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CITY OF SANTA CLARITA

LOS ANGELES COUNTY DEPARTMENT of REGIONAL PLANNING

LACWD

Hydrogeologic Conceptual Model: Geologic Framework and Principal Aquifers

May 29, 2020

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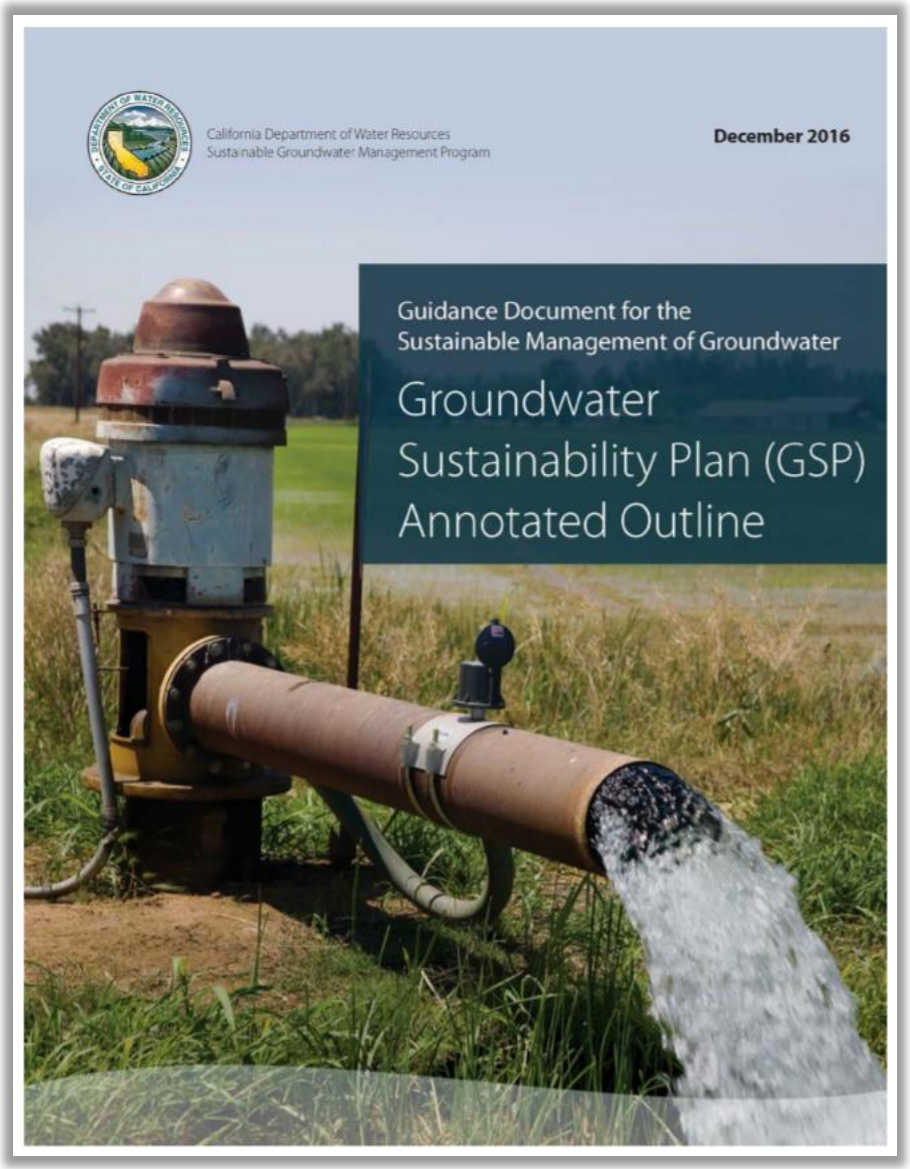
Richard C. Slade & Associates LLC

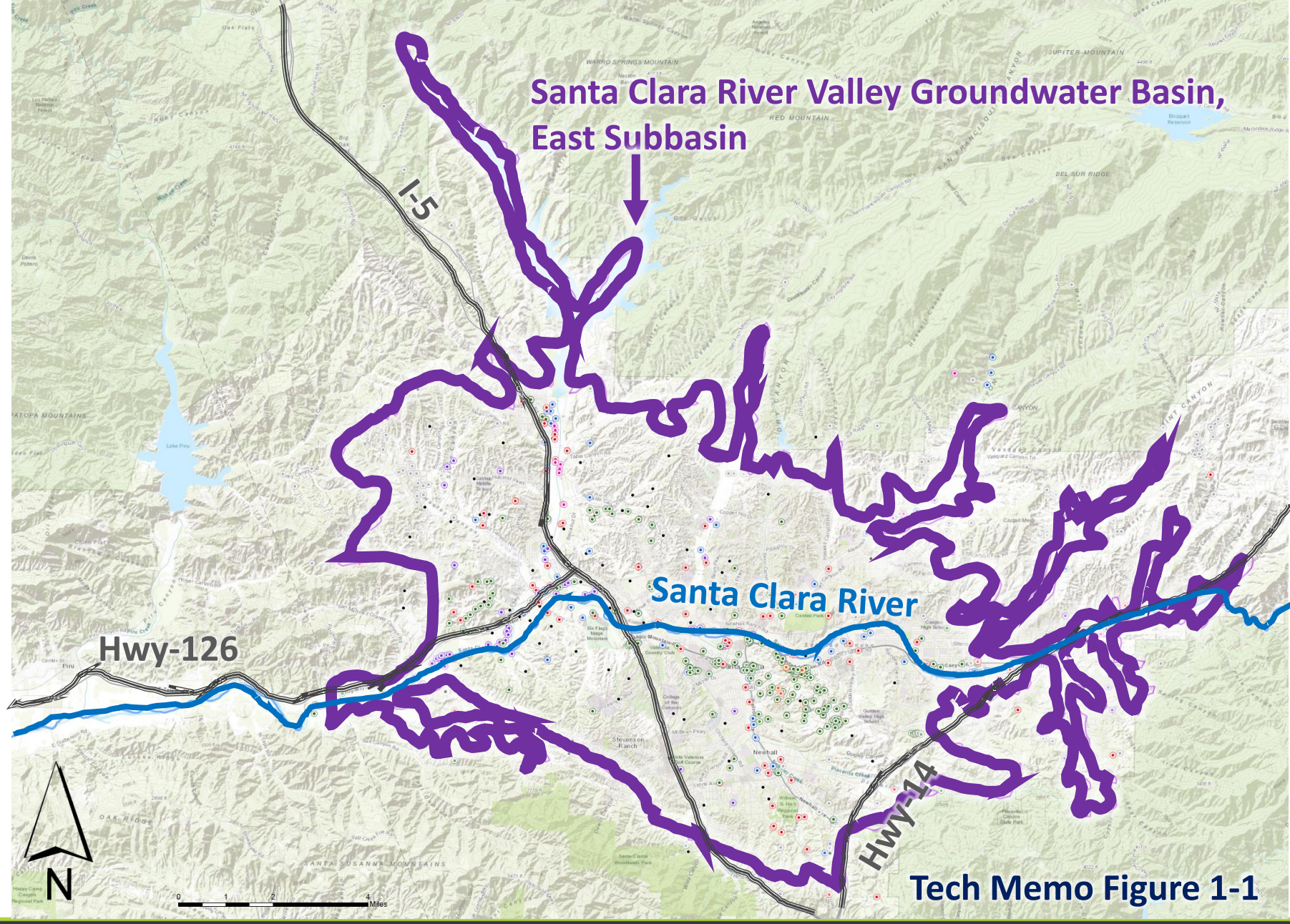
Purpose

- Document the regional geology, principal aquifers, hydrogeologic boundaries and hydrogeologic properties/conditions of the groundwater basin.
- Necessary to comply with Groundwater Sustainability Plan (GSP) Regulation § 354.14 “Hydrogeologic Conceptual Model”
  - California Code Of Regulations Title 23. Waters, Division 2. Department Of Water Resources, Chapter 1.5. Groundwater Management, Subchapter 2. Groundwater Sustainability Plans



Basin Boundaries

- DWR Bulletin 118 Basin No. 4-4.07
- DWR Basin Definition is based on Geology



Tech Memo Figure 1-1

Tech Memo Subject Matter

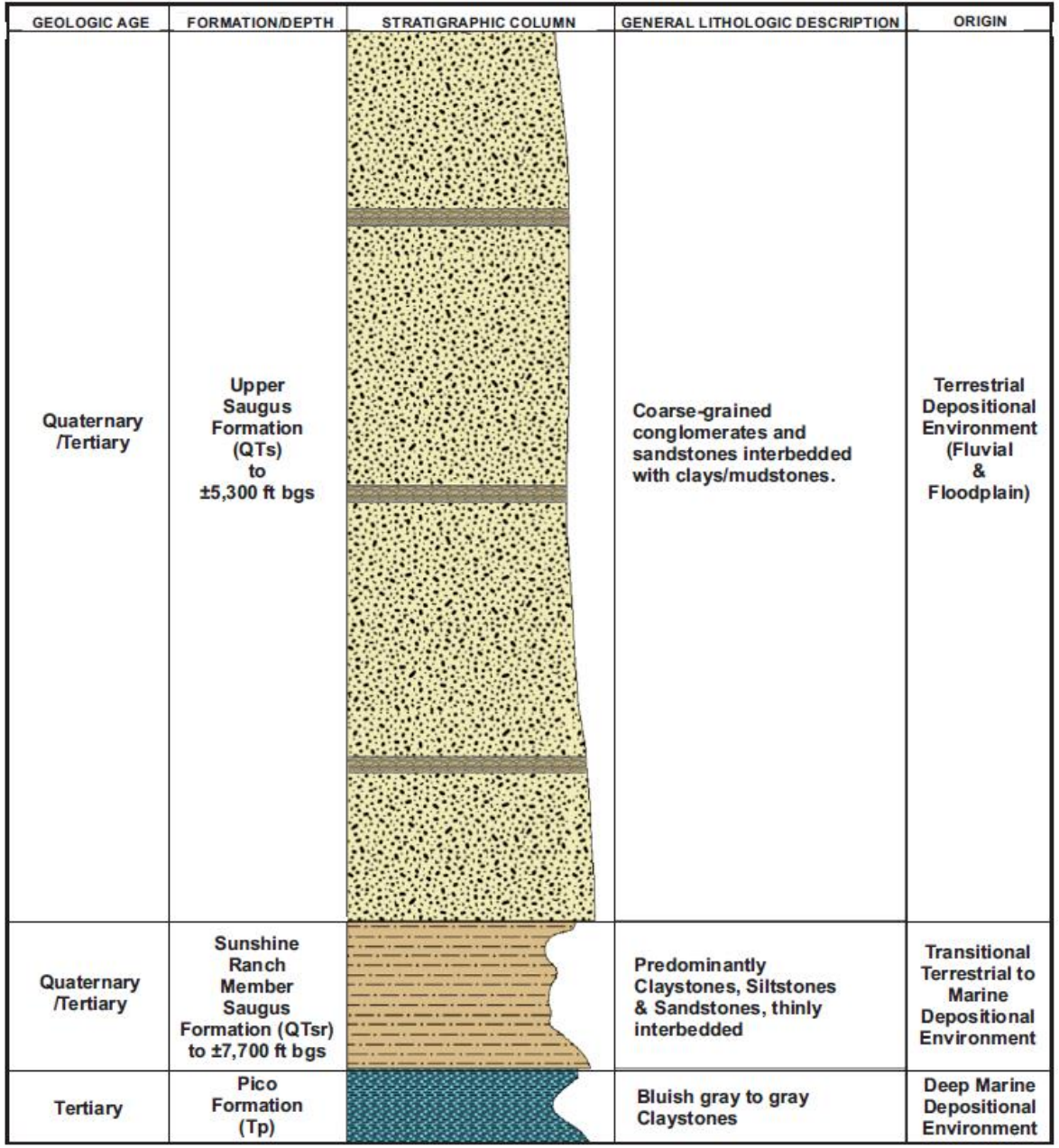
- Topography and Boundaries
- Regional Geology
- Soil Types
- Aquifer Systems and Aquifer Parameters
- Subsurface Interpretation (Cross Sections)
- Groundwater Recharge and Discharge Areas

SECTION 1: 1.0 Hydrogeologic Conceptual Model
- 1.1 Basin Setting
  - 1.1.1 Topography and Boundaries
  - 1.1.2 Soils Infiltration Potential
    - 1.1.2.1 *Soil Types in the Basin*
    - 1.1.2.2 *Soil Infiltration Rates*
  - 1.1.3 Regional Geology
    - 1.1.3.1 *Geologic Formations within the Basin*
    - 1.1.3.2 *Geologic Formations Surrounding the Basin*
    - 1.1.3.3 *Regional Geologic Structures*
  - 1.1.4 Principal Aquifer Systems
    - 1.1.4.1 *Alluvial Aquifer System*
    - 1.1.4.2 *Saugus Formation Aquifer System*
    - 1.1.4.3 *Aquifer Properties*
  - 1.1.5 Cross Sections
    - 1.1.5.1 *Cross Section Preparation*
    - 1.1.5.2 *Cross Section Traces*
    - 1.1.5.3 *Geologic Structures*
    - 1.1.5.4 *Well Log Analysis & Interpretation*
- 1.2 Groundwater Recharge and Discharge Areas within the Basin
  - 1.2.1 Groundwater Recharge
    - 1.2.1.1 *Alluvial Aquifer System*
    - 1.2.1.2 *Saugus Aquifer System*
  - 1.2.2 Groundwater Discharge
    - 1.2.2.1 *Alluvial Aquifer System*
    - 1.2.2.2 *Saugus Aquifer System*

SECTION 2: REFERENCES REVIEWED

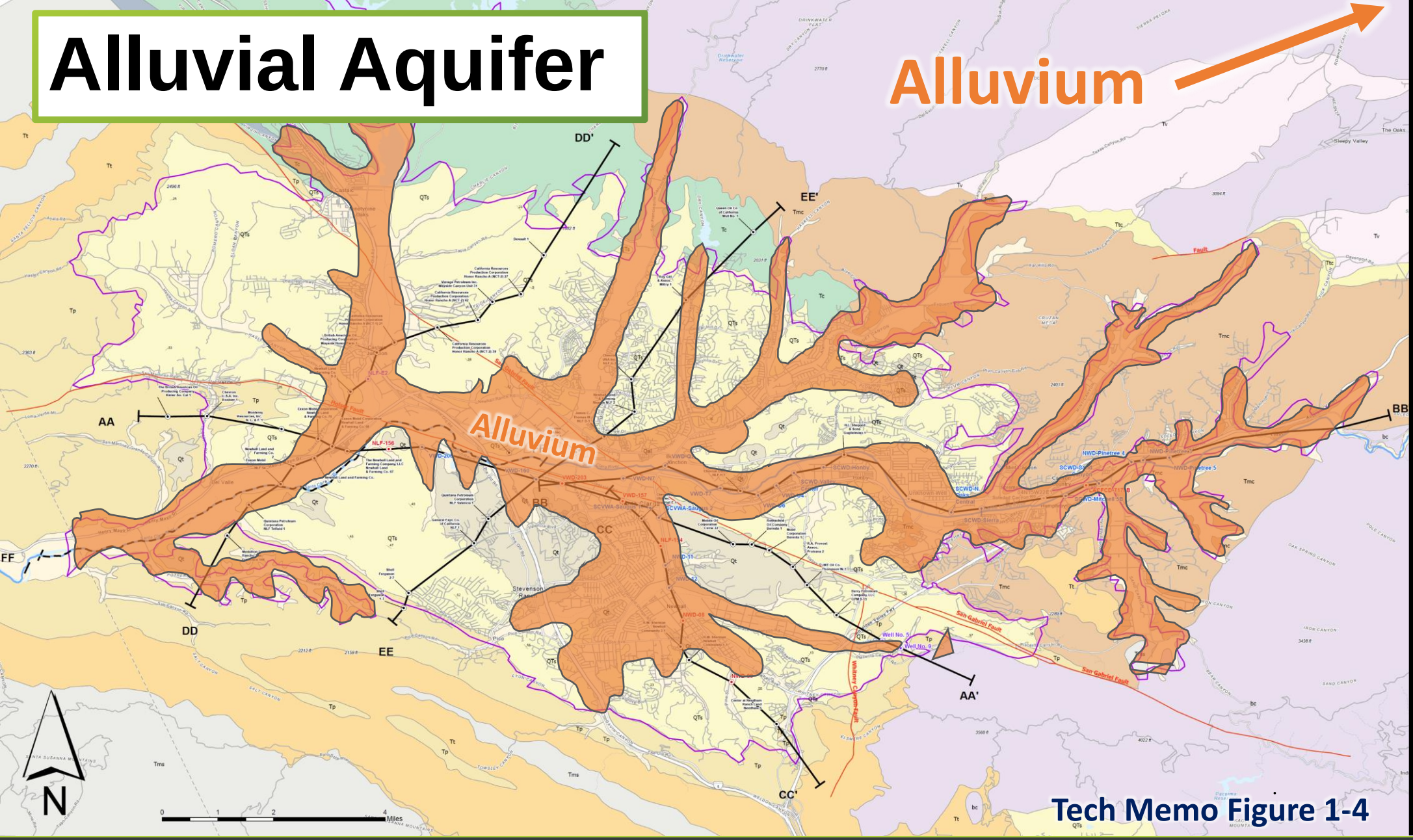
Generalized Stratigraphy

- Alluvium (10K to 0 years)
  - (not shown on column)
- Saugus Formation (3.6M to 1.8M years)
  - Upper Saugus
  - Sunshine Ranch Member
- Pico Formation (6M to 3M years old)
- Other Older Formations

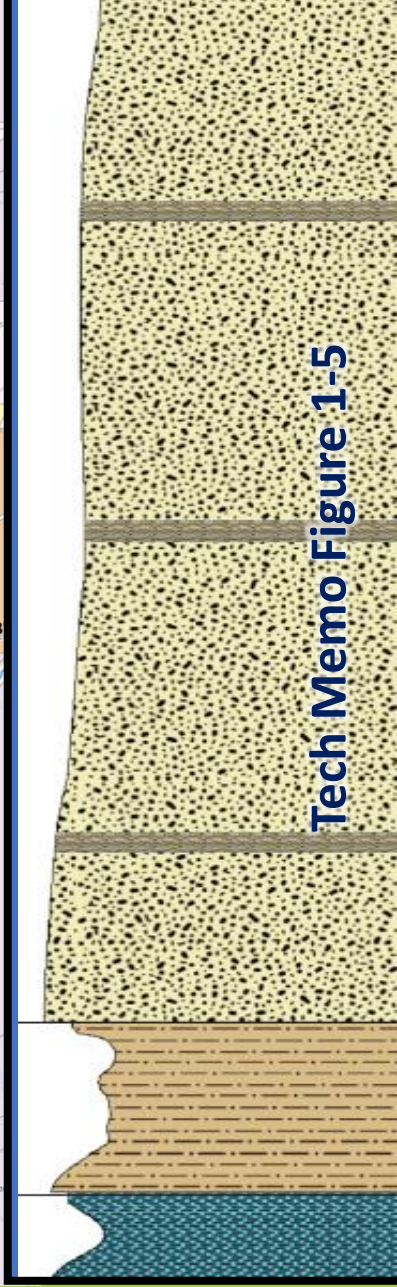


Tech Memo Figure 1-5

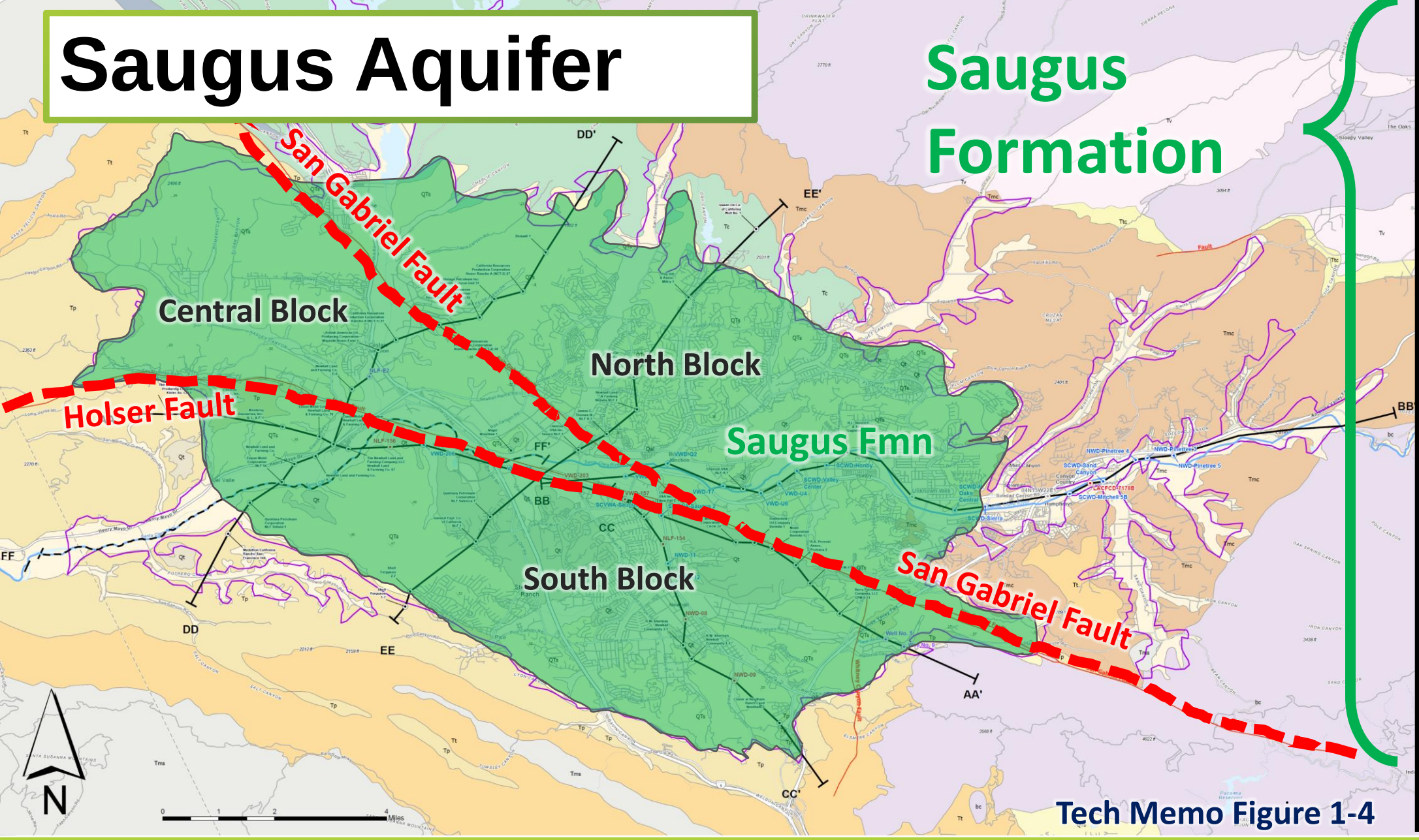
Alluvial Aquifer

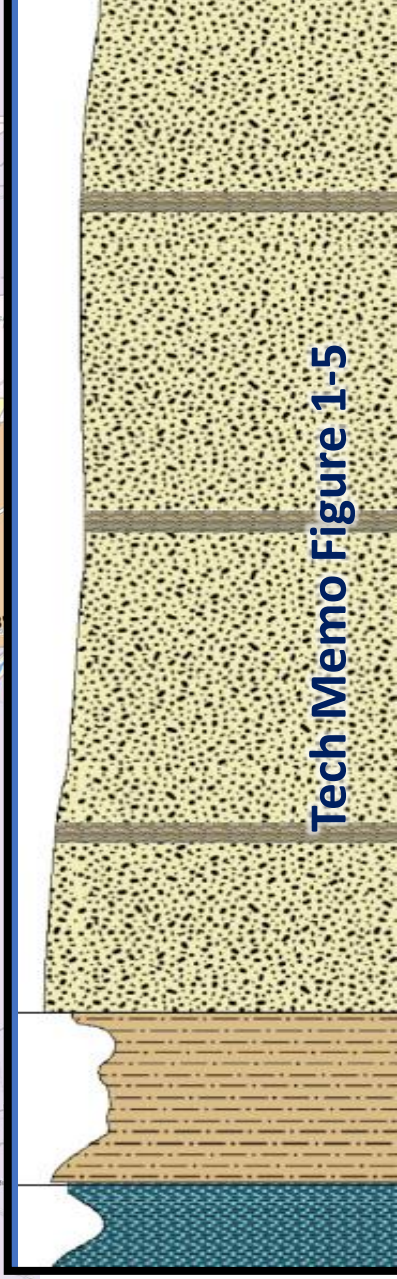


Tech Memo Figure 1-4

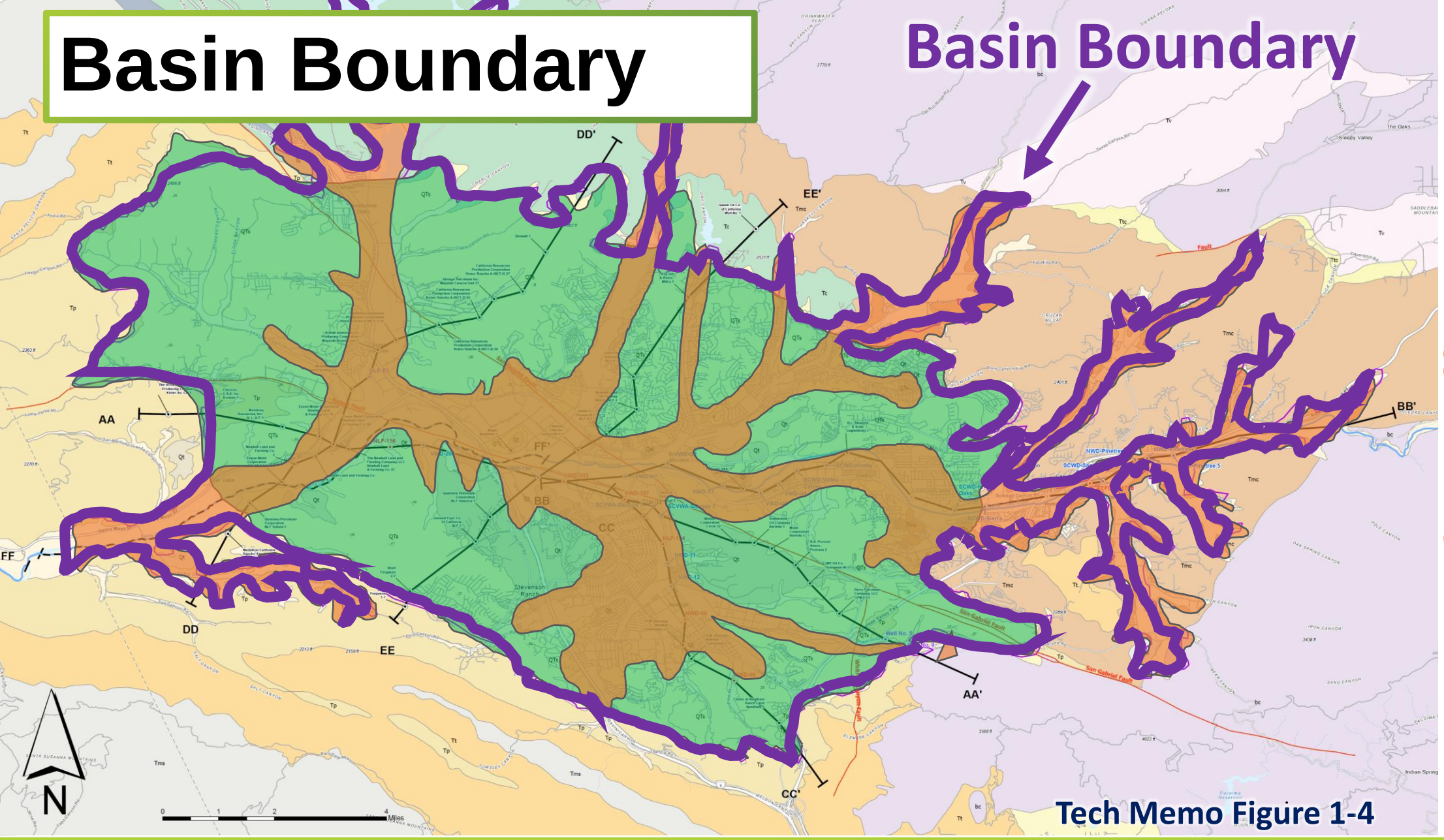


Saugus Aquifer





Basin Boundary

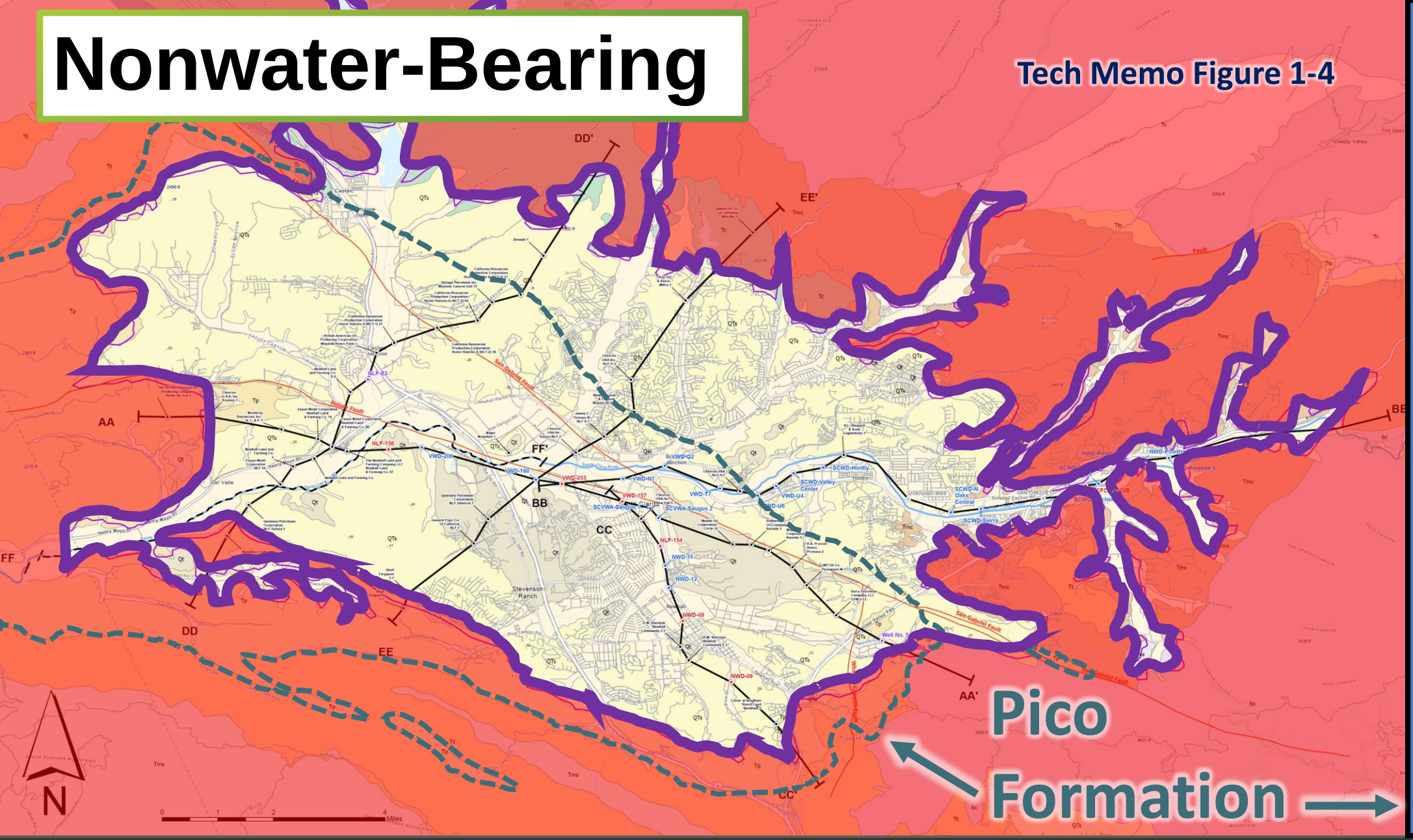


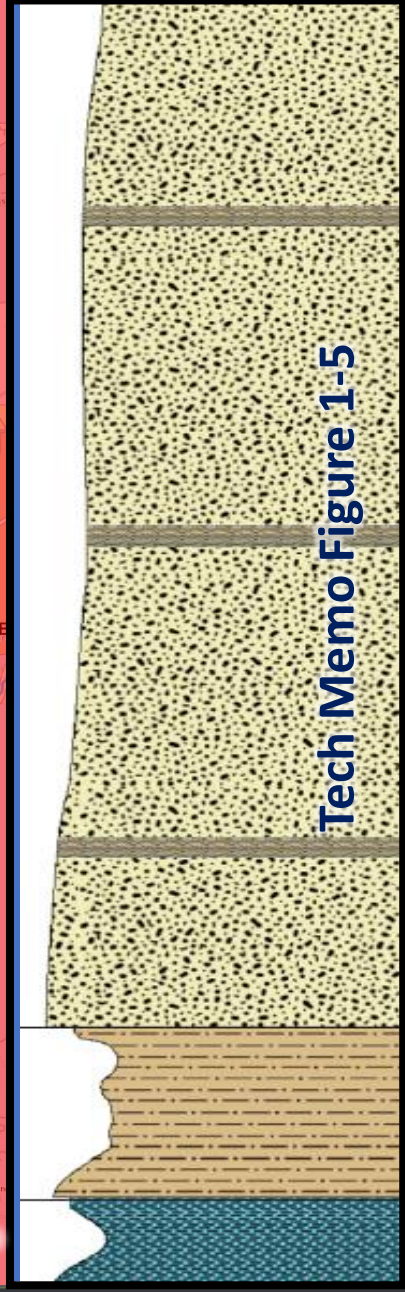
Tech Memo Figure 1-4

Boundary Alluvium + Boundary Saugus Fmn = Basin Boundary

Nonwater-Bearing

Tech Memo Figure 1-4





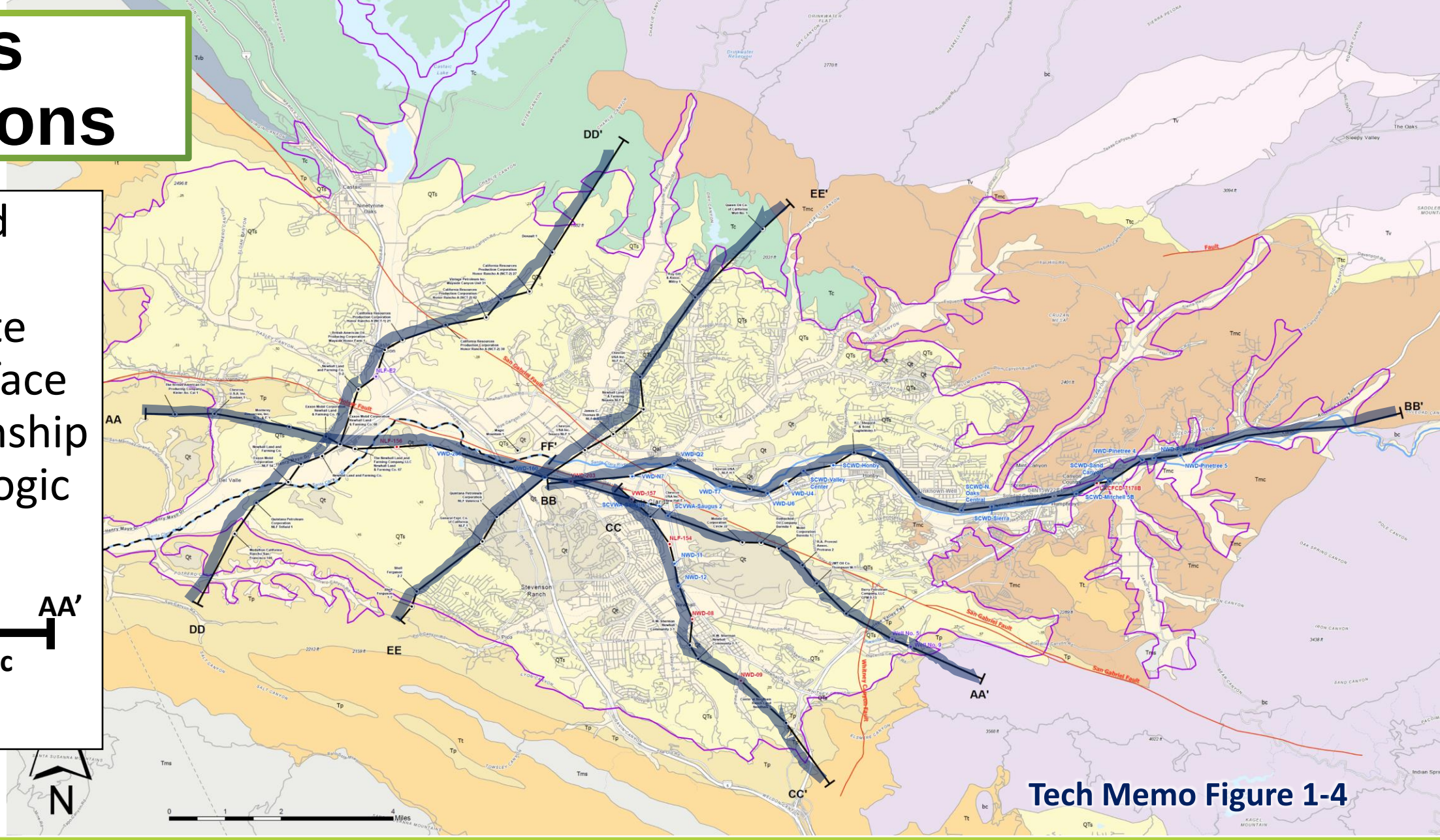
Pico Formation

Cross Sections

- Created to help illustrate subsurface relationship of geologic units

AA — AA’

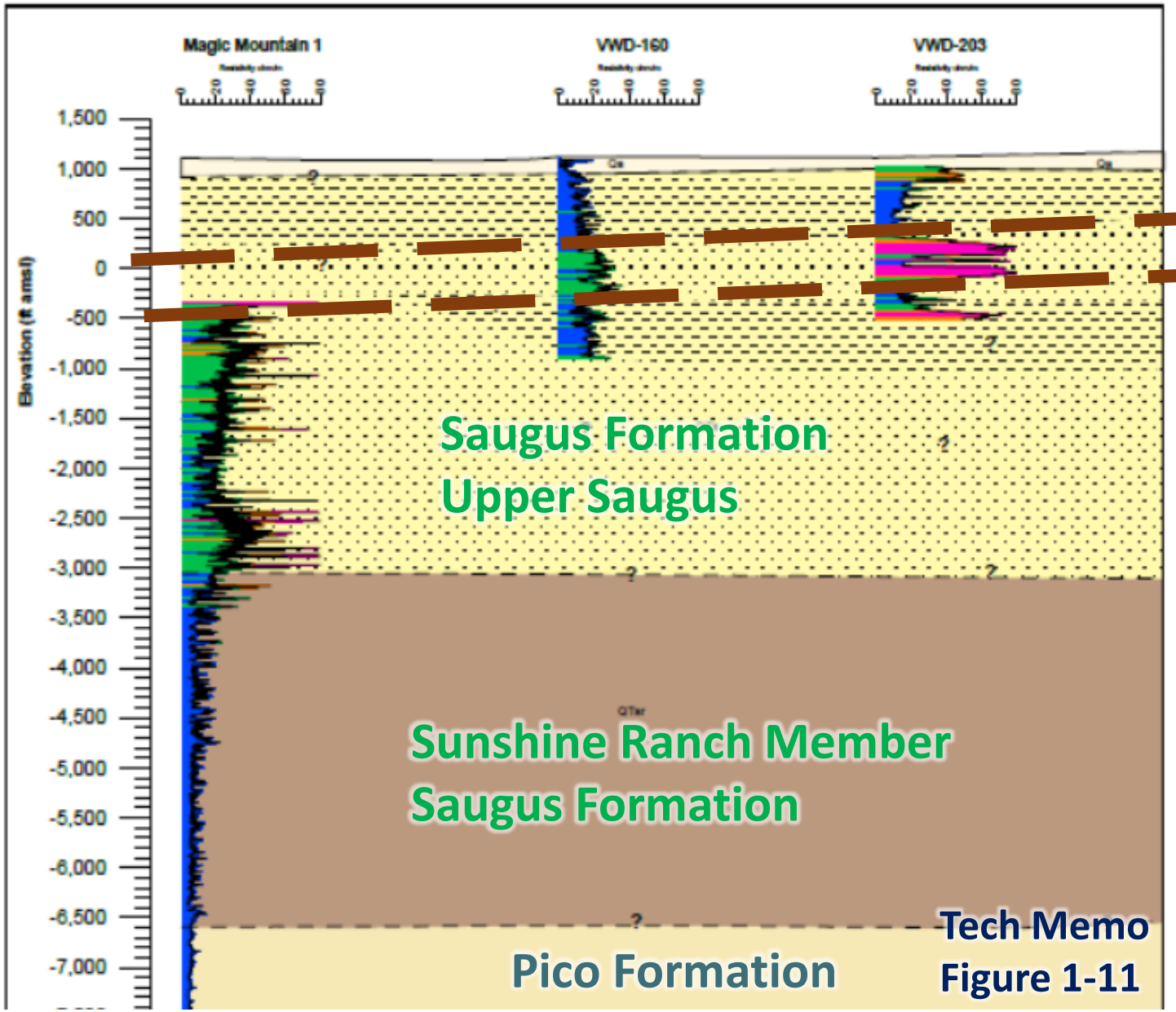
Geologic Section



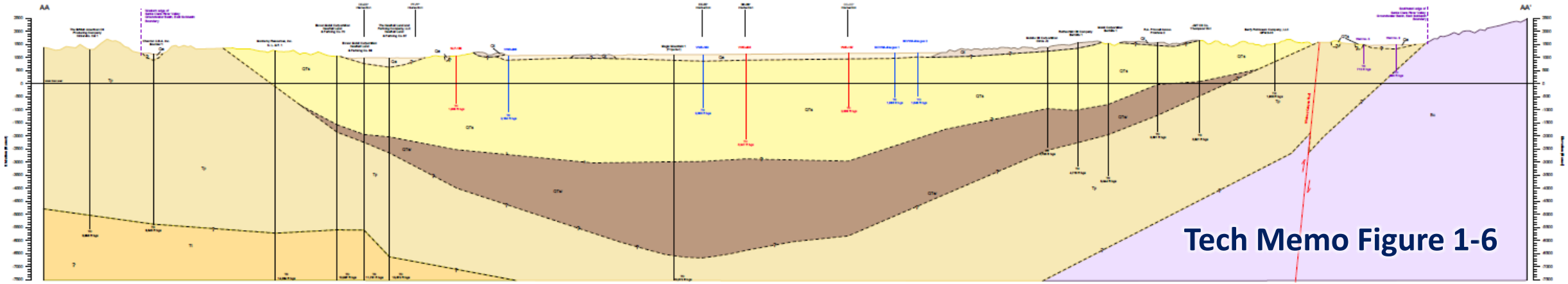
Tech Memo Figure 1-4

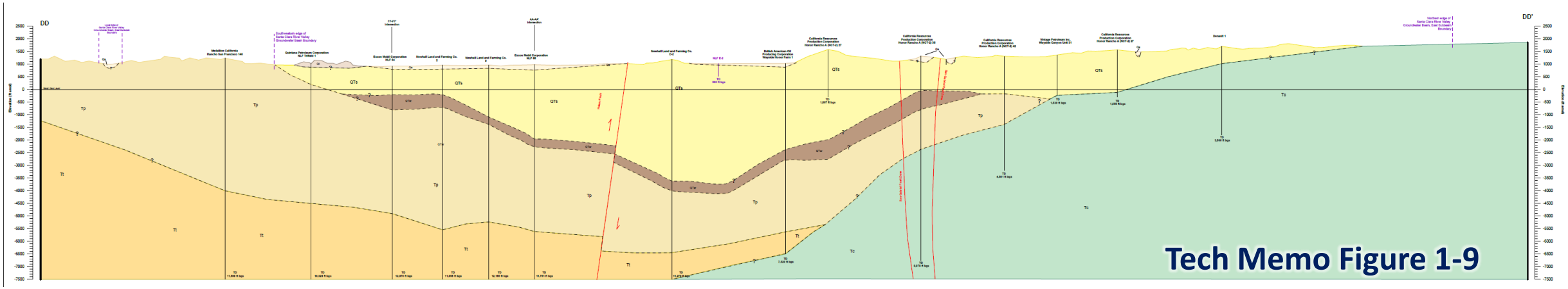
How are Cross Sections Created?

- Interpretation of Surficial Geologic Map
- Subsurface Geologic Descriptions
- Correlation of Geophysical Electric Logs
  - From Oil Wells, Municipal Water Wells, Large Ag Wells



Cross Section Examples





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QUESTIONS?

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