

WRIA 1
WATERSHED MANAGEMENT PLAN

NEW SECTION

“AUTHORIZED EXEMPT GROUNDWATER
WITHDRAWALS, DOMESTIC”

ESSB 6091 – 90.94 RCW

January , 2019

(DRAFT) Version 2 – Jan 10, 2019

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Product of
WRIA 1 Planning Unit
Washington Department of Ecology
Whatcom County, Lead Agency

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WRIA 1 WATERSHED PLAN (1-7-19, v)

NEW SECTION – AUTHORIZED EXEMPT GROUNDWATER WITHDRAWALS, DOMESTIC

JANUARY 2019

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NEW PLAN SECTION - APPENDICES

Appendix A – ESSB 6091, Executed January 19, 2018

Appendix B – 90.94 RCW

Appendix C – Ecology-RH2 Contract C1700012, Work Assignment no. RH2111

Appendix D – Invitation letters to tribes [and response letters](#)

Appendix E – Whatcom County Resolution 2018-16

Appendix F – RH2 Task 1 Memorandum – FINAL, August 21, 2018

Appendix G – BERK Memorandum, August 2, 2018 including its Appendix A and the “WRIA 1 – Whatcom and Skagit County” table updated by BERK on August 3

Appendix H – Ecology Interim Guidance, use

Appendix I – RH2 Task 2 Memorandum

Appendix J – Associated Earth Sciences, Memorandum June 19, 2017, re Groundwater Model Capabilities

Appendix K – [Ecology Publication 18-11-009 “Interim Guidance for Determining Net Ecological Benefit,” June 2018](#)

79 1.0 Introduction – Authorization

80 On January 19, 2018, ESSB 6091 “Water Availability” was signed into law:

81
82 “AN ACT Relating to ensuring that water is available to support development; amending
83 RCW19.27.097, 58.17.110, 90.03.247, and 90.03.290; adding a new section to chapter
84 36.70A RCW; adding a new section to chapter 36.70 RCW; adding a new chapter to Title
85 90 RCW; creating a new section; providing an expiration date; and declaring an
86 emergency.” **Appendix A** - ESSB 6091, enactment as executed

87
88 The new chapter that was added to Title 90 RCW was codified as 90.94 RCW. See **Appendix B** -
89 90.94 RCW

90
91 This modification of the adopted water resources inventory area (WRIA 1) Watershed
92 Management Plan (“WMP”) is the product of the WRIA 1 Planning Unit to meet the required
93 watershed planning goals articulated by the legislature.

94
95 90.94.020 (4)(b): “At a minimum, the watershed plan must include those actions that
96 the planning units determine to be necessary to offset potential impacts to instream
97 flows associated with permit-exempt domestic water use.”

98
99 90.94.020 (4)(c): “Prior to adoption of the updated watershed plan, the department
100 must determine that actions identified in the watershed plan, after accounting for new
101 projected uses of water over the subsequent twenty years, will result in a net ecological
102 benefit to instream resources within the water resource inventory area.”

103
104 90.94.020 (7)(a): Deadline for completion February 1, 2019

105
106 1.1 Regulatory Context

107 ESSB 6091 Section 202 (90.94.020 RCW) correctly identified WRIA 1 “Nooksack” as a
108 watershed that “has an instream flow rule that does not explicitly regulate permit-
109 exempt groundwater, with a watershed plan adopted under chapter 90.82 RCW.”

110
111 Whatcom County Council opted-in to 90.82 RCW in May 1998. Whatcom County
112 Council is the “county legislative authority” and Whatcom County serves as “Lead
113 Agency.” The WRIA 1 Planning Unit was established in December 1999 and actively
114 operates under adopted rules (Policy and Procedure Agreement), with the participation
115 of local citizens, interests, and local jurisdictions (entities) that include the category
116 “initiating governments” in keeping with the “Purpose” and “Finding” sections of the
117 Watershed Planning Act (90.82.005 and .010 RCW respectively), and its “Definitions”
118 section (90.82.020 RCW).

119
120 90.82.020(6) RCW states: “ “WRIA plan” or “plan” means the product of the planning
121 unit including any rules adopted in conjunction with the product of the planning unit.”

122
123 Washington State Department of Ecology (“Ecology”) is the administrator of public
124 water resources (“waters of the state”). Through numerous departmental agreements,

125 Ecology coordinates plan review and implementation with participating state agencies.
126 Ostensibly the laws, statutes, and regulatory processes and procedures within
127 Washington State harmonize 90.82 and 90.94 RCW *in pari materia*.

128
129 The existing watershed plan adopted in 2005 that was expanded in 2007 does not
130 contain a section that specifically addresses exempt groundwater withdrawals suitable
131 for this watershed plan update. Therefore, this addendum is added as a new section
132 (“update section”) to the WRIA 1 Watershed Management Plan to meet the mandatory
133 objectives of the legislation.

134
135 This plan also includes a wide spectrum of additional (“may” element)
136 recommendations

137
138 This new section of the WRIA 1 Watershed Management Plan is entitled “**Authorized**
139 **Exempt Groundwater Withdrawals, Domestic**”.

140
141 1.2 Development and Approval Process

142
143 Ecology was required to “...work with the initiating governments and the planning
144 unit[s] ... to review existing watershed plans to identify the potential impacts of exempt
145 well use, identify evidence-based conservation measures, and identify projects to
146 improve watershed health” 90.94.020 (2).

147
148 Ecology selected RH2 Engineering as its technical consultant “to assist with completing
149 the analysis and drafting the Watershed Management Plan update.” Ecology
150 collaborated locally to develop a contract scope of work required by the legislation to
151 estimate the permit-exempt domestic consumptive use of water over a twenty year
152 planning period, and required offset for that consumptive use including
153 recommendations for actions and projects. The start date for the assignment was
154 March 19, 2018:

155
156 “RH2 will provide directed analysis and prepare a technical memorandum and
157 summary report that will become the update to the existing Plan.” See
158 **Appendix C** – Ecology-RH2 Contract C1700012, Work Assignment no. RH2111.

159
160 The Lead Agency invited representatives from the federally recognized Indian tribes
161 with a usual and accustomed harvest area in the inventory area (Lummi, Nooksack), to
162 participate in the watershed plan update as directed by 90.94.020 (3) RCW. The
163 invitations to participate as part of the planning unit were declined by both. See
164 **Appendix D** – Invitation letters and responses

165
166 Whatcom County Council clarified the Initiating Governments’ role in Resolution 2018-
167 16 on May 8, 2018. Resolution Section 4, Pg. 4, says, “Under RCW 90.82, the Initiating
168 Governments developed the scope of work for watershed planning and organized the
169 WRIA 1 Planning Unit. Under ESSB 6091, the Initiating Governments have the additional

170 task of collaborating with the Planning Unit to update the WRIA 1 Watershed
171 Management Plan.” See **Appendix E** – Whatcom County Council Resolution 2016-16

172
173 1.3 Coordination with Existing Plans and Programs

174 The actions related to this plan update section must coordinate with existing plans and
175 programs within the WRIA.

176
177 2.0 Assessment of Potential DGWPE Well Consumptive Use
178

179 90.94 (4)(b) RCW says, “At a minimum, the watershed plan must include those actions that the
180 planning units determine to be necessary to offset potential impacts to instream flows
181 associated with permit-exempt domestic use.” The WRIA 1 Planning Unit recognizes that
182 domestic water use is both beneficial and lawful.

183
184 The task of estimating the amount of domestic groundwater use over twenty years was
185 undertaken by Ecology, staff, RH2, and BERK for nine “aggregated sub-basins.” See **Appendix F**
186 – “RH2 Technical Memorandum (Task 1), Potential Consumptive Use Impacts of Domestic
187 Groundwater Permit-Exempt Wells Over the Next 20 Years in WRIA 1 – FINAL UPDATED,” August
188 21, 2018

189
190 2.1 Aggregated Sub-basins

191
192 WRIA 1’s sub-basins were previously grouped into nine separate “aggregated sub-basin”
193 (geographic) areas in the course of other local planning work. RH2 and staff
194 recommended that this watershed plan update work align with GIS overlays provided to
195 consultants by Whatcom County. The WRIA 1 Planning Unit approved the preparation
196 of estimates using the nine geographic “Aggregated Sub-basins” listed below in Table 1:
197 Coastal North, Coastal South, Coastal West, Lake Whatcom, Lower Nooksack, Middle
198 Fork Nooksack, South Fork Nooksack, Sumas.

Table 1
WRIA 1 Aggregated Sub-Basins

Aggregated Sub-Basin
1 - Coastal North
2 - Coastal South
3 - Coastal West
4 - Lake Whatcom
5 - Lower Nooksack
6 - Middle Fork Nooksack
7 - North Fork Nooksack
8 - South Fork Nooksack
9 - Sumas

199
200

201

202 2.2 Projected Population Growth and DGWPE Well Connections

203 BERK was engaged as the technical consultant to re-aggregate population projections
204 adopted in Whatcom County’s most recently updated Comprehensive Plan (“expected
205 growth between the years 2013 and 2036”) in the County’s rural unincorporated areas.
206 The projections were refined and adjusted by BERK in response to various requests, and
207 the Planning Unit found the level of precision to be adequate for the purpose of this
208 plan update. See **Appendix G** – BERK Memorandum, August 2, 2018 and the “WRIA 1 –
209 Whatcom and Skagit County” table updated by BERK on August 3.

210

211 RH2 calculated the total estimated number of “DGWPE Connections” by dividing the
212 BERK population projection estimates for each Aggregated Sub-basin by 2.56 “persons-
213 per-household.” The WRIA 1 Planning Unit found the estimate acceptable for the
214 purposes of this plan update. See **Appendix G** – BERK Memorandum, and **Appendix C**
215 – Ecology-RH2 Contract, Pg. 3 (Task 1.1)

216

217 2.3 DGWPE Well Consumptive Use Calculations

218 The calculation of consumptive use assumes that a substantial portion of groundwater
219 that is withdrawn for domestic use is returned to ground. On the parcel scale the
220 groundwater return is considered “in-time and in-place” for all practical purposes.
221 Simply put, the difference between the withdrawal and return of well water is
222 “consumptive use.” See **Appendix H** – ESSB 6091 – Streamflow Restoration, Initial
223 Policy Interpretations and **Appendix C** – Ecology-RH2 Contract, Page 2

224

225 The RH2 Contract’s Task 1.2 was, “Estimate DGWPE domestic water use per connection
226 using Ecology guidance.” The RH2 Task 1 Technical Memorandum - FINAL UPDATED
227 (August 21, 2018), Page 13 provides an estimate of “15.4 gpd (gallons per day) per
228 household of consumptive indoor water use for homes served by septic systems.”

229

230 RH2 also calculated an “Outdoor Water Use Estimate” (“amount of household irrigation
231 water use”) for each Aggregated Sub-basin, using multiple factors including an
232 adjustment for differences in precipitation among the Sub-basins. See Table 8 on Pg. 17
233 of **Appendix F** - RH2 (Task 1) Technical Memorandum FINAL

234

235 2.4 Analysis of Uncertainty Associated with DGWPE Well Consumptive Use Calculations

236 RH2 performed uncertainty analyses for each groundwater-use-estimate category, and
237 each section of the final memorandum was organized in this way:

238 • Methods used

239 • Assumptions Made

240 • Uncertainty Analysis

241 • Findings

242 See **Appendix F** - RH2 (Task 1) Technical Memorandum FINAL

243 2.4.1 Number of DGWPE Well Connections

244
245 Based on work completed by staff, RH2 and BERK, an array of “options and
246 scenarios” was prepared for consideration by the Planning Unit. See the
247 detailed explanation of this approach on Pgs. 19-20 of **Appendix F** – RH2 (Task
248 1) Technical Memorandum FINAL, and its “Appendix A”

249
250 The “**option**” types relate to various growth projection approaches employed by
251 BERK to estimate “New DGWPE Served Home” (connections). The options
252 reflect the manner of water supply anticipated in the nine Aggregated Sub-
253 basins.

254
255 The six “**scenario**” types then presented different approaches to providing
256 offset for the four Sub-basin growth (“option”) projections. The base-case
257 (Scenario 1) was a single 90.44.050 “domestic” connection, which estimated
258 the indoor consumptive use of 2.56 persons-per-connection/household
259 (estimate computed in gallons). The following two cases (Scenarios 2 and 3)
260 expanded to add 90.44.050 “watering” to “domestic” offset, with “Square Feet
261 Irrigated” increased from Scenario 2 to 3. The next case (Scenario 4) was larger
262 still, also presenting additional 90.44.050 “watering” offset but using turf crop-
263 consumption factors “Variable by Subbasin.” The next cases (Scenarios 5A, 5B,
264 and 6) presented additional “watering” offset estimates based on “combined
265 exempt use” examples. Full details of the option-scenario array are described in
266 detail in **Appendix F – RH2 Task 1 Memorandum**

267
268 After substantial deliberation, the Planning Unit selected “Scenario 4, Option 4”
269 as best to provide offset for the “domestic” with some modest adjustment for
270 Sub-basin precipitation.

271
272 The “6091 offset” based on this array selection over the 20 year period totals:
273 **Quantity approved** - Year 2038: for 2,150 Total Homes, 647.51 acre-feet

274
275 2.4.2 Household Consumptive Water Use

276
277 “The household indoor water use has been estimated at 153.6 gpd. Ten percent
278 of the household indoor water use equal 15.4 gpd per household of
279 consumptive indoor water use for homes served by septic systems.”Pg 13,
280 **Appendix F** - RH2 Engineering (Task 1) Technical Memorandum.

281
282 RH2 also conducted a detailed analysis of various scenarios regarding
283 household outdoor water use, using crop irrigation ratios (“CIR’s”), precipitation
284 for each of Sub-basins. Using Scenario 4, Option 4, total consumptive water use
285 at the end of 20 years was estimated at 647.51 acre feet per year (“afy”).

286

287 The offset amount of *this* estimated use-per-year (107.50 houses per year), for
288 each of the 20 years, for both indoor domestic use and outdoor watering use
289 computes to 32.38 acre feet per year. In the first year of data, Year 2018, eight
290 permits for exempt domestic groundwater wells were issued in WRIA 1.

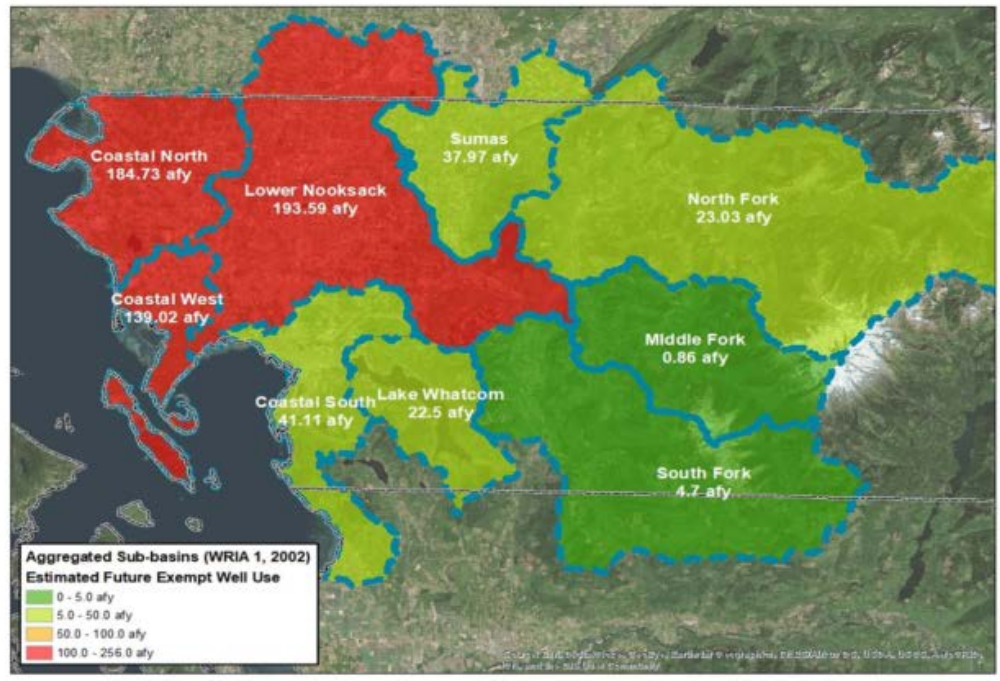
291
292 **!!** See **Recap of mandatory offset** on Page 16 of this plan as it pertains to
293 exempt “domestic” use as defined in RCW 90.44.050, below.

294
295 **RCW 90.44.050 “Permit to withdraw”** public groundwaters distinctly lists four
296 exempt use categories, with provisions, as follows:

297
298 “After June 6, 1945, no withdrawal of public groundwaters of the state
299 shall be begun, nor shall any well or other works for such withdrawal be
300 constructed, unless an application to appropriate such waters has been
301 made to the department and a permit has been granted by it as herein
302 provided: EXCEPT, HOWEVER, That any withdrawal of public
303 groundwaters for stock-watering purposes, or for the watering of a lawn
304 or of a noncommercial garden not exceeding one-half acre in area, or
305 for **single or group domestic uses in an amount not exceeding five**
306 **thousand gallons a day**, or as provided in RCW [90.44.052](#), or for an
307 industrial purpose in an amount not exceeding five thousand gallons a
308 day, is and shall be exempt from the provisions of this section, but, to
309 the extent that it is regularly used beneficially, shall be entitled to a
310 right equal to that established by a permit issued under the provisions
311 of this chapter: PROVIDED, HOWEVER, That the department from time
312 to time may require the person or agency making any such small
313 withdrawal to furnish information as to the means for and the quantity
314 of that withdrawal: PROVIDED, FURTHER, That at the option of the party
315 making withdrawals of groundwaters of the state not exceeding five
316 thousand gallons per day, applications under this section or declarations
317 under RCW [90.44.090](#) may be filed and permits and certificates
318 obtained in the same manner and under the same requirements as is in
319 this chapter provided in the case of withdrawals in excess of five
320 thousand gallons a day.”

321
322 2.4.3 Consumptive Water Use per Aggregated Sub-basin

323
324 For planning purposes only, RH2 generated a map of Sub-basins that illustrates
325 the possible sub-division and distribution of 647.51 afy using “Option 4,
326 Scenario 4”
327



“Aggregated Sub-basins (WRIA 1, 2002) Estimated Future Exempt Well Use”
 Appendix F – RH2 Technical Memorandum, **Appendix F**

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334 3.0 Development and Selection of Actions

335 90.94.020 (4)(b) states, “At a minimum, the watershed plan must include those actions that the
 336 planning units determine to be necessary to offset potential impacts to instream flows
 337 associated with permit-exempt domestic water use.” Domestic water use is clearly defined in
 338 RCW 90.44.050.

339
 340 During the development of the scope of work, the approach to meeting the legislative
 341 assignment as presented by staff, Ecology and RH2 to the Planning Unit was that the amount
 342 (quantity) of consumptive use would equate directly to the amount required to offset “potential
 343 impact.”

344
 345 Ecology’s guidance and the contract with RH2 focused on quantifying the net amount of
 346 consumptive domestic use in WRIA 1. Work assignment 1.6 of Ecology’s contract with RH2 was

347
 348 “1.6 Using the existing conceptual groundwater model information and Ecology guidance,
 349 as appropriate, calculate the impact of consumptive withdrawals on WRIA 1 surface waters
 350 on an aggregated subbasin level.”

351
 352 NOTE - Regarding the use of the conceptual groundwater model under development: A June
 353 19, 2017 memorandum was written by Associated Earth Sciences (“AES”), a licensed

354 hydrogeology contractor conducting scientific field work to measure and model the impact
355 of groundwater withdrawals on streamflow on Bertrand Creek, located in the Lower
356 Nooksack Aggregated Sub-basin. In response to staff questions, the AES memorandum
357 included an “Implications of the Example Analysis” sub-section that explained limits of
358 measurability of groundwater withdrawal(s) on streamflow impact on one square mile. The
359 memorandum significant technical information about the local groundwater model work
360 and instrument measurement, (key excerpts):

361 Pg. 1 “ > It is important to note that models do not provide data. Rather, models synthesize
362 available data into a framework that captures the essential elements of a complex natural
363 system. The model is being developed with the intent of being able to provide Ecology with
364 information necessary for the evaluation of water right applications and to provide
365 estimates of impacts that could be used to develop mitigation plans. The overall reliability
366 of the model to predict potential impacts associated with a proposed water right
367 appropriation will vary throughout the model domain, depending on the amount and quality
368 of the available model input/calibration data and the specific characteristics of the water
369 right application.”

370
371 Pg. 5 “Even in areas of the proposed numerical model with high data density, and good
372 calibration data (Bertrand Creek drainage), the extremely conservative estimate of
373 maximum potential impact to surface water from the use of 100 permit-exempt wells will be
374 significantly less than the lowest possible streamflow measurement error that will be used
375 to calibrate the model. The more realistic potential impact of 0.027 afd is less than 6% of
376 the potential error associated with the streamflow measurement data. Therefore, any
377 simulated predicted impact to the stream based on this scenario would be statistically
378 insignificant and not defensible.”

379
380 See Associated Earth Sciences Memorandum, June 19, 2017 - **Appendix J**

381

382 3.1 Identification and Characterization of Potential Actions

383 The legislature specifically required this plan update effort to “review existing
384 watershed plans...” and that this update should “...include recommendations for
385 projects and actions that will measure, protect, and enhance instream resources and
386 improve watershed functions that support the recovery of threatened and endangered
387 salmonids.” The Watershed Management Plan must reflect watershed improvement
388 actions and projects being undertaken and planned by all agencies and entities
389 throughout WRIA 1:

390

391 “Watershed plan recommendations may include but are not limited to,
392 acquiring senior water rights, water conservation, water reuse, stream gaging,
393 groundwater monitoring, and developing natural and constructed
394 infrastructure, which includes but is not limited to, such projects as floodplain
395 restoration, off-channel storage, and aquifer recharge. Qualifying projects must
396 be specifically designed to enhance streamflows and not result in negative
397 impacts to ecological functions or critical habitat.” 90.94.020 (4)(a) RCW

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RH2 completed the contract Task 2 assignment, “Collaborate with the Watershed Staff Team (WST) and WRIA 1 Planning Unit (Planning Unit) to identify a range of projects and actions to offset the estimated new consumptive DGWPE water use over the next 20 years in WRIA 1. This will include projects and actions that aim to measure, protect, and enhance instream resources and improve watershed functions that support the recovery of threatened and endangered salmonids.” See **Appendix I – RH2 Task 2 Memorandum.**

Element 3 of Ecology’s “Interim Guidance for Determining Net Ecological Benefit” says, “Planning efforts under ESSB 6091 should be coordinated with other assessments and plans for water resource management and the protection and restoration of instream resources.” See **Appendix K – Ecology Publication 18-11-009 “Interim Guidance for Determining Net Ecological Benefit”**

Many examples of projects are currently underway in WRIA 1 that include elements that will achieve streamflow restoration and salmon recovery goals listed in 90.94.020 (4)(a) ~~Such examples include, such as~~

- Whatcom County Public Works’ “Floodplains by Design”
- City of Bellingham’s “Middle Fork Nooksack River Fish Passage Project”
- WSDOT’s “Culverts Case” projects
- Nooksack Indian Tribe Natural Resource Department’s “North Fork Nooksack Farmhouse Reach” project
- Whatcom Conservation District’s “CREP” program
- Modifications to drainage district ditch infrastructure
- Whatcom County Public Works’ “Pollution Identification and Correction” program

3.1.1 Process for Identifying Actions

Ecology and staff recommended a short list of “early action projects” that were identified as eligible for funding in 2019 specific to the required DGWPE offset/net ecological benefit. The cooperative administration “WST” that included Ecology rated these projects, and the Planning Unit agreed to support three. Ecology has accepted these project applications.

3.1.2 Characterization of Potential Actions

In accordance with 90.94.020 (4)(b), “The highest priority recommendations must include replacing the quantity of consumptive water use during the same time as the impact and in the same basin or tributary.”

- 441
- One project, surface water to ground water conversion(s) in the Bertrand Creek watershed offered direct improvement to streamflow during the low-flow seasonally dry period:

442

443

444 Offset est. _____ afy Timing: [July-Aug-Sept](#)

445

446 “Lower priority projects include projects not in the same basin or tributary and projects that replace consumptive water supply impacts only during critical flow periods.”

- 447
- 448
- 449
- The second was an inter-basin transfer from Nooksack River to California Creek.

450

451

452 Offset est. _____ afy Timing: [July-Aug-Sept](#)

453

454 “The watershed plan may include projects that protect or improve instream resources without replacing the consumptive quantity of water where such projects are in addition to those actions that the planning unit determines to be necessary to offset potential consumptive impacts to instream flows associated with permit-exempt domestic water use.”

- 455
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- 459
- The third was a purchase of development rights in land zoned agriculture.

460

461

462 Offset est _____ afy Timing: [Continuous](#)

463

464 Additional action: The three “early action” projects described above were supported on the condition that a definitive assessment of offset quantity and timing would be professionally prepared and reported to the Planning Unit when and if the projects were approved for Watershed Restoration and Enhancement funding from the state.

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470 3.2 Selection of Actions

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472 New domestic groundwater permit exempt wells are anticipated to be located in one jurisdiction alone: Whatcom County’s unincorporated rural area(s).

473

474

475 However, Ecology, its contractor RH2, and the staff of local jurisdictions met privately and regularly to discuss and propose projects and actions that their independent entities and agencies might undertake cooperatively to improve watershed health WRIA-wide. A rating system (“[project matrix](#)”) was proposed and employed for action and project prioritization.

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481 The population growth estimates prepared by BERK were employed by RH2 to fulfill Task 1.6 “calculate the impact of consumptive withdrawals on WRIA 1 surface waters on an aggregated subbasin level.” Sub-section 2.4.3 above illustrates the ideal distribution of action(s) for offset that will provide net ecological benefit.

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3.2.1 Projects and Programs

The legislation required ~~the determination of~~ that the plan must specify “actions determined to be necessary to offset potential impacts to instream flows.”

“Actions” in this new plan section include many opportunities to measure, protect, and enhance instream resources and improve watershed functions that support the recovery of threatened and endangered salmonids.

To the extent practical, RH2 and staff compiled and evaluated a list of twenty projects with components necessary for (Element 4) net ecological benefit analysis that was structured in the form of a matrix. See Appendix “A” of RH2’s “Task 2” Memorandum, **Appendix I**. RH2’s Appendix “B” provided more detail for these projects, including maps, planning-level cost estimates, and project sponsors.

Project “action” recommendations were deliberated and approved by the Planning Unit based on this available information.

3.2.2 Policy Recommendations

3.2.2 Policy Recommendations

Two key Planning Unit determinations required by the legislation were characterized as “policy” matters by staff during preparation of this plan. Motions were passed by majority vote of the Planning Unit on November 8, 2018:

RCW 90.94.020 (4)(e) “...modification to fees...” (\$500 fee)

Determination: No modification to the \$500 fee.

Record of vote, November 8, 2018

- a. **Motion** by Perry Eskridge [Land Development] and second by Alan Chapman [Fishers] to adopt the \$500 fee as presented in the legislation and have it remain as such.

Motion Passed:

9 in favor: Agriculture, Fishers, Forestry, Land Development, Non-Government Water Systems, Port of Bellingham, Private Well Owners, Public Utility District #1, Water Districts

1 opposed: Environmental

2 abstain: Whatcom County, State Government

530 RCW 90.94.020 (4)(e) "...water use quantities that are less than authorized
531 under RCW 90.44.050 or more or less than authorized under subsection (5) of
532 this section for withdrawals exempt from permitting may not be applied unless
533 authorized by rules adopted under this chapter or under chapter 90.54
534 RCW." (3,000 gpd average limit, "domestic")
535

536 **Determination: In WRIA 1, retain the 3,000 gpd annual average in the**
537 **legislation. This is a 40% reduction from 5,000 gpd specified in**
538 **90.44.050. In itself, this is a significant tangible offset.**
539

540 Record of vote, November 8, 2018

541 b. **Motion** by Dan Eisses [Water Districts] and second by Steve Jilk
542 [PUD No. 1] to keep the 3000 gpd annual average that is in the
543 legislation and work in a voluntary metering program as part of
544 Adaptive Management, and the Planning Unit is comfortable with
545 RH2 estimates for consumptive use.
546

547 **Motion Passed:**

548 **9 in favor:** Agriculture, Environmental, Forestry, Land Development,
549 Non-Government Water Systems, Port of Bellingham, Private Well
550 Owners, Public Utility District #1, Water Districts

551 **1 opposed:** Fishers

552 **2 abstain:** Whatcom County, State Government
553

554 An additional motion about "policy" was made, voted, and approved by the
555 Planning Unit on November 8, 2018. Note that this motion was not directly
556 related to determinations required by the legislation:
557

558 Record of vote, November 8, 2018

559 c. **Motion** by John Mercer [Non-Government Water Systems] and
560 second by Perry Eskridge [Land Development] to include aerals as
561 part of the Adaptive Management process as a monitoring measure.
562

563 **Motion Passed:**

564 **8 in favor:** Agriculture, Environmental, Forestry, Land Development,
565 Non-Government Water Systems, Port of Bellingham, Private Well
566 Owners, Water Districts

567 **2 opposed:** Fishers, Public Utility District #1

568 **2 abstain:** Whatcom County, State Government
569

570 3.2.3 Analysis of Uncertainty Associated with Selected Projects and Programs
571

572 The RH2 Engineering technical memoranda included analyses of uncertainty
573 associated with selected projects and programs sufficient for this Update.
574

575 4.0 Evaluation of Impacts and Selected Actions

576 To determine actions necessary to offset the impacts of domestic groundwater permit exempt
577 wells, the Planning Unit evaluated information and recommendations made by Ecology,
578 consultants, and staff.

579 Each action undertaken under this section must include a Quality Assurance Project Plan (QAPP)
580 for identifying and evaluating the suitability and effectiveness of offset-related work.

581 4.1 Consumptive Use Offsets and an Analysis of Associated Uncertainty

582 The quantification of consumptive use offset shall be an element of any proposed
583 action, program, or project. Uncertainty analysis will depend on methods and
584 assumptions used in the action or project proposal, and should consider the natural
585 variability of streamflow conditions in WRIA 1 and in the Sub-basin in which the project
586 is located or in which the action takes place or has effect.
587

588 4.2 Ecological Effects Assessment

589 [The scale at which this plan section is designed: WRIA](#)

590
591 The quantity of water required for offset identified by RH2 Engineering in their Task 1
592 memorandum and approved by the Planning Unit, 647.51 afy, is sufficiently greater than
593 the “indoor” consumptive use calculated by RH2 Engineering and specified by 90.94.020
594 (1) and (8), 37 afy. [The additional offset amount, 610.51 afy, is based on the RH2](#)
595 [estimate of \(outdoor\) “watering.” that offset quantities of that magnitude would](#)
596 [provide enormous measurable ecological effect on their own.](#) See “Recap of
597 mandatory offset” below.
598

599 The forty percent (40%) reduction from 5,000 gpd specified in 90.44.050 is a significant
600 tangible contribution to offset. With all other factors being equal under Option 4 of
601 RH2’s “option and scenario” consumptive use array, the theoretical reduction from
602 Scenario 6’s 5,000 gpd and Scenario 5A’s 3,000 gpd computes to 3,276.46 total acre-feet
603 per year, illustrated as follows:
604

605	Scenario 6, Option 4	5,000 gpd	8,191.16 afy
606	Scenario 5A, Option 4	3,000 gpd	<u>-4,914.70 afy</u>
607		Reduction:	<u>3,276.46 afy</u>

608
609 **Recap of mandatory offset** for domestic groundwater permit exempt well consumptive
610 use (per connection):

611 Withdrawal: 60 gpd per person x 2.56 persons per connection = 153.60 gallons per day

612
613 90% return rate (per Ecology guidance) = 10% “consumptive use” = 15.4 gpd

614
615 15.4 gallons per day (per connection) = 0.01725022 acre feet per year (afy)

616
617 Total estimated connections over 20 years = 2,510

618
619 Est. new connections, 20 years (2,510/20) = 107.5 new connections per year
620
621 107.5 new connections x 0.01725022 afy = 1.85 acre feet (addl offset)
622
623 1.85 afy new offset per year x 20 years = 37 acre feet total, Year 20
624
625

626 4.2.1 Distribution of Impacts and Actions - Location

627 Per sub-section 3.0 above, RH2 produced a Sub-basin map that indicates the
628 estimated impact of consumptive use. Proposed actions and projects must
629 identify the specific location and quantity of the offset.
630

631 4.2.2 Distribution of Impacts - Timing

632 90.94.020 (4)(b) says, "The highest priority recommendations must include
633 replacing the quantity of consumptive water use during the same time as the
634 impact and in the same basin or tributary. Lower priority projects include
635 projects not in the same basin or tributary and projects that replace
636 consumptive water supply impacts only during critical flow periods." An
637 analysis of timing-of-offset must be embedded in project design for the project
638 to be considered by the Planning Unit for recommendation.
639

640 4.2.3 Ecological Implications

641
642 Proposed actions and projects shall identify the specific, observable and or
643 measurable ecological effects and implications of the offset.
644

645 4.2.4 Uncertainty Analysis

646
647 Uncertainty analysis shall be included in proposals for offset actions and
648 projects.
649

650 5.0 Action Implementation

651
652 5.1 Governance and Administration

653 WRIA 1 is a geographic area in which independent government and municipal entities
654 coordinate individual administrative efforts. See sub-section 1.1 above for regulatory
655 context.
656

657 As described in sub-sections above, the domestic groundwater permit exempt wells that
658 are the topic of this plan update section are those that are associated with building
659 permits issued for construction in which water from the well is to be used for domestic
660 purposes.

661

662 5.2 Funding

663 The legislature has established a number of funding mechanisms for the collection of

664 well fees and to otherwise fund worthwhile offset projects.

665

666 5.3 Implementation Schedule

667 An implementation schedule for this effort will be maintained by the Planning Unit as

668 plan-specific offset projects are approved.

669

670 6.0 Additional Actions and Program Concepts in Development

671

672 6.1 Water Use Efficiency – education program

673

674

675 6.2 Off-channel storage (example, state property near forks)

676

677

678 6.3 Reclaimed Water (replacement of water, Coastal North and other)

679

680

681 6.4 Additional Streamflow Measurement, (stream gaging)

682

683 6.5 (additional actions)

684

685 7.0 Net Ecological Benefit (“NEB”) - Plan Recap

686

687	Estimated “domestic” use, Year 20 (2038)	37.00 afy
688	Planning Unit recommended quantity	647.51 afy
689		
690	Additional (benefit)	610.51 afy

691

692