended to serve as a basic model and is subject to change through the Advisory Board and DWR. ***

Under direction of the State Engineer, the Water Manager shall manage the implementation of the Diamond Valley Groundwater Management Plan (GMP) which intends to bring stabilization and sustainable water use to the groundwater resource in Diamond Valley, Basin 153. This position has the overall responsibility for protection, preservation, implementation and management of the GMP and related work as required.

DUTIES AND RESPONSIBILITIES

The GMP Water Manager will actively manage the GMP as follows:

- ❖ Manage water use according to the GMP and under the direction of State Engineer;
- ❖ Respond to complaints associated with water use (and alleged misuse) in Diamond Valley. This involves working in the field and requires knowledge of individual water rights, Nevada Water Law, water uses, administrative rules and agency policies. If violations are observed, documentation is prepared to begin administrative or judicial action. The GMP Water Manager may be required to testify accurately to the facts during associated hearings.
- ❖ Collect, compile, analyze and interpret hydrologic data. This includes but is not limited to taking flow measurements with complex instruments, troubleshooting, ensuring water meter accuracy, measuring water levels in wells, and performing hydrologic analysis on data collected.
- ❖ Prepare budgets and track expenses for the State Engineer under the GMP, including any grant funding received, including preparation of vouchers and invoices to the appropriate entity for payment of invoices received or service rendered.
- ❖ Develop, promote, and implement water management programs to assist in the restoration, conservation, and protection of groundwater in Diamond Valley in order to ensure the long-term sustainability of the water resource.

WORKING CONDITIONS

Work with minimal supervision; must have a valid driver's license and good driving record; travel in varied weather and road conditions. Deal with individuals who are angry or hostile; and promote a work climate which reflects care, concern, and respect for every individual. Maintain an environment that is welcoming and free of harassment. Regular attendance at GMP related meetings is an essential function.

QUALIFICATIONS, REQUIRED AND REQUESTED SKILLS

Should possess:

- ❖ Bachelor's degree in Hydrology, Civil Engineering, Geology, Natural Resource Management or equivalent, **AND**
- ❖ Three years of professionally verified experience including water flow measurement, collecting, and reporting hydrologic data. Knowledge of Nevada Water Law, hydrologic groundwater flow systems, pumping and irrigation systems.
- ❖ **OR** an equivalent combination of education and experience.

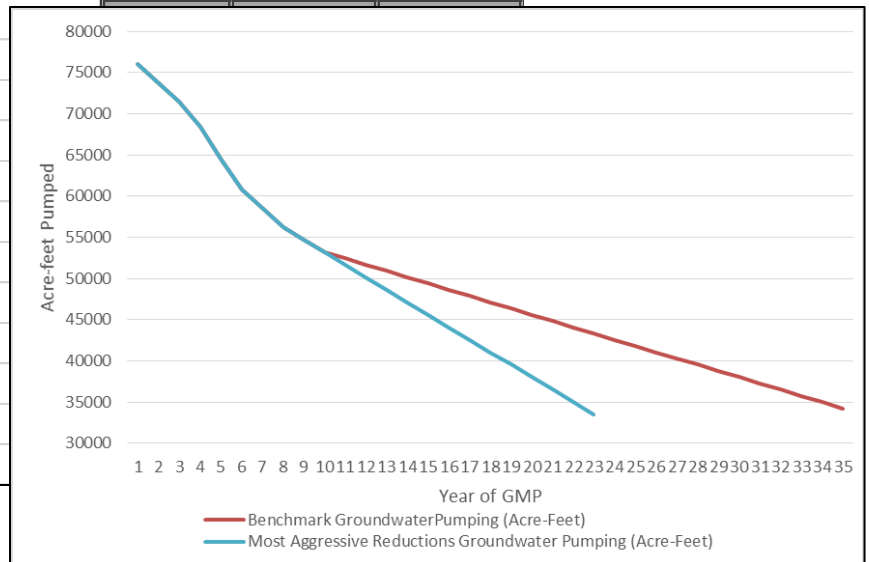
DESIRED ATTRIBUTES

- ❖ Excellent customer service skills;
- ❖ Excellent communication skills;
- ❖ Dispute resolution skills;
- ❖ Experience working with land owners to gain compliance;
- ❖ Experience developing and presenting budget proposals and tracking and reporting budget expenditures;
- ❖ In-depth knowledge of Nevada Water Law, water rights and Nevada Administrative rules related to water;
- ❖ Experience with computers and computer software, including Geographic Information Systems (GIS).

Appendix F – Table of Groundwater Rights and Shares

Appendix G – Groundwater Allocation and Pumping Reduction Table

Year of GMP	Benchmark Groundwater Pumping (Acre-Feet)	Benchmark Cumulative Pumping Reduction (%)	Benchmark Water Allocation (AF/Share)	Most Aggressive Cumulative Reduction (%)	Most Aggressive Reductions Groundwater Pumping (Acre-Feet)	Most Aggressive Reductions Water Allocation (AF/Share)
1	76000	0	0.661	0	76000	0.661
2	73720	3	0.642	3	73720	0.642
3	71440	6	0.622	6	71440	0.622
4	68400	10	0.595	10	68400	0.595
5	64600	15	0.562	15	64600	0.562
6	60800	20	0.529	20	60800	0.529
7	58520	23	0.509	23	58520	0.509
8	56240	26	0.489	26	56240	0.489
9	54720	28	0.476	28	54720	0.476
10	53200	30	0.463	30	53200	0.463
11	52440	31	0.456	32	51680	0.450
12	51680	32	0.450	34	50160	0.437
13	50920	33	0.443	36	48640	0.423
14	50160	34	0.437	38	47120	0.410
15	49400	35	0.430	40	45600	0.397
16	48640	36	0.423	42	44080	0.384
17	47880	37	0.417	44	42560	0.370
18	47120	38	0.410	46	41040	0.357
19	46360	39	0.403	48	39520	0.344
20	45600	40	0.397	50	38000	0.331
21	44840	41	0.390	52	36480	0.317
22	44080	42	0.384	54	34960	0.304
23	43320	43	0.377	56	33440	0.291
24	42560	44	0.370			
25	41800	45	0.364			
26	41040	46	0.357			
27	40280	47	0.351			
28	39520	48	0.344			
29	38760	49	0.337			
30	38000	50	0.331			
31	37240	51	0.324			
32	36480	52	0.317			
33	35720	53	0.311			
34	34960	54	0.304			
35	34200	55	0.298			



Note:

Annual Allocations are calculated by taking the total pumping allowed in any given year under the GMP and dividing by the total number of Shares, being 114,906.

Still waiting on receipt of testing results for inclusion here. For now, here are published specifications for flow meters that were submitted by IDWR for testing at USU.

Minimum Meter Specifications:

All meter models to be tested for approval by IDWR must meet the following minimum manufacturer specifications:

- 1) Operational flow range of 0.1 to 33 feet per second (fps).
- 2) Listed manufacturer accuracy of $\pm 2\%$ of flow rate from 0.1 to 33 fps, with a repeatability of $\pm 0.5\%$ of reading.
- 3) The register or display unit shall:
 - a. Have a waterproof and tamperproof seal.
 - b. Have an LCD backlit display showing instantaneous flow rate and totalized volume.
 - c. Have a minimum of six (6) digits for flow rate display.
 - d. Have a minimum of eight (8) digits for totalized volume display and a sufficient selection of multipliers so that reset of the display will not occur within two years operation, based on the maximum rate of flow and annual volume elements of the authorizing water rights. See Table 1 for examples of appropriate meter multipliers based on expected annual volume use.
 - e. Have password or similar protection of all settings and data to prevent unauthorized programming change or re-set of totalizers.
 - f. Have a non-volatile memory and contain a back-up battery to prevent loss of data in the case of primary power failure.
 - g. Contain programmable features that allow the selection of flow rate units. Available flow units must include gallons per minute (gpm) or cubic feet per second (cfs). The flow rate field must also allow decimal display formatting of up to three (3) places when using cubic feet per second units.
 - h. Contain programmable features that allow the selection of volumetric units. Available units of volume must include gallons or acre feet. The volume field must also allow decimal formatting of up to four places, and the application of unit multipliers ranging from 0.0001 to 10,000. See Table 1 for examples of appropriate meter multipliers based on expected annual volume use.

- 4) Signal output when data logger is required.

Data loggers may be required by specific water right conditions of approval in some locations or circumstances.

Scaled pulse frequency output (or pulse counting) is required for continuous recording of totalized volume data on data loggers. Output signals must be compatible with data logger inputs. Analog output signal for flow rate (usually 4-20mA) is optional (most magnetic flow meters provide both analog and pulse frequency as standard output signals).

Table 1: Meter multiplier selection based on water right volume.

Volume Acre Feet (AF)	Multiplier X gallons (gal)	Multiplier X Acre Feet (AF)
0-150	1, 10, 100	.0001, .001
>150-1000	10, 100, 1000	.001, .01
>1000	100, 1000	.001, .01

Third Party Testing Criteria

Independent third party testing for the IDWR meter certification program is conducted by the UWRL at Utah State University using NIST traceable instrumentation. All meters will be tested using a NIST traceable weight tank and/or an approved/calibrated secondary flow metering device to measure actual flows. The gravimetric (weight tank) measurement method has an accuracy rating of 0.15% and the secondary meters provide 0.25% accurate flow measurements.

Results of the testing must meet the following minimum criteria established by IDWR.

1. Accuracy of +/- 2% of flow rate over the entire range of tested flows
2. Repeatability of +/- 0.5% defined as the percent deviation of flow rate from average accuracy at each data point

Magnetic Flow Meters

1. The tests will be performed in standard wall carbon steel 10-inch pipe, which has an inside diameter of 10.02 inches. A 10-inch diameter meter is required for testing.
2. Two tests will be conducted for each meter that is sent to the laboratory. These include a straight pipe test and a short-coupled test with the meter installed downstream of a flow disturber.
 - a. Straight pipe test: This test will be performed to establish the baseline accuracy of the meter under ideal conditions. A minimum of 40 diameters of straight 10-inch pipe will be installed upstream of the meter for these tests.
 - i. 5 data points tested at 1 fps, 4 fps, 8 fps, 12 fps, and 16 fps.
 - b. Elbow test: The meter will be installed with the upstream flange located 3 diameters downstream of a 90 degree elbow.
 - i. 14 data points tested from 0.5 fps to 16 fps with an additional point at 20 fps. (15 points total)
 - ii. The meter will be shut down, re-zeroed if necessary, and then 5 data points repeated at 1 fps, 4 fps, 8 fps, 12 fps, and 16 fps.
 - iii. Step ii. repeated with data points replicated as close as possible.
3. Both the 4-20mA signal and the meter's local display will be recorded for each run.

Appendix I– Groundwater Flow Modeling Report Supporting Banking Depreciation
