WORKING DRAFT

GROUNDWATER SUSTAINABILITY PLAN MODEL FOR CONSIDERATION BY GROUNDWATER SUSTAINABILITY AGENCIES

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Draft GSP for GSA consideration

**FOREWORD**
This document has been prepared and is offered in good faith as a document ready for careful structured discussion with groundwater users and the Department of Water Resources. It builds upon a roadmap prepared to assist communities consider ways to develop and successfully implement California’s Sustainable Groundwater Management Act.

To facilitate engagement it is suggested that an appropriately revised version of this document be called an “Exposure Draft” and that following an appropriate period of engagement, consultation, and discussion of alternative management arrangements, a Draft Groundwater Sustainability Plan be prepared for final consultation using a process that is managed in partnership with the Department of Water Resources.

Before releasing this exposure draft, careful consideration should be given to the need to prepare a simpler discussion document and run the processes necessary to enable efficient consideration of this document. For some, its content may be too detailed. As all are aware, it is the detail that determines the operational success or failure of a plan.

In order to assist with the assessment of its validity, a completed DWR checklist for the preparation of a GSP has been prepared and is provided as a separate document.

The approach taken in this mock-up of a potential Groundwater Sustainability Plan focuses on the development of the regulations and administrative procedures necessary to ensure timely and successful attainment of SGMA’s sustainability mandates and the avoidance of the undesirable results identified in the legislation. As a result, its structure is quite different to DWR’s outline for the preparation of a GSP. DWR, however, has indicated to us that there is no obligation on any GSA to follow the outline it has issued provided all the requirements in its checklist are met.

**CAVEAT**
It is recommended that this document be reviewed and edited by a person experienced in preparing regulations for the Californian Government. Careful discussion with the Department of Water Resources and with neighbouring Groundwater Sustainability Agencies is advised. The envisaged approval processes are designed to bring certainty to the planning process.

**ACKNOWLEDGEMENTS**
Preparation of this model GSP has benefited from grants from the Rockefeller Foundation and the Water Foundation and the opportunity to discuss earlier drafts with many local and state government officials, many water users and many community representatives and other interested parties.
Executive Summary
1. This executive summary is included to provide an overview of this plan. Wherever there is conflict between these sections and any other section in this plan, the other sections should be interpreted as the correct statement of the intent of this plan.

2. To bring ABC groundwater use within sustainable limits, groundwater users will be required to comply with the regulations established through this plan and the XYZ Basin Coordination Agreement.

3. An independent Basin Authority has been appointed by the GSA to work with a Watermaster to establish a groundwater sharing system for the ABC Groundwater Resource. The system will be set up during 2019 and come into full operation at the commencement of the 2020 water year (on 1st October 2020).

4. A Watermaster, under Basin Authority’ direction, will issue shares to all existing groundwater right holders in a manner consistent with the final version of this plan.

5. Every shareholder will be given a groundwater account and, at the start of each water year, the Basin Authority will make volumetric allocations to these accounts in a manner consistent with the transitional allocation and buffer arrangements set out in this plan and also the number of shares held.

6. Shareholders will be free to choose whether or not to use, save, or, by way of transfer, sell any allocations made to their water account. Adjusted only for hydrological losses, account holders will be allowed to carry forward unused water allocations from one water year to the next.

7. Share ownership will be defined by reference to the ABC Groundwater GSA Share Register. Any claimed interest in an ABC Groundwater GSA share shall be deemed to be invalid unless it is recorded in the ABC Groundwater GSA Share Register.

8. To take water from a well, a landowner must hold a groundwater use permit, domestic groundwater use permit, or de minimis groundwater use permit. Each groundwater use permit will be linked to an ABC Groundwater GSA Groundwater Account.

9. Groundwater recharge projects are to be encouraged. Groundwater recharge projects will be assigned a groundwater account and allocations credited to these accounts as recharge occurs. A recharge project may be approved prior to the date when this plan comes into full effect.

10. Location-specific conditions in groundwater use permits will be used to manage undesirable local effects including cones of depression, migration of contaminant plumes, and land subsidence.

11. Allocations will be made to groundwater accounts according to the rules set out in this plan.

12. Any water allocated to a water account is available for use within the zone associated with the account and, with adjustment for hydrological losses, may be saved for use in a subsequent year.

13. Unless exempted by holding a domestic groundwater or de minimis groundwater use permit, no legal entity will be allowed to take water from a well in the ABC Groundwater GSA unless (1) the land parcel owner where the well is situated holds a groundwater use permit authorizing the taking of water from that well and (2) the water account associated with the relevant land parcel has a positive water allocation.
14. The County of XX, the City of XX, XX Community Services District and XX Water District will be required to maintain sufficient water accounts with a positive water allocation to offset the effects of their own groundwater use, domestic groundwater use, community projects, and environmental projects within the jurisdiction of the ABC Groundwater GSA. If allocations per share are reduced to zero, then domestic and de minimis groundwater use will be constrained but not completely curtailed. Whenever allocations per share in a zone are set to zero, domestic groundwater users will still be permitted to take water sufficient to meet health and safety needs.

15. Landowners who unintentionally allow the balance of their water account to become negative have 30 days to make good. If they cannot do this, they may borrow from the next year’s allocation with a two-for-one penalty. Intentional overuse will result in a three-for-one penalty and suspension of the relevant groundwater use permit until the relevant water account is returned to a non-negative balance.

16. This plan is designed to enable water users to plan for droughts and, hence, it may not be suspended by the Department of Water Resources following the proclamation of a state emergency or local emergency because of the severity of drought conditions.

17. A mix of fees and charges coupled with grants will be used to fund implementation of this plan.
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GROUNDWATER SUSTAINABILITY PLAN FOR THE ABC GROUNDWATER SUSTAINABILITY AGENCY

1. This Groundwater Sustainability Plan was prepared by the ABC Groundwater Sustainability Agency, hereafter known as the GSA, in consultation with local water users, stakeholders, and community groups. The plan establishes the management actions, administrative arrangements, and regulations necessary to bring groundwater use and conservation of those portions of the XYZ Basin within the ABC Groundwater GSA, hereafter known as the ABC Groundwater resource, within sustainable limits.

2. Current organization, the current management structure, and contact details can be obtained by visiting the ABC Groundwater Sustainability Agency website, hereafter known as the GSA website.

3. This ABC Groundwater GSA Groundwater Sustainability Plan, hereafter known as this Plan, is consistent with the provisions of the Sustainable Groundwater Management Act and the powers granted to the Department of Water Resources to make the regulations necessary to facilitate implementation of this Act.

4. This plan seeks to bring the use of the ABC groundwater resource within sustainable limits by 2040 and is subject to the conditions contained in the XYZ Basin Groundwater Coordination Agreement. It does this primarily by starting the processes necessary to enable a suite of administrative arrangements and market-facilitating regulations to be placed over existing and, as of yet, largely unregulated groundwater rights. The plan is structured in a manner that incentivizes the search for cost-effective ways to use groundwater and bring groundwater use within a sustainable range. Augmentation from surface water flows is encouraged.

5. If there is conflict between the XYZ Basin Groundwater Coordination Agreement and this Plan, the XYZ Basin Groundwater Coordination Agreement shall take precedence. The Watermaster shall keep the link to the XYZ Basin Groundwater Coordination Agreement on the GSA website current.

6. This plan will be implemented by a Basin Authority appointed by the GSA and their Watermaster who, under the direction of the Basin Authority, will be responsible for ensuring that all groundwater users and all aspiring groundwater users comply with the conditions set out in this plan.

7. It is anticipated that this plan will be finalized in consultation with the Department of Water Resources and simultaneously approved for implementation by both the Department of Water Resources and the Basin Authority on the understanding that the appendices to this plan and, also, a XYZ Basin Groundwater Coordination Agreement will be completed during a development phase.

8. The development phase will end and this plan will come into full effect when
   a) The XYZ Basin Groundwater Coordination Agreement has been approved by the Department of Water Resources; and
   b) The Department of Water Resources receives a compliance report from the Basin Authority confirming that:
      i. All appendices to this plan have been completed and, following completion of the consultation processes required by this plan, approved by the Basin Authority;
      ii. All entities entitled to receive shares under this plan have had the appropriate number of shares issued to them;
iii. All the groundwater use permits required under this plan have been issued and associated with a water use account;

iv. The Watermaster has credited each shareholder’s water account with its first allocation; and

v. The water allocations associated with any development phase recharge project(s) approved by the Basin Authority have been credited to the appropriate water account(s).

**Vision Statement**

9. Water right holders, water users, and community residents in the ABC Groundwater GSA wish to ensure that groundwater use in its region (1) makes the greatest contribution possible to local and state prosperity; (2) is kept within sustainable limits; and (3) has no undesirable results.

10. This vision and its implied outcomes will be achieved by establishing a set of robust water sharing, allocation, and management arrangements that regulate access to and use of groundwater in the ABC groundwater resource.

11. It is understood that if one person wants access to a larger share of the groundwater resource, then someone else must accept a smaller share. It is also understood that the systems put in place must impose an absolute limit on the amount of groundwater that may be consumed in any year and that, as climatic conditions change and knowledge about the aquifer improves, this absolute limit may need to be revised. These two realities need to be recognized and a system put in place to ensure that all groundwater is put to its best social and economic use. This will be achieved through the coupling of the existing water rights arrangements with a new regulatory framework. This framework is designed to encourage water users to continuously seek opportunities to improve the way water is used and invest in water-saving technologies as supply and demand changes.

12. This plan envisions a transition to regulatory and administrative arrangements that reward stewardship, protect the ABC groundwater resource from undesirable results, and require fiscal prudence. The consultation and engagement processes used are intended to establish trust and confidence among groundwater users and other stakeholders. It is critical that all entities understand that knowledge about the XYZ Basin will never be perfect and that water users need to have decisions affecting water supplies made in a timely manner.

**Goals, Objectives, and Purpose of Plan**

**Avoiding Undesirable Results**

13. Consistent with the Sustainable Groundwater Management Act and resultant administrative decisions, the purpose of this groundwater sustainability plan and the coordination agreement associated with it is to incentivize investment in water-saving activities and water use so as to avoid six undesirable results. These undesirable results or outcomes are:

1) Significant and unreasonable depletion of groundwater levels;

2) Significant and unreasonable reduction of groundwater storage;

3) Significant and unreasonable land subsidence that substantially interferes with surface land uses;

4) Extraction or use of groundwater that has significant and unreasonable adverse impacts on beneficial uses of surface water;
Draft GSP for GSA consideration

5) Significant and unreasonable seawater intrusion; and

6) Significant and unreasonable degradation of water quality, including the migration of contaminant plumes that impair groundwater supplies.

**Sustainability Goal**

14. The sustainability goal of this Plan is to bring each zone’s water budget into dynamic balance before 2040. This goal is to be achieved in a manner that recognizes the capacity of the Basin and each of the zones within the ABC Groundwater GSA to accommodate further drawdowns; the economic, social, and environmental consequences of transitioning to a balanced groundwater use system; consequences for surface water supplies; impacts on water quality; and changes in the demand and supply of water in the face of climatic variability.

15. The plan’s objectives are to:

1) Avoid the six undesirable results and minimize the risk that they might occur;

2) Encourage economically-efficient groundwater use and investment in the ABC Groundwater GSA;

3) Encourage water users and investors to search for ways to conserve water;

4) Facilitate continuous adjustment as water supply and demand conditions change;

5) Provide opportunities for people to secure access to groundwater in a fair and equitable manner; and

6) Maintain local control of groundwater management.

16. It is recognized that all people should have an opportunity to access sufficient water to meet the health and safety needs of each household.

**Boundary and Zones**

17. The regulations in this plan apply only to the groundwater resources located in the ABC Groundwater GSA as determined by the boundaries shown on the map in this section. Shape files and the location of adjoining groundwater resources under the management of other Groundwater Sustainability Agencies are available on the ABC Groundwater GSA website.

[Insert Map of ABC Groundwater GSA Boundaries here]

18. To enable effective groundwater management, the GSA shares shall be allocated to zones within each identifiable aquifer as shown in Appendix 1. Within each zone, it will be possible to transfer allocations from one water account to another at a one for one exchange rate.¹

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¹ As a guiding principle, in the initial stages of this plan, more rather than fewer zones should be established. If a subsequent hydrological review finds that the amalgamation of two zones is feasible and the exchange rate for the transfer of water allocations from one zone to another is feasible, then the zones may be amalgamated and the shares in each zone converted into shares in the combined zone in a manner that does not diminish the value of any shareholding. The same logic applies to hydrologically distinct aquifers. If, for example, an unconfined aquifer is sitting on top of a confined aquifer, then shares would be allocated to each aquifer.
Governance

19. The GSA shall establish an independent, skills-based Basin Authority to give effect to this plan.

20. The Basin Authority shall be responsible for ensuring that progress toward this plan’s goals are measured and achieved in a timely manner.

21. The Basin Authority shall consult with the GSA on a regular basis.

22. All decisions made by the Basin Authority shall be in accordance with the rules set out in this plan as constrained by the plan’s appendices.

23. Allocation decisions made in a manner consistent with this plan and its appendices shall be final and cannot be over-ridden by the GSA.

Composition of the Basin Authority and Appointment of Members

24. The Basin Authority shall consist of a chair, four independent members and a Watermaster.

25. The Basin Authority shall appoint its Watermaster, and this person shall be an employee of the organization. The Watermaster shall be a nonvoting, ex officio member of the Basin Authority.

26. The chair and members of the Basin Authority are to be chosen so as to ensure that the chair and its members, collectively, have expertise in

- Community leadership, engagement, and consultation,
- Policy administration,
- Water resources management,
- Environmental management,
- Irrigated agriculture and associated water supply systems,
- Urban and industrial water supply and management,
- Hydrology,
- Water law, and
- Financial management.

27. When appointing Basin Authority members, the GSA shall call for applications from people interested in becoming a member of the basin authority. The agency or any person acting on behalf of the agency may approach potential candidates on a confidential basis and encourage them to apply.

28. Neither the chair nor any independent member of the basin authority may be appointed for more than five years. The Basin Authority chair and all independent members shall be eligible for reappointment.\(^2\) Initial appointment periods are to be staggered so as to establish continuity in knowledge at an early stage.

29. Basin Authority members shall be paid and shall be entitled to have any expenses they reasonably incur reimbursed.

Quorum

30. The Basin Authority may not vote on any issue unless three voting members are present.

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\(^2\) A default suggestion would be to appoint the chair for five years and the other members for one, two, three, and four years. A nonbinding administrative understanding that the member only appointed for one year could expect to be reappointed for a subsequent five-year period could be communicated to candidates.
No Conflict of Interest Allowed

31. No member of the Basin Authority shall
   - Be appointed as a representative of an interest group or an organization;
   - Have a direct interest in using more than five acre-feet of water per year in the ABC Basin; or
   - Hold more than 1% of the shares in any zone.

Equitable Decision-Making Processes

32. The Basin Authority shall consult widely with all shareholders, water users, and those people living in the GSA.

33. The Basin Authority in consultation with the ABC Groundwater Sustainability Agency shall establish a Stakeholder Advisory Committee to assist with the development of this plan and provide advice on the most effective way to implement it.

34. The Basin Authority shall make every effort to make and announce its decisions in a manner that gives all shareholders and all water users equal opportunity to profit from its decisions.

35. The Basin Authority will hold an annual general meeting to determine or discuss how much groundwater to allocate to each shareholder and, if necessary, to revise carry-forward rules, exchange rates and any other matter likely to influence share and or allocation prices. Prior to this annual general meeting, the transfer of shares and allocations shall be suspended. Following the annual meeting, the Basin Authority shall issue a press release detailing the decisions made. Twenty four hours after the press release is issued, transfers of shares and allocations shall resume.

36. The Basin Authority shall keep minutes of its meetings and shall make the results of its deliberations available to the public in a timely manner. Within two working days of the completion of a meeting, the Watermaster shall post a draft copy of the minutes of each meeting on the GSA website.

Periodic Plan Reviews

37. The Basin Authority may commission a review of the plan at any point in time and for any reason.

38. In the six-month period before this plan comes into full effect, during the fourth year of the full operation of this plan and every five years thereafter, the Basin Authority shall commission an independent assessment of the effectiveness of this plan and the administrative processes being used to implement it.

39. The terms of reference for the independent assessment shall require that the public is invited to suggest ways to improve the plan.

40. Within seven days of receiving the independent assessor’s final report, the Basin Authority shall forward the assessment to the Department of Water Resources, make the assessment public and place a copy of the assessor’s final report on the GSA website.

41. Within 30 days of receiving the independent assessor’s final report, the Basin Authority shall announce how it intends to respond to the assessment and, if appropriate, how it intends to involve stakeholders in a plan amendment process.

Structure of this Plan

42. This plan consists of the body of this plan and a set of appendices.
43. If the content of the body of this plan is in conflict with an appendix, the body of the plan shall take precedence.

44. The body of the plan may only be amended by the Basin Authority with the approval of the Department of Water Resources.

**Amending the Body of the Plan**

45. Whenever the Basin Authority plans to consider amending the body of this plan, as distinct from one or more of its appendices, it shall inform all shareholders and holders of a basin groundwater use permit that the Basin Authority is considering amending the body of this plan and why it proposes to do so.

46. The Basin Authority then shall allow at least 30 days for submissions about the nature of the amendments under consideration. During this consultation period, any person may propose that the Basin Authority consider amending other features of this plan.

47. Having fully considered any submissions received, the Basin Authority shall then decide whether or not to propose to amend the Body of this plan. If the Basin Authority proposes to amend the Body of this plan, then it shall prepare and publicize its proposed amendments and allow at least 45 days for all stakeholders to consider and respond in writing to its proposed amendments. This consultation period shall include a public meeting with the ABC Groundwater Sustainability Agency.

48. Following consideration of any submissions received and comments made by the GSA, and at least 90 days after providing notice to a city or county subject to this plan, the Basin Authority shall publish its proposed amendments and submit them to the Department of Water Resources so that pursuant 23 CCR §353.8, a final 60 day consultation period can be completed and the issues identified through this process considered before the Department and the Basin Authority decide whether or not to approve, further amend or withdraw the proposed amendment. If all parties involved agree to amend the body of this plan, the decision to amend the plan shall be announced by the Chair of the Basin Authority.

49. If the Department of Water Resources cannot agree on the changes to be made to the body of the plan and the Basin Authority wishes to amend the body of this plan, the Department of Water Resources shall inform the Basin Authority of the reasons why they cannot agree to the proposed amendment in writing. The Board shall then consider this advice and either withdraw the proposed amendment or resubmit a final version of the proposed amendment to the Department of Water Resources. The Department of Water Resources must then either approve these proposed amendments within 30 days or refer the matter to the State Water Resources Control Board with a recommendation that it appoint an administrator to take over the Basin Authority’ functions.

50. If, at any stage during the above process, the Department of Water Resources does not respond within 30 days, the revised plan, as amended, shall be interpreted as approved by the Department of Water Resources and immediately shall come into full effect.

51. An amendment to the body of this plan shall come into effect when:

a) The Watermaster has posted an amended copy of the plan to the GSA website; and

b) All shareholders and every holder of a groundwater use permit at the time when the amendment was approved have been sent an email and/or letter notifying them that the plan has been amended.
Amending and Attaching More Appendices to this Plan

52. When developing an appendix to this plan and/or considering the case for amending an appendix to this plan, the Basin Authority shall prepare and publicize its proposed amendments and allow at least 45 days for all stakeholders and the Department of Water Resources to consider and respond in writing to its proposal to add or change an appendix to this plan. This consultation period shall include a public meeting with the ABC Groundwater Sustainability Agency.

53. Following consideration of any submissions received and formal consideration of comments made the Basin Authority may decide:
   a) Not to proceed; or
   b) Run a further 20 day consultation period and notify all stakeholders and shareholders as to the reasons why it considers further consultation is necessary; or
   c) Amend an appendix to the plan; or
   d) Attach another appendix to the plan.

54. The amendment of an appendix to this plan or the attachment of an additional appendix to this plan shall come into effect when a notice to that effect is published on the website and all shareholders and every holder of a groundwater use permit have been sent a letter or equivalent notification informing how the appendices to the plan have been changed.

55. the appendix has been amended or added to the plan.3

56. At each 5 year review of this plan, careful consideration shall be given to:
   a) The relationship between the Body of the Plan and each appendix;
   b) The effectiveness and appropriateness of the content of each appendix; and
   c) The reasons why the provisions contained in them are necessary;
   d) Whether or not there is a need to commence a formal California Environmental Quality Act (CEQA) review.

Water Sharing, Allocation, and Accounting System

Groundwater Use Permits4

57. During this plan’s start-up period, every landowner with a well shall be issued a groundwater use permit authorizing the taking of water from that well. Where appropriate, a permit may authorize the taking of water from several wells co-located on the one land parcel.

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3 Appendices, when added, may not override the substantive provisions and operating rules of the body of the plan.
4 Groundwater use permits are similar to development or works approvals. They would, for example, require the maintenance of a positive volumetric balance in the water account associated with this permit and specify how the volume of allocations extracted from the well will be estimated. Permits can be used to set a maximum daily or annual pumping rate so as to prevent unreasonable rates of local draw down and enable the management of plumes and or land subsidence.

Groundwater use permits play a critical enforcement role. Once it has been approved, no person would be allowed to extract water from a groundwater source covered by the plan unless they hold a valid groundwater use permit and their water account associated with that plan contains unused allocations.
58. Groundwater use permits shall be location specific and nominate the GSA Management Zone where they are located.

59. In order to extract groundwater from any well within a designated zone, the landowner must hold a groundwater use permit.

60. Before constructing a well or modifying a well, a land parcel owner must obtain a well-construction permit from XX County.

61. Groundwater use permits may be issued only to the owner or owners of the land parcel on which the well is located. Each permit shall be associated with an assessor’s parcel number or numbers as appropriate.

62. Any landowner who takes or extracts water from a groundwater source or permits another person to do so without a groundwater use permit or in a manner inconsistent with a permit’s conditions shall be regarded as in breach of this plan and the Sustainable Groundwater Management Act. That is, it shall be the responsibility of the landowner to ensure that any tenants, share farmers, workers, subcontractors, and so on, comply with permit conditions.

63. For any part of the ABC groundwater resource, such as an area where there is known to be plume, seawater intrusion, land subsidence or any other local effect, the Basin Authority shall develop a policy for the management of the effect. This policy shall include a summary of the site-specific conditions to be included in relevant groundwater use permits and arrangements for monitoring the effectiveness of these conditions.

64. All groundwater use permits shall be consistent with:

   a) This plan;
   
   b) Local permitting agency requirements;
   
   c) XX County regulations;
   
   d) Department of Water Resources Bulletin 74-81 and 74-90 Water Well Standards;⑤
   
   e) State and federal regulations pertaining to water use and practices that might affect water quality; and
   
   f) Requirements that any water extracted from a well be put to a reasonable and beneficial use.

65. Groundwater use permits shall be issued by the Watermaster and the master version of each permit kept on a publicly accessible database. The Watermaster shall ensure that instructions on how to access the Groundwater Use Permit database can always be found on the GSA website.

66. Each groundwater use permit shall require that:

   a) The current well and associated infrastructure be kept safe and meet the standards set out by the Department of Water Resources and XX County at the time the well was installed;

   ⑤ Historically, the state of California has authorized local permitting agencies (LPA s; usually the county, sometimes others) to maintain these standards and other requirements dictated by the LPA s. The standards can be viewed at http://www.water.ca.gov/groundwater/wells/standards.cfm.
b) The taking of water from the permitted well or wells occur only when there is a positive balance in the water account linked to that permit;

c) The volume of water taken and/or consumed from a well be deducted from the water account associated with the permit in a timely; and

d) Permit conditions may be revised whenever either this plan is revised or a land-use or technical change requires modification of the methods used to estimate the net volume of water used and or the volume of water extracted from a well.

e) Where and whenever there is inconsistency between a copy of a groundwater use permit and the publicly accessible database, the publicly accessible database shall take precedence.

67. To allow management of undesired local effects, a groundwater use permit may set a maximum annual, monthly, or daily limit on the amount of water extracted from the well or wells covered by that permit.

68. In order to enable the management of a contaminated plume of water or land subsidence, a groundwater use permit may prohibit the extraction of water from a well on the understanding that allocations will still be made to all shareholders in a zone and that these allocations may be used at any other location where use is permitted.

69. Appendix 4 contains a list of all the zone-specific conditions that are deemed to have been included in each groundwater use permit.

Domestic Groundwater Use Permits

70. Where the estimated annual volume of water taken from a well or collection of interlinked wells on a single land parcel is less than two acre-feet per annum and used only for domestic household purposes, the Watermaster may issue a domestic groundwater use permit and exempt the permit holder from annually accounting for the volume of water used.

71. All domestic groundwater use permits shall be consistent with

a) This plan;

b) Local permitting agency requirements;

c) XX County codes, regulations, and ordinances;

d) Department of Water Resources Bulletin 74-81 and 74-90 Water Well Standards; and

e) State and federal regulations pertaining to water use and practices that might affect water quality.

72. To prevent increases in domestic household use from undermining the interests of other shareholders, every five years, the Basin Authority shall estimate the volume of water likely to be taken by these permit holders on an annual basis and require the relevant county and cities within each zone to maintain a water account with a balance sufficient to offset the estimated quarterly impact of domestic water users in each zone. The Watermaster shall deduct this estimated amount from each domestic water use account, in arrears, and on a quarterly basis.
De Minimis Water Use Permits

73. Where the estimated annual volume of water taken from a well or collection of interlinked wells on a single land parcel is less than one acre-foot per annum and the use is for a nondomestic purpose, the Watermaster may issue a de minimis water use permit instead of a groundwater use permit and exempt the permit holder from annually accounting for the volume of water used.

74. All de minimis groundwater use permits shall be consistent with
   a) This plan;
   b) Local permitting agency requirements;
   c) XX County codes, regulations, and ordinances;
   d) Department of Water Resources Bulletin 74-81 and 74-90 Water Well Standards; and
   e) State and federal regulations pertaining to water use and practices that might affect water quality.

75. Unless the authority finds to the contrary, it shall be assumed that the total volume of groundwater extracted for de minimis purposes is negligible and that the costs of bringing these uses into the sharing system would be greater than the benefits to shareholders that could be expected to result from the inclusion of de minimis uses.

Community and Environmental Water Uses

76. Any local agency within the ABC Groundwater GSA or legal entity may establish a community or environmental water project, have the project associated with a water account, and have the estimated quarterly volume of water used by this project deducted from this account in a manner similar to that used to account for the effects of domestic water users.

Applications for a Groundwater Use Permit once the plan comes into full effect

77. Applications for a new groundwater use permit shall be made to the Watermaster and may be made before a well is constructed.

78. Applications shall include:
   a) The APN of the parcel with which the well shall be linked;
   b) The GPS coordinates of the proposed well;
   c) The proposed maximum daily, monthly, and annual pumping rate of the well; and
   d) A commitment that will allow the volume of water taken from the well to be estimated.

79. All applications for a groundwater use permit must be lodged by or on behalf of all the owners of the land parcel where a well is to be located. Whenever an application is received, the Watermaster shall:
   a) Publicly announce that the application has been received;
   b) Notify all adjacent land parcel owners of the nature of this application;
   c) Notify all the holders of all groundwater use permits likely to be affected by the application; and
d) Give all interested third parties including all adjacent land parcel holders at least one month to object to or propose that site-specific conditions be placed on the proposed groundwater use permit.

80. If any objections to an application for a permit are received, the Watermaster shall refer the matter to the Basin Authority for a decision as to whether or not to grant the permit and, if granted, the nature of the conditions to be attached to the permit.

81. If it deems appropriate, the Basin Authority or the Watermaster acting on the Basin Authority’s behalf may refer the application to a court for resolution.

82. Any permit shall expire two years after being issued if construction on a well has not been completed.

83. All groundwater use permits shall be publicly listed by the Watermaster on the GSA website.

84. Every groundwater use permit shall always be linked to a groundwater account and, at all times, this account kept in a non-negative balance.

85. The master copy of all permits shall be kept by the Watermaster in a groundwater use permit register that is publicly accessible and may be amended by the Watermaster in any manner consistent with this plan.

Issuing Groundwater Use Permits and associating them with Water Accounts

86. Before this plan comes into full effect, all land parcel owners with a well known to XX County shall be issued a permit entitling them to take water from their wells in a manner consistent with this plan.

87. Domestic and de minimis users shall be issued with a permit authorizing them to take groundwater from a nominated well or wells on their land.

88. All non-domestic and non-de minimus users shall be issued with a Groundwater Use Permit authorizing them to take water from a well or wells associated with their land on the condition that they comply with all conditions associated with the taking of water from their well and, in particular, that they only take water from their well when the water account associated with their well is in positive balance.

Surrender of Groundwater Use Permits

89. When asked to do so, the Watermaster may accept the surrender of a Groundwater Use Permit on the understanding that once a Groundwater Use Permit is surrendered any further application to use the well or wells associated with the permit will be treated as a new application.

90. The Watermaster may set conditions on the surrender of a Groundwater Use Permit. Once all conditions associated with the surrender of a Groundwater Use Permit have been satisfied the Watermaster shall accept the surrender of a Groundwater Use Permit, archive a copy of the permit, and then delete the permit from the Groundwater Use Permit Register.
Water Use Accounts

91. Use of water in the ABC Groundwater GSA shall be accounted for using net accounting practices. That is, the accounting system used shall give credit for the estimated volume of water that, following use, is returned to an aquifer.

92. Every Groundwater Use Permit shall indicate how the volume of water that has been extracted from each well shall be turned into an estimate of the net amount of water that has been used.

93. If use is metered, then every five years the Basin Authority shall make a zonal estimate — by type of use, type of soil, method of irrigation, and location of effluent discharge — of the proportion of water that returns to the zone. The resultant proportion shall be known as a return-flow coefficient. As water is extracted from the well, the meter’s estimate of the volume extracted from the well shall be multiplied by the relevant coefficient and then deducted from the groundwater account associated with the well.

94. If use is assessed using satellite imagery and land parcel data, then the estimated net amount of water used shall be deducted from the relevant water account.

95. Rules for estimating the amount of water that has been extracted from each well are set out in Appendix 3. The determination of the Watermaster as to the net volume of groundwater used during each accounting period shall be final.

 Carry forward of Unused Allocations Allowed

96. With adjustment for losses, as described in Appendix 3, the Watermaster shall ensure that any unused groundwater allocations in an account shall be carried forward from one water accounting period to the next.

97. The use of unused groundwater allocations carried forward from one water accounting period to the next will be allowed even when water allocations per share in the zone associated with a water account are zero.

98. Any unused groundwater that has been carried forward is to be accounted for and managed in exactly the same manner as any other allocations made to a water account.

99. The Basin Authority shall, on a regular basis, make it clear to all shareholders that it is the Basin Authority’s responsibility to manage the groundwater resource and that water users are encouraged to plan for drought and sudden changes in water demand by carrying forward unused groundwater allocations from one water year to the next.

Transfer of Allocations among Zones and out of the Basin

100. The water accounting system used to track allocations shall permit the unfettered transfer of allocations within zones.

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6 As a general rule, there are three ways to estimate the volume of water used: (1) assuming that for each type of land use, a relatively constant amount of water is used, (2) metering the gross volume of water taken, and (3) estimating the net amount used by linking satellite-derived estimates of evapotranspiration with land parcel data.

7 The preference for agricultural groundwater use permits is to use satellite imagery and land parcel data to account for net groundwater use.

8 Every well owner is given the opportunity to object to this regulations during the development of the water accounting appendices. If there is a problem then they should lobby for a appendix to be amended.
101. To facilitate the efficient aggregation of unused allocations and their transfer from one account to another, any legal entity may apply for and hold a zone-specific groundwater account that is not linked to any shares or any permit authorizing the extraction of water from a zone.

102. Appendix 3 contains rules for the transfer of water allocations between zones and may allow the transfer of allocations from a zone being managed under this plan to a zone being managed under another plan.

103. Appendix 3 and the XYZ Basin Groundwater Coordination Agreement may contain rules that restrict the piping or pumping of groundwater allocations from one zone to another or from one region to another but may not prevent any arrangement that was in place and approved prior to January 1, 2015 from continuing.

104. The question of whether or not to allow the pumping and piped conveyance of water from one basin to another is distinct from the transfer of water allocations between two hydraulically linked basins; it is not a matter that the Basin Authority may determine. The question should be resolved by those entities responsible for approving construction of any pipeline or ditch or channel needed to facilitate the pumping of water from one location to another.

Management of Contaminated Groundwater

105. The Watermaster may attach conditions to a Groundwater Use Permit that place conditions on the taking of water from a well where the groundwater resource is contaminated.

106. All allocations made to a water account associated with a contaminated well or land subsidence may be transferred to any other water account in the same Zone.

Groundwater Recharge and Augmentation

107. Appendix 3 may include rules that allow the difference between the volume of surface water applied to a land parcel and the amount that is evaporated or transpired or transferred to another location to be credited as recharge that has occurred as result of surface water use.

108. Any landowner may apply for a groundwater recharge permit that allows them to artificially add to the volume of groundwater in one or more zones via managed infiltration or the direct injection of surface water or any other means approved by the Basin Authority.

109. A local agency may also apply for a groundwater recharge permit that gives the agency credit for surface water seepage from a ditch or channel into an aquifer.

110. Appendix 3 may contain a description of how ditch and channel losses will be calculated and accounted for.

111. A groundwater recharge permit shall not be issued for any activity that is expected to return less than 20 acre-feet per annum. ⁹

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⁹ 20 acre-feet is only a guide. The minimum volume of return required for a recharge permit may differ from GSA to GSA. Note that with the inclusion of section 107 there is no need for irrigators to set up a special project.
112. Groundwater recharge permits that authorize recharge shall require the volume of all water returned to an aquifer to be estimated using an agreed-on methodology approved by the Basin Authority and described in Appendix 3 and illustrated by way of example on the GSA website.

113. When and as recharge occurs, the Watermaster shall credit the estimated volume to the water account associated with the permit and, thereafter, the resultant allocations shall be treated in exactly the same manner as all allocations.10

114. During the Development Phase of this plan, the Basin Authority may approve a recharge project on the understanding that when this plan comes into full effect the net volume of water deposited into a zone of the ABC groundwater resource may be credited to a water account associated with the project.

**Significant Interception of Water**11

115. Examples of potentially significant forms of interception include the establishment of a timber plantation over a shallow aquifer and the capture of overland flows that otherwise would have infiltrated naturally into an aquifer.

116. Where appropriate and where a recent change in land-use practice is deemed by the Basin Authority to be intercepting significant amounts of water that otherwise would have flowed or seeped into an aquifer, the Basin Authority shall notify all relevant stakeholders that it may be necessary to amend this plan and bring certain forms of water interception into the accounting system used to prevent undesirable results.

117. The Basin Authority may require a land parcel owner to offset the impact of a significant form of groundwater interception. Offsetting may be achieved either by:

a) Requiring the deduction of allocations from a water account equivalent to the estimated impact of the interception on other water users; and/or

b) Quarantining an appropriate number of shares from the annual allocation system so that, on average, the form of interception has no adverse effect on the expected number of allocations per share.

**Announcement and Issuing of Allocations**12

118. Groundwater that is regulated under this plan shall be allocated by water year. Each water year shall commence on October 1 of one year and end on September 30 of the following year.

119. On the first working day after September 1 of each year at 10:00 a.m., the Basin Authority chair shall announce the volume of water to be assigned to each share so that the Watermaster can credit this amount to the water accounts associated with each share at 9:00 a.m. on October 1 of the same year.

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10 Certain agencies, such as an irrigation district, may be recharging the basin on behalf of their customers. In the first instance, the water allocations would be credited to the water account associated with the land where the recharge occurs. It would then be up to the owner of that account to determine how to distribute the resultant allocations. If the land is owned or leased to the irrigation district, it first would be credited to its water account. It would then be up to the district to determine how to distribute these allocations.

11 In Australia and South Africa, water managers have found it necessary to control land-use practices that change the amount of water that can be pumped from an aquifer. In the southeast of South Australia, for example, a landowner who establishes a timber plantation over a shallow aquifer is required to account for the water extracted from the aquifer by these trees. For more information, see M.D. Young and J.C. McColl, “Double Trouble: The Importance of Accounting for and Defining Water Entitlements Consistent with Hydrological Realities,” Australian Journal of Agricultural and Resource Economics 53(2008):19–35.

12 It is important that all stakeholders, including those who have yet to secure shares or an allocation, are given equal opportunity to profit from the purchase and sale of water allocations and shares.
120. The Basin Authority may make additional allocations during a year in a manner that is consistent with the annual allocation framework set out in Appendix 2.

121. Any or all unused annual allocations recorded in a water account may be transferred to any other water account in the same management zone or, with adjustment for losses and time delays, from one zone to another.

122. The Watermaster shall keep the information contained in any non-negative water account confidential. The Watermaster may reveal the name of the owner or owners of any water account that is in a negative balance.

123. The Watermaster shall regularly make aggregated information about the rate of water use in each region and the ABC groundwater resource as a whole publicly available.

124. On the first day that this plan comes into full effect, the Basin Authority may instruct the Watermaster to make an additional buffer allocation to all shareholders in any manner that is consistent with this plan.

Share Register
125. The Basin Authority shall either establish a share register for the GSA or enter into a robust arrangement with another organization to maintain the share register and establish effective ways to allow negotiated changes to be made to this share register. This share register shall be accessible by any member of the public over the Internet.

126. The GSA shall guarantee and maintain the integrity of the share register.

127. Amendments to the GSA share register may be made only by persons authorized by the Basin Authority to amend this register.

Recording Financial and Other Interests
128. When requested by a court or the holder or holders of an existing shareholder to do so, the Watermaster shall record any financial, mortgage, or other interest over shares held in a common interest in the share register.

129. When instructed by a court, the Basin Authority, through the Watermaster, shall record an encumbrance over a shareholding.

130. At least one year before this plan comes into full effect, all legal entities with a registered interest in a land parcel shall be notified of the fact that shares in the ABC groundwater resource will soon be issued and that this may affect the value of the land presently associated with these shares.

Share Transfer Process
131. When a shareholder, with the consent of all registered financial or other interests, applies for a change of ownership, the Watermaster shall authorize that the share register be amended in the manner requested by the shareholder and approved by all registered and other interests in the share.

132. The Watermaster shall use appropriate identity checks to minimize the risk of a fraudulent share transfer. All parties named on an existing share and all registered interests must approve a transfer.

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It is possible also for the Board to decide to set aside a reserve amount of water to be allocated to the owners of land reliant on access to a surface water resource if a severe drought occurs during any of the first 10 years after this plan comes into full effect.
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133. The Watermaster may not refuse to transfer shares to a third party on the grounds that a groundwater use permit normally associated with a portfolio of shares has been suspended.

 Restrictions on Share Transfers

134. During the first 10 years of this plan, no more than 10% of the shares in each zone may be transferred to or held by a legal entity who does not own land in the zone GSA or who was not a landowner in the zone when this plan was approved.

Protection of Existing Water Rights

135. Any legal entity that is issued shares or a water use permit issued as a result of the adoption of this plan shall be defined as having fully met any reasonable and beneficial use conditions associated with any right to extract or use groundwater in the GSA on January 1, 2015, and all actions after this date that otherwise would have been necessary to retain that right.

Enforcement

Unintentional Overuse

136. If the balance of any water account becomes negative and the reason for this is unintentional, permit holders shall be given 30 days to either return the account to a positive balance or elect to cease pumping until the next water year and have twice the deficit debited from the opening balance of their account for the following year.

137. If the holder of the account fails to cease pumping or return the account to a non-negative balance within 30 days, the Watermaster shall:
   a) Suspend the account holder’s groundwater use permit;
   b) Debit three times the deficit from the account holder’s opening balance for the following year;
   c) Notify all persons with a registered interest in the associated land parcel and all adjoining land parcel owners of the actions that have been taken; and
   d) If appropriate, arrange for the account holder to be penalized for breaching this plan.

138. The Watermaster may lift a groundwater use permit suspension when the account associated with it is returned to a non-negative balance.

139. If a groundwater use permit remains suspended for more than twenty-four months, the permit shall be canceled and the deficit written off as a loss to the basin as a whole.

Intentional Overuse

140. If a land parcel owner permits the water account to be overdrawn by more than 5% of the average volume of water applied to that parcel in the last five years and/or the Basin Authority judges the overuse to be intentional, the Basin Authority may either suspend a groundwater use permit for up to five years or cancel the permit.

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134 This part of the plan has been included because some people so that so-called speculation can be prevented. International experience would suggest, however, that the local benefits of allowing anyone to invest in shares, typically, are greater than the costs. It is recommended that restrictions on share ownership not be included in any basin groundwater sustainability plan. The transfer of water out of district, however, is a different consideration and can be managed efficiently using restrictions on the transfer of allocations out of a basin.
Initial Share Allocation

141. Consistent with the Sustainable Groundwater Management Act, from January 1, 2015, and unless the Basin Authority determines otherwise, access to the ABC groundwater resource shall be considered closed. That is, the Basin Authority may determine that shares may be issued in a manner that only takes into account the nature of groundwater use and associated investments made before any date that it thinks appropriate.

142. The procedures to be used to work out how best to issue shares are set out in Appendix 5, which sets out the process to be used to determine how many shares to allocate and who to allocate them to. Before determining how to issue shares, the Board shall seek independent advice as to the most equitable way to issue shares and to manage a suite of management arrangements that ensure full attainment of this plan’s sustainability goal as expressed in section 14.

Jurisdictional Boundary and Zone Boundary Modification

Modification of the Jurisdictional Area

143. When the Basin Authority wishes to bring a new area of land into the GSA jurisdiction, it shall amend the body of this plan and its appendices using the plan amendment processes set out in this plan.

144. When the Basin Authority responsible for an adjoining or hydrologically connected groundwater resource or equivalent region of jurisdiction wishes to transfer responsibility for part or all of the resource under their control to the Basin Authority responsible for this groundwater sustainability plan, then this shall be achieved by:

a) Announcing the intent to transfer part or the resource from one plan to another;

b) Making appropriate amendments to each plan; and

c) Canceling an appropriate number of shares in the former zone(s) or region(s) and issuing an appropriate number of shares in the new zone(s) or region(s).

145. When bringing land into the GSA jurisdiction that is not inside a region under a plan similar to this one, the Basin Authority shall issue shares to all landowners in the region using the procedures and, to the extent possible, the formulas used to issue shares when this plan was first finalized.

146. When realigning the boundaries of this plan with an adjoining groundwater sustainability plan, the Watermaster must give any registered interests recorded on those shares associated with the realignment one month’s notice that these shares are to be transferred from one zone to another as part of a boundary realignment and then do so only in a manner that does not diminish the value of the registered interests associated with these shares.

147. When expanding the area covered by this plan, the Basin Authority shall do so in a manner that does not reduce the interests of any existing shareholder.

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15 This part of the GSP is written with a view to stop people from pumping to obtain shares. There is no SGMA requirement for the suggested date. The data collected and assessed to be used for initial share allocations should come from a time period determined by the authority. A suggestion of five years into the past is used here, but this is certainly amendable.

The question of who is eligible to initially receive shares is very important and should not be taken lightly. In this draft, all potential users are included and granted equal standing in the proposed consultation process.
**Zone Boundary Realignment**

148. The Basin Authority may realign one or more zone boundaries, or create new zones, by amending this plan. Whenever a zone boundary is realigned, the Basin Authority shall act in a manner that can be expected to preserve the interests of all shareholders.

149. During the process of zone realignment or creation, all shareholders in the zone or zones that are to be reduced in size shall be offered the opportunity to surrender their shares on the understanding that they are offered shares of equivalent value in one or more of the other zones associated with the realignment. When this process occurs, the opportunity to convert shares shall be offered first to the owners of land in the area being moved from one zone to another.

150. When realigning or creating zone boundaries brings new land under the jurisdiction of the GSA, the Basin Authority shall do so in a manner that does not reduce the interests of any existing shareholders.

151. Shares may not be transferred from one zone or basin to another unless the transfer is part of a boundary modification process.

**Governance**

*No Confidence in the Basin Authority or One or More of Its Members*

152. Basin Authority members may be dismissed if their performance is found unsatisfactory by any one or more of:

- Department of Water Resources;
- A 60% majority of the members of the ABC Groundwater Sustainability Agency;
- 60% of ABC groundwater resource shareholders by number;
- Shareholders holding more than 70% of shares in the basin as defined by this Groundwater Sustainability Plan.

153. If, as a result of a dismissal, fewer than three appointed members of the Basin Authority remain, the Department of Water Resources or, on its recommendation, the State Water Resources Control Board shall appoint a Basin Administrator to take over all the Basin Authority’s functions until the dismissed members can be replaced.

**Appointment of a Basin Administrator**

154. If the Basin Authority is replaced by an administrator, that person shall have all the responsibilities and regulatory powers of the Basin Authority including its power to appoint or dismiss the Watermaster.

155. The Basin Authority or a basin administrator are the only entities that can dismiss the Watermaster.

156. When an administrator is appointed, that person shall work with the ABC Groundwater Sustainability Agency to appoint a new Basin Authority with a view to ensuring that members of this Basin Authority can take over responsibility for the management of this plan within six months.

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16 This part of the plan is drafted to ensure that, in the unlikely event that a majority of Basin Authority members are dismissed, the Watermaster and all the processes relating to the making of water allocations and accounting for use can continue to function.
Suspension of Plan during Non-drought States of Emergency

157. When the Governor of California proclaims a state of emergency or local emergency, Department of Water Resources may approve suspension of this plan provided that the reason for the state of emergency is not a drought. In the case that a state of emergency is associated with a drought, this plan may not be suspended.

Fees and Charges

158. The Basin Authority shall recover the costs of the services it provides to the ABC groundwater resource through a range of fees and charges.

159. Appendix 6 contains a schedule of fees and charges to be collected by the Basin Authority.

Legal Status and Commencement

Summary of Engagement Process Used during Development of this Plan

160. A detailed summary of the community and stakeholder engagement processes used to bring this plan into effect can be found on the GSA website. Public notices were issued and notices sent out to people likely to be affected by this plan. An Exposure Draft of this plan was circulated to people likely to receive shares under this plan on [date], a formal notice announcing an intention to adopt a plan was made on [date] and series of public meetings held to discuss the exposure draft were held between [date] and [date]. The Basin Authority then prepared and submitted a Draft Final Plan to Department of Water Resources so that, consistent with the Act, a formal 60 day comment period could be run. Having collated and considered the resultant comments, a final version of the body of this plan was negotiated with Department of Water Resources on the understanding that they would approve the body of this plan and, through this action, undertake not to disapprove this plan unless in its opinion the arrangements set out in:

a) The Appendices to be attached to this Plan are unsatisfactory; and/or

b) The XYZ Basin Groundwater Coordination Agreement are unsatisfactory.

ABC Groundwater Sustainability Agency Resolutions

161. On [date] the ABC Groundwater Sustainability Agency resolved that:

(1) The Body of this ABC Groundwater Sustainability Plan offers the most appropriate way to achieve the objectives and sustainability goal set for this XYZ Basin and puts in place all the administrative and regulatory arrangements necessary to ensure that the significant and unreasonable results identified in this plan can be avoided.

(2) Department of Water Resources approval of the body of this plan and the indicative nature of its appendices is necessary to ensure its timely and efficient implementation with a view to bringing the plan into full effect on 1st October 2019.

(3) It be recommended to Department of Water Resources that they delegate full responsibility for the satisfactory completion of the Appendices to this plan to the Basin Authority on the understanding that they must be consistent with the body of this plan, any coordination agreement negotiated with other groundwater sustainability agencies, the Act, and DWR Regulations.

__________________________________________________
Chair
Approval and Acceptance of this Groundwater Sustainability Plan for the Management and Administration of the ABC Groundwater Area

162. Pursuant to the powers granted to Department of Water Resources via §10723.8, the regulatory arrangements set out in the body of this plan are approved so that it can come into effect on date, on the understanding that all efforts will be made to bring this groundwater sustainability plan into full effect immediately before the water year commencing on October 1, 2019.

163. This approval is subject to separate Department of Water Resources approval of a XYZ Basin Groundwater Coordination Agreement on or before this plan comes into full effect.

164. Responsibility for the completion and formal approval of the proposed appendices of the body of this plan is delegated to the Basin Authority on the understanding that the content of these appendices will be reviewed during the fourth year after this plan comes into full effect.

Date
APPENDIX 1. THE ABC GROUNDWATER RESOURCE AND ZONES

1. The purpose of this appendix is to delineate the boundaries of the zones that will be used to issue shares and make allocations that can be used by the holders of groundwater use permits in each zone. At this stage in the development of this plan, the content of this appendix should be regarded as indicative and included so as to facilitate discussion.

2. The maps and diagrams in this appendix delineate:
   a) The boundaries of the ABC groundwater resource under the jurisdiction of the ABC Groundwater Sustainability Agency; and
   b) The zones to be used for groundwater management and water accounting purposes.

3. Within each zone, the transfer of water allocations from one water account to another is permitted on at a one-for-one exchange rate on the understanding that each groundwater use permit in a zone will have a limit on the maximum amount of water that may be drawn from that well in any water year.

   Note: Maps and diagrams showing the location of each distinct aquifer and management zone will be inserted here following a period of consultation and review and after they have been approved by the Basin Authority.
APPENDIX 2. MILESTONES, ANNUAL ALLOCATIONS AND MONITORING

1. The purpose of this appendix is to set out the nature of the relationship between the body of this plan’s objectives, including the avoidance and mitigation of undesirable results and this plan’s sustainability goal. At this stage in the development of this plan, the content of this appendix should be regarded as indicative and included so as to facilitate discussion.

2. This draft appendix will be finalized after the completion of the XYZ Basin Groundwater Coordination Agreement.

3. The Basin Authority may make allocation decisions only in a manner consistent with this appendix and the XYZ Basin Coordination Agreement.

Relationship among Goals, Policy Instruments, and Management Actions

4. This plan establishes six objectives and one principal sustainability goal. One or more policy instruments and management actions are needed to enable the efficient attainment of each goal.

5. The objectives relating to the undesirable results of depletion, stock reduction, subsidence, and adverse effects on surface water will be achieved by:

   a) Setting maximum average, preferred maximum, and absolute maximum depths to groundwater;

   b) Determining the maximum net amount of groundwater that may be withdrawn from each zone and triggering actions that must occur when this maximum is reached;

   c) Every year determining the maximum amount of water in each zone that may be assigned to shareholders for use and making this amount available to shareholders from the commencement of each water year; and

   d) Putting in place a robust water-accounting and use-permitting system.

6. The objectives relating to the undesirable results of significant and unreasonable seawater intrusion, degradation of water quality, plume management and land subsidence, in addition to setting the maximum net amount of water that may be withdrawn, will be achieved by setting zone boundaries so as to enable the efficient control of these undesirable results that are location specific and placing limits on the rate and volume of water that may be taken from each well where there is a significant risk of seawater intrusion or where a plume exists or where land subsidence is occurring.

7. The objectives relating to social, economic, and community development shall be achieved by:

   a) Unbundling the regulatory system so that efforts to make the best use of water are incentivized and the costs of reallocation kept as low as possible;

   b) Establishing robust, publicly accessible share registers and making it possible to transfer shares at low cost;

   c) Enabling financiers and others with an interest in a share to record that interest in the register and prevent the transfer of the share until that interest is cleared;

   d) Establishing a robust water accounting system that maximizes opportunities to adjust quickly to changing water supply and demand conditions; and
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e) Setting exchange rates that permit the transfer of allocations between zones.

8. **The objectives relating to domestic water** use shall be achieved by

a) Implementing administrative arrangements that prevent undesired outcomes, thereby reducing the likelihood that water use will have significant undesirable impacts on opportunities for households and disadvantaged communities to access and use water, and

b) Allowing any household to take up to two acre-feet of groundwater per year from the ABC groundwater resource on the understanding that the impact of this use will be offset by an arrangement that requires XX County to hold and maintain a water account from which the estimated volume of water used by domestic water users will be deducted on a quarterly basis.

9. The **sustainability goal** shall be achieved in each zone by:

a) Setting a maximum average depth to groundwater above which the Basin Authority should attempt to maintain the water table and not allow the level of groundwater in each zone to descend below;

b) Setting a preferred average maximum depth to groundwater that should not be passed;

c) Setting an absolute maximum depth to groundwater below which the depth will not be allowed to descend;

d) Requiring the Basin Authority to reduce annual allocations per share by at least 10% per annum whenever the average depth drops below the maximum average depth to groundwater or the preferred average maximum depth to groundwater;

e) Requiring the Basin Authority, when the average water level in a zone drops below the absolute maximum depth to groundwater, to set allocations per share to zero with the exception of (1) domestic users who in such circumstances shall be allowed to continue to take not more than 0.5 acre-feet per annum and (2) de minimis users located on irrigated land and not able to access surface water;

f) Requiring the Basin Authority, when making decisions on the amount of water that may be allocated to shareholders in each zone, to take account of the volume of allocation transfers that it approved for transfer from one zone to another and, hence, the need to shepherd groundwater from one zone to another.

**Interim Milestones**

10. The **Basin Authority** shall set interim milestones so as to enable all water users to plan with confidence for each zone.

a) Every five years, the Basin Authority shall set an upper limit to the amount by which it may reduce annual allocations per share;

b) In the first year, the total amount of water allocated to all shareholders in each zone shall not be less than 98.5% of the volume of water estimated to have been used in the last water year before this plan came into full effect;
c) In the second year, allocations per share shall not be reduced by more than 1.5% per annum;

d) In subsequent years, whenever the average depth to groundwater declines or land subsidence is occurring, the Basin Authority shall be required to reduce allocations per share by at least 1.5%.

Monitoring and Reporting Progress toward Sustainability Goal

11. Every year, the Basin Authority shall monitor progress made toward each of the goals and release a report showing how progress towards this plan’s objectives and sustainability goals has proceeded.

12. In order to monitor progress in each zone, the Basin Authority shall establish and maintain, at least, four monitoring sites and wells chosen so as to efficiently report on changes in:

a) The average depth to the groundwater table;

b) The salinity content and quality of groundwater in all zones;

c) The extent of land subsidence; and

d) The movement of any known plumes.

13. In recognition of the importance of pursuing social and economic goals as well as environmental goals, the Basin Authority shall include in its annual report a summary of:

a) The total economic value of the water in each zone as indicated by the number of zone shares on issue multiplied by the annual mean price of share transfers between independent entities;

b) The nature and value of allocations in water accounts;

c) The volume of allocations carried forward;

d) The volume of water allocations and number of water use permit holders who at the end of the year had either elected to or been forced to borrow from next year’s water allocation;

e) The number of permits that were suspended at the end of the year or canceled during the year; and

f) Its prediction of the rate by which allocations per year will need to be reduced to bring the use of groundwater in each zone to achieve this plan’s sustainability goal.

14. The annual report shall be made public and submitted to Department of Water Resources no later than the end of the first week of February of each year.

Zone specific interim and final milestones

Depth to groundwater

15. The tables below set out interim milestones and final milestones to be set for each zone.

16. Table A2.1 sets out the final depth to water table milestones and the dates by which use has been reduced to a level that groundwater use within each zone is in dynamic balance.
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Mock-up of Table A2.1

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
<th>Zone 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average depth to groundwater over previous 5 years</td>
<td>X Feet as measured at xxxx</td>
<td>X Feet as measured at xxxx</td>
<td>X Feet as measured at xxxx</td>
<td>X Feet as measured at xxxx</td>
</tr>
<tr>
<td>Preferred average maximum depth to groundwater</td>
<td>Y Feet as measured at xxxx</td>
<td>Y Feet as measured at xxxx</td>
<td>Y Feet as measured at xxxx</td>
<td>Y Feet as measured at xxxx</td>
</tr>
<tr>
<td>Depth to groundwater at which allocations per share are to be reduced to zero</td>
<td>Z Feet as measured at xxxx</td>
<td>Z Feet as measured at xxxx</td>
<td>Z Feet as measured at xxxx</td>
<td>Z Feet as measured at xxxx</td>
</tr>
<tr>
<td>Date by which groundwater use in the zone is to be brought into dynamic balance</td>
<td>20XX</td>
<td>20XX</td>
<td>20XX</td>
<td>20XX</td>
</tr>
</tbody>
</table>

**Land subsidence**

17. When determining the depth to groundwater milestones defined in Table A2.1, the Basin Authority shall consider the likely impacts that changes of this nature shall have on the rate of land subsidence.

18. The maximum amount of subsidence in each zone that is determined to be reasonable between the date that this plan comes into full effect and 2040 is set out in Table A2.2.

Mock-up of Table A2.2

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
<th>Zone 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum amount of land subsidence to be permitted by 2040</td>
<td>X inches as measured at xxxx</td>
<td>X inches as measured at xxxx</td>
<td>X inches as measured at xxxx</td>
<td>X inches as measured at xxxx</td>
</tr>
</tbody>
</table>
Estimated annual reduction in the Total Annual Zonal Allocation

19. Assuming i) no increase in recharge; and ii) no reduction in return flows to the zone, Table A2.3 sets out the estimated rate by which the total annual zonal allocation in each zone must be reduced over each 5 year period so as to bring groundwater use in the zone into dynamic balance by the date set out in Table A2.1 and avoid an unacceptable amount of subsidence to occur.

Mock-up of Table A2.3

<table>
<thead>
<tr>
<th>5 Year Period</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
<th>Zone 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020 – 2024</td>
<td>x% pa</td>
<td>x% pa</td>
<td>x% pa</td>
<td>x% pa</td>
</tr>
<tr>
<td>2025 – 2029</td>
<td>x% pa</td>
<td>x% pa</td>
<td>x% pa</td>
<td>x% pa</td>
</tr>
<tr>
<td>2030 – 2034</td>
<td>x% pa</td>
<td>x% pa</td>
<td>x% pa</td>
<td>x% pa</td>
</tr>
<tr>
<td>2035 - 2039</td>
<td>x% pa</td>
<td>x% pa</td>
<td>x% pa</td>
<td>x% pa</td>
</tr>
</tbody>
</table>

Consideration of other economic, social and environmental considerations

20. When setting the interim and final milestones in this appendix, the Basin Authority shall also consider the economic, social and environmental benefits of reducing groundwater use at a faster rate than that necessary to achieve this plan’s sustainability goal by 2040.
APPENDIX 3. ACCOUNTING ARRANGEMENTS FOR THE TRANSFER OF WATER ALLOCATIONS AMONG ZONES, AQUIFER RECHARGE, AND AQUIFER AUGMENTATION

1. The purpose of this appendix is to establish the exchange rates to be used for the transfer of groundwater allocations from one zone to another. Where appropriate, the transfer of allocations from one zone to another may involve a time delay, an exchange rate and a limit on the maximum amount that may be transferred from one zone to another. At this stage in the development of this plan, the content of this appendix should be regarded as indicative and included so as to facilitate discussion.

2. On a trial basis and in a manner consistent with the XYZ Basin Groundwater Coordination Agreement, the Basin Authority may establish rules for the transfer of allocations out of or into the water resources under its control.

Transferring Allocations within a Zone

3. The Basin Authority shall only allow the transfer of water from one zone to another in a manner that neither disadvantages nor favors any other water users.

4. The transfer of groundwater allocations within a zone in a confined aquifer is to be on a one-for-one basis. The transfer of groundwater allocations within a fractured aquifer shall be on a case-by-case basis and in accordance with guidelines approved by the Basin Authority.

Transferring Allocations between Zones

5. The Basin Authority must attempt to estimate the likely impacts that inter-zone transfers can be expected to have on the depth to groundwater in each zone and set a limit on the maximum volume of water that may be transferred from one zone to another on an annual, periodic, or other basis.

6. The conversion or exchange rate for the transfer of unused groundwater allocations, the maximum volume that may be transferred per year and the time delay associated with the transfer of an allocation from one zone to another shall be published on the GSA website and be publicly accessible. The table used to define the exchange rates to be used shall take the form of the table set out below.

7. Transfers shall be made on a first come, first served priority basis. Multiyear approvals may be granted on the condition that the Watermaster is authorized to and does make them on the first day of a water year.

8. The holder of groundwater shares in one zone may make application for a “tagged trade” and receive approval to lock in one zone to another an allocation transfer of the allocations made to those shares identified in the tagged trade on the understanding that it will be made on the 1st October of each year.

9. To protect the interests of all shareholders and, in particular, to prevent a rush to take advantage of a sudden change in conditions, the Basin Authority may suspend inter-zone transfers if, in its opinion, further transfer of allocations from one zone to another would have an adverse effect on the interests of other shareholders.

10. On the day that this plan comes fully into effect, the exchange rate for moving water allocations from one zone to another shall be as shown in Table A3.1.
Mock-up of Table A3.1. Exchange rate to be used when transferring allocations from a water account in one zone to a water account in another zone

<table>
<thead>
<tr>
<th>Source</th>
<th>Target</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
<th>Zone 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td></td>
<td>1</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Zone 2</td>
<td></td>
<td>0.9</td>
<td>1</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Zone 3</td>
<td></td>
<td>0.0</td>
<td>0.85</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Zone 4</td>
<td></td>
<td>0.0</td>
<td>0.6</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

11. On the day that this plan comes fully into effect, during any water year, the maximum volume of allocations that may be transferred from one zone to another shall be as shown in Table A3.2. As a default, no more than 5% of the total annual zonal allocation made to a zone may be transferred to another zone.

Mock-up of Table A3.2. The maximum volume of allocations made to one zone that may be transferred to another zone in any one year.

<table>
<thead>
<tr>
<th>Source</th>
<th>Target</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
<th>Zone 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td></td>
<td>0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Zone 2</td>
<td></td>
<td>0.9</td>
<td>1</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Zone 3</td>
<td></td>
<td>0.0</td>
<td>0.85</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Zone 4</td>
<td></td>
<td>0.0</td>
<td>0.6</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

12. On the day that this plan comes fully into effect, the time delays for the transfer of an allocation from one zone to another shall be as shown in Table A3.3. As a default, it is expected that they default time delay for transfer of allocations between adjoining zones is zero days.

Mock-up of Table A3.3. Number of days before an allocation transferred from one zone becomes available for use in another zone

<table>
<thead>
<tr>
<th>Source</th>
<th>Target</th>
<th>Zone 1</th>
<th>Zone 2</th>
<th>Zone 3</th>
<th>Zone 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zone 1</td>
<td></td>
<td>0</td>
<td>na</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Zone 2</td>
<td></td>
<td>0</td>
<td>na</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Zone 3</td>
<td></td>
<td>0</td>
<td>na</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Zone 4</td>
<td></td>
<td>0</td>
<td>365</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

13. The Basin Authority may not retroactively:

a) Modify an exchange rate; and/or

b) Revise the maximum volume of allocations that may be transferred from one zone to another in any water year; and/or
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c) Revise the time delay before an allocation becomes available for use in another zone.

Aquifer Recharge and Augmentation

14. The Basin Authority may, on a project-by-project basis, authorize the Watermaster to periodically credit the recharge or augmentation of an aquifer.

15. The GSAs website shall include a list of all approved projects in the form set out in Table A3.4.

Table A3.4. Nature of project information to be recorded on the GSAs website and made available to the public

<table>
<thead>
<tr>
<th>Project No.</th>
<th>Percentage of the metered volume of water delivered to each project that is to be credited to the project's water account</th>
<th>Project Sponsor</th>
<th>Project Zone</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Y1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Y2%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>~</td>
<td>~</td>
<td></td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>Yn%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Transferring allocations between basins

16. The Basin Authority may authorize the trial of any process that is consistent with the rules set out in the XYZ Basin Groundwater Coordination Agreement and enables the transfer of allocations but not shares from a zone defined in Appendix 1 to zone or aquifer managed by another groundwater sustainability agency.
APPENDIX 4 GENERIC GROUNDWATER USE PERMIT CONDITIONS

1. The purpose of this appendix is to enable the Basin Authority to require the Watermaster to attach a generic set of conditions to a Groundwater Use Permit in any zone.

2. At this stage in the development of this plan, the content of this appendix should be regarded as indicative and included so as to facilitate discussion.

Generic conditions to be included in all groundwater use permits

3. Every groundwater use permit shall be deemed to include conditions that require
   a) ...
   b) ...

Generic conditions to be included in Zone 1 groundwater use permits

4. In zone 1, every groundwater use permit shall be deemed to include conditions that require
   a) ...
   b) ...

Generic conditions to be included in Zone 2 groundwater use permits

5. In zone 2, every groundwater use permit shall be deemed to include conditions that require
   a) ...
   b) ...
APPENDIX 5 SHARE ALLOCATION PROCESS

1. The purpose of this appendix is to set out the process to be used to determine who is eligible to receive shares and how the number of shares they will receive shall be determined. At this stage in the development of this plan, the content of this appendix should be regarded as indicative and included so as to facilitate discussion.

2. Consistent with the plan to which this appendix is attached to, the share allocation process shall involve six steps:

   (1) Determining eligibility. Determining who is eligible to be included in the share allocation process.

   (2) Designing the allocation database. Determining the full range of data to be collected and considered during the share allocation process.

   (3) Assembling and validating the database. Collecting the necessary data and validating its content.

   (4) Developing and finalizing a formula. With due process and engagement, determining the most appropriate formula or formulas to determine how many shares each eligible entity should receive in a manner that is seen to be fair and then choosing the most appropriate formula to use.

   (5) Building the share register. Combining the data in the database with the selected allocation formula to build the register and then inviting all who think they should have received shares to check the accuracy of this register and, if they find any error or omission, request that it be corrected.

   (6) Confirming the accuracy of the share register. This step makes it impossible for any further changes to be made to the register because of an error or an omission.

Step 1. Determining Eligibility to Receive a Share Allocation

3. Prior to the issue of shares to landowners in a zone, the Watermaster, in consultation with the State Water Resources Control Board, XX County, and relevant cities shall:

   a) Make efforts through public notices, newspaper advertisements, and community outreach to ensure that all legal entities with an interest in the ABC groundwater resource are aware that a six-step share allocation process is about to commence; and

   b) Send a registered letter to all land parcel holders in the basin informing them that the Basin Authority has begun building the databases necessary to enable them to issue shares and groundwater use permits.

4. Shares may be issued only to the owners of land parcels, their assigns, and/or successors who are located within a zone and associated with land that has an assessor’s parcel number in the XX County Land Register.

5. It shall be the responsibility of the owners of each land parcel to ensure that the XX County Land Register is correct.

6. It shall be the responsibility of each land parcel owner to ensure that the XX County well-permitting system includes a permit for any groundwater well on their land.
Step 2. Designing the Database to Be Used for Share Allocation

7. The Basin Authority shall involve the water users from each zone and the local community associated with the zone in the processes used to determine the share allocation formula and make them aware of the fact that they are in the process of building the database to be used to allocate shares.

8. Within each zone and in addition to ownership and parcel area, the database shall classify land parcels as to whether or not they have a valid well permit and if, over the last five years, the land was used for one or more of the following purposes:
   a) **Municipal and industrial water provision**;
   b) **Irrigated agriculture** that is reliant on i) surface water only, ii) on surface and groundwater; or iii) on groundwater only;
   c) **Industrial, commercial, recreational, amenity, or conservation** activities reliant on their own water supply and considered in at least one year likely to have taken i) more than two acre-feet, or ii) less than two acre-feet;
   d) **Domestic household uses** reliant on their own groundwater supply and in at least one year considered likely to have taken i) more than two acre-feet, or ii) less than two acre-feet.
   e) **Domestic households** that source all their water only from a water corporation, mutual water company, a community water supply system or another non-groundwater source.
   f) **De minimis uses**, such as wells used to supply water to livestock, that are estimated to be taking less than one acre-foot per annum.

9. The database may recognize more than one type of water use on the same land parcel. For example, a land parcel may be used for growing grapes and contain a winery that uses significant amounts of groundwater. Land use changes made after [date] shall not be recognized.

**Irrigated agriculture**

10. For **irrigated agriculture**, the database shall include:
   a) The types of land use occurring on a parcel so that an independent estimate of the amount of water needed to efficiently produce a crop may be made;
   b) The value of any groundwater- and surface water-related fees paid to an agency over the last five years;
   c) The estimated proportion of the parcel that is irrigable;
   d) An independent estimate of the amount of groundwater required to efficiently and cost-effectively use the land for its nominated purpose;\(^\text{17}\)
   e) The proportion of the required volume of water that is likely to have been sourced from the basin;
   f) Any independently verifiable data on the volume of water extracted from a ground or surface water source during each of the last five years;
   g) The average age of any permanent plantings on the land parcel; and

\(^{17}\) *A number of universities periodically publish independent estimates of the volume of water needed to grow a crop to maturity in different locations.*
h) Any other measurable factors identified during a community consultation process.

**Industrial, commercial, recreational, amenity and conservation**

11. For industrial, commercial water, recreational, amenity, or conservation users, the database shall include:

   a) The value of any groundwater- and surface water-related fees paid to an agency over the last five years;
   
   b) If possible, a verifiable or independent estimate of the volume of groundwater used in each of the last five years;
   
   c) The number, weight or volume of products sold in any or all of the last five years as confirmed by an income or state sales tax return supplied by the groundwater user;
   
   d) The average amount of water likely to be used by an efficient water user for each type of product sold; and
   
   e) The water use efficiency of the equipment being used on the land.

**Municipal water supply**

12. For municipal water supplies provided by water corporations, mutual water companies, and small community water supply systems, the database shall include:

   a) The volume of groundwater extracted from each zone in each of the last five years;
   
   b) The number of households and businesses supplied;
   
   c) An independent estimate of the average annual amount of water each household and business can reasonably be expected to use;
   
   d) The area of parks and gardens watered by groundwater and the amount these features can reasonably be expected to use in an average year.

**Domestic and de minimis uses**

13. For domestic and de minimis groundwater uses, the database shall include an estimate of the average annual amount of groundwater used by each parcel with accounting for the proportion that is likely to return, following use, back to the zone from which it is taken and an estimate of the proportion of water used within and outside the buildings located on the parcel.

**Step 3. Assembling and Validating the Database to Be Used for Share Allocation Purposes**

14. As soon as the database has been built, all parcel owners shall be informed of the information that has been associated with their land parcels and given at least one month to notify the Watermaster of any amendments that they believe should be made to their entry or all similar entries.

15. The authority shall be the arbitrator of which requests for amendment to the database should be accepted.

**Step 4. Determining the Formula to Be Used to Allocate Shares**

16. It shall be the responsibility of the Basin Authority, in consultation with the ABC Groundwater GSA and engagement with all stakeholders, to decide on the formula to be used to calculate the number of shares to be issued to eligible landowners.
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17. The Basin Authority shall either appoint an independent share allocation panel or appoint an independent person to consult with relevant stakeholders and recommend the most appropriate share allocation formula or formulas to be used in each zone. If it is decided to appoint such a panel, its members may consist of a retired judge or experienced water lawyer, an economist, a sociologist, and an irrigator or experienced member of a mutual water company without any direct interest or connection to the basin.

18. As a basis for discussion, it is suggested that the formula chosen initially should cause minimal disruption to existing land-use arrangements and that discussions begin by recognizing that this plan:
   a) Grants each shareholder an additional, one-time volume of water so that users have a buffer to assist them to transition into this basin groundwater sharing system;
   b) Limits the rate by which the Basin Authority may reduce the total volume of allocations may be reduced in any one year;
   c) Allows the carryover of unused water from year to year and provides that these allocations may not be taken from a water account holder even if there is a severe drought; and
   d) Provides low-cost opportunities for water users to transfer allocations from one account to another.

19. Unless the Basin Authority determines otherwise, in each zone and each year the total volume of water that the Basin Authority makes available for use shall be allocated in a manner that assigns all groundwater users with:
   a) An initial buffer allocation;
   b) A transition allocation that will be phased out over an agreed transition period; and
   c) An annual share allocation that will be made available to all the shareholders in each zone in proportion to the number of shares they hold.

20. As a basis for discussion:
   a) The buffer allocation shall be made to all water accounts associated with a shareholding in proportion to between 10% and 20% of the estimated maximum annual volume of groundwater used by the shareholder in the five water allocation years before 1st October 2017.18
   b) The transition volume shall be distributed in proportion to the estimated maximum amount of groundwater that each shareholder has used in the last five years and phased out over a 10 year transition period.
   c) An annual share allocation that shall be made at the start of each year in proportion to the number of shares held in each zone.

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18 This will mean that surface water users who used water in the last drought will receive an entitlement in proportion to the maximum amount they used. Note that there is also a provision in the plan for the set aside of a drought reserve.
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**Step 5. Establishing the Share Register**

21. Under direction from the Basin Authority, the Watermaster shall build the ABC groundwater resource Share Register in a manner consistent with this plan and the share allocation formula adopted by the authority.\(^{19}\)

22. At the time when any shares are issued, any registered interest recorded on a land parcel shall be transferred to the shares initially associated with that land parcel.

**Step 6. Confirming the Share Register’s Accuracy**

23. In the understanding that the data used to build the share register may contain errors or omissions, share allocations made shall be provisional and confirmed as final at least three months before this plan comes into effect.

24. During the period between the announcement of the procedures to be used to establish the final share register and its confirmation as final, where appropriate and with the Basin Authority’ prior approval, the Watermaster may amend any shareholding or issue additional shares so as to correct any errors or omissions found in the database.

25. Once the share register has been confirmed, the transfer of shares from one person to another may be made only by amending the register.

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\(^{19}\) An alternative arrangement is to split shares into two classes, a permanent and a transitional shareholding, and then phase out allocations to transitional shares over, say, a 10-year period.
APPENDIX 6. FEES AND CHARGES

1. The purpose of this appendix is to identify the nature of the charges that may be set by the Basin Authority so as to recover the costs of implementing this plan and make the investments necessary to ensure attainment of its objectives and sustainability goal.

2. At this stage in the development of this plan, the content of this appendix should be regarded as indicative and included so as to facilitate discussion.

3. The fees and charges used to facilitate the implementation of this plan may be modified by the Basin Authority on an annual basis and, at any point in time, can be found on the GSA website.

4. No charges shall be set for the initial establishment of water accounts and the issuing of shares at the commencement of this groundwater sustainability plan.

Start-up costs

5. No groundwater user or shareholder shall be charged for any investments made or costs of developing this plan. That is, the Basin Authority may only collect money from groundwater users and shareholders after this plan has come into full effect.

Share register charges

6. The Basin Authority may set charges for:
   a) The confirmation of who owns a share and the registered interests associated with it;
   b) The registration of a financial interest in one or more shares;
   c) The removal of a registered financial interest;
   d) A change in ownership in a shareholding with no registered financial interest and not involving the management of the transfer of money;
   e) A change in ownership in part or all of a shareholding with a registered financial interest or confirmation of parties that they have received appropriate payments;
   f) The registration of a lease of a share or shares for a limited period of time;
   g) A change in the water account associated with a shareholding;
   h) The subdivision of a shareholding involving a financial interest; and
   i) A change to the water account linked to one or more shares in the register.

Water account charges

7. The Basin Authority may set charges for:
   a) Establishing a water account;
   b) Maintaining a water account;
   c) The manual transfer of an allocation from one water account to another; and
   d) The cancellation of a water account.

8. The Basin Authority may not charge for the transfer of an allocation from one water account to another water account.
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**Annual water resource management charge**

9. The Basin Authority may set an annual charge in proportion to the number of shares held and/or the maximum annual volume that may be extracted from a well or simply on a per well basis that is sufficient to recover the costs of:

   a) Monitoring water use and the general status of water resources in the ABC groundwater resources;

   b) Maintaining its administrative systems; and

   c) Cooperating with other GSAs, the Department of Water Resources and other State and Federal Government Agencies.

**Groundwater use permit charges**

10. The Basin Authority may set charges for:

   a) Applying for a groundwater use permit;

   b) Amending a groundwater use permit provided this is not mandated as a consequence of a change to the body of this plan or one of its appendices;

   c) The Basin Authority may not charge for the surrender or cancellation of a groundwater use permit.
APPENDIX 7. GLOSSARY
1. The purpose of this appendix is to define the meaning of words and terms used in this plan.

absolute maximum depth to groundwater: The threshold depth to groundwater at which all allocations to shareholders in a zone must cease.

allocation: A volume of water credited to a water account and made available for extraction, transfer to another water account, and carry forward to subsequent water years with adjustment for hydrological losses.

basin administrator: An individual appointed to take over the functions, powers, and responsibilities of the Basin Authority.

Basin Authority: The body responsible for the scheduled achievement and ongoing refinement of the plan’s sustainability goal, objectives, and implementation.

de minimis groundwater use permit: A permit authorizing the registered owner of a land parcel to extract water from a well or a group of wells for livestock and other purposes at a rate of less than one acre-foot per year.

domestic groundwater use permit: A permit that authorizes the owner of a land parcel to extract and use groundwater from an approved well or group of wells for cooking, cleaning, hygiene, and reasonable outdoor watering purposes at a rate of less than two acre-feet per annum.

exchange rate: A conversion rate set by the Basin Authority to be used when transferring groundwater allocations from one zone to another.

groundwater recharge permit: A permit authorizing the artificial recharge of an aquifer and the crediting of the volume of water returned to a nominated water account.

groundwater use permit: A permit setting out the conditions that owners of land parcels must comply with when extracting or authorizing one of their nominees to extract water from a well or a group of wells co-located on the land parcel.

independent share allocation panel: An independent group of people appointed by the Basin Authority to manage the processes necessary for a Basin Authority to identify the most appropriate formula to use when allocating shares.

land parcel: A delineated area of land associated with an assessor’s parcel number.

landholder: The named owner or owners of one or more land parcels.

maximum average depth to groundwater: An average depth to groundwater in a zone that the Basin Authority should seek to keep water levels above.

preferred maximum depth to groundwater: The depth to groundwater that, if reached, can trigger a significant reduction in allocations to each shareholder.

return-flow coefficient: The determined proportion of water applied to a land surface that returns to the basin area through infiltration in a specified zone.

share: A perpetual or ongoing entitlement to a share of all allocations made by a Basin Authority to a zone. Each share is numbered and is associated with a water account to which all allocations are made.
**shareholder:** The named owner of a share or group of shares in a basin share register. A shareholder is, by necessity, given a water account to which annual allocations of water per share are made.

**share register:** The only place where a person may go to find out who is the legal owner of each and every share in a zone and what fiduciary interests in a share exist.

**sustainability goal:** The objective of bringing the water budget or net withdrawals, inflows, and outflows of the basin into dynamic balance by a specified date.

**Sustainable Groundwater Management Act:** A three-bill package (AB 1739, SB 1319, and SB 1168) signed into California state law in 2014.

**total annual zonal allocation:** The total volume of allocations to be distributed to the shareholders in each zone on the first day of each water year.

**water use account:** An account of guaranteed integrity that records the number of allocations that are held by the account owner and how any allocations credited to the account have been used, carried forward, or transferred to another account. Accounts may be linked to a shareholding or a groundwater use permit. They may also be held at arm’s length from any shareholding or permit.

**water year:** A year-long period during which allocations made to water accounts at the beginning of that period maybe be used in full. When transitioning from one water year to the next, allocations remaining in water accounts from the previous year may be carried over into the next with adjustments for losses.

**Watermaster:** A nonvoting, ex officio member of a Basin Authority who may be appointed or dismissed by the Basin Authority or an administrator.

**zone:** A delineated part of a basin for which the Basin Authority shall announce the aggregate amount of water to allocate to shareholders in a management area and then, to the extent hydrologically possible, allow the 1:1 transfer of these allocations from one water account to another.