

Agenda

Hermosa Advisory Panel Meeting #14 Wednesday, June 15, 12p-2p

Wild Horse Inn - 309 W McKeown Ave, Patagonia

- 11:15 [Water issues and concerns review/Q&A, continued with Tomas Goode \(optional\)](#)
- 12:00 Review Agenda
- 12:10 Acceptance/Amendments to Meeting Minutes (May)
- 12:15 Panelists: Report Updates
- Patagonia Area Resource Alliance
 - Patagonia Flood and Flow Committee
 - The Nature Conservancy
- 12:45 Dr. Ty Ferre and Tomas Goode - Dewatering Roadmap + Q&A
- 1:25 Good Neighbor Agreement – review of the literature: David Morales, graduate student, Hydrology and Atmospheric Sciences
- 1:45 Consultant progress/panel role in workforce Development Alignment:
Dr. Robin Breault, Lead Local
- 1:55 Wrap Up and Looking Ahead: July 20 meeting
- Purple sheet reflection/evaluation

Meeting Minutes

Hermosa Advisory Panel Meeting #14

Wednesday, June 15, 12p-2p

The meeting of the Hermosa Advisory Panel was called to order at 12:00 pm on June 15, 2022, at the Wild Horse Inn on 309 W McKeown Ave, Patagonia by Angie Donelson.

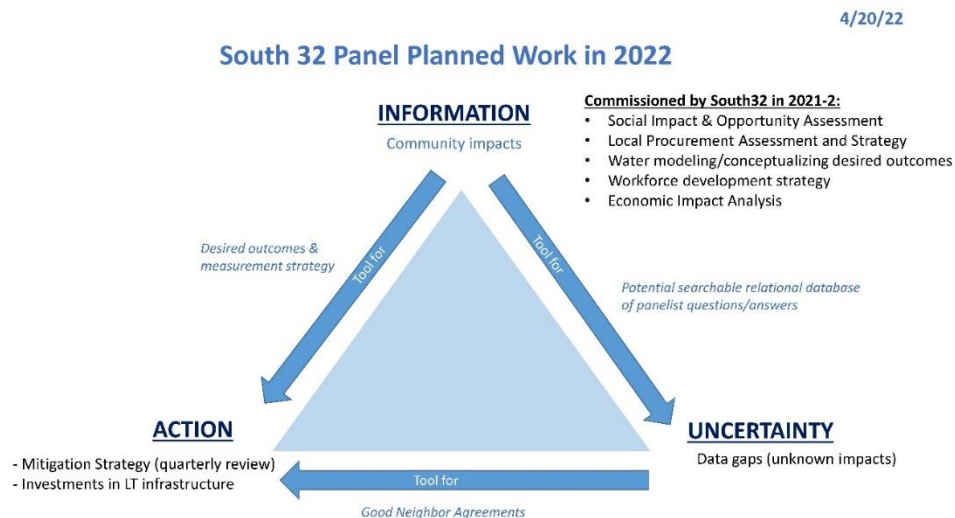
Attendance

- Meeting Facilitators: Angie Donelson, Robin Breault
- South 32 Hermosa Advisory Panel Members: Carolyn Shafer, Damian Rawoot, Fritz Sawyer, Gerry Isaac, Guillermo Valencia, Linda Shore, Liz Collier, Marcelino Varona, Michael Young, Ruth Ann LeFebvre
 - South32 Hermosa Advisory Panel Members Absent: Chris Young, Olivia Ainza-Kramer, John Fanning
 - South32: Melanie Lawson, Tomas Goode
 - Joining via videoconference call: Ty Ferre
 - Scribe: Lizbeth Perez
 - University of Arizona graduate student: David Morales

11:15 Continued from previous meeting: Review of Regional Conceptual Model: discussion with Tomas Goode, Principal Hydrologist, South32 (optional) – see Appendix A

12:00 Review Agenda

Angie Donelson explained that the panel will continue to explore the relationships among information about South32 community impacts, uncertainty, and action, as showed in the graphic below:



Today, she explained how the panel is moving to recommended action on workforce issues. Dr. Robin Breault, who has been working as a contractor to the panel on workforce development, will be presenting a 9-month strategy document to move forward on a range of issues. As a panel, you have been working on framing these issues since our data party last spring.

The panel is also considering uncertainty by raising questions for the water roadmap process. South32 and Dr. Ty Ferre will be answering them – unknown impacts, and we may be raising additional unknowns today as a result of discussion. The panel will move to making potential recommendations on alternative uses of water by October. The panel may choose to make this available to the public in the form of a relational searchable database if it chooses to do so with its technical assistance budget.

12:10 Acceptance/Amendments to Meeting Minutes (May)

- Ruth Ann LeFebvre: Wanted to know more about Damian Rawoot’s comment in the May minutes about the risk of flooding. Also wanted to ask more regarding permitting process for transportation: how will panel input will be addressed? Will this be separate from the ADOT public comment process?
- Angie: Will revisit this issue in July as part of a broader discussion about role of panel as it relates to the charter.
- Minutes accepted

12:12 Panelists: Report Updates

- Patagonia Area Resource Alliance (Carolyn Shafer)
 - Aquifer protection permit still being considered by judge; decision expected by June 21, 2022 (see PARA handout, Appendix B).
- The Nature Conservancy (Damian Rawoot)
 - Continuing to make progress on water quality and quantity monitoring protocol in collaboration with Tomas Goode and South32, hoping to provide more detailed update next month.
 - Coordinating with local partners, including Tucson Audubon Society; hoping to also connect with US Geological Survey and other organizations doing water systems work in the area
 - Addressed comment raised by Ruth Ann Le Febvre while reviewing the May minutes: In my opinion, town of Patagonia is at risk of flooding for several reasons, regardless of climate change. It is at the confluence of watersheds. Many structures are in the floodway in the town of Patagonia, where FEMA says water will likely flow. Climate impacts also bring more extreme rain events, seen last year and this year. Regardless of mine dewatering, these are risks to consider as a community.

- Marcelino Varona: Nogales is also prone to flooding. Is this potential for flooding in Patagonia something that will happen statistically once every 100 years, once every 50 years or every year?
- Damian Rawoot: That is the challenge: we have to start thinking of how we model flooding events to reflect reality. Realistically, not all of the onus is on South32. There are broader conversations to be had.
- Carolyn Shafer: I think statistic is around 60% of town's structures are in Patagonia are in the flood plain.
- Patagonia Flood and Flow Committee (Carolyn Shafer)
 - Carolyn clarified that Nature Conservancy is part of the Flood and Flow Committee but not Damian specifically. (See Appendix C for Carolyn Shafer's presentation on the Flood and Flow Committee).
 - Fritz Sawyer: Do you have hydrologists on the committee?
 - Carolyn Shafer:
 - Each of the participating organizations have hydrologists, so we have access to their expertise. We do not have a hydrologist serving specifically on the committee, but we do have a watershed specialist who serves.
 - Committee is working with US Forest Service on a watershed restoration action plan and ongoing remediation of historical mining projects (toxic remains of old mines). Appreciates that South32's acquisition of old Asarco Mine patented land included remediation of toxic tailings. That has occurred and that is a good thing for everything downstream.
 - Sonoita Creek Watershed has unique biological, geological, and cultural features of interest worldwide to scientists; is in need of protection for wildlife biodiversity. Watershed will face entirely different challenges with 21st century industrial mining than it did 100 years ago.
 - Sonoita Creek watershed is a major tributary to Santa Cruz River. Much of Santa Cruz County is within Sonoita Creek Watershed. Watershed lacking in long term research and baseline data essential to determine present and future demands for water resources, which we must prioritize in our protection activities.
 - Flood and Flow Committee has drafted initial watershed management plan. Actively working on three projects. One is with University of Arizona Water Research Center, which has offered to collect data free of charge to develop a drought response plan for a water resilient community. Borderlands Restoration Partnership is a partner on

this project. Also working on flood mitigation project. Working with South32 and county on flood plain permit process with respect to Cross Creek Connector project.

- A student also did his graduate thesis for the committee on what he recommended for additional water studies this area needs.

- Linda Shore: Back to three projects: are you working on flood mitigation for entire watershed or strictly for Patagonia?

- Carolyn Shafer: Yes and no because the town's watershed is a much larger area than Patagonia. No, it's not just for town; are looking at entire watershed since flood mitigation project is upstream of area of influence. Same for drought resilience; it will look at entire official watershed of town.

- Ruth Ann LeFebvre: Do you know how much groundwater is there? Has anyone ever looked to see what is there, and how it's going to change?

- Carolyn Shafer: That's another yes/no answer. In summer of 2020, town sent letter to US Forest Service asking them to conduct comprehensive groundwater study since it's mostly USFS (United States Forest Service) land. USFS didn't respond. Sent follow up in 2021, 6 months later USFS responded with what they were doing but didn't address study. In meeting with South32 last week, requested a groundwater study. Next committee meeting will host discussion to reach out to University of Arizona or USGS about what the study scope of work would be and the estimated cost, which will be sent to South32.

- Marcelino Varona: What impact does mining and dewatering have on the watershed? Is it comprehensive and involve the entire boundary or is it a section of it?

- Carolyn Shafer: Ever had water problems at your house? Does it only affect one area? There's your answer. Since it is major tributary that expands and continues, it wouldn't affect just this area. As I said, roughly half of Santa Cruz County is Sonoita Creek Watershed

- Carolyn Shafer: Please watch recording of May 25th Flood and Flow meeting.

- Angie: Robin and Angie asked to speak to the committee to discuss the panel's work and the the upcoming alternative uses of water timeline. They asked for the committee's input, given Carolyn and Damian are represented on the committee and panel through their networks with both organizations. Angie's piece begins at minute 8.

12:45 Dr. Ty Ferre and Tomas Goode - Water Roadmap + Q&A

- Angie: Discussion of what matters most to panelists to prepare for next steps of the alternative uses of water/discharge timeline. You raised many questions – I sent them to Ty on June 1 so he

could address them from a hydrology modeling perspective. Robin and I yesterday organized the 45 of them by four topical handouts we have provided today: 1) Long term impacts of dewatering and mining; 2) surface water impacts; 3) water quality; 4) ground water impacts. PARA also raised additional questions, not all of which could be organized within the handouts -- for example, Clean Water Act question and some of the modeling questions (see Appendix D for all questions). Some questions are repeated across the four handouts because the concern may involve multiple topics.

- Ruth Ann LeFebvre: Thought questions we asked were for Ty Ferre to translate and then ask of the models?
- Ty Ferre: Yes, I'm hoping we're getting towards end of collection time so that when we go look at model, we can have specific concerns in mind that reflect your interests as we assess models.
- Fritz Sawyer: How are we moving forward with this?
- Linda Shore: Will you and Tomas take list of questions and synthesize them to higher level questions? What happens next?
- Tomas Goode: I'll suggest a route forward. I've read through questions, seemed to me there was 5 major question groups. There might be value in going through this and consolidating questions further. Downside is that there might be nuances that aren't incorporated, but it would be helpful for answering these questions. Want to make sure to answer questions holistically for everyone, but not so specifically that you miss the big picture. Since questions are not phrased how I would ask them, I have to interpret them into what I think you're asking from a hydrology point of view.
- Ty Ferre: My role will be translation to make sure when I get to review the models, I can make sure models are well suited to answer your questions. Will break down questions, make sure you get to know what you want, and address whether the models are or are not suited to answering some of your questions. Will take time and effort to look at questions in context of the different models.
- Robin Breault: How long will it take you Ty?
- Ty Ferre: Can have them done in two weeks. Can look at questions and tell you which ones can be answered within the models. It will take longer, though, for me to do a model assessment, something South32 has asked me to do. That model assessment will be a combination of ensuring there are no technical flaws in models along with seeing if models result in useful answers. Timing depends on when I get models.
- Carolyn Shafer: These questions that we have put forth and the model you are going to be looking at are going to be based on a permit for 5 years of dewatering. Will these questions be

answered for only a 5-year modeling period, or for the potential 50-year mine life?

- Ty Ferre: It depends on how the model was constructed; I need to assess the model before answering that question. Laurel Lacher's model may be suited to answer some questions of interest. Depends on if I can get model report from Laurel.
- Tomas Goode: Would have a third-party review on both sets of models. Laurel's model would undergo same scrutiny that South32's model would via third party review.
- Linda Shore: Would it be the same third party reviewing both models?
- Tomas Goode: It could be but doesn't have to be. Review that Ty is looking at meets technical standards but also asks if it will answer these questions. May be technically good model but may or may not address your questions.
- Linda Shore: Thought South32 already picked modeling company?
- Tomas Goode: Yes, South32's regional groundwater flow model has moved forward with Newfields. What we are talking about is third party review.
- Linda Shore: Where does Laurel play into this?
- Tomas Goode: She has a completely different model. Looked at impact of potential flood risk to Patagonia as a result of dewatering.
- Linda Shore: Is that a model South32 would consider?
- Tomas Goode: There's some concern that if it's funded by South32, our model has a bias. Same goes for alternative models and their points of view and own potential biases.
- Linda Shore: If South32 has picked a model, why are we bringing in Laurel Lacher's model?
- Ty Ferre: Approach from Laurel emphasized different things. Some questions raised are better answered by her model, others better answered from Newfield's model. South32 doesn't need Laurel's model for their operations, but from the panel's perspective, I think would be useful to have Laurel's model to answer questions.
- Linda Shore: We don't have money to pay for Laurel.
- Damien Rawoot: Her model already exists. It's another resource for us to reference and to inform us as a panel.
- Robin Breault: Hearing questions about when and how you use models. There's two different models. Ty will take our questions, interpret them and apply them to both models as long as he

has the technical reports for both models. Additionally, both models need third party review. If we need to send Laurel's model for third party review perhaps that could be a use of the panel's technical assistance money.

- Marcelino Varona: Concern for third party review: who will select third party reviewer?
- Ty Ferre: Ideally, you'd have separate third-party reviewer. Another way to do this is if I can get access to report, I can do a technical review to assess whether there are any major problems that would merit third party review.
- Angie: Ty, can you summarize what you will do next for this process? My understanding is you will take the panel questions, summarize them, send them back for panel review by the end of June, so we understand how you have interpreted the panelists' questions.
- Ty Ferre: Yes, will do within 2 weeks, I have a list of things I'm looking at when looking at models to assess whether model fits the panel's needs.
- Angie: We have parallel processes, then, for the water roadmap South32 has provided (see Appendix E). There is a water management strategy review Tomas will be doing next month to assess alternative uses of discharge. Ty's work will be different, and he will come back to the panel then in August?
- Melanie Lawson: Yes, goal next month is to provide recommendations on mitigation options. South32 did a crowdsourcing challenge; submissions ready for panel to review in July. Can ask panel to rank what community values as part of water management strategy.
- Tomas Goode: Next month can present multiple choice list where panel can rate options. Will provide possibilities that have been vetted technically; panel will relay preferences.
- Melanie Lawson: Can frame out considerations for each mitigation option.
- Carolyn Shafer: Two things. First, I hope we allow other mitigation options from a larger network. Second, would like to ask Ty what you are looking for from Laurel Lacher's model?
- Ty Ferre: Will be translating questions into "hydrospeak" within the next 2 weeks so you see what I'm examining. I'm also requesting reports on the models to assess how models were constructed. The panel can then look back at the questions I've prepared to see if there's anything missing. Then, we'll transition into looking at possible mitigation scenarios. Ultimately, we'd like to be able to use models for mitigation.
- Carolyn Shafer: Did the Nature Conservancy's questions get included in for Ty's review?
- Angie Donelson: Yes; they are integrated into your handouts.

1:25 Good Neighbor Agreement – review of the literature: David Morales, graduate student, Hydrology and Atmospheric Sciences

- See Appendix F
- Much of the literature discusses how to implement GNA; very little discusses what a community should consider before delving into process. Want to focus on things you might want to consider.
- Next part of process: following up with communities that have GNAs. David will be back in September to present what he learned.
- Fritz Sawyer: These GNAs, how many are permit related, so they are legally binding?
- David Morales: I don't know how many are legally binding. Couldn't find any GNAs in Arizona. That is an option however, and I recommend consulting with an attorney.
- Fritz Sawyer: Would GNA be local to Patagonia, or would it also incorporate Santa Cruz County?
- David Morales: Do you mean who would the signatories be? Up to community and town and county.
- Melanie Lawson: Can you explain more about how corporate production it tied to GNAs?
- David Morales: GNA signed in Nantucket recently in relation to a wind farm. Company provided large sum of money as outset; every time new set of wind turbines were installed, another installment of money followed. Was contingent on whether everybody followed contract. Mechanism of payment is also contract/location specific.
- Marcelino Varona: Our panel here may not have standing in court; we would have to convince Town of Patagonia to be signatory for GNA, and we can make recommendations. Should be made for people who will be here perpetually. Need to start getting town involved.
- Carolyn Shafer: Town is aware of GNA process, best of my knowledge. Things we are discussing as panel are part of what could be part of GNA. Many other topics might also be included, including post closure plans. This is a good beginning discussion.
- Michael Young: Santa Cruz needs to be part of it, not just town of Patagonia.
- Liz Collier: Got to be done working together.
- Marcelino Varona: Starting point is with town. If they agree with you all, then let them go to Board of Supervisors to get them involved.

1:55 Consultant progress/panel role in workforce Development Alignment: Dr. Robin Breault, Lead Local

- Robin Breault:
- Handed out Appendix G. Includes 9 month strategy based on your recommendations. Please email me if you would like to make any changes, and these will be integrated into next draft.
- Action steps: We've started to move forward with strategic alignment with both schools and youth workforce development. Also starting to move forward with other workforce needs, starting with the perspective of education and industry first. Also looking at a feasibility study on a binational training center.
- Please let me know if you would like to be part of delegation from panel of future meetings/discussions on these issues. Meetings will start Mid-July After meeting with education and industry leaders, we'll coming together for two alignment meetings, all to be complete by beginning of November. We'll then meet for some joint visioning sessions together.

2:05 Wrap Up and Looking Ahead: July 20 meeting

- Melanie Lawson: next meeting, when we revisit the charter: would like to know if panel would like to rotate meetings to area in Nogales for benefit of Nogales residents.
- Marcelino Varona: Would like to keep meetings in Patagonia; other panelists present from Nogales agreed.
- Panelists also said they would like to have Tomas Goode and Melanie share mitigation opportunities beforehand to have more robust discussion

Today we learned about the water roadmap process and Good Neighbor Agreements...

How are you feeling so far? What could improve?

- Lot's to do. Whew! We need to keep clarifying the "dewatering" process
- Good. A great meeting today. Extremely informative. Need more time
- Good. Start narrowing our focus.
- Good. Looking forward to July and August meetings. I feel like we are getting down to the nitty gritty. I think you need to add Ben Lomeli to the committee.
- Very good; very well orchestrated
- Very good
- Good, but a little slow in the sense of continuing to discuss the same issues over and over. Frame discussion in terms of actionable outputs.
- Cold; make room warmer.
- More water: Dr. Ty, Tomas.

What do we need to address next?

- Mitigation options as they relate to the water AND large scale ecosystem impacts
- Water models
- Start looking at action items
- Modeling, GNA, workforce issues including list of needed skills/jobs
- Charter
- Continue water, workforce, GNA discussions
- Mine/vehicle and truck track out issues

How well have you felt heard so far? (0-5, with 0 not at all and 5 very well)

- Between 3 and 4 (1)
- 4 (3)
- 5 (3)

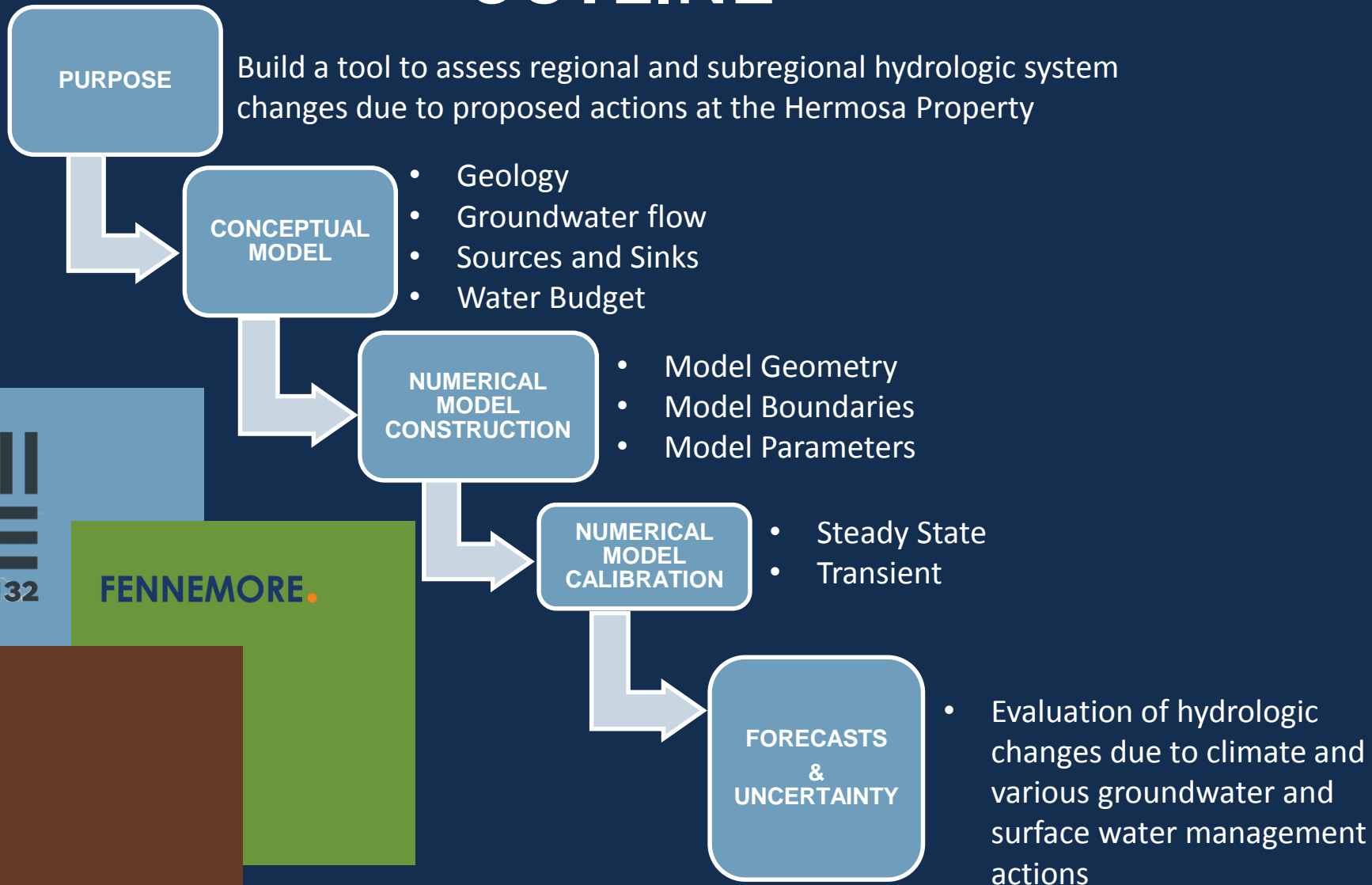


Appendix A

FENNEMORE.

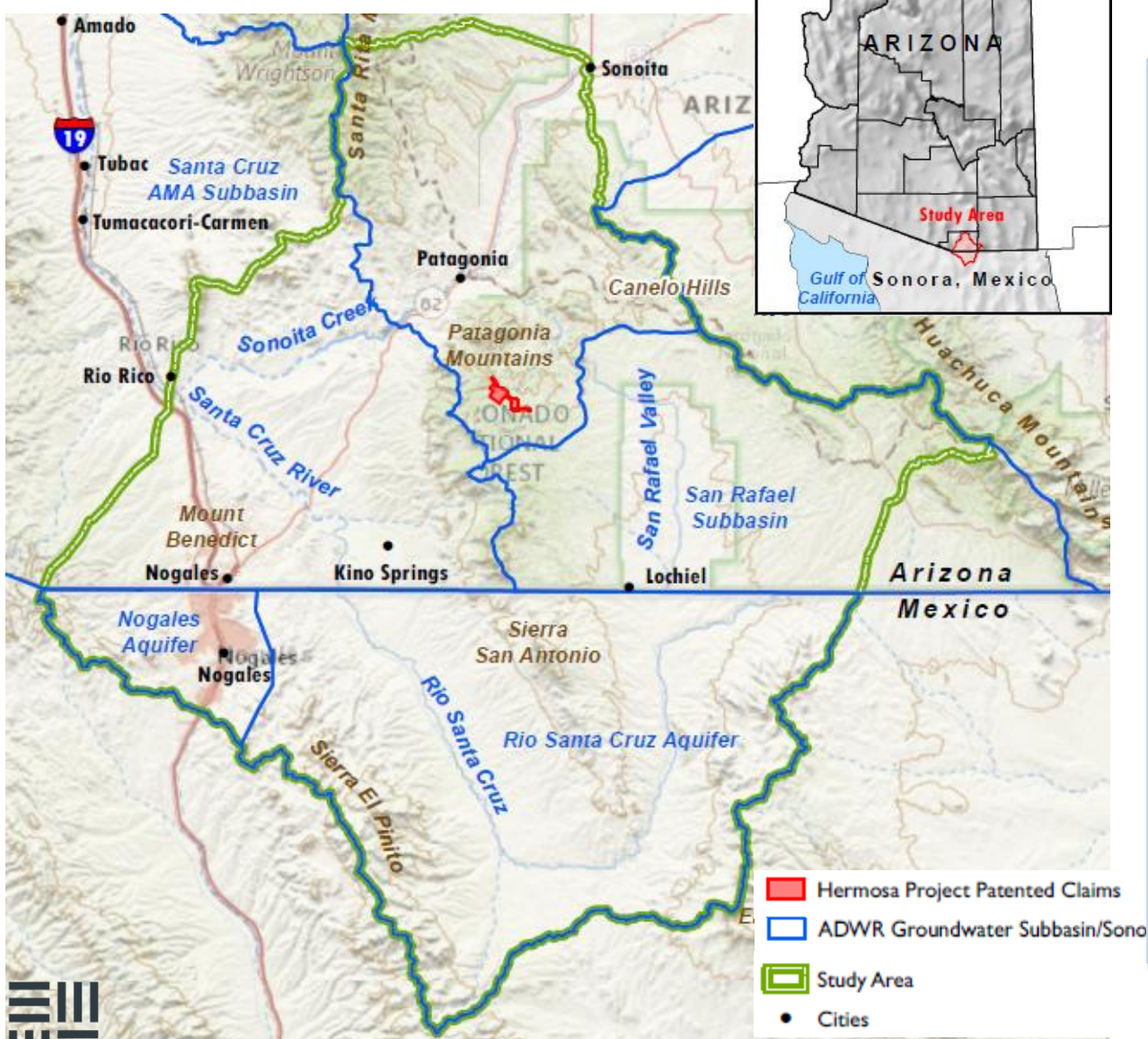
Hermosa Regional Groundwater Model

Appendix A OUTLINE



Regional Model Area

Appendix A



Purpose: Build a groundwater flow model large enough to assess regional impacts but numerically efficient to allow for robust uncertainty analysis and multiple alternative analyses. Groundwater flow model ultimately to be used as a tool to assess regional and subregional changes due to various changes in groundwater and surface water management actions.

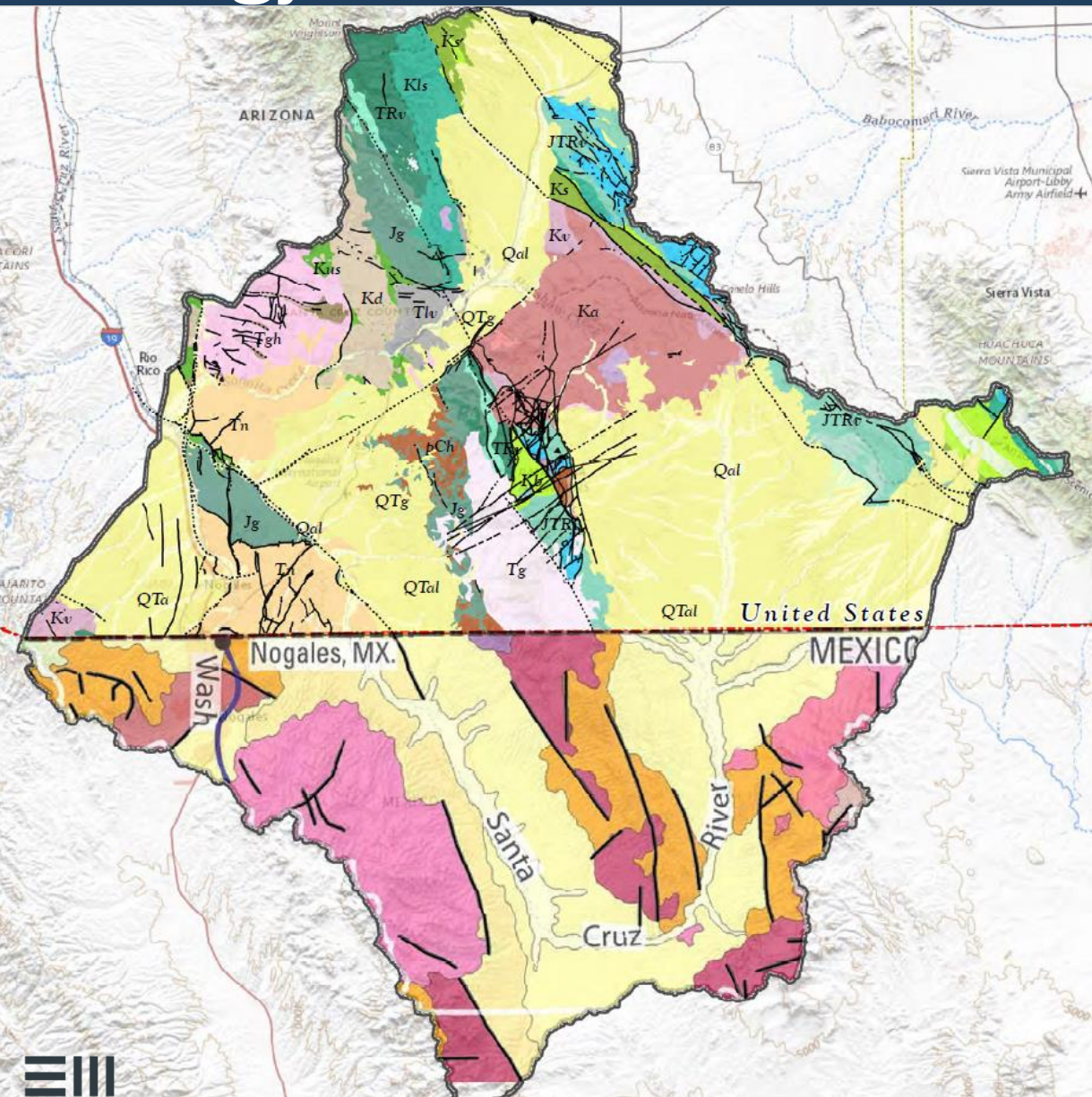
CONCEPTUAL MODEL



FENNEMORE.

Geology and Structure

Appendix A



Geologic Units - Arizona

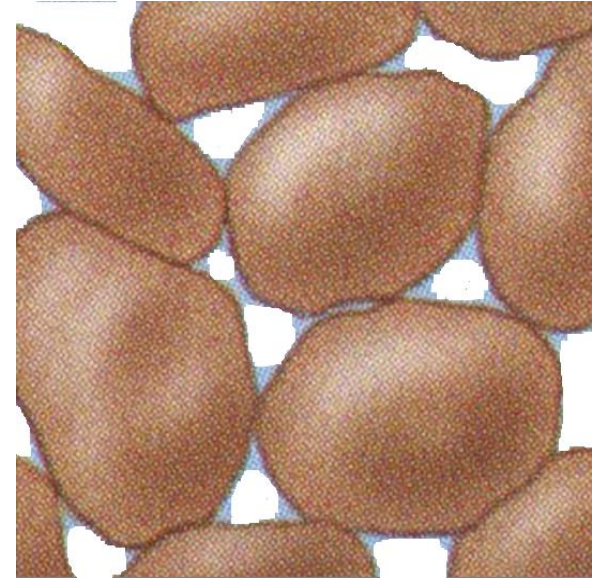
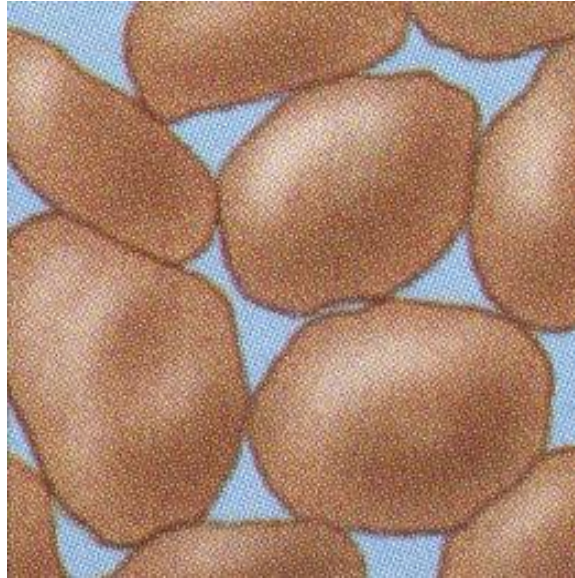
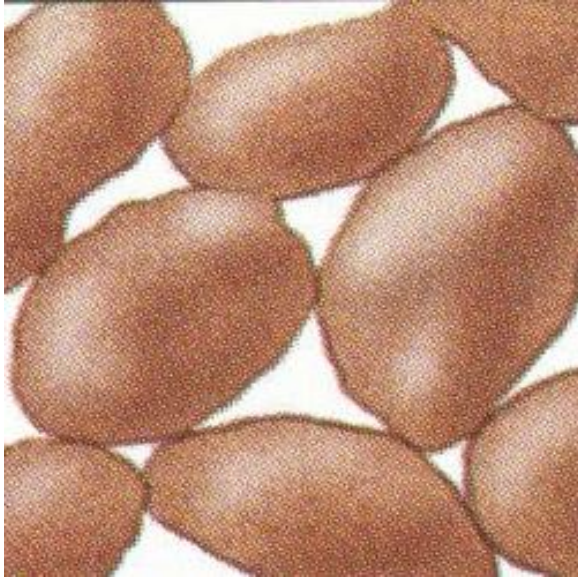
- Qal Quaternary Alluvium
- QTg/QTal Quaternary Tertiary gravel or alluvium
- Tn Tertiary Nogalas Formation
- Tgh Tertiary Grosvenor Hills Volcanics
- Ti Tertiary Intrusive
- Tg Tertiary Granodiorite
- Tp Tertiary Porphyry
- Tlv Tertiary Gringo Gulch Volcanics-Rhyolitic
- Kus Cretaceous Tuffaceous Conglomerate Sandstone
- Kuv Cretaceous Volcanic and Sedimentary
- Ka Cretaceous Trachyandesite
- Km Cretaceous Monzonite
- Ks Cretaceous Sedimentary
- Kb Bisbee Formation
- Kd Cretaceous Diorite
- Kv Cretaceous Silicic Volcanics
- Kg Cretaceous Granodiorite
- Kls Lower Cretaceous Volcanic Sedimentary
- Jg Jurassic Granite or Monzonite
- JTRi Jurassic/Triassic Intrusives
- JTRv Jurassic/Triassic Volcanics
- TRvs Triassic Pyroclastic Volcanics
- TRm Triassic Monzonite
- Pc,Pe,Ps Permian Sedimentary
- MD Carboniferous Sedimentary
- Cs Cambrian Quartzite
- pCh Pre Cambrian Granodiorite

Geology in Sonora State, Mexico

- Quaternary Alluvium
- Quaternary/Tertiary Conglomerate
- Tertiary Conglomerate
- Cretaceous Granite/Granodiorite/Diorite
- Jurassic/Triassic Tuff
- Jurassic/Triassic Rhyolite
- Pre Cambrian Intrusive

Porosity & Storage Coefficient

Appendix A

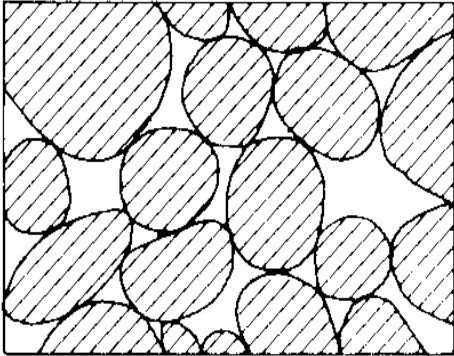


	Porosity	Specific Yield
Clays	0.40 – 0.60	0.01 – 0.05
Silts	0.35 – 0.50	0.10 – 0.20
Fine Sands	0.20 – 0.45	0.10 – 0.30
Coarse Sands/Gravels	0.15 – 0.35	0.20 – 0.30
Sandstones	0.05 – 0.35	0.05 – 0.20
Shale	0.01 – 0.50	0.005 – 0.05
Limestones	0.001 – 0.70	0.005 – 0.20

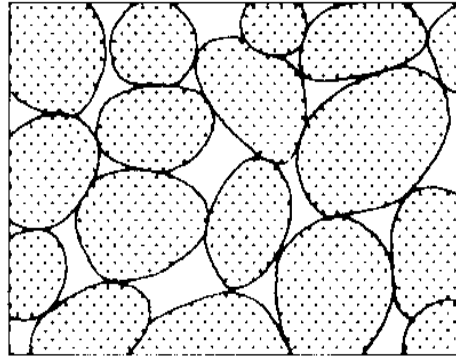
(Maidment et al, 1993)

Groundwater Environment

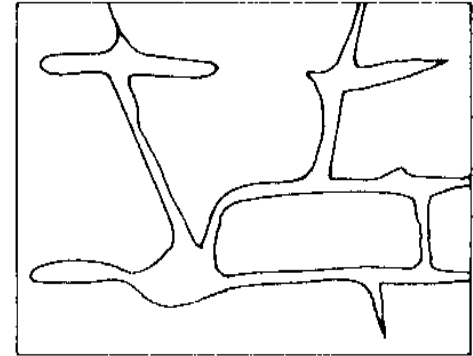
Appendix A



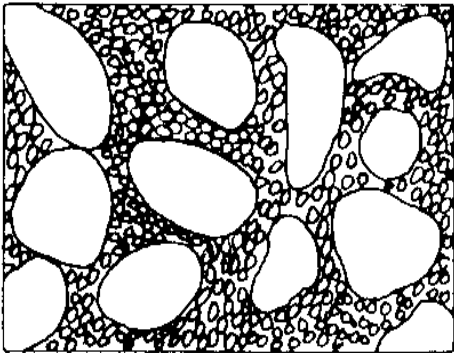
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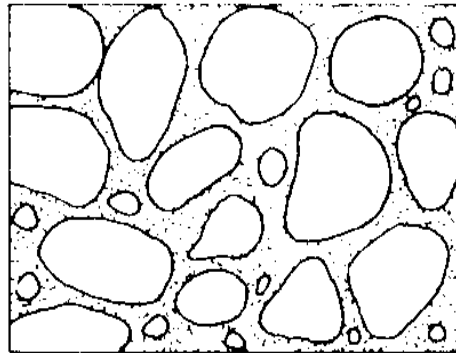
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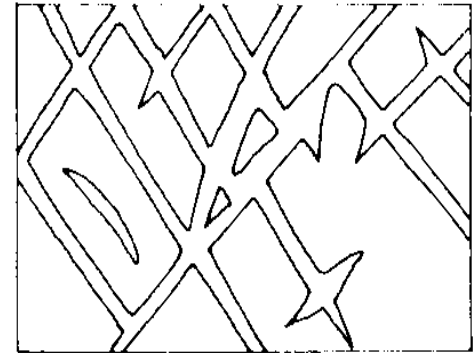
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(b)



(d)

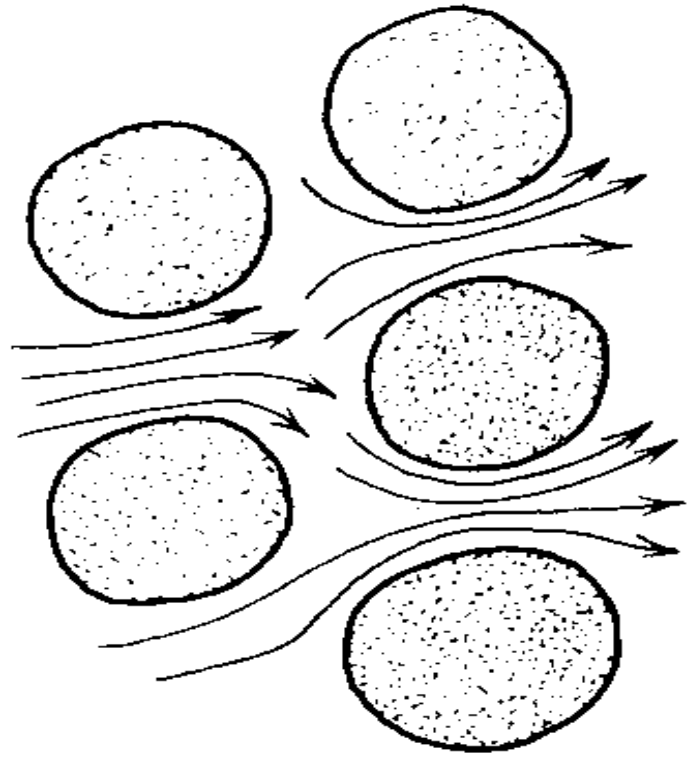
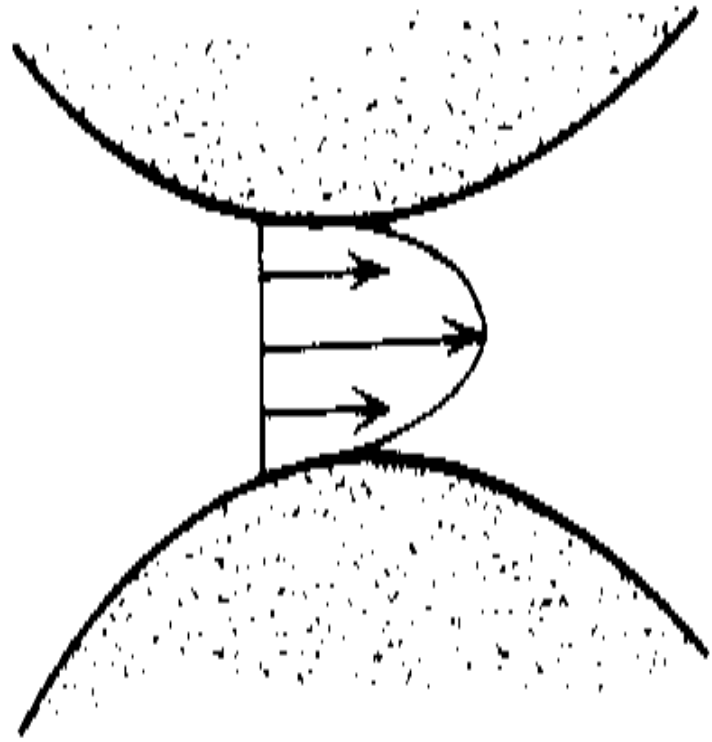


(f)

(Freeze and Cherry, 1979)

Groundwater Flow: Micro-Scale

Appendix A

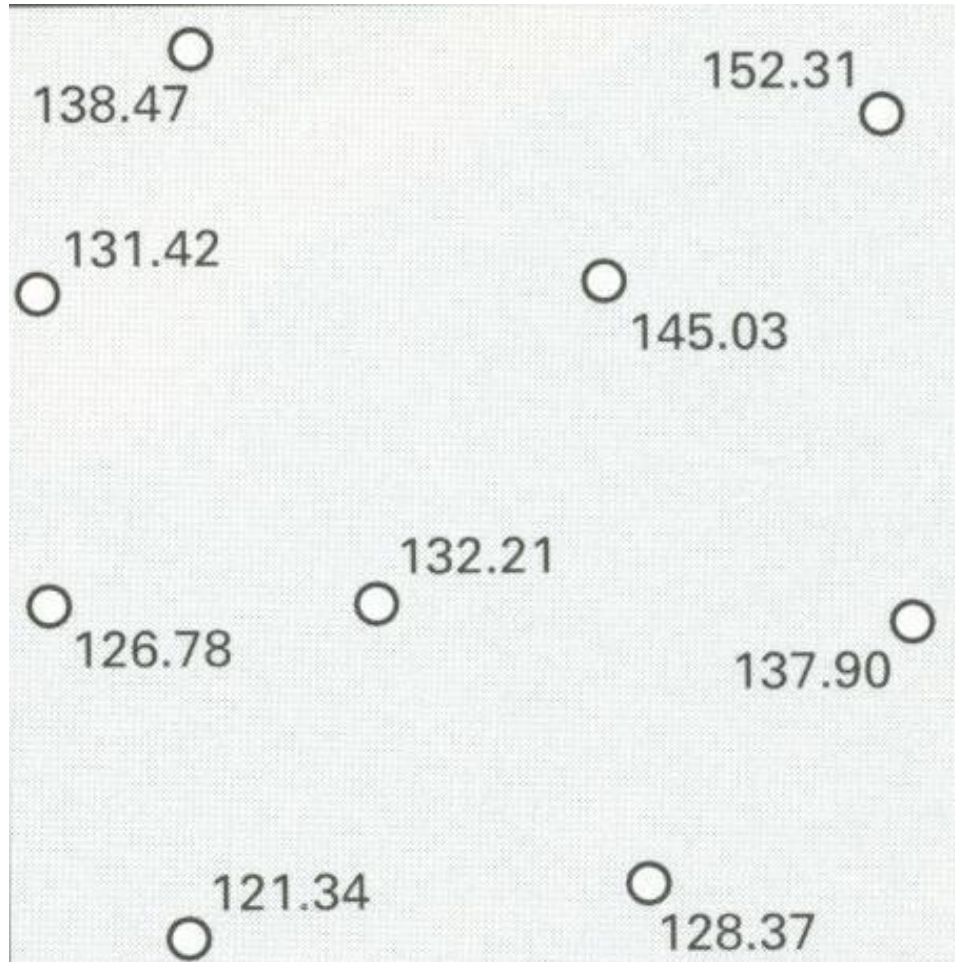


(Freeze and Cherry, 1979)

Groundwater Flow: Macro-Scale

Appendix A

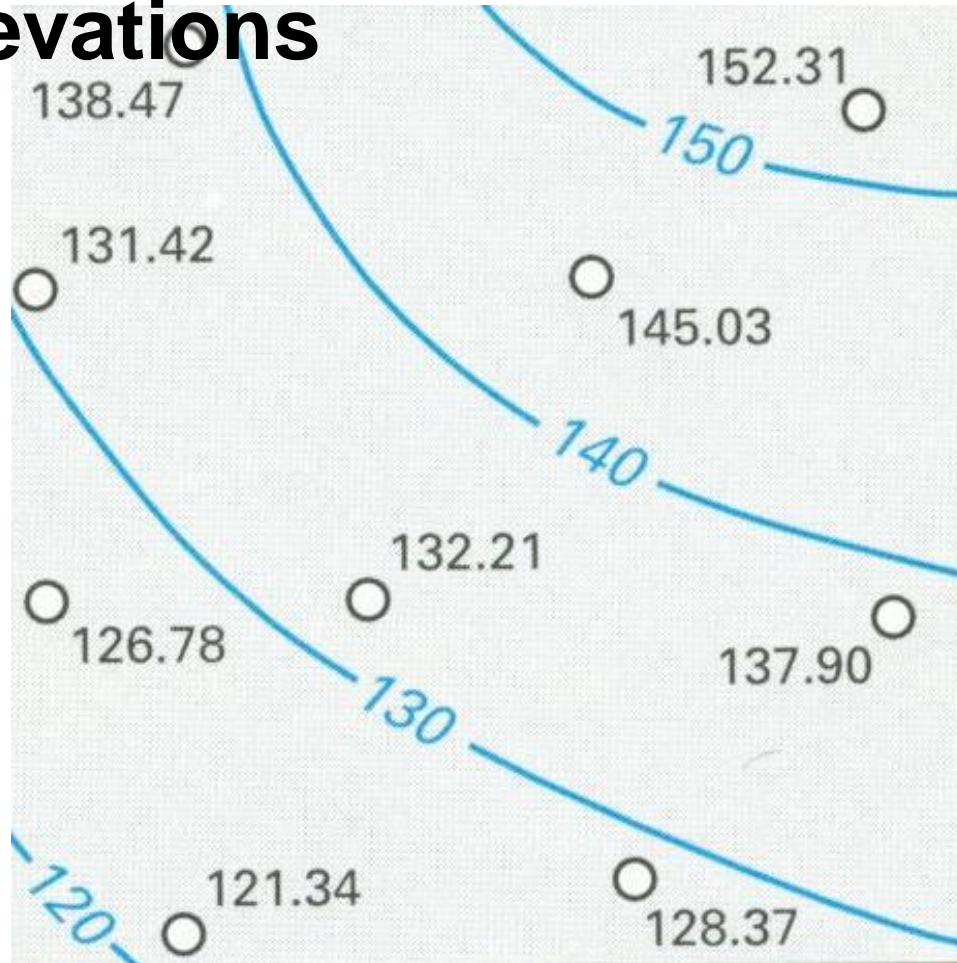
Water Level Elevations



Groundwater Flow: Macro-Scale

Appendix A

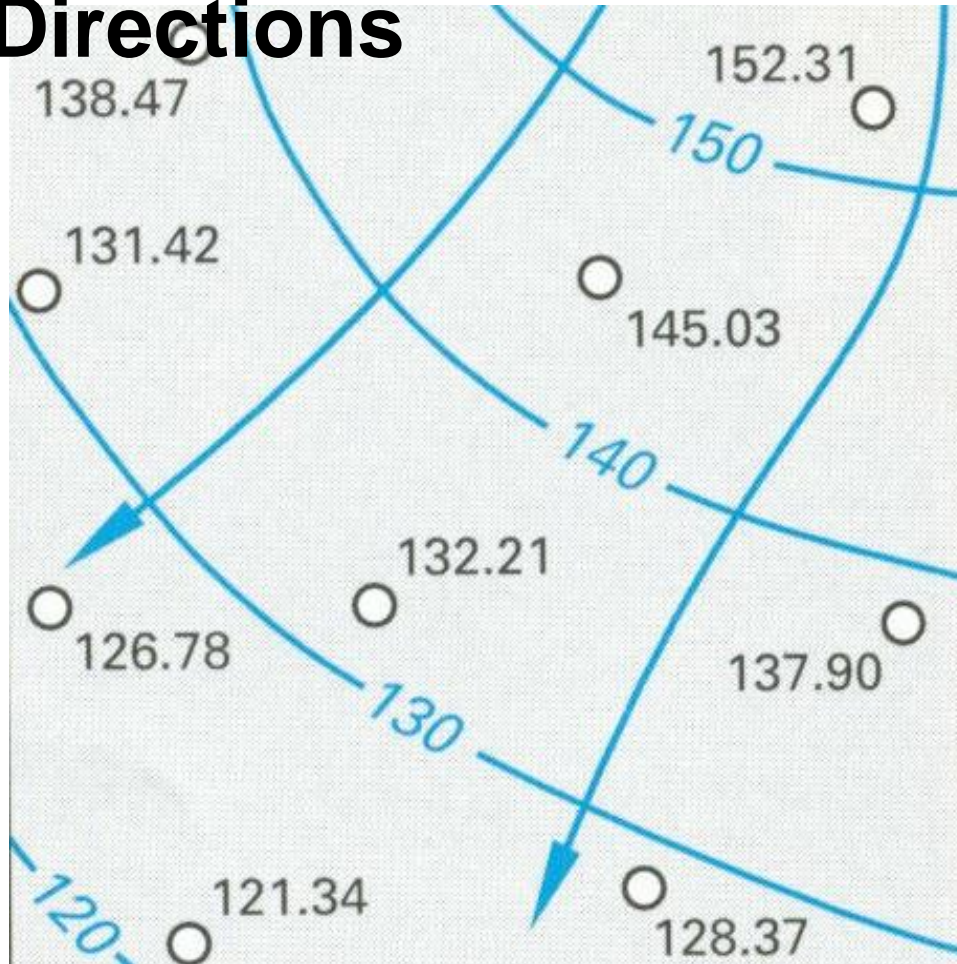
Contoured Water Level Elevations



Groundwater Flow: Macro-Scale

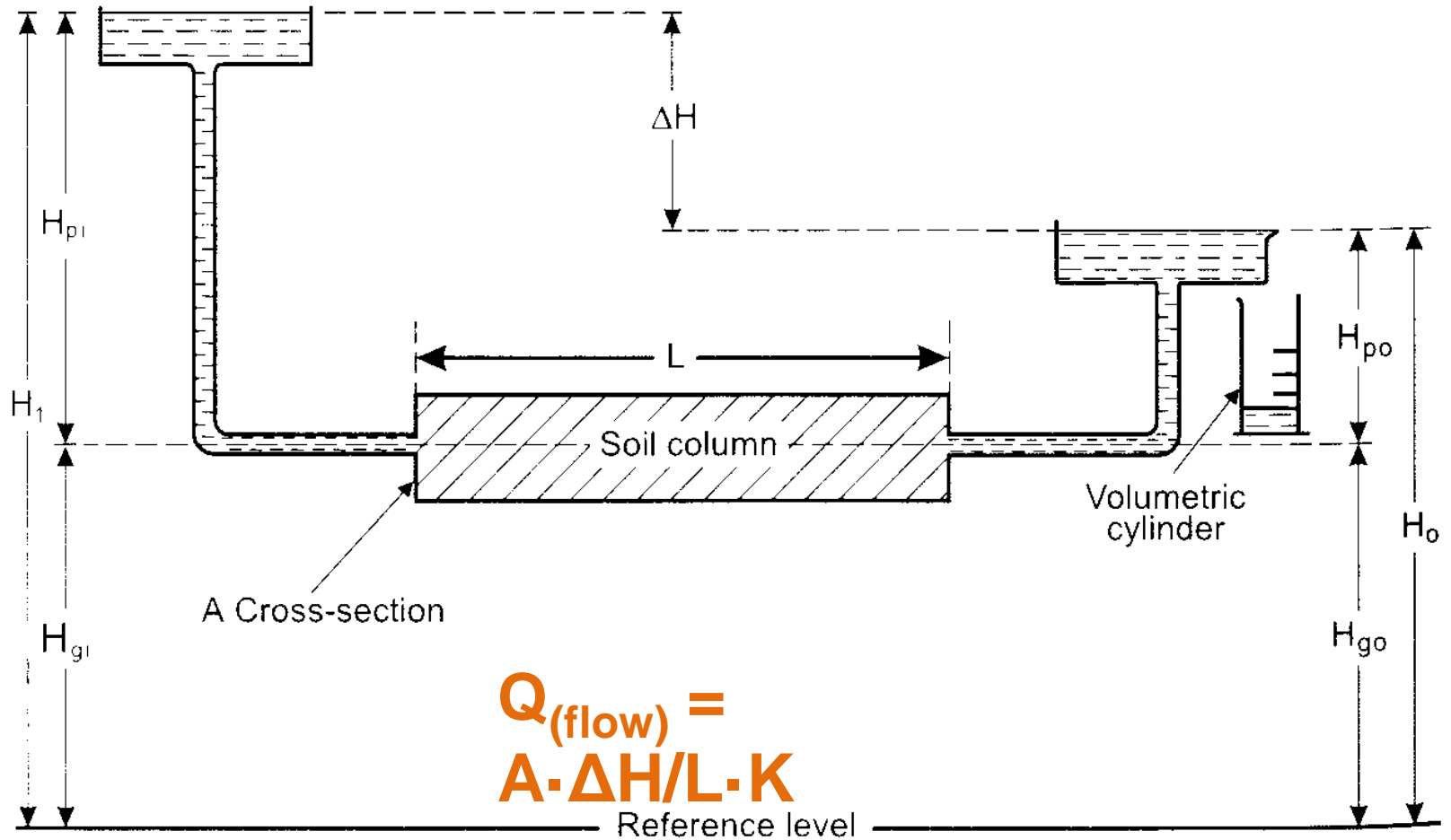
Appendix A

Groundwater Flow Directions



Darcy's Law – Lab Application

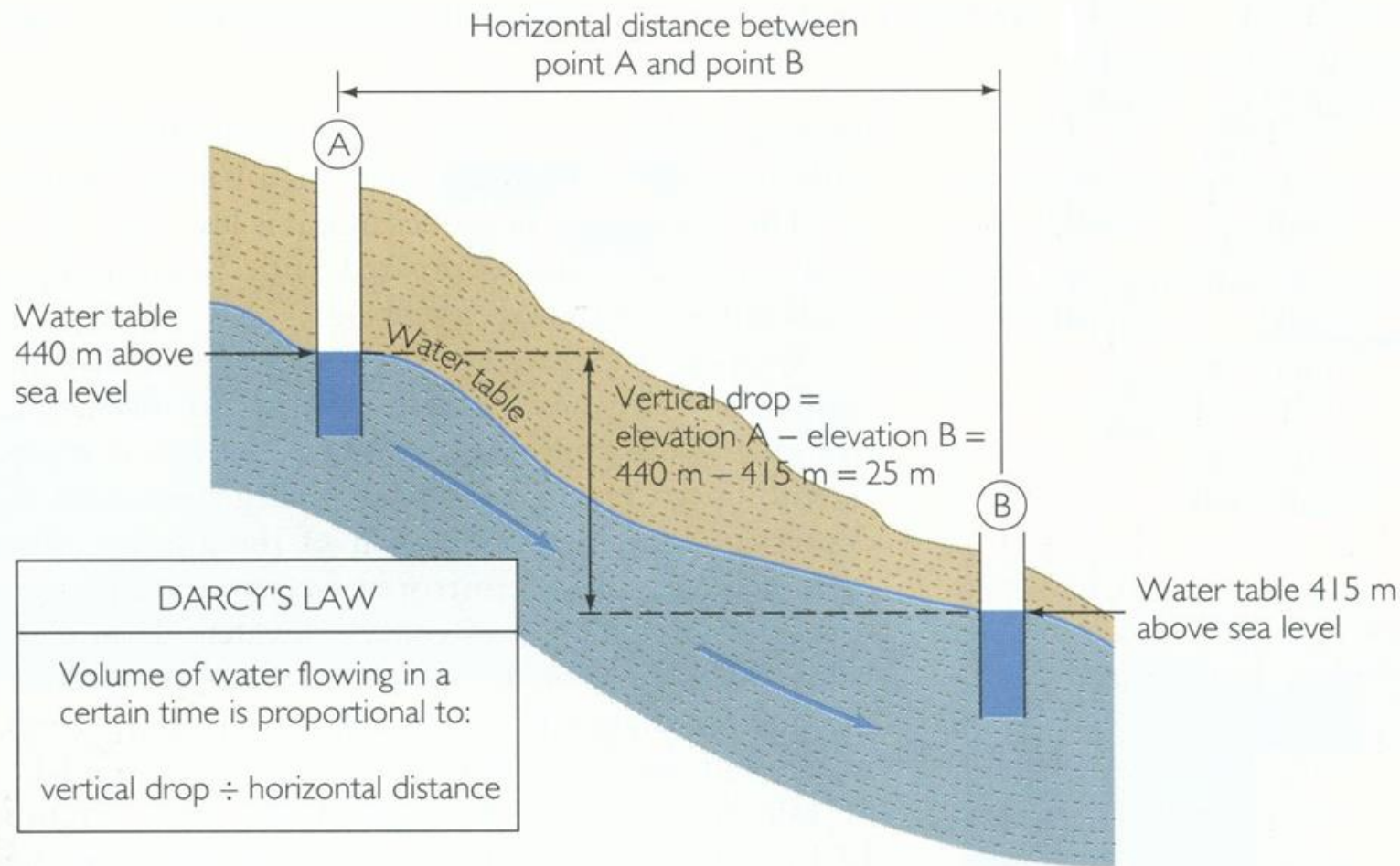
Appendix A



(Hillel, 1998)

Darcy's Law – Field Application

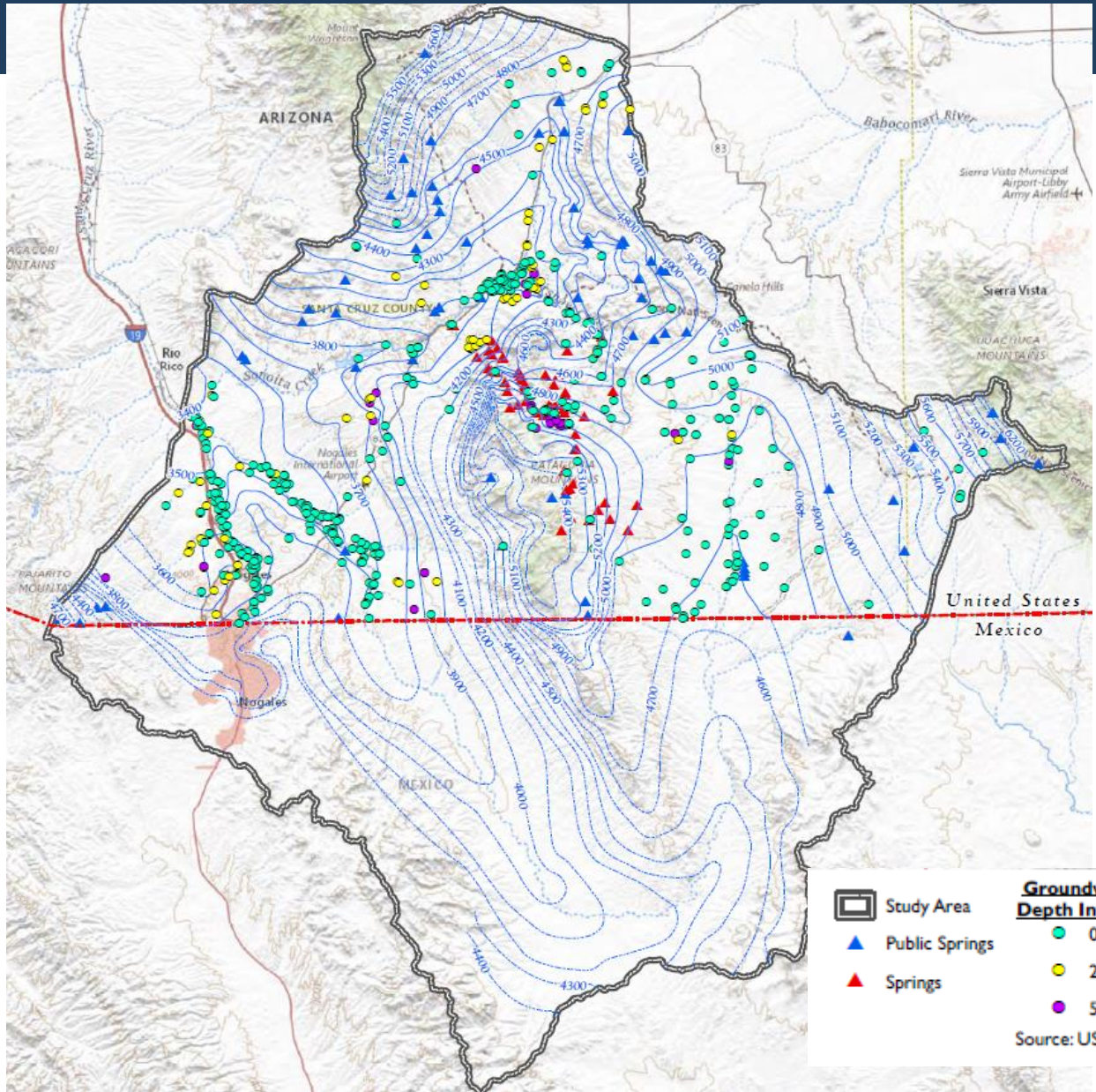
Appendix A



(Press and Siever, 1994)

Groundwater Flow

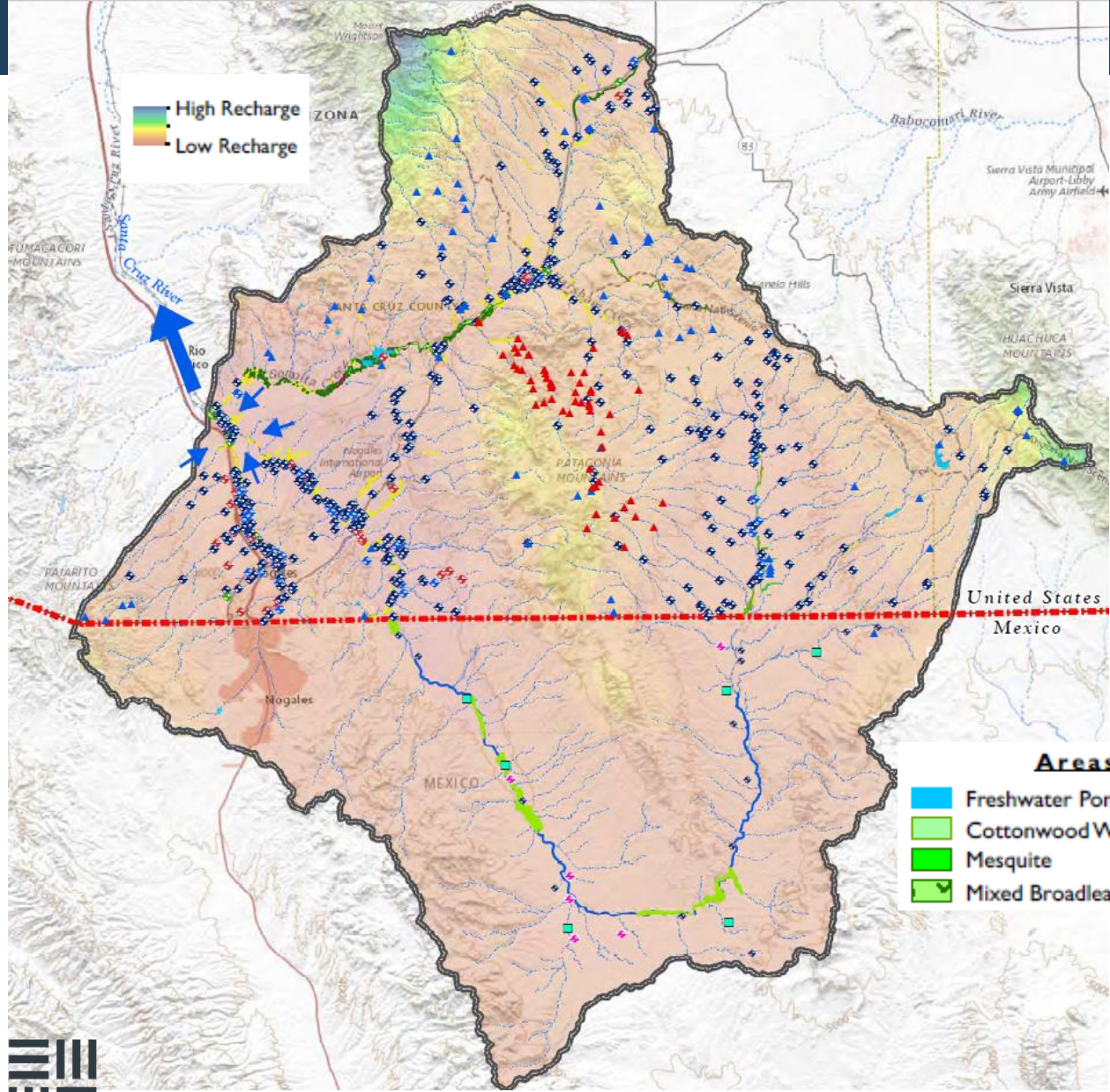
Appendix A



Source: USGS NWIS Data

Groundwater Sources and Sinks

Appendix A



Well Type/Use

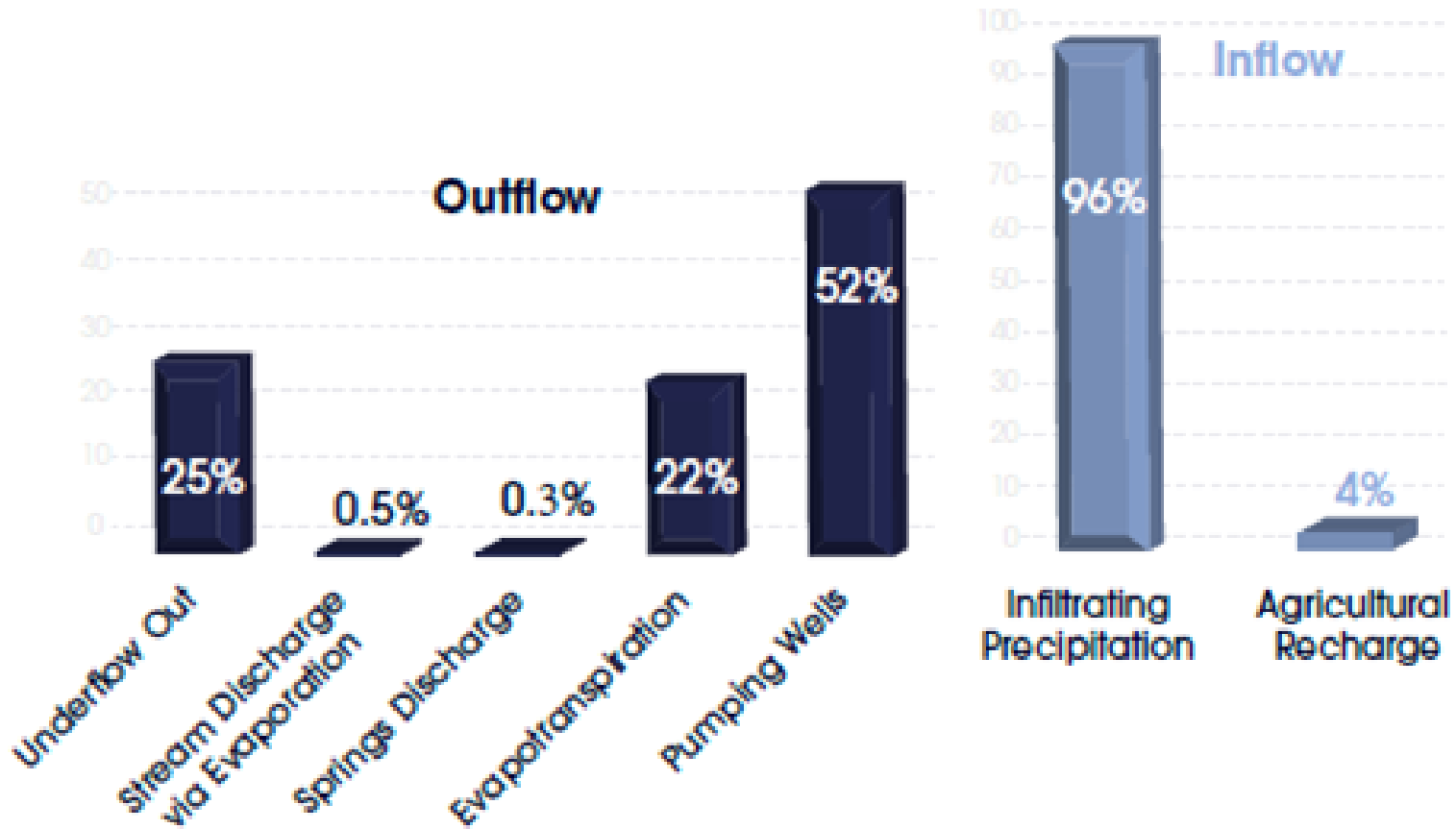
- ◆ Domestic/Other/Stock/Undetermined
- ◆ Commercial/Industrial
- ◆ Irrigation
- ◆ Public Supply
- ◆ Unknown
- Local Well
- ▭ Study Area
- ~ Perennial Streams
- ~ Non-Perennial Streams
- ▲ Public Springs
- ▲ Springs
- ➔ Underflow Out

Areas of Evapotranspiration

- Freshwater Pond/Lake/Marsh
- Cottonwood Willow
- Mesquite
- Mixed Broadleaf
- Forested/Shrub Riparian
- Hydrophilic Vegetation
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland

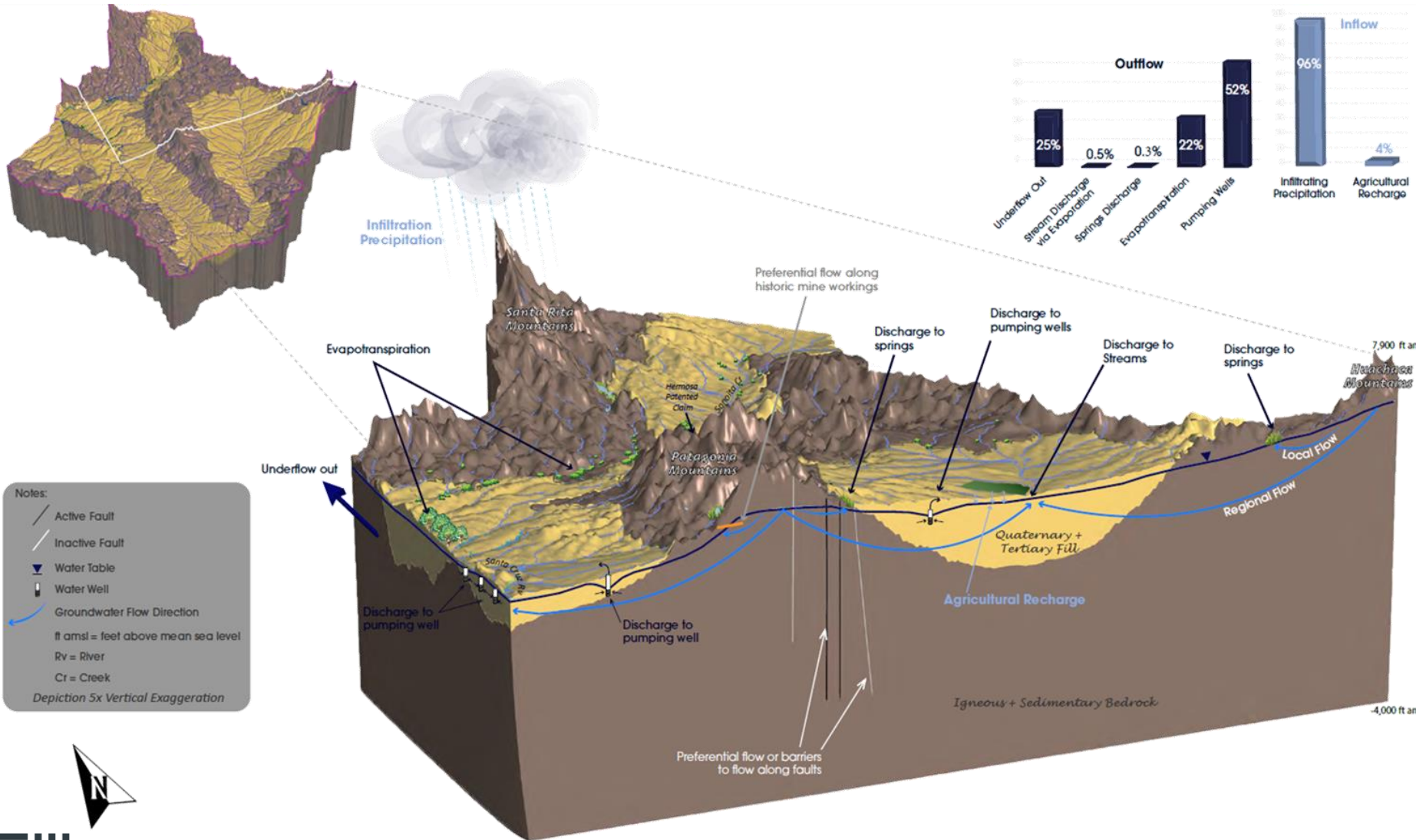
Conceptual Model Water Budget

Appendix A



Conceptual Model Summary

Appendix A



- Notes:
- Active Fault
 - Inactive Fault
 - Water Table
 - Water Well
 - Groundwater Flow Direction
 - ft amsl = feet above mean sea level
 - Rv = River
 - Cr = Creek
 - Depiction 5x Vertical Exaggeration



FENNEMORE.

NewFields

Climate Evaluation - Recharge

Appendix A

Coupled Model Inter-comparison Projects Sixth Assessment Report CMIP6 (<https://climateknowledgeportal.worldbank.org/>) climate projection scenarios based on five Shared Socio-economic pathways (SSPs).

- **SSP1-1.9 Best case for precipitation** *global emissions are cut to net-zero around 2050.*
- **SSP1-2.6** *Global emissions cut severely but reach net-zero after 2050.*
- **SSP2-4.5** *Emissions remain around current levels, before declining mid-century do not reach net-zero by 2100.*
- **SSP3-7.0 Worst case for precipitation** *emissions continue to climb, roughly doubling from current levels by 2100.*
- **SSP5-8.5** *intensified fossil fuel exploitation integrated global markets resulting in innovations & technological progress.*

Thank You



FENNEMORE.

**INFORMATION for the Santa Cruz County Advisory Panel on Hermosa Project
Presented by Panelist Carolyn Shafer as a PARA Board Member
June 15, 2022**

These are three sources for information relative to water issues in the Sonoita Creek Watershed that I recommend:

- The [Town of Patagonia “Sonoita Creek Flood & Flow Committee”](#) (“F&F”) which conducts (currently via Zoom) monthly public meetings the second Thursday of each month at 10 a.m.
- [Friends of Sonoita Creek](#) (“FOSC”)
- [Patagonia Area Resource Alliance](#) (“PARA”)

**UPDATE: PARAs Appeal of Aquifer Protection Permit (APP)
Issued by AZ Dept of Environmental Quality to South32**

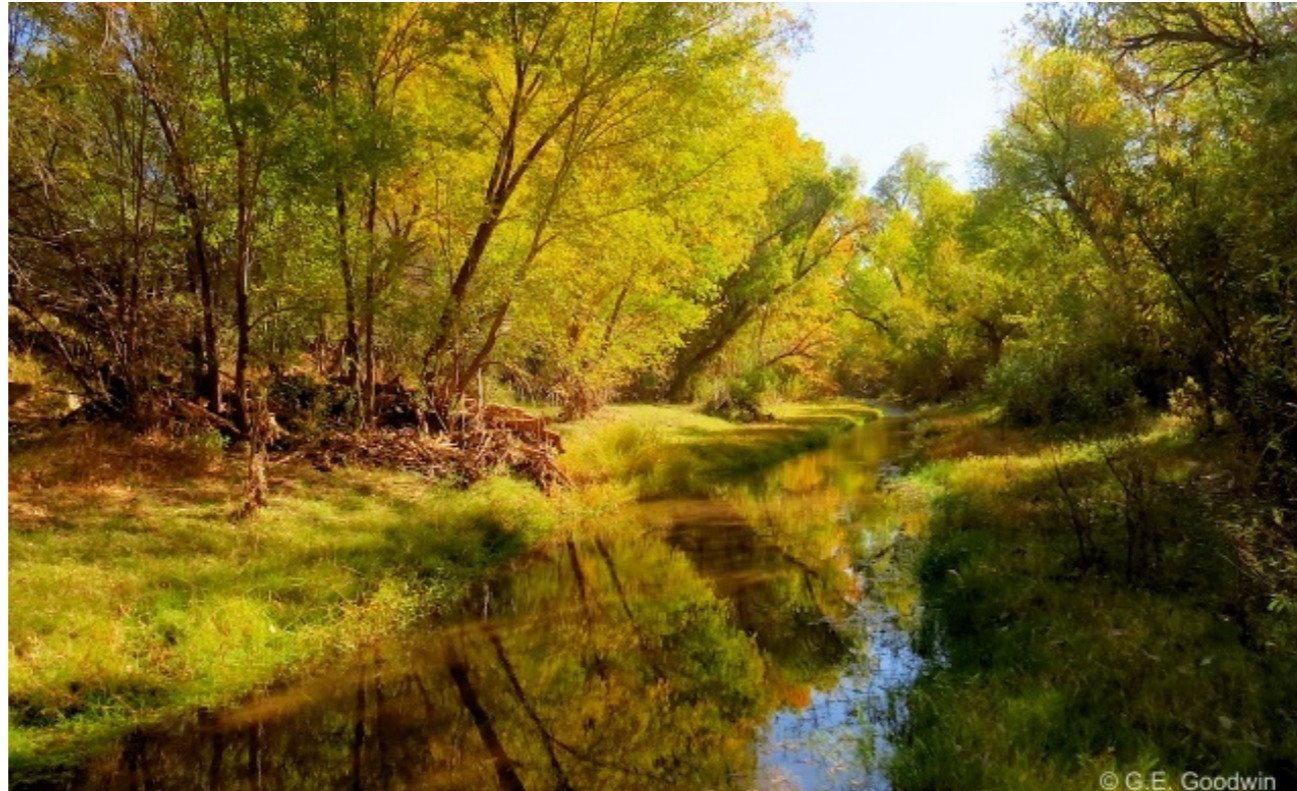
Judge Shedden’s opinion will be publicly released on or before June 21, 2022. That opinion will be forwarded to the Water Quality Appeals Board which will consider the Judge’s opinion in making its final decision.

PARA’s requests for modification of the permit are reasonable and scientifically based:

- Points of Compliance (*key location/s where levels of contamination or exposure can be screened*) be constructed before any mine dewatering activity.
- A system of early warning Points of Compliance with minimum monthly monitoring.
- Baseline data (*collection of prior information*) must be collected for a minimum of one full year before any large discharge.
- Background data on stream sediments in lower Harshaw Creek must be collected in advance of any significant discharge.
- All compliance monitoring and background data collected must be released to the public.
- A complete hydrologic study (*study of water*) must be conducted on the effect of the Hermosa Mine discharge to Harshaw Creek on downstream drinking water aquifers.

PATAGONIA AREA RESOURCE ALLIANCE

- collaborates with Strategic Partners to protect the water, land and wildlife of the Patagonia Mountains and the Sonoita Creek Watershed from the negative impacts of modern industrialized mining,
- works to assure that any mining activities meet the highest science-based standards of protection of our region’s natural assets, and
- supports the expansion of the nature-based restorative economy that depends on the remarkable biodiversity and cultural heritage of our region.



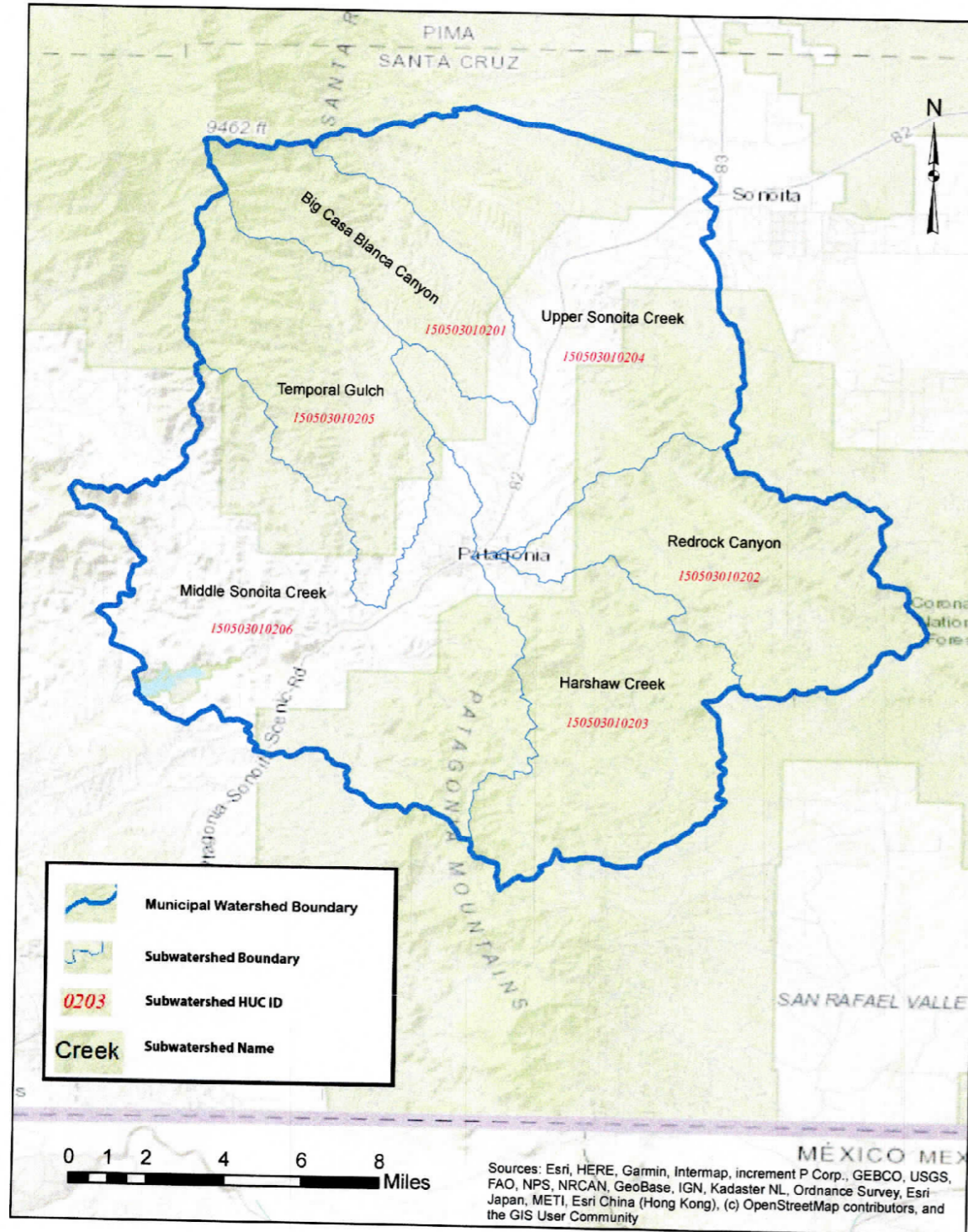
Town of Patagonia Flood & Flow Committee

- (i) advises the Town of Patagonia on water issues within the jurisdiction of the town government,**
- (ii) looks at the watershed area to influence upstream conditions and to minimize negative downstream consequences, and (iii) informs the public about watershed activities**

and includes representatives from these environmental non-profit organizations:

**Borderlands Restoration Network
Friends of Sonoita Creek
Patagonia Area Resource Alliance
The Nature Conservancy Sonoita Creek Preserve
Tucson Audubon Paton Center**

Patagonia Municipal Watershed



The Forest Service has designated the subwatershed areas of

- Upper Sonoita Creek
- Middle Sonoita Creek
- Redrock Canyon
- Harshaw Creek
- Big Casa Blanca Canyon
- Temporal Gulch

as a recognized Forest Service Municipal Watershed for the Town of Patagonia.

The Flood & Flow Committee is working with the US Forest Service to draft Watershed Restoration Action Plans and to understand the ongoing remediation of historical mine areas.

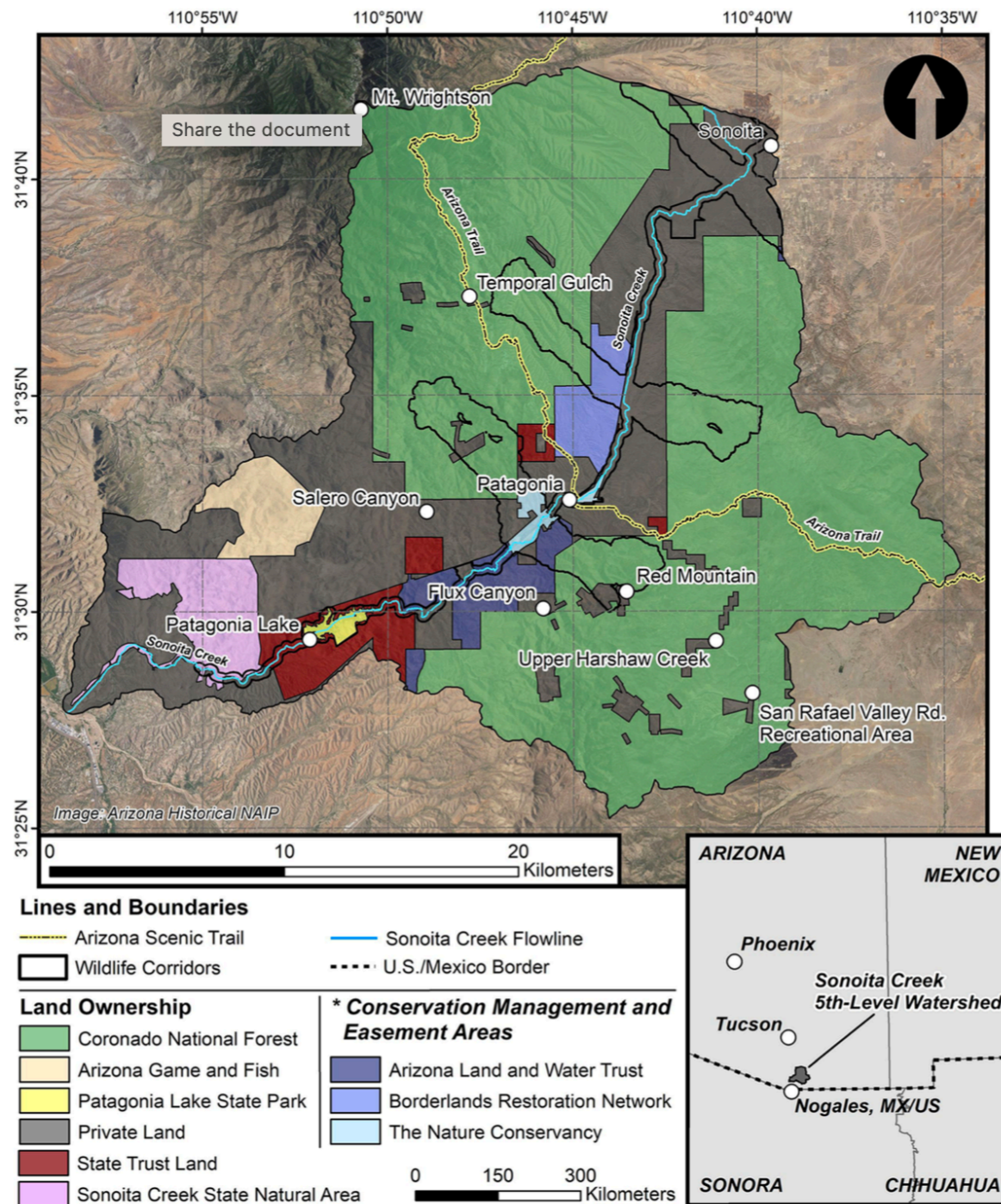


Figure 1. Ownership and land management entities for the study area—Sonoita Creek 5th-level watershed.

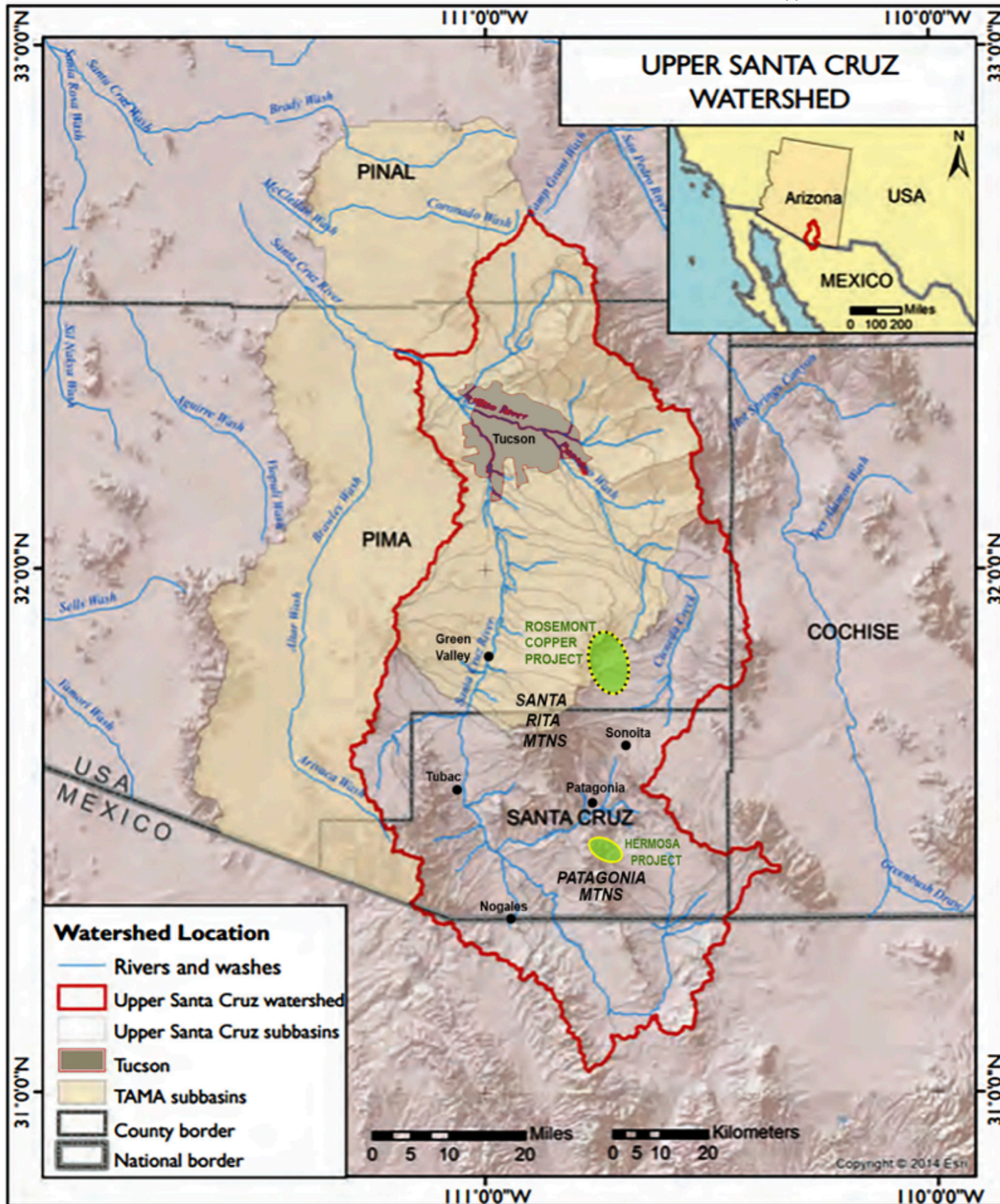
Image Credit: “Mapping Perceived Social Values to Support a Respondent-Defined Restoration Economy: Case Study in Southeastern Arizona, USA” paper by Petrakis, Norman, Lysaght, Sherrouse, Semmens, Bagstad and Pritzlaff

The Sonoita Creek Watershed has unique geological features, six biomes with a great diversity of plant and animal species and vast natural beauty. There are over 300 species of birds, 600 species of native bees, 300 types of butterflies and moths, and more than 100 federal threatened, endangered, and sensitive species.

It is a cultural crossroads with archeological evidence of Tohono O’Odham and Pascua Yaqui presence, a Spanish colonial past, and a history of mining during the 1860-1960 period and a long history of ranching that continues today.

The watershed will experience increased commercial activities including significant proposed 21st century industrialized mining activity.

SONOITA CREEK WATERSHED
is an important tributary to the Santa Cruz River



The Sonoita Creek Watershed is a major tributary of the Upper Santa Cruz Watershed.

The Sonoita Creek Watershed is defined by the Santa Rita mountain range on the North, the Patagonia mountain range on the South, and the unincorporated area of Sonoita on the West running through the Town of Patagonia and Lake Patagonia to join the Santa Cruz River near Rio Rico, Arizona.

The origin of the name Sonoita is the local Hohokam tribal word *Şon 'Oidag*, which is best translated as "spring field."



The Sonoita Creek Watershed is lacking in long term research and data that is essential to determining the present and future ramifications of the demands on its most precious resource —

WATER

The Flood & Flow Committee has drafted a Sonoita Creek Watershed Management Plan (Phase 1)

The active Flood & Flow Committee projects:

- Working with the University of AZ Water Resources Research Center to gather water data and prepare a Drought Preparedness Plan for a Water Resilient Community
- Designing a Flood Mitigation Project
- Commenting on a floodplain permit application by South32 for its Cross Creek Connector Road



While there are many studies needing to be accomplished, a recent graduate student study included these recommendations:

Pumping

Monitor pressure in Halshaw Creek channel sediments using transducers in existing wells and impermanent piezometers;

Set up a weather station or gain access to the data from an existing weather station in the mountains. Precipitation data from a weather station is essential for future monitoring of groundwater resources;

Monitor artesian pressure at Hale Ranch and the Humboldt Canyon Flowing well (site 6 and 21). Changes in pressure, correlating with pumping will indicate hydrologic connectivity to these areas;

Monitor spring flow at Harshaw Creek spring (site 13), and,

Climate Change

During times of extended drought, monitor high elevation springs; Paymaster, Miller, Farrell and Humboldt (sites 1, 2, 4 and 5), as they are most susceptible to drying up due to drought.

Alongside the above recommended steps, recommendations for continued research include:

Annual or bi-annual sampling and testing of the Town of Patagonia well for sulfate isotopes (^{34}S and ^{18}O) to monitor the contribution of water from the Patagonia Mountains via Harshaw Creek to the Town of Patagonia well;

PLEASE watch the recording of the May 25, 2022 recording of the Flood & Flow Committee meeting (link previously shared by Angie) as there were extensive comments by Committee participants about South32's request for feedback on its proposed dewatering program (Angie's presentation begins at minute eight of the recording).

Thank you.



Appendix D

Groundwater impacts from dewatering and mining activities

What is your concern?	groundwater	wildlife impact	agriculture impact	time horizon	surface water	S32 accountability	In relation to what South32 dewatering related activity (specifically, if possible)?	If relevant, what would recommend to be an appropriate mitigation strategy? (leave blank if no answer)
Species loss due to changes in water shed		x			x		Pumping and dumping water into Sonoita and Harshaw Creeks	Nature Conservancy monitoring and reporting consistently over the life of the mine.
What is the regional footprint of impacts due to dewatering?	x	x	x		x	x	Are any dewatering or contamination impacts expected to affect the San Rafael Valley (east side of Patagonia Mountains Divide)?	
Ground recharge and potential development of acid mine drainage (AMD)once the dewatering activity has stopped.	x		x			x	Ground water recharge and AMD	Address the concern to recharge and AMD
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x			x	x		Do we expect water that is pumped into Harshaw drainage to return to deep mountain block aquifers? Over what time frame?	
How much discharge will be used in mining operations?	x				x		Extraction and processing of minerals on-site	Recycle discharge multiple times for reuse in processing.
Will dewatering reduce availability of water to the region below the region's needs over time?	x			x			Discharge of groundwater	Measure existing supply of groundwater. Calculate reduction due to discharge. Estimate remaining supply vs projected future needs.
Will the dewatering of the ground affect the drinking and irrigation water in Santa Cruz County?	x	x	x	x			Will dewatering diminish reserves or pollute the water used by the community and wildlife? How will it affect farms??	50 water supply projections.
Will there be water for Patagonia after the life of the mine?	x					x	Sucking water from the environment for the life of mine.	

Appendix D

Water quality related to dewatering and mining activities

What is your concern?	groundwater	wildlife impact	agriculture impact	time horizon	surface water	S32 accountability	In relation to what South32 dewatering related activity (specifically, if possible)?	If relevant, what would recommend to be an appropriate mitigation strategy? (leave blank if no answer)
Accident prevention plans to avoid contamination or flooding			x			x	What can be developed now to circumvent any dewatering contamination issues in the future? Discharge and recharge of water	Identify all areas of mining activity, processing and transportation that could, if go awry, contaminate water supply or result in flooding. Develop contingency plans to prevent or remediate the damage.
Monitoring-groundwater and surface water where does it go?	x				x			
What is the regional footprint of impacts due to dewatering?	x	x	x		x	x	Are any dewatering or contamination impacts expected to affect the San Rafael Valley (east side of Patagonia Mountains Divide)?	
Pollutants released during dewatering? Will Patagonia have access to clean, potable water?	x			x	x		What are strategies to prevent contamination issues? We have learned about dewatering without focusing on the actual quality of water for community residents not only Patagonia. Will South32 have ultimate responsibility on treating the water prior to discharge to prevent contamination?	Frequent and multiple monitoring stations; include in GNA
Ground recharge and potential development of acid mine drainage (AMD)once the dewatering activity has stopped.	x	x	x				Ground water recharge and AMD	Address the concern to recharge and AMD
That all goes well during the startup stages but "X" years down the road, things change with respect to the quantity and quality of water being discharged.	x	x	x	x	x	x	How can the citizens in the area that will be impacted by the dewatering ensure AMI/South 32 will respond appropriately?	Formalize the responsibility for long term monitoring and proactive mitigation in the GNA by South 32 agreeing to employ an independent third party that will perform those tasks for the life of the mine.
Monitoring the quality of water.								
Monitoring- how do monitoring operations impact water availability around the area?								
Based on the updated impact simulation (see above), state and show what springs, seeps, wells, monitoring wells are impacted by the dewatering activity and/or the release of treated waters into the creek.	x				x		Dewatering of springs, seeps, wells, monitoring wells, etc.	Provide the requested data
How will discharge be cleaned before being returned to streams, whether previously used in processing or not?	x		x				Sanitation of discharged water	Measuring composition of "raw" discharge water to establish a baseline. Measure composition of water prior to release back into environment. Establish desired standard of water composition. Implement water sanitation processes to meet desired standard.
Will the removal of the ground water cause dangerous geological formations like the sinking of land?	x			x		x		
How to monitor the aquifer's ability to recharge while dewatering is happening?	x			x			Pat Riser has said they will not shut down to monitor the aquifer at various points in time to ensure its viability to recharge.	
Long-term water quality and acidification impacts	x		x			x	Water will likely continue to move underground and someday when the dewatering process (and mining) ends, the areas that were dewatered will refill with water that is much more acidic.	
If the community is potentially going to monitor the mine's dewatering activities through an agreed upon GNA, will details of the dewatering system be made available?						x	What is South 32's dewatering system?	Address the issue of potential water storage, where and future use
Who is responsible for running models 5, 10,15 years from now?						x	Will model be peer reviewed, as it should be?	
How will the chemicals used in the South 32 dewatering process impact Harshaw and Sonoita Creeks?			x			x	in the event of accidental contamination, how will south 32 protect water aquifers and surface water	
What have other mines done successfully in regards do recovery after closure						x	how much groundwater will naturally restore after closure	

Appendix D

Long-term impacts of dewatering and mining activities

What is your concern?	groundwater	wildlife impact	agriculture impact	time horizon	surface water	S32 accountability	In relation to what South32 dewatering related activity (specifically, if possible)?	If relevant, what would recommend to be an appropriate mitigation strategy? (leave blank if no answer)
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x			x	x		Do we expect water that is pumped into Harshaw drainage to return to deep mountain block aquifers? Over what time frame?	
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x			x	x	x	will returning cement-mixed tailings back into the mountain system change the porosity, permeability, and groundwater path/flow rate in the mountains	
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x			x	x		What is the projected change in hydraulic head along the groundwater divide? How is this expected to impact direction of flow and magnitude of flow?	
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x	x		x	x		How does the dewater process impact the rheology of the bedrock?	
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x			x	x		How might future movement along existing Quaternary faults impact the water flow?	
Long-term changes in the geomorphology, hydrology, rheology, recharge, and ecosystem conditions in areas affected by dewatering and mining	x			x	x	x	What are the projected ecologic impacts to the Harshaw system with the new potentially perennial system (upstream)? How will these be measured?	
Will dewatering reduce availability of water to the region below the region's needs over time?	x			x			Discharge of groundwater	Measure existing supply of groundwater. Calculate reduction due to discharge. Estimate remaining supply vs projected future needs.
Will the dewatering of the ground affect the drinking and irrigation water in Santa Cruz County?	x	x	x				Will dewatering diminish reserves or pollute the water used by the community and wildlife? How will it affect farms??	50 water supply projections.
That all goes well during the startup stages but "X" years down the road, things change with respect to the quantity and quality of water being discharged.	x	x	x	x	x	x	How can the citizens in the area that will be impacted by the dewatering ensure AMI/South 32 will respond appropriately?	Formalize the responsibility for long term monitoring and proactive mitigation in the GNA by South 32 agreeing to employ an independent third party that will perform those tasks for the life of the mine.
After dewatering stops will aquifer recover to levels prior to dewatering? How long will it take?	x			x		x	Given that Ty has said the aquifer could take a long, long, long time to recover, how can the length of time to recover be shorten?	
If the drought continues for 20-30 years, or the life of the mine, combined with dewatering, what impact will this have on the aquifers of Santa Cruz county?	x							
Pollutants released during dewatering? Will Patagonia have access to clean, potable water?	x				x		What are strategies to prevent contamination issues? We have learned about dewatering without focusing on the actual quality of water for community residents not only Patagonia. Will South32 have ultimate responsibility on treating the water prior to discharge to prevent contamination?	Frequent and multiple monitoring stations; include in GNA

Appendix D

Long-term impacts of dewatering and mining activities

What is your concern?	groundwater	wildlife impact	agriculture impact	time horizon	surface water	S32 accountability	In relation to what South32 dewatering related activity (specifically, if possible)?	If relevant, what would recommend to be an appropriate mitigation strategy? (leave blank if no answer)
How will dewatering impact the region's groundwater? How will the mine impact the water security of the region?	x					x	How will dewatering impact the quality of water for Patagonia and other communities in Santa Cruz county? How many dewatering wells will be needed and what are maximum pumping capacities of each well? What are dewatering well coordinates and locations?	
How long will dewatering be needed?				x			Four to five years or the life of the mine?	

PARA Water Strategy

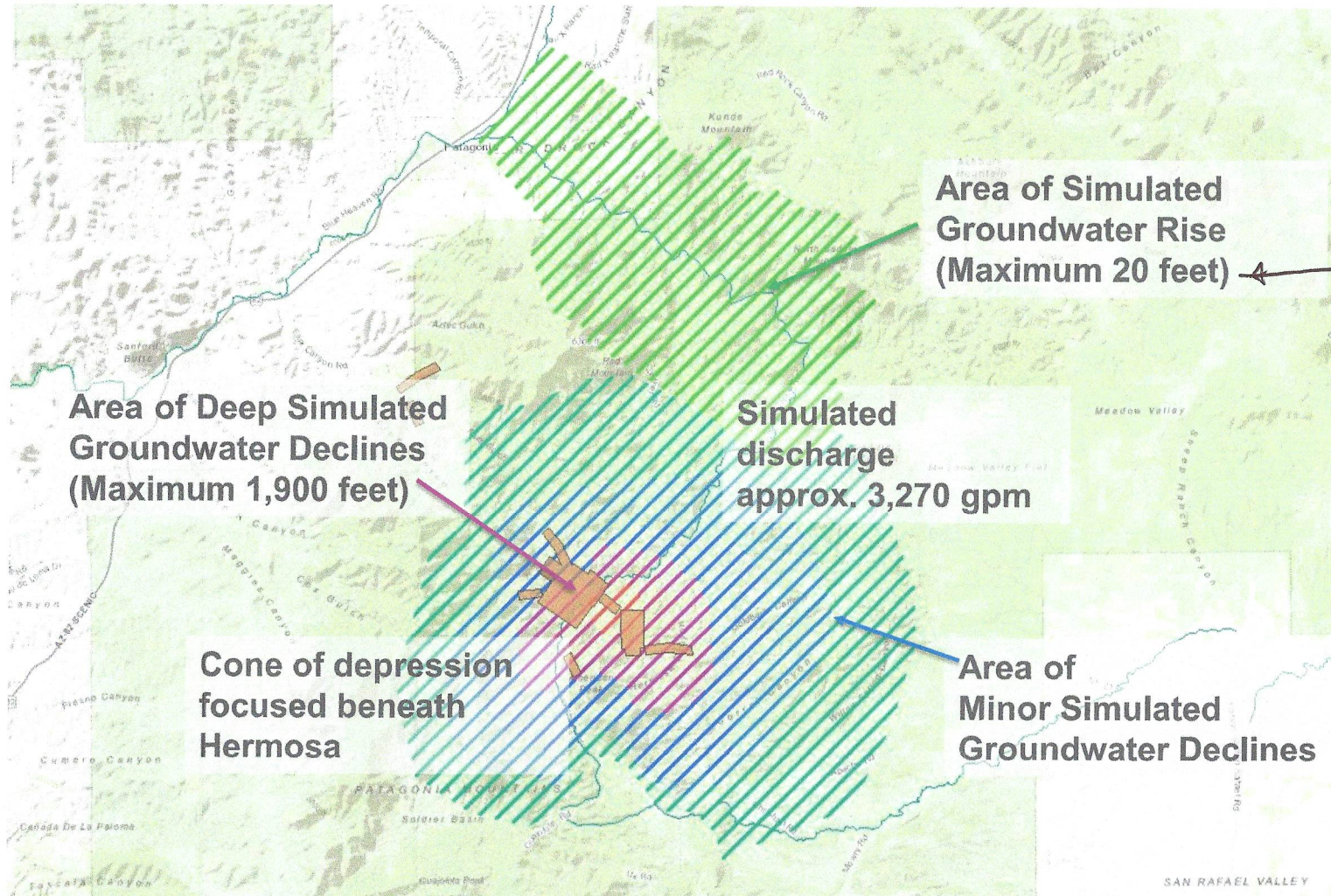
For Santa Cruz County Advisory Panel Meetings

Questions and Comments for S32 Panel: (“Filtering” should be a team effort – not just Ty)

- What is the timeline for Q/Cs? (Ask Angie)?
- How long will dewatering be needed? (4-5 years, or during the entire life of the mining operation?)
- How many dewatering wells will be needed and what will be the maximum pumping capacities of each well?
- What are the exact locations (geographic coordinates) of the dewatering wells?
- What is the Mean Sea Level (MSL) elevation of the bottom of the deepest dewatering well?
- What is the predicted aerial extent (radius) of the dewatering cone of depression?
- What is the Mean Sea Level (MSL) elevation of the bottom of the expected cone of depression?
- Are any dewatering or contamination impacts expected to affect the San Rafael Valley (East side of Patagonia Mountains divide)?
- Will dewatering create a groundwater mound somewhere downstream?
- Will a Clean Water Act (CWA) Section 404 permit be required for any earthen alterations to Harshaw Creek’s channel at the WTP#2 discharge point?
- What are the three “different purposes” for the three different models?
- The **single most important purpose** of an integrated hydrologic model is: **“to assess the complex groundwater-surface water dynamics and to evaluate the real long-term risks of dewatering and contaminant transport from WTP2 and Harshaw Creek to all downstream drinking water wells and riparian ecosystems.”**
- Therefore, **one** integrated hydrologic model should be used to assess the complex groundwater-surface water dynamics and to evaluate the real long-term risks of dewatering and contaminant transport from WTP2 and Harshaw Creek to all downstream drinking water wells and riparian ecosystems; like MIKESHE for the WHOLE system. Higher resolution models for more specific purposes can be “nested” into a comprehensive system model like MIKESHE.
- Model should extend to some point downstream of Alum Gulch and the geologic narrows (*shunting*) that causes groundwater to surface near the Circle Z Ranch, or downstream to Patagonia Lake inflow.
- Will the model be “peer reviewed”; as it should be?
- Will fractured rock be carefully analyzed with known faults and thrust zones, or will it be mistakenly modelled as a homogenous media?
- Will electro-magnetic fly-over mapping be used in the model to accurately represent the subsurface geology bedrock basement complex?
- **WHY** won’t S32 share well monitoring data from Patagonia “contracted” residents?
- **WHY Not** share all environmental information to be a transparent “Good Neighbor”?

Question from Fritz Sawyer - Can South32 provide updated "Impact Simulation" (dewatering depth of 4,500 feet at pump rate of 3,200 gpm)?

Preliminary Impact Simulation for Exploration Dewatering



1. Receive input on alternative/beneficial uses of water that align with community values

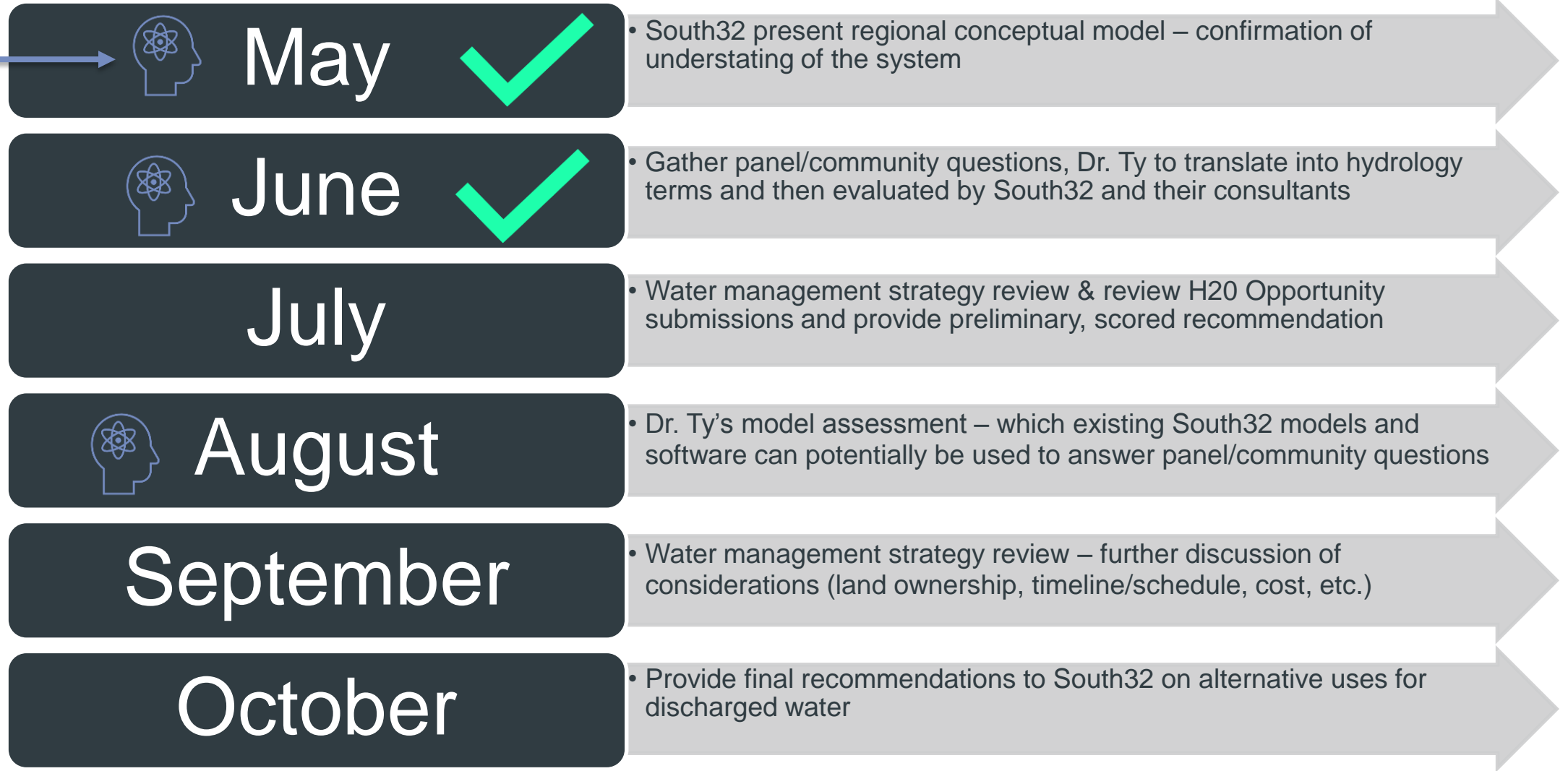
- To achieve this, the panel requested additional information to increase understanding of groundwater and surface water management
- Panel voted/agreed to retain the assistance of a third-party hydrologic intermediary, Dr. Ty Ferre

2. Develop water management plan with panel recommendations that aligns with community preferences and priorities

- Plan can be ongoing and can be reviewed regularly– can develop additional specific goals to address community concerns and questions
- The input on alternative/beneficial uses of water can be “part 1” of this plan

ROADMAP VISUAL

Involves Dr. Ty Ferre as reviewer & third-party hydrologic intermediary



Good Neighbor Agreements

A brief presentation on their negotiation, design, and
implementation

David Eduardo Morales

15 June 2022

PLEASE NOTE

- This presentation is not intended to be a substitute for reading the report.
- This presentation and the associated report are intended for anyone interested in learning about Good Neighbor Agreements.
- As such, provided content is not an endorsement for any specific action to be taken by any party; it is solely for educational purposes.

GNA's are...

“...instruments that provide a vehicle for community organizations and a corporation to recognize and formalize their roles within a locality.. [in order to] foster sustainable development in a community by reconciling economic development with the community's welfare.” (Lewis and Henkels, 1996)

...for communities interested in cooperative coexistence with local industry.

GNAAs are not...

...intended to eliminate unwanted businesses from a region.

...one-size-fits-all.

...an alternative to effective federal and state regulation and enforcement.

GNAAs are also...

...a process!

GNAAs can be viewed as a three-step process.

Bringing the
corporation to
the table

Negotiation
and design

Implementation

Negotiation and design

- Neither side has the entire picture
- Requires consistent, effective communication
- Both parties need to participate in the heavy lifting, cannot be one-sided
- Both sides are interested in arriving at a mutually beneficial conclusion



Benefits of negotiation process include...

- ...the ability to harmonize the diversity of community values.
- ...an opportunity to identify and address specific issues of concern.
- ...greater flexibility not available through exclusionary strategies.
- ...the potential to arrive at mutually beneficial agreement.

Challenges with the negotiation process include...

...knowing today what you need to know tomorrow.

...asking the right questions about industry-related impacts.

...the resource intensiveness associated with contract design and development.

The last step never really ends.

Bringing the
corporation to
the table

Negotiation
and design

Implementation

Implementation

- Offers a structure to organize and accomplish important tasks
- Tailored to suit specific needs
- Utility of the planner hinges on the effort put forward by the user
- Does not transfer responsibility of completing tasks to itself
- Usually abandoned by mid-March



Advantages to GNA implementation include...

...affixing corporate responsibilities to contractual obligations.

...increased corporate accountability where regulatory bodies have failed.

...the disclosure, mitigation, and reduction of negative impacts caused by local industry on surrounding communities

Challenges with GNA implementation include...

...requiring constant vigilance and participation in monitoring duties.

...maintaining community interest in administering the agreement.

...the resource intensiveness associated with monitoring, oversight, and administration responsibilities.

...the abrogation of rights to contest permits or litigate related issues in the future.

Survey Questions

- Are there nearby attorneys with experience in GNAs or contract law?
- How is the community limited by GNAs?
- Will the company provide a “complete and accurate” picture of environmental/social impacts on the community?
- Can a trust be established to allocate shared profits for GNA administration/fund clean-up efforts?
- How can the NPRC GNA be used to inform an agreement with South 32?
- GNA sustainment concerns regarding funds and community effort
- Who would sign the GNA? NGOs, groups, etc?

Any more questions?

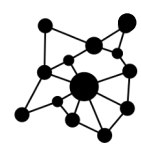
Contact:

DEMORALES@EMAIL.ARIZONA.EDU

Workforce Outcomes 2.0

SHORT (up to 12 months) Outcomes that reflect learning and knowledge.		MID (1-2 years) Outcomes that reflect changes in behaviors	LONG (2+ years) Outcomes that reflect state changes.
<ol style="list-style-type: none"> Understand and determine how to facilitate engagement and cross-sector conversations among, entrepreneurs, small business, industry, education, community orgs, and local government Assess specific employer talent needs and identify: <ul style="list-style-type: none"> desirable compensation/motivation to incentivize participation in skills training training timelines for skill development, prioritizing critical reasoning, soft skills training, and alignment with current/existing programs and initiatives Raise awareness of regional opportunities, programs, and the importance of workforce training and certifications through outreach efforts and events. 		<ul style="list-style-type: none"> Convene a regional coalition responsible for guiding collective impact to facilitate resilient, regenerative community and economic development through agile, iterative collaboration incorporating all sectors from community arts, to education, non-profits, entrepreneurs, business and industry.* Santa Cruz County School Superintendent’s office, through WIB and/or other coalitions, facilitates ongoing dialogue and collaboration among stakeholders to grow and sustain career exploration and job training opportunities that support a resilient, regenerative regional economy that include: <ul style="list-style-type: none"> industry certifications, skills development programs, internships and apprenticeships, CTE pathways, WBL (in and out of school), DE/early college pathways. Identify and offer Bi-National training programs that provide cross-sector training that aligns with regionally identified needs and SC County’s regional economic development strategy. <p>* Potential capacity building opportunity to send group of folks to Strategic Doing training</p>	<ul style="list-style-type: none"> Develop strong relationships among local government, entrepreneurs, business and industry, community organizations, and school systems to create a regional economic ecosystem that is resilient, regenerative, and enriches community and individual well-being. Leverage bi-national, regional expertise in growth economies (green, automated, remote, readiness, and logistics) to create innovative training programs serving local entrepreneurs, business, and industry needs and bringing local knowledge and expertise into international prominence. Ensure that all Santa Cruz County residents (youth and workers) have access to high-quality career education and skills development opportunities, including apprenticeships and other on-the-job training with cross-sector on/off ramps to family supporting careers.
2-4 Month ACTIONS	5-9 Month ACTIONS		
<ol style="list-style-type: none"> SC WIOA and S32 engage in Strategic Planning activities to: <ul style="list-style-type: none"> Assess specific skills and knowledge needed by regional business and industry ID certification options and pathways with cross-sector alignment and support Develop action plan and timeline of activities to achieve shared workforce goals S32 in collaboration with SCC Superintendent of Schools, CFA and ABEC host Strategic Planning process to develop regional alignment and identify areas for collaboration in workforce development efforts related to <ul style="list-style-type: none"> CTE, DE, and Certification pathways Work-based Learning opportunities Gear Up and ESSER College and Career exploration and learning S32 issue an RFP to assess the desirability (bi-national interest, regional need), feasibility (market analysis) and viability (potential industry and education partnerships) of a Bi-national Training Center focused on industries aligned with SC County’s regional economic development strategy. 	<ol style="list-style-type: none"> The Community Advisory Panel, in collaboration with S32 and other partners, hosts Santa Cruz County Economic and Community Development Summit, inviting education, small business, industry, environmental, and community organizations to participate in: <ul style="list-style-type: none"> Collective, regional vision setting Learning about emerging and ongoing opportunities (ARPA funds, ESSER, Gear Up, multi-modal facility, etc.) Identifying clear action steps for continued engagement Incentivize WIB board and WBL engagement by linking S32’s philanthropic support to industry/education partnerships that further regional workforce interests identified by Summit participants. Establish working group of Panel members, S32, and other key stakeholders to develop a 5-year strategy and metrics to meet regional workforce goals informed by Summit outcomes and the Panel’s workforce goals. 		

Long-term Regional Workforce Goals and Outcomes



Develop strong relationships among local government, entrepreneurs, business and industry, community organizations, and school systems to create a regional economic ecosystem that is resilient, regenerative, and enriches community and individual well-being.



Leverage bi-national, regional expertise in growth economies (green, automated, remote, readiness, and logistics) to create innovative training programs serving local entrepreneurs, business, and industry needs and bringing local knowledge and expertise into international prominence.



Ensure that all Santa Cruz County residents (youth and workers) have access to high-quality career education and skills development opportunities, including apprenticeships and other on-the-job training with cross-sector on/off ramps to family supporting careers.

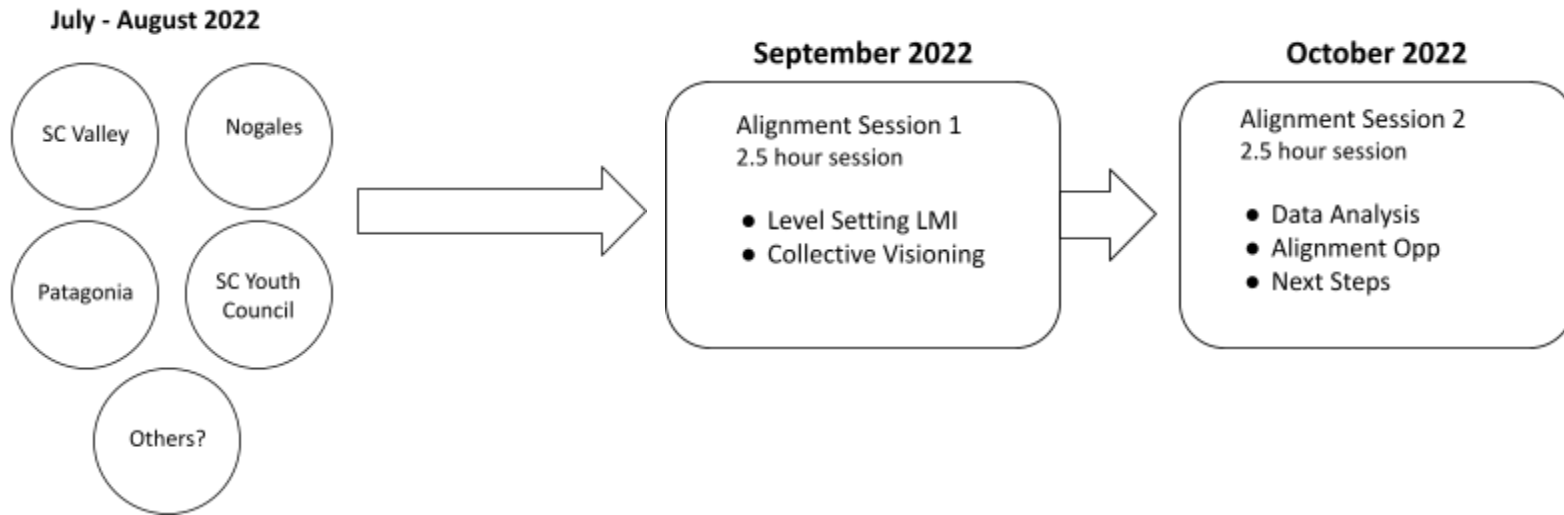
Proposed Action Steps



2-4 MONTH ACTIONS

1. SC WIOA and S32 engage in Strategic Planning to:
 - Assess specific employer talents or skills needed
 - ID certification options and pathways with cross-sector alignment and support
 - Develop action plan and timeline of activities to achieve shared workforce goals
2. S32 in collaboration with SCC Superintendent of Schools, CFA and ABEC host Strategic Planning process to develop regional alignment and identify areas for collaboration in workforce development efforts related to
 - CTE/DE/Certifications
 - Work-based Learning Opportunities
 - Gear Up and ESSER College and Career Pathways support
3. S32 issue an RFP to assess the desirability (bi-national interest, regional need), feasibility (market analysis) and viability (potential industry and education partnerships) of a Bi-national Training Center focused on economies shaping the recovery and future of work (readiness, green, logistics, remote, and automated).

DRAFT - K-12 Workforce Alignment Road Map



<i>Timeframe</i>	<i>Participants</i>	<i>Meeting</i>	<i>Description</i>
July -August	NUSD SCV35 Patagonia SC Youth Council Others?	Initial Convos + Data Gathering	1 hr meetings with district groups to: <ul style="list-style-type: none"> ● Gather information (what is happening and upcoming) ● Share regional and statewide workforce opportunities ● Invite leadership to participate in Alignment Sessions
September	All	Alignment Session 1	2.5 hr meeting with all edu/youth stakeholder leadership to: <ul style="list-style-type: none"> ● Share LMI and workforce projections ● Engage in collective vision setting
October	All	Alignment Session 1	2.5 hr meeting with all edu/youth stakeholder leadership to: <ul style="list-style-type: none"> ● Participate in data analysis to identify key opportunities ● Engage in opportunity alignment convos ● Identify next steps (individual and collective)

Proposed Action Steps



5-9 MONTH ACTIONS

1. The Community Advisory Panel, in collaboration with S32 and other partners, hosts Santa Cruz County Economic and Community Development Summit, inviting education, small business, industry, environmental, and community organizations to participate in:
 - Collective, regional vision setting
 - Learning about emerging and ongoing opportunities (ARPA funds, ESSER, Gear Up, multi-modal facility, etc.)
 - Identifying clear action steps for continued engagement
2. Incentivize WIB board and WBL engagement by linking S32's philanthropic support to industry/education partnerships that further regional workforce interests identified by Summit participants.
2. Establish working group of Panel members, S32, and other key stakeholders to develop a 5-year road map and metrics to meet regional workforce goals informed by Summit outcomes and Workforce GNA.

Workforce Outcomes 1.0



STRATEGY 1: Increase Opportunities through Business and Industry Engagement

<p>SHORT (understanding) Outcomes that reflect learning and knowledge.</p>	<p>MID (doing) Outcomes that reflect changes in behaviors</p>	<p>LONG (being) Outcomes that reflect state changes.</p>
<p>What are the top 2-3 things we should do?</p> <ul style="list-style-type: none"> • Understand/determine how to engage small business with local government 	<p>What are the top 2-3 things we should do?</p> <ul style="list-style-type: none"> • Create community economic development office shared across entire county responsible for <ul style="list-style-type: none"> • marketing • business engagement • business development 	<p>What are the top 2-3 things we should do?</p> <ul style="list-style-type: none"> • Create an environment that's conducive to business development • Develop strong interrelationships between local government, business, + school systems
<p>Who (orgs or indiv.) should be involved? And who has motivating interests?</p> <p>elected officials - county wide Chambers of commerce Nogales Patagonia Tubac</p>		

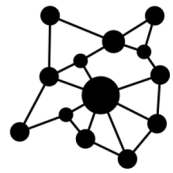
Workforce Outcomes 1.0



STRATEGY 2: Create More Opportunities for Workforce Training and Skills

<p>SHORT (understanding) Outcomes that reflect learning and knowledge.</p>	<p>MID (doing) Outcomes that reflect changes in behaviors</p>	<p>LONG (being) Outcomes that reflect state changes.</p>
<p>What are the top 2-3 things we should do?</p> <ul style="list-style-type: none"> • Assess specific employer talent or skills needed • Outreach/job fairs • Raise awareness of the importance of workforce training and certifications • Identify compensation/motivation to match skills and talent • Timeline for training to obtain skills 	<p>What are the top 2-3 things we should do? strategic and planning meeting to identify detailed skills</p> <ul style="list-style-type: none"> • Educate to change mindsets for both employees and employers • Offer specific certifications required for local industry jobs • Build soft skills 	<p>What are the top 2-3 things we should do?</p> <ul style="list-style-type: none"> • Create a training center or vocational college to meet workforce needs in region • Offer a range of apprenticeships and other on-job training
<p>Who (orgs or indiv.) should be involved? And who has motivating interests? Local WIB WIOA and AZ@Work Produce Association Chambers South 32</p>	<p>Who (orgs or indiv.) should be involved? And who has motivating interests? AZ@Work Produce Association Chambers South 32</p>	<p>Who (orgs or indiv.) should be involved? And who has motivating interests? South 32 State of Arizona Local Industries Community college School Districts Santa Cruz County AZ@Work</p>


Workforce Outcomes 1.0





STRATEGY 3: Develop a Regional Approach to Career/College Readiness

SHORT (understanding) Outcomes that reflect learning and knowledge.	MID (doing) Outcomes that reflect changes in behaviors	LONG (being) Outcomes that reflect state changes.
What are the top 2-3 things we should do? <ul style="list-style-type: none"> • Awareness of what already exists in the County • Awareness of what is needed • Prioritize critical reasoning and soft skills 	What are the top 2-3 things we should do? <ul style="list-style-type: none"> • Santa Cruz County Schools Supt office brings schools together for dialogue 	What are the top 2-3 things we should do? <ul style="list-style-type: none"> • Ensure all SC County students have pathways that lead to career options not just jobs
Who (orgs or indiv.) should be involved? And who has motivating interests? South 32 All schools(consistent) Chambers of Commerce Arizona @ Work SCCPCD County Officers Sky Island tourism businesses Borderlands		

How we got here...

 Panel members share expertise

 Data party!
What do we need to know?

 Research
Interviews + best practices

 Outcomes identification

