

1 **DRAFT**

2 **Sections 1 & 2: Introduction & Description of Plan Area**
3 **Groundwater Sustainability Plan for**
4 **Santa Rosa Plain Groundwater Subbasin**

5
6 ****Notes to Reader:**

7 Text and Figures in this Draft reflect the basin boundaries proposed by the City of Sebastopol’s
8 Jurisdictional Basin Boundary Modification Request, assuming approval by DWR.
9

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127 The role of the Advisory Committee in the GSP development process is to work towards
128 consensus and incorporate community and stakeholder interests into recommendations to the
129 GSA Board on GSP development and SGMA implementation. Advisory Committee members
130 also report to, and seek input, from their larger constituency groups on key components and
131 proposals related to GSP development. The Advisory Committee makes written
132 recommendations to the GSA Board that reflect the outcome of Committee discussions. To
133 ensure that all viewpoints are heard and considered by the GSA Board, Advisory Committee
134 reports to the GSA Board identify areas of agreement and disagreement among the Advisory
135 Committee, where applicable.

136

137 **GSA Coordination**

138 Implementation of SGMA in the Santa Rosa Plain Subbasin is closely coordinated with
139 neighboring GSAs in Petaluma Valley and Sonoma Valley, as well as local agencies with land use
140 responsibilities including the Cities of Cotati, Rohnert Park, Santa Rosa, Sebastopol, Town of
141 Windsor, and the County of Sonoma. In addition to closely coordinating on managing and
142 monitoring along shared basin boundaries, resources are leveraged and shared by the three
143 existing GSAs in Sonoma County to maximize efficiencies, including shared templates and
144 methodologies for certain GSP components, outreach resources, grant opportunities, and the
145 development of data management system tools and technologies.

146

147 Contact information for the Santa Rosa Plain GSA is:

148

149 Santa Rosa Plain Groundwater Sustainability Agency
150 404 Aviation Boulevard, Santa Rosa California 95403
151 www.santarosaplainingroundwater.org (707) 524-8378

152

153 GSA Administrator: Andy Rodgers, West Yost Associates, Inc.

154

155 GSA Plan Manager: Jay Jasperse, Chief Engineer and Director of Groundwater Management,
156 Sonoma County Water Agency

157

158 **2.0 Description of Plan Area (Reg. 354.8 b)**

159

160 This section provides a description of the Plan Area, including the Subbasin's general physical
161 setting and jurisdictional areas, topography and surface water features, land use characteristics,
162 water source types and uses, existing monitoring and management programs, applicable land
163 use plans, and the well permitting process. The numbers in parenthesis in each sub-heading
164 indicate the applicable SGMA regulation.

165

166 **2.1 General Setting and Jurisdictional Areas (Reg. 354.8 b)**

167

168 The Plan Area for this GSP is the entire 80,000-acre Santa Rosa Plain Subbasin, which lies within
169 the Coast Ranges geomorphic province and is one of three coastal alluvial subbasins of the
170 Santa Rosa Valley Groundwater Basin in North Coast Hydrologic Region. It is generally bounded
171 on the west by low lying hills of the Mendocino Range and on the east by the Sonoma
172 Mountains and Mayacamas Mountains. As shown on **Figure 2-1**, the Subbasin is approximately
173 22 miles long and the width varies from approximately 9 miles through the Santa Rosa area to 6
174 miles wide at the south end of the valley near the City of Cotati and narrows greatly at its
175 northern end. The approximately 80,000-acre Subbasin includes the Town of Windsor, Cities of
176 Cotati, Rohnert Park, and Santa Rosa, and the City of Sebastopol and areas of unincorporated
177 rural communities and agricultural cultivation. As shown in **Figure 2-2**, the principal streams in
178 the Subbasin are Mark West Creek, Santa Rosa Creek, and Laguna de Santa Rosa, which drain a
179 combined watershed area of approximately 251 square miles.

180
181 Neighboring groundwater basins and subbasins are also shown on **Figure 2-1** and include the
182 very low priority Healdsburg Area Subbasin (designated as basin 1-55.02 by DWR) to the north,
183 the very low/medium(?) priority Wilson Grove Formation Highlands Basin (designated as basin
184 1-059 by DWR) to the west, and the medium/high(?) priority Petaluma Valley Subbasin
185 (designated as basin 2-001 by DWR) to the south. The very low priority Alexander Area
186 Subbasin (designated as basin 1-054.01 by DWR) and the very low priority Rincon Valley
187 Subbasin (designated as basin 1-054.03 by DWR) both abut a small eastern segment of the
188 Santa Rosa Plain Subbasin boundary. The only neighboring GSA is the Petaluma Valley GSA,
189 which formed in June 2017 and is responsible for implementing SGMA in the Petaluma Valley
190 Basin. DWR's 2018 Draft Basin Prioritization proposes a change in priority from very low to
191 medium for Wilson Grove Formation Highlands Basin.

192
193 Available technical information related to the hydrologic connection between the Santa Rosa
194 Plain Subbasin and adjacent basins and subbasins is included in Section 3 (Basin Setting) and
195 provisions for coordinating with applicable GSAs and other local agencies within neighboring
196 basins are described in Section 7 (Implementation Plan).

197
198 While the Plan Area and jurisdiction of the Santa Rosa Plain GSA is limited to the Santa Rosa
199 Plain Bulletin 118 Subbasin, technical studies (including monitoring and groundwater flow
200 modeling) indicate that contributing watershed areas outside of the Bulletin 118 Subbasin are
201 hydrologically connected and represent important sources of inflow (both in the form of
202 surface streamflows and subsurface inflows) to the Bulletin 118 Subbasin. In recognition of the
203 hydrologic connection with the contributing watershed areas, available data and information
204 from these areas are also included in this GSP. The contributing watershed area is also shown
205 on **Figure 2-1** and is a modified version of the Laguna-Mark West Watershed that extends
206 slightly outside of the watershed in order to encompass the entire Bulletin 118 Santa Rosa Plain
207 Subbasin at the northernmost boundary and a portion of the western boundary around the City
208 of Sebastopol. Distinctions between metrics and features associated with the Bulletin 118

209 Santa Rosa Plain Subbasin jurisdictional area of the GSA and contributing watershed areas are
210 clearly indicated or displayed in relevant sections and figures.

211
212 Local agencies with jurisdiction within the Subbasin include the Santa Rosa Plain GSA, Cities of
213 Cotati, Rohnert Park, Santa Rosa, and Sebastopol, Town of Windsor, Gold Ridge RCD, Sonoma
214 RCD, Sonoma Water, and County of Sonoma. **Figure 2-3** shows the jurisdictional boundaries of
215 these local agencies, state, federal and tribal lands, and protected lands within the Subbasin.
216 State lands include Sonoma State University within the Subbasin and several state parks and
217 preserves located within the contributing watershed area. Tribal lands include lands owned by
218 the Federated Indians of Graton Rancheria located within the Subbasin and west of Rohnert
219 Park. Protected lands shown on **Figure 2-3** include city parks and fields, county regional parks
220 and preserves, special district properties and preserves, state parks and preserves, and non-
221 profit preserves. There are no federal-owned lands within the Subbasin or contributing
222 watershed.

223

224 **2.2 General Plan and Related Plan Land Use Categories**

225

226 Existing city and county planning activities that are directly or indirectly linked with water
227 supply and groundwater management include general plans and specific plans, in addition to
228 the UWMPs described above. Under SGMA, cities and counties retain their land use
229 authorities, however in recognizing the linkages between land use and water management,
230 SGMA does require increased coordination between land use planners and GSAs. At a
231 minimum, cities and counties must now refer proposed general plan changes to GSAs, and
232 similarly GSPs must take into account “the most recent planning assumptions stated in local
233 general plans of jurisdictions overlying the basin” (CWC §10726.9).

234

235 The Cities of Cotati, Rohnert Park, Santa Rosa, Town of Windsor and Sonoma County general
236 plans and specific plans provide growth estimates that are used in the UWMPs and in this GSP
237 to project future water demands and are incorporated into the sustainable management
238 criteria and metrics, including measurable objectives and interim milestones, the sustainability
239 goal, proposed projects and management actions. Projections of future groundwater
240 availability and planned projects and actions needed for sustaining groundwater resources in
241 the Subbasin will be shared with city and county planners for incorporation into their respective
242 land-use planning and decision-making.

243

244 In addition to coordinating on activities within the Subbasin, coordination and information
245 sharing between the GSA and land use planning agencies will be needed for the contributing
246 watershed areas located outside of the GSA’s jurisdiction. These areas primarily fall within the
247 purview of the County General Plan.

248

249 **General Plans**

250 Counties and cities are required to develop and adopt comprehensive general plans to guide

251 future local physical development, as required in California State Government Code Title 7,
252 Division 1, Article 5, Section 65300 et seq. Each general plan must contain a statement of
253 policies, including maps or diagrams and text, setting forth objectives, principles, standards and
254 plan proposals. City general plans are focused on providing guidance on growth and
255 development in the urban setting, while the county general plan focuses on the unincorporated
256 areas of the county. Developing and updating general plans involves significant community
257 involvement through workshops, hearings, and public review of draft plans and policies.
258 The seven mandatory elements of a general plan are Land Use, Circulation, Housing,
259 Conservation, Open Space, Noise and Safety, although the degree of specificity and level of
260 detail varies dependent upon local circumstances and programmatic needs. The Conservation
261 element of the general plan is typically where water resources are addressed, although other
262 water related topics may also be addressed in other elements.

263
264 Land use elements must reflect the content of the other general plan elements and must
265 account for “rivers, creeks, streams, flood corridors, riparian habitats, and land that may
266 accommodate floodwater for purposes of groundwater recharge and stormwater
267 management...” as identified in the conservation element (Gov. Code § 65302(d)(3)). Land use
268 elements must designate the type and density of land uses within the jurisdictional boundaries
269 of the General Plan. The housing elements must be updated on a five-year cycle to correspond
270 with state regional housing needs allocations (Gov. Code § 65584 (b)).

271
272 The Santa Rosa Plain Subbasin includes areas covered by the County of Sonoma’s general plan
273 and the Cities of Cotati, Rohnert Park, Santa Rosa, Sebastopol and Town of Windsor general
274 plans.

275 276 **Sonoma County General Plan 2020**

277 In recognition of the importance of water resources within unincorporated areas of the county,
278 an optional, new Water Resource Element (WRE) was developed and included in the Sonoma
279 County General Plan 2020. The main purpose of the Water Resources Element is to ensure that
280 Sonoma County’s water resources are sustained and protected. To achieve this main purpose,
281 the Water Resources Element states that water resource management should consider the
282 amount of quality water that can be used without exceeding the replenishment rates over time
283 or causing long term declines or degradation in available surface water or groundwater
284 resources.

285
286 The Water Resources Element includes goals, objectives and policies for water quality,
287 groundwater, public water systems, conservation & reuse, importing & exporting, and
288 watershed management. These goals, objectives and policies include supporting local
289 groundwater studies and management programs, encouraging activities that protect natural
290 groundwater recharge areas. The Water Resources Element for the Sonoma County General
291 Plan 2020 can be reviewed at <http://www.sonoma-county.org/prmd/gp2020/wre.pdf>.

292

293 The Water Resources Element goals related to groundwater include:

294

295 • Protect, restore, and enhance the quality of surface and groundwater resources to meet
296 the needs of all reasonable beneficial uses.

297 • Manage groundwater as a valuable and limited shared resource.

298 • Assure that new proposals for surface and groundwater imports and exports are
299 consistent with Sonoma County’s ability to sustain an adequate supply of high-quality
300 water for all its water uses and dependent natural resources.

301 • Improve understanding, valuation and sound management of the water resources in
302 Sonoma County’s diverse watersheds.

303

304 Other water related topics incorporated in the Sonoma County General Plan 2020 include water
305 availability as a factor in Land Use Map densities that is addressed in the Land Use Element.

306 Land use designations based on the County’s General Plan 2020 are shown on **Figure 2-8**. The
307 Open Space and Resource Conservation Element addresses riparian corridors, wetlands, wildlife
308 protection, tree protection, fishery resources and other biotic resources, water-oriented
309 recreation, soil erosion, forestry, and mineral resources. The Public Facilities and Services
310 Element addresses connections to public water systems. The Public Safety Element addresses
311 flood hazards, fire suppression, and hazardous materials. The County’s General Plan 2020 also
312 includes a policy for the designation of community separators, which are rural open space and
313 agricultural and resource lands that separate cities and other communities, prevent sprawl,
314 protect natural resources, and provide city and community identity by providing visual relief
315 from continuous urbanization. The process for updating the Sonoma County General Plan 2020
316 is planned to begin in 2019.

317

318 **Municipal General Plans**

319 City General Plans guide growth and development in the urban community, and typically
320 involve an urban growth boundary. The UWMPs and General Plans are clearly linked: UWMPs
321 calculate future water demand based on growth and development projected in the General
322 Plan.

323

324 City of Cotati – General Plan Update 2015

325 City of Rohnert Park – General Plan Update 2000 – update in process

326 City of Santa Rosa – General Plan 2035 Update 2009

327 Town of Windsor – General Plan 2040

328 City of Sebastopol – General Plan Update 2016

329

330 The Cities of Cotati, Rohnert Park, Santa Rosa, Sebastopol, and Town of Windsor General Plan
331 documents contain Community Development, Environmental Resources, Local Economy,
332 Circulation, Public Safety, Noise and Housing Elements. Each element contains goals, policies
333 and implementation measures that set a course for future land use in the city. Goals summarize
334

335 how development and future growth should be directed to achieve the general plan vision
336 by identifying physical, economic and/or social ends that the community wishes to achieve.
337

338 Additional information on groundwater-related goals and policies from municipal general plans
339 will be added here.

340

341 **Specific Area Plans**

342 Specific area plans are planning documents that guide the development of a particular
343 geographic area within the county. Any new developments or subdivisions within the defined
344 area must be consistent with the general plan and specific plan.

345

346 **2.3 General Land Use Characteristics (Reg. 354.8 b)**

347

348 Land uses within the Subbasin are shown on **Figures 2-4, a, b, and c**. Existing land use
349 conditions correlate most closely with the 2012 land use survey (**Figure 2-4b**), which indicates
350 the Subbasin is primarily comprised of urban, residential, commercial and industrial land uses
351 (36 percent) and native vegetation or water (35%) with irrigated and non-irrigated agriculture
352 making up approximately 26 percent of the land uses. The major urban and residential areas in
353 the Subbasin include the cities of Cotati, Rohnert Park, Santa Rosa, Sebastopol, Town of
354 Windsor, several unincorporated communities, and areas of rural and semi-rural residential
355 development.

356

357 Land use mapping over the past several decades provides a measure of growth and land use
358 changes in the Subbasin, which includes increases in residential and commercial land uses and
359 irrigated agriculture and a resulting decrease in native vegetation or water (**Table 2-1 and**
360 **Figure 2-4a and b**). **Figure 2-4c** presents more detailed classification of vegetation types within
361 the Subbasin and contributing watershed areas from the Sonoma County LiDAR and Vegetation
362 Mapping Program.

363

364 **2.4 Water Source Types and Water Use Sectors (Reg. 354.8 b)**

365

366 This GSP recognizes that the efficient use and conjunctive management of the various available
367 water sources is integral to achieving sustainable groundwater management in the Subbasin.
368 The Subbasin has four primary water source types: groundwater, imported surface water, local
369 surface water, and recycled water. An overview of the spatial distribution of the reliance on
370 the four primary water source types by primary water use sectors in the Subbasin is shown on
371 **Figure 2-5** and provided below. Additional details on water uses associated with the Subbasin
372 water budget are described in Section 3 (Basin Setting) and additional information on the
373 availability and feasibility for future uses is included in Section 6 (Projects and Actions).

374

375 Groundwater

376 Groundwater resources represent an important and often only source of water supply for many
377 communities and water users in the Subbasin. **Figure 2-6** presents a map showing the
378 approximate location and density of water wells within the Subbasin and contributing
379 watershed areas, based on available data from DWR (note to reader: this map will be updated
380 and refined with local information from Permit Sonoma and other well databases). These
381 groundwater resources are relied upon to varying degrees by rural and urban residents,
382 vineyards and wineries, dairies, and other businesses and also support streamflows and
383 ecosystems present in the Subbasin. Groundwater sourced from water wells within the
384 Subbasin represents the primary water supply for irrigated agriculture (where access to
385 recycled water is not available), rural residential properties (including many mutual water
386 companies), commercial and industrial users in unincorporated areas, and the City of
387 Sebastopol. Local groundwater represents an important supplemental or backup source of
388 supply for many of the municipal water purveyors, including Sonoma Water, the Cities of Santa
389 Rosa, Rohnert Park, and Cotati, and California American Water's Larkfield District which operate
390 municipal wellfields within the Subbasin and contributing watershed areas.

391

392 Imported Surface Water

393 Imported water consists of Russian River surface water sourced from Sonoma Water's
394 production facilities located outside of the Subbasin and contributing watershed areas near
395 Forestville that is delivered via aqueduct to the cities within the Subbasin. The imported
396 Russian River surface water originates from storage in Lake Mendocino and Lake Sonoma,
397 which is controlled and influenced by a variety of agreements and decisions, including water
398 rights permits and a biological opinion that establish minimum instream flow requirements for
399 fish and wildlife protection and recreation. Imported water represents the primary source of
400 water for urban residents and businesses that are served by the cities of Cotati, Rohnert Park,
401 Santa Rosa, and Town of Windsor.

402

403 Local Surface Water

404 Local surface water from Mark West Creek, Santa Rosa Creek, and Laguna de Santa Rosa and
405 their tributaries represents an important source of supply for some water users. Information
406 on the approximate amounts of surface water is available through reported surface water
407 diversions filed with the California State Water Resources Control Board.

408

409 Recycled Water

410 Recycled water is treated to tertiary standards by wastewater treatment plants operated by the
411 Town of Windsor, the City of Santa Rosa, and Airport Larkfield, which is used for crop and
412 landscape irrigation in lieu of using groundwater or imported water. Recycled water is used to
413 irrigate vineyards, dairies, and pasturelands, as well as landscaped parks, commercial
414 properties, schools and golf courses. Recycled water produced from Laguna Treatment Plant
415 and the Town of Windsor's Wastewater Treatment Facility is also delivered for energy

416 generation to the Geysers Geothermal Steamfield located in the Mayacamas Mountains outside
417 of the Subbasin and contributing water shed areas.

418

419 **2.5 Existing Monitoring Programs and Networks (Reg. 354.8 c, d, e)**

420

421 Existing monitoring programs and networks within the Subbasin have been developed and
422 implemented by many agencies, organizations and volunteers for a variety of purposes. This
423 section provides a description of the existing monitoring programs and networks. An
424 assessment of the existing monitoring networks and programs for their suitability to comply
425 with DWR's GSP Regulations, including identification of data gaps, is described in Section 5 of
426 this GSP (Proposed Monitoring Program).

427

428 **Groundwater Level Monitoring**

429 Numerous organizations within the Subbasin and contributing watershed areas collect
430 groundwater-level measurements, including: DWR, Sonoma Water, the Sonoma and Gold Ridge
431 RCDs, the cities of Cotati, Rohnert Park, Santa Rosa, Town of Windsor, Sonoma State University
432 and many operators of small mutual water systems. Permit Sonoma also compiles
433 groundwater level data collected for certain commercial and high-capacity water wells.
434 Groundwater levels are measured from a combination of private wells, dedicated monitoring
435 wells and inactive and active public water supply wells. The groundwater-level monitoring
436 network expanded significantly under the voluntary Santa Rosa Plain Groundwater
437 Management Program (GMP) through public outreach and education to private well owners
438 who volunteered to have their wells monitored. The majority of wells monitored in the
439 program are voluntary private domestic and agricultural wells, with a smaller but significant
440 portion of publicly owned water supply wells and dedicated monitoring wells. In addition, the
441 SWRCB GeoTracker program provides groundwater level monitoring data on a number of soil
442 and groundwater cleanup sites in the Subbasin.

443

444 Groundwater level monitoring is generally conducted twice a year, in the spring and fall, at 134
445 groundwater level monitoring program wells within the Subbasin and contributing watershed
446 areas, as shown on **Figure 2-7a,b**. A subset of the wells is monitored on a more frequent basis,
447 including continuous monitoring using pressure transducers. The 134 wells in the existing
448 monitoring program were subdivided according to their well-screen depth or total depth,
449 where known, into the following categories:

450

- 451 • less than 200-feet deep
- 452 • 200 to 500 feet deep
- 453 • greater than 500 feet deep
- 454 • unknown well-screen and depth

455

456 DWR has measured groundwater levels in a network of wells within the Subbasin for decades.
457 Most of these wells were incorporated into DWR's monitoring network between the mid-

458 1950's and 1981. Measurements are generally collected from these wells semiannually in the
459 spring and fall, although a subset of wells are monitored on a monthly basis.

460

461 Since 2004, Permit Sonoma has administered the Use Permit Groundwater Monitoring
462 Program, which requires the measurement and reporting of groundwater-levels on a quarterly
463 or monthly basis for commercial and industrial projects requiring a use permit and using over
464 0.5 acre-feet per year (AFY) of water.

465

466 The DWR California statewide Groundwater Elevation Monitoring (CASGEM) program is a state
467 program to compile groundwater level monitoring data statewide from local monitoring
468 programs. A subset of the Subbasin groundwater level monitoring data are reported by Sonoma
469 Water to the CASGEM program.

470

471 **Groundwater Quality Monitoring**

472 Groundwater quality data has been collected through many different programs and initiatives
473 described below. The synthesis and evaluation of results from the below water quality
474 monitoring programs are described in Section 3 (Basin Setting).

475

476 [Public Water Supply Well Monitoring](#)

477 The SWRCB's Division of Drinking Water (DDW) monitors public water system wells for
478 California Code of Regulations Title 22 requirements relative to levels of organic and inorganic
479 compounds such as metals, microbial compounds and radiological analytes. Data is available for
480 active and inactive drinking water sources, for water systems that serve the public, and wells
481 defined as serving 15 or more connections, or more than 25 people per day. In the Subbasin,
482 DDW wells were monitored for Title 22 requirements, including pH, alkalinity, bicarbonate,
483 calcium, magnesium, potassium, sulfate, barium, copper, iron, zinc, and nitrate.

484

485 [GeoTracker Groundwater Ambient Monitoring and Assessment Program](#)

486 Established in 2000, the Groundwater Ambient Monitoring and Assessment (GAMA) Program
487 monitors groundwater quality throughout the state of California. GAMA is intended to create a
488 comprehensive groundwater monitoring program throughout California and increase public
489 availability and access to groundwater quality and contamination information. GAMA receives
490 data from a variety of monitoring entities including DWR, USGS, and the State Water Resources
491 Control Board (SWRCB).

492

493 [Water Data Library \(WDL\)](#)

494 DWR's monitors groundwater quality data and reports the results through the Water Data
495 Library (WDL). Samples are collected from a variety of well types including irrigation, stock,
496 domestic, and some public supply wells. Wells are not regularly sampled, and most wells have
497 only one or two days-worth of sampling measurements and large temporal gaps between the
498 results. Constituents most frequently monitored include dissolved chloride, sodium, calcium,

499 boron, magnesium, and sulfate. Measurements taken include conductance, pH, total alkalinity
500 and hardness (more than 1,000 total samples per parameter). Additional dissolved nutrients,
501 metals, and total dissolved solids (TDS) are also sampled but have fewer sample results
502 available (one to 1,000 samples per parameter).

503

504 [Santa Rosa Plain Salt and Nutrient Management Plan](#)

505 The Santa Rosa Plain Salt and Nutrient Management Plan (SNMP) was prepared in 2013 in
506 accordance with the Recycled Water Policy of 2009 (as amended in 2013) by the City of Santa
507 Rosa in collaboration with partner agencies (City of Cotati, City of Sebastopol, City of Rohnert
508 Park, Town of Windsor, and Sonoma Water). The City of Santa Rosa submitted the final SNMP
509 in 2013 and the NCRWQCB approved the SNMP in a letter dated September 1, 2015. The SNMP
510 proposed a conceptual monitoring framework and implementation plan that the NCRWQCB
511 approved as part of the SNMP review and approval process. A Monitoring and Reporting
512 Program is currently being developed to comply with the SNMP and is proposed to include
513 monitoring of TDS and nitrate using laboratory methods, and pH, temperature and electrical
514 conductivity (EC) using field methods from 11 spatially distributed wells throughout the
515 Subbasin. Upon the implementation of the MRP, monitoring efforts will be coordinated and,
516 where possible, combined with the monitoring program described in Section 5 of this GSP
517 (Proposed Monitoring Program).

518

519 [U.S. Geological Survey National Water Information System](#)

520 Special studies conducted by the USGS within the Santa Rosa Plain Subbasin have included the
521 collection and analysis of groundwater quality data. Water quality analyses have included
522 major ions, trace elements, nutrients, and stable isotopes (oxygen-18 and deuterium), tritium,
523 the radioactive isotope of carbon (carbon-14) and the stable isotope carbon-13. Data collected
524 by the USGS through these studies is available on the National Water Information System
525 (NWIS) database (<https://waterdata.usgs.gov/nwis>).

526

527 **Climate Monitoring**

528 Climate-related monitoring stations in the Subbasin and contributing watershed areas provide
529 part of the information necessary for forecasting weather conditions, flood preparedness,
530 drought preparedness, water supply planning, and for determining the Subbasin water budget.
531 Climate monitoring stations may include sensors to collect data on rainfall, air temperature,
532 relative humidity, wind speed and direction, solar radiation, soil temperature and moisture.
533 Climate data is collected by many stakeholders in the subbasin, including data collected at six
534 locations through the Western Weather Group (<http://www.westernwx.com/sonoma/>) and
535 rainfall data collected under the Community Collaborative Rain, Hail & Snow Network (CoCoRAS
536 - <https://www.cocorahs.org/ViewData/CountyDailyPrecipReports.aspx?state=CA&county=SN>)
537 at three locations. Additionally, in response to the 2017 wildfires, Sonoma Water has lead the
538 deployment of 16 additional rain gauges within the Subbasin and contributing watershed areas
539 (<https://sonoma.onerain.com/home.php>).

540

541 The California Irrigation Management Information System (CIMIS) is a program unit in the
542 Water Use and Efficiency Branch, Division of Statewide Integrated Water Management,
543 California Department of Water Resources (DWR) that manages a network of over 145
544 automated weather stations in California. CIMIS was developed in 1982 by DWR and the
545 University of California, Davis to assist irrigators in managing water resources more efficiently.

546
547 <https://cimis.water.ca.gov/Stations.aspx>.

548
549 The primary weather station in Santa Rosa Plain Subbasin which has been used to calculate
550 mean annual rainfall is Climate Station Sonoma County Airport (National Climatic Data Center
551 #7965). The station is located at the Charles M. Schulz Sonoma County Airport. Data is available
552 from 1903 to the present at this station, however the station dataset does not contain a
553 complete record of daily rainfall for years.

554
555 Local agencies are also working collaboratively with the National Oceanic and Atmospheric
556 Administration and US Geological Survey to develop better information on weather conditions,
557 weather and river level forecasting and climate change.

558

559 **Surface Water Monitoring**

560 Existing continuous surface water monitoring in the Subbasin and contributing watershed areas
561 includes nine stream gaging stations operated by the USGS, and seven gauges operated by One
562 Rain, on behalf of Sonoma Water, and one stream gage operated by the Pepperwood Preserve.
563 Most streamflow records within the Plan Area date back to Water Year 1999 through the present.
564 Data collection for the OneRain gauges began in 2018.

565

566 **Land Surface Subsidence Monitoring**

567 In the Santa Rosa Plain, global positioning system (GPS) stations monitored by the University
568 NAVSTAR Consortium's (UNAVCO) Plate Boundary Observatory (PBO) program are currently
569 used as an indicator for subsidence. There are currently no regularly scheduled theodolite or
570 total station surveys and no extensometers in the Santa Rosa Plain.

571
572 The UNAVCO PBO network consists of a network of about 1,100 continuous GPS and
573 meteorology stations in the western U.S. used to monitor multiple pieces of information,
574 including subsidence. There is one station in the Sonoma Valley Basin and two in the upper
575 watershed: (1) P197, located on Highway 12 at Fulton Road; (2) P196, located along Meacham
576 Road southeast of Cotati, and (3) P201 located on the ridgetop just north of Mark West Quarry.

577

578 **2.6 Existing Management Programs and Studies (Reg. 354.8 c, d, e)**

579
580 There are many existing and previous water management programs, studies and initiatives that
581 cover the Santa Rosa Plain Subbasin that have been developed for a variety of purposes by
582 multiple agencies and organizations. This section summarizes those deemed most relevant to

583 groundwater management planning and indicates the type of information and details from
584 these plans that is incorporated into subsequent sections of this GSP.

585

586 **Santa Rosa Plain Groundwater Management Program**

587 In 2014, The USGS completed a groundwater study of the Santa Rosa Plain Subbasin and
588 contributing watershed areas in collaboration with Sonoma Water, the Cities of Cotati, Rohnert
589 Park, Santa Rosa and Sebastopol, the Town of Windsor, the County of Sonoma and the
590 California American Water Company. This study formed the basis of the 2014 Santa Rosa Plain
591 Watershed Groundwater Management Program (GMP) and Plan, developed for the Santa Rosa
592 Plain Watershed under the leadership of a Basin Advisory Panel, composed of a diverse group
593 of local stakeholders. The GMP was prepared under the authority of the Groundwater
594 Management Act, California Water Code (Water Code) § 10750 *et seq.*, originally enacted as
595 Assembly Bill (AB) 3030 in 1992 to encourage voluntary, non-regulatory groundwater
596 management at the local level.

597

598 The GMP aimed to locally and voluntarily manage, protect, and enhance groundwater
599 resources for all beneficial uses in a sustainable, environmentally sound, economical and
600 equitable manner for generations to come. This plan identified a range of voluntary water
601 management actions, including groundwater recharge, groundwater banking, increased water
602 use efficiency, and greater use of recycled water to reduce demand for groundwater. Key
603 information, tools and outcomes from these previous groundwater management planning
604 activities include:

605

- 606 • Technical information on the Basin hydrology, hydrogeologic framework, water
607 chemistry and source, surface water and groundwater interaction monitoring, and
608 records of groundwater levels.
- 609 • Significant expansion of monitoring activities.
- 610 • Initiation of studies for groundwater banking and stormwater recharge.
- 611 • Development of an integrated computer model (GSFLOW) of surface water and
612 groundwater systems in the Subbasin and contributing watershed area.
- 613 • Initial scoping of projects and actions to sustain groundwater resources in the Santa
614 Rosa Plain.
- 615 • Engagement of local stakeholders in local groundwater planning and management.

616

617 In 2017, as the Santa Rosa Plain Groundwater Sustainability Agency was forming and beginning
618 to assume management responsibilities for the Santa Rosa Plain Groundwater Subbasin under
619 SGMA, the Basin Advisory Panel and Technical Advisory Committee developed the [Insights and
620 Recommendations, Sonoma Valley Groundwater Conditions and Management document](#).

621

622 **North Coast Resource Partnership**

623 In November 2002, California voters approved Proposition 50, the Water Security, Clean
624 Drinking Water, Coastal and Beach Protection Act of 2002. The Act encourages regional

625 cooperation in water resources planning by providing grant funding for projects identified in a
626 regional plan, referred to as an Integrated Regional Water Management Plan (IRWMP).

627
628 The North Coast Integrated Regional Water Management Plan (NCIRWMP) was formed in 2004
629 as a voluntary, non-regulatory, stakeholder-driven planning meant to emphasize shared
630 priorities and local autonomy, authority, knowledge, and approaches to achieving Tribal, state,
631 regional, and local priorities related to North Coast water infrastructure, watersheds, public
632 health, and economic vitality. The NCIRWMP changed its name in early 2013 to the North Coast
633 Resources Partnership (NCRP) to distinguish the partnering entities and cooperative process
634 comprising the NCRP, and to recognize and emphasize that the NCRP is embarking upon a more
635 well-rounded planning effort in order to meet all of the social, economic, and environmental
636 challenges facing the North Coast, not only those directly related to water. The NCRP continues
637 to focus on areas of common interest and concern to North Coast stakeholders, and on
638 attracting funding to the North Coast Region, and recognizes unique local solutions in different
639 parts of the Region (<https://northcoastresourcepartnership.org/>).

640
641 The North Coast comprises seven counties, multiple major watersheds, and a planning area of
642 19,390 square miles, representing 12% of California's landscape, including the Plan Area. It is a
643 "source region" – for clean water, carbon sequestration, and biological diversity and provides
644 these benefits to other parts of California and the world. The NCRP's focus areas include
645 restoring salmonid populations, enhancing the beneficial water uses, promoting energy
646 independence, reducing greenhouse gas emissions, addressing climate change, supporting local
647 autonomy and intra-regional cooperation, and enhancing public health and economic vitality in
648 the region's economically disadvantaged communities.

649
650 The NCRP serves as a comprehensive planning tool that links other water resources
651 management plans and programs through collaborative processes, coordination and
652 communication.

653 654 **Urban Water Management Planning**

655 Urban Water Management Plans (UWMP) are prepared every five years by California's urban
656 water suppliers to support long-term resource planning and ensure adequate water supplies
657 are available to meet existing and future water demands. Every urban water supplier that
658 either provides over 3,000 acre-feet of water annually or serves more than 3,000 or more
659 customers is required to assess the reliability of its water sources over a 20-year planning
660 horizon considering normal, dry and multiple dry years. The plans are submitted to DWR, which
661 then reviews the submitted plans to make sure they have completed the requirements
662 identified in the [Urban Water Management Planning \(UWMP\) Act](#) (Division 6 Part\ 2.6 of the
663 Water Code §10610 - 10656).

664
665 Within the Plan Area, UWMPs are prepared by Sonoma Water (as a wholesaler) and the Cities
666 of Cotati, Rohnert Park, Santa Rosa and Town of Windsor (as water retailers). The City of

667 Sebastopol currently serves fewer than 3,000 customers and supplies fewer than 3,000 acre-
668 feet of water annually and, is therefore, not required to prepare an UWMP. The UWMPs
669 discuss and describe:

- 670
- 671 • Existing water supplies and infrastructure;
- 672 • Projected water demands over the next 25 years, based on population growth
673 projections, land use designations and growth policies in city and county general plans;
- 674 • Projected water supplies available over the next 25 years, the reliability of that supply,
675 and general plans for water supply projects;
- 676 • Current and planned water conservation activities;
- 677 • A water shortage contingency analysis; and
- 678 • A comparison of water supply and water demand over the next 25 years under different
679 hydrological assumptions (normal year, single dry year, four consecutive dry years).
- 680

681 As local groundwater makes up a portion of the water supply for urban purveyors within the
682 Subbasin, the UWMPs also discuss and describe groundwater production facilities, historical
683 and projected groundwater use and the conditions of the groundwater basin. Thus, UWMPs
684 serve as a routine mechanism for local urban water providers to coordinate and plan for future
685 urban groundwater use. The most recent projections for future urban groundwater use are
686 incorporated into Section 3 (Basin Setting). However, it is noted that UWMPs do not consider
687 rural residential, agriculture and small municipal/mutual water systems.

688

689 In addition to the UWMPs required by the state, many local urban water providers perform
690 other water supply planning activities related to groundwater, including development of water
691 master plans, preparation of water-supply assessments for larger proposed developments
692 (more than 500 dwelling units or equivalent), updates of city and county General Plans, and
693 other activities. Information regarding some of these activities is summarized below:

- 694
- 695 • Water Master Plans have been developed by many urban water providers in the Subbasin,
696 including the Cities of Cotati, Santa Rosa, Sebastopol and Town of Windsor, which assess
697 water supply needs and describe planned projects. The City of Santa Rosa has also
698 developed a [Groundwater Master Plan](#) to provide direction and recommended policies on
699 the City of Santa Rosa's use of current and future groundwater resources for both peaking
700 and emergency supply.
- 701
- 702 • Sonoma Water has developed a Water Supply Strategies Action Plan in coordination with
703 its water contractors to increase water supply system reliability, resiliency and efficiency in
704 the face of limited resources, regulatory constraints and climate change uncertainties. The
705 Water Supply Strategies Action Plan is currently being updated and will incorporate SGMA-
706 related requirements and initiatives. The most recent version is available at
707 <http://www.scwa.ca.gov/water-supply-strategy/>.
- 708

- 709 • Beginning with passage of SB 610 in 2002, water supply assessments must be furnished to
710 local governments for inclusion in any environmental documentation for certain projects
711 that are subject to CEQA (as defined in Water Code 10912 [a]). The water supply
712 assessments are required to determine water supply sufficiency for a 20-year projection in
713 addition to the demand of existing and other planned future uses. Since 2002, water
714 supply assessments have been prepared in the Subbasin on behalf of local planning
715 agencies.

716

717 **Climate Change Studies and Planning**

718 Projected changes in climate include increased variability in precipitation and rises in air
719 temperature, resulting in a shorter wet season, longer dry season, more droughts and more
720 extreme high flows. To face these potential changes in climate local organizations are working
721 with federal and state partners, including the USGS, DWR, NOAA, and the U.S. Army Corps of
722 Engineers to advance the science in our region in an effort to plan for and adapt to predicted
723 changes. Local agencies have also partnered to form the Sonoma County Regional Climate
724 Protection Authority and developed a [Regional Climate Action Plan](#). Findings and results from
725 these efforts are described in Section 3 (Basin Setting) and incorporated into future model
726 projections in this GSP. In addition, the City of Santa Rosa has prepared two Climate Action
727 Plans – the Community-wide Climate Action Plan and the Municipal Climate Action Plan, both
728 of which complement the Regional Climate Action Plan ([https://srcity.org/1634/Climate-Action-
729 Planning](https://srcity.org/1634/Climate-Action-Planning)).

730

731 **Groundwater Banking Feasibility Study**

732 Due to uncertainties in the reliability of regional future water supplies (both surface water and
733 groundwater), the Sonoma Water, City of Sonoma, and other local partners, including the cities
734 of Rohnert Park and Cotati, Valley of the Moon Water District, and the Town of Windsor (study
735 participants) have conducted a feasibility study for a regional groundwater banking program
736 (Groundwater Banking Feasibility Study) to investigate the viability of enhancing the
737 conjunctive management of surface water and groundwater resources (GEI, 2013). The
738 feasibility study report is available at:

739 [http://www.scwa.ca.gov/files/docs/water-resources/groundwater//banking/SRP-
740 SVGroundwaterBankingFeasibilityFINAL130625REDUCED_ADA.pdf](http://www.scwa.ca.gov/files/docs/water-resources/groundwater//banking/SRP-SVGroundwaterBankingFeasibilityFINAL130625REDUCED_ADA.pdf)

741

742 Conceptually, the groundwater banking program would involve the diversion and transmission
743 of surplus Russian River water produced at existing drinking water production facilities during
744 wet weather conditions (i.e., the winter and spring seasons) for storage in aquifers beneath the
745 Santa Rosa Plain and/or Sonoma Valley. The stored water would then be available for
746 subsequent recovery and use during dry weather conditions (i.e., the summer and fall seasons)
747 or emergency situations. The Groundwater Banking Feasibility Study provided an evaluation of
748 the regional needs and benefits, source water availability and quality, regional hydrogeologic
749 conditions, and alternatives for groundwater banking.

750

751 Based on the findings from the study, pilot studies to further assess the technical feasibility of
752 Aquifer Storage and Recovery (ASR) as a method for groundwater banking were recommended
753 and currently are being pursued in Sonoma Valley, where a pilot project was completed in Fall
754 of 2018 in the City of Sonoma.

755

756 **Water Conservation**

757 Numerous regional and local water conservation programs are operational in the Plan Area.
758 The Sonoma-Marin Saving Water Partnership represents 10 water utilities in Sonoma and Marin
759 counties that are signatories to the California Water Efficiency Partnership (CalWEP) and have
760 joined to create a regional approach to water use efficiency. Within the Subbasin, these utilities
761 include the Cities of Cotati, Rohnert Park, Santa Rosa, Town of Windsor and Sonoma Water.
762 Each of these member utilities, in addition to the City of Sebastopol and California American
763 Water Company, have water conservation programs to assist their communities in improving
764 water use efficiency reduce water waste. Water conservation and water-use efficiency program
765 elements specific to the Sonoma-Marin Saving Water Partnership include:

766

- 767 • Establishing a conservation coordinator, water waste prohibition, assistance and water
768 loss control programs (audits, leak detection and repair).
- 769 • Urban water metering and conservation pricing (tiered structure).
- 770 • Developing and maintaining public information and school education programs on
771 water and conservation.
- 772 • Specific urban residential programs for increasing indoor (high efficiency toilets, fixtures,
773 and washers) and outdoor (landscaping assistance, surveys and retrofits) conservation.
- 774 • Specific industrial and large landscape assistance, surveys and retrofits for increasing
775 conservation.
- 776 • Rebate programs for high-efficiency appliances and fixtures.
- 777 • Qualified water efficient landscaper training that provides education on proper plant
778 selection for local climates, irrigation system design and maintenance, and irrigation
779 system programming and operation.
- 780 • Online water wise gardening website which offers a Mediterranean and native plant list,
781 design and garden installation tips, and irrigation system design and maintenance
782 information.
- 783 • Green business program that provides businesses with water and energy conservation
784 information and incentives, to reduce waste and prevent pollution.

785

786 More information is available at <http://www.savingwaterpartnership.org/>.

787

788 Windsor Efficiency “pay as you save®” (PAYS®) is a mechanism to provide efficiency upgrades
789 for Windsor home and apartment occupants. Examples of water efficiency measures eligible
790 under the program high efficiency showerheads, toilets, and faucet aerators, drought resistant
791 landscaping and high efficiency clothes washers.

792

793 Governor Brown’s Drought Executive Order of April 1, 2015 (EO B-29-15) directed DWR to
794 update the State’s Model Water Efficient Landscape Ordinance (MWELo) through expedited
795 regulation. Local agencies must adopt the MWELo or adopt a local ordinance which must be at
796 least as effective in conserving water as MWELo by December 1, 2015. Executive Order B-29-15
797 and the revised ordinance require that local agencies report on the implementation and
798 enforcement of their single agency Local Ordinances to DWR by December 31, 2015. Reporting
799 for all agencies is due by January 31st of each year thereafter.

800

801 The county and cities have all developed individual water efficient landscape ordinances. The
802 new water efficient landscape ordinances require a landscape plan check for certain projects, as
803 described in the ordinance. It includes requirements for landscape water budgets, landscape
804 and irrigation design, and irrigation scheduling.

805

806 There are also resources for implementing water conservation practices for rural landowners
807 not connected to city water utilities or who are ineligible for urban water conservation program
808 rebates. These include:

809

- 810 • A water conservation and stormwater management guide for all types of landowners is
811 called “[Slow it. Spread it. Sink it. Store It!](#)” produced by the Sonoma RCD. This
812 homeowner’s and landowner’s guide, offers many ideas and tips on practices that can
813 help to protect and replenish groundwater resources, reduce erosion and pollution,
814 prevent flooding and increase water conservation and stormwater management.

815

- 816 • A guide focusing on rainwater catchment systems called “[Roof Water Harvesting for a
817 Low Impact Water Supply](#)” produced by the Occidental Arts and Ecology Center’s
818 WATER Institute.

819

820 The Sonoma RCD, Napa RCD, and the USDA Natural Resources Conservation Service developed
821 the LandSmart program to promote productive lands and thriving streams through planning
822 and on-the-ground implementation on beneficial management practices. The program is
823 applicable to a variety of agricultural lands. LandSmart Plans are developed by the agricultural
824 producer, either independently, through workshops, or through one-on-one assistance from an
825 RCD. Producers can also seek certification from the RCD’s certification team once plans are
826 complete. Plan templates and guidance materials are designed to assess current practices and
827 identify recommendations for other practices that would benefit natural resources such as
828 water quantity and quality. Practices are prioritized and tracked over time. For more
829 information on LandSmart™ visit: www.LandSmart.org.

830

831 Members of Wine Institute and the California Association of Winegrape Growers introduced
832 the Code of Sustainable Winegrowing Practices Self-Assessment Workbook in 2002 to promote
833 environmental stewardship and social responsibility in the California wine industry. The
834 workbook is a self-assessment tool for California’s vintners and growers and provides practical

835 information on how to conserve natural resources, protect the environment and enhance
836 relationships with employees, neighbors and local communities. The workbook addresses a
837 number of criteria for measuring performance, including Vineyard Water Management and
838 Winery Water Conservation and Quality. More information on sustainable winegrowing
839 practices is available at <http://www.sustainablewinegrowing.org/>. Additionally, the Sonoma
840 County Winegrowers have developed a Sustainability Certification Program for vineyards, which
841 includes water conservation assessments.

842

843 **Stormwater Management**

844 The need for integrating appropriate stormwater management practices while protecting and
845 preserving groundwater resources is increasingly recognized and have been integrated into
846 several initiatives and planning efforts.

847

848 Storm Water Resources Plans (SWRPs) are required by Senate Bill 985 (Pavley, 2014) in order to
849 be eligible to seek funding from any future state bond measures for storm water projects. A
850 SWRP is a non-regulatory, watershed-based and stakeholder-driven plan that builds on local
851 storm water management objectives and identifies and prioritizes projects that capture, treat
852 or reuse storm water and dry weather runoff. The [Russian River Regional Storm Water
853 Resource Plan](#) was developed by the Russian River Watershed Association for the Russian River
854 Watershed (which includes the Subbasin) with support from local agencies and partners to
855 identify and prioritize stormwater management projects. These projects must provide at least
856 two benefits which may include environmental enhancement, flood protection, groundwater
857 recharge, water quality improvement and/or recreational opportunities. The Russian River
858 Regional SWRP provides a framework for submitting, quantifying, scoring, and ranking future
859 projects in an objective and data driven format.

860

861 In three of its flood zones, Sonoma Water conducted scoping studies to identify opportunities
862 to alleviate flooding, while possibly recharging groundwater aquifers or providing other
863 benefits. The “Stormwater Management-Groundwater Recharge” studies assessed the
864 feasibility of projects in Laguna-Mark West watershed, the Sonoma Valley watershed and the
865 Upper Petaluma River watershed. Information and results from these studies have informed
866 the development of the SWRP.

867

868 Local growers have also been investigating the feasibility of performing on-farm recharge
869 projects within the Subbasin through the performance of pilot studies and field investigations.

870

871 **Municipal Stormwater Permit Program**

872 California’s Municipal Storm Water (MS4) Permitting Program regulates stormwater discharges
873 through a permitting program

874

875 . Sonoma Water is a co-permittee with the City of Santa Rosa and the County of
876 Sonoma inside the same MS4 permit boundary, incorporating most of the Subbasin. The City of
876 Santa Rosa and unincorporated areas near the cities of Healdsburg, Windsor, Santa Rosa,

877 Rohnert Park, Cotati, and Sebastopol are included in the permit. In early 2013, jurisdictions
878 that had been designated as Phase II municipalities within the Russian River Watershed were
879 provided an option to align with the Phase I program in an effort for watershed-wide
880 consistency and collaboration. The cities of Cloverdale, Cotati, Rohnert Park, Healdsburg,
881 Sebastopol, Ukiah, and the Town of Windsor, and the Phase II designated portions of
882 the County of Sonoma elected to participate in the Phase I program as Co-Permittees. To
883 comply with the MS4 permit, the City of Santa Rosa and County of Sonoma developed a Low
884 Impact Development Technical Design Manual, providing technical guidance for project designs
885 that require the implementation of permanent stormwater BMPs. Low Impact Development
886 (LID), as it relates to storm water, aims for a design to mimic the hydraulic function of the
887 undeveloped site by capturing, treating, and infiltrating storm water as close to the source as
888 possible, and locating small scale landscape-based features throughout the project site. Each
889 Co-Permittee is responsible for applying these Permit requirements in conformance with this
890 [LID Manual](#), at a minimum, to new development, retrofit projects, and applicable infrastructure
891 improvement projects within their jurisdiction.

892

893 [Water Smart Development Guidebook](#)

894 Sonoma Water developed the Water Smart Development Guidebook to provide Sonoma
895 County land developers, city and county planning officials, and environmental regulatory
896 agencies with a reference guide that can help them avoid and minimize potential adverse
897 impacts to water resources from development projects. The guidebook provides guidance for
898 planning and designing water resource related project elements for residential and commercial
899 developments. The three core guidebook sections focus on ways to increase water
900 conservation and water reuse and reduce stormwater impacts. The guidebook is available
901 online at: <http://www.scwa.ca.gov/watersmartdevelopment/>.

902

903 **2.7 Well Permitting Policies and Procedures**

904

905 Sonoma County Permit and Resource Management Department (Permit Sonoma) is the local
906 agency responsible for administering permits for wells within the Subbasin. The purpose of the
907 County's well construction policies is to provide for the location, construction, repair,
908 reconstruction, destruction and addressing abandonment of all wells to protect the
909 groundwater resource of the County, as contamination may cause serious public health, safety
910 or economic problems. Permit Sonoma reviews all development proposals within
911 unincorporated areas that will rely on wells for water supply.

912

913 The Sonoma County Well Ordinance contains regulations and requirements for constructing
914 wells to prevent groundwater contamination from the surface, and between multiple water
915 bearing zones in (Ordinance 25B). The well construction standard does not regulate flow
916 volumes or rates, nor does it evaluate water availability or local hydrogeology.

917

918 Permit Sonoma has developed a four-tier classification system, based on geologic information

919 and water yields, to designate general areas of groundwater availability (**Figure 2-9**). Class 1
920 areas are Major Groundwater Basins; Class 2 areas are Major Natural Recharge Areas; Class 3
921 areas are Marginal Groundwater Availability Areas; and Class 4 areas are Areas with Low or
922 Highly Variable Water Yield. The web link is: [http://www.sonoma-](http://www.sonoma-county.org/prmd/gisdata/pdfs/grndwater_avail_b_size.pdf)
923 [county.org/prmd/gisdata/pdfs/grndwater_avail_b_size.pdf](http://www.sonoma-county.org/prmd/gisdata/pdfs/grndwater_avail_b_size.pdf)

924
925 Permit Sonoma uses this groundwater classification system map for reviewing certain
926 development and building permit applications. Discretionary applications in Class 3 and 4 areas
927 and in SGMA medium and high priority basin are required to include hydrogeologic reports to
928 establish that groundwater quality and quantity are adequate and will not be adversely
929 impacted by the cumulative developments and uses allowed in the area. The aim is to avoid
930 causing or exacerbating an overdraft condition in a groundwater basin or subbasin. In addition,
931 discretionary applications in Class 4 areas are required to complete an aquifer pumping test.

932
933 Additionally, the County commissioned a pilot study of 3 areas it determined to have relatively
934 scarce groundwater, including portions of the contributing watershed areas of the Subbasin
935 (Bennett Valley and Mark West Study Areas). The study examined climate, land use and the
936 depths of wells drilled over time (Kleinfelder, 2003). Based on this pilot study, Permit Sonoma
937 established permit requirements and guidelines for performing pump tests on new water-wells
938 in water scarce areas. The study also recommended further studies of these water scarce areas.
939 Since 2004, Permit Sonoma has required groundwater-level measurement and volume
940 reporting on a quarterly or monthly basis from commercial and industrial projects requiring a
941 use permit and using more than 0.5 AFY of water.

942
943 Sonoma County municipal code water well requirements are available on the web at:
944 https://library.municode.com/ca/sonoma_county/codes/code_of_ordinances?nodeId=CH25B
945 [WAWECOST](https://library.municode.com/ca/sonoma_county/codes/code_of_ordinances?nodeId=CH25B)

946 **2.8 Additional GSP Elements (Reg. 354.8 (g))**

947
948
949 The GSP Regulations require that the Plan Area section include a description of any of the
950 additional GSP elements from Water Code 1027.4 that the GSA determines to be appropriate.
951 *It is anticipated that many, if not all the below elements will be addressed in subsequent*
952 *sections of the GSP. Once those sections are complete, this section will be updated to indicate*
953 *where the specific descriptions are located.* The additional GSP elements listed in Water Code
954 1027.4 are:

- 955
956 (a) Control of saline water intrusion.
957 (b) Wellhead protection areas and recharge areas.
958 (c) Migration of contaminated groundwater.
959 (d) A well abandonment and well destruction program.
960 (e) Replenishment of groundwater extractions.

- 961 (f) Activities implementing, opportunities for, and removing impediments to, conjunctive
- 962 use or underground storage.
- 963 (g) Well construction policies.
- 964 (h) Measures addressing groundwater contamination cleanup, groundwater recharge, in-
- 965 lieu use, diversions to storage, conservation, water recycling, conveyance, and extraction
- 966 projects.
- 967 (i) Efficient water management practices, as defined in Section 10902, for the delivery of
- 968 water and water conservation methods to improve the efficiency of water use.
- 969 (j) Efforts to develop relationships with state and federal regulatory agencies.
- 970 (k) Processes to review land use plans and efforts to coordinate with land use planning
- 971 agencies to assess activities that potentially create risks to groundwater quality or quantity.
- 972 (l) Impacts on groundwater dependent ecosystems.