

## Procedures for Groundwater Analysis and Hydrogeologic Reports

### PURPOSE

This policy outlines requirements for hydrogeologic reports, including well pump tests, for discretionary and ministerial projects performed for the purpose of complying with General Plan Policy WR-2e and sustainable groundwater management.

***Policy WR-2e (formerly RC-3h):** Require proof of groundwater with a sufficient yield and quality to support proposed uses in Class 3 and 4 water areas. Require test wells or the establishment of community water systems in Class 4 water areas. Test wells may be required in Class 3 areas. Deny discretionary applications in Class 3 and 4 areas unless a hydrogeologic report establishes that groundwater quality and quantity are adequate and will not be adversely impacted by the cumulative amount of development and uses allowed in the area, so that the proposed use will not cause or exacerbate an overdraft condition in a groundwater basin or subbasin. Procedures for proving adequate groundwater should consider groundwater overdraft, land subsidence, saltwater intrusion, and the expense of such study in relation to the water needs of the project.*

### GENERAL

The Groundwater Availability Map classifies four areas of the County based on water yield, natural recharge and major groundwater basins within the County of Sonoma. Since adoption of the Sustainable Groundwater Management Act the groundwater availability map also identifies priority groundwater basins as identified by the Department of Water Resources Bulletin 118.

A hydrogeologic report will be required when a project is located in a Class 3 and or Class 4 groundwater availability area and also within priority groundwater basins. Hydrogeologic reports must be prepared by a qualified professional and include all information and analysis required in the Permit and Resource Management Department (Permit Sonoma) checklist (attached) for groundwater studies. Include impacts of the project with existing development and cumulative impacts from future development, and evaluate impacts to neighboring wells and interconnected surface waters.

### AUTHORITY

Section 25-17q, Section 25-56c, and Section 7-12 of the County Code

## DEFINITIONS

1. Groundwater Availability Map:

Class 1 - Major groundwater basin

Class 2 - Major Natural Recharge Area

Class 3- Marginal Groundwater Available Area

Class 4 – Areas with low or highly variable water yield

2. Priority Groundwater Basin refers to groundwater basins defined by the Department of Water Resources in the most recent edition of Bulletin 118 as medium or high priority basins. <http://www.dwr.water.ca.gov/groundwater/bulletin118/publications.cfm>
3. Impacted Area are an area identified as critical habitat by the State Water Resource Control Board or other public resource agency or an area identified by a public resource agency as having undesirable groundwater impacts such as declining groundwater levels, reductions in aquifer storage, poor water quality, saline intrusion, or impacts to surface water flows. Groundwater studies may be required to identify the impact of a proposed project on water resources.

## PROCEDURE

1. This procedure applies to discretionary permits (e.g., subdivisions, use permits); other ministerial permits that have a performance standard related to groundwater (i.e.: accessory dwelling units, small agricultural processing, and cannabis); and to ministerial (e.g., building permits, septic system permits) projects.
2. The Sonoma County Groundwater Availability Maps will be used for determining whether the subject parcel has a Class 1, 2, 3 or 4 groundwater classification. The map is on file with Permit Sonoma and on the website. [http://www.sonoma-county.org/prmd/gisdata/map\\_gallery.htm](http://www.sonoma-county.org/prmd/gisdata/map_gallery.htm). In the case where a parcel lies within 2 groundwater classification areas and the project or permit is of ministerial (i.e., building permits, septic permit, accessory dwelling unit), the affected area of the parcel will be utilized to determine that appropriate groundwater classification.
3. The requirements of Policy WR-2e are that: 1) groundwater quality and quantity are adequate and will not be adversely impacted by the cumulative amount of development and uses allowed in the area; 2) the proposed use will not cause or exacerbate an overdraft condition in a groundwater basin or subbasin and 3) the proposal not result in groundwater overdraft, land subsidence, or saltwater intrusion. Groundwater use must not result in critical reduction in flow in directly connected surface waters or adverse impacts to groundwater dependent ecosystems.
4. Evidence that the requirements of Policy WR-2e have been met must be provided to Permit Sonoma staff and to the decision-making body prior to its discretionary decision.

To meet this requirement, a hydrogeologic report shall be prepared and reviewed by Permit Sonoma staff prior to the public hearing on the project. Test wells may be a condition of project approval in Class 3 marginal groundwater availability areas if the hydrogeologic report recommends additional test wells. Test wells are required in Class 4 water scarce areas by Section 7-12 and 25-17 of the Sonoma County Code.

5. Prior to conducting the hydrogeologic study, the consultant shall coordinate with Permit Sonoma staff to determine the appropriate cumulative impact area and the projected development within that area. The determination whether or not cumulative impacts have been adequately addressed in the hydrogeologic report will be based upon joint review of the Registered Environmental Health Specialist or the Professional Geologist who responds to the project referral and the Planner, as part of preparing the project Initial Study in accordance with the California Environmental Quality Act (CEQA). If the cumulative impacts in the agreed upon Cumulative Impact Area are determined to be significant adverse impacts or if these impacts are not adequately addresses, the project would be inconsistent with the General Plan.
6. For discretionary projects the Hydrogeologic report will be integrated into the CEQA environmental review process. The procedure is as follows:
  - a. The CEQA Initial Study will identify whether the project site is in a Class 3 or Class 4 Groundwater Availability area or within a priority groundwater basin.
  - b. In most cases the Registered Environmental Health Specialist or Professional Geologist referral will review the need for preparation of a hydrogeologic report to provide the information necessary to determine that there are adequate existing and future groundwater supplies both on-site and in the Cumulative Impact Area. In some cases, staff may be able to make these findings using existing data on file, in which case a new hydrogeologic report will not be necessary.
  - c. In general, the type of development that will be considered in the cumulative scenario will be residential, commercial, industrial and similar development. The Planner will provide the likely future development scenario within the Cumulative Impact Area, based on General Plan residential densities, zoning designations, existing uses and reasonably foreseeable projects, existing and projected agricultural water needs would also be considered where agricultural uses are present in the subject areas.
7. The hydrogeologic report will meet the following guidelines:
  - a. The hydrogeologic report must be prepared by a California licensed professional geologist, a certified engineering geologist, or a certified hydrogeologist with expertise in hydrogeology.
  - b. The geologist preparing the hydrogeologic report must identify a Cumulative Impact Area based on geologic, hydrologic, and groundwater characteristics and reviewed and approved by Permit Sonoma Registered Environmental Health Specialist or Professional Geologist and the project Planner.

- c. The hydrogeologic report must identify and assess the geologic formations and groundwater conditions at the project site and within the Cumulative Impact Area.
  - d. The hydrogeologic report must identify the known wells, their depth, screen intervals, and yield and discuss the history of any known well failure, or reports of wells running dry or unsuccessful attempts to develop water wells in the Cumulative Impact Area.
  - e. The hydrogeologic report must thoroughly describe the level of effort applied in identifying existing and abandoned wells within the Cumulative Impact Area. This may include review of the Department of Water Resources records, interview with well drillers and interviews with property owners within the Cumulative Impact Area.
  - f. The hydrogeologic report must discuss the impact project water use will have on the continued availability of groundwater, including an estimate of the amount recharge and storage capacity within the Cumulative Impact Area considering a range of climate conditions include periods of drought. This may be presented as a water balance for the Cumulative Impact Area.
  - g. The hydrogeologic report must estimate existing and projected future water demand from the proposed project and all other uses for the subject parcel. The hydrogeologic report must identify the projected future groundwater demand, assuming full build out of parcels within the Cumulative Impact Area under current zoning.
  - h. The hydrogeologic report must come to a conclusion that is clearly stated as to the on-site water availability and the effects of groundwater use on groundwater levels, aquifer storage, neighboring wells, and interconnected surface waters.
8. General Plan Policy WR-2d requires groundwater monitoring for new or expanded discretionary commercial and industrial uses using wells. Standard conditions of approval for these projects require installation of monitoring devices in the well providing water to the proposed uses; a minimum of quarterly monitoring of groundwater level and water extraction; and annual reporting to Permit Sonoma, per Policy 8-1-3. Water use that exceeds those described in the permit application may require permit review. If the water use exceeds those in the entitlement by 10 percent, the permit must be reviewed by the original decision-making body.

## **ATTACHMENTS**

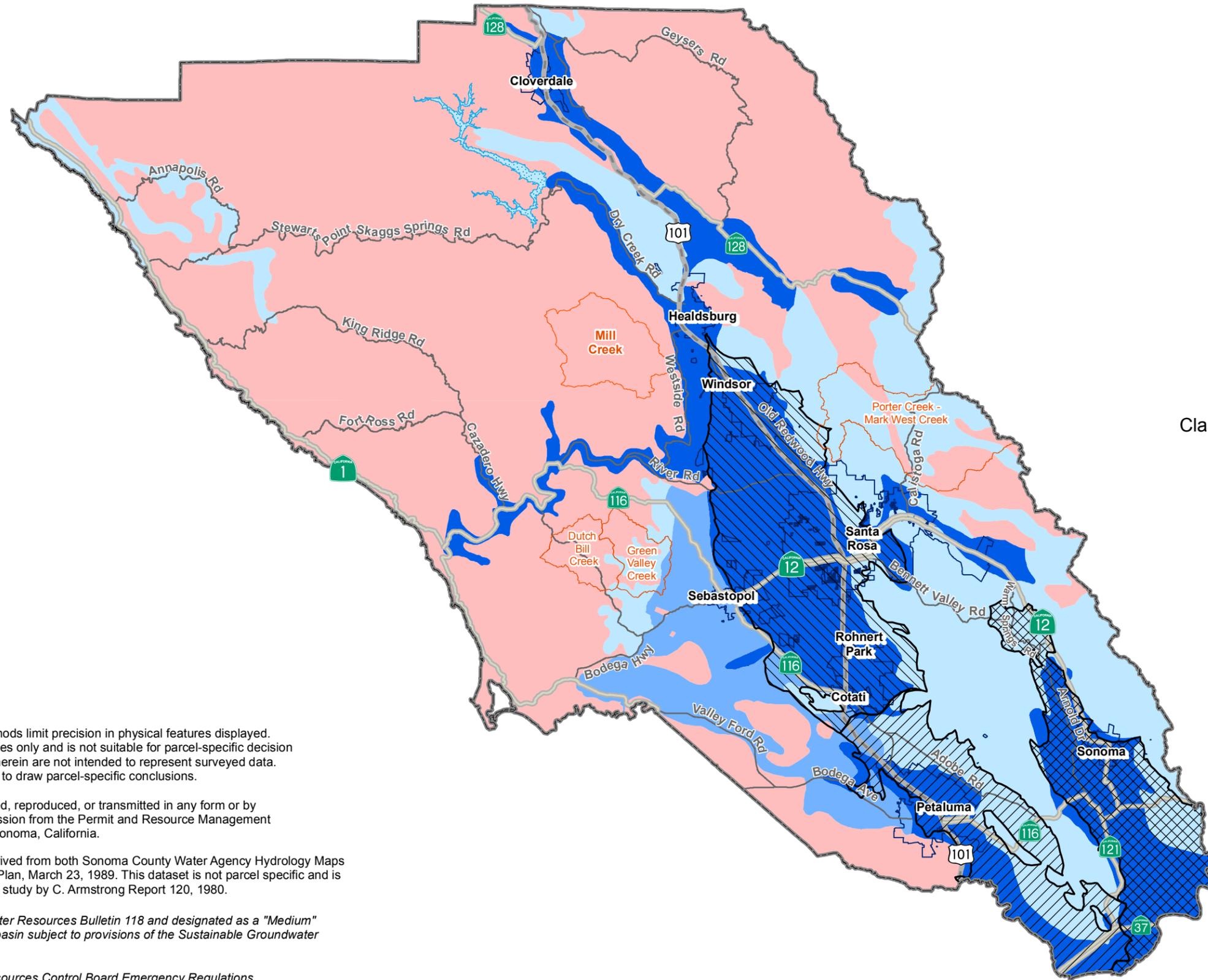
Groundwater Availability Map (December 2016)  
Sonoma County Groundwater Studies Checklist (January 2017)

**Approved by:**  
/s/Tennis Wick  
Tennis Wick, Director

Lead Author: Sandi Potter  
02/23/2017

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# Groundwater Availability



## \*Priority Groundwater Basins

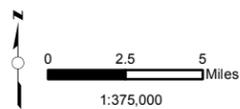
- Petaluma Valley 
- Santa Rosa Plain 
- Sonoma Valley 

## Groundwater Availability Classifications

- Class 1 - Major Groundwater Basin Area 
- Class 2 - Major Natural Recharge Area 
- Class 3 - Marginal Groundwater Area 
- Class 4 - Low/Highly Variable Water Yield Area 
- \*\*Critical Habitat Area 

## Base Map Data

- City Limits 
- Lake Sonoma 
- US Federal Highway 
- State Highway 
- Street 



Map scale and reproduction methods limit precision in physical features displayed. This map is for illustrative purposes only and is not suitable for parcel-specific decision making. The parcels contained herein are not intended to represent surveyed data. Site-specific studies are required to draw parcel-specific conclusions.

No part of this map may be copied, reproduced, or transmitted in any form or by any means without written permission from the Permit and Resource Management Department (PRMD), County of Sonoma, California.

The original boundaries were derived from both Sonoma County Water Agency Hydrology Maps and County of Sonoma General Plan, March 23, 1989. This dataset is not parcel specific and is based on surface geology from a study by C. Armstrong Report 120, 1980.

\*As defined in Department of Water Resources Bulletin 118 and designated as a "Medium" or a "High" priority groundwater basin subject to provisions of the Sustainable Groundwater Management Act.

\*\* As defined by State Water Resources Control Board Emergency Regulations.



## SONOMA COUNTY HYDROGEOLOGIC REPORT CHECKLIST

### Compliance with Guidelines

	YES	NO	
			1. Was the report prepared by a Registered Geologist, Certified Engineering Geologist or Certified Hydrogeologist?
			2. Is the impact area identified in the report and projected development consistent with that mutually agreed on by the geologist, the REHS, and the planner?
			3. Are geologic formations correctly identified and delineated on a map?
			4. Does the map have a scale and reference points?
			5. IS the type of aquifer identified and described?
			6. Is a geologic cross section included?
			7. Are well depths in the area documented?
			8. Is the yield of wells in the area known and well documented?
			9. Was an effort made to learn of well failures or unsuccessful attempts to develop water in the impact area?
			10. Is this effort well documented?
			11. Were local property owners consulted, where appropriate?
			12. Were well drillers contacted, where appropriate?
			13. Is a water balance provided?
			14. Is storage capacity calculated?
			15. Is the water in storage calculated for the impact area?
			16. Are the methods used described?
			17. Are the calculations shown?
			18. Does the report discuss current quantities and projected (cumulative) quantities of groundwater pumped?
			19. Have other WR-2e reports been conducted in the area?
			20. Is this report consistent with those reports?
			21. Does the report discuss impacts to interconnected surface waters and aquatic habitat?
			22. Are known water quality issues, including saline water intrusion, discussed?

### The report indicates that:

	23. The size of the cumulative impact areas (CIA) (acres)
	24. The size of the project property (acres)
	25. Proposed annual use (acre-feet)
	26. Depth of proposed well (feet)
	27. Estimated projected annual use by existing and potential development in the cumulative impact area (acre-feet)
	28. Number of active wells in the cumulative impact area
	29. Depth of wells in cumulative impact area (feet)
	30. Distance to nearest well (feet)
	31. Distance of ground water supply well to nearest surface water body (feet)
	32. (P) Average annual rain fall (tenths of a foot)
	33. (ETo) is lost to evapotransporation (tenths of a foot)
	34. (Qout) % runs off

