



**RWSA BOARD OF DIRECTORS
Minutes of Regular Meeting
October 24, 2023**

A regular meeting of the Rivanna Water and Sewer Authority (RWSA) Board of Directors was held on Tuesday, October 24, 2023 at 2:15 p.m. at the 2nd Floor Conference Room, Moores Creek Advanced Water Resource Recovery Facility, 695 Moores Creek Lane, Charlottesville, VA.

Board Members Present: Mike Gaffney, Sam Sanders, Jeff Richardson, Brian Pinkston, Ann Mallek, Gary O’Connell, and Lauren Hildebrand.

Board Members Absent: None

Rivanna Staff Present: Bill Mawyer, Lonnie Wood, Jennifer Whitaker, David Tungate, Betsy Nemeth, Scott Schiller, Andrea Bowles, Jacob Woodson, and Deborah Anama.

Attorney(s) Present: Valerie Long

1. CALL TO ORDER

Mr. Gaffney convened the October 24, 2023 regular meeting of the Board of Directors of the Rivanna Water and Sewer Authority at 2:15 p.m.

2. AGENDA APPROVAL

There were no comments on or questions for the agenda.

Ms. Mallek moved to approve the agenda. Mr. O’Connell seconded the motion, which carried unanimously (7-0).

3. MINUTES OF PREVIOUS BOARD MEETING ON SEPTEMBER 26, 2023

There were no comments on or questions regarding the minutes for the meeting held on September 26, 2023.

Mr. Pinkston moved to approve the Minutes of the September 26, 2023 Board Meeting. Ms. Mallek seconded the motion, which carried unanimously (7-0).

4. RECOGNITIONS

There were none.

5. EXECUTIVE DIRECTOR’S REPORT

Mr. Mawyer stated that he would like to recognize two staff members, Mark Charron and Drew Prothero, who passed their state wastewater licensing exams. He stated that Mr. Charron passed the Class 1 exam, which is the highest license, and had been with the Authority since 2013. He stated that Mr. Prothero passed his Class 2 exam, and had worked for Rivanna about a year and was a graduate of James Madison University.

47
48 Mr. Mawyer stated that this month, as part of their strategic plan priority of Workforce
49 Development, staff participated in fire safety training. He stated that they appreciated Albemarle
50 County Assistant Fire Marshall, Sean Maddox, coming over and giving them hands-on training
51 on how to operate a fire extinguisher using the PASS acronym (Pull, Aim, Squeeze, and Sweep).
52 He stated Assistant Fire Marshal Maddox used an electronic fire device and allowed staff to train
53 by putting out the fire with an electronic fire extinguisher.

54
55 Mr. Mawyer stated that under their Communication and Collaboration strategic plan priority,
56 Jennifer Whittaker, Director of Engineering and Maintenance, continued her involvement with
57 the UVA civil engineering class. He stated she made a presentation to the fourth year students
58 about public sector engineering careers. He stated that they attended the Resilient Together, One
59 Climate, One Community kickoff held at City Space. He stated that City Manager, Sam Sanders
60 kicked off the meeting, which was a joint effort between the City, the County, and UVA working
61 toward a more resilient community. He stated that Trevor Henry, Deputy County Executive, also
62 had opening comments. The presentation was well attended, and many good ideas were shared.
63 Rivanna was involved with the program since water was at the root of drought, flooding and
64 extreme heat issues.

65
66 He stated that another event that occurred in the community in which they participated was Mr.
67 Tungate's presentation at the Rivanna River Basin Commission. He stated that the commission
68 held an event in September, and Ms. Mallek was the chair of that event. Mr. Mawyer stated that
69 the topic was PFAS compounds and their potential impact on the environment. He stated that
70 Mr. Tungate presented Rivanna's perspective on water treatment and biosolids application,
71 emphasizing how PFAS was a major component of these processes.

72
73 He stated that in addition to planning a renovation of the Administration building next year, it
74 had been suggested that they should incorporate an education component into the plans of the
75 building. He stated they were aware that Loudoun Water Authority had an education component
76 in their administration building. Mr. Mawyer stated that he had worked with some of the
77 Loudoun managers through professional associations and committees, and they were invited to
78 visit the Loudoun education center and "Aquiary". He stated it featured a 3,500 square foot
79 interactive display off their public entrance lobby. He stated that the public could come into this
80 large lobby where the public could pay a bill, as well as view interactive displays for water and
81 wastewater treatment. He stated that there was also a secured part of the building with
82 administrative offices.

83
84 Mr. Mawyer stated that there was an "Aquiary", which featured a one-mile path where visitors
85 could learn about wastewater treatment. He stated that the group took the tour of the outside
86 walking path which included a pond containing treated wastewater from their adjacent
87 wastewater plant, which had large koi fish to demonstrate its cleanliness. He stated that they also
88 had bioretention basins and other outdoor facilities that were open to the public. He stated that
89 the administration building and education center were constructed 15 years ago and had
90 maintained their value to both the community and the Authority. He stated that they were
91 typically fully booked with school classes visiting the displays, and over 700 students came
92 through each year.

93
94 Mr. Mawyer stated that he had completed the City and County quarterly reports to the City
95 Council and the Board of Supervisors this month. He stated that they were collaborating with the
96 ACSA and the City for the Imagine a Day Without Water program, which included the annual
97 youth art contest. He stated that this year's theme was "Tell us your action to save water." He
98 stated a group would judge the submissions, and they would have an award ceremony in
99 December.

100
101 He stated that last month at the Board meeting, they discussed drought concerns with some
102 apprehension, but fortunately, there had been rainfall since then. He stated that Albemarle and
103 central Virginia area remained under a watch status for groundwater and reservoir levels. Mr.
104 Mawyer stated they were currently 13 inches below the average rainfall this year, which equated
105 to 41% in their region, and at an approximately 16% low over the past 33 months. He stated that
106 the South Rivanna Reservoir was currently 100% full; Beaver Creek was 92% full; Totier Creek
107 at Scottsville was 100% full; Ragged Mountain had no water source and was about four feet
108 down, and they had not transferred any water to Ragged Mountain because of the dry weather
109 and low flows from Sugar Hollow. He stated that Sugar Hollow was currently 0.3 feet below the
110 top of the dam. He stated that Beaver Creek Reservoir, which served Crozet, was a little over a
111 foot down. He stated that the urban area reservoirs were collectively 92% full.

112
113 Mr. Mawyer stated that they were watching the South Rivanna Reservoir, and as long as it
114 continued to overflow, they maximized the use of that water at the South Rivanna Treatment
115 Plant and tried to hold water in Ragged Mountain reservoir. He stated that if South Rivanna
116 ceased to flow over the dam, they would shift the usage distribution more toward Observatory
117 treatment plant and the Ragged Mountain Reservoir, attempting to save water in Sugar Hollow
118 and South Rivanna Reservoirs. He stated that they hoped for a wet fall and winter, which would
119 put them in good shape for the following spring and summer.

120
121 Mr. Mawyer stated that they had recently received notice from the Virginia Department of
122 Health (VDH) about a cyber-attack affecting one of their colleagues and neighboring utilities, the
123 Western Virginia Water Authority, which served the Roanoke area. He stated that VDH had
124 issued a warning to all utilities to remain vigilant. He stated that Mr. Wood and the IT staff were
125 working diligently to ensure they did not experience any cyber-attack issues. He stated that this
126 situation was ongoing.

127
128 Mr. Mawyer stated that the November meeting would be held on November 14, which meant
129 there was a quick turnaround due to the Thanksgiving holiday. He stated that at the November
130 meeting, they would offer a presentation discussing the ongoing PFAS class action litigation. He
131 stated they needed to decide whether to stay in the class action program or opt out by December
132 4 for the DuPont cases and December 11 for the 3M cases. He stated that if they chose to opt out,
133 they must do so; otherwise, they would remain in the program as a class action participant.

134
135 Mr. Mawyer stated they were gathering facts and cost estimates for this litigation. Attorneys
136 from the class action group had created a spreadsheet to estimate potential awards based on flow
137 rate volume and PFAS contamination extent in water sources. He stated that they were working
138 through this calculation to determine possible compensation. He stated he attended two National

139 Association of Clean Water Agency webinars recently and received valuable advice from their
140 attorneys.

141
142 Ms. Mallek asked if they only tested at the water input or if they tested at other stages.

143
144 Mr. Mawyer stated that they tested the raw water and the finished water.

145
146 Ms. Mallek clarified that they would be able to gather the data easily.

147
148 Mr. Mawyer stated that they had been testing for up to nine years at some locations. He stated
149 that they had test data back to 2014. He stated that fortunately, they did not have high PFAS
150 levels, so they were not expecting that the matrix estimate would result in very high
151 compensation for damages. He stated that they would run through the numbers and see how it
152 worked out for them.

153
154 Mr. Gaffney asked if they would know in November whether they were giving away any rights
155 by remaining in the litigation. He stated he wanted to know if they would be relinquishing their
156 ability to sue 3M and DuPont in the future.

157
158 Mr. Mawyer stated he believed they were going to verify this information, but they would be
159 giving up future rights for water contamination, although he understood not for wastewater
160 contamination. He stated that some of the commentary from the NACWA websites mentioned
161 that the initial litigation with the class action suit was going to try to take these two companies to
162 the brink of their financial viability. He stated that there were billions of dollars included in the
163 class action suit. He stated that they would discuss next month whether it was worth staying in or
164 getting out of the litigation. He stated that a component would be that if you did not stay in now,
165 there may be very little, if funds remaining after the class action process.

166
167 Mr. Gaffney stated that he could not imagine that DuPont or 3M would disappear. He stated that
168 it was still early in their understanding of PFAS and its effects. He stated that it remained legal to
169 use these chemicals. He stated that this issue could persist for up to two decades. He stated he
170 trusted that they would provide him with a wealth of information within the next month.

171
172 Mr. Mawyer stated they would be gathering information by reading and listening to various
173 sources. He stated that their goal was to provide this information to others as soon as possible.
174 He stated the lawsuit involved two companies: 3M and DuPont, and they had different dates for
175 their deadlines, so it was essential to keep track of both schedules.

176
177 Ms. Mallek stated that 3M stopped production many years ago.

178
179 Mr. Mawyer stated that they had read or heard about it, but they had not found it in writing yet.
180 He stated that they were looking for that information. He stated that NACWA had been
181 advocating with Congress to pass laws to relieve utilities of the cost and let the cost be
182 transferred back to the people who manufactured the product and try to take it away from the
183 water and wastewater agencies.

184

185 Mr. Richardson stated that during the week of November 13, he had been summoned for jury
186 duty. He stated that he would know on Monday, November 13, whether he was serving or not.
187

188 Ms. Mallek stated that she would start on the phone because she would be leaving a VACO
189 meeting. She stated that she intended to begin on the phone and arrive later.
190

191 Mr. Mawyer stated that the meeting date was different due to holidays; it would take place
192 during the third week of November instead of the fourth. He stated that the same applied for
193 December.
194

195 Mr. Gaffney asked whether the Board would require an action to allow Ms. Mallek to participate
196 remotely.
197

198 Mr. Mawyer stated the Board will require a motion to permit Ms. Mallek to participate if she is
199 remote.
200

201 Mr. Gaffney stated that he would like to make two comments, one on precipitation and stream
202 flows. He stated that when they had the drought in 2002, one of the main reasons was that it
203 occurred over a number of years and the groundwater was so low that every rain just soaked into
204 the ground and did not make it into the stream. He stated that when looking at 2021 and 2023,
205 within another year or two, they could be back to where they were.
206

207 Mr. Gaffney stated that the education center was a great idea and he would love to go up and see
208 Loudoun's education center as well. He stated that the Rivanna board had first started talking
209 about them having an education center. He stated that Mr. O'Connell had discussed an education
210 center 15 years ago.
211

212 Mr. O'Connell stated there were a number of utilities with something similar or as part of an
213 administration complex. He stated he complimented Mr. Mawyer on trying to take a look at an
214 education center for the Rivanna project. He noted that it was not a huge amount of space when
215 considering the size of the complex.
216

217 Mr. Gaffney noted that funding was still a matter to consider.
218

219 Mr. Mawyer stated that Mr. O'Connell had brought up the idea of the education center during his
220 recent comments.
221

222 Mr. O'Connell stated that while he had mentioned the drought, he wanted to remind everyone
223 that the Ragged Mountain Reservoir had been expanded since then. He stated that the way to
224 move forward was expanding their current projects and the reservoir capacity.
225

226 Mr. Pinkston stated that he wanted to know if they were going to discuss that during the capital
227 project discussion. He asked about the specific projects about raising the water and any legal
228 matters that would need to be addressed in order for it to happen.
229

230 Mr. Mawyer stated that they could discuss it now if he preferred. He stated that Ms. Long had

231 been meeting with Jacob Stroman, the City attorney, and Mike Derdeyn, the ACSA attorney. He
232 stated they had drafted an amendment to allow additional water to be added to the Ragged
233 Mountain Reservoir. He stated the hope was that the amendment would be presented to City
234 Council in the near future, possibly in November or December.

235
236 Mr. Mawyer stated that the 2012 Ragged Mountain Dam Project Agreement had certain
237 limitations on when Rivanna could raise the water level by an additional 12 feet. He stated that
238 although the dam was constructed to accommodate this increase, there was a restriction in the
239 agreement based on community demand that it must be no sooner than 10 years before the
240 community's water demand equaled 85% of the water supply. He stated that he understood the
241 concern for some people in 2012 was that inundating more property around Ragged Mountain
242 should not be done until it became absolutely necessary.

243
244 Mr. Mawyer stated that the amendment suggested addressing climate change uncertainties and
245 drought by maximizing infrastructure and water supply by adding the 12 feet of water as soon as
246 possible was the best alternate for our community now. He stated that increase in water supply
247 would be completed in about two years if the amendment was approved by City Council, the
248 ACSA, and the Authority. He stated it would allow for grading modifications around the
249 reservoir, removal of vegetation, and adjustment of gates on the intake tower. He stated it
250 permitted transferring water from Sugar Hollow Reservoir to fill Ragged Mountain Dam.

251
252 Mr. Mawyer stated they agreed with the Mormon River group that they would limit the transfer
253 from Sugar Hollow to times of high flow, meaning when there were over 30 million gallons a
254 day coming across the dam at Sugar Hollow. He stated that they were meeting at the Sugar
255 Hollow dam in May, and it was evident that about 14 million gallons a day were coming over the
256 dam, which looked like a huge amount of water. He stated they decided to double it to 30 million
257 gallons as their threshold.

258
259 Mr. Mawyer stated that there had been approximately 50 days in the last three years where the
260 flow exceeded 30 million gallons a day. He stated the concept was that they did not expect to
261 take all of the 700 million gallons for Ragged Mountain from Sugar Hollow. He stated that
262 when the raw water system was full of water and flowing over the South Rivanna Dam, they
263 were not effectively using this natural resource as a water supply for the community.

264
265 He stated that since the excess water was going to the Chesapeake Bay, but they may as well
266 transfer it in Ragged Mountain reservoir. He stated that the amendment contained a caveat that
267 they would not transfer water unless there was more than 30 million gallons per day flowing over
268 the dam for the purpose of adding the 12 feet and an additional 700 million gallons at Ragged
269 Mountain. He stated that if the water level fell below the current water level, they could transfer
270 from Sugar Hollow without any consideration of the 30 million gallon per day threshold.

271
272 Mr. Pinkston stated that they could still proceed with moving water from South Rivanna to
273 Ragged Mountain, regardless of the events at Sugar Hollow.

274
275 Mr. Mawyer stated that once the pipeline was completed, the South Rivanna reservoir would be
276 the source of water for Ragged Mountain reservoir. He stated that at that point, they would stop

277 all transfers from Sugar Hollow and take all the transfers from South Rivanna Reservoir.

278
279 Mr. Pinkston stated that this was not really changing anything; it was just basically speeding up
280 the community water supply plan, which had been agreed to 15 or 20 years ago. He stated that
281 this was simply allowing them to speed up a portion of it.

282
283 Mr. Mawyer stated that was correct. They may not complete the pipeline from South Rivanna
284 for approximately seven years. He stated they had to consider whether they should take a risk
285 and not increase the community's water supply during this period by adding as much as possible,
286 understanding that they could only transfer about 3 million gallons per day from Sugar Hollow.
287 He stated they would transfer 25 million gallons per day from South Rivanna once the pipe and
288 pump station were built. He stated that if they only added 100 million gallons over the 7 year
289 period while the new pipe was constructed, it would be 100 MG more than the community would
290 have if they were in a drought.

291
292 Ms. Mallek stated that one overarching philosophy of thought to consider was if everyone
293 consistently discussed conservation. She stated that rural area residents, who had no public water
294 system to purchase from, were entirely on their own all the time. She stated that streams had
295 disappeared, and wells were now in crisis. She stated that whatever they could do to reduce the
296 divide between urban and rural areas and ensure that everyone understood that they were all in
297 this together was essential. She stated that if you were taking away rural water for urban people,
298 everyone needed to be doing their part in the urban area and not waste resources. She stated that
299 when she received pictures of businesses hosing down their sides of buildings or sidewalks
300 instead of using a broom, it raised everyone's concerns when discussing drought.

301 302 **6. ITEMS FROM THE PUBLIC**

303 *For matters not listed on the agenda for public hearing*

304
305 Mr. Gaffney stated the rules for public comment.

306
307 Peggy Gilges, Jack Jouett district of Albemarle County, stated that she had property in Sugar
308 Hollow along the Moormans River. She stated there were concerns about the low flow of the
309 Moorman's River for the past year. She stated that the reservoir had been maintained at a high
310 level. She stated that she wanted to talk about AC44 and the concern she had with groundwater.
311 She stated that the County and the City needed to do a study of their groundwater capacity, as
312 they did not have a good idea of where the aquifers were located or what the capacity was.

313
314 Ms. Gilges stated that she noticed in her community people who had ACSA water service
315 installing wells in their backyards so they could freely water their green lawns. She stated she
316 observed people with their sprinklers on during rainfall, which distressed her as it seemed that
317 the Authority were not doing the job of monitoring wells and knowing where wells were being
318 used in the urban ring when service was provided with treated water. She stated she was
319 concerned that people felt groundwater was a free resource, but nature also needed water.

320
321 Mr. Gaffney closed the items from the public.

322

323 **7. RESPONSES TO PUBLIC COMMENTS**

324 There were no responses to items from the public.

325

326 **8. CONSENT AGENDA**

327 *a. Staff Report on Finance*

328

329 *b. Staff Report on Operations*

330

331 *c. Staff Report on CIP Projects*

332

333 *d. Staff Report on Administration and Communications*

334

335 *e. Staff Report on Wholesale Metering*

336

337 *f. Staff Report on Drought Monitoring*

338

339 **Mr. Pinkston moved to approve the Consent Agenda. Mr. Sanders seconded the motion,**
340 **which passed unanimously (7-0).**

341

342 **9. OTHER BUSINESS**

343 *a. Presentation: Rivanna Conservation Alliance's Water Quality Monitoring and Related*
344 *Activities*

345

346 Claire Sanderson, Monitoring Program Manager at RCA, stated that she would be co-presenting
347 with Lisa Wittenborn, Executive Director of RCA. She stated that they had their new stream
348 health report available, which they published annually. She stated the Rivanna Conservation
349 Alliance was established in 2016 as a merger between the Rivanna Conservation Society, which
350 focused on advocacy, outreach, and education related to water quality, and StreamWatch, which
351 concentrated on collecting high-quality water data. She stated that upon merging, their mission
352 became working with the community to conserve the Rivanna River and its tributaries through
353 monitoring, restoration, education, and advocacy.

354

355 Ms. Sanderson stated that the bacteria monitoring sites focused on urban and recreational streams
356 and rivers, primarily in Charlottesville, with some in Albemarle County and Fluvanna County.
357 She stated that they had 21 bacterial monitoring sites. She stated that they also had 50 long-term
358 benthic monitoring sites scattered throughout the watershed, providing valuable information on
359 long-term stream health. She stated that their bacteria and benthic monitoring programs were
360 certified by the DEQ as Level Three, meaning that the data collected by their volunteers and
361 themselves was of high quality and comparable to that collected by DEQ.

362

363 Ms. Sanderson stated the data could be used to inform various environmental decisions without
364 requiring additional data collection. She stated that while they collaborated closely with DEQ in
365 developing their monitoring programs and protocols, they also had their own scientific advisory
366 committee comprising of local professionals in water and water quality. She stated one of its
367 members was RWSA's Water Resources Manager, Andrea Bowles.

368

369 Ms. Sanderson stated that for the bacteria monitoring program, volunteers collected water
370 samples, and they tested them for E.coli using IDEX's Colilert and measured turbidity. She stated
371 that they sampled 19 urban sites monthly from March to November, which gave them a monthly
372 checkup to ensure that nothing was going wrong. She stated that they had a weekly spring
373 monitoring program where they sampled nine sites with potential recreational use. She stated this
374 helped them determine if these sites met the revised Virginia recreational water quality standard,
375 which required at least 10 samples to be collected over 90 days.

376
377 Ms. Sanderson stated their summer weekly bacteria monitoring program sampled bacteria at
378 three high recreational sites along the Rivanna River: Darden Towe, Riverview Park, and
379 Palmyra Boat Launch. She stated that this was in conjunction with the James River Association's
380 James River Watch program. She stated they posted their data onto their site and also the swim
381 guide app going into the weekend so recreational users could make informed decisions about
382 whether or not they wanted to jump in the Rivanna.

383
384 Ms. Sanderson stated that they had started a bacteria source tracking program in conjunction
385 with the City of Charlottesville, with lots of input from the SAC. She stated they now conducted
386 extra monitoring at sites that had continued elevated E. coli levels that were unexplainable. She
387 stated that they were employing environmental DNA sequencing technology to determine the
388 host or most likely host species of E. coli bacteria entering the streams, whether it was humans,
389 deer, or other species.

390
391 Ms. Sanderson stated their biological monitoring programs sampled benthic macroinvertebrates.
392 She stated that different families had different levels of tolerance to pollution. She stated that
393 depending on who they found and how many they found, it gave them a really nice indication of
394 water quality in their streams. She stated that volunteers went out twice a year in the spring and
395 fall to monitor 50 long-term sites. She stated they had a couple of contract sites with Albemarle
396 County. She stated that due to low precipitation and stream flows, they had not been able to
397 sample some smaller streams this season.

398
399 Ms. Sanderson stated that volunteers also assisted in the laboratory. She stated they brought back
400 any unknown benthic macroinvertebrates that they could not identify at the family level in the
401 field and identified them under the microscopes. She stated that both their bacterial and benthic
402 data were shared on their website, as well as with their local partners, including RWSA. She
403 stated the information could be used to inform and educate the public. She stated they utilized
404 their monitoring data and protocols in many of their educational programs. She stated that they
405 identified pollution hotspots and aimed to help rectify the issues using their bacteria source
406 tracking program.

407
408 Ms. Sanderson stated that the data could guide local water resource planning and protection
409 efforts, assist DEQ and EPA with assessing water quality and identifying impaired waters. She
410 stated that their data, in conjunction with DEQ's data, had led to 175 miles of streams and rivers
411 within the Rivanna watershed being identified as impaired. She stated that this also guided the
412 cleanup actions that were necessary, such as the TMDLs. She stated that their data could be used
413 to evaluate the impact of water quality improvement efforts, such as the Biscuit Run restoration
414 efforts by Albemarle County. She stated that they were collecting data either side of that area,

415 benthic and bacteria data.

416

417 Lisa Wittenborn, Executive Director of RCA stated that she would like to discuss their
418 educational programs because they had experienced some wonderful synergy with RWSA staff
419 in their education work. She stated that they were able to expand the sixth-grade field trip
420 program, which they had been working on with Burley Middle School for approximately six
421 years. She stated that thanks to funding from the County and grants, they extended that program
422 to all middle schools in the County. She stated that as a result, 1,000 sixth graders had the
423 opportunity to test their streams, get their hands wet, and explore areas around their schools.

424

425 Ms. Wittenborn stated that they had been working with Buford Middle School for the past three
426 years. She stated that this week, they were out with all of the seventh graders, and they were able
427 to bring them to Camp Albemarle, where they could participate in water sampling for
428 macroinvertebrates, nature hikes, games, and other activities. She stated that in the spring, due to
429 the significant expansion of the program, they issued a major call for volunteers. She stated that
430 both RWSA and RSWA encouraged their employees to join them. She stated they had numerous
431 staff members assisting in the field, which was beneficial to have additional personnel but also to
432 provide context to their work.

433

434 Ms. Wittenborn stated when they were at Henley Middle School in Crozet, they were standing
435 on the sewer line connecting Crozet. She stated that as a result, they could discuss where their
436 wastewater went and what was happening. She stated they conducted some of the chemical
437 testing that took place in the lab. She stated that this year, they started working with the UVA
438 Star Hill Pathways Program, which was a new program with the Equity Center. She stated that
439 part of their involvement was showing different career pathways in their area. She stated they
440 were looking at water quality and water resource management.

441

442 Ms. Wittenborn stated one of the field trips that they took them on was to the drinking water
443 treatment plant in Crozet. She stated they were not able to go to the big plant because it was
444 under construction. She stated they went to the treatment plant and met with a bunch of different
445 staff who showed them the lab and how it worked. She stated they also went down to the
446 reservoir to show them where the source water was coming from.

447

448 Ms. Wittenborn stated they also did a lot of education programs at events like River Fest, which
449 is an event that RWSA helped sponsor. She stated she had led a group of middle schoolers from
450 Tandem on a hike down the Rivanna Trail, and it was the first time she had ever seen the treated
451 effluent outfall. She stated it was a teachable moment. She stated that she told the students that
452 the water coming into the stream was cleaner than what was in the stream. She clarified that this
453 was correct.

454

455 Mr. Mawyer stated sure.

456

457 Ms. Wittenborn stated that another project that they were likely to be partnering with RWSA on
458 to some extent was the Rivanna Restoration at Riverview Park Project. She stated they were still
459 waiting to hear about funding from the National Fish and Wildlife Foundation. She stated they
460 had some issues on their end, so they were waiting to hear back. She stated this project would

461 basically involve restoring 600 linear feet of the riverbank and a stormwater outfall. She stated
462 that there was an area where stormwater from the Woolen Mills neighborhood met the river,
463 causing significant erosion. She stated that there was currently a 12-foot deep crevasse, which
464 was eating into the park and located near the Albemarle County Service Authority line.

465
466 Ms. Wittenborn stated that they had been working with them on this issue, and it continued to get
467 closer to the RWSA wastewater line that ran through the park. She stated that as part of their
468 project, they would collaborate with the City to stabilize the area by installing what were called
469 step pools. She stated it would help treat the stormwater as it entered the river, prevent erosion
470 from both directions, and serve as an attractive feature in the park. She stated that there was a
471 proposal to move the Rivanna Trail above the sewer line, which they had already discussed with
472 local stakeholders. She stated that keeping that area open and free of trees would allow them to
473 plant trees inside the banks to help stabilize and restore them.

474
475 Ms. Wittenborn stated the Rivanna River Resilience Partnership focused on protecting the forest
476 in the urban river corridor. She stated the project extended from the confluence of the north and
477 south forks down to Moors Creek. She stated that there was a strong emphasis on planting new
478 trees, but it was crucial to protect what they already had for various reasons, not just water
479 quality. She stated that the grant had been secured to bring together local governments,
480 nonprofits, and volunteer organizations to conduct assessments of invasive vines, trees, and
481 shrubs that threatened their forest health and resilience in parks such as Penn Park, Riverview
482 Park, and Darden Towe Park. She stated many of the lines went through these parks.

483
484 Ms. Wittenborn stated that they would be conducting invasive assessments, native canopy
485 assessments, and prioritizing areas for invasive management. She stated the grant included
486 funding to hire a contractor for the first round of management in many of these areas. She stated
487 volunteer groups would then adopt areas to maintain over time, providing long-term benefits.
488 She stated there was funding available for replanting trees in any areas requiring more canopy
489 coverage.

490
491 Ms. Wittenborn stated that regarding the North Fork Dam, she understood there may be
492 discussions about its removal at some point in the future. She stated that they received a grant
493 from the U.S. Fish and Wildlife Service to assess road stream crossings, which were often
494 culverts or bridges. She stated that the goal of this assessment was to identify fish passage issues
495 that could impact the survival of fish during times of low water levels and increasing water
496 temperatures. She stated that fish needed access to habitat and pools for their survival. She stated
497 that this was also important for freshwater mussels, which attached themselves to the fish as they
498 moved up and down streams. She stated that they went out and assessed almost 250 different
499 culverts according to a protocol called NAC.

500
501 Ms. Wittenborn stated that the protocol spit out a value in terms of how much of a barrier that
502 particular crossing was. She stated that a culvert perched high above the stream could be an
503 example where fish were swimming up but could not get into it to reach the other side. She
504 stated that there were various types of barriers, but this issue was growing in importance. She
505 stated that they focused their assessments on areas with potential or actual trout habitat because
506 they were a cold-water fish species, so this was also important for them, as well as areas where

507 migratory fish had been found. She stated that this was done partially through a fish survey they
508 conducted in 2019. She stated that the migratory species in their watershed included eels, which
509 were a threatened species not federally listed but considered a species of concern.

510
511 Ms. Wittenborn stated that sea lamprey were a menace in the Great Lakes with large mouths that
512 ate all the fish, but when they lived there, they were very small and did not feed on other fish.
513 She stated that they spawned there and then swam out into the ocean as their adult stage. She
514 stated that eels and sea lamprey needed free passage into their watershed all the way out to the
515 ocean. She stated that these species were good indicators of where there were barriers, where
516 they were finding them. She expressed her gratitude for the ongoing support of their programs,
517 stating that financial and staff support made a huge difference in allowing them to do all of the
518 monitoring work and other tasks currently undertaken.

519
520 Ms. Mallek asked if Ms. Sanderson was referring to the North Fork Dam located in Advance
521 Mills or some other dam.

522
523 Ms. Wittenborn stated that her understanding was that if the North Fork Water Treatment Plant
524 went offline, there might be some discussion about potential consequences.

525
526 Ms. Mallek asked if there was another closer to 29.

527
528 Mr. Mawyer stated that he believed so. He stated that there was a small dam near the North
529 Rivanna Water Treatment Plant. He stated that when they decommissioned that plant, they were
530 planning to remove what was called the low head dam.

531
532 Ms. Mallek asked if the green and purple colors on the map displayed were referring to the North
533 Fork TMDL process the DEQ was doing.

534
535 Ms. Wittenborn stated yes.

536
537 *b. Presentation: Value Engineering Program Review*

538 *Jennifer Whitaker, P.E., Director of Engineering and Maintenance*

539 Ms. Jennifer Whitaker stated that she would like to provide a brief review of the Value
540 Engineering program at Rivanna. She stated that she would begin by discussing what value
541 engineering was and what it was not. She stated that it was easy to think of it as cost cutting, but
542 it was actually more complex than that. She explained that value engineering was a process to
543 review project elements, such as key components, people involved, and other aspects during the
544 design phase in an effort to reduce costs or increase functionality, ideally achieving both. She
545 defined value as the most cost-effective way of producing a project without compromising its
546 purpose. She stated that it was about optimization. She stated that value engineering was not just
547 reducing costs at all costs or sacrificing quality. She stated that instead, it focused on gaining
548 value for the dollars spent.

549
550 Ms. Whitaker stated that the value engineering process was developed during World War II by
551 engineers and managers at the General Electric Company while manufacturing airplane engines.

552 She stated that there were extensive nationwide material shortages which really drove up the cost
553 of products and reduced their availability. She stated that to some degree, it was similar to what
554 we are seeing now with some supply chain shortages. She stated that they were working to
555 identify substitutes. She stated that they did not have a lot of time to do substitutions during the
556 war when they were trying to meet production quotas. She stated that they developed a very
557 systematic process where they could balance function and cost, make a determination, and then
558 move quickly through the process.

559
560 Ms. Whitaker stated that RWSA had a value engineering program with key dates listed from its
561 more recent history. She stated that one was a Board-adopted policy in 2014, a staff presentation
562 to the Board in 2019, and a general administrative procedure in 2022. She stated that it was also
563 worth noting that RWSA first employed value engineering during the Ragged Mountain Dam
564 project from 2008 to 2010. She stated that they hired an independent technical review team
565 (ITRT), which was made up of world-class experts on roller-compacted concrete dam design and
566 foundation design. She stated that it took them almost a year to hire the team itself because the
567 key with value engineering is having the right people in the room at the right time. She stated
568 that they brought these experts in, evaluated everything they had gone through for the previous
569 five years on design.

570
571 Ms. Whitaker stated that at the time, they were looking at a roller-compacted concrete dam cost
572 that was slowly creeping up towards the \$85 million. She stated that they could no longer afford
573 to do the project, so they brought in technical experts to walk through all the design details. She
574 stated that the ITRT ultimately recommended that RWSA go with an earthen dam, which saved
575 50% to 75% of the cost of the project. She stated that the current VE process was not something
576 completely foreign to them; they had been using it for a while. She stated that over the years,
577 staff had refined a unique formalized process to do efficient value engineering reviews. She
578 stated that this approach had been employed at RWSA since about 2008.

579
580 Ms. Whitaker explained that there was a six-step methodology. She stated the first step was to
581 gather information, which involved obtaining a clear understanding of the project, including
582 data, drawings, facts, figures, the purpose of the project, its scope, and all related aspects. She
583 stated that the next step was functional analysis. She stated that in this stage, they worked with a
584 specialized team to examine why the project was being undertaken, identify the key components
585 of the project, pinpoint cost drivers, and determine how to meet primary functions while also
586 considering secondary functions that may emerge from the project.

587
588 Ms. Whitaker stated that the third item was creative speculation. She stated that although it might
589 seem counterintuitive to associate engineers with creativity, she stated that this stage involved
590 brainstorming and exploring various ways to achieve the intended process and function of the
591 project while potentially using different materials or methods for installation or construction. She
592 stated that the objective was to be creative and think globally, considering a broader perspective.
593 She stated that this was where the value engineering process was particularly helpful in
594 identifying weaknesses or missing elements that needed to be incorporated.

595
596 Ms. Whitaker stated that the fourth step involved evaluating all alternatives and highlighting
597 those most likely to bring functional improvements and cost savings. She stated that cost analysis

598 was the fifth step, focusing on capital costs, ease of operations, and operating expenses. She
599 stated that finally, the development step entailed identifying what would work, creating a
600 roadmap, and developing schematic designs for implementation into the project. She stated that
601 this process typically took anywhere from one day to three or four days, as demonstrated by
602 Ragged Mountain Dam's multiple workshops over several weeks. She stated that sometimes
603 hiring the right technical expertise could take longer.

604
605 Ms. Whitaker stated with that in mind, she would explain key Value Engineering criteria for
606 Rivanna. She stated that value engineering was automatically considered for all projects over \$5
607 million. She stated that if it was a smaller project but they thought value engineering would be
608 useful, they would use it as well. She stated that the flip side was true in that if they had a larger
609 project where value engineering was not likely to produce results because the project was so
610 constrained, they sometimes granted a waiver to the value engineering process. She stated that
611 they incorporated independent technical expertise along with the design team and staff.

612
613 Ms. Whitaker stated that even on the smallest of projects, they tried to bring in at least one
614 person from outside of any of the design firms involved. She stated that they would sometimes
615 bring in someone from the design firm who had not been involved in a project at all, such as
616 from a different office or part of the company. She stated that they also tried to also bring in
617 technical experts who were specialists in the topics they thought might be most problematic, like
618 pipe experts or excavators or construction experts. She stated that they typically conducted VE
619 study work at the 30 to 60% design phase, and left themselves open to bring the VE team back a
620 second or third time should it be necessary.

621
622 Ms. Whitaker stated that they tried to conduct workshops offsite and if they could not get offsite,
623 then out of the workaday environment. She stated that it was similar to a retreat, where they were
624 bringing a lot of people together to do some heavy-duty thinking in a short period of time and
625 they really did not want too many interruptions. She stated that they wanted an informal,
626 collegial atmosphere with people coming up with ideas. She stated that they found that this
627 worked fairly well. She stated that they were focusing on key ideas with a high likelihood of
628 success, as they did not have time to tackle every possible bolt and nut on their project. They
629 focused on the things that either cost a lot of money or brought the most value. She stated that in
630 the end, the team documented all outcomes, including cost savings and value brought to the
631 project.

632
633 Ms. Whitaker indicated on the slide the results from their VE study for the South Rivanna Water
634 Treatment Plant. She stated that each bullet represented a different area on the plant. She stated
635 that this was a large project located across a geographic area, and they highlighted various ways
636 to optimize or bring value throughout the process. She stated that they added two items to the
637 project, which were numbers seven and eight. She stated that a balance sheet at the end of a VE
638 study included negatives and positives, with the goal of achieving cost reduction or cost
639 equivalency. She stated that they managed to reduce the project's cost by \$800,000, which was
640 approximately a 5.5% reduction. She stated that embedded in that number were some key things
641 they added to the project for safety and reliability in their generators.

642
643 Ms. Whitaker stated that she would discuss a few recent VE studies and then the projects that

644 they anticipated having VE studies done in the coming years. She stated that they had just
645 completed the Ragged Mountain Reservoir to Observatory, Pipeline, and Pump Station VE
646 study, which was an interesting exercise. She stated that everyone thought their focus would be
647 on the pump station, but they actually had some interesting conversations about pipe construction
648 because right now in their business, the cost drivers were getting pipe and electrical. She stated
649 that they were conducting the administrative and engineering building expansion VE study in
650 early November, and the remaining projects were TBD but were all slated to include a VE
651 component in their design.

652

653 Ms. Mallek stated that one of her neighbors in Earlysville owned property in West Virginia
654 where the MVP was going through, and they were having to dig up pipe that had been sitting
655 above ground for like six years. She stated that it was all corroded and everything like that,
656 which was a horrifying prospect when thinking about putting in a pipeline. She asked if their
657 suppliers had to stipulate how long it had been since it was coated.

658

659 Ms. Whitaker stated that they had several different layers built into how they specified pipe to
660 protect what ultimately ended up in the ground. She confirmed that one of the things the industry
661 was doing right now was not agreeing to sell large lengths of pipe, for example a contractor
662 could not put in an order for five miles of pipe. She stated that they would only sell short batches
663 of pipe as needed. She stated that it did keep from having a lot of aging pipe sitting on a work
664 site. She stated that they required the contractor to protect the pipe and inspected it when it came
665 off the truck. She stated that their pipe was large diameter and very expensive on a per unit basis.

666

667 Ms. Whitaker stated that they typically specified outside coatings, protective coatings, as well as
668 interior coatings. She stated that they inspected it as it came off the truck and before it went into
669 the ground. She stated that the other thing she would mention was gaskets. She stated that
670 although it may sound crazy, if they had a rubber gasket that sat for five years, they must be
671 stored in a certain way and kept out of the sun. She stated that they did have a pretty tight quality
672 control program before they put the pipe itself into the project. She stated that for them, ductile
673 iron pipe could sit for a long period of time and still be safe to go into the ground, however, they
674 did a fair amount of checking as it went through the process.

675

676 Mr. Pinkston stated that it seemed similar to conducting a peer review halfway through a
677 complex project, which allowed for an additional perspective on the project.

678

679 Ms. Whitaker agreed that it was, and she may have failed to mention that they have adopted a
680 value engineering mentality in their own internal reviews as well. She stated that they hope that
681 by the time they get to VE, a lot of the obvious things have already been taken care of by the
682 project managers.

683

684 Mr. Pinkston asked if there were typical firms they went to in order to do this.

685

686 Ms. Whitaker stated that they tried hiring VE firms. She stated that historically, 10 to 15 years
687 ago, VE had been conducted exclusively by companies that specialized in VE. She stated that it
688 may still be done that way, however, they discovered that when contracting with a firm, the team
689 and office on the East Coast often collapsed. She stated that this process could be quite

690 cumbersome if every checkbox was followed. She stated that consequently, they had developed a
691 more streamlined approach, which they believed provided the value of bringing in outside
692 resources without spending money on peripheral aspects of the process. She stated that as a
693 result, they had reduced this process to just a few days with very specific requirements.

694

695 Mr. Pinkston asked if they had one engineering firm doing the design, whether they would bring
696 in another firm.

697

698 Ms. Whitaker stated that they always brought in at least one person from the outside. She stated
699 that this person might be another company working for them, or they could be independent
700 technical experts.

701

702 Mr. Pinkston asked if the teams got along when they did that.

703

704 Ms. Whitaker stated that it was quite remarkable how everyone seemed to be pulling in the same
705 direction. She stated that they had set some ground rules upfront, stating that their goal was to
706 bring the best product to Rivanna and the ratepayers, and everyone was there for this purpose.
707 She stated that the design engineer had an hour to present their design, showcasing their project.
708 She stated that this provided them with an opportunity to be proud of the work they had done and
709 explain how they made their decisions.

710

711 Ms. Whitaker stated that other participants were actively engaged in understanding these choices,
712 asking questions such as the reasoning behind decisions and contemplating alternative ideas
713 added to the list for further discussion later. She stated that the collaborative approach quickly
714 emerged as everyone worked together toward a common goal.

715

716 Mr. Pinkston asked if they also verified constructability, looking for options to speed up the
717 process or sequence work, or if that came later when they had a contract.

718

719 Ms. Whitaker stated that it was a bit of both. She stated that constructability, particularly for
720 these projects, was really hard. She stated that constructability was huge for these plants because
721 they had to keep them operating the entire time, so that was how they came up with the
722 Observatory shutdown, followed by the sequential steps. She stated that other projects included a
723 separate constructability review that they would do with a construction firm, or there were
724 several firms that did large projects that would give help in cost estimating or sequencing.

725

726 Mr. Gaffney asked when the photograph of the Observatory Water Treatment Plant was taken.

727

728 Ms. Whitaker replied that it was within the last two or three months.

729

730 **10. Presentation: Major Capital Projects Update**

731 *Scott Schiller, P.E., Engineering Manager*

732 Mr. Schiller stated that Ms. Whitaker's image was a good juxtaposition to his cover slide, which
733 showed the Observatory Water Treatment Plant before construction. He noted that it was slightly
734 greener and had more available space than what they currently had. He stated that he would be

735 doing the major capital projects update and wanted to show that because they would see the
736 Observatory Water Treatment Plant under construction later on, similar to Ms. Whitaker's
737 provided image but from different vantage points. He stated that he planned to start with projects
738 already under construction. The Observatory and South Rivanna Water Treatment Plants
739 Rehabilitation and Expansion Project, which aimed to increase the treatment capacity at the
740 Observatory Water Treatment Plant from 7.7 MGD to 10 MGD and improve South Rivanna's
741 ability to treat up to 12 MGD.

742
743 Mr. Schiller stated that this project included plate settlers, a new chemical building, as well as an
744 expansion to the GAC facility at Observatory, and then a new alum and fluoride building,
745 administration building, and a couple of new filters at South Rivanna. He indicated the new
746 administration building on the slide. He indicated the liquid lime, which they actually enclosed in
747 a structure. He stated that they had added two new filters to the filter building and the plant,
748 which now included an alum and fluoride building as well. He mentioned that there were
749 numerous other improvements throughout the facility in addition to that. He stated the next slide
750 showed the Observatory plant from a different view, displaying how they had expanded the filter
751 building for the new backwash pumps.

752
753 Mr. Schiller stated that the new chemical building was adjacent to the old pretreatment building.
754 He stated that they had also demolished two sedimentation basins and that with the addition of
755 plate settlers in the remaining two basins, they effectively doubled their capacity, eliminating the
756 need for the two sedimentation basins on the other side. He stated that they were installing a loop
757 road, and the retaining wall was to help support that loop road. He explained that this retaining
758 wall was around the location where the two sedimentation bases that were demoed had been. He
759 noted the old wall from the slow sand filter, dating back to the 1940s and 1950s, was still present
760 at the facility. He stated that it was a thorn in their side, no matter where they dug, they found it
761 as it was a massive structure. He stated that they were looking for this project to be complete in
762 March of 2024 with a budget of \$43 million dollars.

763
764 Mr. Schiller stated that he would next discuss the Airport Road pump station project. He stated
765 that this would reliably connect the Piney Mountain pressure zone to the Urban pressure zone.
766 He indicated the two pumps and stated that that this would take the lower pressure from the
767 urban system, boost it up, and send it into the Piney Mountain tank, supplying the Piney
768 Mountain pressure zone. He stated that this would take the place of what they called the Kohl's
769 pump right now, which was a temporary pump at the entrance of the Kohl's shopping center.
770 And stated that this would also be part of the future airport water pressure zone when it was
771 created. He stated that currently, they were looking at this project being complete in September
772 of 2024, with a budget of \$10 million.

773
774 Mr. Schiller stated that next was the Moores Creek 5kV electrical system upgrade project. He
775 stated that the intent of this project was the replacement of several major electrical components
776 at this plant. He stated that the plant was constructed in the 1980s, so there was some
777 infrastructure that was over 40 years old out there that had reached the end of its serviceable life.
778 He stated that this included motor control centers, transformers, switch gear, and other electrical
779 improvements.

780

781 Mr. Schiller stated that the problem, as Ms. Whitaker mentioned, was that they were
782 experiencing a lot of equipment delivery time issues with those types of products, which had
783 unfortunately caused significant delays to this project. He stated that fortunately, the contractor
784 had spent plenty of time getting a lot of the conduit in and some concrete pads and prep
785 essentially for when that equipment was delivered, so they would have no excuses when they
786 arrived on site. He stated that they were now looking for the project to be complete in December
787 of 2024 based on those delivery schedules and a budget of \$5.6 million.

788
789 Mr. Schiller stated that the next project was Red Hill Water Treatment Plant Upgrades, which
790 was a well facility but operated more as a treatment plant. He showed an image of the inside of
791 the existing well building, located with numerous chemical equipment. He stated that the intent
792 of the project would be to expand the facility and provide additional chemical storage space,
793 allowing for some automation and monitoring. He stated that they also planned to add GAC or
794 granular activated carbon treatment at this facility. He stated that a pre-bid for this project was
795 scheduled for Thursday, and they would accept bids by the end of November. He stated that
796 construction was expected to run from February 2024 to February 2025. He stated that the total
797 budget for the project was \$800,000, and they had received \$400,000 in funding from the
798 County.

799
800 Mr. Gaffney asked Mr. Schiller to let the Board know what Red Hill fed.

801
802 Mr. Schiller stated that it fed the school there and a small residential development. He noted that
803 it was a very small system.

804
805 Ms. Mallek asked if the reason for the GAC was due to deficiencies in the well water.

806
807 Mr. Schiller stated that it was more or less to ensure that they provided uniformly treated water
808 for the entire community. He stated that next, he would move into design phase projects. He
809 stated that the first project was the South Fork Rivanna River crossing, which would cross the
810 south fork of the river, and the first line was over on the east side of 29. He stated that a 24-inch
811 line on the west side would be installed. He stated that the full alignment of this project was
812 represented by the yellow line on the aerial photograph displayed, and the water line under the
813 river would be installed using horizontal directional drilling methods.

814
815 Mr. Schiller stated that this involved a high-density polyethylene pipe that curved under the river
816 and then connected to ductile iron piping on either side as it linked to a stub-out at the treatment
817 plant. He stated that additionally, there was ductile iron piping on the west side of 29 that had
818 been placed during the 29 widening process. He stated that they were approximately 90%
819 complete with the design phase and were currently working through final easement acquisitions.
820 He stated that construction was expected to begin in spring around May and continue until
821 December 2025, with a budget of \$7 million.

822
823 Mr. Pinkston asked what the diameter was for the new pipe.

824
825 Mr. Schiller stated that it was 24 inches.

826

827 Mr. Pinkston stated that he had never seen directional boring.
828
829 Mr. Schiller indicated on the slide the dotted line that represented the easement. He stated that
830 there would be a long drawback section, so they would assemble and fuse HDPE pipe sections
831 together, and that the installation process was similar to companies we've seen installing
832 fiberoptic cables on the side of the road, but much larger.
833
834 Ms. Mallek asked what made the hole in the rock for this pipe to go through.
835
836 Mr. Schiller stated that it was a drilling machine.
837
838 Ms. Mallek asked if it was a small version of what they did for the Rivanna Pump Station tunnel.
839
840 Mr. Schiller stated that that was a tunneling machine. He stated that he would next discuss the
841 Ragged Mountain Reservoir to Observatory Water Treatment Plant water line and pump station.
842 He stated that he mentioned earlier about Observatory being upgraded to 10 MGD. He stated that
843 the intent of this project was to provide a more reliable 10 MGD source of raw water to the
844 treatment plant. He stated that this would replace outdated infrastructure, as they had a 40-year-
845 old and a 70-year-old pump station and 70 to 110-year-old water lines coming from Ragged
846 Mountain to Observatory. He indicated on the slide that the alignment would connect into the
847 Ragged Mountain Reservoir over on the west side. He stated that they planned to have a new
848 pump station located at the Fox Haven Farm property. He stated that the line would extend north
849 to connect into the line already installed on the Birdwood Golf Course and then head east,
850 drilling under 29 before connecting in up at the Observatory Water Treatment Plant. He stated
851 that all easements and property acquisitions in the red areas were complete, including those with
852 the UVA Foundation. He stated that the yellow line was through the UVA property, and that had
853 been finalized, but they were still working on filing paperwork.
854
855 Mr. Schiller stated yes, the primary objective of the west-to-east pipeline was to supply water to
856 the Observatory Water Treatment Plant.
857
858 Mr. Pinkston asked if where it was going north was part of the larger transfer.
859
860 Mr. Schiller stated yes, that was part of the larger transfer between the two reservoirs.
861
862 Mr. Pinkston asked if there was some sort of valving as they approached the area.
863
864 Mr. Schiller stated that there was quite a bit involved, and that was actually what the image on
865 the slide somewhat was intended to show. He stated all of the various valves were going to be in
866 the yard at this pump station. He stated that not only would they be feeding water from Ragged
867 Mountain to Observatory, but there would also be times when they had to accept water from
868 South Rivanna and send it through to the reservoir. He stated that there would be other times
869 when they would be sending Ragged Mountain water up to the South Rivanna Water Treatment
870 Plant, and then also other times when they could potentially be sending South Rivanna water to
871 the Observatory Water Treatment Plant. He stated that there were numerous options available,
872 and a very complicated valving setup would be necessary.

873
874 Mr. Gaffney asked if it was the same pipe from the Ragged Mountain pump station would be
875 used for going to the Observatory.

876
877 Mr. Schiller stated yes.

878
879 Mr. Mawyer stated that the pump station building would be large enough to house pumps to
880 transfer water from Ragged to Observatory, and also to transfer water from Ragged back to
881 South Rivanna. He stated that initially, they would install only the pumps for the Ragged to
882 Observatory water transfer, and then with the Rivanna to Ragged pipeline project, they would
883 add the additional pumps needed to transfer water from Ragged to the South Rivanna WTP.

884
885 Mr. O'Connell asked if staff would come back at a later date.

886
887 Mr. Schiller stated yes, there would be some refinements at this station between programming
888 and pumps. He stated that also, there would be another pump station installed at the South Fork
889 Reservoir, which would serve as the main pumps and wet well. He stated that one of the things
890 they enjoyed discussing with consultants on this project was that they frequently informed them
891 about the 4,900 control points associated with all the various pumping scenarios that the station
892 would have to manage. He stated that he did not know if they were complaining to him or just
893 letting him know how important they were, but it was a fairly complicated design. He stated that
894 they were looking forward to some good Water Jam presentations about this project as well.

895
896 Ms. Mallek asked if there was any chance to run these pumps off of solar power in order to
897 reduce energy consumption.

898
899 Mr. Schiller stated yes, they were planning for solar panels to supplement the power needed to
900 run the pumps. He stated that they had acquired all easements and were working with UVA on
901 the final components of the Observatory property. He stated that as Ms. Whitaker mentioned,
902 they had performed a VE workshop on this project, and they were going through a number of the
903 recommendations that came out of that. He stated that they were moving forward with a 60%
904 design. He stated that they could look for this project to go into construction in September of
905 2024 and continue until December of 2028, with a budget of \$44 million.

906
907 Mr. Schiller stated that the Central Water Line would increase capacity to the Observatory and
908 enhance water conveyance by getting water into the distribution system. He stated that right now,
909 the Observatory was locked hydraulically essentially, so even if they wanted to treat more water,
910 they could not. He stated that it was about the hydraulics of the system. He stated that this would
911 improve water flow and pressure redundancy in the urban system and then hydraulically connect
912 the Observatory Water Treatment Plant to some of the larger lines out in the central and eastern
913 part of the distribution system. He stated that they were at 60% design on this particular project
914 at the moment, and they were working with the City on some additional design work for
915 waterline replacements on Lewis Street and Cleveland Street. He also stated that they were
916 working with them on the Belmont Bridge area and some refinements to the waterline there as
917 well.

918

919 Mr. Pinkston asked if they had identified all of their alignments and where they would run the
920 pipe.

921
922 Mr. Schiller stated yes. He stated that displayed on the slide was a 60% design document where
923 they had located the line and designed the pipe profiles. He stated that they were focusing more
924 on the utility interaction and conflicts and how to address them effectively before moving
925 forward with final waterline relocations.

926
927 Mr. Pinkston stated this appeared to be quite similar to what they had initially planned to
928 accomplish.

929
930 Mr. Schiller asked if Mr. Pinkston was referring to the location.

931
932 Mr. Pinkston stated yes.

933
934 Mr. Mawyer confirmed there were no changes to the pipe locations, except with the area under
935 the railroad tracks near East High Street. He stated that they had a path in mind, but they were
936 going to have to detour a bit. He stated that there was a developer who had some property there,
937 and he had development plans they were trying to accommodate.

938
939 Mr. O'Connell asked if they had figured that out or if it was still being studied.

940
941 Mr. Schiller stated that it was still being reviewed by the consultant. He stated that they had
942 several options and were working to refine them in order to present them for evaluation by the
943 City. He stated that they were looking to start construction on this project in December 2024 and
944 continue until December 2028, with a budget of \$41M. He stated that the next project was the
945 Emmett Street Water Line Betterment project. He stated that the Urban Finished Water Master
946 Plan had identified the benefit of having an upgraded and extended waterline along Emmett
947 Street, recognizing that this was a busy corridor.

948
949 Mr. Schiller stated that they wanted to try to work with other projects in the area so that they
950 could get the pipe in at a smaller cost and less disturbance, and as a result, the map displayed on
951 the slide showed the corridor and identified other projects that they could cooperate with them
952 from a betterment perspective. He stated that this had been done with the UVA, the City, and
953 VDOT, and two of those projects had already been completed. He stated that those were
954 Contemplative Commons at the Dell Pond, and the Ivy Corridor Public Realm project by the
955 intersection. He stated that they were currently working with the City on the first phase of the
956 Emmett Street Streetscape project, and had also been discussing with VDOT regarding some
957 enhancements at the 29 interchange.

958
959 Mr. Schiller stated that it appeared that there would be no betterment opportunities there,
960 however, they were still working to ensure minor details were followed. He stated that
961 additionally, they had infill projects that would need to be carried out as other projects progress.
962 He stated that they were collaborating with the City on the streetscape design and a betterment
963 agreement with them, and that they were anticipating construction to begin in 2024 and be
964 completed in 2026, with a budget of \$2.9M. He stated that next he would review the

965 administration building at Morris Creek. He stated that the building was constructed in 1980 and
966 was now in need of an interior upgrade and additional space to accommodate the growing
967 Authority.

968
969 Mr. Schiller stated that this new or upgraded building would include a new boardroom and
970 education centers, similar to what Loudoun County did, but tailored to their needs, as well as an
971 updated lab space. He stated that they were currently at 60% design for this project, and they had
972 scheduled a VE workshop for the first week in November. He stated that they would then move
973 forward with the design process. He stated that the slide depicted an exterior rendering of the
974 building, with the existing building visible in the background. He stated that he would provide
975 another image later that would showcase both buildings together more effectively. He stated that
976 their goal was to match the aesthetic of the existing building with the new one, making it appear
977 more modern. He stated that construction was expected to begin in July 2024 and continue
978 through December 2026, with an approximate budget of \$20 million.

979
980 Mr. Schiller stated that at Moores Creek, they had a structural and concrete rehabilitation project
981 underway. He stated that last year's presentation featured a slide listing 20 projects for the area.
982 He stated that they had since condensed these into three or four larger projects, including one
983 that focused on various aspects of development at the plant, which would account for a number
984 of repairs at the holding pond, including some concrete repair there, the equalization basins,
985 which was closer to just over here on the west side of the administration building, where some
986 concrete repair was also needed. He stated that the primary clarifiers required some repair work
987 as well as the digester, with interim repairs before they built the new digestion complex, then the
988 compost shed or the equipment shed, and they would be doing some repairs to that roof as well
989 as the drainage system.

990
991 Mr. Schiller stated that they would also provide better access to valves in the Rivanna pump
992 station and find a more efficient way to remove pumps from the aeration basins than their current
993 method. He stated that they were currently working on preliminary design for this project, with
994 plans to start construction on September 2024 and continue through June 2026, with a budget of
995 \$13.5M. He stated that again at Moores Creek, they had a building upfits and gravity thickener
996 improvements project, which was similar to the administration building update. He stated that
997 their operation staff and maintenance staff had been working in buildings existing since 1980,
998 and they had long outgrown those locations.

999
1000 Mr. Schiller stated that the slide showed a view of their existing maintenance shop, which was
1001 fairly congested, then the control room for their operators, which was actually an electrical room
1002 that they had converted into a control room. He stated that there were some definite upgrades
1003 required for their workspaces. He stated that improvements to the gravity thickeners would be
1004 made by improving the chemical feed system and providing cleanouts on the sludge lines, which
1005 they had had some problems with on the suction side of the sludge pumps. He stated that
1006 currently, they were going through a needs assessment or space needs assessment and developing
1007 concept plans.

1008
1009 Mr. Schiller stated that on the slide was just an example of a bubble layout, where they looked at
1010 the use of space and how much space they had, and then that could feed into basic conceptual

1011 design and be used to move it to actual development design objectives. He stated that they were
1012 looking for the construction of this project to begin in August 2024 and continue until December
1013 2025 with a budget of \$5 million. He stated that he would then move on to the Crozet pump
1014 station rehabilitation project. He stated that this project involved improvements to four
1015 wastewater pump stations constructed in the 1980s. He stated that it was a theme of replacing
1016 1980s infrastructure.

1017
1018 Mr. Schiller stated that these were four pump stations that conveyed wastewater from the town of
1019 Crozet into the urban wastewater collection system. He stated that the improvements would
1020 include replacement pumps, valves, roofs in need of replacement, motor control centers,
1021 generators, automatic transfer switches, and some other architectural features. He stated that their
1022 third pump station had an interesting design due to property owner requirements so they had
1023 siding to replace at that pump station as well. He stated that they were at a 30% design phase on
1024 this project with construction anticipated for January 2025 through December 2026 with a
1025 budget of \$10.4 million.

1026
1027 Mr. Schiller stated that there were plans for a granular activated carbon expansion project at the
1028 Crozet water treatment plant, which would treat up to two million gallons per day after
1029 completion. He stated that the existing GAC facility was located near the filter building, and a
1030 new building would be constructed in the ACSA maintenance yard or storage yard. He stated
1031 that they were working closely with ACSA to coordinate demolition of the old building and
1032 access to the site. He stated that some items would be transferred to a new storage yard on Avon
1033 Street. He stated that they were going through a granular activated carbon media evaluation, and
1034 preliminary design was underway. He stated that construction was expected to begin in April
1035 2025 and through October 2026, with a total budget of \$6.6 million. He stated that they had
1036 received a \$3.17 million grant from VDH for the project.

1037
1038 Mr. Schiller stated that next was the Beaver Creek Dam Pump Station and Piping Modifications
1039 project, which they had been discussing for some time. He stated that fortunately, they were
1040 moving into design and surveying, which he considered great. He stated that this was to upgrade
1041 the spillway at the dam to meet current DCR dam safety standards. He stated that the intended
1042 design was a labyrinth spillway, but unfortunately, as a result of that design, they would need to
1043 relocate the raw water pump station and improve the intake as well.

1044
1045 Mr. Schiller stated that this was part of a siting evaluation for where the pump station should go,
1046 so site one was selected for that pump station and the intake. He stated that they would also be
1047 installing a new raw water line, which would replace the current raw water line made of asbestos
1048 cement. He stated that survey work and design were beginning on this project in the fall, with
1049 construction expected to begin on April 2026 and continue until January 2029. He stated that the
1050 budget was \$43 million, but they anticipated significant grant funds from NRCS.

1051
1052 Mr. Schiller stated that finally, he would mention the South Fork Rivanna Reservoir to Ragged
1053 Mountain Reservoir Pipeline Intake and Facilities project. He stated that they were discussing the
1054 next part of the raw water transfer project. He stated that there would be a new intake and pump
1055 station at South Fork Rivanna Reservoir, with a waterline connecting into the north side of the
1056 Birdwood waterline previously installed, which would interconnect with the Ragged Mountain

1057 pump station. He noted that a 36-inch waterline would run through the entire corridor.

1058

1059 Mr. Schiller stated that all easements along the stretch had been acquired, and they were
1060 completing preliminary design work on the pump station and intake, trying to determine the best
1061 arrangement. He stated that on the slide was an actual aerial image, with the dam visible in the
1062 background, the road cutting around could be seen, as well as the new pump station and intake
1063 location adjacent to the existing intake pump station. He stated that construction for this project
1064 would with modifications to the Ragged Mountain reservoir in June of 2025 and continue
1065 through December of 2030, with a budget of \$80 million.

1066

1067 Mr. O'Connell asked if all the pump stations and intake were located on Rivanna property.

1068

1069 Mr. Mawyer stated that the pump station near the Rivanna reservoir was on City property that
1070 they leased.

1071

1072 Mr. O'Connell asked what the legal status was.

1073

1074 Mr. Mawyer stated that they were free to move forward with the project. He stated that it was
1075 included in the Ragged Mountain Dam project agreement that they leased the five acres
1076 necessary for the intake and the pump station from the City, so they had a right to utilize the
1077 area.

1078

1079 Mr. Schiller displayed an image of the existing Administration building with the rendering of the
1080 addition to better depict what the future renovation would look like.

1081

1082 **10. OTHER ITEMS FROM BOARD/STAFF NOT ON AGENDA**

1083 Mr. Gaffney asked if there were other items from Board members or staff not on the agenda and
1084 heard none.

1085

1086 **11. CLOSED MEETING**

1087 There was no reason for a closed meeting.

1088

1089 **12. ADJOURNMENT**

1090 At 3:43 p.m., Mr. Pinkston moved to adjourn the meeting of the Rivanna Water and Sewer
1091 Authority. Ms. Mallek seconded the motion, which passed unanimously (7-0).

1092

1093 Respectfully submitted,

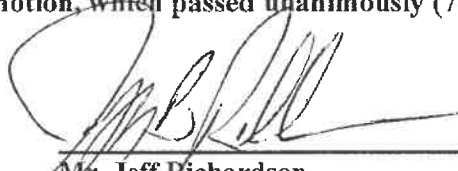
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Mr. Jeff Richardson
Secretary - Treasurer

