

Test Well Siting Study

Rancho Murieta Community Services District

May 27, 2026

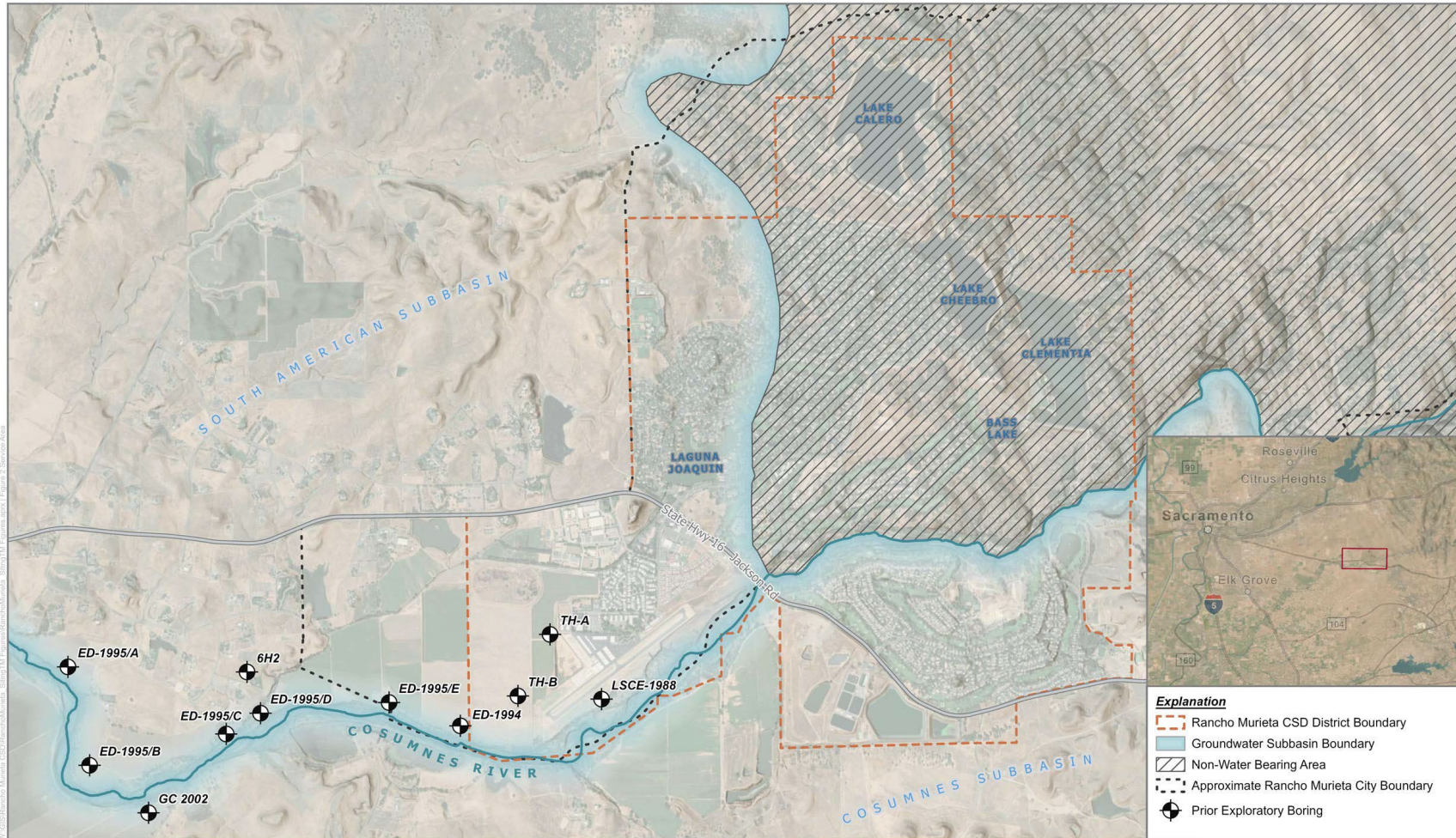


Project Objectives & Data Sources

1. Identify Potential Exploratory Drilling Locations
2. Evaluate Hydrogeologic Feasibility using Existing Data
3. Assess Site Constraints and Logistical Considerations

- Adkins Engineering & Surveying, (May 2024) Technical Memorandum Title Unknown.
- CH2M Hill, (1997) “*Water Supply for the Deerk Creek Hills Project*”
- Dunn Environmental, Inc. (2012) “*New Water Well Background Data Summary, Surface Geophysics, Hydrogeologic Conceptual Model and Proposed Testhole Locations*”
- Dunn Environmental, Inc. (2013) “*Technical Memorandum: Production Water Well Assessment.*”
- Omochumne–Hartnell Water District and Sacramento County, *Cosumnes Subbasin (5-22.16) Groundwater Sustainability Plan, 2021*
- Sacramento Central Groundwater Authority (SCGA), *South American Subbasin Groundwater Sustainability Plan, 2021*
- State Water Resources Control Board. (n.d.). *Groundwater Ambient Monitoring and Assessment (GAMA) Online Tools and Data.*
- U.S. Environmental Protection Agency (EPA). (n.d.). *Superfund Site Information (CERCLA/SARA)*. Available at: <https://www.epa.gov/superfund>
- Wagner, D.L., Jennings, C.W., Bedrossian, T.L., & Bortugno, E.J. (1981). *Geologic map of the Sacramento quadrangle, California, 1:250,000 (Regional Geologic Map RGM-1A)*. California Division of Mines and Geology.

Project Area



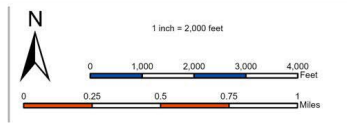
Explanation	
	Rancho Murieta CSD District Boundary
	Groundwater Subbasin Boundary
	Non-Water Bearing Area
	Approximate Rancho Murieta City Boundary
	Prior Exploratory Boring

Prepared by
 WSC
 Date: 12/8/2025

Prepared for
 Rancho Murieta CSD
 Community Services District

Reference/Notes

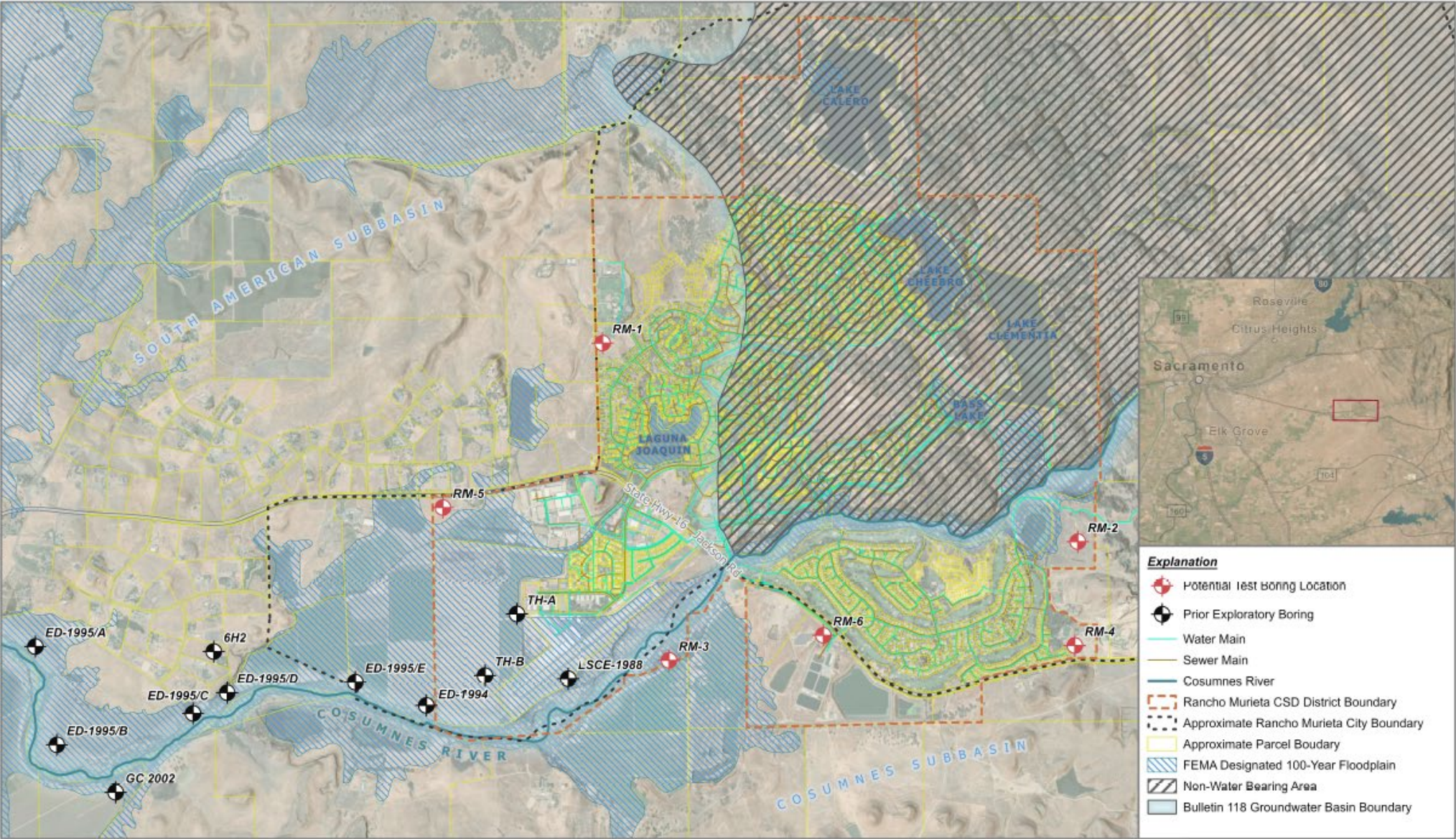
1. Coordinate System: NAD 1983 StatePlane California II FIPS 0402 Feet
2. Basemaps provided by ArcGIS Map Services. https://services.arcgis.com/arcgisonline.com/arcgis/rest/services/World_Imagery/MapServer
3. Hill Shade provided by ArcGIS Map Services. https://services.arcgis.com/arcgisonline.com/arcgis/rest/services/DEM/World_3D
4. Bulletin 118 Groundwater Basin boundaries obtained from California Department of Water Resources. <https://water.ca.gov/programs/groundwater-management/bulletin-118>
5. Road shapefiles provided by United States Census Bureau 2021 TIGER/Line shapefile database. <https://www.census.gov/geographies/shapefiles/2021/tiger/line.html>
6. Rancho Murieta City Boundary provided by State of California Open Data database. Shapefile sourced from U.S. Census Bureau 2023 MAF/TIGER Database. <https://data.ca.gov/dataset/ca-geographic-boundaries>
7. Prior Exploratory Boring and Approximate Electrical Resistivity Line data extracted from "Technical Memorandum - Production Water Well Assessment", 2013. Prepared by Dunn Environmental.



Rancho Murieta Test Borehole Siting Technical Memorandum
 Rancho Murieta CSD Overview

Figure 2

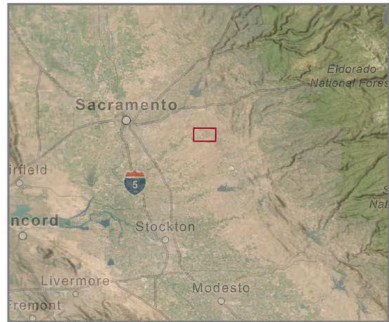
Selected Locations for Exploratory Drilling Sites



Geologic Setting



- Explanation**
- Rancho Murieta CSD District Boundary
 - Groundwater Subbasin Boundary
 - Potential Test Boring Location
 - Cosumnes River
 - Copper Hill Volcanics
 - Salt Springs Shale
 - Gopher Ridge Volcanics
 - Ione Formation
 - Mine and dredge tailings
 - Laguna Formation
 - Mehrten Formation
 - Valley Springs Formation
 - Alluvium
 - Modesto-Riverbank Formations
 - Riverbank Formation
 - Modesto Formation (Lower Member)

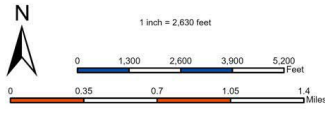


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Reference/Notes

1. Coordinate System: NAD83 State Plane Zone 11 (US Foot) 0402
2. Geologic Base Map: Wagner, D.L., Jennings, C.W., Bedrosian, T.L., and Borlengo, E.J., 1981. Geologic map of the Sacramento quadrangle, California, 1:250,000. California Division of Mines and Geology, Regional Geologic Map RGM-1A, scale 1:250,000. Reprojected from North American Datum 1927. Obtained from: <https://www.conservation.ca.gov/cgsl/rgmmaps>
3. Bulletin 118 Groundwater Basin boundaries obtained from California Department of Water Resources. <https://water.ca.gov/programs/groundwater-management/bulletin-118>
4. Road shapefiles provided by United States Census Bureau 2021 TIGERLine shapefile database. <https://www.census.gov/cgi-bin/geoplaces/index.php?year=2021&layergroup=Roads>



Rancho Murieta Test Borehole Siting Technical Memorandum
 Geologic Map with Test Borehole Locations

Figure 4

RM-1: Summary

Site ID	Geologic Setting	Estimated Groundwater Production Potential	FEMA 100-Year Floodplain	Proximity to Existing Water Infrastructure	Available Space & Site Access	Parcel Ownership / Land Use	Water Quality Concerns
RM-1	lone Formation ¹	30 -100 gpm	Outside of the 100-year floodplain	Water main located in Escuela Drive, approximately 500-feet from proposed site.	Suitable space, approximately 7-acres with multiple points for ingress/egress.	Rancho Murieta Association/ Undeveloped lot	None listed ²

1- primarily sandstone and clay with sand/gravel lenses
 2- As shown on the SWRCB GAMA website.

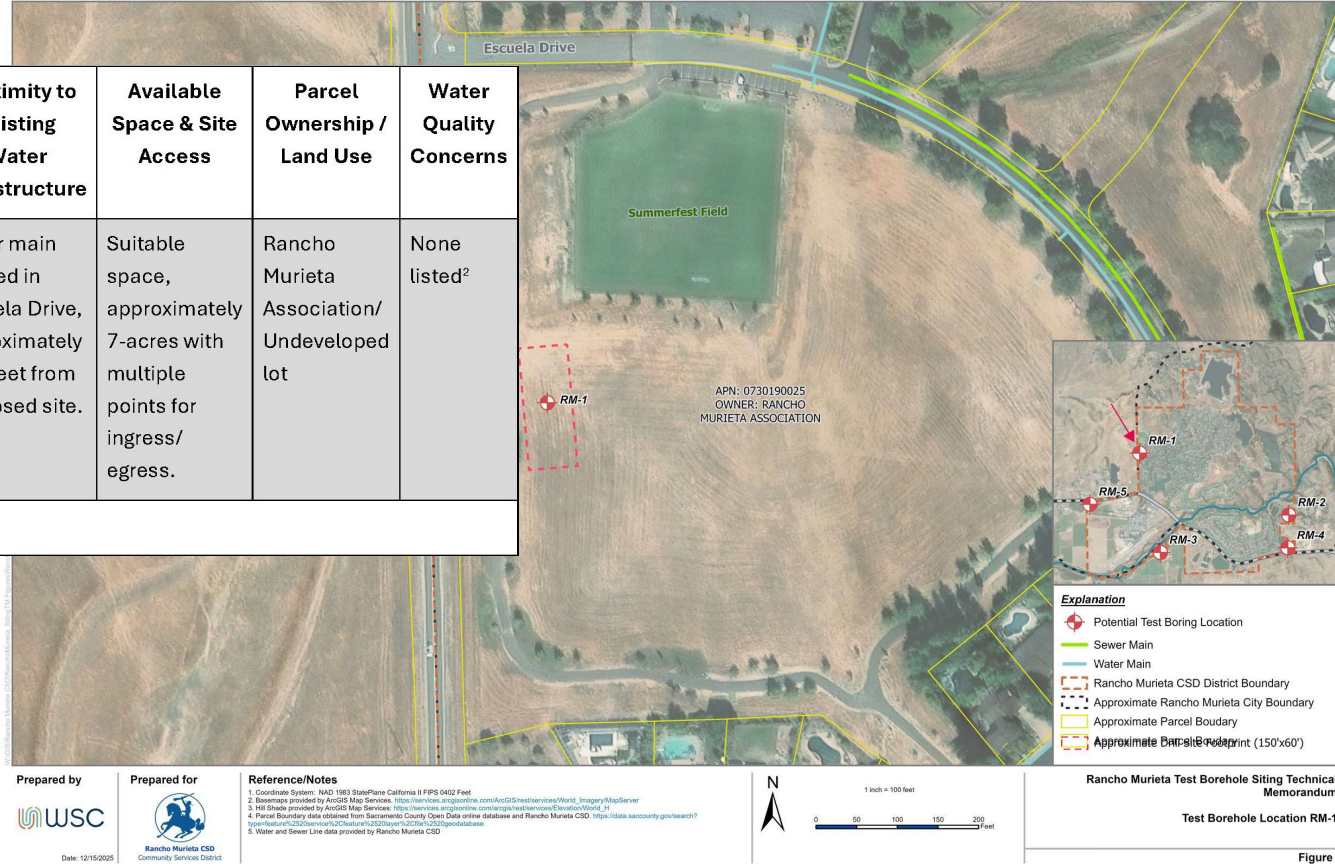
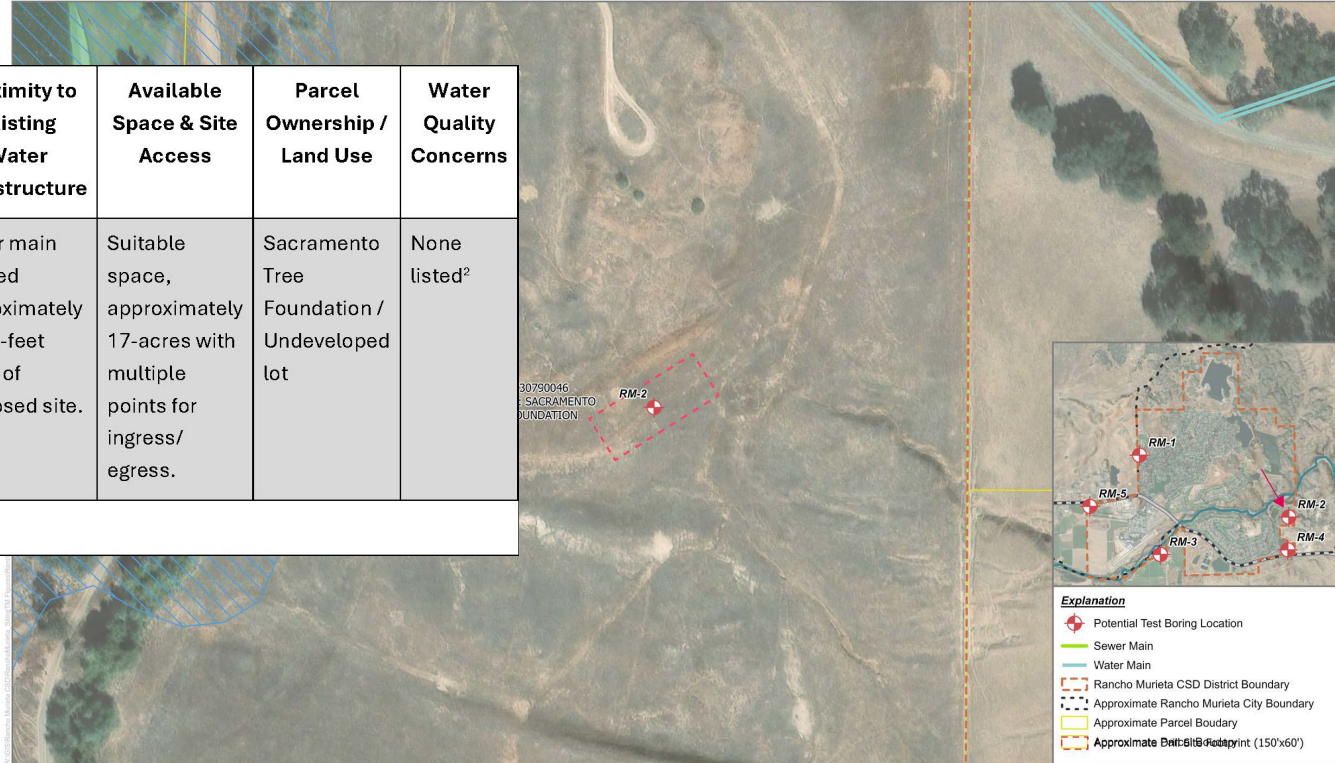


Figure 5

RM-2: Summary

Site ID	Geologic Setting	Estimated Groundwater Production Potential	FEMA 100-Year Floodplain	Proximity to Existing Water Infrastructure	Available Space & Site Access	Parcel Ownership / Land Use	Water Quality Concerns
RM-2	lone Formation ¹	5- 50 gpm	Within the 100-year floodplain	Water main located approximately 1,000-feet north of proposed site.	Suitable space, approximately 17-acres with multiple points for ingress/egress.	Sacramento Tree Foundation / Undeveloped lot	None listed ²

1- primarily sandstone and clay with sand/gravel lenses
 2- As shown on the SWRCB GAMA website.



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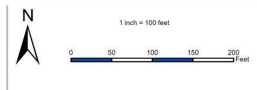
 Date: 12/19/2025

Prepared for

 Rancho Murieta CSD
 Community Services District

Reference/Notes

1. Coordinate System: 1482 1983 StatePlane California II FIPS 4022 Feet
2. Base maps provided by ArcGIS Map Services: https://services.arcgis.com/ArcGIS/arcgis/rest/services/World_Imagery/MapServer
3. HD Shape provided by ArcGIS Map Services: https://services.arcgis.com/ArcGIS/arcgis/rest/services/RanchoMurieta_11
4. Parcel Boundary data obtained from Sacramento County Open Data online database and Rancho Murieta CSD. <https://data.sacounty.gov/search/?query=rancho%20murieta%20parcel%20boundary%20data%20database>
5. Water and Sewer Line data provided by Rancho Murieta CSD



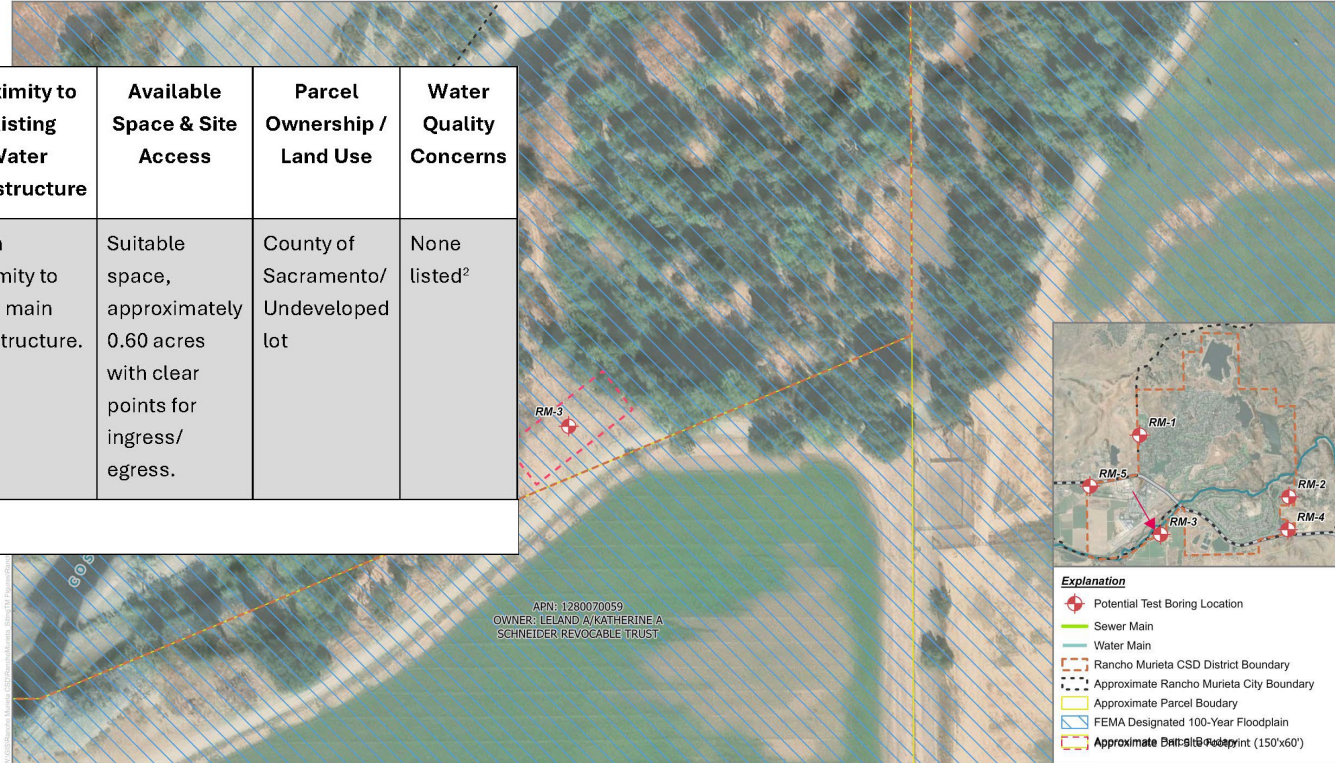
Rancho Murieta Test Borehole Siting Technical Memorandum
Test Borehole Location RM-2

Figure 6

RM-3: Summary

Site ID	Geologic Setting	Estimated Groundwater Production Potential	FEMA 100-Year Floodplain	Proximity to Existing Water Infrastructure	Available Space & Site Access	Parcel Ownership / Land Use	Water Quality Concerns
RM-3	Modesto Formation ¹	50- 200 gpm	Within the 100-year floodplain	Not in proximity to water main infrastructure.	Suitable space, approximately 0.60 acres with clear points for ingress/ egress.	County of Sacramento/ Undeveloped lot	None listed ²

- 1- Loosely to moderately compacted sands, silts, and gravels
- 2- As shown on the SWRCB GAMA website.



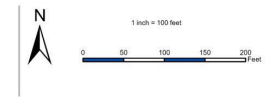
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Community Services District

Date: 12/19/2025

Reference/Notes

1. Coordinate System: 1483 StatePlane California II FIPS 4022 Feet
2. Basemaps provided by ArcGIS Map Services: https://services.arcgis.com/ArcGIS/arcgis/rest/services/World_Imagery/MapServer
3. Hill Shade provided by ArcGIS Map Services: https://services.arcgis.com/ArcGIS/arcgis/rest/services/Elevation/World_Hill_Shade/MapServer
4. Parcel Boundary data obtained from Sacramento County Open Data online database and Rancho Murieta CSD. <https://data.sacramento.gov/search?query=parcel%20boundary%20data%20open%20data%20database>
5. Water and Sewer Line data provided by Rancho Murieta CSD
6. 100-Year Flood Plain Map provided by Federal Emergency Management Agency: <https://hazards.fema.gov/inventoryservices/public/NFI-IL-MapServer>



Rancho Murieta Test Borehole Siting Technical Memorandum

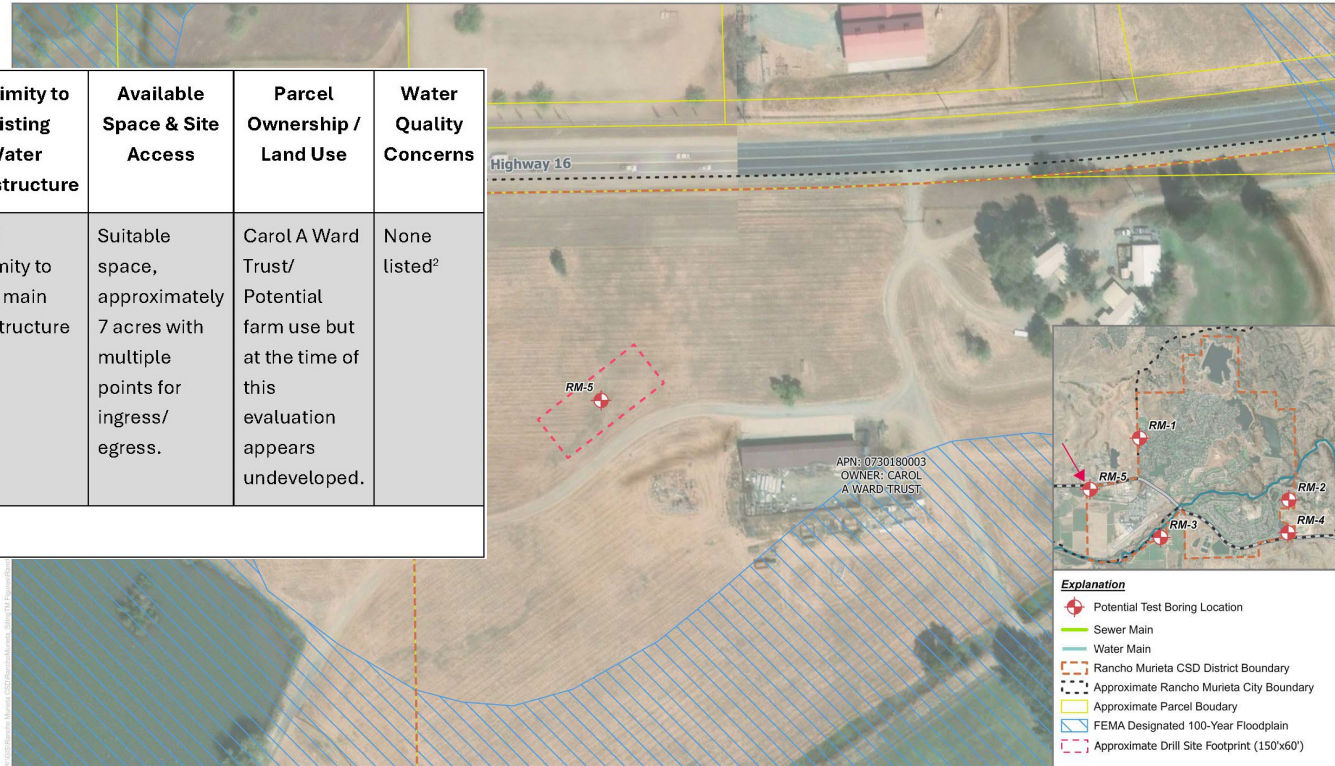
Test Borehole Location RM-3

Figure 7

RM-5: Summary

Site ID	Geologic Setting	Estimated Groundwater Production Potential	FEMA 100-Year Floodplain	Proximity to Existing Water Infrastructure	Available Space & Site Access	Parcel Ownership / Land Use	Water Quality Concerns
RM-5	Ione Formation ¹	200-400 gpm	Not located within the 100-year floodplain	Not in proximity to water main infrastructure	Suitable space, approximately 7 acres with multiple points for ingress/egress.	Carol A Ward Trust/ Potential farm use but at the time of this evaluation appears undeveloped.	None listed ²

1- primarily sandstone and clay with sand/gravel lenses
2- As shown on the SWRCB GAMA website.



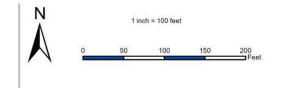
Explanation

- Potential Test Boring Location
- Sewer Main
- Water Main
- Rancho Murieta CSD District Boundary
- Approximate Rancho Murieta City Boundary
- Approximate Parcel Boundary
- FEMA Designated 100-Year Floodplain
- Approximate Drill Site Footprint (150'x60')

Prepared by WSC
Prepared for Rancho Murieta CSD
Community Services District
Date: 11/21/2025

Reference/Notes

1. Coordinate System: 1483 StatePlane California II FIPS 4022 Feet
2. Basecaps provided by ArcGIS Map Services: https://services.arcgis.com/ArcGIS/arcgis/rest/services/World_Imagery/MapServer
3. Hill Shade provided by ArcGIS Map Services: https://services.arcgis.com/ArcGIS/arcgis/rest/services/Elevation/World_Hill_Shade/MapServer
4. Parcel Boundary data obtained from Sacramento County Open Data online database and Rancho Murieta CSD: <https://data.sacounty.gov/search?open=true&dataset=2023Parcel%20Boundary%20Data>
5. Water and Sewer Line data provided by Rancho Murieta CSD
6. 100-Year Flood Plain Map provided by Federal Emergency Management Agency: https://hazards.fema.gov/inventory/hazards/public/NFHL_MapServer



Rancho Murieta Test Borehole Siting Technical Memorandum
Test Borehole Location RM-5

Figure 9

RM-6: Summary

Site ID	Geologic Setting	Estimated Groundwater Production Potential	FEMA 100-Year Floodplain	Proximity to Existing Water Infrastructure	Available Space & Site Access	Parcel Ownership / Land Use	Water Quality Concerns
RM-6	lone Formation ¹	50-100 gpm	Not located within the 100-year floodplain	Approximately 200-feet to the east of the proposed site.	Suitable space, approximately 1.12 acres with suitable points for ingress/ egress.	RMCS D	None listed ²

Notes:
 GPM – gallons per minute
 1- primarily sandstone and clay with sand/gravel lenses
 2- As shown on the SWRCB GAMA website.



Questions?





WASC