

## BOARD OF DIRECTORS' MEETING

November 21, 2024

9:00 A.M.

### AGENDA

*This meeting is being held pursuant to and in compliance with Va. Code Section 2.2-3708(3). The ACSA Board of Directors is responsible for receiving public comment. The opportunities for the public to access and participate in the electronic meeting are as follows: Join the meeting virtually through Zoom by visiting our website at [www.serviceauthority.org](http://www.serviceauthority.org); call in and leave a message prior to the meeting at (434) 977-4511, or email the Board prior to the meeting at [board@serviceauthority.org](mailto:board@serviceauthority.org).*

9:00 a.m.	1. Call to Order and Establish a Quorum –Statement of the Board Chair
9:05 a.m.	2. Recognitions – Jennifer Bryant, 25 Years of Service; Roland Bega, 25 years of service; VRWA Tapping Contest; AWWA Hydrant Hysteria Competition; Basic Management & Supervisory Leadership Training Program
9:20 a.m.	3. Approve Minutes of October 17, 2024
9:25 a.m.	4. Matters from the Public
9:30 a.m.	5. Response to Public Comment
9:35 a.m.	6. Consent Agenda
	a. Monthly Financial Reports
	b. Monthly Capital Improvement Program (CIP) Report
	c. Capital Improvement Program (CIP) Project Close-Outs
	d. Monthly Maintenance Update
	e. Rivanna Water and Sewer Authority (RWSA) Monthly Update
	f. ACSA Board Policy Issues Agenda 2024
	g. VERIP Application
9:50 am.	7. Annual Comprehensive Financial Report (ACFR) Presentation
10:10 a.m.	8. ACSA General Water and Sewer Construction Specifications Update and Approval
10:30 a.m.	9. Information Technology (IT) Monthly Information for Board
10:45 a.m.	10. New Customer Packet Introduction
11:00 a.m.	11. Items Not on the Agenda
	12. Adjourn





**ALBEMARLE COUNTY SERVICE AUTHORITY**

**STATEMENT OF CHAIR TO OPEN NOVEMBER 21, 2024 MEETING**

This meeting today is being held pursuant to and in compliance with Va. Code Section 2.2-3708.3.

The opportunities for the public to access and participate in the electronic meeting are posted on the ACSA's website. Participation will include the opportunity to comment on those matters for which comments from the public will be received.





## **R E S O L U T I O N**

***WHEREAS Jennifer Bryant began her career on  
November 1, 1999, and has served the Albemarle County  
Service Authority for***

***25 Y E A R S; and***

***WHEREAS her dedicated and exemplary service in both the  
Customer Service and Finance departments has contributed  
significantly to the success and growth of the ACSA over the  
years; and***

***WHEREAS she has been a key player in the development and  
implementation of systems and processes that have improved  
the overall efficiency of the ACSA's payroll and accounting  
operations; and***

***WHEREAS the Albemarle County Service Authority and its  
customers have greatly benefited from her impeccable work  
ethic and attention to detail; and***

***WHEREAS the Board of Directors of this Authority believes  
that such recognition should be publicly made;***

***NOW, THEREFORE, BE IT RESOLVED that the Board of  
Directors of the Albemarle County Service Authority expresses  
its sincere gratitude to  
Jennifer Bryant  
for her service to the customers of the  
Albemarle County Service Authority.***

\*\*\*\*\*

***I hereby certify the foregoing to be a true and exact copy of a resolution  
adopted by the Board of Directors of the Albemarle County Service  
Authority in a regularly scheduled meeting held November 21, 2024, by a  
vote of \_\_ to \_\_.***

---

***Quin Lunsford, Secretary-Treasurer***



## **R E S O L U T I O N**

***WHEREAS Roland Bega began his career on November 11, 1999, and has served the Albemarle County Service Authority for***

***25 YEARS; and***

***WHEREAS his efforts and service to the Albemarle County Service Authority in the Maintenance department have contributed to ensuring the continuous delivery of clean, safe, reliable water and dependable sewer services to the community; and***

***WHEREAS his role in mentoring and developing the next generation of leaders within the organization has greatly contributed to the continuity of operations of the ACSA; and***

***WHEREAS the Albemarle County Service Authority, its customers, and employees have greatly benefited from his dedication and leadership over the last two and a half decades; and***

***WHEREAS the Board of Directors of this Authority believes that such recognition should be publicly made;***

***NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Albemarle County Service Authority expresses its sincere gratitude to  
Roland Bega  
for his service to the customers of the  
Albemarle County Service Authority.***

\*\*\*\*\*

*I hereby certify the foregoing to be a true and exact copy of a resolution adopted by the Board of Directors of the Albemarle County Service Authority in a regularly scheduled meeting held November 21, 2024, by a vote of \_\_\_ to \_\_\_.*

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***Quin Lunsford, Secretary-Treasurer***



**Albemarle County Service Authority Board of Directors**

The Board of Directors of the Albemarle County Service Authority (ACSA) met in a regular session on October 17, 2024, at 9:00 a.m. at the Administration and Operations Center at 168 Spotnap Road in Charlottesville, Virginia.

**Members Present:** Ms. Lizbeth Palmer; Mr. John Parcels (remote); Mr. Clarence Roberts; Ms. Kimberly Swanson; Mr. Charles Tolbert, Vice-Chair.

**Members Absent:** Mr. Richard Armstrong, Chair.

**Staff Present:** John Anderson, Kenny Barrow, Josh Chidester, Jayden Damron, Tanya Johnson, Terri Knight, Quin Lunsford, Jeremy Lynn, Alex Morrison, Jami Roach, Sabrina Seay, Danielle Trent, April Walker (remote), Elizabeth Wallace.

**Staff Absent:** Mike Derdeyn, Emily Roach.

**Public Present:** None.

1. Call to Order and Establish a Quorum – Statement of Board Chair

Mr. Tolbert, Vice-Chair, called the meeting to order. He then read the opening Board Chair statement (Attached as Page \_\_\_\_\_), and a quorum was established. He stated that John Parcels was participating in the meeting electronically. Mr. Parcels stated that he was participating remotely from Kitty Hawk, North Carolina due to a family vacation.

***Mr. Tolbert moved to approve Mr. Parcels remote participation.***  
***All members voted aye.***

2. Recognitions – Public Utilities Management Institute – Advanced Management & Supervisory Leadership Training

Mr. Lunsford stated that earlier this month, eight ACSA employees completed an advanced management supervisory leadership training program in Louisa, VA. He stated that the training was coordinated by a group called Public Utilities and Waterworks Management Institute. He mentioned that it was a three-day program designed to help people understand management's changing role in today's utility environment. He

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1 noted that the participants reviewed leadership principles, challenges, critical  
2 thinking, coaching, mentoring skills, and decision-making processes. He  
3 added that they would like to recognize the group of employees that  
4 participated in the program, many of which are present at the meeting today,  
5 and express gratitude for their willingness to further improve as leaders for  
6 the ACSA. He stated that the maintenance employees that participated were  
7 Marshall Via, Raymond Mason, Jonathan Caylor, Jayden Damron, and Tyler  
8 Snoddy. He added that John Anderson from the engineering department,  
9 and Jami Roach and Josh Chidester from the finance department  
10 participated as well.

11  
12 3. Approve Minutes of September 19, 2024

13 Ms. Swanson stated that she had one correction on page 6, line 14.  
14 She stated that the word “dead” should be “deed.”

15 Mr. Parcels stated that he did not have a correction, but rather a  
16 question about the nutrient report from RWSA. He stated that he believes  
17 Mr. Lunsford stated that the update on the report would be released in  
18 October and he was wondering if it had been released yet.

19 Mr. Lunsford stated that they have not seen the update yet, but there  
20 is a RWSA Board of Directors meeting next Tuesday, and he would be sure  
21 to follow up with the ACSA Board after that meeting.

22 Mr. Parcels asked what the effect of the nutrient report would be. Mr.  
23 Lunsford replied that he was not sure. Mr. Parcels stated that they never  
24 discussed the rationale or consequence of the report and asked if Mr.  
25 Lunsford would bring it up at the RWSA meeting next week.

26 Ms. Palmer asked if Mr. Parcels is talking about checking the  
27 nutrients of the water before it is transferred from South Rivanna to Ragged  
28 Mountain. Mr. Parcels replied yes. Ms. Palmer stated that RWSA performed  
29 studies to see if the water needed to be pre-treated, as the water at Ragged  
30 Mountain is clean water. Mr. Parcels added that South Rivanna gets rather  
31 muddy during some of the big rainstorms, which would not be good to

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1 transfer to Ragged Mountain. Ms. Palmer stated that there has been a lot of  
2 discussion about how to transfer the water such as the placement of the  
3 intake. She stated that RWSA wants to transfer the water when the flows are  
4 high, but not when the water is incredibly muddy. She noted that it is amazing  
5 to her that the GAC system cleans the water as well as it does.

6 Mr. Parcells asked if this was all an RWSA decision, in that the ACSA  
7 would have no control over the transfer. Ms. Palmer replied yes. She stated  
8 that the assumption is that everyone wants the best possible water in the  
9 most economical way. She noted that RWSA is making those decisions, but  
10 Mr. Lunsford sits on their board and will have a say in how the transfer is  
11 done and the cost, etc.

12 Ms. Swanson asked if the South Fork reservoir was still being treated  
13 for algae. Ms. Palmer replied that it is at times during the summer. She stated  
14 that she does not remember how much they treated it this summer. Mr.  
15 Lunsford replied that it was not much.

16 ***Mr. Roberts moved to approve the minutes of September 19,***  
17 ***2024, as amended; seconded by Ms. Palmer. All members voted aye.***  
18

19 4. Matters from the Public

20 There were no matters from the public.  
21

22 5. Response to Public Comment

23 There was no response to public comment.  
24

25 6. Consent Agenda

26 ***a. Monthly Financial Reports –***

27 ***b. Monthly Capital Improvement Program (CIP) Report –*** Mr. Parcells  
28 stated that the summary for the Ragged Mountain Phase 1 Water Main  
29 Replacement project mentions RWSA is reevaluating their pump station  
30 project due to high bids. He asked how this will affect the ACSA's project  
31 timeline and design.

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1 Mr. Lynn stated that, at this point, the ACSA does not know what  
2 RWSA is going to do. He stated that there were two bids received, both  
3 over RWSA's CIP budget. He mentioned that he expects to hear more  
4 from them in the next couple of weeks, especially with their Board  
5 meeting next week. He stated that the ACSA staff will see if RWSA  
6 proceeds with the lowest bidder of the existing two, or if they will try to  
7 rebid. He added that the ACSA staff will then be able to determine what  
8 impact it may have on their CIP schedule.

9 Mr. Parcels asked Mr. Lynn to remind him of the timeline that they  
10 project. Mr. Lynn replied that RWSA was looking to have the pipeline  
11 and pump station constructed in the next two to three years. He stated  
12 that it is unclear at this point, where the ACSA will fall in the grand  
13 scheme of this \$50 million project.

14 Mr. Lynn stated that the ACSA was putting in a new pipeline parallel  
15 to RWSA's raw water pipeline, near the Fontaine Avenue/250 Bypass  
16 area. He stated that the ACSA was going to have RWSA's contractor  
17 build the new pipeline. Mr. Parcels stated that it was a matter of  
18 coincidental timing that the ACSA could take advantage of RWSA's  
19 excavation, etc. Mr. Lynn replied this is correct.

20 Mr. Parcels stated that he had a second question about the  
21 Broadway Street Water Main Replacement project. He noted that on  
22 page 62, it mentions the bid from Digs, Inc. being mathematically  
23 incorrect. He stated that the table shows their bid to be over \$1.6 billion,  
24 which must be a typo. Mr. Lynn replied that the number in the table is  
25 part of the error in Dig's bid submission. He stated that the bid  
26 documents require that the unit prices be written in words, which is what  
27 the ACSA follows. He stated that Digs mistakenly wrote the extended  
28 price in words which, when multiplied by the quantities, results in an  
29 outrageously large bid. He added that this was part of why Digs was  
30 ruled out of the bidding.



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1 Mr. Parcels stated that he wonders what the corrected bid would  
2 have been. Mr. Lynn noted, in defense of Digs, Inc., that the ACSA has  
3 worked with them before, and they have been a quality contractor. He  
4 stated that they were originally the apparent low bidder but, after  
5 speaking with ACSA legal counsel, they agreed that the ACSA would  
6 not be able to award the bid to Digs, Inc.

7 Mr. Roberts asked for an update on the public meeting that was held  
8 as part of the Briarwood Water Main Replacement project on page 60.  
9 Mr. Lynn stated that the meeting was very successful, with about six or  
10 seven people, including the HOA president. He mentioned that there  
11 was a lot of good conversation with the residents and the ACSA staff  
12 heard some of their concerns, which they will need to be mindful of  
13 during construction. He noted that a lot of the concern was about traffic  
14 control. He stated that there is a fair amount of youth activity and playing  
15 that takes place in the street, which is something they will have to pay  
16 close attention to during construction. He added that pavement  
17 restoration was another area of concern but when residents realized the  
18 ACSA would be repaving the full width of the roadway after construction,  
19 they were very pleased. He noted that he wanted to thank Ms. Swanson  
20 for attending the meeting as well.

21 ***c. Monthly Maintenance Update –***

22 ***d. Rivanna Water and Sewer Authority (RWSA) Monthly Update –*** Ms.

23 Palmer stated that as she was reading through the CIP update related  
24 to the Flood Protection Resiliency Study, she noticed that the Mechums  
25 River Raw Water Pump Station was one of the facilities listed. She  
26 stated that this pump station is located where the Sugar Hollow pipeline  
27 crosses the Mechums River. She mentioned that 25 years ago, when  
28 she first moved here, people could go into the pump station, and it was  
29 a safety hazard. She noted that they eventually cut off the entrance to it.  
30 She stated that there is no real reason for the pump station to still exist,  
31 as it has not been used in probably over 50 years. She stated that many

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people have suggested over the years that the pump station be taken down. She stated that she feels this should be added into RWSA's CIP at some point. She added that she just wanted Mr. Lunsford to be aware of this and perhaps discuss with the RWSA Board.

***e. ACSA Board Policy Future Issues Agenda 2024 –***

***f. Imagine a Day Without Water*** – Mr. Tolbert stated that he felt a separate vote was needed to pass the Imagine a Day Without Water resolution.

***Ms. Palmer moved to approve the resolution, seconded by Mr. Roberts. All members voted aye.***

***Ms. Palmer moved to approve the consent agenda, seconded by Ms. Swanson. All members voted aye.***

**7. Lead and Copper Regulations and Inventory Update**

Mr. Lynn stated that the Board has seen much of the information in this presentation (Attached as Pages\_\_\_\_), as a similar presentation was given in January 2023. He stated that he wanted to give the Board an update on where things are, as well as give praise to the ACSA staff and the hard work they have done to get the organization to where it is today.

Mr. Lynn stated that he would first talk about the Lead and Copper Rule history, followed by where the ACSA is currently and future efforts. He stated that the Lead and Copper Rule was established in 1991 by the Environmental Protection Agency. He stated that there were some small revisions made in 2000 and 2007, but the bulk of what he was going to discuss was the Revised Lead and Copper Rule (LCRR) that was passed in 2021. He added that he would also discuss the Proposed Lead and Copper Rule Improvements (LCRI).

Mr. Lynn stated that it was important to note two unique aspects of the Lead and Copper Rule, the first being that the ACSA is typically responsible up to the meter, but this is not the case with lead and copper. He noted that the ACSA's responsibility goes all the way to the tap. He

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1       stated that the second unique aspect is that while most of the testing is  
2       handled by ACSA or RWSA staff, that is not the case here as the customer  
3       collects the samples.

4               Mr. Roberts asked if it was unusual to find a different level of lead  
5       and/or copper from the meter to the house, compared to from the street to  
6       the meter. Mr. Lynn replied that lead and copper samples are not taken at  
7       the road, so the only samples come from the tap inside the home. He noted,  
8       however, that this does introduce a lot of private plumbing fixtures which  
9       contribute to the quality of the water.

10              Mr. Lynn stated that there are five highlights of the LCRR that the  
11       EPA passed. He stated that service line identification and inventory was a  
12       big requirement and was for both the customer side and ACSA side. He  
13       stated that, secondly, for any lead service lines identified, utilities are  
14       required to develop a lead service line replacement plan. He mentioned that  
15       there was also an increased focus on corrosion-control treatment, as well  
16       as a concerted effort to conduct testing for schools and childcare facilities.  
17       He added that overall, there was also an enhanced transparency and public  
18       education requirement.

19              Ms. Swanson asked, in terms of the school-related testing, if the  
20       ACSA or RWSA was coordinating with the school division. Mr. Lynn replied  
21       that he had some information on the school testing that he would touch on  
22       in just a moment, which he hoped would answer her question.

23              Mr. Lynn stated that before he continued, he wanted to recognize the  
24       17 ACSA staff members listed on the next slide. He stated that they had to  
25       go through over 25,000 service lines, identifying both the public side and  
26       the private side. He mentioned that this team was instrumental in getting all  
27       the data collected, entered into the GIS system, and eventually uploading it  
28       to the VDH portal, which was due yesterday.

29              Mr. Lunsford asked what it means when Mr. Lynn refers to identifying  
30       service lines on the public and private side. Mr. Lynn replied that it means  
31       to determine the material of the pipe and, more importantly, if there is the

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1 existence of any lead service lines on the public or private side. Mr. Tolbert  
2 asked if the identification is done at the meter. Mr. Lynn replied that he  
3 would get into more detail about the identification process when he gets to  
4 that slide in the presentation.

5 Mr. Lynn stated that the next slide outlined service line identification  
6 highlights and included a diagram showing the public water main in the  
7 road. He stated that there is typically a short piece of pipe that runs from the  
8 main to the meter, and then the private service line runs from the meter to  
9 the house. He stated that the inventory the ACSA was required to collect  
10 and maintain is a living document, thus it will have to be continuously  
11 updated as new customers come online and new data becomes available.  
12 He noted that the ACSA also had to identify materials for all irrigation and  
13 fire line systems, not just domestic service lines. He added that the LCRR  
14 also required that all utilities serving more than 50,000 customers must  
15 make this information publicly available online.

16 Mr. Lynn stated that when identifying the service lines, they had to  
17 be classified into one of four categories – lead, galvanized requiring  
18 replacement, non-lead, or lead status unknown. He noted that the ACSA,  
19 during its efforts, was able to determine that all service lines on both the  
20 public and private sides were not lead. He stated that it would have been  
21 easy to say unknown, but the requirements say that unknown service lines  
22 must be treated as lead service lines until they could be identified.

23 Mr. Roberts asked if Mr. Lynn could explain the galvanized requiring  
24 replacement category. Mr. Lynn stated that galvanized requiring  
25 replacement would include any service line that is galvanized material that  
26 was downstream of a lead service line at one point in time. He stated that  
27 the thought is that if there was any lead material, it was flowing through the  
28 water upstream pipe picking up lead particles, allowing them to adhere to  
29 the galvanized pipe downstream. He stated that these service lines were  
30 treated as being contaminated with lead material.

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1           Mr. Roberts asked if customers have galvanized service lines, which  
2 a lot of the older homes do, do they need to be replaced. Mr. Lynn replied  
3 that it they only need to be replaced if they were, at one point, downstream  
4 of a lead service line. He stated that there are over 700 galvanized service  
5 lines in the ACSA system, but there is no record or indication of those lines  
6 ever being downstream of a lead service line. He added that while they  
7 probably should be replaced, there is no requirement at this point to do so.

8           Ms. Palmer asked what year lead was banned from service lines. Mr.  
9 Lynn stated that in 1986, there was a national lead ban. He noted, however,  
10 that the building code in 1978 eliminated the use of lead service lines on the  
11 private side. He stated that those two dates were used to gather a lot of  
12 information about ACSA infrastructure, as the vast majority of the system  
13 was installed after one of those two dates.

14           Ms. Palmer stated that in New England, there were tons of lead  
15 service lines. She asked if builders were doing that in this area with homes  
16 built in the 1970s. Mr. Lynn replied that the ACSA has not found any  
17 indication of that. He stated that the City has performed their service line  
18 inventory and have not found any lead service lines in their system either.  
19 Ms. Palmer asked if lead solder was removed in 1986. Mr. Lynn replied yes  
20 and stated that there was a later revision in 2015. He added that any lead  
21 solder used today is completely safe.

22           Mr. Lynn stated that age of construction was probably the primary  
23 methodology used to identify where there was non-lead in the system. He  
24 stated that they also had to use other methods such as water system  
25 records and looking through plans. He stated that they used new water main  
26 installation and replacement as well. He mentioned that when customers  
27 are connected from an old water line to a new one, they have to tap into  
28 their actual service line. He noted that they are excavating, looking at the  
29 service line and tracking that data in the system. He stated that they also  
30 used the AMI process to identify service lines. He noted that the AMI

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1 contractors collected data on every service line they were able to see when  
2 doing meter switchovers.

3 Ms. Swanson stated that when the Berkeley project was done, she  
4 had a very old cast-iron service line, which she replaced. She stated,  
5 however, that Albemarle County came out to perform the inspection when  
6 she replaced the line. She asked if the County gathers that material  
7 information when performing those inspections, and if the ACSA was able  
8 to partner with them to gather that data.

9 Mr. Lynn replied that they did not receive any data from the County.  
10 He stated that he does not know how long they keep those records. He  
11 mentioned that Ms. Swanson would have received a plumbing permit from  
12 the County, and he believes they only keep those records for a couple of  
13 years before being discarded.

14 Mr. Lynn stated that the ACSA still has inspectors that worked on  
15 projects like Berkeley. He stated that through interviewing those inspectors  
16 and looking at their field notes, they were able to identify non-lead service  
17 line areas in certain neighborhoods. He added that the staff even called a  
18 few retired ACSA inspectors to gather information as well.

19 Mr. Lynn stated that there was also a fair amount of excavation  
20 involved in the service line identification process. He stated in a lot of  
21 places, ACSA maintenance staff had to dig on both sides of the meter to  
22 identify what was on the public side and what was on the private side. He  
23 noted that this was during crunch time, when it was “all hands on deck” to  
24 get the identifications completed before the deadline, which was yesterday.

25 Mr. Lynn stated that there were also a few in-home inspections to  
26 identify service lines. He stated that there is a message on the ACSA  
27 website that asks customers to share any updated information or  
28 discrepancies that they may find.

29 Mr. Lynn stated that the graphic on the next slide shows the ACSA’s  
30 internal dashboard that is used to track the service line inventory progress.  
31 He noted that in January 2023, the progress was at 85%. He stated that it

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1 has taken the ACSA over 18 months to complete the last 15% of  
2 identifications. He stated that they have identified 710 galvanized service  
3 lines that customers need to be cognizant of, but none of them were  
4 galvanized requiring replacement because they were not downstream of a  
5 lead service line. He mentioned that the important thing to note on the  
6 dashboard is that there are zero lead connections, which is a huge  
7 accomplishment for the ACSA system and its customers.

8 Mr. Lynn noted the interactive map on the next slide, which he stated  
9 is available on the ACSA website. He stated that the map can be searched  
10 by address or by zooming in on different areas. He stated that it shows  
11 where the galvanized service lines are, as well as the majority of the system  
12 being non-lead on both the public and private side.

13 Mr. Lynn stated that after the ACSA reached the point where it could  
14 confidently say that there are no lead service lines in the system, they began  
15 to spread the word. He noted the upper left of the next slide, which showed  
16 the submission acceptance of one of the systems that was entered into the  
17 Virginia Department of Health (VDH) portal. He stated that the bottom-left  
18 of the slide shows one of the acceptance letters the ACSA received from  
19 VDH. He noted that they had to send acceptance submissions for four  
20 different systems – Red Hill, Crozet, Scottsville, and the Urban system. He  
21 stated that they began with Red Hill, which is the smallest system, and the  
22 process became progressively more complicated as they worked their way  
23 to the Urban system. He stated that the upper middle picture is from the  
24 ACSA's press release sharing the good news about service lines being  
25 lead-free. He added that there is a screenshot of the CBS 19 news story in  
26 the bottom middle of the slide, as well as two pictures of social media posts  
27 on the right.

28 Mr. Lynn stated that as part of the Lead and Copper Rule, the ACSA  
29 must perform lead and copper sampling every three years. He stated that  
30 the next slide shows the most recent sampling results from Crozet and Red  
31 Hill this past summer. He mentioned that given the size of the Crozet

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1 system, they had to collect 30 samples. He noted that there were two  
2 samples with a very small amount of lead detected, but one must consider  
3 how the sample is collected. He stated that the sample is a first draw from  
4 the faucet, which is water that is probably right under the kitchen sink and  
5 not out in the public system. He stated that the Red Hill sample results are  
6 being sent out today, one of which is at the Red Hill Elementary School.

7 Ms. Palmer asked if the very small amounts of lead detected in the  
8 Crozet samples was from the faucet. Mr. Lynn replied yes. He stated that it  
9 is a six-hour holding period, meaning the customer takes the sample first  
10 thing in the morning after a minimum six-hour hold. He added that they fill  
11 the bottle, and the ACSA collects the bottle and sends it off for processing.

12 Mr. Lynn stated that one of the other items in the LCRR relates to  
13 corrosion control, thus the next slide outlines the corrosion control treatment  
14 handled by RWSA. He stated that RWSA has been very proactive, with  
15 corrosion inhibitor used in the drinking water system for more than 40 years.  
16 He stated that around the 2015-2016 timeframe, there was a proactive  
17 decision to transition from polyphosphate to orthophosphate which was  
18 approved by VDH in 2019. He mentioned that the Crozet, Scottsville, and  
19 Urban systems were transitioned over two years, with a period of a blended  
20 treatment. He noted that in 2024, about a month ago, there was a reduction  
21 in the ortho dosage in the Urban system, in response to the sediment  
22 challenge. He added that with the change, quarterly lead and copper  
23 sampling must be done in the Urban system to fulfill VDH requirements,  
24 which will begin in the next couple of weeks.

25 Mr. Lynn stated that the LCRR requires, over a five-year period, that  
26 all elementary schools and childcare facilities be tested for lead. He stated  
27 that there was a good news article last week, indicating that Albemarle  
28 County schools had just went through a retesting and received a clean bill  
29 of health at all their public schools. He mentioned that he does not know if  
30 their sampling completely adhered to the sampling requirements of the  
31 LCRR, so the ACSA staff will be talking with them to see if that testing fulfills



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1 the requirement for the public school system. He noted that they still need  
2 to begin discussions with the childcare facilities to begin the sampling  
3 process. He stated that most of the sampling will be performed by the  
4 facility, but the ACSA will collect the sample from them, take it to the lab,  
5 and then share the results.

6 Mr. Lynn stated that just this month, the LCRI was published into the  
7 federal registrar. He stated that in terms of what that means for the ACSA,  
8 there are a few focus areas beginning with the EPA requiring all lead service  
9 lines replaced within 10 years. He noted that this does not apply to the  
10 ACSA, as there are no lead service lines in the system. He stated that  
11 another focus area is locating lead legacy pipes, which is another issue that  
12 the ACSA will not have to contend with. He noted that the one big focus  
13 area that the ACSA will need to pay attention to is lowering the lead action  
14 level to 10 PPB. He stated that currently it is at 15 PPB and, as mentioned  
15 earlier, the lead level in the few samples the ACSA collected were at 2 PPB.  
16 He stated that another area of focus is a change in some of the  
17 requirements for the childcare facilities and school testing. He added that  
18 the ACSA will need to determine if that will have an impact on their testing.

19 Mr. Tolbert stated that it is referred to as the Lead and Copper Rule,  
20 but nothing Mr. Lynn mentioned has referred to copper. Mr. Lynn replied  
21 that so much of the attention is on lead, as the threshold for copper is much  
22 higher and the ACSA has never come close to that action level as far as he  
23 knows. He mentioned that even with a vast majority of the ACSA having  
24 copper service lines from the main to the meter, they still have not had a  
25 copper level that was concerning.

26 Ms. Palmer asked if that was mostly because of the corrosion control.  
27 Mr. Lynn replied that he thinks that plays a huge factor. Ms. Palmer stated  
28 that she assumes that people who have a private well and use water  
29 treatment in their tanks are probably not having an issue. Mr. Lynn  
30 concurred. Mr. Roberts asked if the ACSA did lead and copper testing for  
31 private schools. Mr. Lynn replied that the ACSA is not required to conduct

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1 testing at private schools under the LCRI. He stated that he does not know  
2 if there is a requirement with social services.

3 Ms. Palmer asked if the old water lines that have lead solder do not  
4 cause a problem because they have been tuberculated or the lead is  
5 removed during the treatment process. Mr. Lynn replied yes. He stated that  
6 lead packing was used on fire hydrants at one time, but the ACSA replaced  
7 all of them either through CIP projects or the ACSA maintenance staff.

8 Ms. Swanson asked about the lead service inventory map that the  
9 ACSA made available to the public. She stated that her understanding was  
10 that the inventory only had to be made public if the system had over 50,000  
11 customers but the ACSA does not have that many customers. Mr. Lynn  
12 replied that the ACSA serves more than 50,000 people but does not have  
13 50,000 customers. Ms. Swanson asked if the ACSA made the information  
14 public just to be proactive. Mr. Lynn replied that they feel it makes a lot of  
15 sense. He stated that they had to collect all that data, so why not make it  
16 available to customers.

17 Ms. Swanson asked if there is any expectation or hope that the  
18 amount of treatment will eventually be lowered because there is no lead in  
19 the system, and if there is any other benefit to having a corrosion inhibitor.  
20 Mr. Lynn replied that the change that was made last month did lower it, and  
21 that is as low as VDH will allow. He stated that he does not know if they  
22 would be open to lowering it further in the future, if things change. He noted  
23 that he feels there still needs to be an adequate level of corrosion control to  
24 provide protection on the customer side.

25 Mr. Parcels asked, with respect to the reduction in the Urban system,  
26 if there was any potential to make the same change in Crozet and Red Hill.  
27 Mr. Lynn replied that they have not had those conversations with RWSA at  
28 this point. He stated that he thinks RWSA's desire would be to have all  
29 systems treated equally, but it made more sense to focus on the Urban  
30 system because that is where the sediment challenge was evident.

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1           Mr. Parcels stated that he would think there were several homes in  
2           the Crozet system that have the same sediment issue. Mr. Lynn stated that  
3           they have not had those conversations yet. He stated that he feels it will be  
4           worthy of discussion after the quarterly sampling in the Urban system and  
5           ensure there are no unintended consequences of the change.

6           Mr. Lynn stated that in terms of future efforts, the ACSA will begin  
7           working with the public and private schools and childcare facilities to begin  
8           the sampling process. He stated that the ACSA will continue the lead  
9           service line inventory and updating the data they have, to ensure it is  
10          accurate.

11

12          8.       Avon Operations Center

13           Alex Morrison, Director of Operations, stated that he and John  
14           Anderson would be providing the Board with some background information,  
15           as well as an update on the Avon Operations Center project. He stated that  
16           there were a few objectives for this presentation (Attached as  
17           Pages\_\_\_\_\_), beginning with introducing John Anderson, the co-  
18           manager for the project. He stated that they would then give an overview of  
19           the project and a timeline recap, followed by some design team highlights,  
20           the status of the project, and next steps.

21           Mr. Morrison stated that John Anderson, Senior Civil Engineer,  
22           celebrated his one- year anniversary with the ACSA yesterday. He stated  
23           that Mr. Anderson brings a lot of technical abilities, knowledge, and skills to  
24           the team and will be instrumental in co-managing this project. He stated that  
25           Mr. Anderson has been a PE since 1997 and is a DEQ Combined  
26           Administrator with ESC and Stormwater Management state programs. He  
27           stated that Mr. Anderson holds degrees from NC State University and the  
28           University of Virginia and has a lot of previous experience with the Albemarle  
29           County Engineering Division, East Coast Utility Contractors, Nelson County  
30           Service Authority, VDOT, NC Department of Environmental and Natural  
31           Resources, and Perrin Quarles Associates.

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1           Mr. Anderson stated that he appreciates being a part of the ACSA  
2 team and considers it a privilege. He stated that in terms of the project  
3 overview, one of the key features of the project is a 2-story, 15,600 square  
4 foot fleet maintenance building. He stated that there will be 12 vehicle garage  
5 bays, as well as some flex office space, a conference room, a server room,  
6 and a back-up diesel generator and solar arrays. He noted that a back-up,  
7 insulated server room that is protected against malicious attack is a very  
8 important feature of the project. He noted that there will also be parking  
9 areas, equipment and material storage, a fueling station, EV charging, and  
10 a vehicle wash area. He noted that two other important features of the new  
11 operations center are the operator training and confined space training  
12 areas. He stated that there will be areas where backhoe operators can  
13 excavate trenches, just the way they might need to in the field. He noted that  
14 confined space training is life-saving training, and the training area allows a  
15 more programmed approach. He added that he wanted to express his  
16 appreciation to the Board for their support of this project.

17           Mr. Morrison stated that the next few slides show a couple of views  
18 from the construction plans. He stated that the first slide shows the overall  
19 site plan which shows how everything is laid out. He noted that Avon Street  
20 Ext. is to the left, and there is a gravel driveway from Avon Street to access  
21 the Avon Water Storage Tank which is owned and operated by RWSA and  
22 a small cellphone tower. He stated that on the far-right side is Founders  
23 Place, which serves Albemarle Health and Rehabilitation, and the Monticello  
24 Fire Station is just to the upper right-hand side. He stated that the confined  
25 space rescue team for Albemarle County is housed at that station, which  
26 provides an opportunity for ACSA staff to train with their team. He stated that  
27 the fleet maintenance building in the middle of the site plan is a 15,600  
28 square foot building, with a lot of storage in and around the building. He  
29 stated that there is a travel way that will cut through the property from Avon  
30 Street Ext., all the way over to Founders Place.

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1           Mr. Morrison stated that the next slide shows the floor plan for the  
2 upper level of the maintenance building. He stated that there are some  
3 storage and workshop areas, a locker room, conference room, break room,  
4 restrooms, and showers. He mentioned that there is a mezzanine area that  
5 sits above those rooms, which will have a hydraulic lift to store heavier  
6 materials and easy access to retrieve those items. He added that there are  
7 also six vehicle bays on the upper floor as well.

8           Mr. Morrison moved to the next slide, stating that there are six  
9 additional vehicle bays on the lower floor, two of which can accommodate  
10 larger vehicles. He stated that the ACSA will need to replace its flush truck  
11 with a much larger one soon, thus this building allows for conditioned storage  
12 for that vehicle. He stated that there is a server room, additional office space,  
13 mechanical and electrical rooms, vehicle maintenance workshops, caged  
14 storage, and additional bathrooms.

15           Mr. Morrison stated that in terms of timeline for the project, the vision  
16 for this project began in 1987 when the ACSA acquired the Avon Street  
17 property. He stated that the documents note a future maintenance yard. He  
18 stated that jumping forward to May 2016, the ACSA began a Facilities Master  
19 Plan with the help of Dewberry Engineering. He mentioned that this is what  
20 began the conceptual development and footprint for the Avon Operations  
21 Center. He stated that once the plan was complete, the ACSA went under  
22 contract for phase 1 design in October 2019. He noted that at this point, they  
23 were looking at developing the property, but the fleet maintenance building  
24 did not come up until a future phase.

25           Mr. Morrison stated that by February 2020, they determined that it  
26 made more sense to develop the property as a whole and added an  
27 amendment to design the two-story fleet maintenance building. He stated  
28 that the first bids were received March 27, 2024, and were above the ACSA's  
29 budget. He noted that bidders expressed some uncertainty around the rock  
30 on the property. He mentioned that, historically, the ACSA does not classify  
31 rock in its bids so there is no unit price for rock removal. He stated that the

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1 bidder would have to assume how much rock they think they will encounter  
2 and include it in the base bid. He stated that this resulted in the bidder having  
3 to increase their price in the event they encounter a large volume of rock.

4 Mr. Morrison stated that before rebidding the project, the ACSA did  
5 some additional Geotech evaluation using seismic refraction. He stated that  
6 this allowed them to quantify the amount of rock that needed to be removed  
7 from the property, which was a risk mitigation strategy. He mentioned that  
8 they then classified the rock and requested a unit price for the rock. He stated  
9 that they asked the bidders to assume they would be removing 4,000 cubic  
10 yards of rock and include that as part of the base bid, and then provide a unit  
11 price for additional rock per cubic yard. He stated that with this strategy, the  
12 ACSA went out to bid again and received bids in August 2024 and saw a  
13 reduction in the apparent low bidder of \$1.5 million. He noted that it was the  
14 same low bidder as the first time. He added that as of October 11, 2024, the  
15 ACSA has a fully executed contract with Daniel & Company, Inc.

16 Mr. Lunsford asked if Mr. Morrison recalled the cost of the Geotech  
17 evaluation. Mr. Morrison replied that it was about \$21,000. He added that it  
18 was well worth the time and effort to follow the risk mitigation strategy and  
19 quantify that rock.

20 Mr. Morrison stated that before he handed the presentation back  
21 over to Mr. Anderson to review next steps, he wanted to highlight some of  
22 the members that have been integral to this project. He stated that, as he  
23 mentioned before, this project began in 2019, so some of the names are of  
24 people that have since moved on or retired from the ACSA. He mentioned  
25 that he went through old emails and Board meeting minutes in an attempt to  
26 acquire the names of all people that, at some point, were involved with the  
27 design of this project. He stated that, in a sense, he could add the names of  
28 all ACSA staff. He stated that when they had to determine what the name  
29 would be for the road that runs through the site, all staff were asked to make  
30 recommendations and vote on them. He stated that in the end it was

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1 determined that the name of the road would be Authority Way. He added  
2 that it is the road that passes from Avon Street Ext., down to Founders Place.

3 Mr. Anderson stated that in terms of the status of the project, the  
4 construction contracted was executed last Friday. He mentioned that Mr.  
5 Morrison did a great deal of work with Mike Derdeyn and Daniel & Company,  
6 Inc. to get the contract signed. He stated that Mr. Morrison, Mr. Lunsford, Mr.  
7 Lynn, and himself visited Daniel & Company in their offices and met with the  
8 President, L.J. Swain, and he feels good about the company. He noted that  
9 for 20 years, Daniel & Company has worked with a conservation group in  
10 Jamestown, VA., so they are careful and establish long-lasting relationships.

11 Mr. Anderson stated that one of the ACSA's team members,  
12 Dewberry design firm, typed up a simple agenda and some of those items  
13 are listed on the slide. He stated that the ACSA presented that agenda to  
14 Daniel & Company, Inc., which they are currently considering. He stated that  
15 they are looking at their schedule, specifically with respect to the holidays,  
16 as they will have 18 months to complete the work. He stated that they will  
17 also be furnishing a list of sub-contractors. He mentioned that the schedule  
18 of values is important to mark their progress, and Daniels & Company, Inc.  
19 will be dividing their lump sum bid into pieces so the ACSA can fairly  
20 compensate them as they move through the work. He stated that in terms of  
21 equipment and material, Daniel & Company, Inc. are looking at making early  
22 arrangements for those items that may take a long time to deliver.

23 Mr. Anderson stated that the ACSA and Daniel & Company, Inc. will  
24 hold a kick-off meeting in close proximity to issuing the Notice to Proceed.  
25 He stated that Daniel & Company, Inc. will post the Virginia Stormwater  
26 Management Program bond with the County and will begin their submittal  
27 process with the ACSA's partner firm Dewberry. He stated that the Board  
28 will continue to hear more about the project as the months go by.

29 Ms. Palmer asked, with E&S, if there would be any ACSA inspectors  
30 or just County inspectors. Mr. Anderson replied that the way the program  
31 works, once the ACSA lists Daniel & Company Inc. as the construction

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1 activity operator, the County E&S inspector will visit the site about once every  
2 two weeks. He stated that the inspector, John Yerby, will verify that Daniels  
3 & Company, Inc. has the certified specialist onsite that is required to always  
4 be there. He added that he also plans to visit the site about once per week.

5 Mr. Tolbert asked if ACSA staff would be permanently located at the  
6 new Avon site. Mr. Morrison stated that they are still evaluating how the site  
7 will be used for staff. He stated that currently, it is designed as a satellite  
8 maintenance yard and a redundant facility for continuity of operations. He  
9 stated, however, that they are beginning to have those internal  
10 conversations about how the site will be utilized during normal, day-to-day  
11 operations.

12 Mr. Tolbert stated that there was mention of a server room. He asked  
13 how that site will be isolated and how data will be transferred to the site. April  
14 Walker, Director of IT, stated that they would use a VPN appliance which will  
15 create a secure way to transfer data. Mr. Tolbert stated that everyone is  
16 using VPNs, so it would not surprise him if someone figured out a way to get  
17 into the system. Ms. Walker stated that there will be monitoring with the fire  
18 wall as well.

19 Mr. Tolbert noted that Mr. Anderson mentioned visiting the Daniel &  
20 Company, Inc. office. He asked if their headquarters was local. Mr. Morrison  
21 stated that their office is in Richmond, VA. Mr. Anderson stated that they are  
22 located near the baseball diamond in Richmond. Mr. Morrison added that  
23 Daniel & Company, Inc. has conducted a lot of construction in this area,  
24 including west towards Waynesboro and Staunton, VA.

25  
26 9. Hurricane and Extreme Weather Preparedness Planning

27 Mr. Morrison stated that he had several objectives for today's  
28 presentation (Attached as Pages\_\_\_\_). He stated that he wanted to cover  
29 some background on the ACSA's Emergency Response Plan, as well as  
30 forecasting and event monitoring. He stated that he would also go over how  
31 the ACSA handles internal coordination and communication, including some



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1 specific preparedness actions the organization took for Hurricane Debby. He  
2 added that he would also discuss how the ACSA coordinates with its external  
3 partners and response and recovery.

4 Mr. Morrison moved to the next slide, outlining the ACSA's  
5 Emergency Response Plan (ERP). He stated that it was required by the  
6 America's Water Infrastructure Act (AWIA) of 2018. He mentioned that the  
7 act called for an ERP and a risk and resiliency assessment for any system  
8 that served over 3,300 people. He stated that the ERP has response  
9 strategies and procedures that are specific to natural hazards, human-  
10 caused threats like acts of terrorism, or other emergencies.

11 Mr. Morrison stated that there are a couple of different components  
12 in the plan, but it focuses on risk mitigation, response protocol,  
13 communication plans during different events, and resource allocation in the  
14 ACSA and with external partners. He stated that there is a 5-year  
15 recertification required, and the next recertification deadline is June 2026.  
16 He mentioned that the goal of the plan is to provide resiliency within the  
17 system. He stated that the ACSA provides its customers with a vital resource  
18 and wants to continue to be able to do so during an emergency event.

19 Mr. Morrison stated that in terms of forecasting and event monitoring,  
20 there are a few different resources the ACSA uses. He stated that they rely  
21 a lot on resources from the National Oceanic and Atmospheric  
22 Administration (NOAA), which includes the National Weather Service (NWS)  
23 and the National Hurricane Center (NHC). He stated that Dominion Energy  
24 is another resource and through their external affairs departments, they  
25 forecast impacts to their service areas and send out updates to utilities about  
26 how that will impact the energy grid. He mentioned that the Virginia  
27 Department of Health (VDH) sends out information as well, if they see  
28 something that could impact the water systems.

29 Mr. Morrison stated that if, and when, the ACSA is impacted by an  
30 event, there is a ton of resources, but he wanted to touch on two important  
31 ones. He stated that the Virginia 511 system through VDOT is a great tool to

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1 see what is going on in the system. He noted that they have traffic cameras,  
2 with some that cover the ACSA's service area. He mentioned that this would  
3 help when deploying different forces, as it indicates areas that may need to  
4 be avoided due to flooding or down trees. He stated that the ACSA also uses  
5 an app called VEOCI (Virtual Emergency Operations Center), which is also  
6 used by the ECC, County of Albemarle, and RWSA. He mentioned that it is  
7 essentially a chat room that allows for communication between different  
8 utilities, giving a high-level view of all the impacts of an event.

9 Ms. Swanson asked how the ACSA determines who plays what role  
10 during an emergency event. Mr. Morrison replied that this topic has  
11 warranted a lot of discussion. He stated that a new regional emergency  
12 manager has been hired and the Local Emergency Planning Committee  
13 (LEPC) was just restarted. He stated that there was a meeting two weeks  
14 ago and one key topic of discussion was how to approach these events and  
15 who takes command. He stated that there could be an incident that only  
16 impacts the utility system in which case, the ACSA would be coordinating  
17 with RWSA and the City of Charlottesville. He stated, however, something  
18 like an earthquake would require a regional operations center. He added that  
19 they are working through the specifics now, to see what that command  
20 structure will look like.

21 Mr. Morrison stated that the next two slides continue the discussion  
22 on forecasting and monitoring. He stated that the graphics were of the initial  
23 advisories that came out for Hurricane Debby on Monday, August 5<sup>th</sup>, 2024.  
24 He noted that it shows a potential impact to our area on Saturday, August  
25 10<sup>th</sup>, 2024. He mentioned that the ACSA began preparing for what that  
26 impact might look like. He stated that by 2 am on Saturday, the map showed  
27 a lot of uncertainty as to which way the storm would track. He stated,  
28 however, that it was on their radar as something that could potentially have  
29 an impact on the area, so they continued to monitor it.

30 Mr. Morrison moved to the next slide and stated that the next steps  
31 were internal coordination and communication. He stated that the first thing

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1 they do is gather the ACSA's Lead Team and any other staff members that  
2 need to be in those meetings. He stated that they review the forecasts,  
3 possible impacts, and timing. He stated that they go over the ERP and review  
4 specific checklists based on the identified impact. He noted that for  
5 Hurricane Debby, flooding was the impact on this area. He mentioned that  
6 they would then determine what the preparedness actions and approach  
7 would be and determine re-evaluation criteria if necessary. He stated that  
8 once the action list is finalized, it is sent out to all staff, including any potential  
9 impacts and safety reminders.

10 Mr. Morrison stated that for Hurricane Debby, one of the  
11 preparedness actions the ACSA took was to change the level settings to the  
12 water storage tanks to ensure as much storage as possible in the event of a  
13 water main break or power outage at a pump station. He stated that the  
14 ACSA also has portable pumps and generators that are deployed to strategic  
15 locations, and all permanent generators are inspected and fueled. He  
16 mentioned that maintenance personnel check all aerial utility crossings to  
17 ensure there is no built-up debris and ensure that there are adequate levels  
18 of diesel and unleaded fuel at the fueling station. He stated that they fuel all  
19 equipment and vehicles and inspect and sharpen chainsaws. He noted that  
20 a lot of times, the real challenge is getting to the asset or facility due to things  
21 like down trees. He added that additional on-call personnel are selected as  
22 well based on geographic location, so that they can quickly respond to a  
23 specific area.

24 Mr. Morrison stated that in terms of coordinating with the ACSA's  
25 external partners, the staff initiates early communication through phone calls  
26 and emails to loop everyone in on anticipated impacts and preparation for  
27 those impacts. He stated that they also determine if there are any items that  
28 require joint action between partners ahead of the event, as well as any  
29 areas that the ACSA or its partners might need support in. He added that  
30 they maintain ongoing communication and monitoring during the event as  
31 well.

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1           Mr. Morrison moved to the last slide to discuss response and  
2 recovery. He stated that the ACSA will continue to evaluate the impact of an  
3 event as it is ongoing, addressing any items that require an immediate  
4 response. He mentioned that there is also a post-event review and  
5 assessment, which gives the staff an opportunity to identify what went well  
6 and lessons learned for next time. He added that lastly, they will determine  
7 if there are any remediation and recovery efforts.

8           Mr. Tolbert asked if anyone knows what the situation was in  
9 Asheville, NC, in terms of preparedness and recovery plans, as their water  
10 system was badly damaged by the flooding. Mr. Morrison stated that they do  
11 have emergency response plans but the sheer volume of rainfall and  
12 flooding that they experienced was too much, even with a plan in place.

13           Mr. Roberts stated that there was also soil mixed in with the water  
14 that caused a lot of damage, similar to Nelson County, VA in 1969. Mr.  
15 Morrison stated that they saw a similar situation with the mudslides from  
16 Hurricane Camille, which can be extremely destructive.

17

18       10.   Items Not on the Agenda

19           Mr. Lunsford stated that he had two short comments. He stated that  
20 yesterday, Emily Roach, Director of Human Resources and Administration,  
21 did a radio spot to advertise Imagine a Day Without Water. He stated that he  
22 thinks participation in the art contest will be strong this year.

23           Mr. Lunsford stated that he also wanted to officially introduce Tanya  
24 Johnson, the ACSA's new Director of Finance. He stated that she joined the  
25 organization earlier this week, and the staff is excited to have her and look  
26 forward to her contributions.

27           Mr. Parcels asked if there was any further word about the state water  
28 planning. Mr. Lunsford stated that the ACSA, along with RWSA and the City  
29 of Charlottesville submitted comments last week. He noted that,  
30 interestingly, their submission was the only one across the state. He stated  
31 that by December, the ACSA will need to notify the Water Control Board of

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1 who their representatives will be, and each of their community partners will  
2 need to do the same. He stated that he will be able to provide more detailed  
3 information by the May 2025 Board meeting.

4 Ms. Palmer stated that she suspects there was a lot of input in the  
5 development of the plan to begin with, on the federal side and the state side.  
6 Mr. Tolbert stated that, if he understood it correctly, the ACSA's regional  
7 group includes Fluvanna, Louisa, Greene, and Buckingham County. He  
8 stated that Fluvanna and Buckingham are getting water from the James  
9 River, and asked what Buckingham was doing. Mr. Lunsford replied that they  
10 are getting water from the James River as well. He asked, from a distance,  
11 if it seems as if Fluvanna, Louisa, and Buckingham are content with their  
12 situation and Greene County is the issue. Mr. Lunsford replied that he does  
13 not think Greene County is necessarily an issue. He stated that, depending  
14 on the new amendments, it could be a case of collaboration and information  
15 sharing, which could be a positive experience. He stated that if it starts to  
16 look like a reallocation of resources, then it could be an issue.

17 Ms. Palmer stated that Greene County will have other options. Mr.  
18 Tolbert stated that the ACSA has spent a lot of time and money to get into a  
19 good position, and it would be a shame to have to give up some of that.

20  
21 11. Adjourn

22 ***There being no further business, Ms. Palmer moved that the***  
23 ***meeting be adjourned, seconded by Ms. Swanson. All members voted***  
24 ***aye.***

25  
26 \_\_\_\_\_  
Quin Lunsford, Secretary-Treasurer



**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY**

<b>AGENDA TITLE:</b> Monthly Financial Reports	<b>AGENDA DATE:</b> November 21, 2024
<b>STAFF CONTACT/PREPARER:</b> Tanya Johnson, Director of Finance Quin Lunsford, Executive Director	<b>ACTION:</b> Informational  <b>ATTACHMENTS:</b> Yes

**BACKGROUND:** Water and sewer financial reports and check registers for the month of October are attached for your review.

**DISCUSSION:**

- Water consumption for the month of September increased 0.6% compared to August. Water consumption for the month of September 2024 compared to September 2023 decreased 4.2%.
- RWSA's invoice of \$2,718,386 for the month of September was paid on October 7, 2024.
- Unearned water and sewer connection charges totaled \$2,011,468 at month end.
- System connection charges are ahead of budgeted expectations with \$1,083,508 recognized in October.
- Water and Wastewater revenues for FY 2025 are above budgeted expectations by 11.4%. Please see the water/wastewater trend analysis included illustrating that when adjustment for expected variations in seasonal consumption are considered, revenues are 0.9% higher than budgeted expectations.

**BUDGET IMPACT:** Informational only.

**RECOMMENDATIONS:** None

**BOARD ACTION REQUESTED:** None; informational item only.

**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY****ATTACHMENTS:**

1. Statement of Net Position
2. Year-to-Date Budget to Actual Comparison/Commentary
3. Investment Summary
4. Capacity/System Development Reserves
5. Connection Charges/ERC Analysis
6. Monthly Water and Sewer Charges from the RWSA
7. Monthly Water Consumption
8. Water and Sewer Report; Customer Class Report
9. Major Customer Analysis
10. Water/Wastewater Revenue Trend Analysis
11. Aged Receivables Analysis
12. Check Register



## ALBEMARLE COUNTY SERVICE AUTHORITY

STATEMENT OF NET POSITION  
October 31, 2024

## ASSETS

Cash and cash equivalents	\$ 9,099,440
Accounts receivable	5,753,916
Investments	53,221,668
Capital assets: (net of accumulated depreciation)	187,158,024
Inventory	742,533
Prepays	2,985
Cash and cash equivalents, restricted	853,925
	<hr/>
Total assets	256,832,491
	<hr/>

## DEFERRED OUTFLOWS OF RESOURCES

Combined deferred outflows of resources	1,156,042
	<hr/>

## LIABILITIES

Accounts payable	4,228,326
Accrued liabilities	460,258
Compensated absences	836,470
Net pension liability	3,030,688
Other post-employment benefits	1,088,723
Unearned connection fees	2,011,468
Long-term debt	4,077,648
	<hr/>
Total liabilities	15,733,581
	<hr/>

## DEFERRED INFLOWS OF RESOURCES

Combined deferred inflows of resources	799,130
	<hr/>

## NET POSITION

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241,455,822

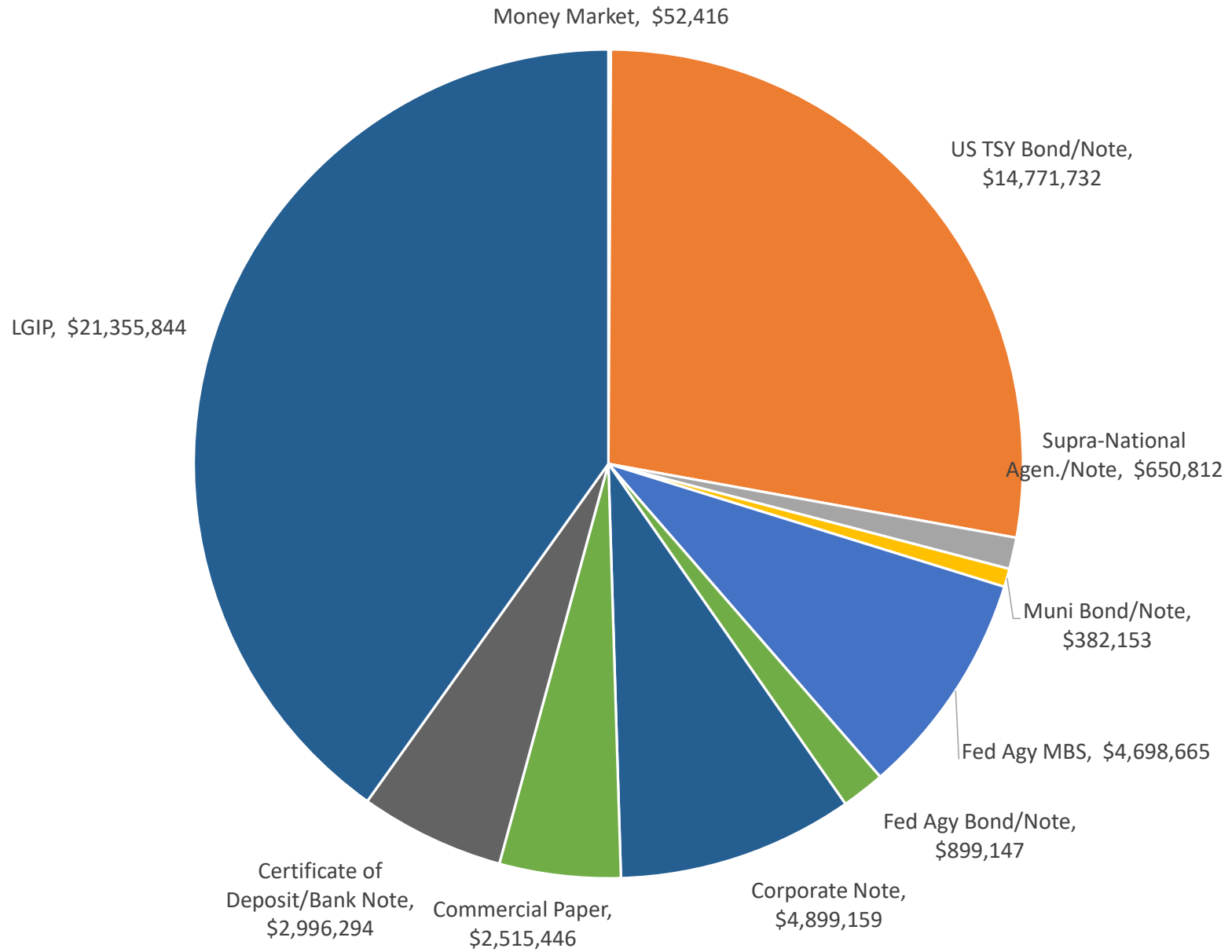
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	Budget FY 2025	Budget Year-to-Date 2025	October Actual Year-to-Date	Actual vs. Budget	Variance Percentage
<b>Revenues</b>					
Water Sales	22,650,000.	7,550,000.	8,679,200.	1,129,200.	14.96%
Sewer Service	17,850,000.	5,950,000.	6,363,649.	413,649.	6.95%
<b>Total operating revenues</b>	<b>40,500,000.</b>	<b>13,500,000.</b>	<b>15,042,849.</b>	<b>1,542,849.</b>	<b>11.43% A</b>
<b>Operating Expenses</b>					
Purchase of bulk water	(18,148,000.)	(6,049,333.)	(6,515,423.)	(466,090.)	7.70% B
Purchase of sewer treatment	(13,782,000.)	(4,594,000.)	(4,206,605.)	387,395.	(8.43%) B
Administration	(1,585,600.)	(528,533.)	(429,685.)	98,848.	(18.70%) C
Finance	(3,283,100.)	(1,094,367.)	(954,419.)	139,948.	(12.79%) C
Information Technology	(2,143,000.)	(714,333.)	(718,656.)	(4,323.)	0.61% C
Engineering	(2,631,400.)	(877,133.)	(821,018.)	56,115.	(6.40%) C
Maintenance	(5,092,000.)	(1,697,333.)	(1,653,891.)	43,442.	(2.56%) C
<b>Total operating expenses</b>	<b>(46,665,100.)</b>	<b>(15,555,033.)</b>	<b>(15,299,697.)</b>	<b>255,336.</b>	<b>(1.64%)</b>
<b>Operating gain(loss)</b>	<b>(6,165,100.)</b>	<b>(2,055,033.)</b>	<b>(256,848.)</b>	<b>1,798,185.</b>	<b>(87.50%)</b>
<b>Nonoperating Revenues</b>					
System connection charges	8,000,000.	2,666,667.	3,291,080.	624,413.	23.42% D
Investment/Interest Income	2,000,000.	666,667.	1,112,311.	445,644.	66.85% E
Rental income	16,000.	5,333.	4,942.	(391.)	(7.34%)
Miscellaneous revenues	761,000.	253,667.	277,904.	24,237.	9.55% F
<b>Total nonoperating revenues (expenses)</b>	<b>10,777,000.</b>	<b>3,592,333.</b>	<b>4,686,237.</b>	<b>1,093,904.</b>	<b>30.45%</b>
<b>Nonoperating Expenses</b>					
Miscellaneous expenses	(890,300.)	(296,767.)	(287.)	296,480.	(99.90%) G
Bond interest charges	(183,859.)	(61,286.)	-	61,286.	(100.00%) H
Depreciation	0.	0.	(1,521,749.)	(1,521,749.)	0.00% I
<b>Total nonoperating revenues (expenses)</b>	<b>(1,074,159.)</b>	<b>(358,053.)</b>	<b>(1,522,036.)</b>	<b>(1,163,983.)</b>	<b>325.09%</b>
<b>Capital contributions</b>	<b>0.</b>	<b>0.</b>	<b>737,652.</b>	<b>737,652.</b>	
<b>Change in Net Position</b>	<b>3,537,741.</b>	<b>1,179,247.</b>	<b>3,645,005.</b>	<b>2,465,758.</b>	<b>209.10%</b>

**Albemarle County Service Authority  
Actual-to-Budget Year to Date Commentary**

- A.** Water and sewer revenues were more than budgeted amounts by 11.4%. Consumption through October (gallons) appears reasonable considering the ACSA's normal seasonal consumption pattern and abnormally dry/hot weather in July/August and higher precipitation in September/October. Additional information related to seasonal revenue expectations can be found later in the Board packet.
- B.** Expenses related to purchases of bulk water and sewer treatment from the RWSA are more than budgeted amounts by 0.7%. Monthly billings prepared by the RWSA allocate total water/wastewater flows to the ACSA/City based on the consumption of each for the quarter immediately preceding.
- C.** Departmental operating budgets through the current month remain below budgeted expectations for the fiscal year with the exception of Information Technology. Variations early in the fiscal year are expected as timing of expenses can more greatly impact variances. Departmental expenses will continue to be monitored throughout the fiscal year and are expected to align with the budget.
- D.** System connection charges are higher than the budgeted amount. Connection charges are often difficult to project and can fluctuate from year to year. These charges are dependent upon new customers connecting to the system.
- E.** Investment income, which includes both interest income and adjustments to fair market value are recorded in these accounts. Investment earnings are ahead of budgeted expectations through the current month.
- F.** Miscellaneous revenues consist of multiple lines and include inspection fees, plan review, reconnections/initial bill fees, invoiced water usage, and gains associated with sales of capital assets retired from service.
- G.** The budgeted amount includes expected outlays for capital equipment and other miscellaneous items. Equipment is capitalized when placed in service.
- H.** Bond interest charges are recorded as incurred.
- I.** Depreciation is not a budgeted line-item accounting for the variance. Depreciation expense is considered during the annual budgeting process as this expense is utilized to calculate the required contribution to the 3r reserve.

## Allocation of Investments by Type



## Portfolio Summary and Statistics

For the Month Ending **October 31, 2024**

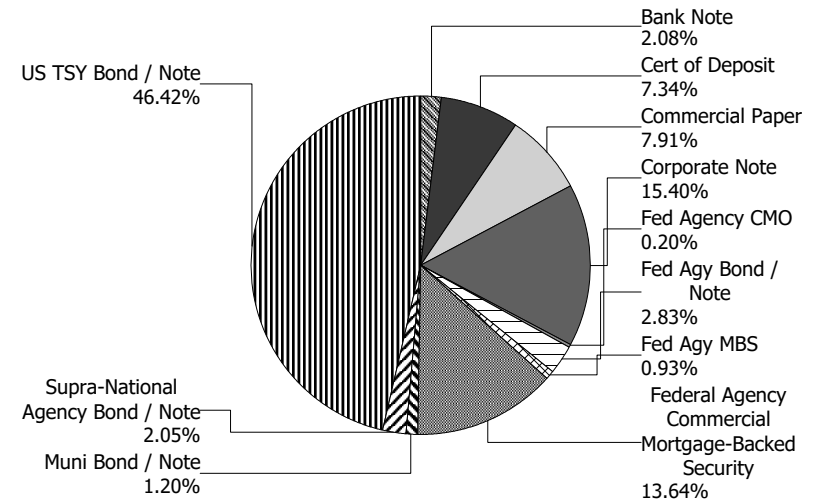
ACSA OPERATING FUNDS - 03100100

### Account Summary

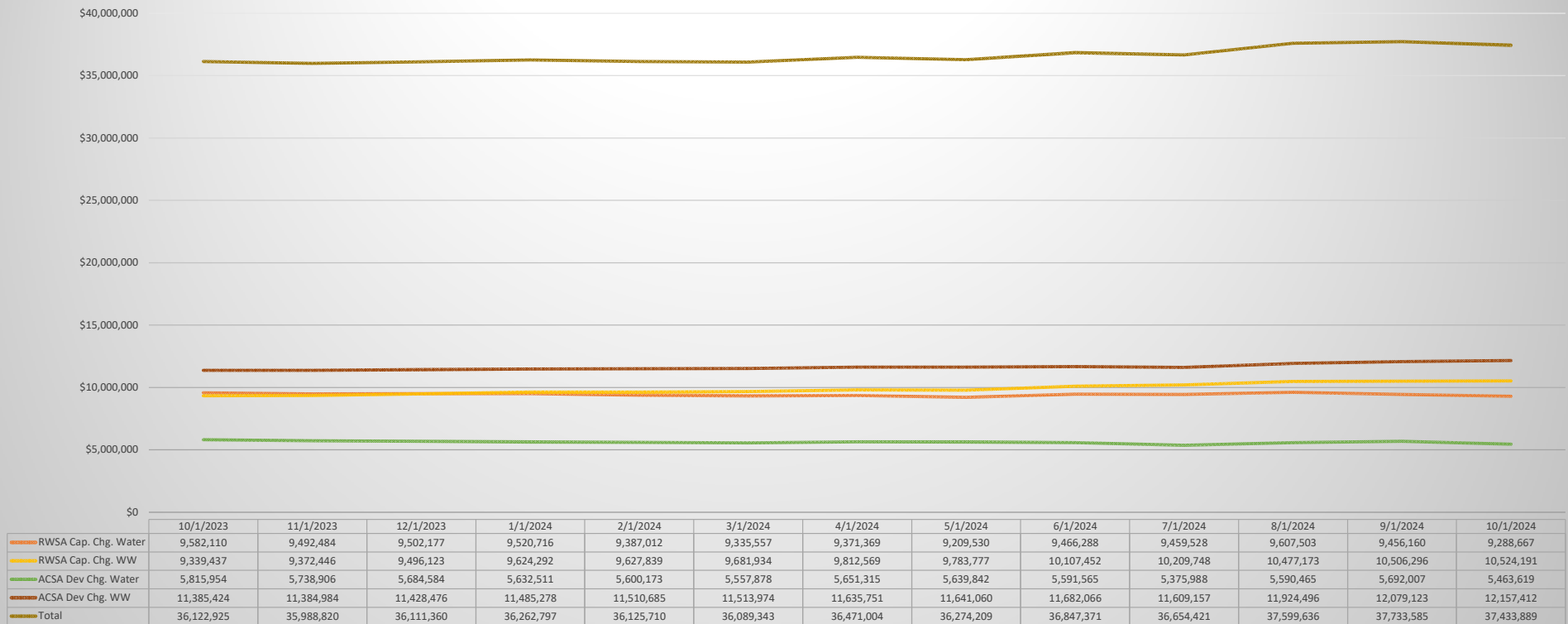
Description	Par Value	Market Value	Percent
U.S. Treasury Bond / Note	14,795,000.00	14,771,732.42	46.42
Supra-National Agency Bond / Note	650,000.00	650,812.05	2.05
Municipal Bond / Note	380,000.00	382,153.40	1.20
Federal Agency Mortgage-Backed Security	310,723.50	295,417.84	0.93
Federal Agency Commercial Mortgage-Backed Security	4,472,528.76	4,339,549.67	13.64
Federal Agency Collateralized Mortgage Obligation	70,330.98	63,696.87	0.20
Federal Agency Bond / Note	900,000.00	899,146.80	2.83
Corporate Note	4,925,000.00	4,899,159.13	15.40
Commercial Paper	2,550,000.00	2,515,446.10	7.91
Certificate of Deposit	2,325,000.00	2,333,992.63	7.34
Bank Note	655,000.00	662,300.89	2.08
<b>Managed Account Sub-Total</b>	<b>32,033,583.24</b>	<b>31,813,407.80</b>	<b>100.00%</b>
Accrued Interest		294,066.39	
<b>Total Portfolio</b>	<b>32,033,583.24</b>	<b>32,107,474.19</b>	

<b>Unsettled Trades</b>	<b>350,000.00</b>	<b>322,627.55</b>
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### Sector Allocation



### Capacity/System Development Reserves



Note: Additions to Capacity/System Development Reserves are from monthly connection charges, reductions to the reserves are from monthly growth related expenses/capital costs.

**Albemarle County Service Authority  
Connection Fee Analysis  
September 2024**

Area	September 2024 Monthly Connection Fees	September 2023 Monthly Connection Fees	\$ Change	% Change
Crozet	\$ 202,020	\$ 176,070	\$ 25,950	15%
Urban	280,940	306,210	(25,270)	-8%
Scottsville	-	300	(300)	-
<b>Total Connection fees</b>	<b>\$ 482,960</b>	<b>\$ 482,580</b>	<b>\$ 380</b>	<b>0%</b>
<b>Through September</b>				
Area	YTD FY 2025 Connection Fees	YTD FY 2024 Connection Fees	\$ Change	% Change
Crozet	\$ 577,200	\$ 976,545	\$ (399,345)	-41%
Urban	1,615,943	1,195,910	420,033	35%
Scottsville	-	300	(300)	-
<b>Total Connection fees</b>	<b>\$ 2,193,143</b>	<b>\$ 2,172,755</b>	<b>\$ 20,388</b>	<b>1%</b>

Area	September 2024 ERC's	September 2023 ERC's	Change	% Change
Crozet	14	12	2	17%
Urban	19	21	(2)	-10%
Scottsville	-	-	-	-
<b>Total ERC's</b>	<b>33</b>	<b>33</b>	<b>-</b>	<b>0%</b>
<b>Through September</b>				
Area	YTD FY 2025 ERC's	YTD FY 2024 ERC's	Change	% Change
Crozet	40	68	(28)	-41%
Urban	111	82	29	35%
Scottsville	-	-	-	-
<b>Total ERC's - YTD</b>	<b>151</b>	<b>150</b>	<b>1</b>	<b>1%</b>

Note: This analysis shows, both in dollars and ERC's, connections by month and YTD for the period under review. As noted above, connection fees are comparable to the prior year. See the "Three Year Connection Fee Comparison" for further discussion related to this change.

**Albemarle County Service Authority  
Three Year Connection Fee Comparison  
September 2024**

<b>Area</b>	<b>September 2024 ERC's</b>	<b>September 2023 ERC's</b>	<b>September 2022 ERC's</b>
<b>Crozet</b>	14	12	12
<b>Urban</b>	19	21	37
<b>Scottsville</b>	-	-	-
<b>Total ERC's</b>	33	33	49

<b>Through September</b>			
<b>Area</b>	<b>YTD FY 2025 ERC's</b>	<b>YTD FY 2024 ERC's</b>	<b>YTD FY 2023 ERC's</b>
<b>Crozet</b>	40	68	38
<b>Urban</b>	111	82	119
<b>Scottsville</b>	-	-	-
<b>Total ERC's - YTD</b>	151	150	157

Note: The information above present ERCs by month and YTD for the current and past two fiscal years. As noted in the YTD portion of the analysis, current YTD ERCs appear reasonable considering continued development within the ACSA's service area.



**Albemarle County Service Authority  
Water and Sewer Charges from the RWSA  
Fiscal Year 2025**

	<b>FY 2025</b>	<b>FY 2024</b>	<b>Increase</b>	
	<b>RWSA Charges</b>	<b>RWSA Charges</b>	<b>(Decrease)</b>	
<b>July</b>	\$ 2,622,835	\$ 2,352,971	\$ 269,864	11.47%
<b>August</b>	2,648,222	2,352,440	295,782	12.57%
<b>September</b>	2,718,386	2,286,484	431,902	18.89%
<b>October</b>	2,733,598	2,277,041	456,557	20.05%
<b>November</b>		2,204,989		-100.00%
<b>December</b>		2,249,566		-100.00%
<b>January</b>		2,356,246		-100.00%
<b>February</b>		2,269,378		-100.00%
<b>March</b>		2,342,273		-100.00%
<b>April</b>		2,265,591		-100.00%
<b>May</b>		2,313,334		-100.00%
<b>June</b>		2,283,431		-100.00%
	<hr/>	<hr/>		
	\$ 10,723,041	\$ 27,553,743		
<hr/>				
<b>YTD</b>	\$ 10,723,041	\$ 9,268,935	\$ 1,454,105	15.69%

**Note:** The charges noted above from the RWSA include operating and debt service charges.

**Albemarle County Service Authority  
Consumption Analysis  
Fiscal Year 2025**

	FY 2025 Consumption	FY 2024 Consumption		Monthly Precipitation (In.)	
				FY 2025	FY 2024
July	178,898,841	154,300,020	15.94%	2.97	5.44
August	167,569,158	170,746,002	-1.86%	4.56	2.51
September	168,622,791	176,070,325	-4.23%	11.90	2.98
October		165,947,566	-100.00%		0.59
November		154,337,781	-100.00%		3.67
December		145,323,150	-100.00%		4.80
January		137,727,440	-100.00%		6.58
February		135,574,438	-100.00%		2.31
March		137,885,342	-100.00%		3.70
April		136,213,084	-100.00%		1.85
May		153,343,279	-100.00%		5.00
June		162,940,773	-100.00%		1.21
	515,090,790	1,830,409,200		19.43	40.64
<b>YTD</b>	<b>515,090,790</b>	<b>501,116,347</b>	<b>2.79%</b>	<b>19.43</b>	<b>10.93</b>

**Note: Consumption through September 2024 is 2.8% more than the same period in fiscal year 2024. Monthly precipitation figures have been included for comparison purposes. Trends in rainfall can sometimes correlate with trends in consumption however, depending on the intensity, days between rain events, or other factors, this may not always be the case.**

Note: Precipitation data obtained from National Oceanic and Atmospheric Administration (NOAA):  
<https://www.ncdc.noaa.gov/cdo-web/search>.



# Water and Sewer Report

(Volumes in Gallons)  
September 2024

<b>Metered by Area:</b>	<b>Water</b>	<b>Sewer</b>
Crozet	21,552,219	17,531,427
Scottsville	1,188,582	774,661
Urban	145,837,110	118,023,640
Red Hill	44,880	0
<b>Total</b>	<b>168,622,791</b>	<b>136,329,728</b>

<b>Wastewater Flows by Sewer Plant:</b>	
Total Urban and Crozet	135,555,067
less Glenmore WRRF	-3,812,653
Moore's Creek AWWRF	131,742,414
Scottsville WRRF	774,661
<b>Total</b>	<b>132,517,075</b>

<b>Number of Installed Meters:</b>	
Urban	29
Crozet	18
Scottsville	0
<b>Total</b>	<b>47</b>

<b>Hydrant Meter Consumption (billed by invoice):</b>	
Urban	886,800
Crozet	0
Scottsville	0
<b>Total</b>	<b>886,800</b>

<b>Unmetered Leak Consumption:</b>	
Rockfish Gap Turnpike-9/4/2024	Crozet 1,000
Old Ivy Road-9/5/2024	Urban 100
Worth Crossing-9/9/2024	Urban 500
Shepherds Ridge Road-9/10/2024	Urban 50
<b>Total</b>	<b>1,650</b>

<b>Billed Consumption for Selected Customers</b>					
	<u>Water</u>	<u>Sewer</u>		<u>Water</u>	<u>Sewer</u>
VA Land Holding	305,520	305,520	Boar's Head Inn	573,375	548,628
Southwood Mobile Homes	1,891,970	1,880,000	Farmington, Inc.	1,056,598	498,864
Turtle Creek Apts.	1,560,902	1,556,870	Westgate Apts.	1,131,416	1,130,116
Barracks West Apartments	1,587,061	1,587,061	PR Charger C'ville Holdings	2,123,044	2,123,044
Monroe Health & Rehab.	719,136	719,136	Four Seasons Apts	1,016,623	1,016,623
Sunrise Senior "Colonnades"	940,459	696,559	Ch'ville/Alb Airport	167,583	168,229
ACRJ	1,185,780	994,780	State Farm	283,700	44,516
Westminster Canterbury	1,846,000	1,797,000	Hyatt @ Stonefield	675,052	661,069
SEMF Charleston	1,511,273	1,511,273	Doubletree	681,934	681,934
Martha Jefferson Hospital	2,681,949	1,292,858	Arden Place Apts	514,919	514,919
Crozet Mobile Home Village	266,677	266,677	Hilton Garden Inn	228,522	228,522
The Home Depot	475,142	475,142	The Blake @ Charlottesville	243,059	243,059
County of Albemarle	2,450,154	1,412,400	The Lodge @ Old Trail	244,836	244,836
University of Virginia	2,754,780	2,747,758	Gov't-Defense Complex	967,489	898,438
Wegmans	403,410	403,410	Harris Teeter Stores	211,425	211,425



September 2024

**WATER**

Class Type	Number of Connections by Area			<u>Total</u>
	<u>Urban</u>	<u>Crozet</u>	<u>Scottsville</u>	
Single-Family Residential	16,354	4,037	195	20,586
Multi-Family Residential	584	56	3	643
Commercial (Offices)	201	12	5	218
Commercial (Other)	938	77	53	1,068
Industrial	37	11	4	52
Institutional	174	32	12	218
<b>Total Water Connections</b>	<b>18,288</b>	<b>4,225</b>	<b>272</b>	<b>22,785</b>
<b>Plus Multiple Units</b>	<b>13,845</b>	<b>854</b>	<b>89</b>	<b>14,788</b>
<b>Total Water Units</b>	<b>32,133</b>	<b>5,079</b>	<b>361</b>	<b>37,573</b>

**SEWER**

Class Type	Number of Connections by Area			<u>Total</u>
	<u>Urban</u>	<u>Crozet</u>	<u>Scottsville</u>	
Single-Family Residential	14,044	3,761	157	17,962
Multi-Family Residential	553	54	4	611
Commercial (Offices)	186	12	5	203
Commercial (Other)	730	52	44	826
Industrial	15	5	1	21
Institutional	136	25	10	171
<b>Total Sewer Connections</b>	<b>15,664</b>	<b>3,909</b>	<b>221</b>	<b>19,794</b>
<b>Plus Multiple Units</b>	<b>13,420</b>	<b>850</b>	<b>56</b>	<b>14,326</b>
<b>Total Sewer Units</b>	<b>29,084</b>	<b>4,759</b>	<b>277</b>	<b>34,120</b>

**POPULATION SERVED**

Population served is the total Single-Family and Multi-Family units using an occupancy of 2.5 residents per unit:

	<u>Urban</u>	<u>Crozet</u>	<u>Scottsville</u>	<u>Total</u>
<b>Total Water Customers</b>	75,498	12,228	710	88,435
<b>Total Sewer Customers</b>	68,660	11,528	533	80,720

**Albemarle County Service Authority  
Major Customer Analysis  
September 2024 and August 2024**

	<b>September 2024</b>		<b>August 2024</b>		<b>Increase(Decrease)</b>	<b>Increase(Decrease)</b>
	<b>Water*</b>	<b>Sewer*</b>	<b>Water*</b>	<b>Sewer*</b>	<b>Water Consumption</b>	<b>Sewer Usage</b>
<b>State Farm</b>	283,700	44,516	256,950	58,865	10.41%	-24.38%
<b>Turtle Creek Apts.</b>	1,560,902	1,556,870	1,459,550	1,454,852	6.94%	7.01%
<b>Southwood Mobile Homes</b>	1,891,970	1,880,000	1,808,700	1,790,000	4.60%	5.03%
<b>Barracks West Apartments</b>	1,587,061	1,587,061	1,541,948	1,541,948	2.93%	2.93%
<b>ACRJ</b>	1,185,780	994,780	1,169,960	946,960	1.35%	5.05%
<b>County of Albemarle</b>	2,450,154	1,412,400	2,504,921	973,867	-2.19%	45.03%
<b>SEMF Charleston</b>	1,511,273	1,511,273	1,553,689	1,553,689	-2.73%	-2.73%
<b>University of Virginia</b>	2,754,780	2,747,758	2,865,166	2,857,825	-3.85%	-3.85%
<b>Westgate Apts.</b>	1,131,416	1,130,116	1,184,869	1,183,869	-4.51%	-4.54%
<b>Westmisnster Canterbury</b>	1,846,000	1,797,000	1,971,300	1,803,300	-6.36%	-0.35%
<b>Martha Jefferson Hospital</b>	2,681,949	1,292,858	2,874,768	1,345,781	-6.71%	-3.93%
<b>PR Charger C'ville Holdings</b>	2,123,044	2,123,044	2,358,459	2,358,459	-9.98%	-9.98%
<b>Four Seasons Apts.</b>	1,016,623	1,016,623	1,714,907	1,714,907	-40.72%	-40.72%

**Note: Only major customers of the ACSA have been analyzed above. For purposes of this analysis, major customers are those who, on average, consume over one million gallons per month. Variations can occur for a variety of reasons including but not limited to: conscious conservation efforts, expansion, weather, vacancies, etc.**

**\* -- Consumption/usage in gallons.**

**Albemarle County Service Authority  
Major Customer Analysis  
September 2024 and September 2023**

	September 2024		September 2023		Increase(Decrease) Water Consumption	Increase(Decrease) Sewer Usage
	Water*	Sewer*	Water*	Sewer*		
Turtle Creek Apts.	1,560,902	1,556,870	1,350,616	1,346,269	15.57%	15.64%
ACRJ	1,185,780	994,780	1,039,180	875,180	14.11%	13.67%
University of Virginia	2,754,780	2,747,758	2,556,273	2,553,828	7.77%	7.59%
Westmisnster Canterbury	1,846,000	1,797,000	1,786,950	1,700,950	3.30%	5.65%
Southwood Mobile Homes	1,891,970	1,880,000	1,907,560	2,040,000	-0.82%	-7.84%
Martha Jefferson Hospital	2,681,949	1,292,858	2,784,352	1,389,750	-3.68%	-6.97%
County of Albemarle	2,450,154	1,412,400	2,544,081	1,650,258	-3.69%	-14.41%
Barracks West Apartments	1,587,061	1,587,061	1,658,391	1,658,391	-4.30%	-4.30%
Westgate Apts.	1,131,416	1,130,116	1,237,019	1,235,919	-8.54%	-8.56%
SEMF Charleston	1,511,273	1,511,273	1,718,222	1,718,222	-12.04%	-12.04%
PR Charger C'ville Holdings	2,123,044	2,123,044	2,492,190	2,492,190	-14.81%	-14.81%
Four Seasons Apts.	1,016,623	1,016,623	1,702,012	1,702,012	-40.27%	-40.27%
State Farm	283,700	44,516	2,079,390	1,828,092	-86.36%	-97.56%

**Note:** Only major customers of the ACSA have been analyzed above. For purposes of this analysis, major customers are those who, on average, consume over one million gallons per month. Variations can occur for a variety of reasons including but not limited to: conscious conservation efforts, expansion, weather, vacancies, etc.

\* -- Consumption/usage in gallons.

**Albemarle County Service Authority**

**Major Customer Analysis**

**Year-to-date Comparison: Current Year/Prior Year -- September**

	YTD FY 2025		YTD FY 2024		Increase(Decrease)	Increase(Decrease)
	Water*	Sewer*	Water*	Sewer*	Water Consumption	Sewer Usage
County of Albemarle	7,900,562	3,330,495	5,713,740	3,146,497	38.27%	5.85%
University of Virginia	8,643,363	8,624,399	6,909,189	6,898,154	25.10%	25.02%
ACRJ	3,445,610	2,835,610	3,067,170	2,571,170	12.34%	10.28%
Turtle Creek Apts.	4,303,720	4,288,232	4,019,042	4,011,309	7.08%	6.90%
Westmisnster Canterbury	5,545,610	5,158,610	5,240,100	4,968,100	5.83%	3.83%
Martha Jefferson Hospital	8,476,922	4,146,004	8,011,499	3,821,238	5.81%	8.50%
Southwood Mobile Homes	5,528,570	5,700,000	5,427,990	6,450,000	1.85%	-11.63%
Westgate Apts.	3,642,141	3,638,441	3,647,438	3,642,538	-0.15%	-0.11%
PR Charger C'ville Holdings	6,260,596	6,260,596	6,505,273	6,505,273	-3.76%	-3.76%
Four Seasons Apts.	4,307,317	4,307,317	4,647,469	4,647,469	-7.32%	-7.32%
Barracks West Apartments	4,405,971	4,405,971	4,842,270	4,842,270	-9.01%	-9.01%
SEMF Charleston	4,411,749	4,411,749	4,913,126	4,913,126	-10.20%	-10.20%
State Farm	2,636,460	1,979,786	5,262,180	4,791,410	-49.90%	-58.68%

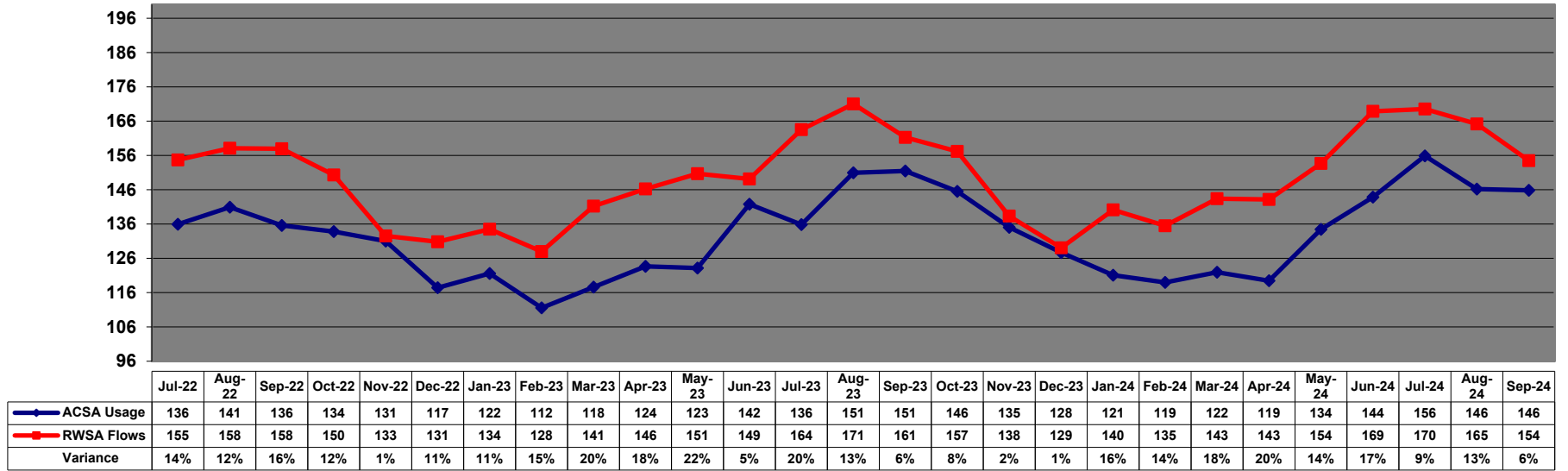
**Note: Only major customers of the ACSA have been analyzed above. For purposes of this analysis, major customers are those who, on average, consume over one million gallons per month. Variations can occur for a variety of reasons including but not limited to: conscious conservation efforts, expansion, weather, vacancies, etc.**

**\* -- Consumption/usage in gallons.**

# FY 2023, 2024, and 2025 Urban Water Comparison RWSA Flows & ACSA Customer Usage

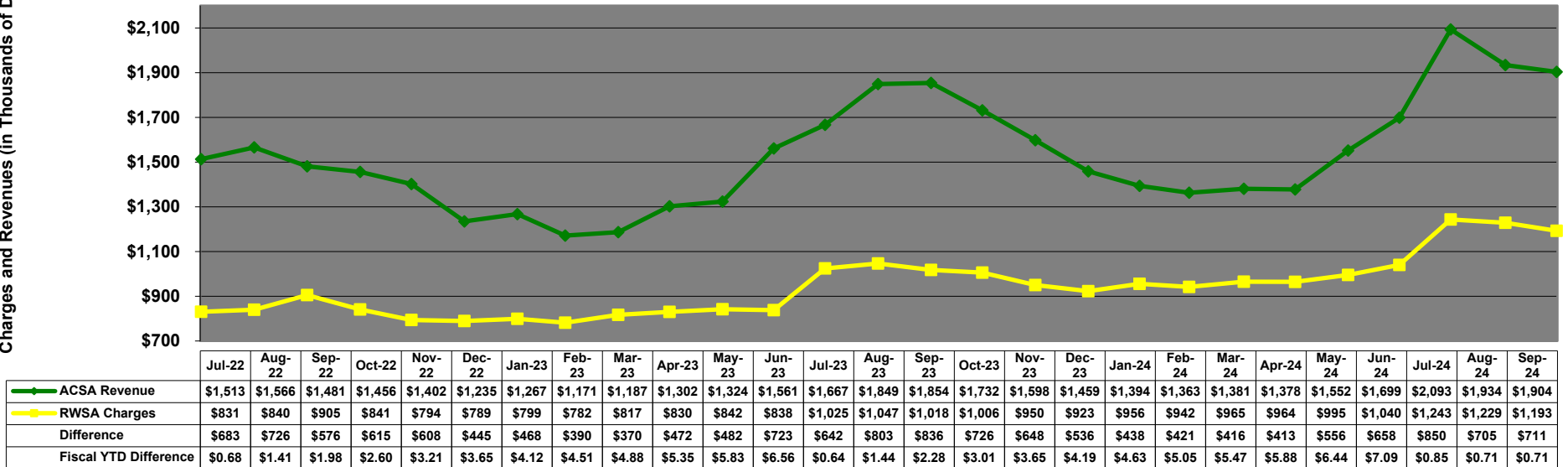
50

Flows & Usage (in Millions of Gallons)



Charges and Revenues (in Thousands of Dollars)

## FY 2023, 2024, and 2025 Urban Water Comparison RWSA Billed Water Charges & ACSA Billed Water Revenues



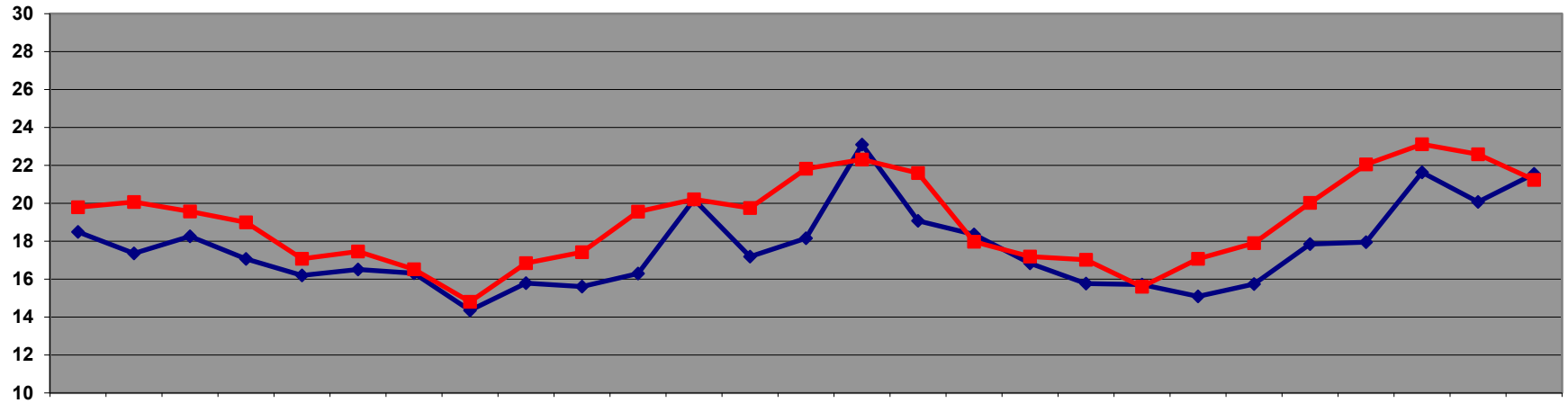
Note: Fiscal YTD Difference (ONLY) in Millions of Dollars



**FY 2023, 2024, and 2025 Crozet Water Comparison  
RWSA Flows & ACSA Customer Usage**

51

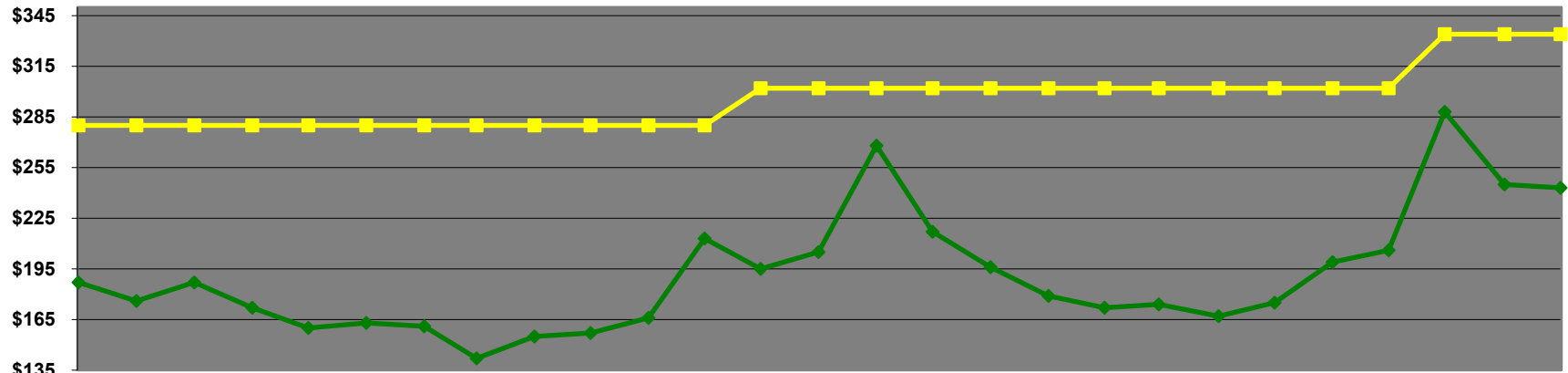
Flows & Usage (in Millions of Gallons)



	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24
ACSA Usage	18	17	18	17	16	17	16	14	16	16	16	20	17	18	23	19	18	17	16	16	15	16	18	20	22	23	21
RWSA Flows	20	20	20	19	17	17	17	15	17	17	20	20	20	22	22	22	18	17	17	16	17	18	20	22	23	23	21
Variance	7%	16%	7%	11%	5%	6%	1%	3%	7%	12%	20%	0%	15%	20%	-3%	13%	-2%	2%	8%	-1%	13%	14%	12%	23%	7%	13%	-1%

**FY 2023, 2024, and 2025 Crozet Water Comparison  
RWSA Billed Water Charges & ACSA Billed Water Revenues**

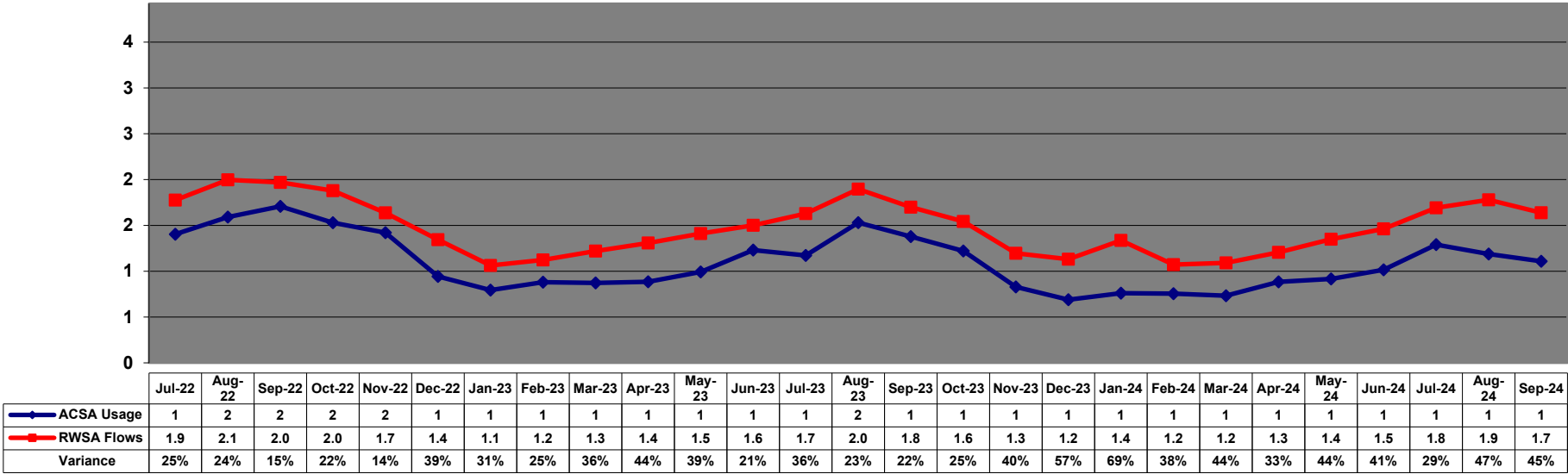
Charges and Revenues (in Thousands of Dollars)



	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24
ACSA Revenue	\$187	\$176	\$187	\$172	\$160	\$163	\$161	\$142	\$155	\$157	\$166	\$213	\$195	\$205	\$268	\$217	\$196	\$179	\$172	\$174	\$167	\$175	\$199	\$206	\$288	\$245	\$243
RWSA Charges	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$280	\$302	\$302	\$302	\$302	\$302	\$302	\$302	\$302	\$302	\$302	\$302	\$302	\$334	\$334	\$334
Difference	(\$93)	(\$104)	(\$93)	(\$108)	(\$120)	(\$117)	(\$119)	(\$138)	(\$125)	(\$123)	(\$114)	(\$67)	(\$107)	(\$97)	(\$34)	(\$85)	(\$106)	(\$123)	(\$130)	(\$128)	(\$135)	(\$127)	(\$103)	(\$96)	(\$46)	(\$89)	(\$91)
Fiscal YTD Difference	(\$0.09)	(\$0.20)	(\$0.29)	(\$0.40)	(\$0.52)	(\$0.64)	(\$0.75)	(\$0.89)	(\$1.02)	(\$1.14)	(\$1.25)	(\$1.32)	(\$0.11)	(\$0.20)	(\$0.24)	(\$0.32)	(\$0.43)	(\$0.55)	(\$0.68)	(\$0.81)	(\$0.95)	(\$1.07)	(\$1.18)	(\$1.27)	(\$0.05)	(\$0.09)	(\$0.09)

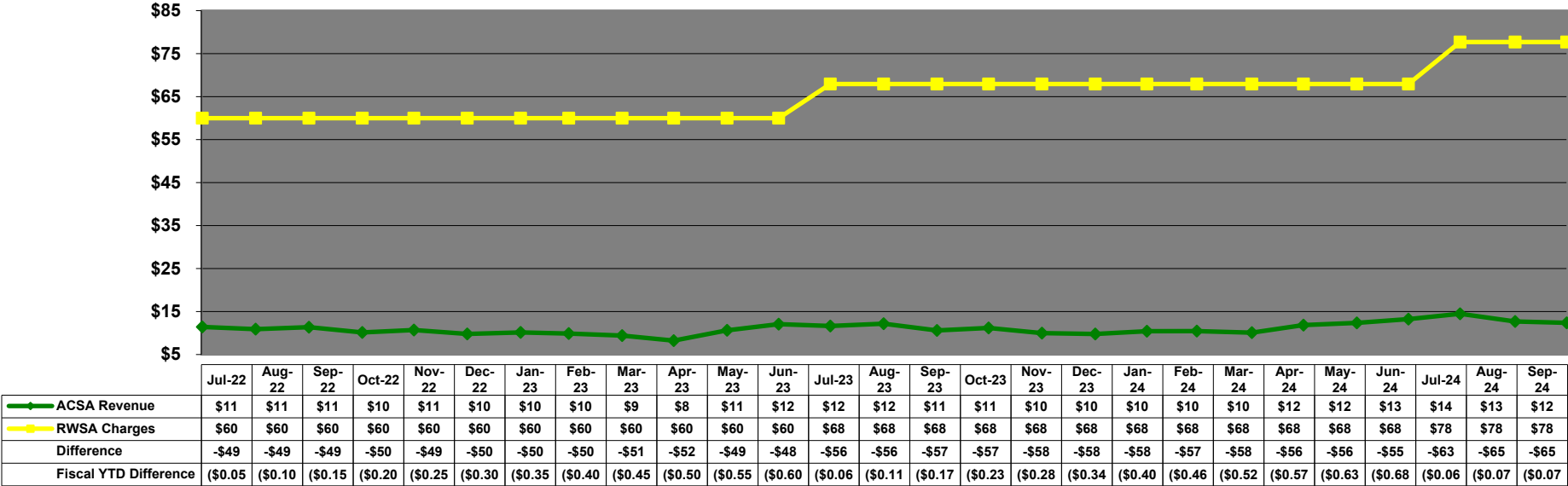
FY 2023, 2024, and 2025 Scottsville Water Comparison  
RWSA Flows & ACSA Customer Usage

Flows & Usage (in Millions of Gallons)



FY 2023, 2024, and 2025 Scottsville Water Comparison  
RWSA Billed Water Charges & ACSA Billed Water Revenues

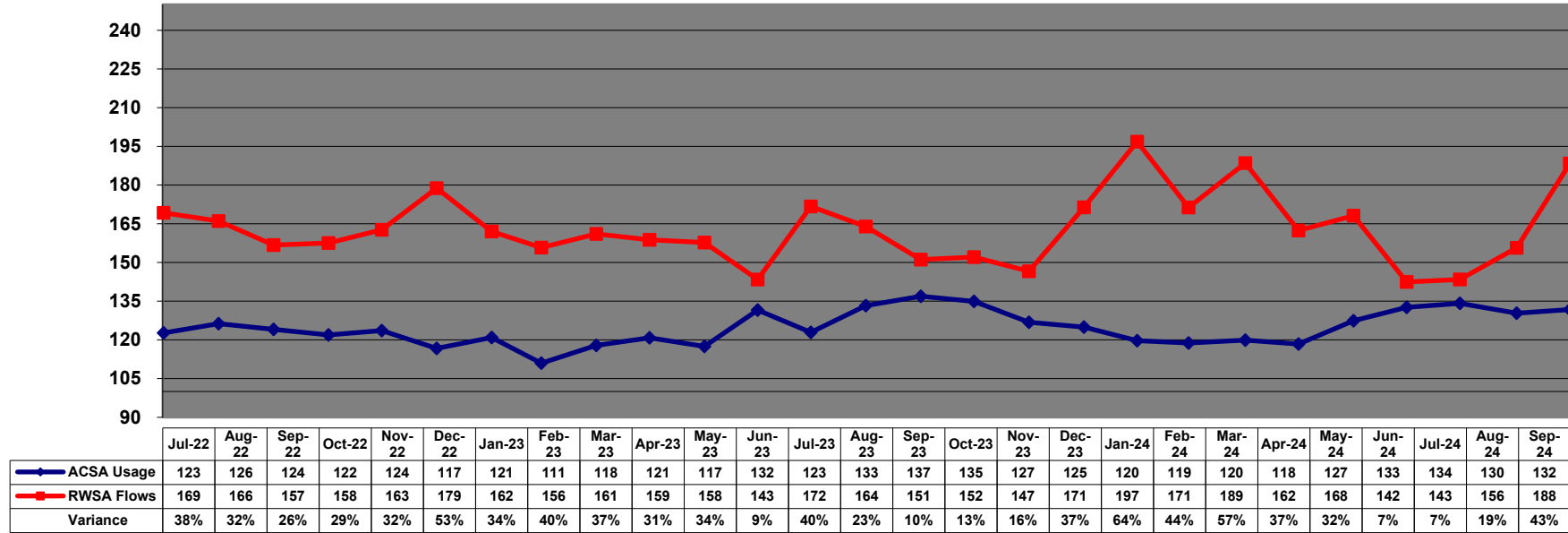
Charges and Revenues (in Thousands of Dollars)



**FY 2023, 2024, and 2025 Urban (including Glenmore) & Crozet Sewer Comparison  
ACSA Customer Usage & RWSA Flows**

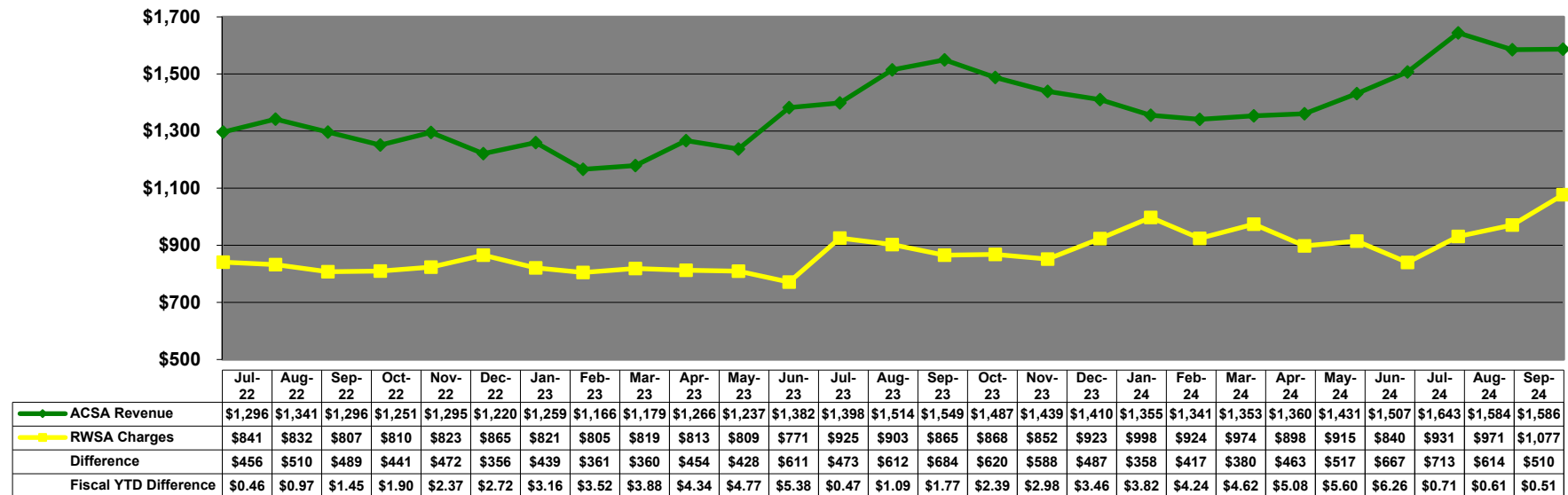
53

Usage & Flows (in Millions of Gallons)



**FY 2023, 2024, and 2025 Urban (including Glenmore) & Crozet Sewer Comparison  
ACSA Billed Sewer Usage & RWSA Billed Sewer Charges**

Charges & Revenues (in Thousands of Dollars)

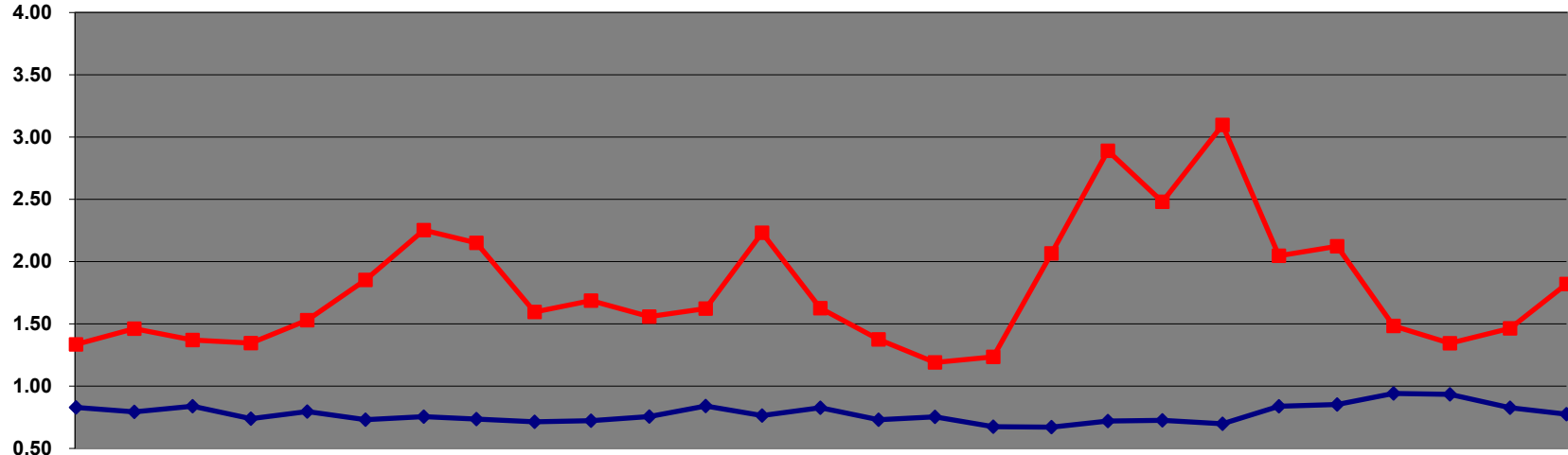


Note: Fiscal YTD Difference (ONLY) in Millions of Dollars

**FY 2023, 2024, and 2025 Scottsville Sewer Comparison  
ACSA Customer Usage & RWSA Flows**

54

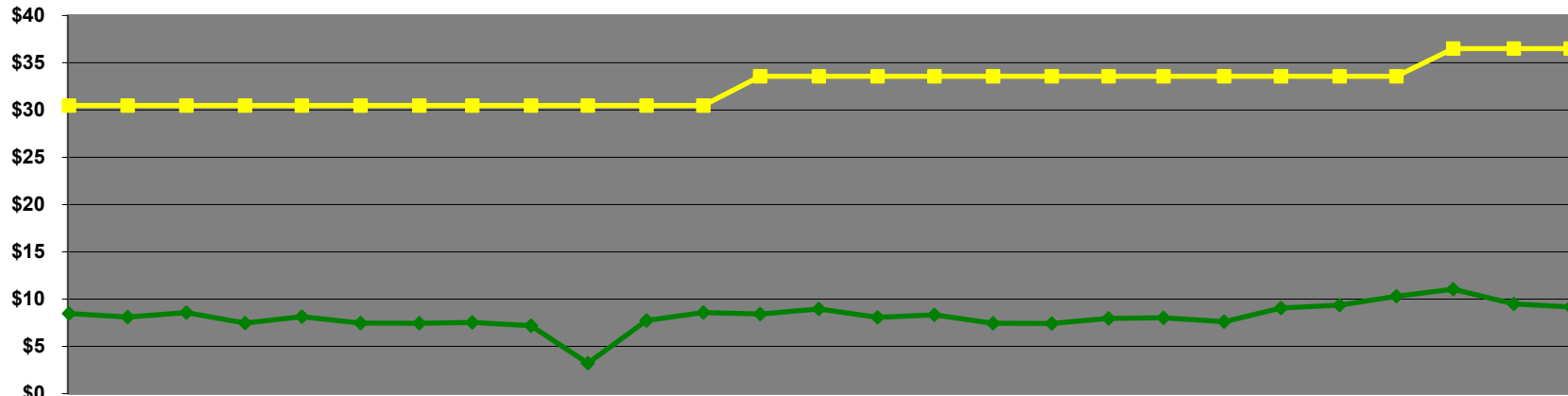
Usage & Flows (in Millions of Gallons)



	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24
ACSA Usage	0.83	0.79	0.84	0.74	0.80	0.73	0.75	0.74	0.71	0.72	0.76	0.84	0.76	0.83	0.73	0.75	0.67	0.67	0.72	0.73	0.70	0.84	0.85	0.94	0.93	0.83	0.77
RWSA Flows	1.34	1.46	1.37	1.35	1.53	1.85	2.25	2.15	1.60	1.69	1.56	1.62	2.23	1.63	1.38	1.19	1.24	2.07	2.89	2.48	3.10	2.05	2.12	1.48	1.34	1.46	1.82
Variance	61%	84%	63%	82%	92%	154%	198%	192%	124%	133%	106%	93%	192%	97%	88%	58%	83%	208%	301%	242%	344%	144%	149%	58%	44%	77%	135%

**FY 2023, 2024, and 2025 Scottsville Sewer Comparison  
ACSA Billed Sewer Usage & RWSA Billed Sewer Charges**

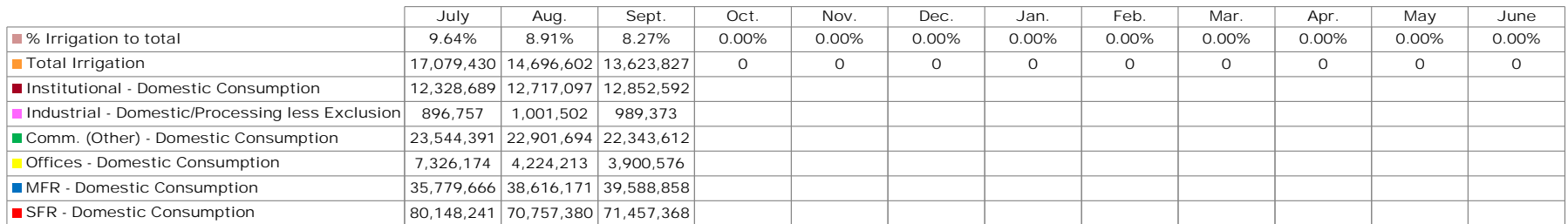
Charges & Revenues (in Thousands of Dollars)



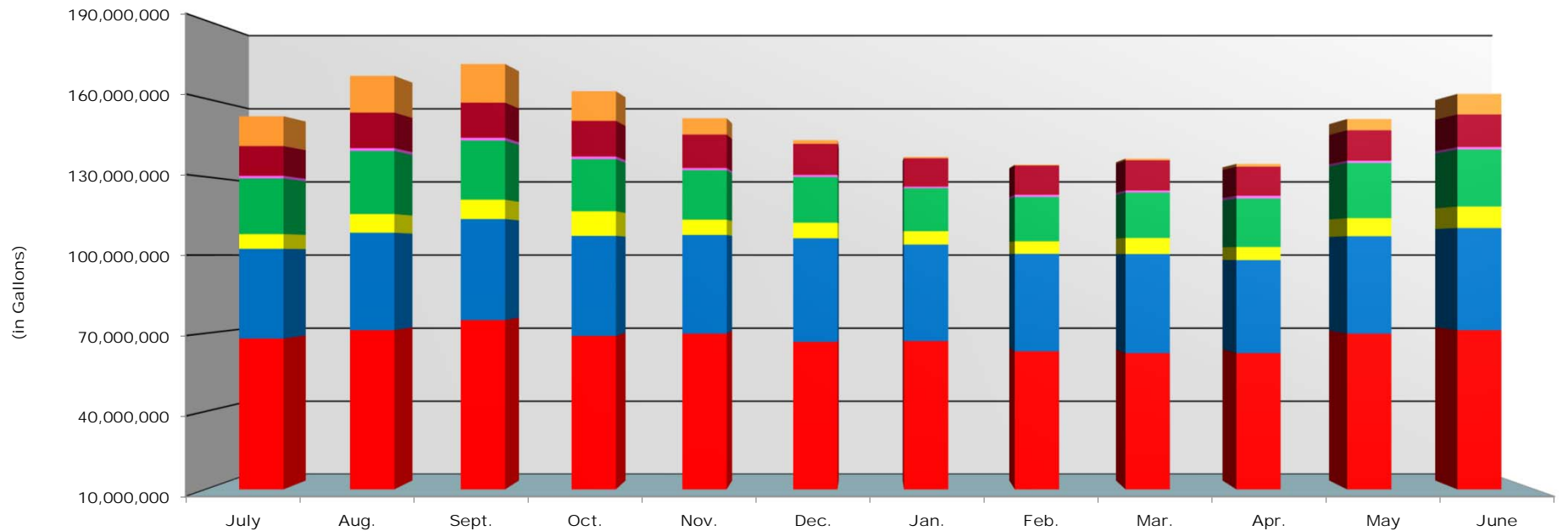
	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24
ACSA Revenue	\$8.48	\$8.11	\$8.57	\$7.47	\$8.15	\$7.46	\$7.44	\$7.53	\$7.19	\$3.22	\$7.74	\$8.58	\$8.42	\$8.95	\$8.07	\$8.33	\$7.44	\$7.42	\$7.96	\$8.02	\$7.61	\$9.05	\$9.36	\$10.30	\$11.05	\$9.49	\$9.16
RWSA Charges	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$30	\$34	\$34	\$34	\$34	\$34	\$34	\$34	\$34	\$34	\$34	\$34	\$34	\$36	\$36	\$36
Difference	-\$22	-\$22	-\$22	-\$23	-\$22	-\$23	-\$23	-\$23	-\$23	-\$27	-\$23	-\$22	-\$25	-\$25	-\$25	-\$25	-\$26	-\$26	-\$26	-\$26	-\$26	-\$25	-\$24	-\$23	-\$25	-\$27	-\$27
Fiscal YTD Difference	-\$0.02	-\$0.04	-\$0.07	-\$0.09	-\$0.11	-\$0.13	-\$0.16	-\$0.18	-\$0.20	-\$0.23	-\$0.25	-\$0.28	-\$0.03	-\$0.05	-\$0.08	-\$0.10	-\$0.13	-\$0.15	-\$0.18	-\$0.20	-\$0.23	-\$0.25	-\$0.28	-\$0.30	-\$0.03	-\$0.03	-\$0.03

Note: Fiscal YTD Difference (ONLY) in Millions of Dollars



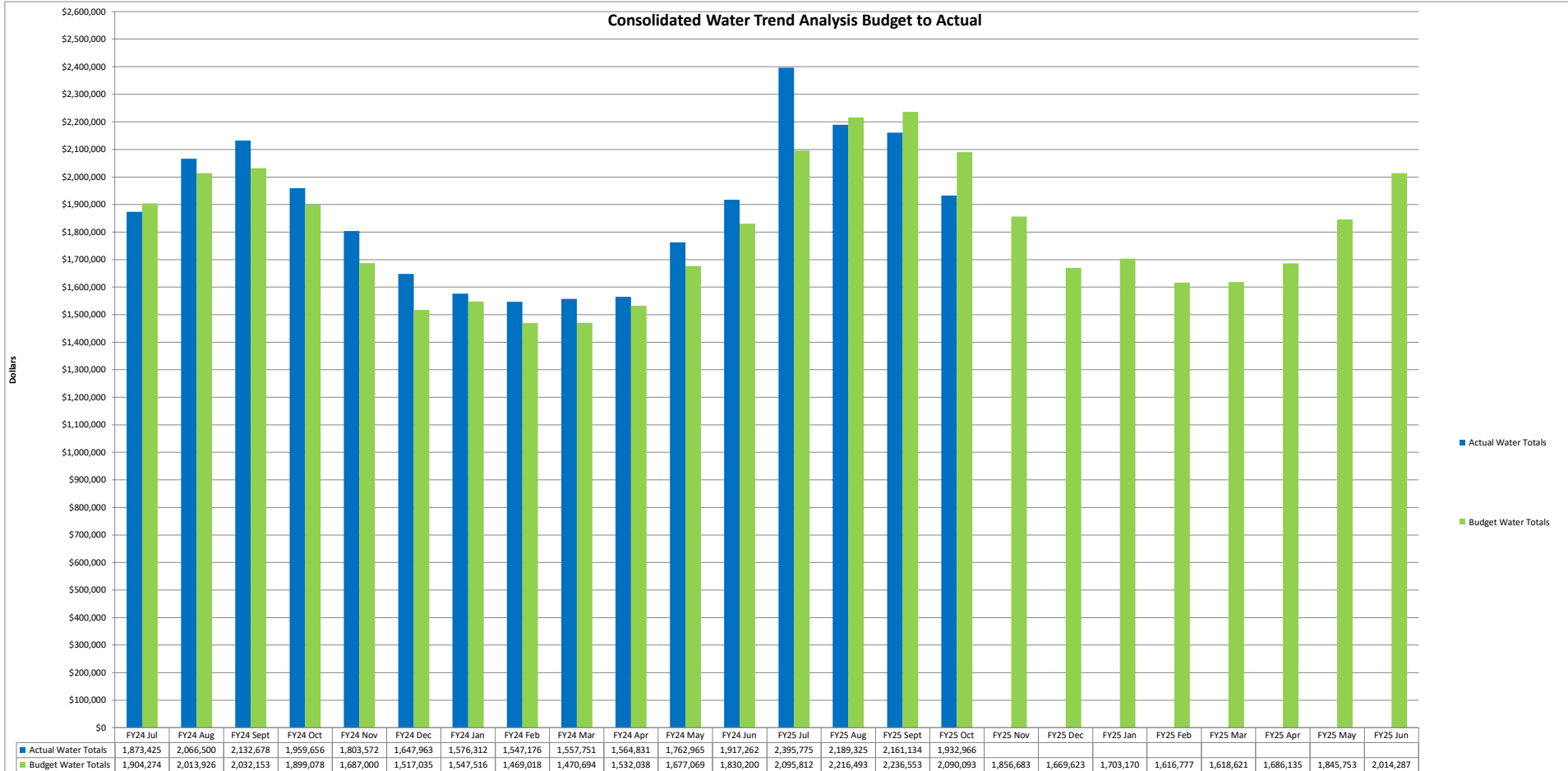


Monthly Water Consumption Fiscal Year 2024

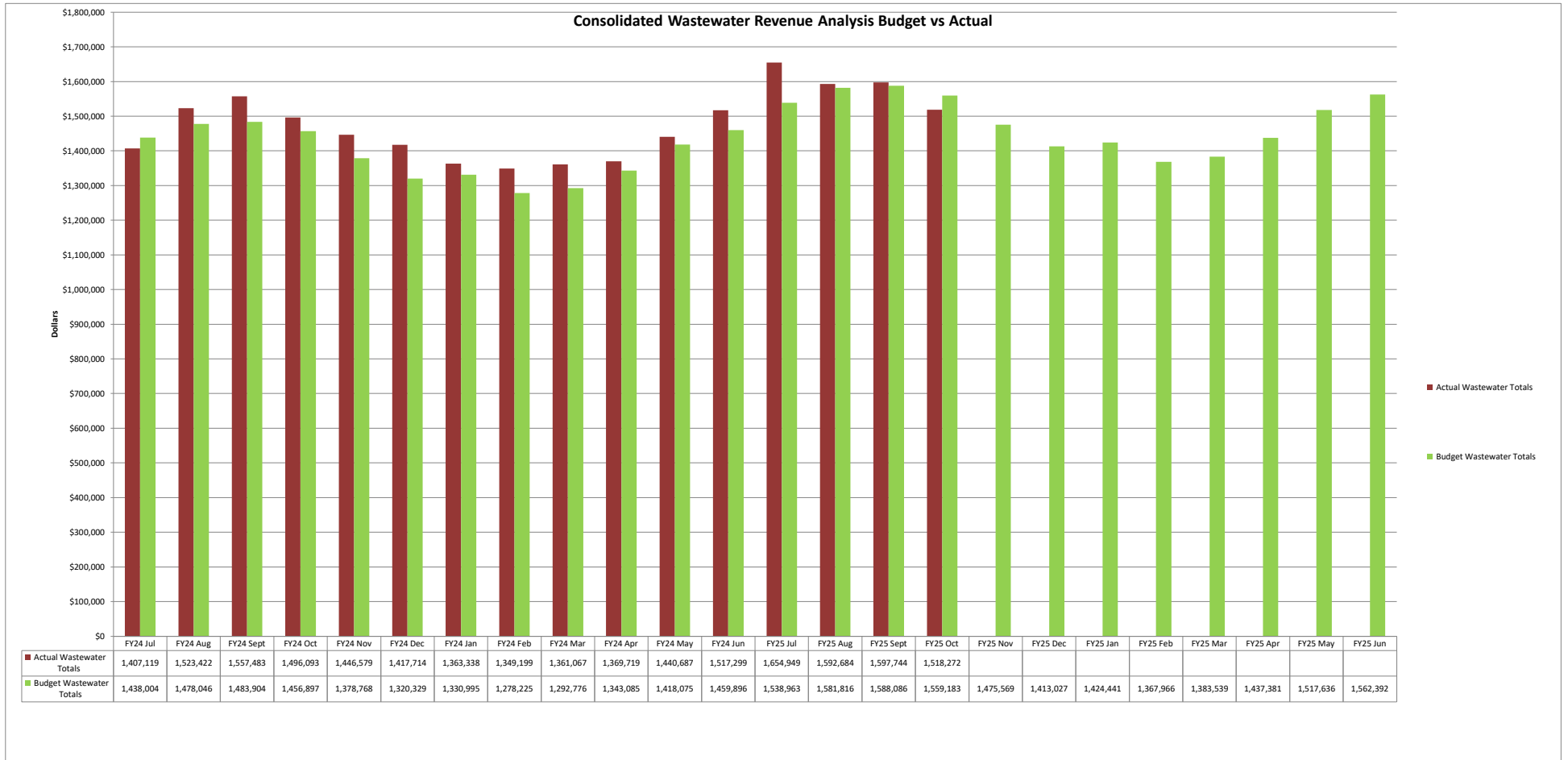


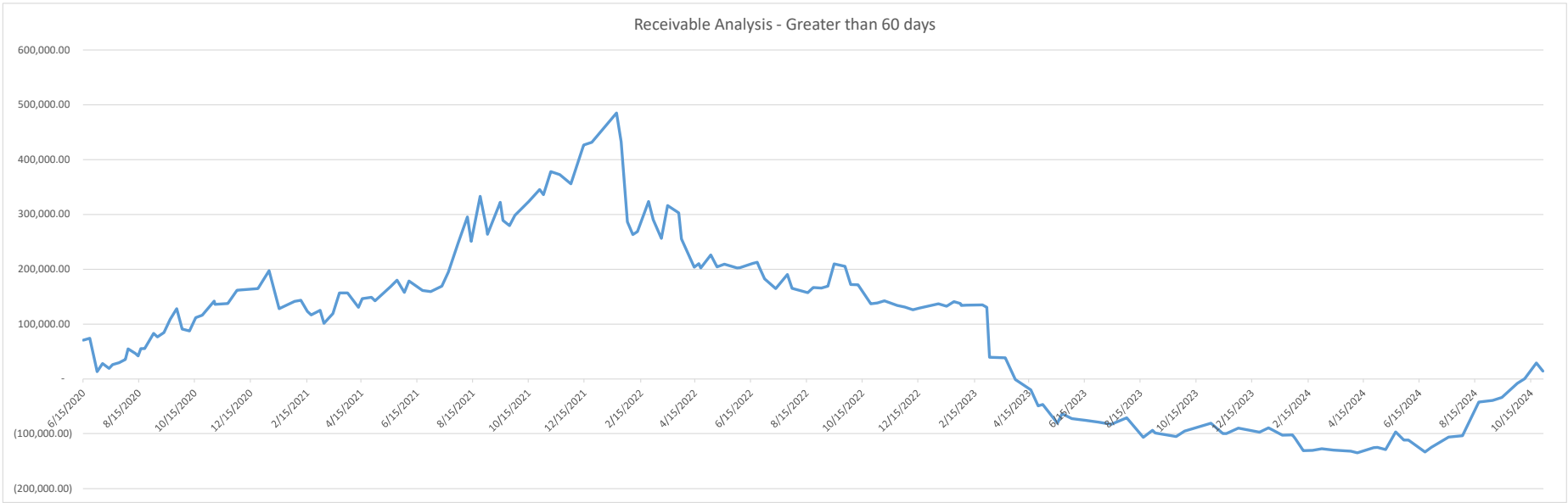
	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
% Irrigation to total	7.48%	8.35%	8.57%	7.01%	4.10%	1.02%	0.36%	0.25%	0.47%	0.80%	2.85%	4.88%
Total Irrigation	11,456,536	14,098,787	14,847,145	11,424,153	6,256,436	1,469,709	498,886	334,491	638,165	1,075,842	4,335,899	7,891,307
Institutional - Domestic Consumption	11,422,399	13,645,824	13,463,936	13,656,468	12,824,386	11,907,305	10,858,597	11,228,113	11,589,322	11,148,142	11,655,610	12,507,954
Industrial - Domestic/Processing less Exclusion	966,653	1,077,656	1,057,633	1,026,110	861,358	803,364	609,853	850,907	820,801	1,073,059	877,108	942,031
Comm. (Other) - Domestic Consumption	21,360,672	24,192,909	22,706,395	19,990,643	18,980,282	17,518,883	16,504,729	16,999,535	17,370,595	18,578,119	21,141,516	21,882,439
Offices - Domestic Consumption	5,673,746	7,197,381	7,399,598	9,429,273	5,856,409	5,992,764	5,129,796	4,792,091	6,193,567	5,037,281	6,951,469	8,226,787
MFR - Domestic Consumption	34,431,191	37,357,730	38,794,918	38,384,145	37,854,340	39,754,868	37,028,178	37,421,461	37,990,377	35,663,074	37,363,418	39,186,516
SFR - Domestic Consumption	67,945,359	71,189,646	75,030,729	68,975,926	69,843,962	66,666,670	66,994,095	63,050,754	62,387,420	62,393,044	69,866,621	71,194,441

### Consolidated Water Trend Analysis Budget to Actual









## Albemarle County Service Authority

## October 2024 Payments

CHECK NUMBER	CHECK DATE	VENDOR NAME	AMOUNT	DESCRIPTION OVER \$5,000
Wire	10/07/2024	Rivanna Water & Sewer Authority	2,718,385.61	Water & Sewer Treatment
70287	10/01/2024	Valley Contracting LLC	766,631.00	Crozet Phase 4 Watermain
ACH	10/31/2024	Payroll	206,799.64	Net Pay
ACH	10/15/2024	Payroll	186,598.71	Net Pay
70206	10/01/2024	Anderson Construction Incorporated	132,996.59	Madison Park Pump Station
508172633	10/31/2024	IRS - Federal Tax Deposit	77,349.21	Payroll
507430408	10/15/2024	IRS - Federal Tax Deposit	69,341.36	Payroll
Wire	10/24/2024	The Bank of New York Mellon	48,955.73	Debt Service
508172632	10/31/2024	County of Albemarle	48,891.76	Payroll
508172629	10/31/2024	Virginia Retirement System	43,160.17	Payroll
507430404	10/31/2024	Virginia Retirement System	42,141.26	Payroll
507430407	10/31/2024	County of Albemarle	38,295.72	Payroll
70265	10/01/2024	Paymentus Corporation	33,966.74	Transaction Fees
70310	10/15/2024	Electrical Equipment Company	20,861.70	CompactLogix Controller
70355	10/15/2024	Virginia Department of Health	16,987.50	Waterworks Operation Fee
70299	10/15/2024	Bank of America	16,162.58	Supplies & Memberships
508172634	10/31/2024	Virginia Dept of Taxation	13,419.66	Payroll
70356	10/15/2024	Cellco Partnership	12,417.77	Cellular Service
507430409	10/15/2024	Virginia Dept of Taxation	12,135.64	Payroll
70319	10/15/2024	Fortiline Incorporated	10,357.43	Inventory
70302	10/15/2024	Brown, Edwards & Company LLP	10,000.00	FY24 Audit
70352	10/15/2024	UVA Darden School Foundation	8,400.00	Executive Program
70231	10/01/2024	County of Albemarle	7,584.04	FY25 Radio Annual Cost Share
70205	10/01/2024	American Water Works Association	7,164.00	Membership Renewal
70358	10/15/2024	Whitman, Requardt & Assoc LLP	7,008.05	Scottsville Phase 4
70243	10/01/2024	AGILIS LLC	6,998.00	Irrigation
70330	10/15/2024	Letterpress Communications LLC	6,818.50	Communications Services
70312	10/15/2024	EWT Holdings III Corporation	6,480.00	Bioxide
70239	10/01/2024	Fire-X Corporation	6,467.60	Fire Suppression System
70327	10/15/2024	Dennis and Brenda Kelley	6,200.00	Easement
70309	10/15/2024	Dominion Energy Virginia	5,816.18	Energy
508172631	10/31/2024	VALIC	5,692.50	Payroll
507430406	10/15/2024	VALIC	5,502.50	Payroll
70335	10/15/2024	Mansfield Oil Company of Gainesville Inc	4,909.49	
70250	10/01/2024	Letterpress Communications LLC	4,850.00	
70306	10/15/2024	Core & Main LP	4,644.37	
70298	10/15/2024	Atlantic Machinery Incorporated	4,622.73	
70317	10/15/2024	Flora Pettit PC	4,482.50	
70272	10/01/2024	RSG Landscaping LLC	4,400.57	
507430403	10/15/2024	Nationwide	4,298.00	
508172628	10/31/2024	Nationwide	4,298.00	
70308	10/15/2024	Dewberry Engineers Incorporated	4,257.00	
508172626	10/31/2024	ICMA Membership Renewals	4,136.90	
70202	10/01/2024	Access Wireless Data Solutions LLC	3,915.03	

507430401	10/15/2024	ICMA Membership Renewals	3,864.86
70360	10/29/2024	Department of the Treasury	3,821.66
70236	10/01/2024	Ed's Floor Care Services LLC	3,703.33
70255	10/01/2024	Mansfield Oil Company of Gainesville Inc	3,499.44
70307	10/15/2024	Cues Incorporated	3,041.46
70323	10/15/2024	Stephanie Hunter	2,974.80
70271	10/01/2024	Stemmle Plumbing Repair Inc	2,915.00
70242	10/01/2024	Flora Pettit PC	2,690.82
70297	10/15/2024	Ascensus	2,650.00
70259	10/01/2024	ODP Business Solutions LLC	2,476.36
70331	10/15/2024	Lowe's	2,343.50
70277	10/01/2024	Six Star Associates LLC	2,250.00
70212	10/01/2024	Betty H Barker	2,249.50
70353	10/15/2024	Validos LLC	2,125.00
70269	10/01/2024	Rappahannock Electric Cooperative	2,007.17
507430414	10/01/2024	Energy Earth LLC	2,000.00
70357	10/15/2024	VA Utility Protection Service Inc	1,933.15
70324	10/15/2024	Infrastructure Solutions Group	1,931.15
70279	10/01/2024	Stanley Martin	1,887.86
70363	10/31/2024	Guardian	1,871.18
70270	10/01/2024	Rivanna Associates Incorporated	1,865.00
70244	10/01/2024	Fortiline Incorporated	1,755.02
70347	10/15/2024	Technirain Irrigation LLC	1,748.75
70348	10/15/2024	Todd Thorpe	1,725.00
70230	10/01/2024	Comcast	1,662.98
507430411	10/15/2024	ACSA Flexible Spending	1,573.15
508172636	10/31/2024	ACSA Flexible Spending	1,573.15
70207	10/01/2024	API Service Center	1,528.53
70234	10/01/2024	Dominion Energy Virginia	1,523.13
70211	10/01/2024	The Bank of New York Mellon	1,500.00
70219	10/01/2024	Capital Electric	1,498.53
70365	10/31/2024	Minnesota Life Insurance Co	1,456.39
507430410	10/15/2024	Flexible Benefit	1,442.50
508172635	10/31/2024	Flexible Benefit	1,442.50
70318	10/15/2024	AGILIS LLC	1,400.00
70332	10/15/2024	Mailing Services of Virginia	1,336.08
70351	10/15/2024	HD Supply Facilities Maint LTD	1,304.15
70340	10/15/2024	The Pitney Bowes Bank Inc	1,136.69
70276	10/01/2024	Southwest Distributors LLC	1,088.40
507430415	10/31/2024	VACORP	1,022.70
70286	10/01/2024	UVA-WorkMed	1,020.00
70305	10/15/2024	Column Software PBC	1,016.99
70344	10/15/2024	Rivanna Water & Sewer Authority	1,011.83
70256	10/01/2024	US Electrical Services Incorporated	1,010.76
70311	10/15/2024	Emergency Training Systems Inc	1,000.00
70274	10/01/2024	Rowena Seaman	979.49
70238	10/01/2024	Ferguson US Holdings Inc	969.85

70209	10/01/2024	Aqua Air Laboratories Inc	959.00
70350	10/15/2024	Traffic Safety Supplies LLC	958.50
70224	10/01/2024	Tidewater Communications LLC	862.50
70283	10/01/2024	TJL Environmental Health	850.00
507430505	10/31/2024	AFLAC	778.32
508172630	10/21/2024	AFFLAC	778.32
70257	10/01/2024	MSB Coach	769.00
70282	10/01/2024	TSRC Incorporated	726.80
70354	10/15/2024	Virginia Association of Municipal	716.67
70328	10/15/2024	LB Technology Incorporated	700.00
70253	10/01/2024	Mailing Services of Virginia	680.16
70290	10/01/2024	James Walkup	654.28
70296	10/15/2024	Aqua Air Laboratories Inc	605.00
70314	10/15/2024	Lindsay N. and Maurice A. Feggans	600.00
70341	10/15/2024	Red Wing Business Advantage Account	596.79
70229	10/01/2024	Comcast	565.14
70232	10/01/2024	Crown Castle	549.53
507430402	10/31/2024	ACAC	528.00
508172627	10/31/2024	ACAC	528.00
70222	10/01/2024	Indpndnt Bttry Retailers of America	491.19
70247	10/01/2024	Shelby Halbach	485.13
70267	10/01/2024	Pitney Bowes Global	441.60
70333	10/15/2024	Malloy Chevrolet Charlottesville LLC	434.42
70273	10/01/2024	S L Williamson Company Inc	402.22
70288	10/01/2024	Protocol SSD Corporation	389.39
70359	10/29/2024	Deanna Davenport	358.11
70216	10/01/2024	Brink's Incorporated	340.27
70249	10/01/2024	Ashley Perry Hernandorena	309.34
70227	10/01/2024	Clear Communication &	307.95
70301	10/15/2024	Boulders View LLC	300.00
70322	10/15/2024	Hathaway Solutions LLC	261.15
70292	10/15/2024	Advance Stores Company Inc	257.23
70334	10/15/2024	Malloy Ford	251.25
70203	10/01/2024	Advance Stores Company Inc	247.50
70345	10/15/2024	Rafael Salazar	244.52
70246	10/01/2024	Greenwood Homes	244.07
70289	10/01/2024	Christine Wainwright	241.76
70281	10/01/2024	Thomas Tate	227.00
70284	10/01/2024	United Rentals (North	212.00
70252	10/01/2024	Holly Maggiore	209.09
70342	10/15/2024	Republic Services #410	200.84
70329	10/15/2024	L/B Water Service Incorporated	180.00
70210	10/01/2024	Bailey Printing Incorporated	170.00
70326	10/15/2024	Kaseya US LLC	170.00
70346	10/15/2024	Macro Retailing LLC	161.99
70245	10/01/2024	Mason Goldman	161.47
507430413	10/02/2024	Energy Earth LLC	150.00

70285	10/01/2024	University Tire & Auto	147.45
70364	10/31/2024	Herbert Beskin Trustee	135.00
70294	10/15/2024	American Pest Incorporated	123.78
70248	10/01/2024	Gaby Hall	119.45
70280	10/01/2024	Macro Retailing LLC	116.99
70258	10/01/2024	Noor Boutique	113.51
70275	10/01/2024	Clint Sintim	105.81
70251	10/01/2024	Luck Stone Corporation	104.00
70228	10/01/2024	HTM/MTE Associates Inc	102.72
70260	10/01/2024	Annick Biscos	100.00
70261	10/01/2024	Karen Waters	100.00
70262	10/01/2024	Melody Curry	100.00
70263	10/01/2024	Roger Hill	100.00
70264	10/01/2024	Tawanda Martin	100.00
70337	10/15/2024	Inessa Telefus	100.00
70339	10/15/2024	Penny Wagner	100.00
70221	10/01/2024	Carrier-Oehler Company	99.60
70241	10/01/2024	Flexible Benefit Administrators Inc	98.00
70214	10/01/2024	Carol Bogнар	85.83
70362	10/31/2024	Anytime Fitness-Pantops	80.00
70366	10/31/2024	Snap Fitness	79.92
70237	10/01/2024	FedEx	78.62
70295	10/15/2024	John Anderson	78.52
70343	10/15/2024	Rivanna Solid Waste Authority	75.00
70278	10/01/2024	Terri Snow	73.62
70233	10/01/2024	Document Destruction of	69.95
70266	10/01/2024	Justin Pietro	67.85
70240	10/01/2024	Fisher Auto Parts Incorporated	67.68
70320	10/15/2024	Gingerich Outdoor Power Spec	63.49
70300	10/15/2024	Cranium Holding Incorporated	62.00
70336	10/15/2024	US Electrical Services Incorporated	61.72
70291	10/01/2024	Brandi Williams	53.55
70254	10/01/2024	Malloy Chevrolet Charlottesville LLC	51.00
70303	10/15/2024	Charlottesville Sanitary	43.76
70316	10/15/2024	Flexible Benefit Administrators Inc	42.35
70321	10/15/2024	Robin Grimes	40.73
70217	10/01/2024	Laneisha Burley	40.48
70361	10/29/2024	Charlottesville Wrecker	40.00
70223	10/01/2024	Central Virginia Electric Cooperative	38.57
70268	10/01/2024	PMI Commonwealth	36.87
70293	10/15/2024	Albemarle Lock & Safe Company	36.00
70208	10/01/2024	Appalachian Power	35.40
70201	10/01/2024	1st Dominion Property Mgmt	34.49
70220	10/01/2024	MWP Supply Incorporated	32.64
70338	10/15/2024	Joyce Leisure	30.00
70226	10/01/2024	City of Charlottesville	26.93
70218	10/01/2024	Robert Camper	23.32

70235	10/01/2024	Kathy Dutton	17.16
70313	10/15/2024	FedEx	16.04
70204	10/01/2024	Albemarle Lock & Safe Company	16.00
70315	10/15/2024	Ferguson US Holdings Inc	15.16
70304	10/15/2024	City of Charlottesville	13.04
70215	10/01/2024	Millicent Bowerman	12.02
70213	10/01/2024	Toni Bennett	9.61
70349	10/15/2024	Thryv Incorporated	6.50
70325	10/15/2024	Rachel Jenkins	2.10
			4,768,509.28





# ALBEMARLE COUNTY SERVICE AUTHORITY

## AGENDA ITEM EXECUTIVE SUMMARY

<b>AGENDA TITLE:</b> FY 2025 Capital Improvement Program (CIP) Report  <b>STAFF CONTACT(S)/PREPARER:</b> Jeremy M. Lynn, P.E., Director of Engineering	<b>AGENDA DATE:</b> November 21, 2024  <b>CONSENT AGENDA:</b> <b>ACTION:</b> ■ <b>INFORMATION:</b> ■  <b>ATTACHMENTS:</b> YES
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**BACKGROUND:** Monthly CIP Memo including a status report on active CIP Projects and a list of Active Private Development Projects.

**DISCUSSION:**

- Questions about the status of active CIP Projects.
- Questions about the status of active Private Development Projects.

**BUDGET IMPACT:** None.

**RECOMMENDATIONS:** None.

**BOARD ACTION REQUESTED:** Approval of the Consent Agenda.

**ATTACHMENTS:**

- Monthly CIP Report
- List of Active Private Development Projects



## **Albemarle County Service Authority (ACSA)** **Capital Improvement Program Report** **November 2024**

### **Water System CIP Projects**

#### **1. Crozet Phase 4 Water Main Replacement (Account Code 1756):**

Consultant:	Michael Baker International, Inc. (Baker)
Project Status:	Construction
Percent Complete:	70%
Contractor:	Valley Contracting, LLC (Valley)
Construction Start:	January 2024
Completion:	September 2025
Total Budget:	\$7,322,350
Spent to Date:	\$4,644,440.14

**Project Description:** This project continues our systematic program to replace the aging and undersized asbestos-cement and PVC water mains in the Crozet Water System. Roads impacted by water replacement work include Crozet Avenue (Route 240), Rockfish Gap Turnpike (Route 250), Hillsboro Lane, Brownsville Road, and the neighborhood streets in Park View. This is the fourth of five phases that have been defined to carry out these improvements. Project Length = 19,400 LF.

**11/12/2024:** Final paving within the Park View subdivision is complete and restoration efforts along the edge of the new pavement remain. Valley completed the crossing of Lickinghole Creek and is continuing to install the replacement water main north towards Tabor Street. Night work is underway for the week of November 11, 2024, to switch the schools along Route 250 over to the new water main.







## 2. Scottsville Phase 4 Water Main Replacement (Account Code 1758):

Consultant:	Whitman, Requardt & Associates, Inc. (WRA)
Project Status:	Design
Percent Complete:	90%
Contractor:	Undetermined
Construction Start:	2025
Completion:	2027
Total Budget:	\$7,554,900
Spent to Date:	\$536,020.63

**Project Description:** This project continues our systematic program to replace undersized and deteriorating asbestos-cement and cast-iron water mains throughout our water distribution system. Roads impacted by water replacement work include James River Road, Warren Street, Hardware Street, Moores Hill, and the downtown streets of Page, Bird, and West Main. This project requires extensive coordination with the Rivanna Water and Sewer Authority (RWSA) as it includes the replacement of their asbestos-cement water main along James River Road. Project Length = 13,700 LF.

10/8/2024: ACSA and WRA are considering design options that may exist to minimize potential impact to a retaining wall at the intersection of Valley Street and Warren Street. Easement acquisition efforts continue, with two additional easements having been acquired, bringing out total to four.

### **3. Ragged Mountain Phase 1 Water Main Replacement (Account Code 1760):**

Consultants:	Dewberry Engineers, Inc. (Dewberry) and Kimley-Horn and Associates (KHA)
Project Status:	Design
Percent Complete:	90%
Contractor:	RWSA Project – Thalle Construction
Construction Start:	Undetermined
Completion:	Undetermined
Total Budget:	\$2,436,400
Spent to Date:	\$190,017.14

**Project Description:** This project will replace the oldest active water main remaining in our system serving residents along Fontaine Avenue Extended and Reservoir Road. This cast iron pipe is over 90 years old and is severely tuberculated, which significantly reduces the flow capacity in this section. Project Length = 1,800 LF.

**11/12/2024: At the October 22, 2024, RWSA Board of Directors Meeting, their staff received authorization to award a construction contract to Thalle Construction for a total amount of \$53,908,400 for the Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line & Pump Station Project. The ACSA's portion of the work came in at \$600,000. ACSA will need to obtain three easements for our portion of the project. We have requested a schedule from KHA on submission of the draft plats.**

### **4. Northfields Water Main Replacement (Account Code 1764):**

Consultant:	OBG, A Ramboll Company (Ramboll)
Project Status:	Design
Percent Complete:	90%
Contractor:	Undetermined
Construction Start:	2026
Completion:	2027
Total Budget:	\$7,530,000 Water and \$820,000 Sewer
Spent to Date:	\$454,672.62

**Project Description:** This project continues our systematic program to replace the aging and undersized asbestos-cement water mains in our system. The existing water mains are approximately 55 years old and have reached the end of their useful life. As a former well system that was connected to public water, most of the mains are also undersized. During design of the Northfields Water Main Replacement Project, ACSA staff identified several sections of sanitary sewer that could be installed along the roadway in coordination with the water main replacement work. These efforts will provide sanitary sewer service to nearly 20 existing neighborhood properties currently served by private septic fields. Project Length = 22,000 LF.

**11/12/2024: Ramboll has submitted the first five draft easement plats, and they are under review by ACSA staff.**

**5. Huntington Village Water Connection (Account Code 1770):**

Consultant:	ACSA Engineering Department
Project Status:	Construction
Percent Complete:	0%
Contractor:	Rocktown Excavating (Rocktown)
Construction Start:	2024
Completion:	2025
Total Budget:	\$60,700
Spent to Date:	\$2,012

**Project Description:** The existing water main that serves as the only feed into Huntington Village off Old Ivy Road is at risk of failure due to an existing rock retaining wall that was constructed overtop of the water main. This project provides a second water connection into Huntington Village which is comprised of approximately 135 residential customers.

**11/12/2024: Rocktown has submitted the Land Use Permit application, and it is under review by VDOT. If the permit is issued before Thanksgiving, Rocktown anticipates completing this interconnect in December 2024.**

**6. Briarwood Water Main Replacement (Account Code 1766):**

Consultant:	OBG, A Ramboll Company (Ramboll)
Project Status:	Design
Percent Complete:	90%
Contractor:	Undetermined
Construction Start:	2025
Completion:	2026
Total Budget:	\$2,730,000
Spent to Date:	\$216,652.19

**Project Description:** This project continues our systematic program to replace PVC water mains that have been in service since the early 1980's and have recently experienced several breaks causing water service disruptions. Project Length = 5,700 LF.



**11/12/2024:** All four easements required for construction have been acquired. A public information meeting was conducted the evening of October 10, 2024, at the North Fork Research Park to share information on the project with the neighborhood. A follow-up Fact Sheet was mailed out to all residents sharing similar information that was presented at the public meeting. ACSA and Ramboll staff are targeting advertisement for construction in January 2025.



#### **7. Barracks West Water Main Replacement (Account Code 1769):**

Consultant:	Dewberry Engineers, Inc. (Dewberry)
Project Status:	Design
Percent Complete:	95%
Contractor:	Undetermined
Construction Start:	2025
Completion:	2025
Total Budget:	\$3,402,500
Spent to Date:	\$219,131.50

**Project Description:** This project will replace the undersized and aging cast iron and galvanized water mains that were installed in the late 1960's. These water mains are original to the Old Salem Apartments development, now called Barracks West. This project follows our Strategic Plan goal to replace aging and undersized water mains throughout our system and will provide for an opportunity to improve fire protection to these multi-family apartments. Project Length = 4,300 LF.

**11/12/2024:** The property is under contract and closing is expected this winter. ACSA staff has been in communication with the contract purchaser on the easement required for this project.

**8. Townwood Water Main Replacement (Account Code 1773):**

Consultant:	Dewberry Engineers, Inc. (Dewberry)
Project Status:	Design
Percent Complete:	90%
Contractor:	Undetermined
Construction Start:	2026
Completion:	2026
Total Budget:	\$2,800,000
Spent to Date:	\$160,017

**Project Description:** This project continues our systematic program to replace PVC water mains that have been in service since the early 1980's and have recently experienced several breaks causing water service disruptions. Project Length = 3,000 LF.

10/8/2024: Comments on the 90% Design Documents have been returned to Dewberry.

**9. Broadway Street Water Main Replacement (Account Code 1768):**

Consultant:	Whitman, Requardt & Associates, Inc. (WRA)
Project Status:	Construction
Percent Complete:	0%
Contractor:	Commonwealth Excavating, Inc. (CEI)
Construction Start:	January 2025
Completion:	October 2025
Total Budget:	\$1,667,800
Spent to Date:	\$145,980.93

**Project Description:** This project will replace the ductile iron water main that was installed in the early 1970's and has been found to be in deteriorating condition based on recent excavations. With the redevelopment of the Woolen Mills Factory and Albemarle County's increased attention on economic revitalization of this corridor, replacement of this water main is crucial in transforming this area. Project Length = 1,500 LF.

**11/12/2024: The Notice of Award and Contract will be presented to CEI the week of November 11, 2024.**

**10. Raintree and Fieldbrook Water Main Replacement (Account Code 1771):**

Consultant:	Michael Baker International, Inc. (Baker)
Project Status:	Design
Percent Complete:	50%
Contractor:	Undetermined
Construction Start:	2027
Completion:	2028
Total Budget:	\$6,432,300
Spent to Date:	\$164,203.74



**Project Description:** This project continues our systematic program to replace the PVC water mains in the Raintree and Fieldbrook subdivisions that have been in service since the early 1980's. In addition to replacing these PVC mains, this project will also eliminate pipe saddles at the water service connections that have been failing due to corrosion. Project Length = 12,000 LF.

**11/12/2024:** Updated 50% Design Drawings which include the added sections (Snowden Drive, Surry Hill Court and a portion of Old Brook Road) have been received from Baker and are under review by ACSA staff.

#### **11. Exclusion Meters Replacement (Account Code 1759):**

Consultant:	ACSA Engineering Department
Project Status:	Construction
Percent Complete:	62%
Contractor:	ACSA and Irrigation Contractors
Construction Start:	September 2019
Completion:	2025
Total Budget:	\$527,500
Spent to Date:	\$334,817.54

**Project Description:** In the mid 1990's with the development of Glenmore, many new customers installed irrigation systems for their properties and wanted to have their sewer bills reduced by the amount of water that was diverted to irrigate their properties. Private meters were installed behind their ACSA meter to record this volume, and it was "excluded" from the calculation of their sewer charges, and these became known as exclusion meters. On January 1, 2006, the ACSA Rules and Regulations were modified to no longer allow private exclusion meters and required all future irrigation meters be tapped separately off our water mains. This project is a multi-year replacement program by our in-house CIP Crew to install dedicated, ACSA owned irrigation meters that will eliminate all remaining exclusion meters in our system.

**11/12/2024:** ACSA staff continues to work closely with several irrigation contractors to upgrade private exclusion meters to be compatible with our AMI system with the ACSA covering these costs. ACSA Maintenance has recently completed several switchovers as well. There are currently 189 private irrigation exclusion meters remaining in our system.

### **Sewer System CIP Projects**

#### **12. Madison Park Pump Station Upgrade (Account Code 1735):**

Consultant:	Whitman, Requardt & Associates, Inc. (WRA)
Project Status:	Construction
Percent Complete:	80%
Contractor:	Anderson Construction, Inc. (ACI)
Construction Start:	October 2022
Completion:	November 2024
Total Budget:	\$1,940,000
Spent to Date:	\$1,569,703.89

**Project Description:** This wastewater pump station was constructed in the early 1980's by private development and the original equipment is nearing the end of its useful life. Additionally, the building is undersized creating difficulty in performing routine maintenance and making it impossible to install the control panels necessary to include this pump station in our new SCADA System.

10/8/2024: Mechanical piping inside the station has been installed and all electrical has been roughed in. ACI is coordinating with Dominion Energy to reestablish permanent power service.

### **13. Airport Trunk Sewer Upgrade (Account Code 1828):**

Consultant:	Michael Baker International, Inc. (Baker)
Project Status:	Design
Percent Complete:	90%
Contractor:	Undetermined
Construction Start:	2026
Completion:	2028
Total Budget:	\$6,683,800
Spent to Date:	\$357,131.57

**Project Description:** With the continued growth in the Hollymead Town Center area, the existing sewer collector serving the airport and the area west of Route 29 has insufficient capacity to handle full build-out. The existing sewer was originally sized to serve the light industrial zoning designated for that area at the time of construction. The increased density specified in the County Comprehensive Plan for the same drainage basin will exceed the capacity of the existing sewer. A study of the drainage basin was completed in 2016 with the recommendation the sewer main be increased in size by replacing it in place. Project Length = 6,900 LF.

**11/12/2024: Easement acquisition efforts continue with all property owners having been contacted where easements are needed. Three property owners have expressed a willingness to grant easements. To date, 9 of 24 easements having been obtained.**

### **14. Buckingham Circle Sewer (Account Code 1802):**

Consultant:	Dewberry Engineers, Inc. (Dewberry)
Project Status:	Design
Percent Complete:	0%
Contractor:	Undetermined
Construction Start:	2028
Completion:	2029
Total Budget:	\$2,175,000
Spent to Date:	\$4,257.00

**Project Description:** Over the past few years, numerous residents of the Buckingham Circle Subdivision have contacted the ACSA expressing interest in connecting to public sanitary sewer service. To gauge community interest for such

a project, ACSA staff mailed out a survey to the residents seeking feedback on their interest. Based on initial feedback received, more than 70% of the property owners have expressed interest in connecting to public sewer if it was made available.

**11/12/2024: A site visit between ACSA and Dewberry staffs was held on October 23, 2024, to review the previous sewer design and discuss alternative alignments to minimize impacts to private property. Dewberry is working on an updated exhibit based on those discussions.**

**15. Bellair – Liberty Hills Sewer (Account Code 1829):**

Consultant:	Michael Baker International, Inc. (Baker)
Project Status:	Design
Percent Complete:	50%
Contractor:	Undetermined
Construction Start:	2025
Completion:	2026
Total Budget:	\$6,893,715
Spent to Date:	\$286,604.84

**Project Description:** Over the past several years, there has been an uptick in residents of the Bellair Subdivision seeking to connect to public sanitary sewer service since most residents are currently served by private septic fields. To gauge community interest for such a project, ACSA staff mailed out a survey to the residents seeking feedback on their interest. Based on initial feedback received, many of the property owners are interested in connecting to public sewer if it was made available.

**11/12/2024: A community meeting is scheduled for the evening of December 9, 2024, to share the overall sewer design with the neighborhood residents.**

**16. FY 2025 Miscellaneous Sewer Rehabilitation (Account Code 1909):**

Consultant:	OBG, A Ramboll Company (Ramboll)
Project Status:	Construction
Percent Complete:	Underway
Contractor:	Prism Contractors & Engineers, Inc. (Prism)
Construction Start:	June 2024
Completion:	June 2025
Total Budget:	\$500,000
Spent to Date:	\$9,892.93

**Project Description:** This project continues our annual “find and fix” program of sanitary sewer rehabilitation to reduce I&I in our system.

10/8/2024: Work Order No. 2 has been issued to Prism and includes one pipe patch in Forest Lakes South, rehabilitation of one manhole in Willoughby and rehabilitation of three manholes in Crozet.

## **Non-Utility and Facility CIP Projects**

### **17. Energy Audit (Account Code 1625):**

Consultant:	OBG, A Ramboll Company (Ramboll)
Project Status:	Construction
Percent Complete:	40%
Contractor:	ACSA Facilities Group
Construction Start:	July 2023
Completion:	March 2025
Total Budget:	\$390,000
Spent to Date:	\$285,360.11

**Project Description:** This project consists of a comprehensive energy audit of the Operations Center and all pump stations. The Energy Audit evaluated current energy consumption and the factors that drove it, as well as analysis of our utility rate structures to identify potential cost savings. Surveys were conducted of all systems, including operation and maintenance procedures to determine where energy conservation could be improved. Recommendations from the Energy Audit included: LED Lighting Retrofit, Occupancy Based HVAC Controls, replacement of Domestic Water Heater, improved efficiencies of water and wastewater pumps, pursuit of Electric Fleet Vehicles (EV) and exploration of Solar Photovoltaic renewable energy.

**11/12/2024: The Service Disconnect Switchboard is currently showing an estimated ship date of February 24, 2025. ACSA staff will begin the process of obtaining pricing for the charging stations over the next month.**

### **18. Avon Operations Center (Account Code 1622):**

Consultant:	Dewberry Engineers, Inc. (Dewberry)
Project Status:	Construction
Percent Complete:	0%
Contractor:	Daniel & Company, Inc. (DCI)
Construction Start:	January 2025
Completion:	July 2026
Total Budget:	\$18,000,000
Spent to Date:	\$778,737.18

**Project Description:** As part of the Operations Center Expansion Study our consultant reviewed all properties owned by the ACSA that could be utilized as we continue to grow. The Avon Street property has long been held as a future location to build additional facilities in a central location, as needed. The current Maintenance Yard at our Operations Center is becoming overcrowded with equipment and materials, causing us to locate some equipment and larger materials in the former ACSA Maintenance Yard at the Crozet Water Treatment Plant, which we lease from RWSA. The future expansion of granular activated carbon (GAC) at the Crozet Water Treatment Plant site will result in the loss of much of the ACSA's storage space at that site. This project will begin to develop the Avon Street property into a much larger vehicle and materials storage facility, including a training area for our equipment operators.

**11/12/2024:** The County has issued approval of the Water Protection Ordinance (WPO) plan. DCI is coordinating the WPO bond with the County, which is a prerequisite to land disturbance. DCI is also working on their schedule of values and product submittals.

**19. ACSA – Fire Suppression System Replacement (Account Code 1631):**

Contractor:	Fire-X Corporation (Fire-X)
Project Status:	Construction
Percent Complete:	99%
Construction Start:	March 2024
Completion:	November 2024
Total Budget:	\$750,000
Spent to Date:	\$885,345.65

**Project Description:** This project replaces the existing fire suppression system in both the Administration and Maintenance buildings here at our Operations Center. During a recent inspection, it was noted that the piping is beyond its useful life and a complete replacement was recommended. The ACSA anticipates utilizing a Design/Build Contract to perform this work.

**11/12/2024:** Fire-X is scheduled to complete the remaining work in the warehouse before the end of November. Assuming all goes as planned, this project will be removed from the CIP Monthly Report.



**Albemarle County Service Authority (ACSA)**  
**Active Private Development Projects**  
**November 2024**

1. 664 West Rio Road (Rio): Water main extension to serve an 88-unit apartment building, as well as a self-storage facility. This site is located east of the intersection of West Rio Road and Berkmar Drive, across from the Daily Progress.
2. Belvedere Phase 3 Block 10 (Rio): Water and sewer main extensions to serve 74 single family homes at the end of Farrow Drive in the back of Belvedere.
3. Berkmar Self-Storage/Hotel (Rio): Water main extension and sewer laterals to serve 92-room hotel and commercial self-storage, located along Berkmar Drive across from Berkmar Overlook and next to Better Living.
4. Brookhill Blocks 16 & 17 (Rivanna): Water and sewer main extensions to serve 135 single family homes in the Brookhill subdivision, located north of Polo Grounds Road and west of the Montgomery Ridge Subdivision.
5. Brookhill Block 18 (Rivanna): Water and sewer main extensions to serve 194 single family homes in the Brookhill subdivision, located along the eastern side of Halsey Avenue and north of the Montgomery Ridge Subdivision.
6. C'Ville Rio Road Apartments (Rio): Water and sewer main extensions to serve 250 apartment units. The site is located along Rio Road West, north of Charlottesville Health and Rehab.
7. Discount Tire (Rio): Water main extension for new hydrant and large meter service for a new commercial building. The site is located at the former Wendy's on the ON ramp to Route 29 South from Rio Road West.
8. Dunlora Park Phase 2 (Rio): Water and sewer main extensions to serve 9 single family attached homes in Dunlora Park, located at the intersection of Rio Road East and Dunlora Drive.
9. Dunlora Village Phase 1 (Rio): Water and sewer main extensions to serve 64 single family homes. This site is located off the southern ends of Fowler Street and Miranda Crossing behind Belvedere.
10. Mountain View Elementary Building Addition (Scottsville): Water main extension to facilitate school expansion.

11. Rio Point (Rio): Water and sewer main extensions to serve 328 multi-family units. This project is located at the intersection of Rio Road East and John Warner Parkway.
12. Rivanna Village Phase 2 (Scottsville): Water and sewer main extensions to serve 178 residential units. This project is located east of the Glenmore Ground Storage Tank and Rivanna Village Phase 1.
13. **Rothwell Lane Utility Extension (White Hall): Water and sewer main extensions to serve 4 new subdivided lots. This project is located at the end of Rothwell Lane off Jarmans Gap Road.**
14. Sentara Martha Jefferson Hospital Early Learning Center (Scottsville): Water main extension to serve a nearly 13,000 square foot childcare facility at the intersection of Martha Jefferson Drive and Worrell Drive.
15. Southwood Village – Blocks 11 & 12 (Scottsville): Water main extension and sewer laterals to serve 194 multi-family units. This project is located at the intersection of Old Lynchburg Road and Hickory Street.
16. Southwood Redevelopment Village 3 (Scottsville): Water and sewer main extensions to serve 127 single family units and 10 condominium units. This project is located along the eastern side of Horizon Road, south of Hickory Street.
17. UVA Fontaine Research Park – Manning Institute of Biotechnology (Samuel Miller): Water main relocation to serve the approx. 350,000 square foot Manning Institute of Biotechnology. The site is in the existing parking lot, northeast of 450 Ray C Hunt Drive.
18. Woolen Mills Light Industrial (Scottsville): Water and sewer main extensions to serve multiple industrial buildings, totaling 117,000 square feet. The site is located at the corner of Moores Creek Lane and Franklin Street.



# ALBEMARLE COUNTY SERVICE AUTHORITY

## AGENDA ITEM EXECUTIVE SUMMARY

<p><b>AGENDA TITLE:</b> Capital Improvement Program (CIP) Project Close-Outs</p> <p><b>STAFF CONTACT(S)/PREPARER:</b> Jeremy M. Lynn, P.E., Director of Engineering</p>	<p><b>AGENDA DATE:</b> November 21, 2024</p> <p><b>ACTION:</b> <input type="checkbox"/> <b>INFORMATION:</b> <input type="checkbox"/></p> <p><b>CONSENT AGENDA:</b></p> <p><b>ACTION:</b> <input checked="" type="checkbox"/> <b>INFORMATION:</b> <input type="checkbox"/></p> <p><b>ATTACHMENTS:</b> YES</p>
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**BACKGROUND:** This is a routine process to close-out CIP Projects that have been completed and no longer require expenditures of funds. Three CIP Projects are to be closed-out with a balance of unexpended funds in the 3R Fund.

**DISCUSSION:**

- ❖ Questions about the CIP Projects being closed out.

**BUDGET IMPACT:** None.

**RECOMMENDATIONS:** Close-out the three CIP Projects listed in the detailed memo.

**BOARD ACTION REQUESTED:** Approval of the Consent Agenda.

**ATTACHMENTS:**

- ❖ Detailed memo of the completed CIP Projects and the amount of expended funds.





# MEMORANDUM

**To:** Board of Directors  
**From:** Jeremy M. Lynn, P.E., Director of Engineering  
**Date:** November 21, 2024  
**Re:** Capital Improvement Program (CIP) Project Close-Outs  
**cc:** Michael E. Derdeyn

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The following projects have been completed in the Capital Improvement Program (CIP):

**Risk Assessment Improvements (Account Code 1621):** This project focused on implementation of recommendations from our Vulnerability Assessment that was completed in conjunction with our community partners, which identified mitigation measures to lower risks and increase resiliency for the ACSA. Priority 1 improvements focused on fencing and door hardening at existing tank and pump station sites. Priority 2 focused on the creation of sterile zones around various sites. Priorities 3 and 4 focused on installation of new fencing and lightening protection. The project resulted in unexpended funds of \$104,465.57.

**Four-Story Backflow Prevention Assembly Retrofit (Account Code 1765):** This project included the installation and initial testing of backflow assemblies necessary for recently constructed four-story residential structures as required by 12VAC5-590-570 through 12VAC5-590-630 of the Virginia Waterworks Regulations. The project resulted in unexpended funds of \$258,347.37, primarily due to the initial overestimation by ACSA staff on the unit price costs to install these backflow assemblies.

**Sewer Pump Station Comminutors Project (Account Code 1827):** This project included the installation of comminutors (aka grinders) at three of the ACSA's sanitary sewer pump stations (Glenmore, Georgetown Green, and Crozet). Over the years, these stations all experienced higher than normal amounts of solid debris that causes undue wear and tear on the pumps. The project resulted in over-expended funds of \$5,198.23.

The following is a financial summary of the projects:

<b>Account Description:</b>	<b>Appropriated Amount</b>	<b>Expended Amount</b>	<b>Unexpended Amount</b>
Risk Assessment Improvements Project	\$1,222,048.00	\$1,117,582.43	\$104,465.57
Four-Story Backflow Prevention Assembly Retrofit	\$360,295.00	\$101,947.63	\$258,347.37
Sewer Pump Station Communitors Project	\$616,193.00	\$621,391.23	(\$5,198.23)
<b>Total</b>	<b>\$2,198,536.00</b>	<b>\$1,840,921.29</b>	<b>\$357,614.71</b>

**Board Action**

We are requesting the Board of Directors close-out the listed projects.

# ALBEMARLE COUNTY SERVICE AUTHORITY

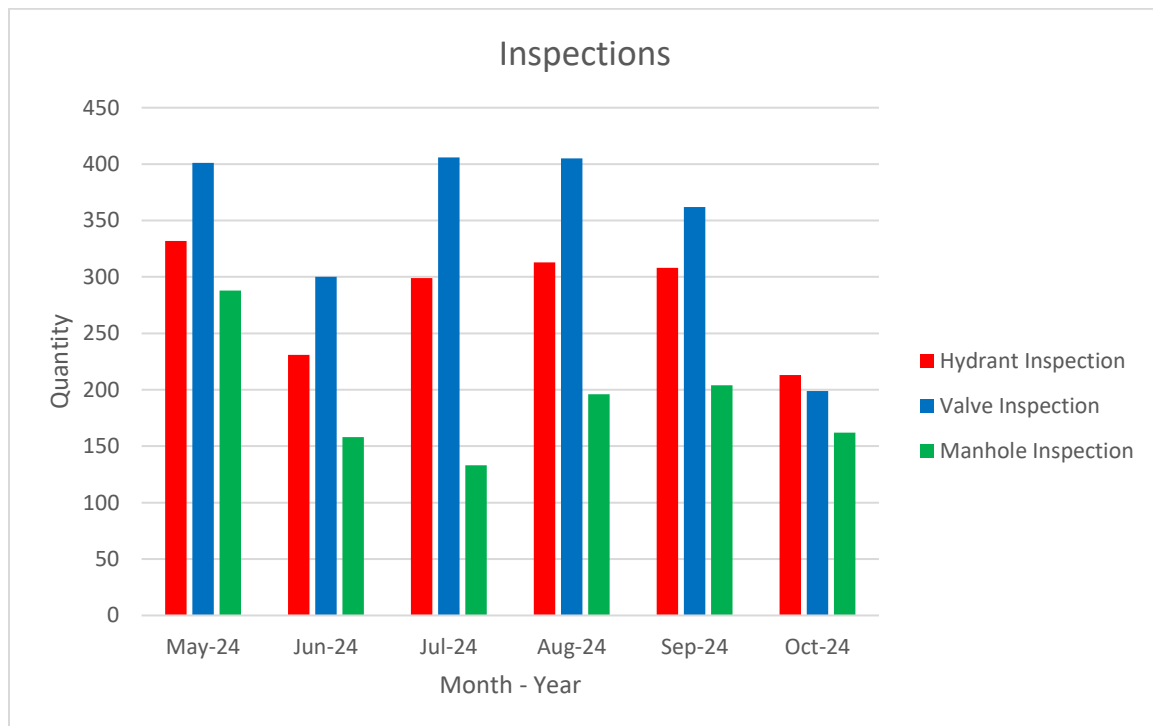
## AGENDA ITEM EXECUTIVE SUMMARY

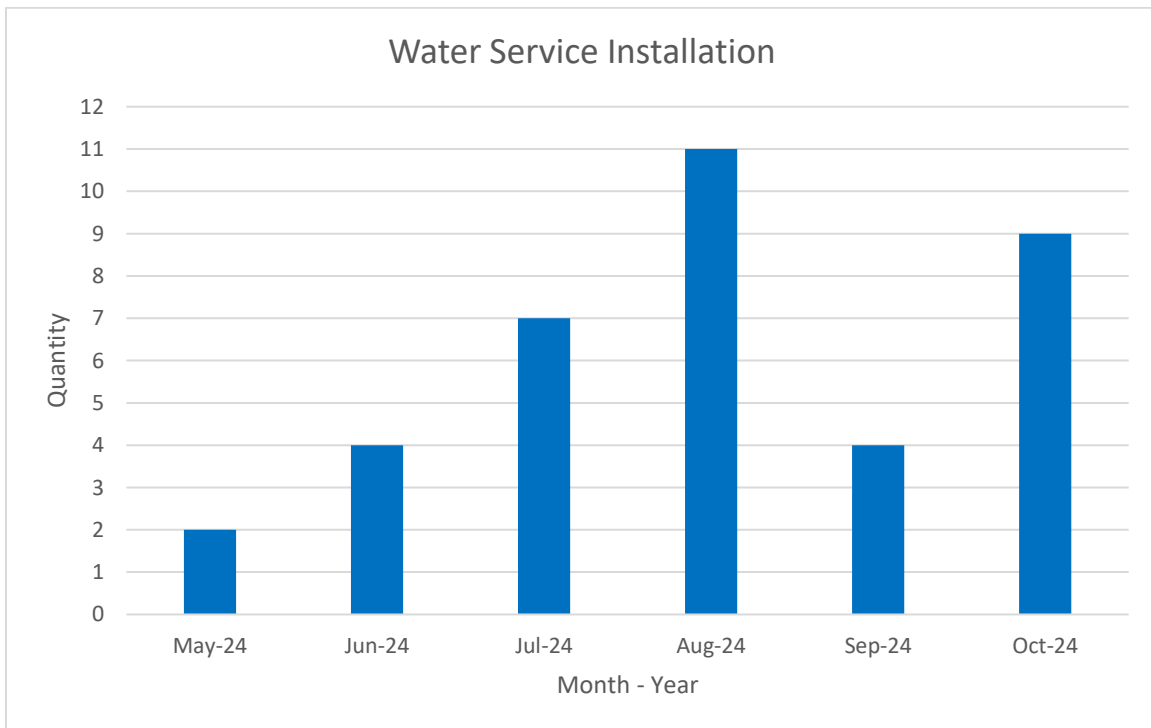
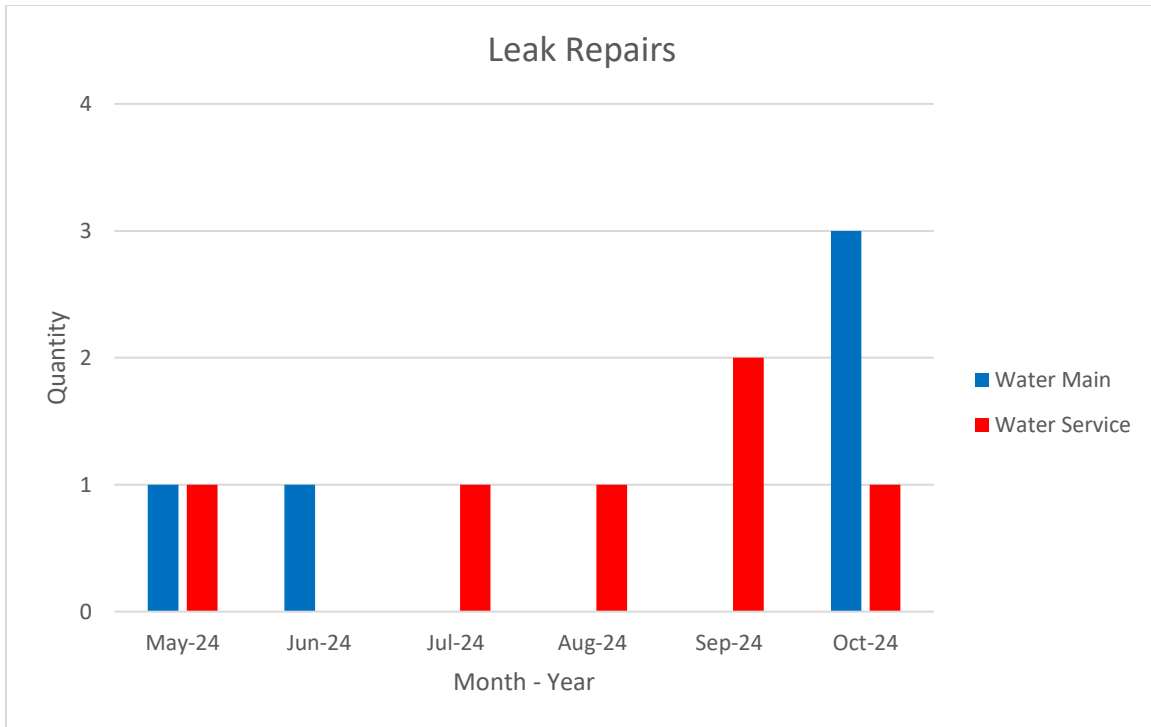
<b>AGENDA TITLE:</b> FY 2025 Monthly Maintenance Update Report  <b>STAFF CONTACT(S)/PREPARER:</b> Alexander J. Morrison, P.E., Director of Operations	<b>AGENDA DATE:</b> November 21, 2024  <b>CONSENT AGENDA:</b> <b>ACTION:</b> ■ <b>INFORMATION:</b> ■  <b>ATTACHMENTS:</b> YES
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### BACKGROUND:

Current total years of service in the Maintenance Department: 332.3 years  
 Current average years of service in the Maintenance Department: 9.8 years  
 Current number of employees in the Maintenance Department: 34

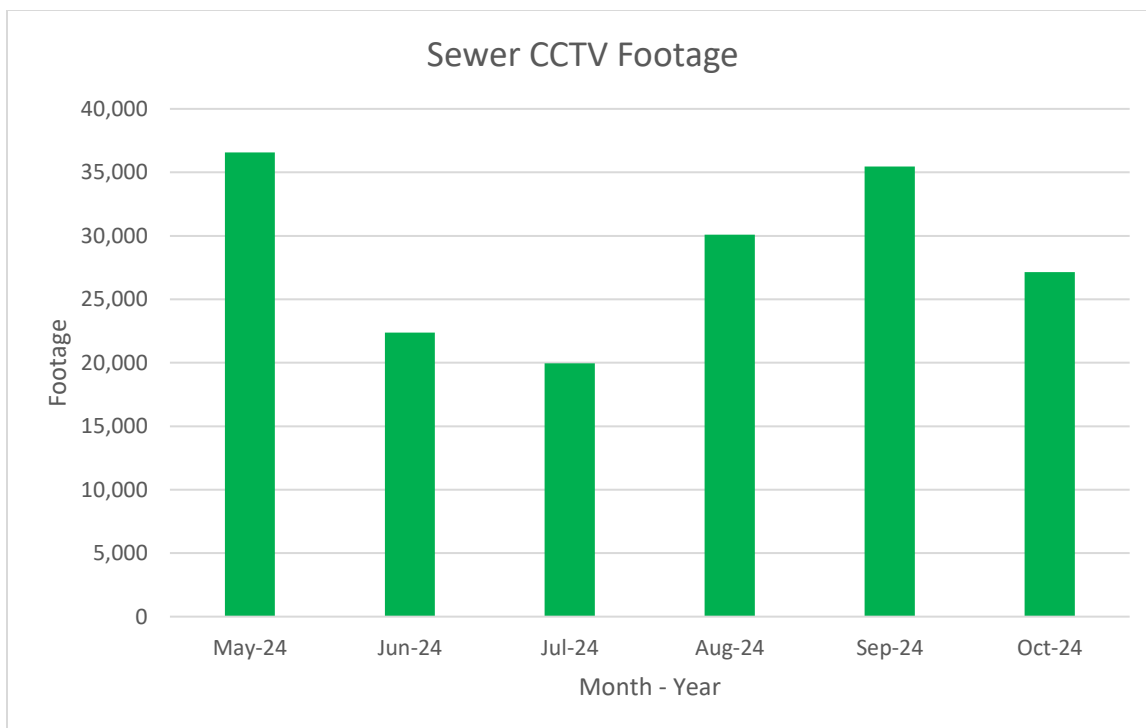
Below are 4 graphs depicting various routine monthly Maintenance Department activities for the previous 6-month period, based on completed Cityworks work orders and inspections.



**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY**

# ALBEMARLE COUNTY SERVICE AUTHORITY

## AGENDA ITEM EXECUTIVE SUMMARY



### DISCUSSION:

- Routine Monthly Maintenance Activities
  - Inspections: Monthly inspection numbers were lower in October. Hydrant and valve inspections decreased as personnel were redirected to other tasks, including hydrant replacements, the installation of an automatic flusher, and coordinating valve repairs with VDOT's major road resurfacing. Manhole inspections were also reduced due to one of our two CCTV Technicians being on an extended vacation, which similarly affected sewer CCTV footage.
  - Leak Repairs: In October, ACSA managed three water main repairs and one water service repair. Notably, a 4" AC water main rupture in Scottsville, attributed to a water hammer, also led to a service line leak. This main is included in the Scottsville Phase 4 Water Main Replacement Project, currently in the design phase. A picture of the Scottsville leak is shown in Attachment 1. Additionally, a 6" AC water main in Crozet, part of the Crozet Phase 4 Water Main Replacement Project under construction, also required repair. The third repair involved a leaking corporation stop on an abandoned

## ALBEMARLE COUNTY SERVICE AUTHORITY

### AGENDA ITEM EXECUTIVE SUMMARY

service line in Glenmore, identified while investigating a suspected leak that ultimately originated from a private irrigation line.

- Water Service Installation: New water service installations increased significantly in October due to in-house exclusion meter conversions, which generate a work order for a water service installation.
- Sewer CCTV Footage: The monthly footage of sanitary sewer undergoing CCTV inspection was reduced in October, largely due to one of our two CCTV Technicians being on a long vacation, as previously noted in the inspection's summary.
- Miscellaneous Maintenance Activities
  - Basic Leadership Course - Management & Supervisory Leadership Training Program: Four maintenance employees attended the Basic Leadership Course, a three-week program covering essential skills such as effective leadership, performance management, conflict resolution, and team collaboration. This training equips participants to make sound leadership decisions, communicate effectively, manage change, and resolve conflicts constructively. By investing in this course, we are fostering leadership growth within our team and preparing them to take on greater responsibilities in a dynamic work environment.
  - VRWA Leadership Symposium: Four employees attended the VRWA's 3rd Annual Leadership Symposium in Harrisonburg, where sessions focused on workplace culture, stress management, and integrity-based leadership. The symposium provided insights into modern workforce challenges and offered valuable networking opportunities. Employees earned Continuing Professional Education credits while engaging in sessions that underscored the importance of leading with integrity and fostering a supportive work environment.
  - AWWA Virginia Section – Hydrant Hysteria: At the VA AWWA's Hydrant Hysteria competition, three of our employees participated, with one serving as their coach. Competing teams assembled a fire hydrant from the ground up under tight time constraints, with penalties for any assembly errors. This challenge emphasized both the practical skills and rapid problem-solving abilities of our team, underscoring their readiness to handle critical field tasks under pressure. A photo of the event is included in Attachment 2.



## ALBEMARLE COUNTY SERVICE AUTHORITY

### AGENDA ITEM EXECUTIVE SUMMARY

- VRWA EXPO – Tapping Contest: Our team of two competed in the VRWA Tapping Contest, where they secured first place. This event required participants to tap into a pressurized water main and connect it to a meter setter with precision, all under a strict time limit. The team's success reflects their expertise in safe, efficient, and precise water main connection, showcasing the technical skills they bring to our daily operations. A photo of the event is shown in Attachment 3.
- Unit 90 – 3-Ton Crane Truck: The Ford F-550, a new 3-ton crane truck, has been added to our fleet, replacing an outdated unit. This vehicle, purchased with re-appropriated funds approved in the May 2024 Consent Agenda, enhances our lifting and heavy-material handling capabilities. It will support a wide range of facilities tasks requiring on-site lifting. Attachment 4 includes a photo of this new addition.
- Thermal Imaging Camera (REED R2165): Our facilities team has introduced the REED R2165 thermal imaging camera, a powerful tool for identifying potential issues in electrical panels, motors, and mechanical components without direct exposure to hazards. This camera, used primarily by our electrician and pump mechanic, will enhance our preventative and predictive maintenance by detecting early signs of wear or overheating, contributing to safer, more efficient inspections. It will also be used in the server room and electrical/mechanical rooms to monitor wiring, bearings, and connections. Attachment 5 shows the camera in use on an ACSA breaker panel.
- Touch a Truck Events: Our team participated in two community "Touch a Truck" events, bringing awareness to the vital work done by our Operations and Maintenance staff. We showcased our sewer flush truck and fire hydrant maintenance equipment, engaging with the public and educating them about our utility services. Photos of these events are included in Attachments 6 and 7, highlighting the strong community connection fostered by our team.
- Asset Replacement/Rehabilitation Coordination with Manufacturers: In recent months, we coordinated with manufacturers to address specific issues with gate valves in our system. When defects were discovered, manufacturer representatives provided on-site support, replacement materials, and training to our staff. This collaboration

**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY**

not only resolved the immediate issues but also enhanced our team's understanding of product integrity and best practices for installation and maintenance. Our strong relationships with approved manufacturers ensure that we can rely on their exceptional service to support high-quality, resilient infrastructure for our customers. A photo of a gate valve rehabilitation in Key West subdivision is shown in Attachment 8.

**BUDGET IMPACT:** None.

**RECOMMENDATIONS:** None.

**BOARD ACTION REQUESTED:** Approval of the Consent Agenda.

**ATTACHMENTS:**

1. Picture: Scottsville Water Main Break – W. Main Street and Harrison Street
2. Picture: AWWA Virginia Section – Hydrant Hysteria - ACSA Team
3. Picture: VRWA EXPO – Tapping Contest - ACSA Team
4. Picture: Unit 90 – Ford F-550 Utility Truck with 3-Ton Crane
5. Picture: REED Thermal Imaging Camera – ACSA Breaker box
6. Picture: Touch A Truck Event – Sewer Flush Truck
7. Picture: Touch A Truck Event – Hydrant Mechanic
8. Picture: Fire Hydrant Valve Repair – Key West Subdivision

**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY**

Attachment 1: Scottsville Water Main Break – W. Main Street and Harrison Street



# ALBEMARLE COUNTY SERVICE AUTHORITY

## AGENDA ITEM EXECUTIVE SUMMARY



Attachment 2: AWWA Virginia Section – Hydrant Hysteria - ACSA Team

**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY**

Attachment 3: VRWA – Tapping Contest - ACSA Team



**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY**

Attachment 4: Unit 90 – Ford F-550 Utility Truck with 3-Ton Crane

**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY**

Attachment 5: REED Thermal Imaging Camera – ACSA Breaker box

**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY**

Attachment 6: Touch A Truck Event – Sewer Flush Truck



**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY**

Attachment 7: Touch A Truck Event – Hydrant Mechanic

**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY**

Attachment 8: Fire Hydrant Valve Repair – Key West Subdivision



## AGENDA ITEM EXECUTIVE SUMMARY

<b>AGENDA TITLE:</b> Rivanna Water & Sewer Authority (RWSA) Monthly Update	<b>AGENDA DATE:</b> November 21, 2024
<b>STAFF CONTACT(S)/PREPARER:</b> Quin Lunsford, Executive Director	<b>CONSENT AGENDA:</b> Informational
	<b>ATTACHMENTS:</b> No

**BACKGROUND:** This report continues the monthly updates on the Rivanna Water & Sewer Authority (RWSA) projects and Board meetings. Below are some updates on RWSA major projects and issues, including updates from the October 22<sup>nd</sup> RWSA Board Meeting and other communications:

- **Regional Dam Tabletop Exercises:** The RWSA led a regional dam tabletop exercise on October 10<sup>th</sup> for the Beaver Creek and Sugar Hollow Dams. In addition to ACSA participation, representatives from other local, state and federal agencies joined to familiarize responsible parties with the Emergency Action Plans (EAP) and practice implementing the EAP procedure in a non-emergency situation. The exercises included realistic practice scenarios for participants to discuss actions that need to be taken and play roles as we would in an actual emergency.
- **Sugar Hollow Pipe:** As a result of Tropical Storm Helene, an elevated section of 18-inch cast iron pipe over the Mechums River was damaged. This circa 1920s pipe is used to transfer raw water from the Sugar Hollow Reservoir to Ragged Mountain Reservoir. RWSA anticipates that repairs will be completed by the end of the year.
- **Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line & Pump Station award:** Raw water is currently transferred from the Ragged Mountain Reservoir (RMR) to the Observatory Water Treatment Plant (OBWTP) by way of two 18-inch cast iron water lines which have been in service for more than 110 and 70 years, respectively. Replacement of these pipes is required to increase the water transfer capacity between the RMR and OBWTP and utilize the recent treatment expansion at OBWTP from 7.7 to 10 MGD, as well as to increase the reliability of this infrastructure which is critical to our community's water supply. This new raw water main will be constructed of 36" ductile iron pipe and will span approximately four miles, including the connection of the proposed Ragged Mountain Raw Water Pump Station (RMRWPS) with the southern terminus of the SFRR-RMR raw water line constructed adjacent to the Birdwood Golf Course in 2019. The existing Stadium Road and Royal Raw Water Pump Stations are both many decades old, have exceeded their design life expectancy, and would require significant upgrades for continued long-term operation to meet the new capacity of OBWTP. The RMRWPS has been designed to replace these two pump stations and will initially be able to reliably pump up to 10 mgd to the expanded Observatory WTP. RMRWPS will also be later integrated under a separate contract with the planned South Fork Rivanna Reservoir (SFRR) to RMR pipeline project for improved operational flexibility and cost efficiency. This integrated pump station will include the capacity to transfer up to 16 mgd of raw water from RMR back to the South Rivanna WTP, as well as to boost water supply from SFRR to RMR and OBWTP. In addition to the work described above, the recommended award includes approximately 1,075 linear feet of 12" ductile iron piping for the ACSA to

### AGENDA ITEM EXECUTIVE SUMMARY

replace the oldest active water main remaining in our system serving residents along Fontaine Avenue Extended and Reservoir Road. This cast iron pipe is over 90 years old and is severely tuberculated. The RWSA Board authorized an award totaling \$53,908,400 to construct four miles of 36" ductile iron pipe and a 10 mgd raw water pump station.

- **Summary:**

<b>RWSA Major Project Schedule</b>	<b>Construction Start Date</b>	<b>Construction Completion Date</b>
<b>-MC 5kV Electrical System Upgrades</b>	May 2022	June 2025
<b>-Rivanna Pump Station Restoration</b>	July 2024	May 2025
<b>-Red Hill Water Treatment Plant Upgrades</b>	October 2024	March 2026
<b>-South Fork Rivanna River Crossing</b>	January 2025	January 2027
<b>-RMR to OBWTP Raw Water Line and Pump Station</b>	January 2025	June 2029
<b>-MC Building Upfits and Gravity Thickener Improvements</b>	February 2025	May 2027
<b>-MC Structural and Concrete Rehabilitation</b>	February 2025	May 2027
<b>-Crozet Pump Stations Rehabilitation</b>	April 2025	September 2027
<b>-MC Administration Building Renovation and Addition</b>	June 2025	December 2027
<b>-Central Water Line</b>	May 2025	March 2029
<b>-Crozet WTP GAC Expansion – Phase I</b>	August 2025	March 2027
<b>SRWTP – PAC Upgrades</b>	August 2025	December 2026
<b>-RMR Pool Raise</b>	September 2025	September 2026
<b>-SFRR to RMR Pipeline, Intake, and Facilities</b>	February 2026	December 2030
<b>-Beaver Creek Dam, Pump Station, and Piping</b>	May 2026	January 2030
<b>-Upper Schenks Branch Interceptor, Phase II</b>	TBD	TBD

## AGENDA ITEM EXECUTIVE SUMMARY

<b>-MC Pump Station Slide Gates, Valves, Bypass, and Septage Receiving Upgrades</b>	<b>June 2025</b>	<b>September 2026</b>
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- **MCAWRRF 5kV Electrical System Upgrades**

Design Engineer:	Hazen and Sawyer (Hazen)
Construction Contractor:	Pyramid Electrical Contractors
Construction Start:	May 2022
Percent Complete:	75%
Completion Date:	June 2025
Budget:	\$6,200,000

Current Status:

The Contractor is beginning the startup and integration process of the new 5kV switchgear. Once this has been successfully completed, further cable replacement scope items will be available for the Contractor to complete. The Contractor is also working on the abandonment of a secondary generator in the Blower Building that is no longer needed.

History:

Through review of the Moores Creek Facilities Master Plan, several areas of the MCAWRRF, including the Blower Building, Sludge Pumping Building, Grit Removal Building, Moores Creek Pumping Station, and the Administration Building are currently connected to the original 5kV switchgear, transformers, and motor control centers (MCCs) which have a useful life expectancy of 20-30 years. The equipment has exceeded the expected useful life and replacement of the original 1980s-vintage 5kV cables, switchgear, transformers, and MCCs will be completed.

- **Rivanna Pump Station Restoration**

Design Engineer:	Hazen/SEH
Construction Contractor:	MEB
Project Start:	July 2024
Project Status:	Design & Material Acquisition
Completion:	May 2025
Budget:	\$22,000,000

Current Status:

Initial electrical demolition work has been completed. Contractor continues to order equipment/materials for replacement as design decisions are finalized. Rebuilt pumps will be installed and bypass pumping system removed by March 2025 with full restoration completed by May 2025.

AGENDA ITEM EXECUTIVE SUMMARY

History:

The Rivanna Pump Station, which is located at the Moores Creek Advanced Water Resource Recovery Facility, was damaged on January 9<sup>th</sup> due to high rain and flooding of equipment at the facility. This facility pumps between 5 and 50 million gallons of wastewater daily and is the largest pump station in the wastewater system. Restoration is needed to restore the facility to normal operations and remove the bypassing system that was installed in February 2024.

- **Red Hill Water Treatment Plant Upgrades**

Design Engineer:	Short Elliot Hendrickson (SEH)
Construction Contractor:	Anderson Construction (Lynchburg)
Construction Start:	October 2024
Percent Complete:	0%
Completion:	March 2026
Budget:	\$2,050,000

Current Status:

Work on-site is expected to begin this month. This project received partial grant funding from Albemarle County.

History:

The Red Hill Water Treatment Plant was constructed in a joint effort of the ACSA and RWSA in 2009 and consists of a well, pneumatic tank and pump house that provides treated water to the Red Hill Elementary School and adjoining neighborhood. The current building is beyond its physical capacity and this project serves to expand the building and improve the configuration of the process and laboratory needs of the WTP.

- **South Fork Rivanna River Crossing**

Design Engineer:	Michael Baker International (Baker)
Construction Contractor:	Faulconer
Construction Start:	January 2025
Percent Complete:	0%
Completion:	January 2027
Budget:	\$7,300,000

Current Status:

A Notice to Proceed and Pre-Construction meeting are anticipated next month.

History:

RWSA has previously identified through master planning that a 24-inch water main will be needed from the South Rivanna Water Treatment Plant (SRWTP) to Hollymead

**AGENDA ITEM EXECUTIVE SUMMARY**

Town Center to meet future water demands. Two segments of this water main were constructed as part of the VDOT Rt. 29 Solutions projects, including approximately 10,000 LF of 24-inch water main along Rt. 29 and 600 LF of 24-inch water main along the new Berkmar Drive Extension, behind the Kohl's department store. To complete the connection between the SRWTP and the new 24-inch water main in Rt. 29, there is a need to construct a new river crossing at the South Fork Rivanna River. Acquisition of right-of-way will be required at the river crossing.

- **Ragged Mountain Reservoir to Observatory Water Treatment Plant Raw Water Line and Raw Water Pump Station**

Design Engineer:	Kimley-Horn
Project Start:	August 2018
Project Status:	Award
Construction Start:	January 2025
Completion:	June 2029
Current Project Estimate:	\$64,000,000

Current Status:

Construction bids were opened on October 1, 2024. RWSA staff is negotiating with the apparent low bidder since the bids received exceeded the budget for the project.

History:

Raw water is currently transferred from the Ragged Mountain Reservoir (RMR) to the Observatory Water Treatment Plant by way of two 18-inch cast iron raw water lines, which have been in service for more than 110 and 70 years, respectively. The proposed water line will be able to reliably transfer water to the expanded Observatory Plant, which, upon completion, will have the capacity to treat 10 mgd. The new single water line will be constructed of 36-inch ductile iron and will be approximately 14,000 feet in length.

The RMR to Observatory WTP raw water pump station will replace the existing Stadium Road and Royal Pump Stations, which have exceeded their design lives. The pump station will pump up to 10 mgd of raw water to the Observatory WTP. Integration of the new pump station with the planned South Rivanna Reservoir (SRR) to RMR Pipeline is being planned in the interest of improved operational and cost efficiencies and emergency redundancy. An integrated pump station would also include the capacity to transfer up to 16 mgd of raw water from RMR back to the SRR WTP.

- **MCAWRRF Building Upfits and Gravity Thickener Improvements**

Design Engineer:	Short Elliott Hendrickson (SEH)
Project Start:	March 2023
Project Status:	90% design
Construction Start:	February 2025

**AGENDA ITEM EXECUTIVE SUMMARY**

Completion: May 2027  
Current Project Estimate: \$7,500,000

**Current Status:**

A 90% design workshop was held on October 7<sup>th</sup>. Final comments will be incorporated and an advertisement for construction bids is anticipated in early November.

**History:**

This project addresses the renovation needs of the current maintenance and operations building space requirements, improvements to the existing gravity thickener system, and installation of actuators on the secondary clarifier influent gate valves.

- **MCAWRRF Structural and Concrete Rehabilitation**

Design Engineer: Hazen and Sawyer (Hazen)  
Project Start: April 2023  
Project Status: 100% Design  
Construction Start: February 2025  
Completion: May 2027  
Current Project Estimate: \$11,300,000

**Current Status:**

Bidding documents are being finalized and an advertisement for construction bids is anticipated in early November.

**History:**

This project comprises rehabilitation, repair and installation of multiple structural components throughout the MCAWRRF facility, to include concrete repairs in both the equalization basin and holding ponds, and rehabilitation to other components of the system.

- **Crozet Pump Stations Rehabilitation**

Design Engineer: Wiley | Wilson  
Project Start: July 2023  
Project Status: 100% Design  
Start: April 2025  
Completion: September 2027  
Budget: \$10,950,000

**Current Status:**

The project has been advertised for construction and bids are due at the end of October.



**AGENDA ITEM EXECUTIVE SUMMARY**History:

The Crozet pump stations were originally constructed in the 1980's with many of the original components still being utilized. This project includes replacement of pumps, valves, roof replacements, siding replacements, installation of new wells, new electrical motor control centers, generators, and power transfer switches.

- **Moore's Creek Administration Building Renovation and Addition**

Design Engineer:	SEH
Project Start:	October 2022
Project Status:	75% Design
Construction Start:	June 2025
Completion:	December 2027
Budget:	\$25,000,000

Current Status:

90% design continues. Selections have been made by the furnishings & finishes committee for color palettes on interior elements. Revised exterior and interior renderings submissions were reviewed by staff in September and updated documents are being sent to the County ARB this month for approval. Exhibit designers are finalizing schedule and meetings for the detailed exhibit design process.

History:

Through the MCAWRRF Master Plan, a need to house additional staff, increase office and meeting space; plan for replacement of the engineering trailers; bring the IT server workrooms to modern standards; and provide classroom space for education outreach. The expansion of the building will take place in the lower parking lot adjacent to the existing building.

- **Central Water Line Project**

Design Engineer:	Michael Baker International (Baker)
Project Start:	July 2021
Project Status:	92% Design
Construction Start:	May 2025
Completion:	March 2029
Budget:	\$47,000,000

Current Status:

The acquisition process continues for one private easement and an easement with UVA along Hereford Drive. Redesign efforts in the E. High Street area are in process and survey work has begun. An additional private easement will be required with the redesign as well as new easements on two City parcels. The project will be split into

**AGENDA ITEM EXECUTIVE SUMMARY**

two bidding contracts so that the west section of the work can begin next spring while the east side of the project is being redesigned.

History:

The hydraulic connectivity in the Urban System is less than desired, creating operational challenges and reduced system flexibility and redundancy. Recent efforts and modeling for the Urban Finished Water Infrastructure Master Plan have determined that a central water line corridor through the city is the best option to hydraulically connect the Observatory Water Treatment Plant to the Urban service area, including the ACSA water service area.

This proposed new Central Water Line builds on the ACSA investments in additional water supply at Ragged Mountain and at the newly expanded Observatory Water Treatment Plant. This new line will allow a connection from the water plant to the urban water service areas of the ACSA.

- **Crozet GAC Expansion – Phase I**

Design Engineer:	SEH
Project Start:	July 2023
Project Status:	60% Design
Construction Start:	August 2025
Completion:	March 2027
Budget:	\$6,550,000

Current Status:

60% design was completed in September. \$6.24 million in grant funds from VDH have been awarded for this project.

History:

In order to enhance the RWSA's resiliency and commitment to long term finished water quality, the Authority has committed to expanding the GAC capacity at the Crozet WTP to match the current plant capacity. This project includes expansion of the existing GAC building, additional GAC vessels, pumps, piping, and electrical components.

- **South Rivanna Water Treatment Plant – PAC Upgrades**

Design Engineer:	SEH
Project Start:	November 2023
Project Status:	100% design
Construction Start:	August 2025
Completion:	December 2026
Current Project Estimate:	\$1,100,000

**AGENDA ITEM EXECUTIVE SUMMARY**Current Status:

The project is at 100% design. RWSA applied for a Congressionally Directed Spending grant from Senators Kaine and Warner for this project in the amount of \$880,000 and have received approval of the grant by the Senate committee. Final grant approval will occur upon approval of the federal budget by Congress and the President.

- **Ragged Mountain Reservoir Pool Raise**

Design Engineer:	Schnabel
Project Start:	April 2024
Project Status:	30% design
Construction Start:	September 2025
Completion:	September 2026
Current Project Estimate:	\$5,000,000

Current Status:

RWSA staff and the Design Engineer continue to discuss and evaluate the findings of the Geotechnical Investigation. Meanwhile, the Design Engineer is developing clearing plans around the reservoir.

- **South Rivanna Reservoir to Ragged Mountain Reservoir Pipeline, Intake and Facilities**

Design Engineer:	Kimley Horn/SEH/Schnabel
Project Start:	July 2023
Design Status:	50%
Construction Start:	February 2026
Completion:	December 2030
Current Project Estimate:	\$79,000,000

Current Status:

The Design Engineer continues to work on both the new reservoir intake and the pipe between SFRR and RMR. Test holes along the water main alignment are anticipated to be completed this month. Installation of a nutrient analyzer at SFRR has been completed and was successfully started up. This is the last step of the water quality study, and a final report is anticipated by the end of the month.

History:

The approved 50-year Community Water Supply Plan includes the construction of a new raw water pipeline from the South Rivanna River to the Ragged Mountain Reservoir. This new pipeline will replace the Upper Sugar Hollow Pipeline along an alternative alignment to increase raw water transfer capacity in the Urban Water

**AGENDA ITEM EXECUTIVE SUMMARY**

System. The project includes a detailed routing study and water line design to account for recent and proposed development and road projects in Albemarle County and the University of Virginia. Preliminary design, preparation of easement documents, and acquisition of water line easements along the approved route is also being completed as part of this project that will lead to final design and construction of the raw water line, reservoir intake and pump station.

- **Beaver Creek Dam, Pump Station, and Piping Improvements**

Design Engineer:	Schnabel Engineering (Dam)
Design Engineer:	Hazen and Sawyer (Pump Station)
Project Start:	February 2018
Project Status:	55% Design
Construction Start:	May 2026
Completion:	January 2030
Budget:	\$47,100,000

**Current Status:**

Design work is underway by Hazen for the new raw water pump station, intake, raw water main, and hypolimnetic oxygenation system, and by Schnabel Engineering for final design of the dam spillway upgrades, temporary detour, and spillway bridge. Geological, survey, and other field investigative work for the dam design were recently completed. Documents are being developed for acquisition or lease of property for the Pump Station from the County.

**History:**

RWSA operates the Beaver Creek dam and reservoir as the sole raw water supply for the Crozet area. In 2011, an analysis of the Dam Breach inundation areas and changes to Virginia Department of Conservation and Recreation (DCR) *Impounding Structures Regulations* prompted a change in hazard classification of the dam from significant to high hazard. This change in hazard classification requires that the capacity of the spillway be increased, and the dam be replaced. This CIP project includes investigation, preliminary design, public outreach, permitting, easement acquisition, final design, and construction of the anticipated modifications. Work for this project includes a new relocated raw water pump station and intake.

- **Upper Schenks Branch Interceptor, Phase II**

Design Engineer:	CHA Consulting
Project Start:	July 2021
Project Status:	Design
Construction Start:	TBD
Completion:	TBD
Budget:	\$4,725,000

**AGENDA ITEM EXECUTIVE SUMMARY**Current Status:

The design team has provided additional information to assist the County with easement acquisition considerations.

History:

The Schenks Branch Interceptor is located in the easter part of the City of Charlottesville and was constructed in the mid-1950s. The existing interceptor is undersized to serve present and future wet weather flows and is to be upgraded to from a 21-inch to 30-inch pipe.

- **MC Pump Station Slide Gates, Valves, Bypass, and Septage Receiving Upgrades**

Design Engineer:	Hazen and Sawyer (Hazen)
Project Start:	June 2023
Project Status:	60% Design
Construction Start:	June 2025
Completion:	September 2026
Budget:	\$3,600,000

Current Status:

Staff will be interviewing software vendors this month for additional improvements to the current septage receiving equipment and billing software, and Hazen is completing a flood resiliency evaluation.

History:

Inspections of the large aluminum slide gates at the influent side of the Moores Creek Pump Station have been conducted and the need for repair/addition of new gates for RWSA staff to have the flexibility to stop or divert flow to perform maintenance activities is needed. This project will also enclose the leachate discharge pit to reduce odors and address maintenance concerns.

**Planning and Studies**

- **MCAWRRF Biogas Upgrades**

Design Engineer:	SEH
Project Start:	October 2021
Project Status:	Preliminary Engineering/Study (99%)
Completion:	December 2024
Budget:	\$2,145,000

Current Status:

RWSA and City staff continue to discuss all available options to reuse biogas.

AGENDA ITEM EXECUTIVE SUMMARY

• **Flood Protection Resiliency Study**

Design Engineer:	TBD
Project Start:	August 2024
Project Status:	Preliminary Engineering/Study
Completion:	July 2025
Budget:	\$278,500

Current Status:

This project will identify individualized flood mitigation measures of six facilities to increase their resiliency from a 1% to a 0.2% flooding event. Facilities include: Mechums River Raw Water PS, Glenmore WW PS, Moores Creek AWRRF, Scottsville WWRRF, Crozet FET, and Crozet WW PS #2. A consultant is being selected to perform this study and the specific scope of the evaluation is being confirmed. This project received \$198,930 in grant funding from FEMA and VDEM.

**Other Significant Projects**

• **Urgent and Emergency Repairs**

RWSA staff are currently working on several urgent repairs within the water and wastewater systems as listed below:

<u>Project No.</u>	<u>Project Description</u>	<u>Approx. Cost</u>
2023-01	Finished Water System ARV Repairs	\$150,000
2024-03	MCAWRRF Secondary Clarifier #4 Equipment Failure	\$150,000

- RWSA Finished Water ARV Repairs: RWSA Engineering staff recently met with Maintenance staff to identify a list of Air Release Valves (ARVs) that need to be repaired, replaced, or abandoned. Several of these locations will require assistance from RWSA On-Call Maintenance Contractors, due to the complexity of the sites (proximity to roadways, depth, etc.). The initial round will include seven (7) sites, all along the South Rivanna Waterline. Three replacements have been completed at this time, with a fourth site in progress. This in progress site included abandonment of an existing manual ARV located in the middle of the Route 29-Hydraulic intersection, which has been completed, and was a major coordination effort with VDOT, as they intend to pave this area in the coming weeks. The Contractor is working with VDOT on permits for the final sites.
- MCAWRRF Secondary Clarifier #4 Equipment Failure: On Sunday Evening, March 3<sup>rd</sup>, RWSA Wastewater Department staff identified that Secondary Clarifier #4 at MCAWRRF appeared to have a significant mechanical malfunction. Upon further review by staff, the rotating arm of the clarifier

AGENDA ITEM EXECUTIVE SUMMARY

mechanism caught the stationary arm, wrapping it around the center of the clarifier. Staff mobilized MEB General Contractors under its On-Call Maintenance Construction Services Contract with Faulconer, and the clarifier was back up and operational with just one stationary arm on Friday, March 8th. Staff are waiting on the necessary parts to complete repairs to the clarifier arms, but in the meantime, the clarifier is operational should it be needed for wet weather events. The remaining repairs will be completed by the RWSA Maintenance Department.

• **Security Enhancements**

Design Engineer:	Hazen & Sawyer
Construction Contractor:	Security 101 (Richmond, VA)
Construction Start:	March 2020
Percent Complete:	90% (WA9), 95% (WA10)
Based Construction Contract + Change Orders to Date = Current Value:	\$718,428 (WA1) + \$834,742 (WA2-10)
Completion:	June 2024 (WA9), August 2024 (WA10)
Budget:	\$2,810,000

Current Status:

WA9 will include installation of card access on all exterior doors at the South Rivanna WTP and has been amended to include interior doors at the new IT data center. WA10 will include installation of card access on the exterior doors of the finished water pump station and “795” tank buildings in Scottsville. Device installation is complete here as well, with programming and startup ongoing. Design of MCAWRRF entrance modifications with Hazen & Sawyer continues, with discussions with Dominion Energy also ongoing, as relocation of existing electrical infrastructure will be required. This relocation process will need to be finalized prior to the project proceeding to the bidding phase. Relocation of existing electrical infrastructure will require coordination with the adjacent landowner, as the infrastructure must be completely relocated from the entrance area. As these discussions are ongoing, staff have submitted appropriate permitting documents to Albemarle County.





ACSA Board Future Policy Issues Agendas 2024-2025										
Regular 3rd Thursday Monthly Meetings	Dec. '24	Jan. '25	Feb. '25	Mar. '25	April '25	May '25	June '25	July '25	Aug '25	Pending Issues
	December 19th	January 16th	February 20th	March 20th	April 17th	May 15th	June 19th	July 17th	August 21st	ACSA Customer Communications
	Recognitions	Recognitions	Recognitions	Recognitions	Recognitions	Recognitions	Recognitions	Recognitions	Recognitions	CIS - Customer Information Systems - Billing, Website, Phone
	Monthly Financial, CIP, Maintenance and IT Reports and RWSA Monthly Update	Monthly Financial, CIP, Maintenance and IT Reports and RWSA Monthly Update	Monthly Financial, CIP, Maintenance and IT Reports and RWSA Monthly Update	Monthly Financial, CIP, Maintenance and IT Reports and RWSA Monthly Update	Monthly Financial, CIP, Maintenance and IT Reports and RWSA Monthly Update	Monthly Financial, CIP, Maintenance and IT Reports and RWSA Monthly Update	Monthly Financial, CIP, Maintenance and IT Reports and RWSA Monthly Update	Monthly Financial, CIP, Maintenance and IT Reports and RWSA Monthly Update	Monthly Financial, CIP, Maintenance and IT Reports and RWSA Monthly Update	Climate Change and Sustainability
	Operational Presentation	Operational Presentation	Operational Presentation - Administration	Operational Presentation - Engineering	Operational Presentation - Maintenance	Operational Presentation - IT	Operational Presentation - Finance	Operational Presentation	Operational Presentation	Customer Experience (CX)
	Annual Investments Report ( <i>Annual Item</i> )	Board Organizational Meeting - Election of Officers ( <i>Annual Item</i> )	Personnel Management Plan Amendments - Travel Policy	Proposed CIP Presentation ( <i>Annual Item</i> )	Proposed FY '26 Capital Improvements Proposed CIP Presentation ( <i>Annual Item</i> )	Proposed FY '26 Budget and Rates Workshop ( <i>Annual Item</i> )	FY '26 Budget and Rates Public Hearing ( <i>Annual Item</i> )			Data Management and Management Dashboards
	FY '26 Budget Guidelines and Schedule ( <i>Annual Item</i> )	Annual Water Conservation Report ( <i>Annual Item</i> )	Financial Plan and Rate Study Scope of Work Discussion	Fix a Leak Week Water Conservation Event ( <i>Annual Item</i> )	Proposed FY '26 Capital Improvements Program (CIP) Public Hearing ( <i>Annual Item</i> )	Annual Water Quality Reports ( <i>Annual Item</i> )	FY '26 Budget, Rates and CIP Approval ( <i>Annual Item</i> )			Emergency Preparedness
	Board Meeting Schedule 2025 ( <i>Annual Item</i> )	2024 Annual Report - Accomplishments and Challenges ( <i>Annual Item</i> )		Strategic Plan Update ( <i>Semi-Annual Item</i> )	Proposed FY '26 Budgets and Rates Overview ( <i>Annual Item</i> )		Amendments to Rules and Regulations, and Personnel Management - Budget Implementation ( <i>Annual Item</i> )			Federal/State Water Quality Regulations PFAS; Emerging Contaminants
	Holiday Schedule 2025 ( <i>Annual Item</i> )				Resolution Scheduling Budget and Rates Public Hearing for June 19, 2025 ( <i>Annual Item</i> )		Water & Wastewater Professionals Appreciation Day Recognition ( <i>Annual Item</i> )			New Development
					National Drinking Water Week ( <i>Annual Item</i> )					Operational Presentation - Sewer Rehabilitation Relining
										Pay Plan Market Rate Study for FY '25 - Compensation (Fall)
										Purchasing Policy Manual
										RWSA CIP Central Water Line - Reservoirs Pipeline North Rivanna System Wastewater Projects
										Strategic Plan Update - Biannual
										Water Audit
										Water Supply Plan Project Status Reports
				Executive Session - Executive Director Annual Performance Review						11/21/2024



# ALBEMARLE COUNTY SERVICE AUTHORITY

## AGENDA ITEM EXECUTIVE SUMMARY

<b>AGENDA TITLE:</b> VERIP Application	<b>AGENDA DATE:</b> November 21, 2024
<b>STAFF CONTACT(S)/PREPARER:</b> Quin Lunsford, Executive Director and Emily Roach, Director of Human Resources & Administration	<b>ACTION:</b> ■■■  <b>ATTACHMENTS:</b> No

**BACKGROUND:** The Voluntary Early Retirement Incentive Program (VERIP) is a Service Authority benefit in addition to a Virginia Retirement System (VRS) monthly income. To apply an employee must be eligible to apply for early or full retirement under the provisions of the Virginia Retirement System (VRS). Eligibility includes having worked for ACSA for the past 10 years; prior service does not count in the 10-year service. Disability retirement does not qualify for VERIP participation. The same calculation used by VRS in calculating a monthly retirement income is used to credit eligible employees with up to five years additional service to the ACSA. Based on that calculation, an additional salary, or monthly stipend, is determined. This stipend is paid for up to five years, or until age 65, whichever comes first. This is taxable income.

In addition, for the same time, the ACSA will contribute toward health and dental insurance the same amount as is contributed for active employees within that same coverage level; at this time that amount is \$710.46 per month. Employees are free to use that money to purchase health insurance elsewhere, to join a spouse's plan that may be cheaper, to collect the money in an annual lump sum amount (post tax) or participate in the ACSA's cafeteria plan and continue paying premiums pre-tax for the length of time eligible to participate. Employees are eligible to stay on the ACSA's health insurance policy until age 65 or at Medicare eligibility; however, ACSA contribution will cease at the end of the VERIP period, or at age 65, whichever comes first.

**DISCUSSION:** Upon the recommendation of the Executive Director, as per the VERIP Policy, we seek the Board's consideration and approval of Jeffrey Herr, Construction Inspector, application for retirement through ACSA's VERIP program. Jeff has indicated a retirement date of January 1, 2025, which will be 33 years and 4 months of employment with the ACSA.

**BOARD ACTION REQUESTED:** Approval of Jeffrey Herr's VERIP application.



# ALBEMARLE COUNTY SERVICE AUTHORITY

## AGENDA ITEM EXECUTIVE SUMMARY

<b>AGENDA TITLE:</b> Annual Comprehensive Financial Report - Fiscal Year 2024  <b>STAFF CONTACT/PREPARER:</b> Tanya Johnson, Director of Finance	<b>AGENDA DATE:</b> November 21, 2024  <b>ACTION:</b> Informational  <b>ATTACHMENTS:</b> Yes
--	--

**BACKGROUND:** The Annual Comprehensive Financial Report for the fiscal year ended June 30, 2024, is complete and has been provided for Board review. The Authority's auditor, Brown Edwards, LLP will present its audit opinion and report on internal control over financial reporting and other matters based on an audit of financial statements. The Finance Department will provide a PowerPoint presentation to summarize financial and operational highlights from the fiscal year.

**DISCUSSION:** Over the past four months, staff has accumulated, analyzed, and prepared financial and operational records in conjunction with year-end requirements. The accumulation of this information culminates with the financial statement audit performed by the ACSA's independent auditor, Brown, Edwards & Company, L.L.P. Finance Department staff, with information and assistance from the Administration, Engineering, IT and Maintenance Departments, compiles the audited financial information into an Annual Comprehensive Financial Report. A presentation has been prepared to assist the Board in further understanding major components of the Report and other highlights from Fiscal Year 2024.

Additionally, the Authority and Brown Edwards staff met with the Authority's Audit Committee on October 31st to review information related to the audit and financial highlights for Fiscal Year 2024.

**RECOMMENDATIONS:** None

**BOARD ACTION REQUESTED:** None

### ATTACHMENTS:

1. Fiscal Year 2024, Annual Comprehensive Financial Report PowerPoint presentation.
2. Albemarle County Service Authority Annual Comprehensive Financial Report for the Fiscal Year Ended June 30, 2024.



# FY 2024 Annual Financial Report Presentation

November 21, 2024

## ANNUAL COMPREHENSIVE FINANCIAL REPORT

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For the Fiscal Year ended June 30, 2024



# Agenda



Annual Financial Report Overview



Fiscal Year 2024 financial highlights



Operating Information



Summary



# Financial Highlights



## Statement of Net Position Highlights Fiscal Year 2024

- Assets/Def. Outflows totaled \$255,675,000
- Liabilities/Def. Inflows totaled \$17,864,000
- Net Position totaled \$237,811,000
  - Increase of \$8,289,000 or 3.6% over last FY.



## Revenues, Expenses, and Capital Contributions

- Operating Revenues = \$39,298,000
- Operating Expenses = \$43,992,000
- Non-Operating Revenues = \$3,252,000
- Non-Operating Expenses = \$764,000
- Capital Contributions = \$10,495,000
  - Developer Contributions of Cap. Assets - \$842,890
  - System/Capacity fees - \$9,652,000

# Financial Highlights cont.



Operating revenues grew by \$5,067,000, an increase of 14.8% compared to fiscal year 2023



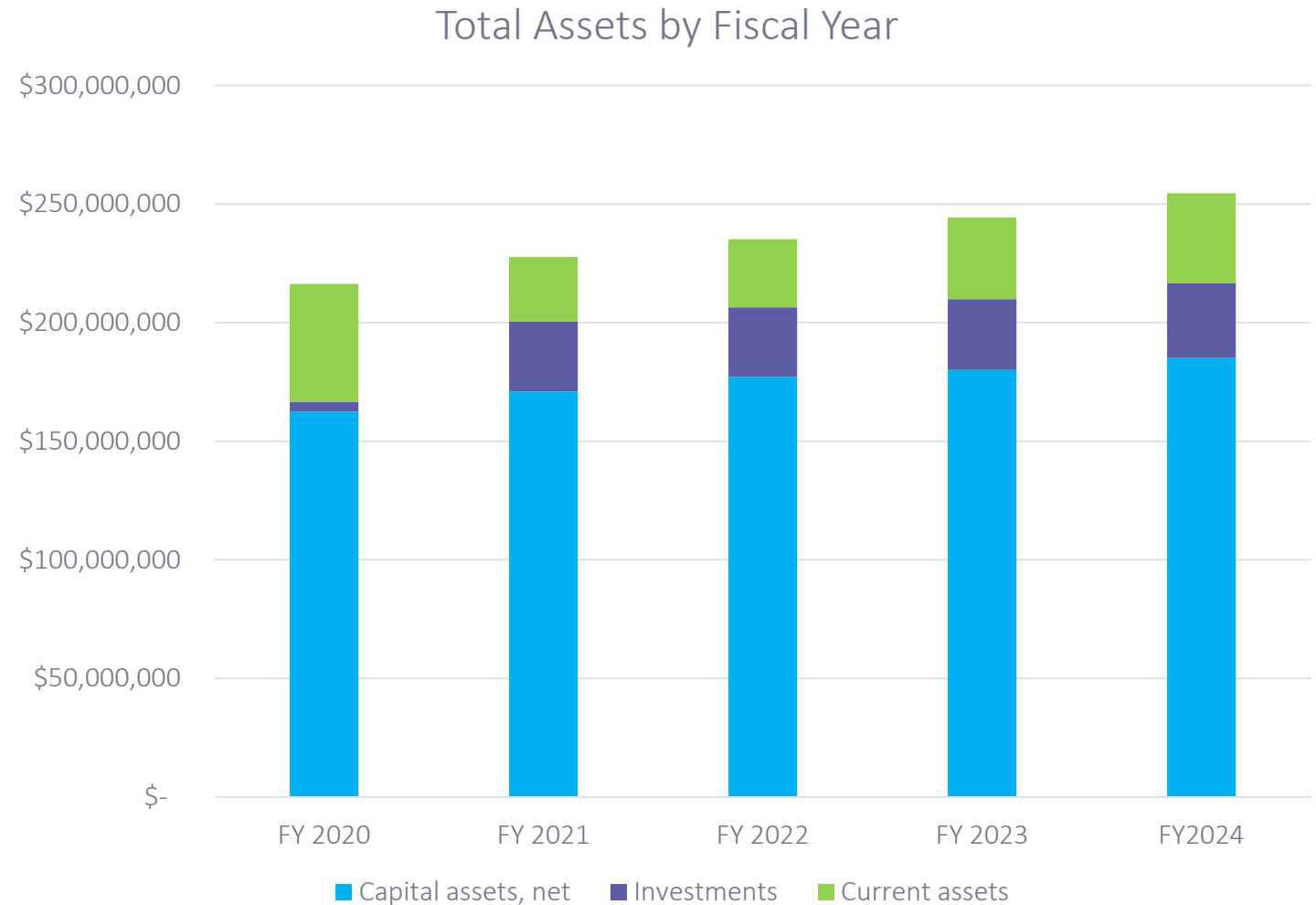
Operating expenses (including depreciation expense) increased by \$4,722,000 or 12.0% in comparison to fiscal year 2023



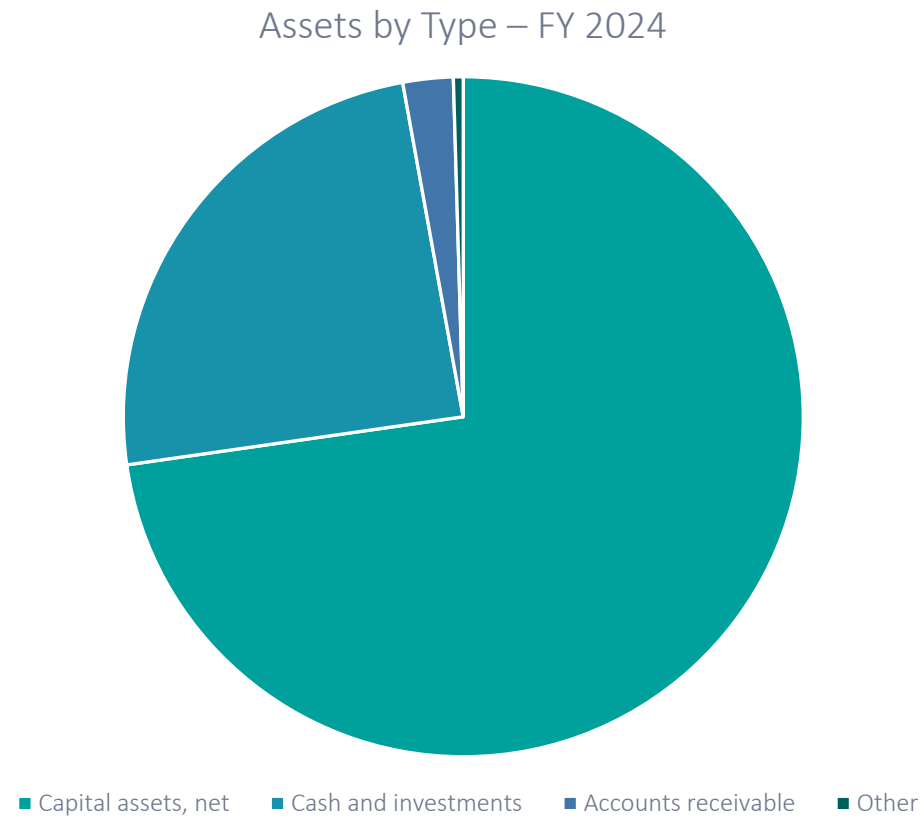
Capital contributions totaled \$10,495,000, reflecting a decrease of \$2,751,000, or 20.8%, compared to fiscal year 2023

# Financial Highlights (cont.) – Total Assets

- Total assets have shown consistent year-over-year growth
- Growth in assets is driven by an increase in water sales, sewer treatment, and investment performance in the current year



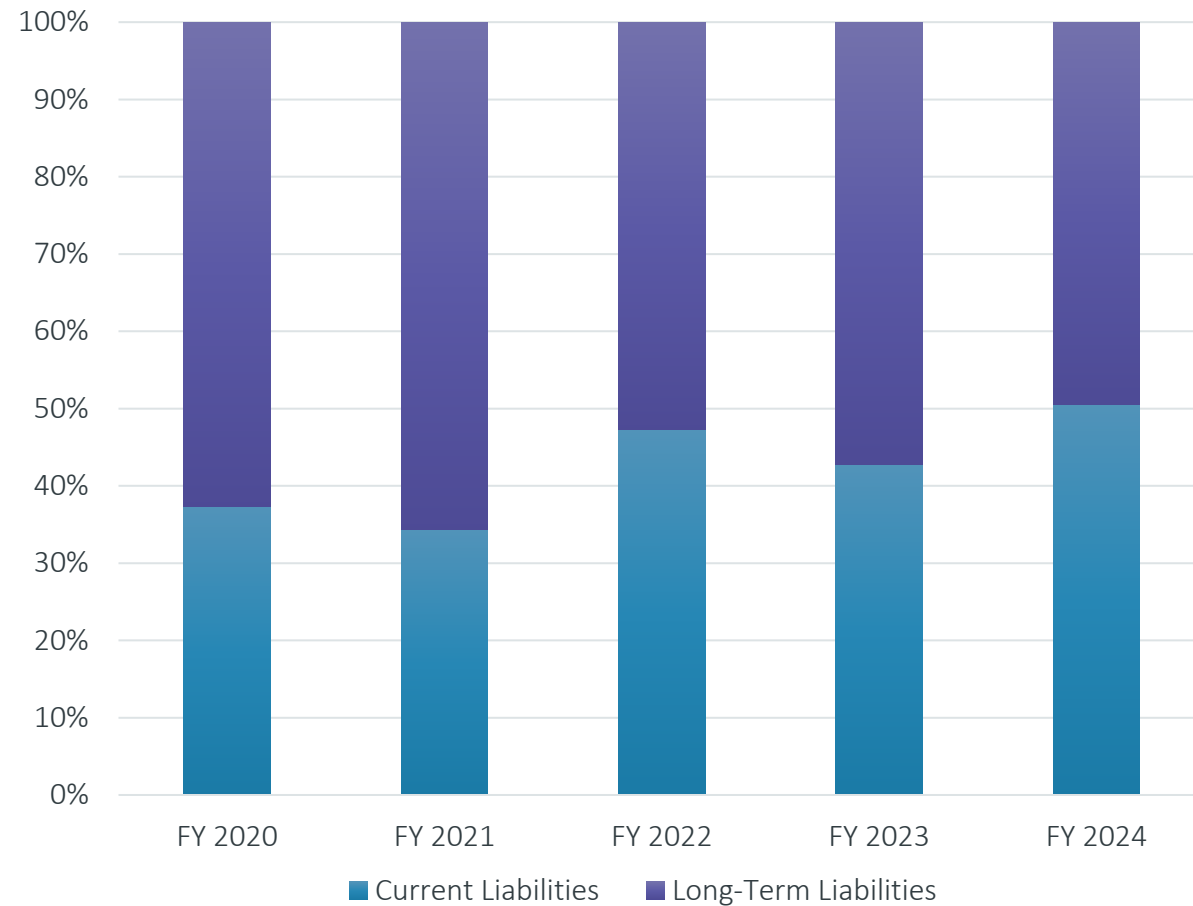
## Financial Highlights (cont.) – Assets by Type (FY 2024)



# Financial Highlights (cont.) – Total Liabilities

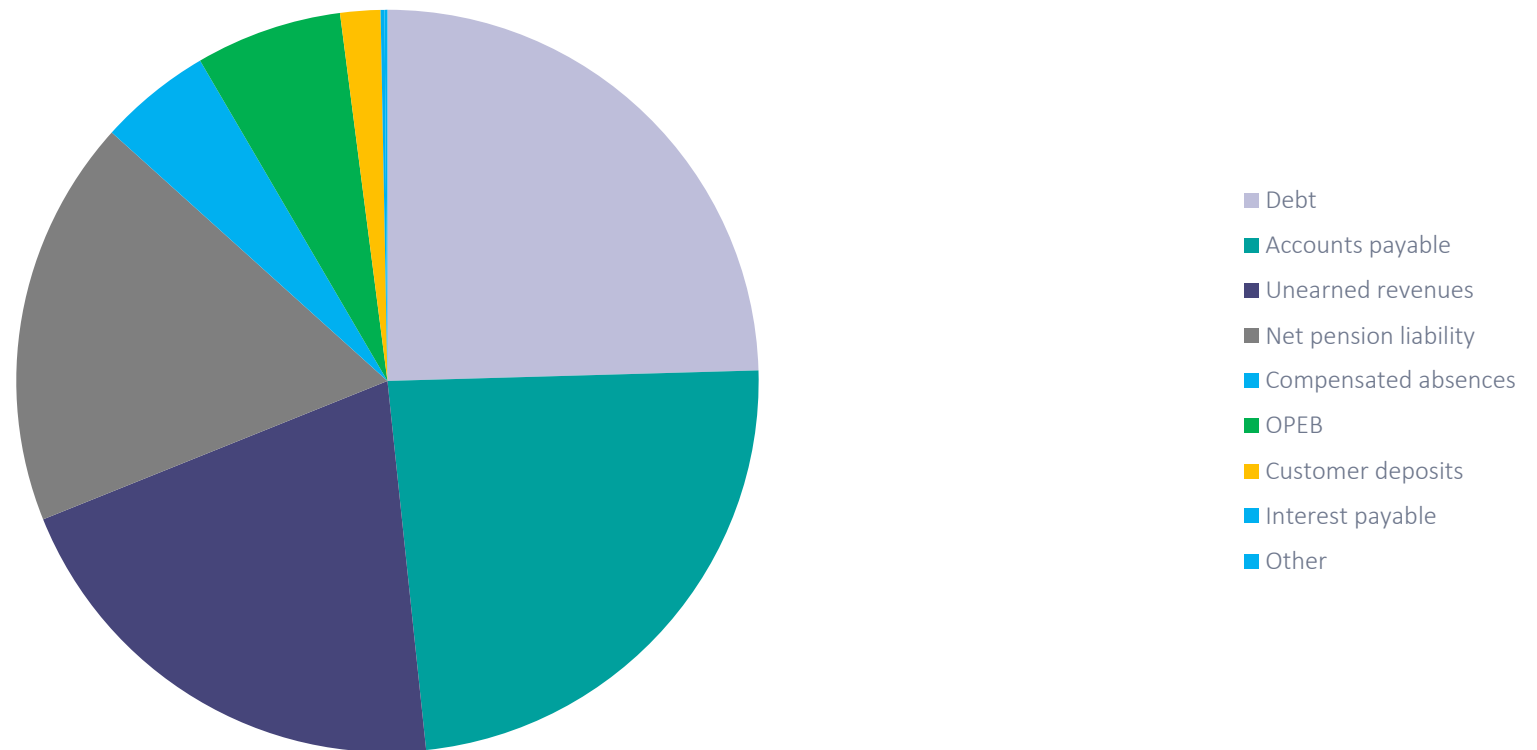
- Total Liabilities increased nearly 15% over the prior FY.
- Reflects change in the Unearned revenues.
  - Increase of \$1.6M over the prior year
  - Accounts Payable (AP) increased by \$700K

Total Liabilities by Fiscal Year



## Financial Highlights (cont.) – Liabilities by Type (FY 2024)

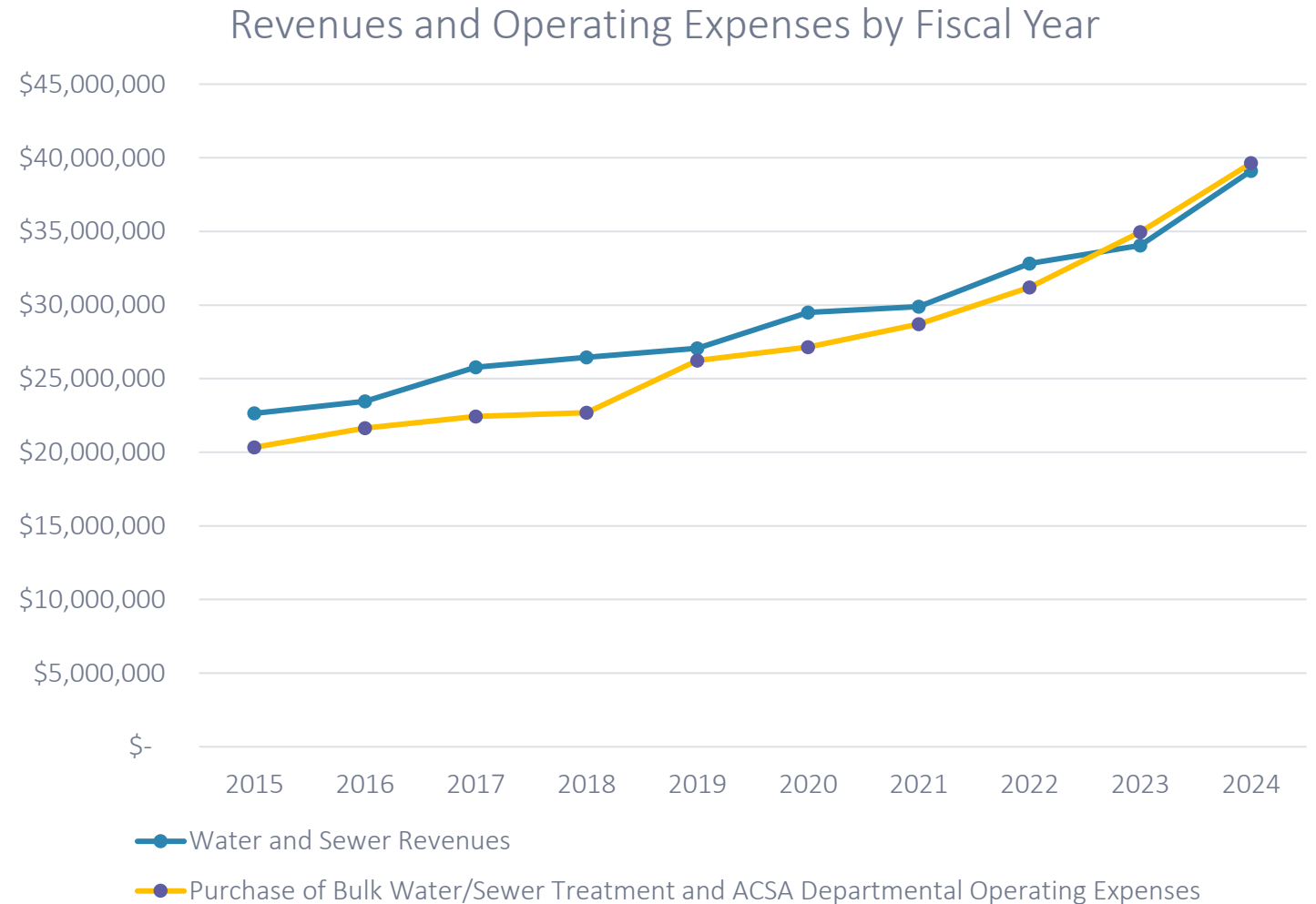
Liabilities by Type – FY 2024



# Operating Information (cont.) – Revenues and Expenses by FY

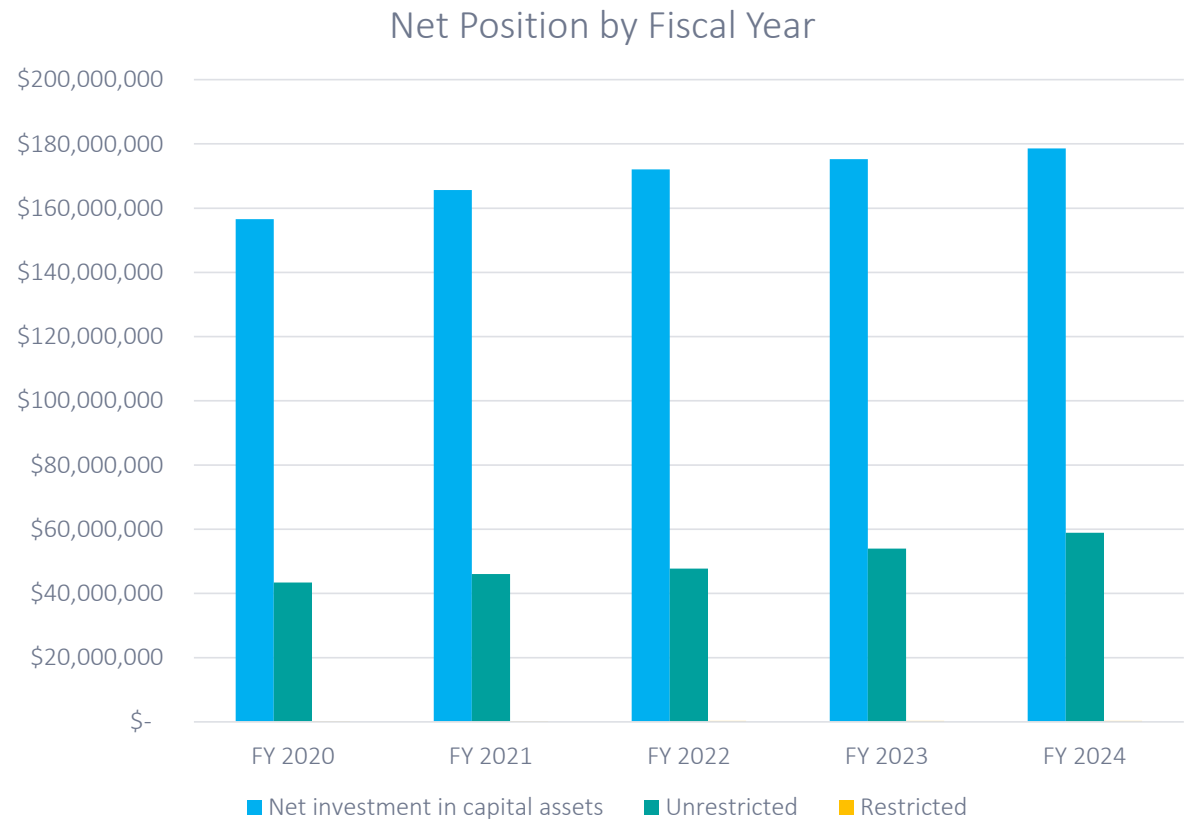
129

- Water and Sewer Revenues increased \$5.1M or 14.8% over the prior year
  - Billed water consumption up 4.2%
  - Billed sewer treatment up 3.7%
- Purchase of water/sewer treatment and ACSA departmental expenses increased \$4.7M or 13.4% over the prior year



## Financial Highlights (cont.) – Net Position

- Total Net Position increased \$8.3M or 3.6% compared to the prior fiscal year
  - Unrestricted net position increased \$4.9M or 9.2%
  - Net Investment in capital assets increased \$3.3M or 1.9%





## Operating Information – FY 2024



502 new connections established during Fiscal Year 2024



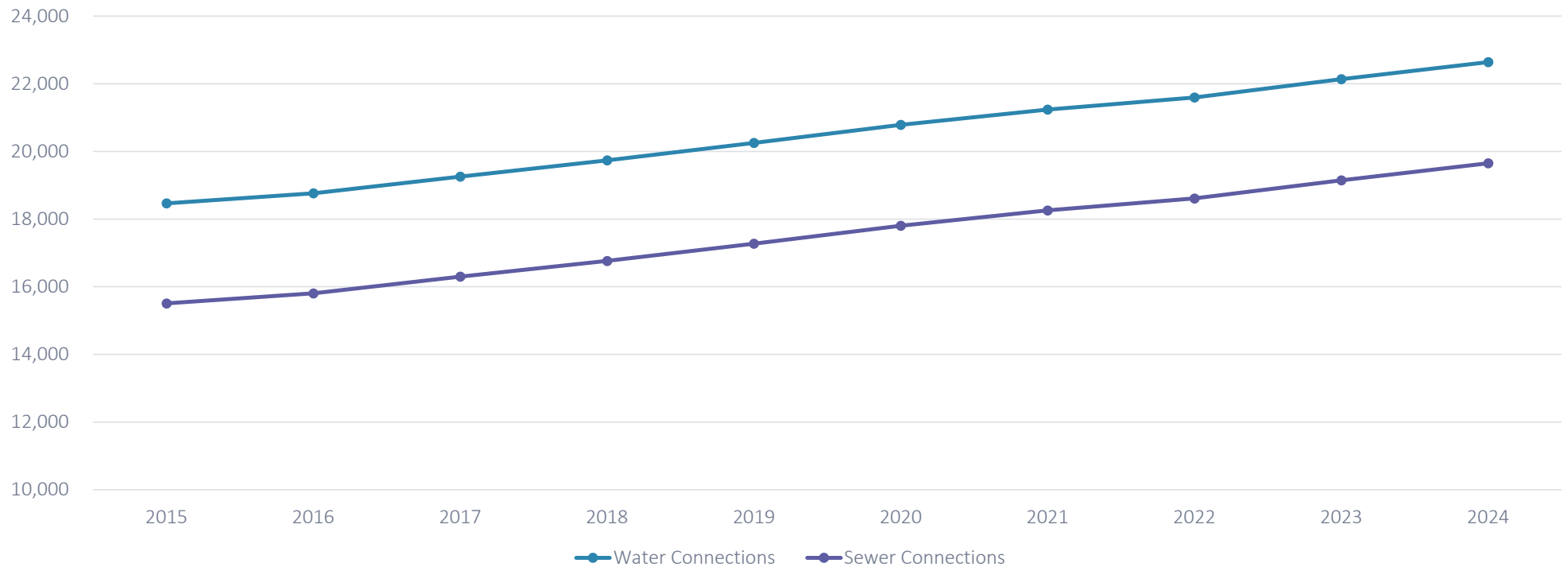
Over 277,000 meters were read



Nearly 5,200 service orders were processed

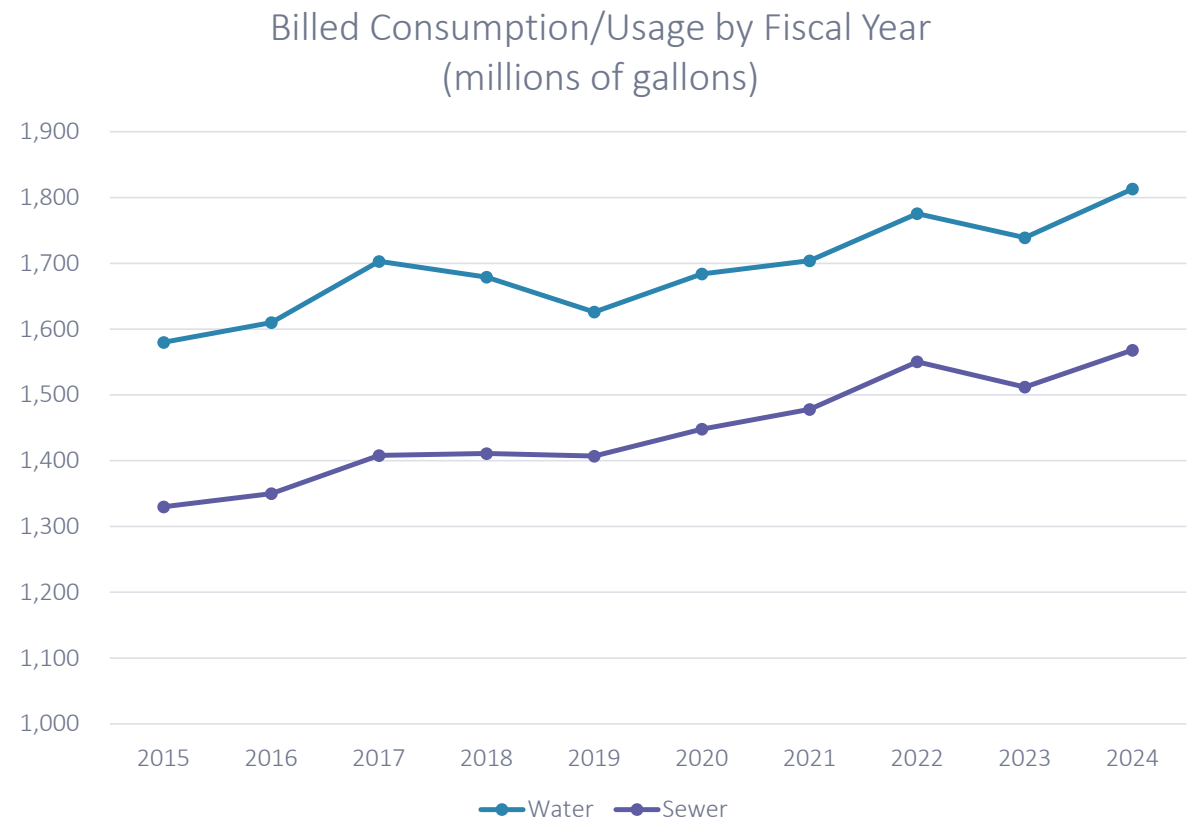
## Operating Information (cont.) – Connections by Fiscal Year

Connections by Fiscal Year



## Operating Information (cont.) – Billed Consumption/Usage by FY

- Long-term trend shows increases in consumption but can vary from year to year
  - Water consumption up from prior fiscal year 4.2%
  - Sewer treatment up from prior fiscal year 3.7%



# In Summary



## Fiscal Year 2024 in Review

- Significant growth in investment income in FY 2024, reflects positive impact on overall financial performance
- Increases in both water consumption and sewer treatment in FY 2024
- Significant increases in costs to treat water/sewer



## Thank you

- Sincere thanks to all ACSA departments that contributed to the accumulation of financial information, especially
  - Ms. Deanna Davenport, Ms. Tonya Foster, and Ms. Jennifer Bryant who have each made a significant contribution this year to the ACFR
  - The Administration/HR team who support the audit and bind the ACFR



**CHARLOTTESVILLE, VA**

# **ANNUAL COMPREHENSIVE FINANCIAL REPORT**

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**For the Fiscal Year ended June 30, 2024**



**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**ANNUAL COMPREHENSIVE FINANCIAL REPORT**  
**For the Fiscal Year Ended June 30, 2024**

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**CHARLOTTESVILLE, VIRGINIA**  
**ANNUAL COMPREHENSIVE FINANCIAL REPORT**

*For the Fiscal Year Ended  
June 30, 2024*

Prepared by:

Department of Finance  
168 Spotnap Road  
Charlottesville, Virginia 22911  
(434) 977-4511

# ALBEMARLE COUNTY SERVICE AUTHORITY

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**ALBEMARLE COUNTY SERVICE AUTHORITY**

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## **INTRODUCTORY SECTION**

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October 25, 2024

Board of Directors  
Albemarle County Service Authority  
Charlottesville, Virginia

Ladies and Gentlemen:

The Annual Comprehensive Financial Report of the Albemarle County Service Authority (Authority) is submitted herewith. With such modifications as apply to our status as an enterprise fund of governmental units, and as an independently chartered corporation, this report has been prepared in conformity with the reporting and accounting standards promulgated by the Governmental Accounting Standards Board (GASB) and the Government Finance Officers Association's (GFOA) *Governmental Accounting, Auditing, and Financial Reporting*.

Based upon a comprehensive framework of internal control that has been established for this purpose, the Authority management assumes full responsibility for the accuracy of the data and for the completeness and reliability of the information contained in this report. The information in this report is believed by Authority management to be sufficient to fully represent the financial result of the Authority's operations for the year ended June 30, 2024, and to provide an accurate and useful picture of the Authority's status as of that date.

State law and outstanding bond resolutions require an annual audit of the books and records of the Authority. This requirement has been satisfied by the engagement of independent certified public accountants, Brown, Edwards and Company, LLP, whose opinion is located at the front of the financial section of this report.

Management's discussion and analysis (MD&A), which provides a narrative introduction, overview, and analysis of the basic financial statements immediately follows the independent auditor's report. The MD&A complements this letter of transmittal and should be read in conjunction with it.

### ***Organization and Function***

Located in central Virginia, 100 miles southwest of Washington, DC and less than 65 miles west of Richmond, the Authority was established in 1964, pursuant to the *Virginia Water and Waste Authorities Act*, to provide water and sewer service to those jurisdictional areas in the County of Albemarle (County) designated by the County's Board of Supervisors. The current service areas include the urbanized ring around the City of Charlottesville (City), the communities of

### ***Organization and Function (continued)***

Crozet and Scottsville, Red Hill, and the Village of Rivanna. A six-member Board of Directors, appointed by the Albemarle County Board of Supervisors for renewable four-year terms, appoints the Executive Director and governs Authority operations and policies. We have determined, after an examination of the factors involved in the Governmental Accounting Standards Board's definition of "component unit" for financial reporting purposes, that we are not a component unit of Albemarle County and will not be included in their financial report. Justification for this decision is outlined in Note 1 to the financial statements.

In June 1973, the Authority and the City entered into a Service Agreement with the Rivanna Water and Sewer Authority (RWSA), which wholesales finished water and sewer treatment services to the Authority and to the City. In 1975, the Authority purchased from the City the facilities to serve all current water and sewer customers outside the City limits; since then, it has been the sole public retailer of these services in the County.

In addition to retailing finished water distribution and sewer collection services, the Authority constructs pumping stations and line extensions; purchases, connects to the system, and upgrades private water systems; installs water supply and sewage collector systems; inspects water delivery and sanitary sewage systems installed and contributed to it by developers; and maintains these constructed and contributed facilities.

### ***Economic Conditions***

In the Albemarle Community Profile<sup>(1)</sup> most recent update, the Virginia Employment Commission's Economic Information Services Division (VEC) reported the County's and State 2024 unemployment rate of 3.0% as compared to the United States' rate of 4.3%. The total number of jobs in Albemarle County was 63,504. The relative stability of the local economy is attributed to positive trends in the unemployment rate compared to the National percentage. The housing market weakened compared to last year, with home sales decreasing 8% compared to a year earlier, while median home sale prices were up 1% from one year ago<sup>(2)</sup>.

Residential and commercial growth within the Authority's Urban and Crozet service areas remains robust. New connections to the Authority's system remain strong (2022 – 357 connections, 2023 – 543 connections, 2024 – 502 connections), with a three-year average of 467 new connections<sup>(3)</sup>.

<sup>(1)</sup> Virginia Community Profile – Albemarle County, Virginia Employment Commission, updated September 21, 2024;

<sup>(2)</sup> CAAR (Charlottesville Area Association of REALTORS) 2024 2<sup>nd</sup> Quarter and Mid-Year Market Report

<sup>(3)</sup> Albemarle County Service Authority Annual Financial Report 2022, 2023, 2024, Table 11

## ***Major Initiatives and Accomplishments***

- ◆ Developed an operating and capital improvement budget for fiscal year 2024 that aligned with our strategic plan and considered current and future impacts of system growth, planned maintenance, and operational needs. To that end, our goals were 1) to meet anticipated operating and capital improvement expenses by modestly increasing water and sewer volume charges, and to ensure that current operating expenses will be paid with current operating revenues; 2) to keep customer buy-in and connection charges constant while maintaining our policy of “growth paying for growth;” and 3) to maintain, improve, and extend system infrastructure through capital investments.
- ◆ The Authority proactively manages its investment in infrastructure with many projects in various stages of completion. Major capital improvement projects completed during the fiscal year include:
  - Jefferson Village Water Main Replacement
  - Advanced Metering Infrastructure (AMI) Project
- ◆ Future and ongoing projects of the Authority include replacement and upgrades to water mains in Crozet and upgrades to the Madison Park Pump Station; continued addition to system redundancy and renewal; and a facility master plan which includes a satellite maintenance/office facilities on the ACSA’s Avon Street property.

## ***Operations***

For Fiscal Year 2024, Operating Revenues (\$39,298,211) from water and sewer sales and service connection fees increased by 14.8% as compared to Fiscal Year 2023. Associated operating expenses (\$43,992,404) reflected an increase of 12.0% as compared to Fiscal Year 2023, primarily driven by an increase in water/sewer treatment expenses from the Rivanna Water and Sewer Authority and departmental increases.

Unlike the revenues derived from customer buy-in and connection fees, the difference in projected and actual operating revenues and expenses is more predictable except for wastewater treatment plant charges. While weather conditions can play a large role in discretionary use of water, such as irrigation usage, domestic usage is typically more predictable. Please refer to Page 14 for detailed information related to operating and non-operating revenues and expenses.

### ***Accounting, Budgetary Controls, and Long-term Financial Planning***

The Authority's management is responsible for establishing and maintaining a system of internal accounting controls. The objectives of internal controls are to provide management with reasonable, but not absolute, assurance that assets are safeguarded against loss from unauthorized use or disposition, and financial records for preparing financial statements and maintaining asset accountability are reliable. The concept of reasonable assurance recognizes that estimates and judgments made by management are required to assess the expected benefits and related costs of internal accounting control procedures and that the cost of the control should not exceed the benefits likely to be derived. Management reviews internal controls on a continuing basis.

The Authority is required by Trust Agreements for its Bond to prepare and adopt an annual operating budget. On a fiscal year basis, department heads prepare preliminary operating budgets and submit them to the Executive Director for consideration. Rates are established based upon required revenue projections and associated costs, which include operating expenses, debt service, capital projects, and reserves. An adequate operating reserve is important to furnish funds for unplanned minor or significant repairs; it can also be utilized during unusually wet years, when anticipated revenues are reduced due to lesser than anticipated consumption levels. An adequate repair, replacement, and rehabilitation reserve (3R) is important to furnish funds for unexpected major repairs, as well as planned replacement or rehabilitation of equipment or other major capital assets. The Executive Director submits a proposed budget and rate recommendation to the Board of Directors for adoption.

After adoption, increases or decreases to the budget are made only upon Board approval, and the budget lapses at the end of the fiscal year for all accounts except multi-year construction projects and specific re-appropriations for funds committed at year-end for which goods and/or services have not been received. Department heads and the Board of Directors receive monthly reports on revenues and expenses.

### ***Awards and Acknowledgements***

Government Finance Officers Association of the United States and Canada (GFOA) awarded a Certificate of Achievement for Excellence in Financial Reporting to the Albemarle County Service Authority for its Annual Comprehensive Financial Report (ACFR) for the fiscal year ended June 30, 2023. This was the 41<sup>st</sup> consecutive year that the Authority has achieved this prestigious award. In order to be awarded a Certificate of Achievement, a government must publish an easily readable and efficiently organized annual comprehensive financial report. This report must satisfy both generally accepted accounting principles and applicable legal requirements.

***Awards and Acknowledgements (continued)***

A Certificate of Achievement is valid for a period of one year only. We believe that our current annual comprehensive financial report continues to meet the Certificate of Achievement Program's requirements and we are submitting it to the GFOA to determine its eligibility for another certificate.

The preparation of this report would not have been possible without the support of Authority staff and the Leadership and Management team at the ACSA; their dedication is very much appreciated. We would like to especially express our gratitude and appreciation to Ms. Deanna Davenport, Ms. Tonya Foster, and Ms. Jennifer Bryant who have each made significant contributions to the Annual Comprehensive Financial Report, and also to the Board of Directors for their interest in, and support of, the Authority's pursuit of financial reporting excellence.

Sincerely,

A handwritten signature in black ink, appearing to read "Quin Lunsford". The signature is fluid and cursive, with a large initial "Q" and "L".

Quin G Lunsford  
Executive Director



Government Finance Officers Association

Certificate of  
Achievement  
for Excellence  
in Financial  
Reporting

Presented to

**Albemarle County Service Authority  
Virginia**

For its Annual Comprehensive  
Financial Report  
For the Fiscal Year Ended

June 30, 2023

*Christopher P. Morill*

Executive Director/CEO



**ALBEMARLE COUNTY SERVICE AUTHORITY****DIRECTORY OF PRINCIPAL OFFICIALS****June 30, 2024****BOARD MEMBERS**

Mr. Richard Armstrong, Chairman

Mr. Charles Tolbert, Vice-Chairman

Dr. Lizbeth Palmer

Mr. John Parcels

Mr. Clarence W. Roberts

Ms. Kimberly Swanson

**EXECUTIVE DIRECTOR**

Mr. Gary B. O'Connell

**DIRECTOR OF FINANCE**

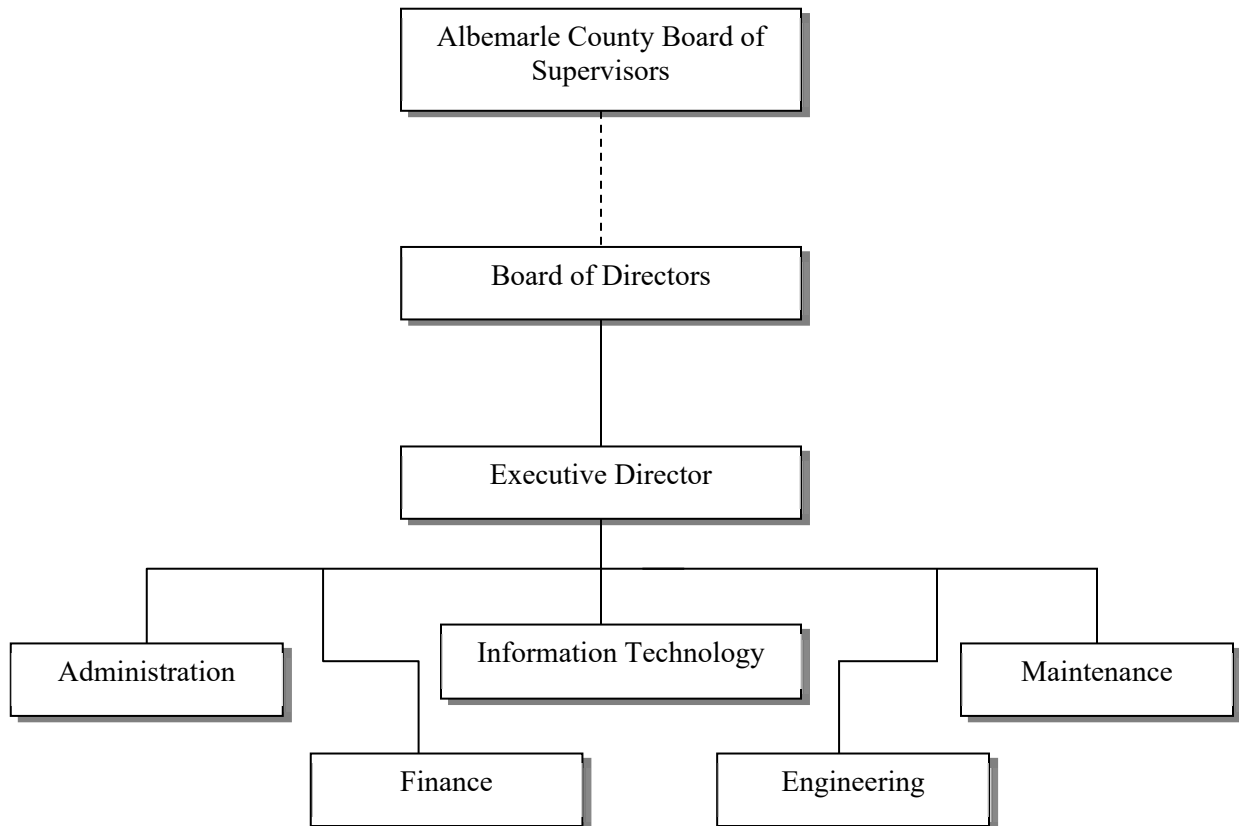
Mr. Quin G. Lunsford

**TRUSTEE**

Bank of New York Mellon

**INDEPENDENT AUDITORS**

Brown, Edwards & Company, L.L.P.

**ALBEMARLE COUNTY SERVICE AUTHORITY****ORGANIZATIONAL CHART**

## **FINANCIAL SECTION**

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**Financial Section contains the  
Basic Financial Statements.**



## Independent Auditor's Report

To the Honorable Members of the Board of Directors  
Albemarle County Service Authority  
Charlottesville, Virginia

### Report on the Audit of the Financial Statements

#### *Opinion*

We have audited the accompanying financial statements of the Albemarle County Service Authority (the "Authority") as of and for the year ended June 30, 2024, and the related notes to the financial statements, which collectively comprise the Authority's basic financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the respective financial position of the Albemarle County Service Authority, as of June 30, 2024, and the respective changes in financial position and, where applicable, cash flows thereof for the year then ended in accordance with accounting principles generally accepted in the United States of America.

#### *Basis for Opinion*

We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, and *Specifications for Audits of Authorities, Boards and Commissions* issued by the Auditor of Public Accounts of the Commonwealth of Virginia. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Authority and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

#### *Responsibilities of Management for the Financial Statements*

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Authority's ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

### *Auditor's Responsibilities for the Audit of the Financial Statements*

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with generally accepted auditing standards and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Authority's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audit.

### *Required Supplementary Information*

Accounting principles generally accepted in the United States of America require that the management's discussion and analysis and other required supplementary information, as listed in the table of contents, be presented to supplement the basic financial statements. Such information is the responsibility of management, and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management

about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

### *Other Information*

Management is responsible for the other information included in the annual report. The other information comprises the introductory and statistical sections but does not include the basic financial statements and our auditor's report thereon. Our opinion on the basic financial statements do not cover the other information, and we do not express an opinion or any form of assurance thereon.

In connection with our audit of the basic financial statements, our responsibility is to read the other information and consider whether a material inconsistency exists between the other information and the basic financial statements, or the other information otherwise appears to be materially misstated. If, based on the work performed, we conclude that an uncorrected material misstatement of the other information exists, we are required to describe it in our report.

### **Report on Summarized Comparative Information**

We have previously audited the Authority's 2023 financial statements, and our report dated October 23, 2023, expressed an unmodified opinion on those financial statements. The 2023 financial information is provided for comparative purposes only. In our opinion, the comparative information presented herein as of and for the year ended June 30, 2023, is consistent, in all material respects, with the audited financial statements from which it has been derived.

### **Other Reporting Required by *Government Auditing Standards***

In accordance with *Government Auditing Standards*, we have also issued our report dated October 25, 2024 on our consideration of the Authority's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Authority's internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Authority's internal control over financial reporting and compliance.

*Brown, Edwards & Company, L.L.P.*

CERTIFIED PUBLIC ACCOUNTANTS

Harrisonburg, Virginia  
October 25, 2024

## Management's Discussion and Analysis

The management of the Albemarle County Service Authority (the "Authority") presents this analysis of the Authority's financial performance during the fiscal year ended June 30, 2024, as a supplement to the Authority's basic financial statements. This analysis should be read in conjunction with the basic financial statements that follow, as well as the Letter of Transmittal, which can be found on pages i through vi of this financial report.

### Overview of the Financial Statements

The annual financial report is presented in four sections: introductory, financial, statistical, and compliance.

The introductory section includes a letter of transmittal submitted by the Authority's Executive Director and Director of Finance, a listing of the Authority's Board of Directors and organizational chart as of the end of the past fiscal year, and a copy of the Government Finance Officers Association Certificate of Achievement for Excellence in Financial Reporting that has been awarded to the Authority for the fiscal year ended June 30, 2023.

The financial section consists of the Independent Auditor's Report, Management's Discussion and Analysis, and the Authority's basic financial statements, including notes to the statements and required supplementary information, which are discussed below.

The *Statement of Net Position* reports the Authority's assets and deferred outflows of resources and liabilities and deferred inflows of resources, providing information about the nature and amounts of investments in resources (assets), consumption of net assets that applies to future periods (deferred outflows), obligations to creditors (liabilities), an acquisition of net assets that applies to future periods (deferred inflows). These statements may be used to evaluate the capital structure, liquidity, and financial flexibility of the Authority. The *Statement of Revenues, Expenses and Changes in Fund Net Position* reflect revenue and expense activity of the Authority for the fiscal year. This statement allows the user to measure the Authority's profitability and credit worthiness by the financial performance of the Authority's operations, and to determine whether the Authority has successfully recovered its operating costs through user fees and other charges. The *Statement of Cash Flows* presents the Authority's inflows and outflows of cash during the financial reporting period, by reporting cash receipts, cash payments, and the net changes in cash. Cash flows are categorized by operating, non-capital financing, capital and related financing, and investing activities. The *Notes to the Financial Statements* and the *Required Supplementary Information* provide necessary disclosures that are essential to a full understanding of the data provided in the aforementioned basic financial statements.

The statistical section includes selected financial, operational, and demographic information presented on a multi-year basis.

The Authority operates as an enterprise fund. Enterprise funds are a type of proprietary fund and function similar to a private business in that user charges and fees are expected to cover costs. The Authority's basic financial statements are presented using the accrual basis of accounting, which provides for revenue recognition in the period in which water and reclamation services are provided and expense recognition when goods and services are received. Additionally, the Authority's basic financial statements utilize the flow of economic resources measurement focus, in which all assets and liabilities are reflected on the Statement of Net Position and the Statement of Revenues, Expenses and Changes in Fund Net Position includes all transactions, such as revenues and expenses that increase or decrease net position.

## Financial Highlights

- The assets and deferred outflows of resources of the Authority exceeded its liabilities and deferred inflows of resources at the close of the most recent fiscal year by \$237,810,817 (*net position*). Of this amount \$56,520,509 (*unrestricted net position*) may be used to meet the Authority's ongoing obligations to customers and creditors.
- The Authority's total liabilities as a percentage of net position increased from 6.5% at June 30, 2023, to 7.2% at June 30, 2024.
- Fiscal year 2024 operating revenues increased 14.8% to \$39,298,211 as compared to fiscal year 2023 while operating expenses increased 12.0% to \$43,992,405 during the same period.
- System development and capacity charges were robust during the fiscal year and totaled \$9,652,464 for fiscal year 2024. This is a decrease of \$2,336,471 or 19.5% compared to the prior fiscal year. While this is a decrease when compared to the prior fiscal year, the Authority's service area continues to develop. These charges can vary from year to year based on construction schedules, weather, and material availability. We anticipate that system development and capacity charges will remain strong for the foreseeable future.
- The Authority realized a gain on investments in the current fiscal year, totaling \$2,810,568. This is a considerable increase in comparison to the prior fiscal year due to improvements in investment markets.

## Financial Analysis

The Statement of Net Position and the Statement of Revenues, Expenses and Changes in Fund Net Position report information about the Authority's activities to determine if, overall, the financial position improved over the year. These two statements report the net position of the Authority and changes in them. Analyzing the Authority's net position is one way to measure financial health. Non-financial factors such as economic conditions, population growth and new or changed government legislation need to be considered as well. The Authority improved its financial position in fiscal year 2024.

### Net Position

The Authority's net position increased by \$8,289,147 during fiscal year 2024, which represents a 3.6% increase from the beginning of the fiscal year net position. At June 30, 2024, total net position was \$237,810,817 as compared to the prior year net position of \$229,521,670.



**FINANCIAL ANALYSIS (continued)**

The following table depicts the Authority's condensed summary of net position at June 30, 2024, and 2023.

**Condensed Statement of Net Position**

	<b>2024</b>	<b>2023</b>
Current Assets	\$ 37,938,395	\$ 34,485,215
Investments	31,405,020	29,800,672
Noncurrent lease receivable	27,742	43,439
Capital assets, net	185,136,870	180,006,860
<b>Total Assets</b>	<b>254,508,027</b>	<b>244,336,186</b>
<b>Deferred Outflows of Resources</b>	<b>1,166,713</b>	<b>1,188,047</b>
Current Liabilities	8,627,018	6,367,083
Long-term Liabilities	8,437,775	8,530,527
<b>Total Liabilities</b>	<b>17,064,793</b>	<b>14,897,610</b>
<b>Deferred Inflows of Resources</b>	<b>799,130</b>	<b>1,104,953</b>
Net investment in capital assets	178,591,470	175,247,805
Restricted for debt service	331,089	331,531
Unrestricted	58,888,258	53,942,334
<b>Total Net Position</b>	<b>\$ 237,810,817</b>	<b>\$ 229,521,670</b>

**FINANCIAL ANALYSIS (continued)**

The following table summarizes changes in revenues and expenses between fiscal year 2024 and 2023.

**Condensed Statements of Revenues, Expenses, and Changes in Fund Net Position**

	<b>2024</b>	<b>2023</b>
<b>Revenues:</b>		
Operating Revenues:		
Water Sales	\$ 21,719,767	\$ 18,720,236
Sewer Service	17,399,595	15,332,086
Other	178,849	178,642
Non-operating Revenue:		
Investment income	2,810,568	1,084,854
Rental income	-	270
Miscellaneous revenues	424,691	409,305
Lease revenue	16,334	16,036
Fed. Grant – CARES Act/ARPA	-	36,465
<b>Total Revenues</b>	<b>\$ 42,549,804</b>	<b>\$ 35,777,894</b>
<b>Expenses:</b>		
Operating Expenses:		
Purchase of bulk water	\$ 16,266,189	\$ 13,987,522
Purchase of sewer treatment	11,319,500	10,202,217
Depreciation	4,354,813	4,305,016
Administration	1,275,171	1,275,341
Engineering	2,161,905	2,177,495
Finance	2,691,407	2,357,460
Information Technology	1,599,925	1,247,752
Maintenance	4,323,494	3,717,232
Non-operating Expenses:		
Interest and fiscal charges	86,671	108,674
Miscellaneous expenses	676,936	213,043
<b>Total Expenses</b>	<b>\$ 44,756,011</b>	<b>\$ 39,270,035</b>
Loss before capital contributions	\$ (2,206,207)	\$ (3,813,858)
Capital Contributions	10,495,354	13,246,309
Change in net position	8,289,147	9,432,451
Net position – beginning of year	229,521,670	220,089,219
Net position – end of year	<b>\$ 237,810,817</b>	<b>\$ 229,521,670</b>

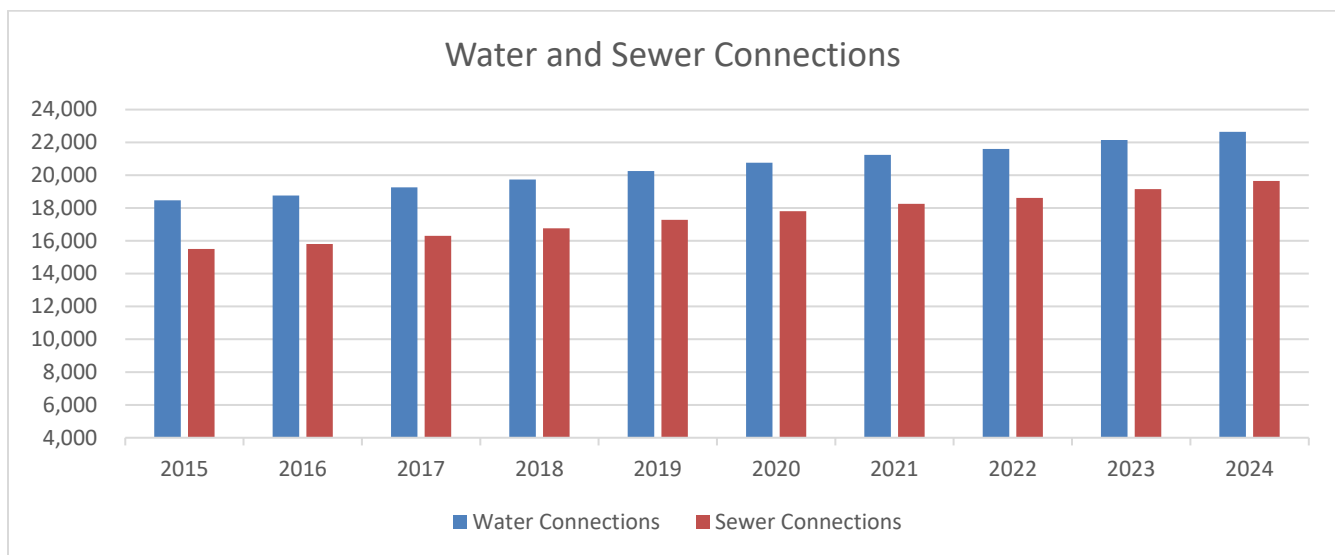
## Operating Revenues and Expenses

Operating revenues totaled \$39,298,211 in fiscal year 2024, an increase of \$5,067,247 from 2023. Operating expenses totaled \$43,992,405 in 2024, an increase of \$4,722,370 largely driven by increases in purchased water and sewer treatment costs from the Rivanna Water and Sewer Authority (RWSA).

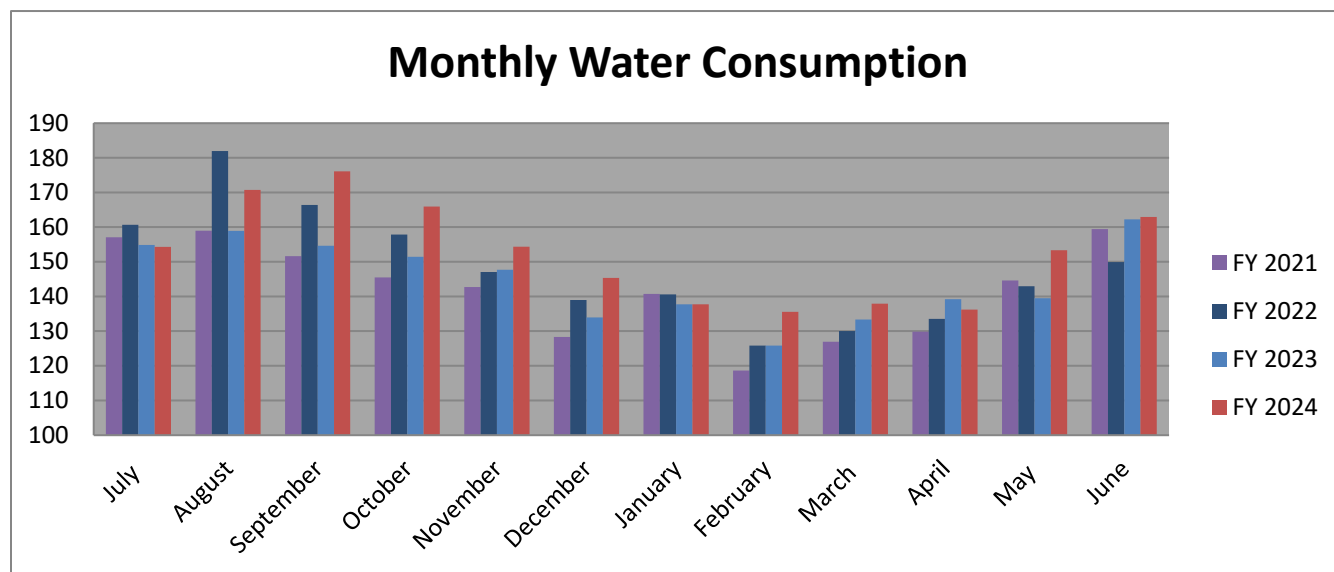
## Review of Operations

The Authority's water customer base grew to 22,640 accounts by the end of the 2024 fiscal year, an increase from the prior year total of 22,138. Considering multiple units behind master meters, as in apartment complexes, the Authority now serves approximately 37,266 housing units, businesses, industries, and institutions, which is an increase of 3.22%.

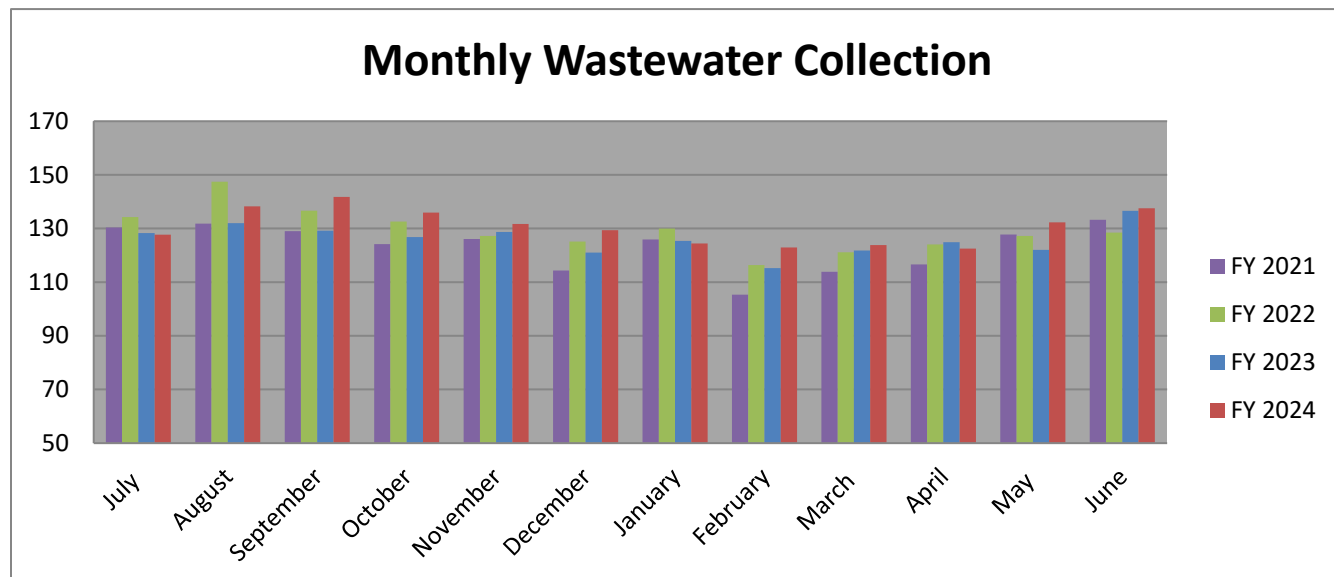
The Authority's system grew in water connections for 2024 with 502 new connections. The connections for 2024 are 11% higher than the Authority's ten-year average annual increase in new connections. Growth is attributable to the continued expansion of existing residential neighborhoods and continued commercial and multi-family development.



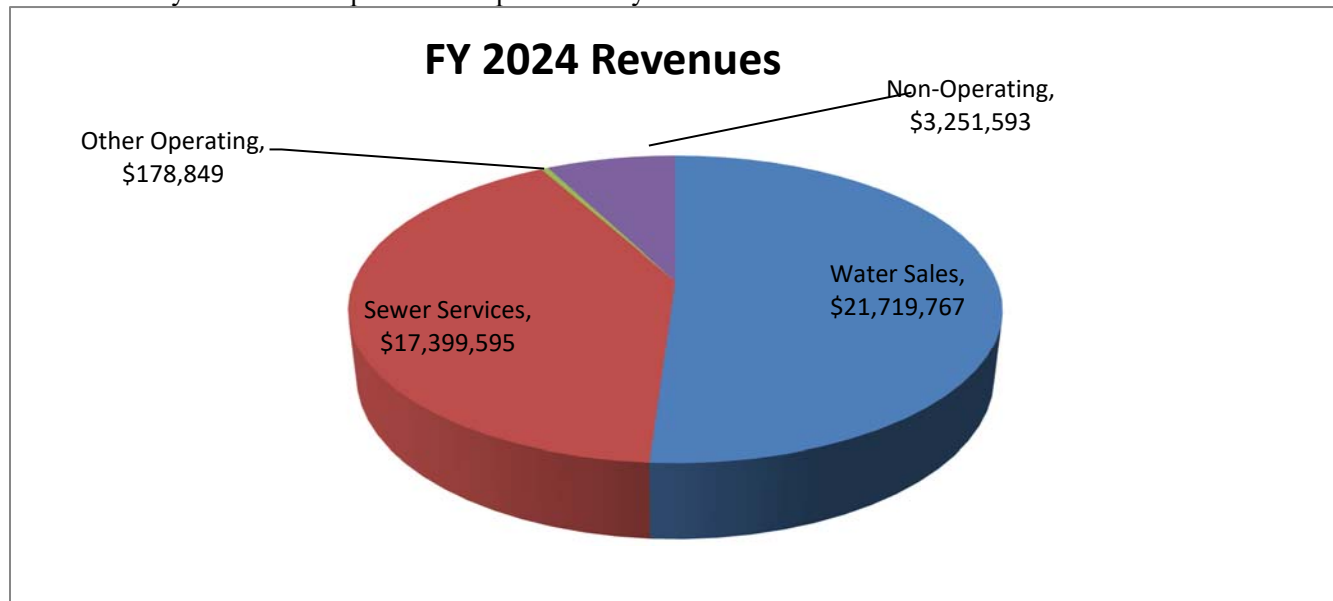
Billed water usage in fiscal year 2024 increased by 91 million gallons as compared to fiscal year 2023. Billed water usage in fiscal year 2024 was 1.83 billion gallons and was 5.23% more than billed water usage in fiscal year 2023 (1.74 billion gallons). Seasonal variations in water consumption can be seen in the chart below.



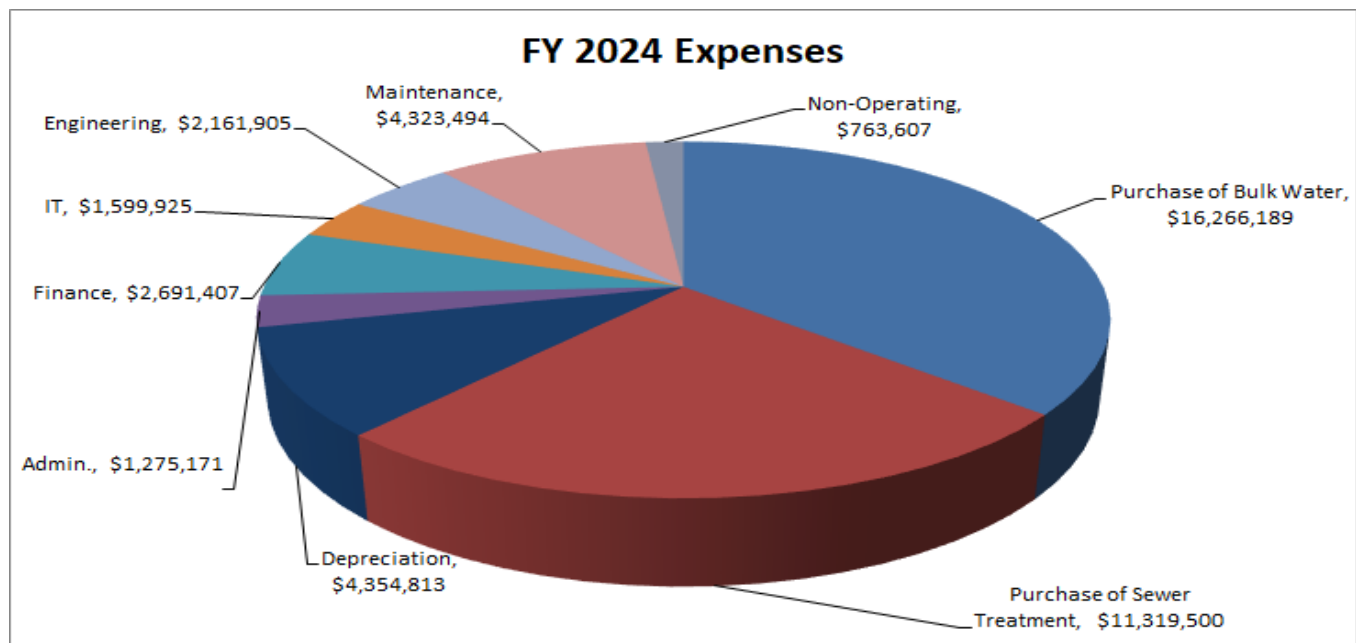
The Authority's wastewater customer base grew to 19,650 by the end of the fiscal year, up from 19,146 connections at the end of the fiscal year 2023. Billed wastewater collections increased by nearly 56 million gallons as compared to fiscal year 2023. Billed wastewater collections in fiscal year 2024 was 1.57 billion gallons and 3.7% more than billed wastewater collections in fiscal year 2023 (1.51 billion gallons). Seasonal variations in wastewater collections can be seen in the chart below.



**Revenues.** Revenues for fiscal year 2024 increased in comparison with fiscal year 2023. Total revenues for 2024 were \$42,549,804 as compared to \$35,777,894 in 2023, a 18.93% increase year to year. This increase is due largely to increases in water/sewer rates charged to customers, increases in consumption, and by investment gains in the current fiscal year when compared to the prior fiscal year.



**Expenses.** Total expenses for fiscal year 2024 were \$44,756,011 as compared to \$39,591,752 in 2023, a 13.04% increase, which was primarily due to increases in the cost of purchased water/wastewater treatment from the Rivanna Water and Sewer Authority and increases in departmental expenses. In 2024, the total cost of purchased water was \$16,266,189 which is 16.29% greater than the 2023 total of \$13,987,522. The total cost of sewer treatment in fiscal year 2024 was \$11,319,500, an increase of 10.95% in comparison to fiscal year 2023. These costs are based on a variety of factors and can vary significantly based upon Authority consumption for a given period and the Authority's proportional allocation of costs based on our flow in comparison to the Authority's water/wastewater treatment provider's other customer. The increases in RWSA expenses were largely driven by RWSA's cost allocation which is calculated using Authority and the City of Charlottesville billed consumption, continued investment in water/wastewater infrastructure, and operational cost increases.



## CAPITAL ASSET AND DEBT ADMINISTRATION

**Capital Assets.** The Authority's investment in capital assets as of June 30, 2024, amounted to \$185,136,870 (net of accumulated depreciation). This investment in capital assets includes land, structures and improvements, equipment, construction in progress, leased equipment, and subscription assets. The total increase in the Authority's investment in capital assets for the current fiscal year was 2.85%. Additional information related to capital assets can be located in Note 4.

### Capital Assets

	<u>2024</u>	<u>2023</u>
Land (including easements)	\$ 1,914,876	\$ 1,914,876
Structures and improvements	236,617,809	229,253,021
Equipment	6,532,254	6,416,934
Equipment - Leases	56,744	56,744
Subscription right-to-use	231,119	231,119
Construction in progress	<u>13,011,706</u>	<u>11,563,825</u>
Total book value	258,364,508	249,436,519
Less accumulated depreciation and amortization	<u>(73,227,638)</u>	<u>(69,429,659)</u>
Net capital assets	<u><u>\$ 185,136,870</u></u>	<u><u>\$ 180,006,860</u></u>

**Long-Term Debt.** Outstanding debt includes one Taxable Water and Sewer System Revenue Refunding Bond that was issued in August of 2021 (refunded the Water and Sewer System Revenue Bond (Taxable – Build America Bond) that was issued in November of 2010) for \$4,495,000. Revenue bond coverage, the ratio of gross revenues less direct operational expenses to debt service requirements, was 28.09 in fiscal year 2024. The minimum coverage required by outstanding bond indentures is 1.20. At June 30, 2024, outstanding long-term debt of the refunded bond, including the current amount payable, totaled \$3,390,000. Details of this indebtedness may be found in Note 5 of the financial statements. The refunding issuance resulted in a realized net budgetary savings of \$1,242,262.

## RESERVES

**Operating Reserve.** The Authority has established an operating reserve to provide funds for unplanned minor repairs or significant cash outlays. This type of reserve is also valuable when less than anticipated water consumption occurs, during unusually wet years (less outdoor watering occurs), which generally results in less revenue. As part of the budgeting process, a review of the reserve is performed. This reserve, combined with the 3R Reserve, the Capacity/System Development Reserve and unrestricted cash and investments is to maintain a day's cash on hand floor of 270 days of operating expenses as calculated from the previous fiscal year. Water and wastewater rates are to be set accordingly to ensure these reserves maintain this 270-day target.

**Capital Costs and 3R Reserve.** The Authority has established a Repair, Replacement and Rehabilitation (3R) Reserve to provide funds to pay for unexpected major repairs and planned replacement or rehabilitation of equipment or other major capital assets. This reserve is calculated based on the estimated useful life and replacement cost of equipment held by the Authority. For fiscal year 2024, the Authority budgeted \$401,000 for this purpose.

**Capacity and System Development Reserve.** The Authority has established a Capacity and System Development Reserve to provide funds for capacity or growth-related system development costs or charges. These reserves are funded by the RWSA Capacity Charge and the ACSA System Development Charge which have been designed to offset growth related capital costs of backbone capacity in the ACSA water and sewer system and costs associated with the RWSA's charges to the ACSA that are related to increases in capacity.

## **LONG-TERM TRENDS**

**Operations.** Careful planning and budgeting in combination with the use of established reserves has been a stabilizing factor in our rate-setting process for many years. This process has allowed our customers (through the years) to realize relatively low rates for the provision of their water and sewer service, particularly as compared to other regional utilities.

With new development, in combination with aging infrastructure, comes the challenge of meeting both the water supply and the sewer treatment needs and requirements of the growing Albemarle community. Since the Authority employs a "pay-as-you-go" methodology of recovering the costs of operations and most capital projects, increased costs will be passed on to our customers through higher rates and fees. Current customers bear the current cost of operations, while future customers, through new development, bear the cost of expansion through connection, development, and capacity fees.

The Authority team is actively engaged in the development of a long-term financial plan which will focus on financial sustainability and affordability for our customers while continuing to address infrastructure and operational needs.

**Capital Program.** Water capital improvement project cost projections per year for the next five years range from \$7,100,000 to \$9,900,000 and sewer capital improvement project cost projections per year for the next five years range from \$1,200,000 to \$5,900,000, and facility/non-utility capital project cost projections per year for the next five years range from \$100,000 - \$3,100,000. The Authority intends to fund these projects using established reserves while evaluating possible debt funding opportunities.

**Requests for Information.** This financial report is designed to provide a general overview of the Albemarle County Service Authority's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the Finance Department at 168 Spotnap Road, Charlottesville, Virginia 22911, through our website [www.serviceauthority.org](http://www.serviceauthority.org) or by telephone (434) 977-4511.

# **BASIC FINANCIAL STATEMENTS**

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**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**STATEMENT OF NET POSITION**  
**June 30, 2024**

Exhibit 1

	2024	(For Comparative Purposes Only) 2023
<b>ASSETS</b>		
<b>Current assets</b>		
Cash and cash equivalents (Note 2)	\$ 29,934,220	\$ 27,793,220
Accounts receivable (Note 3)	6,046,030	5,085,418
Lease receivable (Note 3)	18,418	18,418
Inventory	835,623	568,695
Prepays	346,047	277,101
Cash and cash equivalents, restricted (Notes 1,2)	758,057	742,363
Total current assets	37,938,395	34,485,215
<b>Noncurrent assets</b>		
Investments (Note 2)	31,405,020	29,800,672
Non-current lease receivable (Note 3)	27,742	43,439
Capital assets: (Note 4)		
Nondepreciable	14,926,582	13,478,701
Depreciable and amortizable, net	170,210,288	166,528,159
Total noncurrent assets	216,569,632	209,850,971
Total assets	254,508,027	244,336,186
<b>DEFERRED OUTFLOWS OF RESOURCES</b>		
Deferred charges on refunding	10,671	12,196
Deferred outflows related to pensions (Note 7)	1,019,374	1,025,324
Deferred outflows related to other postemployment benefits (Notes 8,9)	136,668	150,527
Total deferred outflows of resources	1,166,713	1,188,047
<b>LIABILITIES</b>		
<b>Current liabilities</b>		
Accounts payable	4,060,035	3,391,428
Accrued liabilities	21,582	20,569
Customer deposits	298,114	284,201
Interest payable	28,956	32,330
Compensated absences (Note 5)	100,884	102,838
Unearned revenues	3,511,903	1,952,788
Current maturities of long-term debt (Note 5)	605,544	582,929
Total current liabilities	8,627,018	6,367,083
<b>Long-term liabilities</b>		
Compensated absences (Note 5)	735,586	643,657
Net pension liability (Note 7)	3,030,688	2,454,029
Net other post-employment benefits liability (Notes 8,9)	1,088,723	1,244,519
Long-term debt – due in more than one year (Note 5)	3,582,778	4,188,322
Total long-term liabilities	8,437,775	8,530,527
Total liabilities	17,064,793	14,897,610
<b>DEFERRED INFLOWS OF RESOURCES</b>		
Deferred inflows related to pensions (Note 7)	294,420	560,286
Deferred inflows related to other postemployment benefits (Notes 8,9)	460,562	484,185
Deferred inflows - leases	44,148	60,482
Total deferred inflows of resources	799,130	1,104,953
<b>NET POSITION</b>		
Net investment in capital assets	178,591,470	175,247,805
Restricted for debt service	331,089	331,531
Unrestricted	58,888,258	53,942,334
Total net position	\$ 237,810,817	\$ 229,521,670

The Notes to Financial Statements are  
an integral part of this statement.

## Exhibit 2

## ALBEMARLE COUNTY SERVICE AUTHORITY

STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN FUND NET POSITION  
Year Ended June 30, 2024

	2024	(For Comparative Purposes Only) 2023
<b>OPERATING REVENUES</b>		
Water sales	\$ 21,719,767	\$ 18,720,236
Sewer service	17,399,595	15,332,086
Water and sewer connection fees	178,849	178,642
Total operating revenues	39,298,211	34,230,964
<b>OPERATING EXPENSES</b>		
Purchase of bulk water	16,266,189	13,987,522
Purchase of sewer treatment	11,319,500	10,202,217
Depreciation and amortization	4,354,813	4,305,017
Administration	1,275,171	1,275,340
Engineering	2,161,905	2,177,495
Finance	2,691,407	2,357,460
Information Technology	1,599,925	1,247,752
Maintenance	4,323,494	3,717,232
Total operating expenses	43,992,404	39,270,035
Operating loss	(4,694,193)	(5,039,071)
<b>NONOPERATING REVENUES (EXPENSES)</b>		
Miscellaneous revenues	424,691	409,305
Federal Grant Revenue - CARES Act/ARPA	-	36,465
Lease Revenue - GASB 87	16,334	16,036
Lease/Subscription interest expense	(4,421)	(6,521)
Investment income	2,810,568	1,084,854
Rental income	-	270
Miscellaneous expenses	(676,936)	(213,043)
Bond interest charges	(82,250)	(102,153)
Total nonoperating revenues (expenses)	2,487,986	1,225,213
Loss before capital contributions	(2,206,207)	(3,813,858)
<b>CAPITAL CONTRIBUTIONS (Note 6)</b>	10,495,354	13,246,309
Change in net position	8,289,147	9,432,451
<b>NET POSITION – BEGINNING AT JULY 1</b>	229,521,670	220,089,219
<b>NET POSITION – ENDING AT JUNE 30</b>	\$ 237,810,817	\$ 229,521,670

## Exhibit 3

## ALBEMARLE COUNTY SERVICE AUTHORITY

STATEMENT OF CASH FLOWS  
Year Ended June 30, 2024

	2024	(For Comparative Purposes Only) 2023
<b>OPERATING ACTIVITIES</b>		
Cash received from customers	\$ 38,220,407	\$ 33,952,047
Cash paid for goods and services	(32,746,840)	(26,542,760)
Cash paid to employees	(8,353,476)	(7,914,547)
Other receipts	423,433	473,888
Net cash (used in) operating activities	(2,456,476)	(31,372)
<b>NON-CAPITAL FINANCING ACTIVITIES</b>		
Federal Grant, CARES Act/ARPA	-	36,465
Net cash provided by non-capital financing activities	-	36,465
<b>CAPITAL AND RELATED FINANCING ACTIVITIES</b>		
Capital contributed by developers, customers, and local governments	11,347,105	11,525,488
Principal collected on leases	15,697	14,661
Acquisition of capital assets	(7,308,224)	(6,259,627)
Principal paid on long-term borrowings	(483,169)	(460,630)
Interest paid on long-term borrowings	(192,701)	(216,634)
Proceeds from sale of capital assets	28,242	34,873
Net cash provided by capital and related financing activities	3,406,950	4,638,131
<b>INVESTING ACTIVITIES</b>		
Purchase of investment securities	(23,717,083)	(18,332,309)
Proceeds from sale and maturity of investment securities	22,624,274	17,605,485
Lease income	-	16,334
Interest received	2,299,029	1,402,617
Net cash provided by investing activities	1,206,220	692,127
Net increase in cash and cash equivalents	2,156,694	5,335,351
<b>CASH AND CASH EQUIVALENTS</b>		
Beginning at July 1	28,535,583	23,200,232
Ending at June 30	\$ 30,692,277	\$ 28,535,583
<b>RECONCILIATION TO STATEMENT OF NET POSITION</b>		
Cash and cash equivalents	\$ 29,934,220	\$ 27,793,220
Cash and cash equivalents, restricted	758,057	742,363
	\$ 30,692,277	\$ 28,535,583

(Continued)

## Exhibit 3

## ALBEMARLE COUNTY SERVICE AUTHORITY

STATEMENT OF CASH FLOWS  
Year Ended June 30, 2024

	2024	(For Comparative Purposes Only) 2023
<b>RECONCILIATION OF OPERATING LOSS TO NET CASH USED IN OPERATING ACTIVITIES</b>		
Operating loss	\$ (4,694,193)	\$ (5,039,071)
Adjustments to reconcile operating loss to net cash used in operating activities:		
Depreciation	4,354,813	4,305,017
Excess of employer contributions over pension expense	316,743	118,022
Excess of employer contributions over other postemployment benefits expense	(165,560)	(96,834)
Other nonoperating revenues/expenses	349,462	262,038
Change in assets and liabilities:		
(Increase) decrease in:		
Accounts receivable	(960,612)	(339,049)
Inventory	(266,928)	(22,639)
Prepays	(68,946)	(12,134)
Increase (decrease) in:		
Accounts payable	(1,295,051)	822,123
Accrued liabilities	1,013	(72,003)
Customer deposits	13,913	42,385
Compensated absences	89,975	(16,974)
Unearned connection fees	(131,105)	17,747
Net cash used in operating activities	<u>\$ (2,456,476)</u>	<u>\$ (31,372)</u>
<b>NONCASH CAPITAL, INVESTING AND RELATED FINANCING ACTIVITIES</b>		
Contributions of capital assets	<u>\$ 842,890</u>	<u>\$ 1,257,374</u>
Lease and subscription assets financed through long term liability	<u>\$ -</u>	<u>\$ 287,863</u>
Capital asset additions financed by accounts payable	<u>\$ 2,367,749</u>	<u>\$ 404,091</u>
Increase (decrease) in fair value of investments	<u>\$ 511,539</u>	<u>\$ (317,763)</u>

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 1. Summary of Significant Accounting Policies**

**(a) Reporting Entity**

The Albemarle County Service Authority (the Authority) was created by a resolution of the Board of Supervisors (BOS) of Albemarle County, Virginia (the County) in April 1964. The Authority is chartered by the State Corporation Commission and is an independent public body responsible for undertaking projects as may be specified for the distribution and sale of potable water to retail customers and for the collection of wastewater from retail customers and delivery of such wastewater to the Rivanna Water and Sewer Authority (RWSA). The management of the Authority is vested in a board of six members appointed by the County's BOS.

To determine the appropriate reporting entity for the Authority, its relationship with the County was considered. Although the members of the Authority's Board of Directors are appointed by the Board of County Supervisors, the County is not financially accountable for the Authority. In addition, there is no potential for the Authority to provide specific financial benefits to, or impose specific financial burdens on, the County, and the Authority is not fiscally dependent on the County. Accordingly, based on these criteria, the Authority is not included as a component unit in the County's financial statements.

The following is a summary of the Authority's significant accounting policies:

**(b) Basis of Presentation and Accounting**

The accounting policies of the Authority conform to accounting principles generally accepted in the United States of America as applicable to enterprise funds of governmental units. An enterprise fund is a proprietary-type fund used to account for operations that are financed and operated in a manner similar to private business enterprises. The Authority's intent is that the costs of providing goods or services to customers on a continuing basis be financed or recovered primarily through user charges. Periodic determination of revenues earned, expenses incurred, and/or changes in net position is appropriate for capital maintenance, public policy, management control and accountability.

The Authority follows the accrual basis of accounting. Under this basis of accounting, revenue is recognized when earned and expenses are recorded when incurred. Operating revenues and expenses consist of those revenues and expenses that result from the ongoing principal operations of the Authority. Operating revenues consist primarily of charges for water consumption and wastewater treatment. Operating expenses consist of bulk water purchases, sewer treatment, administrative expenses, and depreciation of capital assets. Non-operating revenues and expenses consist of those revenues and expenses that are related to financing and investing type activities and result from non-exchange transactions or ancillary services.

When an expense is incurred for purposes in which both restricted and unrestricted net assets are available, it is the Authority's policy to first apply restricted resources.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 1. Summary of Significant Accounting Policies (Continued)**

**(c) Cash and Investments**

Cash and temporary investments include amounts in demand deposits as well as short-term investments with an original maturity of three months or less.

Restricted cash and temporary investments include amounts held in money market funds as well as short-term investments with an original maturity of three months or less. These amounts consist of reserves for debt service and deposits from customers for service.

Investments include United States government, agency obligations of the Commonwealth of Virginia and its subdivisions, municipal bonds, and commercial paper. All investments are stated at fair value. Interest income from investments is recorded in the year earned.

**(d) Fair Value Measurements**

The Authority categorizes its fair value measurements within the fair value hierarchy established by generally accepted accounting principles. The hierarchy is based on the valuation inputs used to measure the fair value of the asset and are described as follows:

- Level 1 inputs are quoted prices in active markets for identical assets.
- Level 2 inputs are significant other observable inputs.
- Level 3 inputs are significant unobservable inputs.

**(e) Accounts Receivable**

All continuing service receivables are recognized when earned, net of an allowance for uncollectible accounts of \$50,000 at June 30, 2024.

An estimated amount has been recorded for services rendered but not yet billed as of the close of the fiscal year.

**(f) Inventory**

Inventory is valued using the weighted-average method. Inventories are recorded as an operating expense when consumed rather than when purchased.

**(g) Restricted Assets**

Restricted assets represent resources designated for specific purposes and include developers' advances and customer deposits.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 1. Summary of Significant Accounting Policies (Continued)**

**(h) Capital Assets**

The Authority capitalizes all property and permanent right-of-way easements, equipment, infrastructure assets, leases, and subscription assets with a cost greater than \$5,000 and an estimated useful life of more than one year.

Capital assets are stated at historical cost. Donated assets are recorded at acquisition value at the time received. Expenses for repairs and upgrading which materially add to the value or life of an asset are capitalized. Other maintenance and repair costs are expensed as incurred.

Depreciation and amortization for both purchased and contributed assets is recorded as depreciation and amortization expense on a straight-line basis over the following estimated useful lives:

Land improvements	10-20 years
Structures and improvements	10-60 years
Equipment	3-10 years

Intangible right of use leased assets are amortized over the shorter of the lease term or useful life of the underlying asset using the straight-line method. In leases where a purchase option is reasonably certain of being exercised, the asset is amortized over the useful life, unless the underlying asset is non-depreciable, in which the intangible right of use leased asset is not amortized.

Intangible right of use subscription assets are recorded under GASB Statement No. 96 *Subscription-Based Information Technology Arrangements (SBITAs)*, net of accumulated amortization. SBITAs are amortized over the shorter of the subscription term or the useful life of the underlying IT asset.

Capital assets, which include lease and subscription assets, are reported in the financial statements.

**(i) Construction in Progress**

Construction in progress includes design and construction costs that accumulate until completion of the respective project, at which time the total cost is transferred to depreciable capital assets.

**(j) Compensated Absences**

Authority employees are granted annual leave in varying amounts based on years of service. In the event of termination, an employee is reimbursed for accumulated annual leave in full. Annual leave is considered a liability and is accrued as earned. The Authority does not accrue sick pay when earned since its employees do not have vested rights to receive such pay except to the extent of time not worked due to sickness.

**ALBEMARLE COUNTY SERVICE AUTHORITY  
NOTES TO FINANCIAL STATEMENTS  
JUNE 30, 2024**

**Note 1. Summary of Significant Accounting Policies (Continued)**

**(k) Unearned Revenues**

Unearned connection fees consist of advances to the Authority under prescribed conditions by developers in exchange for credit vouchers to be used to pay facility fees (both water and sewer) in order to connect to the Authority's system. The Authority recognizes the revenue when the credit voucher is redeemed. Also included in unearned revenues are over payments by customers that will be recognized as revenue as charges for water/sewer treatment are incurred.

**(l) Deferred outflows/inflows of resources**

In addition to assets, the statement that presents net position reports a separate section for deferred outflows of resources. These items represent a consumption of net assets that applies to future periods and so will *not* be recognized as an outflow of resources (expense) until then.

In addition to liabilities, the statement that presents financial position reports a separate section for deferred inflows of resources. These items represent an acquisition of net assets that applies to future periods and so will not be recognized as an inflow of resources (revenue) until that time.

The Authority has the following items that qualify for reporting as deferred inflows or outflows:

- Contributions subsequent to the measurement date for pensions and OPEB are always a deferred outflow; this will be applied to the net pension or OPEB liability in the next fiscal year.
- Differences between expected and actual experience for economic/demographic factors and changes of assumptions in the measurement of the total pension or OPEB liability. This difference will be recognized in pension or OPEB expense over the expected average remaining service life of all employees provided with benefits in the plan and may be reported as a deferred inflow or outflow as appropriate.
- Difference between projected and actual earnings on pension and OPEB plan investments. This difference will be recognized in pension or OPEB expense over the closed five-year period and may be reported as a deferred outflow or inflow as appropriate.
- Changes in proportionate share that will be recognized in the OPEB expense over the average expected remaining service lives of all employees provided with benefits. This may be reported as a deferred outflow or deferred inflow as appropriate.
- Lease-related amounts are recognized at the inception of leases in which the Authority is lessor. The deferred inflow of resources is recorded in an amount equal to the corresponding lease receivable plus certain additional amounts received from the lessee at or before commencement of the lease term that relates to future periods, less any lease incentives paid to on behalf of, the lessee at or before the commencement of the lease term. The inflow of resources is recognized in a systematic and rational manner over the term of the lease.



**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 1. Summary of Significant Accounting Policies (Continued)**

**(m) Pensions and Other Postemployment Benefits (OPEB)**

For purposes of measuring all financial statement elements related to pensions and OPEB plans information about the fiduciary net position of the Authority's Retirement Plan and the additions to/deductions from the Authority's Plans net fiduciary position have been determined on the same basis as they were reported by the Virginia Retirement System (VRS). For this purpose, benefit payments (including refunds of employee contributions) are recognized when due and payable in accordance with the benefit terms. Investments are reported at fair value.

**(n) Net Position**

Net position is the difference between assets and deferred outflows of resources and liabilities and deferred inflows of resources. Net investment in capital assets represents capital assets, less accumulated depreciation, less any outstanding debt related to the acquisition, construction, or improvement of those assets. Net investment in capital assets excludes unspent debt proceeds. Net position is reported as restricted when there are limitations imposed on its use either through the enabling legislation adopted by the Authority or through external restrictions imposed by creditors, grantors, or laws or regulations of other governments.

**(o) Capital Contributions**

Capital contributions are recorded for the receipt of funds, property, lines and improvements by developers, customers, or other governments.

**(p) Comparative Information**

The basic financial statements include certain prior year summarized comparative information in total, but not at the level of detail required for a presentation in conformity with generally accepted accounting principles. Accordingly, such information should be read in conjunction with the Authority's financial statements for the prior year from which the summarized information was derived.

**(q) Estimates**

The preparation of the financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, the disclosure of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

**ALBEMARLE COUNTY SERVICE AUTHORITY  
NOTES TO FINANCIAL STATEMENTS  
JUNE 30, 2024**

**Note 1. Summary of Significant Accounting Policies (Continued)**

**(r) Accounting Pronouncements**

In June 2022, the GASB issued **Statement No. 101**, *Compensated Absences*. This statement updates the recognition and measurement guidance for compensated absences and amends certain previously required disclosures. The requirements of this Statement are effective for reporting periods beginning after December 15, 2023.

In December 2023, the GASB issued **Statement No. 102**, *Certain Risk Disclosures*. This statement defines and requires governments to disclose the risks related to concentrations of inflows or outflows of resources. The requirements of this Statement are effective for reporting periods beginning after June 15, 2024.

In April 2024, the GASB issued **Statement No. 103**, *Financial Reporting Model Improvements*. This statement improves key components of the financial reporting model to enhance its effectiveness in providing information that is essential for decision making and assessing a government's accountability as well as addresses certain application issues. The requirements of this Statement are effective for reporting periods beginning after June 15, 2025.

Management has not determined the effects these new GASB Statements may have on prospective financial statements.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 2. Deposits and Investments**

**Deposits**

Deposits with banks are covered by the Federal Deposit Insurance Corporation (FDIC) and collateralized in accordance with the Virginia Security for Public Deposits Act (the “Act”) Section 2.2-4400 et. seq. of the *Code of Virginia*. Under the Act, banks and savings institutions holding public deposits in excess of the amount insured by the FDIC must pledge collateral to the Commonwealth of Virginia Treasury Board. Financial institutions may choose between two collateralization methodologies and depending upon that choice, will pledge collateral that ranges in the amounts from 50% to 130% of excess deposits. Accordingly, all deposits are considered fully collateralized.

**Investments**

Statutes authorize local governments and other public bodies to invest in obligations of the United States or agencies thereof, obligations of the Commonwealth of Virginia or political subdivisions thereof, obligations of the International Bank for Reconstruction and Development (World Bank), the Asian Development Bank, the African Development Bank, “prime quality” commercial paper and certain corporate notes, banker’s acceptances, repurchase agreements, and the State Treasurer’s Local Government Investment Pool (LGIP).

The fair value of the position in LGIP is the same as the value of the pool shares. As the pool is not SEC registered, regulatory oversight of the pool rests with the Virginia State Treasury. LGIP maintains a policy to operate in a manner consistent with GASB Statement No. 79. Due to the nature of LGIP, it is considered a cash and cash equivalent on the Statement of Net Position.

The Authority’s investments are subject to interest rate, credit, concentration of credit, and custodial credit risk as described herein.

The Authority has recurring fair value measurements as of June 30, 2024. Those include U. S. Bonds, Municipal Notes, and Commercial Paper classified in Level 2 of the fair value hierarchy and valued using prices quoted in active markets for those bonds.

**Interest rate risk:** Interest rate risk is the risk that the fair value of the securities in the portfolio will decline due to rising interest rates. Investments are limited to a maximum maturity of five (5) years from the transaction settlement date (with the exception of Agency Mortgage-Backed Securities (“MBS”) which must have a weighted average life (“WAL”) of no more than five (5) years). To manage the volatility of the Investment Portfolio, the Director of Finance shall determine an appropriate duration or weighted average maturity (“WAM”) target for each component of the Investment Portfolio. At no time shall the duration or WAM of any component of the Investment Portfolio exceed three (3) years.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 2. Deposits and Investments (Continued)**

**Credit risk:** Credit risk is the risk of loss due to the failure of the security issuer or backer to repay its obligations and may also apply where there is a loss of fair value of the investment due to a deterioration of an issuer's credit rating.

**Concentration of credit risk:** Concentration of credit risk is the risk of loss attributed to the magnitude of investments held from a single issuer. The Authority's investment portfolio as of June 30, 2024, is concentrated in securities issued by the U.S. Treasury (40.5%), Federal Agencies (2.9%), Federal Agency Mortgage-Backed Securities (1%), Federal Agency Collateralized Mortgage Obligations (0.4%), Federal Agency Commercial Mortgage-Backed Security (13.3%), Supranational (2.1%), Municipal Notes (1.2%), Commercial Paper (11.5%), Certificate of Deposit (11.4%), Corporate Note (15.5%) and Money Market (0.2%).

The table below details the fair value and rating as determined by Standard & Poor's for each issuer of the Authority's investments as well as deposits, as of June 30, 2024:

<b>Deposits and Investments</b>							
	<u>AAA</u>	<u>A-1+/A-1</u>	<u>AA+/A+</u>	<u>AA/AA-</u>	<u>AAAm</u>	<u>Deposits</u>	<u>Total</u>
U.S. Treasury	\$ -	\$ -	\$ 12,758,506	\$ -	\$ -	-	\$ 12,758,506
Lcl Gov Inv Pool	-	-	-	-	20,980,282	-	20,980,282
Fed Agency	-	-	898,418	-	-	-	898,418
Fed Agency MBS	-	-	317,881	-	-	-	317,881
Fed Agency CMO	-	-	117,791	-	-	-	117,791
Fed Agency CM-BS	-	-	4,185,174	-	-	-	4,185,174
Supranatural	658,113	-	-	-	-	-	658,113
Municipal	-	-	304,106	80,661	-	-	384,767
Commercial Paper	-	3,613,662	-	-	-	-	3,613,662
Cert of Deposit	-	3,150,042	-	428,888	-	-	3,578,930
Corporate Note	-	-	1,882,208	3,009,570	-	-	4,891,778
Money Mkt Fund	-	-	-	-	67,555	-	67,555
Cash	-	-	-	-	-	9,644,440	9,644,440
Total Cash and Investments	<u>\$ 658,113</u>	<u>\$ 6,763,704</u>	<u>\$ 20,464,084</u>	<u>\$ 3,519,119</u>	<u>\$ 21,047,837</u>	<u>\$ 9,644,440</u>	<u>\$ 62,097,297</u>

Reconciliation of deposits and investments to Exhibit 1:

Cash and cash equivalents, unrestricted	\$ 29,934,220
Cash and cash equivalents, restricted	758,057
Investments	31,405,020
Total Deposits and Investments:	<u>\$ 62,097,297</u>

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 2. Deposits and Investments (Continued)**

	<b>Investment Maturities</b>					
	<b><u>1 Year</u></b>	<b><u>2 Years</u></b>	<b><u>3 Years</u></b>	<b><u>4 Years</u></b>	<b><u>5 Years</u></b>	<b><u>&gt;5 Years</u></b>
U.S. Treasury	\$ 2,975,540	\$ 3,960,974	\$ 5,821,992	-	-	-
Fed Agency	295,810	299,528	303,080	-	-	-
Fed Agency MBS	-	-	-	-	69,169	248,712
Fed Agency CMO	117,791	-	-	-	-	-
Fed Agency CM-BS	943,748	880,993	1,234,838	930,552	124,325	70,718
Supranatural	-	267,666	390,447	-	-	-
Municipal	-	80,661	304,106	-	-	-
Commercial Paper	3,613,662	-	-	-	-	-
Cert of Deposit	3,150,042	428,888	-	-	-	-
Corporate Note	295,328	3,243,788	809,115	543,547	-	-
Money Market/LGIP	<u>21,047,837</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>-</u>
Total Investments	<u>\$ 32,439,758</u>	<u>\$ 9,162,498</u>	<u>\$ 8,863,578</u>	<u>\$ 1,474,099</u>	<u>\$ 193,494</u>	<u>\$ 319,430</u>

**Custodial credit risk:** Custodial credit risk is the risk that the Authority will not be able to recover the value of its investments or collateral securities that are in the possession of an outside custodial party. All securities purchased by the Authority are held in safekeeping by a third-party custodial bank or institution in the Authority's name, and therefore, the Authority is not exposed to custodial credit risk.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 3. Accounts and Leases Receivable**

Accounts receivable net of allowance consists of the following:

	<u>Billed</u>	<u>Unbilled</u>	<u>Total</u>
Receivables, current:			
Water	\$ 1,671,085	\$ 1,554,330	\$ 3,225,415
Sewer	1,335,734	1,068,786	2,404,520
Other	416,095	-	416,095
	<u>\$ 3,422,914</u>	<u>\$ 2,623,116</u>	<u>\$ 6,046,030</u>

An allowance for doubtful accounts has been established at June 30, 2024, to recognize estimates related to bad debt. For Fiscal Year 2024 and 2023, the allowance for doubtful accounts totals \$50,000.

The Authority is a lessor for the use agreement with American Tower. This agreement will expire on March 13, 2027. An initial lease receivable was recorded in the amount of \$76,518. As of June 30, 2024, the value of the lease receivable is \$46,160. The lessee is required to make monthly fixed payments of \$1,535. The lease has an interest rate of 5%. The value of the deferred inflow of resources as of June 30, 2024, was \$44,148.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 4. Capital Assets**

Changes in capital assets for the year are as follows:

	<b>Balance July 1, 2023</b>	<b>Additions</b>	<b>Reductions/ Reclassifications</b>	<b>Balance June 30, 2024</b>
Capital assets, not being depreciated				
Land and land rights	\$ 1,914,876	\$ -	\$ -	\$ 1,914,876
Construction in progress	11,563,825	8,971,521	(7,523,640)	13,011,706
Total capital assets, not being depreciated	13,478,701	8,971,521	(7,523,640)	14,926,582
Capital/intangible assets being depreciated and amortized				
Structures and improvements	229,253,021	8,353,490	(988,702)	236,617,809
Equipment	6,416,934	313,401	(198,081)	6,532,254
Equipment-leases	56,744	-	-	56,744
Subscription right-to-use assets	231,119	-	-	231,119
Total capital/intangible assets being depreciated	235,957,818	8,666,891	(1,186,783)	243,437,926
Less accumulated depreciation and amortization for:				
Structures and improvements	(64,973,515)	(3,886,731)	359,864	(68,500,382)
Equipment	(4,379,504)	(391,442)	196,970	(4,573,976)
Equipment-lease	(15,008)	(15,008)	-	(30,016)
Subscription right-to-use assets	(61,632)	(61,632)	-	(123,264)
Total accumulated depreciation/amortization	(69,429,659)	(4,354,813)	556,834	(73,227,638)
Total capital assets being depreciated/amortization, net	166,528,159	4,312,078	(629,949)	170,210,288
Total capital assets, net	<u>\$ 180,006,860</u>	<u>\$ 13,283,599</u>	<u>\$ (8,153,589)</u>	<u>\$ 185,136,870</u>

**Construction commitments:**

The Authority's active construction projects as of June 30, 2024, are as follows:

<b>Project</b>	<b>Spent-to-Date</b>	<b>Remaining Commitment</b>
Water line replacements	\$ 2,846,883	\$ 5,156,572
Wastewater line rehabilitations or relinings	26,855	57,803
Other	1,134,063	100,463
	<u>\$ 4,007,801</u>	<u>\$ 5,314,838</u>

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 5. Long-Term Liabilities**

Long-term liability activity for the year ended June 30, 2024, was as follows:

	<b>Balance July 1, 2023</b>	<b>Additions</b>	<b>Reductions</b>	<b>Balance June 30, 2024</b>	<b>Amounts Due Within One Year</b>
Refunding Bond	\$3,785,000	\$ -	\$(395,000)	\$3,390,000	\$415,000
Issuance Premiums	798,080	-	(99,760)	698,320	99,760
Lease Equipment	38,783	-	(14,505)	24,278	15,060
Subscription Liability	149,388	-	(73,664)	75,724	75,724
Compensated Absences	746,495	525,385	(435,410)	836,470	100,884
	<u>\$ 5,517,746</u>	<u>\$ 525,385</u>	<u>\$ (1,018,339)</u>	<u>\$ 5,024,792</u>	<u>\$ 706,428</u>

A single revenue bond for \$10,357,000 was issued as a Build America Bond (BAB) on November 1, 2010. Proceeds from the sale were used to (1) provide new money funding for the North Fork Regional Pump Station project and to (2) pay the cost of issuance. This issuance was refunded on July 21, 2021, through the Virginia Resources Authority (VRA) and its 2021B Pooled Bond issuance. All water and sewer revenues are pledged equally and ratably to secure payment of the principal and interest on the revenue bond. This Bond bears interest at the rate of 5.125%, payable semiannually.

The revenue bond, equipment lease, and subscription liability debt service requirements to maturity are as follows:

<b>Fiscal Year Ending June 30,</b>	<b>Revenue Bond</b>		<b>Leases</b>		<b>Subscription</b>	
	<b>Principal</b>	<b>Interest</b>	<b>Principal</b>	<b>Interest</b>	<b>Principal</b>	<b>Interest</b>
2025	\$ 415,000	\$ 163,103	\$ 15,060	\$ 143	\$ 75,724	\$ 2,117
2026	435,000	141,322	9,218	53	-	-
2027	460,000	118,388	-	-	-	-
2028	480,000	94,300	-	-	-	-
2029	505,000	69,059	-	-	-	-
2030-2031	1,095,000	56,759	-	-	-	-
	<u>\$ 3,390,000</u>	<u>\$ 642,931</u>	<u>\$ 24,278</u>	<u>\$ 196</u>	<u>\$ 75,724</u>	<u>\$ 2,117</u>

**Lease Liability:**

**VA Carrol Creek CCI 801475 – Tower Site**

The Authority is the lessee for land use at VA Carroll Creek CCI 801475. An initial lease liability was recorded in the amount of \$21,502. As of June 30, 2024, the value of the lease liability is \$8,899. The Authority is required to make fixed monthly payments of \$500 through October 31, 2025, which increases by 4% each year. The Authority uses their incremental borrowing rate to measure their lease liability.



**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
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**Note 5. Long-Term Liabilities – Lease Liability (Continued)**

**Norfolk Southern – Tower Site**

The Authority is the lessee for land use at Norfolk Southern. An initial lease liability was recorded in the amount of \$26,024. As of June 30, 2024, the value of the lease liability is \$13,622. The Authority is required to make a fixed annual payment of \$6,490 through November 26, 2026. The Authority uses their incremental borrowing rate to measure their lease liability.

**Pitney Bowes**

The Authority is the lessee for the use of a Pitney Bowes Postage & Mailing Machine. An initial lease liability was recorded in the amount of \$5,227. As of June 30, 2024, the value of the lease liability is \$1,757. The Authority is required to make fixed quarterly payments of \$442 through July 14, 2025. The Authority uses their incremental borrowing rate to measure their lease liability.

**Subscription Liability:**

The Authority has a subscription liability for a software platform expiring in 2026. The value of the right-to-use subscription asset and related accumulated amortization as of year-end is disclosed in Note 4. The related debt, as well as principal and interest requirements to maturity are disclosed in this note. The Authority uses its estimated incremental borrowing rate as the discount rate for subscriptions.

**Debt covenants and Federal arbitrage regulations:**

The Authority is required to deliver to the Trustee for deposit both interest and principal amounts as prescribed in the Agreement of Trust. The Authority is in compliance with these covenants.

The Authority is required to adhere to the rebate and reporting requirements of the federal tax code pertaining to arbitrage. The Authority is in compliance with federal arbitrage regulations. Any potential liabilities arising from arbitrage have been deemed immaterial in relation to the financial statements.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
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**Note 6. Capital Contributions**

Capital contributions for the year are summarized as follows:

Developer and customer contributions of capital assets	\$ 842,890
Crozet water and sewer – System/capacity fees	2,908,615
Urban water and sewer – System/capacity fees	6,499,163
Scottsville water and sewer – System/capacity fees	72,450
North Fork Regional Pump Station -- Special rate district fee	<u>172,236</u>
	<u><u>\$ 10,495,354</u></u>

**Note 7. Defined Benefit Pension Plan**

**Plan Description**

All full-time, salaried permanent employees of Albemarle County Service Authority, (the “Political Subdivision”) are automatically covered by VRS Retirement Plan upon employment. This multi-employer agent plan is administered by the Virginia Retirement System (“VRS” or the “System”) along with plans for other employer groups in the Commonwealth of Virginia. Members earn one month of service credit for each month they are employed and for which they and their employer pay contributions to VRS. Members are eligible to purchase prior service, based on specific criteria as defined in the *Code of Virginia*, as amended. Eligible prior service that may be purchased includes prior public service, active military service, certain periods of leave, and previously refunded service.

The System administers three different benefit structures for covered employees – Plan 1, Plan 2, and Hybrid. Each of these benefits structures has different eligibility criteria. The specific information for each plan and the eligibility for covered groups within each plan are available at:

- <https://www.varetire.org/retirement-plans/defined-benefit/plan1/>
- <https://www.varetire.org/retirement-plans/defined-benefit/plan2/>
- <https://www.varetirement.org/hybrid.html> .

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
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**Note 7. Defined Benefit Pension Plan (Continued)**

**Employees Covered by Benefit Terms**

As of the June 30, 2022, actuarial valuation, the following employees were covered by the benefit terms of the pension plan:

	<u><b>Number</b></u>
Inactive members or their beneficiaries currently receiving benefits	<u>39</u>
Inactive members:	
Vested inactive members	13
Non-vested inactive members	27
Inactive members active elsewhere in VRS	<u>15</u>
Total inactive members	94
Active members	<u>77</u>
Total covered employees	<u><u>171</u></u>

**Contributions**

The contribution requirement for active employees is governed by §51.1-145 of the *Code of Virginia*, as amended, but may be impacted as a result of funding options provided to Political Subdivisions by the Virginia General Assembly. Employees are required to contribute 5.00% of their compensation toward their retirement.

The Political Subdivision's contractually required contribution rate for the year ended June 30, 2024, was 7.50% of covered employee compensation. This rate was based on an actuarially determined rate from an actuarial valuation as of June 30, 2021. The actuarial rate for the Political Subdivision's plan was 7.50%

This rate, when combined with employee contributions, was expected to finance the costs of benefits earned by employees during the year, with an additional amount to finance any unfunded accrued liability. Contributions to the pension plan from the Political Subdivision were \$429,651 and \$404,845 for the years ended June 30, 2024, and June 30, 2023, respectively.

**Net Pension Liability**

The net pension liability is calculated separately for each employer and represents that particular employer's total pension liability determined in accordance with GASB Statement No. 68, less that employer's fiduciary net position. For Political Subdivisions, the net pension liability was measured as of June 30, 2023. The total pension liability used to calculate the net pension liability was determined by an actuarial valuation performed as of June 30, 2022, rolled forward to the measurement date of June 30, 2023.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
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**Note 7. Defined Benefit Pension Plan (Continued)**

**Actuarial Assumptions**

The total pension liability for General Employees in the Political Subdivision's Retirement Plan was based on an actuarial valuation as of June 30, 2022, using the Entry Age Normal actuarial cost method and the following assumptions, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2023.

Inflation	2.50%
Salary increases, including inflation	3.50 – 5.35%
Investment rate of return	6.75%, net of pension plan investment expense, including inflation

Mortality rates: General employees – 15% to 20% of deaths are assumed to be service related. Mortality is projected using the applicable Pub-2010 Mortality Table with various setbacks or set forwards for both males and females.

The actuarial assumptions used in the June 30, 2022, valuation was based on the results of an actuarial experience study for the period from July 1, 2016, through June 30, 2020, except the change in the discount rate, which was based on VRS Board action effective as of July 1, 2021. Changes to the actuarial assumptions as a result of the experience study are as follows:

General Employees - Largest 10 – Non-Hazardous Duty and all Others (Non 10 Largest): Updated mortality table; adjusted retirement rates to better fit experience, adjusted withdrawal rates to better fit experience at each year age and service through 9 years of service; no change to disability rates; no change to salary scale, and no change to discount rate.

**Long-Term Expected Rate of Return**

The long-term expected rate of return on pension System investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of pension System investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
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**Note 7. Defined Benefit Pension Plan (Continued)**

**Long-Term Expected Rate of Return (Continued)**

The target asset allocation and best estimate of arithmetic real rates of return for each major asset class are summarized in the following table:

<u>Asset Class (Strategy)</u>	<u>Target Allocation</u>	<u>Arithmetic Long-Term Expected Rate of Return</u>	<u>Weighted Average Long-Term Expected Rate of Return</u>
Public Equity	34.00 %	6.14 %	2.09 %
Fixed Income	15.00	2.56	0.38
Credit Strategies	14.00	5.60	0.78
Real Assets	14.00	5.02	0.70
Private Equity	16.00	9.17	1.47
MAPS – Multi-Asset Public Strategies	4.00	4.50	0.18
PIP – Private Investment Partnership	2.00	7.18	0.14
Cash	1.00	1.20	0.01
Total	100.00 %		<u>5.75 %</u>
	Inflation		<u>2.50 %</u>
	* Expected arithmetic nominal return		<u>8.25 %</u>

\*The above allocation provides for a one-year return of 8.25%. However, one-year returns do not take into account the volatility present in each of the asset classes. In setting the long-term expected rate of return for the System, stochastic projections are employed to model future returns under various economic conditions. The results provide a range of returns over various time periods that ultimately provide a median return of 7.14%, including expected inflation of 2.50%. On June 15, 2023, the VRS Board elected a long-term rate of 6.75% which is roughly at the 45<sup>th</sup> percentile of expected long-term results of the VRS fund asset allocation at that time, providing a median return of 7.14% including expected inflation of 2.50%.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
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**Note 7. Defined Benefit Pension Plan (Continued)**

**Discount Rate**

The discount rate used to measure the total pension liability was 6.75%. The projection of cash flows used to determine the discount rate assumed that System member contributions will be made per the VRS Statutes, and the employer contributions will be made in accordance with the VRS funding policy at rates equal to the difference between actuarially determined contribution rates adopted by the VRS Board of Trustees and the member rate. Consistent with the phased-in funding provided by the General Assembly for state and teacher employer contributions, Political Subdivisions were also provided with an opportunity to use an alternate employer contribution rate. For the year ended June 30, 2023, the alternate rate was the employer contribution rate used in the fiscal year 2012 or 100% of the actuarially determined employer contribution rate from the June 30, 2022, actuarial valuations, whichever was greater. From July 1, 2023, on, participating employers are assumed to contribute 100% of the actuarially determined contribution rates. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current active and inactive employees. Therefore, the long-term expected rate of return was applied to all periods of projected benefit payments to determine the total pension liability.

**Changes in Net Pension Liability**

	<b>Increase (Decrease)</b>		
	<b>Total Pension Liability (a)</b>	<b>Plan Fiduciary Net Position (b)</b>	<b>Net Pension Liability (a) – (b)</b>
Balances at June 30, 2022	\$ 22,327,862	\$ 19,873,833	\$ 2,454,029
Changes for the year:			
Service cost	445,651	-	445,651
Interest	1,502,954	-	1,502,954
Benefit changes	-	-	-
Assumption changes	-	-	-
Differences between expected and actual experience	559,609	-	559,609
Contributions – employer	-	395,860	(395,860)
Contributions – employee	-	269,490	(269,490)
Net investment income	-	1,278,506	(1,278,506)
Benefit payments, including refunds of employee contributions	(1,015,058)	(1,015,058)	-
Administrative expenses	-	(12,816)	12,816
Other changes	-	515	(515)
Net changes	1,493,156	916,497	576,659
Balances at June 30, 2023	\$ 23,821,018	\$ 20,790,330	\$ 3,030,688

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
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**Note 7. Defined Benefit Pension Plan (Continued)**

**Sensitivity of the Net Pension Liability to Changes in the Discount Rate**

The following presents the net pension liability of the Political Subdivision using the discount rate of 6.75%, as well as what the Political Subdivision's net pension liability would be if it were calculated using a discount rate that is one percentage point lower (5.75%) or one percentage point higher (7.75%) than the current rate:

	<b><u>1.00% Decrease (5.75%)</u></b>	<b><u>Current Discount Rate (6.75%)</u></b>	<b><u>1.00% Increase (7.75%)</u></b>
Political Subdivision's net pension liability (asset)	\$ 6,398,500	\$ 3,030,688	\$ 261,346

**Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions**

For the year ended June 30, 2024, the Political Subdivision recognized pension expense of \$737,409. At June 30, 2024, the Political Subdivision reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	<b><u>Deferred Outflows of Resources</u></b>	<b><u>Deferred Inflows of Resources</u></b>
Differences between expected and actual experience	\$ 573,955	\$ 702
Change of assumptions	15,768	-
Net difference between projected and actual earnings on pension plan investments	-	293,718
Employer contributions subsequent to the measurement date	429,651	-
Total	<u>\$ 1,019,374</u>	<u>\$ 294,420</u>

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
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**Note 7. Defined Benefit Pension Plan (Continued)**

**Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions (Continued)**

The \$429,651 reported as deferred outflows of resources related to pensions resulting from the Political Subdivision's contributions subsequent to the measurement date will be recognized as a reduction of the Net Pension Liability in the Fiscal Year ending June 30, 2025. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in pension expense as follows:

<u>Year Ending June 30, 2024</u>	<u>Effect on Pension Expense</u>
2025	\$ 146,824
2026	(169,528)
2027	307,855
2028	10,152
2029	-
Thereafter	-

**Pension Plan Data**

Information about the VRS Political Subdivision Retirement Plans is also available in the separately issued VRS 2023 Annual Comprehensive Financial Report (Annual Report). A copy of the 2023 VRS Annual Report may be downloaded from the VRS website at <https://www.varetire.org/pdf/Publications/2023-annual-report.pdf>, or by writing to the System's Chief Financial Officer at P.O. Box 2500, Richmond, VA, 23218-2500.

**Note 8. Other Postemployment Benefits Liability – Virginia Retirement System Plan**

In addition to their participation in the pension plans offered through the Virginia Retirement System (VRS), the Authority also participates in a cost-sharing and agent multi-employer other postemployment benefit plan, described as follows.

**Plan Descriptions**

Group Life Insurance Program

All full-time employees of the Authority are automatically covered by the VRS Group Life Insurance (GLI) Program upon employment.



**ALBEMARLE COUNTY SERVICE AUTHORITY**  
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**Note 8. Other Postemployment Benefits Liability – Virginia Retirement System Plan (Continued)**

In addition to the Basic Group Life Insurance Benefit, members are also eligible to elect additional coverage for themselves as well as a spouse or dependent children through the Optional Group Life Insurance Program. For members who elect the optional group life insurance coverage, the insurer bills employers directly for the premiums. Employers deduct these premiums from members' paychecks and pay the premiums to the insurer. Since this is a separate and fully insured program, it is not included as part of the GLI Program OPEB.

Specific information for the GLI is available at <https://www.varetire.org/members/benefits/life-insurance/basic-group-life-insurance.asp>

The GLI is administered by the VRS along with pensions and other OPEB plans, for public employer groups in the Commonwealth of Virginia. This plan is considered a multiple-employer, cost-sharing plan.

**Contributions**

Contributions to the VRS OPEB program was based on actuarially determined rates from actuarial valuations as of June 30, 2021. The actuarially determined rates were expected to finance the cost of benefits earned by employees during the year, with an additional amount to fund any unfunded accrued liability. Specific details related to the contributions for the VRS OPEB program is as follows:

**Group Life Insurance Program**

Governed by:	<i>Code of Virginia 51.1-506 and 51.1-508 and may be impacted as a result of funding provided to school divisions and governmental agencies by the Virginia General Assembly.</i>
Total rate:	1.34% of covered employee compensation. Rate allocated 60/40; 0.80% employee and 0.54% employer. Employers may elect to pay all or part of the employee contribution.
June 30, 2024 Contribution	\$32,349
June 30, 2023 Contribution	\$30,677

In June 2023, the Commonwealth made a special contribution of approximately \$10.1 million to the Group Life Insurance plan. This special payment was authorized by Chapter 2 of the Acts of Assembly of 2022, Special Session I, as amended by Chapter 769, 2023, Acts of Assembly Reconvened Session. Our proportionate share is reflected In Note 8 of our financial statements.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
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**Note 8. Other Postemployment Benefits Liability – Virginia Retirement System Plan (Continued)**

**OPEB Liabilities, OPEB Expense and Deferred Inflows and Outflows of Resources Related to OPEB**

The net OPEB liabilities were measured as of June 30, 2023, and the total OPEB liabilities used to calculate the net OPEB liabilities was determined by an actuarial valuation performed as of June 30, 2022, and rolled forward to the measurement date of June 30, 2023. The covered employer's proportion of the net OPEB liabilities were based on the covered employer's actuarially determined employer contributions for the year ended June 30, 2023, relative to the total of the actuarially determined employer contributions for all participating employers.

Group Life Insurance Program

June 30, 2024 proportionate share of liability	\$ 289,274
June 30, 2023 proportion	.02412%
June 30, 2022 proportion	.02307%
June 30, 2024 expense	\$ 21,997

Since there was a change in proportionate share between measurement dates, a portion of the OPEB expense above was related to deferred amount from changes in proportion.

At June 30, 2024, the Authority reported deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources.

Group Life Insurance Program

	<b>Deferred Outflows of Resources</b>	<b>Deferred Inflows of Resources</b>
Differences between expected and actual experience	\$ 28,891	\$ 8,781
Change of assumptions	6,183	20,042
Net difference between projected and actual earnings on		
OPEB plan investments	-	11,625
Changes in proportionate share	24,373	77
Employer contributions subsequent to the		
measurement date	32,349	-
Total	<u>\$ 91,796</u>	<u>\$ 40,525</u>

The deferred outflows of resources related to OPEB resulting from the Authority's contributions subsequent to the measurement date will be recognized as a reduction of the Net OPEB liability in the Fiscal Year ending June 30, 2025. Other amounts reported as deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized in OPEB expense in future reporting periods as follows:

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
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**Note 8. Other Postemployment Benefits Liability – Virginia Retirement System Plan (Continued)**

Group Life Insurance Program

<b>Year Ended June 30,</b>	<b>Increase/(Reduction) to OPEB Expense</b>
2025	\$ 6,574
2026	(5,942)
2027	9,107
2028	4,138
2029	5,045
Thereafter	-

**Actuarial Assumptions and Other Inputs**

The total OPEB liability was determined using the following assumptions based on an actuarial valuation date of June 30, 2022, applied to all periods included in the measurement and rolled forward to the measurement date of June 30, 2023:

Inflation	2.50%
Salary increases, including inflation:	
• Locality- general employees	3.50 – 5.35%
Healthcare cost trend rates:	
• Under age 65	7.00 – 4.75%
• Ages 65 and older	5.25 – 4.75%
Investment rate of return, net of expenses, including inflation	GLI: 6.75%

Mortality rates used for the various VRS OPEB plans are the same as those used for the actuarial valuations of the VRS pension plans. The mortality rates are discussed in detail at Note 7.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
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**Note 8. Other Postemployment Benefits Liability – Virginia Retirement System Plan (Continued)**

**Net OPEB Liabilities**

The net OPEB liabilities represent the total OPEB liability determined in accordance with GASB Statement No. 74, less the associated fiduciary net position. As of the measurement date of June 30, 2023, net OPEB liability amounts for the various VRS OPEB programs are as follows (amounts expressed in thousands):

	<b>Group Life Insurance Program</b>
Total OPEB Liability	\$ 3,907,052
Plan fiduciary net position	2,707,739
Employers' net OPEB liability (asset)	1,199,313
Plan fiduciary net position as a percentage of total OPEB liability	69.30%

The total liability is calculated by the VRS actuary and each plan's fiduciary net position is reported in the VRS financial statements. The net OPEB liability is disclosed in accordance with the requirements of GASB Statement No. 74 in the VRS notes to the financial statements and required supplementary information.

**Long-Term Expected Rate of Return**

**Group Life Insurance**

The long-term expected rate of return on VRS investments was determined using a log-normal distribution analysis in which best-estimate ranges of expected future real rates of return (expected returns, net of OPEB investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The target asset allocation and best estimate of arithmetic real rates of return for each major asset class are summarized in the following table:

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**Note 8. Other Postemployment Benefits Liability – Virginia Retirement System Plan (Continued)**

<u>Asset Class (Strategy)</u>	<u>Target Allocation</u>	<u>Arithmetic Long-Term Expected Rate of Return</u>	<u>Weighted Average Long-Term Expected Rate of Return</u>
Public Equity	34.00 %	6.14 %	2.09 %
Fixed Income	15.00	2.56	0.38
Credit Strategies	14.00	5.60	0.78
Real Assets	14.00	5.02	0.70
Private Equity	16.00	9.17	1.47
MAPS – Multi-Asset Public Strategies	4.00	4.50	0.18
PIP – Private Investment Partnership	2.00	7.18	0.14
Cash	1.00	1.20	0.01
Total	100.00 %		<u>5.75 %</u>
	Inflation		<u>2.50 %</u>
	*Expected arithmetic nominal return		<u>8.25 %</u>

- \* The above allocation provides for a one-year return of 8.25%. However, one-year returns do not take into account the volatility present in each of the asset classes. In setting the long-term expected rate of return for the system, stochastic projections are employed to model future returns under various economic conditions. The results provide a range of returns over various time periods that ultimately provide a median return of 7.14%, including expected inflation of 2.50%. On June 15, 2023, the VRS Board elected a long-term rate of 6.75% which is roughly at the 45<sup>th</sup> percentile of expected long-term results of the VRS fund asset allocation at that time, providing a median return of 7.14%, including inflation of 2.50%.

**Discount Rate**

The discount rate used to measure the GLI OPEB liability was 6.75%. The projection of cash flows used to determine the discount rate assumed that System member contributions will be made per the VRS Guidance, and the employer contributions will be made in accordance with the VRS funding policy at rates equal to the difference between actuarially determined contribution rates adopted by the VRS Board of Trustees and the member rate. Through the fiscal year ending June 30, 2023, the rate contributed by the employer for the OPEB liability will be subject to the portion of the VRS Board-certified rates that are funded by the Virginia General Assembly which was 113% of the actuarially determined contribution rate for GLI and 100% of the actuarially determined contribution rate for all other OPEB plans. From

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
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**Note 8. Other Postemployment Benefits Liability – Virginia Retirement System Plan (Continued)**

July 1, 2023, on, participating employers are assumed to contribute 100% of the actuarially determined contribution rates. Based on those assumptions, the OPEB plans' fiduciary net position was projected to be available to make all projected future benefit payments of eligible employees. Therefore, the long-term expected rate of return was applied to all periods of projected benefit payments to determine the total OPEB liability.

**Sensitivity of the Net OPEB Liability to Changes in the Discount Rate**

The following presents the net OPEB liabilities of the Authority, as well as what the Authority's net OPEB liabilities would be if it were calculated using a discount rate that is one percentage point lower (5.75% GLI) or one percentage point higher (7.75% GLI) than the current discount rate:

	1.00% Decrease (5.75%)	Current Discount Rate (6.75%)	1.00% Increase (7.75%)
GLI Net OPEB liability	\$ <u>428,795</u>	\$ <u>289,274</u>	\$ <u>176,471</u>

**OPEB Plan Fiduciary Net Position**

Information about the various VRS OPEB plan fiduciary net position is available in the separately issued VRS 2023 Annual Comprehensive Financial Report (Annual Report). A copy of the 2023 VRS Annual Report may be downloaded from the VRS website at <https://www.varetire.org/pdf/Publications/2023-annual-report.pdf>, or by writing to the System's Chief Financial Officer at P.O. Box 2500, Richmond, VA, 23218-2500.

**Note 9. Other Post-Employment Benefits Liability – Local Plan**

**Plan description**

The Authority offers other post-employment benefits (OPEB) under a single employer plan by allowing qualifying retirees to continue to participate in the Authority's health insurance plan. Retirees must pay the cost of the premium but receive an implicit rate subsidy by virtue of participating in the Authority's plan. No assets are accumulated in a trust to pay benefits to the plan.

The Authority's Voluntary Early Retirement Incentive Program (VERIP) provides an additional health insurance subsidy for up to five years for employees who retire and meet the requirements of the plan.

VERIP participants may choose to apply this subsidy to Authority sponsored health insurance premiums or to purchase other insurance. For fiscal year 2024, the Authority's health and benefit contribution was \$687 per month. VERIP benefits are paid monthly for a period of five years after retirement or until age 65, whichever comes first.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
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**Note 9. Other Post-Employment Benefits Liability – Local Plan (Continued)**

**Plan Description - Continued**

Participants in the Authority's VERIP must meet the following requirements: employees must be eligible for early or full retirement under the provisions of the VRS, must have been employed by the Authority for 10 years prior to retirement, and must be at least 50 years of age. Any employees retiring under the disability provisions of VRS and/or Social Security will not be eligible for VERIP.

**Employees Covered by Benefit Terms**

As of the June 30, 2024, measurement date, the following employees were covered by the benefit terms of the plan:

	<u><b>Number</b></u>
Inactive employees or beneficiaries:	
Currently receiving benefits	2
Entitled to but not yet receiving benefits	-
	<hr/>
Total inactive employees	2
Active plan members	<hr/> 85
Total employees covered by benefit terms	<hr/> \$ 87 <hr/>

**Total OPEB Liability**

The Authority's total OPEB liability of \$799,449 was measured as of June 30, 2024, and was determined based on an actual valuation performed as of July 1, 2024.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 9. Other Post-Employment Benefits Liability – Local Plan (Continued)**

**Actuarial Assumptions and other inputs**

The total OPEB liability was determined using the following assumptions, applied to all periods included in the measurement, unless otherwise specified:

Salary increases, including inflation	3.50% plus the salary merit increases, which are based on the VRS actuarial valuation as of June 30, 2023
Healthcare cost trend rates	4.50% - 8.00%
Retirees' share of benefit-related costs	Retirees are responsible for the full cost of coverage less the VERIP subsidy for those who qualify
Mortality rates	Active employees and retirees: SOA Pub-2010 General Headcount Weighted Mortality Table fully generational using Scale MP-2021; Surviving spouses: SOA Pub-2010 Continuing Survivor Headcount Weighted Mortality Table fully generational using Scale MP-2021; Disabled employees and retirees: SOA Pub-2010 Non-Safety Disability Headcount Weighted Mortality Table fully generational using Scale MP-2021

The actuarial assumptions used in the July 1, 2023, valuation was based on the results of an actuarial experience study for the period from July 1, 2023, through June 30, 2024. There have been no substantive plan provision changes since the last full valuation, which was for the fiscal year ending June 30, 2022.

Changes in assumptions and other inputs:

- The Discount rate as of the Measurement Date has been updated from 4.13% as of June 30, 2023, to 4.21% as of June 30, 2024, based on a yield for 20-year tax-exempt general obligation municipal bonds with an average rating of AA/Aa or higher (or equivalent quality on another rating scale). This change has caused a significant decrease in the Authority's liabilities. The discount rate will be updated annually to reflect market conditions as of the Measurement Date.
- The termination rate assumptions have been updated based on the VRS actuarial valuation as of June 30, 2023. The net impact of these changes is a decrease in liabilities.
- The retirement rate assumptions have been updated based on the VRS actuarial valuation as of June 30, 2023. The net impact of these changes is a significant decrease in liabilities.
- Health care trend rates have been updated to an initial trend of 8.0% decreasing by 0.5% annually to an ultimate rate of 4.5% according to the schedule in the Health Care Trend Rates section of the Actuarial Methods and Assumptions. This change caused an increase in the Authority's liabilities.



**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 9. Other Post-Employment Benefits Liability – Local Plan (Continued)**

**Changes in the Total OPEB Liability**

Balance at June 30, 2023	
Changes for the year:	\$ 966,734
Service Cost	51,369
Interest	41,005
Benefit Changes	-
Assumptions or other input changes	(139,752)
Differences between expected and actual experience	(68,918)
Benefit payments	(50,989)
Balance at June 30, 2024	\$ 799,449

**Sensitivity of the Total OPEB Liability to Changes in the Discount Rate**

The following presents the total OPEB liability of the Authority, as well as what the Authority's total OPEB liability would be if it were calculated using a discount rate that is one percentage point lower (3.21%) or one percentage point higher (5.21%) than the current discount rate:

	<b><u>1.00% Decrease (3.21%)</u></b>	<b><u>Current Discount Rate (4.21%)</u></b>	<b><u>1.00% Increase (5.21%)</u></b>
Total OPEB liability	\$ 867,060	\$ 799,449	\$ 738,406

**Sensitivity of the Total OPEB Liability to Changes in the Healthcare Cost Trend Rates**

The following presents the total OPEB liability of the Authority, as well as what the Authority's total OPEB liability would be if it were calculated using healthcare cost trend rates that are one percentage point lower (7.00%) or one percentage point higher (9.00%) than the current healthcare cost trend rates:

	<b><u>1.00% Decrease (7.00%)</u></b>	<b><u>Current Healthcare Cost Trend Rate (8.00%)</u></b>	<b><u>1.00% Increase (9.00%)</u></b>
Total OPEB liability	\$ 724,489	\$ 799,449	\$ 885,039

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 9. Other Post-Employment Benefits Liability – Local Plan (Continued)**

**OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB**

For the year ended June 30, 2024, the Authority recognized OPEB expense of (\$101,773). At June 30, 2024, the Authority reported deferred outflows of resources and deferred inflows of resources related to OPEB from the following sources:

	<b>Deferred Outflows of Resources</b>	<b>Deferred Inflows of Resources</b>
Differences between expected and actual experience	\$ 21,889	\$ 233,675
Change in assumptions	22,983	186,362
Employer contributions subsequent to the measurement date	N/A	N/A
Total	<u>\$ 44,872</u>	<u>\$ 420,037</u>

Amounts reported as deferred outflows of resources and deferred inflows of resources related to OPEB will be recognized in OPEB expense as follows:

<b>Year Ending June 30,</b>	<b>(Reduction) to OPEB Expense</b>
2025	\$ (159,342)
2026	(59,995)
2027	(59,996)
2028	(64,982)
2029	(30,850)
Thereafter	-

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 9. Other Post-Employment Benefits Liability – Local Plan (Continued)**

**Summary of Other Postemployment Benefit Elements**

Deferred outflows of resources - OPEB

Differences between expected and actual experience	
VRS-Group Life Insurance	\$ 28,891
Local Plan	21,889
Changes in proportion	
VRS-Group Life Insurance	24,373
Employer contributions subsequent to the measurement date	
VRS-Group Life Insurance	32,349
Changes of assumptions	
VRS-Group Life Insurance	6,183
Local Plan	22,983
Net difference between projected and actual earnings on plan investments	
VRS-Group Life Insurance	
Total deferred outflows of resources - OPEB	<u>\$ 136,668</u>

Total OPEB liability

VRS-Group Life Insurance	\$ 289,274
Local Plan	799,449
Total OPEB liability	<u>\$ 1,088,723</u>

Deferred inflows of resources - OPEB

Differences between expected and actual experience	
VRS- Group Life Insurance	\$ 8,781
Local Plan	233,675
Changes of assumptions	
VRS-Group Life Insurance	20,042
Local Plan	186,362
Changes in proportion	
VRS-Group Life Insurance	77
Net difference between projected and actual earnings on plan investments	11,625
Total deferred inflows of resources - OPEB	<u>\$ 460,562</u>

OPEB Expense/(Income)

VRS-Group Life Insurance	\$ 21,997
Local Plan	(101,773)
Total OPEB Expense/(Income)	<u>\$ (79,776)</u>

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 10. Service Contracts**

The Authority purchases all water and sewage treatment services from RWSA. These purchases amounted to \$16,266,189 for water and \$11,319,500 for sewage treatment services for the current year.

RWSA was formed in 1972 as a joint venture of the City of Charlottesville, the County of Albemarle, and the Authority. The RWSA operates under the terms of a Service Agreement which was signed in 1973 and is expected to continue indefinitely. Under the terms of the agreement, as well as several supplemental agreements since that time, the City of Charlottesville and the Authority have covenanted to purchase water and sewer services from RWSA. RWSA constructs and maintains the capital assets necessary to provide these water and sewer services and has issued debt to fund these projects. RWSA's charges to the Authority included a component for operations as well as a component for current and future estimated debt service.

In the current year, the charges that were associated with debt service were \$13,693,992.

**Note 11. Risk Management**

The Risk Management Programs of the Authority are as follows:

The Authority is a member of the Virginia Risk Sharing Association (V.R.S.A.). The liability coverage includes local government liability, auto, property, boiler/machinery, Cyber Liability, fidelity/crime, workers compensation and general liability coverages. VML Insurance program is a self-administered risk pool which, for premiums paid, protects Virginia State and local government entities. Settlement amount under these policies have not exceeded insurance coverage for the last three fiscal years.

The limits of the pools' liability to the Authority are as follows:

- Local Government Liability – \$1,000,000
- Auto – \$1,000,000
- Property – \$26,889,540
- Boiler/Machinery – \$15,000,000
- Cyber Liability - \$1,000,000
- Fidelity/Crime – \$250,000
- Excess Liability – \$1,000,000 (plus Excess of \$4,000,000)
- Workers Compensation – Specific excess limits as per statute, aggregate excess limits up to the limits of the Aggregate Excess Loss Fund. Employers' Liability: \$1,000,000 for each bodily injury accident for each employee.

The Authority continues to carry commercial insurance for all other risks of loss, namely employee health insurance. Claims have not exceeded coverage for the last three fiscal years.

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**NOTES TO FINANCIAL STATEMENTS**  
**JUNE 30, 2024**

**Note 12. Deferred Compensation Plan**

Since 1988 the Authority has offered its employees a deferred compensation plan created in accordance with Internal Revenue Code Section 457. The Plan, available to all Authority employees, permits them to defer a maximum of 100% of their salary or \$23,000 per year, whichever is less. The deferred compensation is not available to employees until termination, retirement, death, or unforeseeable emergency.

**Note 13. Contingency – Off-Site Extensions**

Off-site extensions of water and/or sanitary sewer lines to serve new developments shall be the responsibility of the developer. An off-site extension is defined as an extension of a water and/or sanitary sewer line by a developer from the developer's property boundary as determined by the Authority to existing Authority facilities. Under specific circumstances, upon completion of the project and acceptance into the Authority's system, the Authority shall enter into a written agreement granting the developer credit against future water and/or sewer system development charges. The credit can only be used for the property for which the off-site extension is constructed. The credit does not constitute a priority for water or sewer service. As water and/or sewer connections are made, the developer must use its existing credit first. The credit shall expire ten years after acceptance of the off-site water and/or sewer line extension into the Authority's system. If all requirements for use of credits are met, the total amount of unrecorded but potential credits is \$681,180 at June 30, 2024.

## **REQUIRED SUPPLEMENTARY INFORMATION**

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## Exhibit 4

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF CHANGES IN NET PENSION LIABILITY AND RELATED RATIOS**  
**June 30, 2024**

	Fiscal Years									
	2023	2022	2021	2020	2019	2018	2017	2016	2015	2014
<b>Total Pension Liability</b>										
Service cost	\$ 445,651	\$ 351,756	\$ 337,400	\$ 334,646	\$ 288,386	\$ 282,089	\$ 302,117	\$ 306,250	\$ 319,994	\$ 303,515
Interest on total pension liability	1,502,954	1,397,239	1,287,748	1,177,200	1,117,629	1,062,604	1,021,852	971,270	945,438	891,399
Changes in benefit terms	-	-	-	-	-	-	-	-	-	-
Changes in assumptions	-	-	264,750	-	511,046	-	(261,995)	-	-	-
Difference between expected and actual experience	559,609	538,017	(11,769)	713,793	132,308	19,186	57,961	(77,660)	(456,292)	-
Benefit payments, including refunds of employee contribution	(1,015,058)	(614,462)	(601,130)	(574,638)	(576,372)	(579,237)	(496,301)	(458,221)	(421,994)	(423,861)
Net change in total pension liability	1,493,156	1,672,550	1,276,999	1,651,001	1,472,997	784,642	623,634	741,639	387,146	771,053
<b>Total pension liability – beginning</b>	<b>22,327,862</b>	<b>20,655,312</b>	<b>19,378,313</b>	<b>17,727,312</b>	<b>16,254,315</b>	<b>15,469,673</b>	<b>14,846,039</b>	<b>14,104,400</b>	<b>13,717,254</b>	<b>12,946,201</b>
<b>Total pension liability – ending</b>	<b>23,821,018</b>	<b>22,327,862</b>	<b>20,655,312</b>	<b>19,378,313</b>	<b>17,727,312</b>	<b>16,254,315</b>	<b>15,469,673</b>	<b>14,846,039</b>	<b>14,104,400</b>	<b>13,717,254</b>
<b>Plan Fiduciary Net Position</b>										
Contributions – employer	395,860	327,839	303,643	245,116	234,877	244,563	235,653	330,458	317,575	326,450
Contributions – employee	269,490	239,518	222,626	219,505	207,077	188,757	181,895	177,386	171,283	170,882
Net investment income	1,278,506	(27,011)	4,326,251	297,306	983,842	1,024,636	1,516,452	217,142	535,330	1,576,735
Benefit payments, including refunds of employee contribution	(1,015,058)	(614,462)	(601,130)	(574,638)	(576,372)	(579,237)	(496,301)	(458,221)	(421,994)	(423,861)
Administrative expenses	(12,816)	(12,336)	(10,552)	(10,040)	(9,615)	(8,793)	(8,670)	(7,476)	(7,154)	(8,347)
Other	515	467	410	(354)	(620)	(913)	(1,352)	(91)	(110)	84
Net change in plan fiduciary net position	916,497	(85,985)	4,241,248	176,895	839,189	869,013	1,427,677	259,198	594,930	1,641,943
<b>Plan fiduciary net position – beginning</b>	<b>19,873,833</b>	<b>19,959,818</b>	<b>15,718,570</b>	<b>15,541,675</b>	<b>14,702,486</b>	<b>13,833,473</b>	<b>12,405,796</b>	<b>12,146,598</b>	<b>11,551,668</b>	<b>9,909,725</b>
<b>Plan fiduciary net position – ending</b>	<b>20,790,330</b>	<b>19,873,833</b>	<b>19,959,818</b>	<b>15,718,570</b>	<b>15,541,675</b>	<b>14,702,486</b>	<b>13,833,473</b>	<b>12,405,796</b>	<b>12,146,598</b>	<b>11,551,668</b>
<b>Net pension liability – ending</b>	<b>\$ 3,030,688</b>	<b>\$ 2,454,029</b>	<b>\$ 695,494</b>	<b>\$ 3,659,743</b>	<b>\$ 2,185,637</b>	<b>\$ 1,551,829</b>	<b>\$ 1,636,200</b>	<b>\$ 2,440,243</b>	<b>\$ 1,957,802</b>	<b>\$ 2,165,586</b>
Plan fiduciary net position as a percentage of total pension liability	87%	89%	97%	81%	88%	90%	89%	84%	86%	84%
Covered payroll	\$ 5,681,014	\$ 5,018,813	\$ 4,653,342	\$ 4,596,106	\$ 4,325,421	\$ 3,922,995	\$ 3,757,862	\$ 3,635,900	\$ 3,474,178	\$ 3,355,469
Net pension liability as a percentage of covered payroll	53%	49%	15%	80%	51%	40%	44%	67%	56%	65%

The plan years above are reported in the entity's financial statements in the fiscal year following the plan year - i.e., plan year 2014 information was presented in the entity's fiscal year 2015 financial report.

The Notes to Required Supplementary Information  
are an integral part of this schedule.

## Exhibit 5

## ALBEMARLE COUNTY SERVICE AUTHORITY

**REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF PENSION CONTRIBUTIONS**  
**June 30, 2024**

<b>Year Ended June 30</b>	<b>Actuarially Determined Contribution</b>	<b>Contributions in Relation to Actuarially Determined Contribution</b>	<b>Contribution Deficiency (Excess)</b>	<b>Covered- Employee Payroll</b>	<b>Contributions as a percentage of Covered Payroll</b>
2015	\$ 311,615	\$ 311,615	\$ -	\$ 3,474,178	8.97%
2016	330,458	330,458	-	3,635,900	9.09%
2017	235,653	235,653	-	3,757,862	6.27%
2018	244,561	244,561	-	3,922,995	6.23%
2019	234,877	234,877	-	4,325,421	5.43%
2020	245,110	245,110	-	4,596,106	5.33%
2021	313,643	313,643	-	4,653,342	6.74%
2022	339,261	339,261	-	5,018,813	6.76%
2023	404,845	404,845	-	5,681,014	7.13%
2024	429,651	429,651	-	5,990,471	7.17%



## Exhibit 6

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**REQUIRED SUPPLEMENTARY INFORMATION**  
**SCHEDULE OF CHANGES IN OPEB LIABILITY AND RELATED RATIOS - LOCAL PLAN**  
**June 30, 2024**

	<u>Plan Year 2024</u>	<u>Plan Year 2023</u>	<u>Plan Year 2022</u>	<u>Plan Year 2021</u>	<u>Plan Year 2020</u>	<u>Plan Year 2019</u>	<u>Plan Year 2018</u>
<b>Total OPEB Liability</b>							
Service cost	\$ 51,369	\$ 49,323	\$ 65,346	\$ 57,968	\$ 74,812	\$ 68,079	\$ 69,786
Interest on total OPEB liability	41,005	37,490	24,509	27,390	55,438	67,654	56,003
Changes in benefit terms	-	-	-	-	-	-	-
Difference between expected and actual experience	(68,918)	30,645	(120,515)	(4,522)	(632,618)	(250,714)	173,501
Changes in assumptions	(139,752)	(3,117)	(118,432)	39,416	36,551	41,846	(9,554)
Benefit payments	(50,989)	(29,548)	(45,269)	(31,166)	(102,307)	(102,268)	(106,141)
Net change in total OPEB liability	(167,285)	84,793	(194,361)	89,086	(568,124)	(175,403)	183,595
<b>Total OPEB liability - beginning</b>	<u>966,734</u>	<u>881,941</u>	<u>1,076,302</u>	<u>987,216</u>	<u>1,555,340</u>	<u>1,730,743</u>	<u>1,547,148</u>
<b>Total OPEB liability - ending</b>	<u>\$ 799,449</u>	<u>\$ 966,734</u>	<u>\$ 881,941</u>	<u>\$ 1,076,302</u>	<u>\$ 987,216</u>	<u>\$ 1,555,340</u>	<u>\$ 1,730,743</u>
 Covered employee payroll	 <u>\$ 6,339,643</u>	 <u>\$ 5,916,996</u>	 <u>\$ 5,262,437</u>	 <u>\$ 4,686,463</u>	 <u>\$ 4,583,540</u>	 <u>\$ 4,404,509</u>	 <u>\$ 3,899,735</u>
 Total OPEB liability as a percentage of covered payroll	 <u>12.6%</u>	 <u>16.3%</u>	 <u>16.8%</u>	 <u>23.0%</u>	 <u>21.5%</u>	 <u>35.3%</u>	 <u>44.4%</u>

This schedule is intended to show information for 10 years. Since fiscal year 2018 is the first year for this presentation, no earlier data is available. Additional years will be included as they become available. Assets are not accumulated or administered through a trust.

## ALBEMARLE COUNTY SERVICE AUTHORITY

REQUIRED SUPPLEMENTARY INFORMATION  
SCHEDULE OF OPEB CONTRIBUTIONS

June 30, 2024

<b>Fiscal Year Ended June 30</b>	<b>Actuarially Determined Employer Contribution</b>	<b>Actual Employer Contribution</b>	<b>Contribution Deficiency (Excess)</b>	<b>Covered- Employee Payroll</b>	<b>Contributions as a percentage of Covered-Employee Payroll</b>
<b>VRS - Group Life Insurance - General Employees</b>					
2018	\$ 20,401	\$ 20,401	\$ -	\$ 3,922,995	0.52%
2019	22,492	22,492	-	4,325,421	0.52%
2020	23,898	23,898	-	4,596,106	0.52%
2021	25,130	25,130	-	4,653,342	0.54%
2022	27,102	27,102	-	5,018,813	0.54%
2023	30,677	30,677	-	5,681,014	0.54%
2024	32,349	32,349	-	5,990,471	0.54%

Schedule is intended to show information for 10 years. Since 2018 was the first year for this presentation, no earlier data is available. However, additional years will be included as they become available.

The covered payroll amounts above are for the entity's fiscal year - i.e. the covered payroll on which required contributions were based for the same year.

**ALBEMARLE COUNTY SERVICE AUTHORITY**

**REQUIRED SUPPLEMENTARY INFORMATION**

**SCHEDULE OF EMPLOYER'S SHARE OF NET OPEB LIABILITY**

**June 30, 2024**

<b>Entity Fiscal Year Ended June 30</b>	<b>Employer's Proportion of the Net OPEB Liability (Asset)</b>	<b>Employer's Proportionate Share of the Net OPEB Liability (Asset)</b>	<b>Covered- Employee Payroll</b>	<b>Employer's Proportionate Share of the Net OPEB Liability (Asset) as a percentage of its Covered-Employee Payroll</b>	<b>Plan Fiduciary Net Position as a Percentage of the Total OPEB Liability</b>
<b>VRS - Group Life Insurance - General Employees</b>					
2018	0.02038%	\$ 307,000	\$ 3,757,862	8.17%	48.86%
2019	0.02063%	313,000	3,922,995	7.98%	51.22%
2020	0.02206%	358,975	4,325,421	8.30%	52.00%
2021	0.02233%	372,651	4,596,106	8.11%	52.64%
2022	0.02254%	262,427	4,653,342	5.64%	67.45%
2023	0.02307%	277,785	5,018,813	5.53%	67.21%
2024	0.02412%	289,274	5,681,014	5.09%	69.30%

Schedule is intended to show information for 10 years. Since 2018 was the first year for this presentation, no earlier data is available. However, additional years will be included as they become available.

The covered payroll amounts above are for the measurement period, which is the twelve months prior to the entity's fiscal year.

**ALBEMARLE COUNTY SERVICE AUTHORITY**

**NOTES TO REQUIRED SUPPLEMENTARY INFORMATION**

**June 30, 2024**

**Note 1. Changes of Benefit Terms**

Pension

There have been no actuarially material changes to the Virginia Retirement System (the “System”) benefit provisions since the prior actuarial valuation.

Other Postemployment Benefits (OPEB)

There have been no actuarially material changes to the System benefit provisions since the prior actuarial valuation.

**Note 2. Changes of Assumptions**

The actuarial assumptions used in the June 30, 2022, valuation was based on the results of an actuarial experience study for the period from July 1, 2016, through June 30, 2020, except the change in the discount rate, which was based on VRS Board action effective as of July 1, 2021. Changes to the actuarial assumptions as a result of the experience study and VRS Board action are as follows:

**Largest 10 – Non-Hazardous Duty:**

- Update mortality table to PUB2010 public sector mortality tables. For future mortality improvements, replace load with a modified Mortality Improvement Scale MP-2020.
- Adjusted retirement rates to better fit experience for Plan 1; set separate rates based on experience for Plan 2/Hybrid; changed final retirement age from 75 to 80 for all.
- Adjusted withdraw rates to better fit experience at each age and service through 9 years of service.
- No change in disability rates.
- No change to salary scale.
- No change to line of duty rates.
- No change to discount rate.

**All Others (Non 10 Largest) – Non-Hazardous Duty:**

- Update mortality table to PUB2010 public sector mortality tables. For future mortality improvements, replace load with a modified Mortality Improvement Scale MP-2020.
- Adjusted retirement rates to better fit experience for Plan 1; set separate rates based on experience for Plan 2/Hybrid; changed final retirement age from 75 to 80 for all.
- Adjusted withdraw rates to better fit experience at each age and service through 9 years of service.
- No change in disability rates.
- No change to salary scale.
- No change to line of duty rates.
- No change to discount rate.

**Note 3. Local Voluntary Early Retirement Incentive Plan**

Assets are not accumulated or administered through a trust.

## STATISTICAL SECTION

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The statistical section of the Authority's annual comprehensive financial report presents detailed information as a context for understanding what the information presented in the financial statements, note disclosures, and required supplementary information say about the Authority's overall financial health. This information has not been audited by the independent auditor.

### **Contents**

#### ***Financial Trends***

***Tables 1-4***

These schedules contain trend information to help the reader understand how the Authority's financial performance and well-being have changed over time.

#### ***Revenue Capacity***

***Tables 5-6***

These schedules contain information to help the reader assess the Authority's most significant revenue sources.

#### ***Debt Capacity***

***Table 7***

These schedules present information to help the reader assess the affordability of the Authority's current level of outstanding debt and the Authority's ability to issue additional debt in the future.

#### ***Demographic and Economic Information***

***Tables 8-9***

These schedules offer demographic and economic indicators to help the reader understand the environment within which the Authority's financial activities take place.

#### ***Operating Information***

***Tables 10-17***

These schedules contain information about the Authority's operations and resources to help the reader understand how the Authority's financial information relates to the services the Authority provides.

**Sources:** Unless otherwise noted, the information in these schedules is derived from the Annual Comprehensive Financial Reports for the relevant year.

Table 1

**ALBEMARLE COUNTY SERVICE AUTHORITY  
NET POSITION BY COMPONENT  
LAST TEN FISCAL YEARS  
(ACCRUAL BASIS OF ACCOUNTING)**

	Fiscal Year									
	2015*	2016	2017	2018**	2019	2020	2021	2022	2023***	2024
Business-type activities										
Net investment in capital assets	\$ 119,714,145	\$ 126,311,674	\$ 131,997,020	\$ 140,238,885	\$ 148,180,254	\$ 156,610,823	\$ 165,640,741	\$ 172,031,606	\$ 175,247,805	\$ 178,591,470
Restricted for debt service	234,890	240,591	247,015	255,835	264,343	269,790	272,895	314,718	331,531	331,089
Unrestricted	22,276,215	24,423,916	29,077,339	36,007,519	37,580,516	43,394,497	46,047,071	47,742,895	53,942,334	58,888,258
Total business-type activities net position	<u>\$ 142,225,250</u>	<u>\$ 150,976,181</u>	<u>\$ 161,321,374</u>	<u>\$ 176,502,239</u>	<u>\$ 186,025,113</u>	<u>\$ 200,275,110</u>	<u>\$ 211,960,707</u>	<u>\$ 220,089,219</u>	<u>\$ 229,521,670</u>	<u>\$ 237,810,817</u>

\* GASB Statement No. 68 was adopted in fiscal year 2015. Information from previous years presented is unavailable.

\*\* GASB Statement No. 75 was adopted in fiscal year 2018. Information from previous years presented is unavailable.

\*\*\* GASB Statement No. 87 and GASB Statement No. 96 were adopted in fiscal year 2023. Information from previous years presented is unavailable.

Table 2

**ALBEMARLE COUNTY SERVICE AUTHORITY  
CHANGES IN NET POSITION  
LAST TEN FISCAL YEARS  
(ACCRUAL BASIS OF ACCOUNTING)**

	Fiscal Year									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>Operating expenses</b>										
Operating expenses:										
Water	\$ 11,204,103	\$ 11,872,889	\$ 12,816,458	\$ 13,029,366	\$ 13,762,043	\$ 14,934,749	\$ 15,418,833	\$ 17,649,112	\$ 20,218,241	\$ 23,372,719
Sewer	9,130,743	9,766,413	9,613,692	9,664,393	12,468,623	12,201,559	13,285,061	13,545,928	14,746,778	16,264,872
Other	3,026,916	3,158,144	3,302,779	3,336,765	3,625,254	3,669,899	3,898,244	4,114,076	4,305,016	4,354,813
Total operating expenses	<u>\$ 23,361,762</u>	<u>\$ 24,797,446</u>	<u>\$ 25,732,929</u>	<u>\$ 26,030,524</u>	<u>\$ 29,855,920</u>	<u>\$ 30,806,207</u>	<u>\$ 32,602,138</u>	<u>\$ 35,309,116</u>	<u>\$ 39,270,035</u>	<u>\$ 43,992,404</u>
<b>Operating revenues</b>										
Charges for services:										
Water	\$ 12,173,073	\$ 12,564,711	\$ 13,916,547	\$ 14,221,088	\$ 14,365,666	\$ 15,839,848	\$ 15,919,103	\$ 17,545,859	\$ 18,720,236	\$ 21,719,767
Sewer	10,468,470	10,895,970	11,869,460	12,232,244	12,688,282	13,662,193	13,964,581	15,279,189	15,332,086	17,399,595
Connection	328,862	329,384	359,660	331,838	356,398	367,451	141,043	131,415	178,642	178,849
Total operating revenues	<u>\$ 22,970,405</u>	<u>\$ 23,790,065</u>	<u>\$ 26,145,667</u>	<u>\$ 26,785,170</u>	<u>\$ 27,410,346</u>	<u>\$ 29,869,492</u>	<u>\$ 30,024,727</u>	<u>\$ 32,956,463</u>	<u>\$ 34,230,964</u>	<u>\$ 39,298,211</u>
<b>Net (expense) revenue</b>	<u>\$ (391,357)</u>	<u>\$ (1,007,381)</u>	<u>\$ 412,738</u>	<u>\$ 754,646</u>	<u>\$ (2,445,574)</u>	<u>\$ (936,715)</u>	<u>\$ (2,577,411)</u>	<u>\$ (2,352,653)</u>	<u>\$ (5,039,071)</u>	<u>\$ (4,694,193)</u>
<b>Nonoperating revenues and expenses</b>										
Investment earnings	\$ 102,469	\$ 215,035	\$ 59,576	\$ 348,572	\$ 946,599	\$ 733,385	\$ 82,900	\$ (631,795)	\$ 1,084,854	\$ 2,810,568
Miscellaneous revenues	347,692	363,029	412,944	552,586	51,050	333,752	548,486	381,926	462,076	441,025
Capital contributions	7,466,312	9,468,629	9,717,312	15,173,477	11,632,967	14,334,718	14,080,638	11,292,904	13,246,309	10,495,354
Other expenses	(473,424)	(288,381)	(257,377)	(293,343)	(662,168)	(215,143)	(449,016)	(561,870)	(321,717)	(763,607)
Total nonoperating revenues and expenses	<u>\$ 7,443,049</u>	<u>\$ 9,758,312</u>	<u>\$ 9,932,455</u>	<u>\$ 15,781,292</u>	<u>\$ 11,968,448</u>	<u>\$ 15,186,712</u>	<u>\$ 14,263,008</u>	<u>\$ 10,481,165</u>	<u>\$ 14,471,522</u>	<u>\$ 12,983,340</u>
<b>Change in net position</b>	<u>\$ 7,051,692</u>	<u>\$ 8,750,931</u>	<u>\$ 10,345,193</u>	<u>\$ 16,535,938</u>	<u>\$ 9,522,874</u>	<u>\$ 14,249,997</u>	<u>\$ 11,685,597</u>	<u>\$ 8,128,512</u>	<u>\$ 9,432,451</u>	<u>\$ 8,289,147</u>

### Table 3



Table 4

**ALBEMARLE COUNTY SERVICE AUTHORITY  
WATER AND SEWER RATES  
LAST TEN FISCAL YEARS**

	Fiscal Year									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
<b>Monthly Service Charge<sup>1</sup></b>	\$ 7.18	\$ 7.40	\$ 7.73	\$ 7.92	\$ 8.16	\$ 8.57	\$ 8.57	\$ 9.00	\$ 9.45	\$ 10.40
<b>Water Volume</b>										
<b>Single-family/Non-Residential</b>										
0 - 3,000	3.69	3.80	3.99	4.11	4.27	4.48	4.48	4.70	5.05	5.56
3,001 - 6,000	7.38	7.60	7.98	8.22	8.55	8.98	8.98	9.43	10.14	11.15
6,000 - 9,000	11.07	11.40	11.97	12.33	12.82	13.46	13.46	14.13	15.19	16.71
Over 9,000	14.76	15.20	15.96	16.44	17.10	17.96	17.96	18.86	20.27	22.30
<b>Multi-family/Non-Residential</b>										
All Metered Consumption	7.12	7.33	7.70	7.93	8.25	8.66	8.66	9.09	10.14	11.15
<b>Sewer Volume</b>	7.86	8.10	8.50	8.67	8.93	9.47	9.47	9.94	10.24	11.06

<sup>1</sup> Monthly Service charge varies based on meter size. The amount represented here is for our standard 3/4" meters.

Table 5

**ALBEMARLE COUNTY SERVICE AUTHORITY  
TOP TEN REVENUE PAYERS  
CURRENT YEAR AND NINE YEARS AGO**

Customer	Fiscal Year 2024			Fiscal Year 2015		
	Water Billed (in gallons)	Rank	Percent of Total Water Sales	Water Billed (in gallons)	Rank	Percent of Total Water Sales
Martha Jefferson Hospital	24,802,368	1	1.37 %	21,569,200	2	1.37 %
Abbingtion Crossing	24,340,477	2	1.34	19,361,600	5	1.23
University of Virginia	23,109,478	3	1.27	20,948,500	3	1.33
State Farm Insurance	22,415,430	4	1.24	-	-	-
Southwood Mobile Homes	20,423,290	5	1.13	20,936,000	4	1.33
Barracks West Apts.	20,086,475	6	1.11	17,758,500	8	1.13
County of Albemarle	19,139,540	7	1.06	23,351,500	1	1.48
Four Seasons Apts.	19,015,055	8	1.05	-	-	-
SEMF Charleston	18,315,224	9	1.01	18,695,875	6	1.19
Westminster Canterbury	17,486,750	10	0.96	17,195,000	9	1.09
ACRJ	-	-	-	18,521,000	7	1.18
Turtle Creek Apts.	-	-	-	16,617,600	10	1.05
	<u>209,134,087</u>		<u>11.53%</u>	<u>194,954,775</u>		<u>12.38%</u>
Total water consumption:	<u>1,813,077,707</u>			<u>1,575,978,876</u>		

Customer	Fiscal Year 2024			Fiscal Year 2015		
	Sewer Billed (in gallons)	Rank	Percent of Total Sewer Sales	Sewer Billed (in gallons)	Rank	Percent of Total Sewer Sales
Southwood Mobile Homes	24,800,000	1	1.58 %	-	-	- %
Abbingtion Crossing	24,340,477	2	1.55	19,361,600	2	1.45
University of Virginia	23,013,148	3	1.47	18,800,000	3	1.41
State Farm Insurance	21,393,538	4	1.36	-	-	-
Barracks West Apts.	20,086,475	5	1.28	17,758,500	6	1.33
Four Seasons Apts.	19,015,055	6	1.21	15,723,000	9	1.18
SEMF Charleston	18,315,224	7	1.17	18,695,875	4	1.40
Turtle Creek Apts.	17,059,889	8	1.09	16,589,000	8	1.24
Westminster Canterbury	16,832,750	9	1.07	20,040,000	1	1.50
Martha Jefferson Hospital	16,725,060	10	1.07	16,644,000	7	1.25
County of Albemarle	-	-	-	14,981,800	10	1.12
ACRJ	-	-	-	18,521,000	5	1.39
	<u>201,581,616</u>		<u>12.86%</u>	<u>177,114,775</u>		<u>13.27%</u>
Total sewer usage:	<u>1,567,961,663</u>			<u>1,333,010,216</u>		

Table 6

**ALBEMARLE COUNTY SERVICE AUTHORITY  
OUTSTANDING DEBT PER CONNECTION, PER CAPITA,  
AND DEBT PER CAPITA AS A PERCENTAGE OF INCOME PER CAPITA  
LAST TEN FISCAL YEARS**

<b>Fiscal Year</b>	<b>Outstanding Revenue Bond</b>	<b>Lease &amp; Subscription</b>	<b>Total Long-Term Liabilities</b>	<b>Number of<sup>1</sup> Connections</b>	<b>Debt per Connection (3) = (1)/(2)</b>	<b>Estimated<sup>2</sup> Population Served (4) = (2) * 2.5</b>	<b>Debt per Capita (5) = (1)/(4)</b>	<b>Income<sup>3</sup> per Capita</b>	<b>Debt per Capita as a % Income per Capita (7) = (5)/(6)</b>
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
2015	\$ 8,788,000	\$ -	\$ 8,788,000	18,466	\$ 475.90	46,165	\$ 190.36	\$ 58,603	0.3248 %
2016	8,352,000	-	8,352,000	18,764	445.11	46,910	178.04	60,294	0.2953
2017	7,903,000	-	7,903,000	19,257	410.40	48,143	164.16	60,964	0.2693
2018	7,440,000	-	7,440,000	19,738	376.94	49,345	150.78	67,630	0.2229
2019	6,963,000	-	6,963,000	20,252	343.82	50,630	137.53	74,613	0.1843
2020	6,472,000	-	6,472,000	20,787	311.35	51,968	124.54	74,613	0.1669
2021	5,966,000	-	5,966,000	21,238	280.91	53,095	112.36	77,657	0.1447
2022	5,057,840	-	5,057,840	21,595	234.21	53,988	93.69	77,606	0.1207
2023	4,583,080	188,171	4,771,251	22,138	215.52	55,345	86.21	85,867	0.1004
2024	4,088,320	100,002	4,188,322	22,640	185.00	56,600	74.00	91,201	0.0811

<sup>1</sup> Connections from Table 12

<sup>2</sup> The Virginia Department of Health estimates 2.5 residents per connection; this number is used in lieu of the population data in Table 8 which is representative of the entire county.

<sup>3</sup> Per capita income data from Table 8 (Source: U.S. Bureau of Economic Analysis, Charlottesville-Albemarle Area)

Note: The Authority is not subject to legal debt limitations, and has issued no debt which is overlapping with other jurisdictions during the last ten fiscal years.

Table 7

**ALBEMARLE COUNTY SERVICE AUTHORITY  
PLEDGED-REVENUE COVERAGE  
LAST TEN FISCAL YEARS**

<b>Fiscal Year</b>	<b>Gross Revenue</b>	<b>Direct Operating Expense<sup>1</sup></b>	<b>Net Revenue Available for Debt Service</b>	<b>Principal</b>	<b>Interest</b>	<b>Total</b>	<b>Coverage</b>
2015	\$ 31,021,470	\$ 20,334,846	\$ 10,686,624	\$ 424,000	\$ 414,813	\$ 838,813	12.74
2016	33,965,596	21,639,302	12,326,294	436,000	395,056	831,056	14.83
2017	36,457,609	22,430,150	14,027,459	449,000	374,726	823,726	17.03
2018	42,975,439	22,693,759	20,281,680	463,000	353,776	816,776	24.83
2019	40,149,708	26,230,666	13,919,042	477,000	332,183	809,183	17.20
2020	45,373,703	27,136,308	18,237,395	491,000	309,946	800,946	22.77
2021	44,736,751	28,703,894	16,032,857	506,000	287,044	793,044	20.22
2022	43,999,498	31,195,040	12,804,458	335,000	235,937	570,937	22.43
2023	49,024,203	34,965,018	14,059,185	375,000	102,153	477,153	29.46
2024	53,045,158	39,637,591	13,407,567	395,000	82,250	477,250	28.09

<sup>1</sup>Excluding depreciation and amortization

Table 8

**ALBEMARLE COUNTY SERVICE AUTHORITY  
COUNTY DEMOGRAPHIC AND ECONOMIC STATISTICS  
LAST TEN FISCAL YEARS**

<b>Calendar Year</b>	<b>Population <sup>1</sup></b>	<b>Personal Income <sup>2</sup></b>	<b>Per Capita Income <sup>2</sup></b>	<b>Per Capita Income as Percent (%) of U.S. Average <sup>2</sup></b>	<b>School Enrollment <sup>3</sup></b>	<b>Unemployment Rate <sup>4</sup></b>
2014	104,489	\$ 8,420,079,000	\$ 56,851	128 %	13,677	4.7 %
2015	105,703	8,795,194,000	58,603	127	13,737	3.7
2016	106,878	9,182,721,000	60,294	125	13,792	3.5
2017	107,702	9,375,633,000	60,964	124	13,910	3.3
2018	108,718	10,531,351,000	67,630	131	14,013	2.7
2019	109,330	11,702,008,000	74,613	137	14,435	2.5
2020	112,395	12,160,701,000	77,657	138	13,532	5.4
2021	113,535	12,230,910,000	77,606	130	13,749	3.2
2022	114,534	13,670,666,000	85,867	134	13,970	2.7
2023	115,676	14,583,689,000	91,201	132	13,821	2.6

<sup>1</sup> U.S. Census Bureau (estimates based on July 1)

<sup>2</sup> U.S. Bureau of Economic Analysis, Charlottesville-Albemarle Area, Personal Income, Population, Per Capita Personal Income

<sup>3</sup> County of Albemarle, Department of Education

<sup>4</sup> Virginia Labor Market Information, [www.virginialmi.com](http://www.virginialmi.com)

Calendar year 2024 statistics for the table above are not yet available.

Table 9

**ALBEMARLE COUNTY SERVICE AUTHORITY  
TEN LARGEST EMPLOYERS (ALBEMARLE COUNTY)  
CURRENT YEAR AND NINE YEARS AGO**

<b>Employer</b>	<b>Estimated Product/Service</b>	<b>(1) Estimated Employment in 2024</b>	<b>Rank in 2024</b>	<b>(1) Estimated Employment in 2015</b>	<b>Rank in 2015</b>
University of Virginia/Blue Ridge Hospital	Higher education	1,000 - over	1	1,000 - over	1
County of Albemarle	Local government	1,000 - over	2	1,000 - over	2
Sentara Healthcare/Martha Jefferson Hospital	Health care	1,000 - over	3	1,000 - over	3
U.S. Department of Defense	National security	1,000 - over	4	500-999	5
Crutchfield Corporation	Electronic retailers	500 - 999	5	-	-
Northrop Grumman Corporation	Computer & electronic mfg.	500 - 999	6	500 - 999	6
Wal-Mart	Department stores	250 - 499	7	250 - 499	9
Wegmans Store #07	Grocery store	250 - 499	8	-	-
Piedmont Virginia Community College	Higher education	250 - 499	9	500 - 999	7
Atlantic Coast Athletic Club	Fitness center	250 - 499	10	-	-
State Farm Insurance	Insurance services	-	-	1,000 - over	4
Troy Construction	Construction	-	-	250 - 499	8
GE Fanuc Automation North Corporation	Computer & electronic mfg.	-	-	250 - 499	10

Source: Virginia Employment Commission

(1) Actual number of employees not available

Table 10

**ALBEMARLE COUNTY SERVICE AUTHORITY  
FULL-TIME EMPLOYEES  
LAST TEN FISCAL YEARS**

Department	Fiscal Year									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Administration/I.T.	10	10	10	10	10	10	11	11	12	15
Finance	16	16	17	17	17	17	17	17	17	18
Engineering	16	16	16	17	17	17	17	17	17	17
Maintenance	32	33	33	33	33	34	34	34	34	34
Total	74	75	76	77	77	78	79	79	80	84

Table 11

**ALBEMARLE COUNTY SERVICE AUTHORITY  
OPERATING INDICATORS  
LAST TEN FISCAL YEARS**

	Fiscal Year									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
New connections	334	298	493	481	514	535	451	357	543	502
Water meters read <sup>1</sup>	227,435	231,275	235,879	241,978	248,182	254,786	260,699	265,753	271,418	277,998
Service orders processed <sup>2</sup>	12,116	12,405	16,988	12,055	8,179	11,091	10,640	8,306	7,988	5,162
Water main breaks	16	6	5	11	12	6	9	6	14	10
Sewer overflows	2	3	2	4	7	2	6	8	6	3
Sewer blockages	5	3	2	5	8	2	5	1	3	3

<sup>1</sup> Number of meters read for billing.

<sup>2</sup> Includes new service requests, requests for disconnection, meter installations & exchanges, investigations, and miscellaneous customer requests.



Table 12

**ALBEMARLE COUNTY SERVICE AUTHORITY  
CAPITAL ASSET STATISTICS  
LAST TEN FISCAL YEARS**

	Fiscal Year									
	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Number of water connections	18,466	18,764	19,257	19,738	20,252	20,787	21,238	21,595	22,138	22,640
Number of sewer connections	15,508	15,805	16,299	16,764	17,273	17,803	18,257	18,611	19,146	19,650
Miles of water lines	355.00	338.52	344.76	349.40	353.10	357.81	363.79	373.97	374.29	377.84
Miles of sewer lines	261.10	281.67	288.17	292.70	297.60	301.12	316.06	323.52	315.63	318.64
Fire hydrants	2,375	2,511	2,590	2,650	2,747	2,818	3,023	3,137	3,146	3,142
Water pumping stations	9	9	8	8	9	9	9	9	9	8
Sewer pumping stations	12	12	12	12	12	12	11	11	10	10
Water storage tanks	7	8	8	8	8	8	8	8	8	7

Table 13

**ALBEMARLE COUNTY SERVICE AUTHORITY  
REVENUES BY SOURCE  
LAST TEN FISCAL YEARS**

<b>Fiscal Year</b>		<b>Service Charges</b>		<b>Connection Charges</b>		<b>Rental Income</b>		<b>Interest/Investment Earnings(Loss)</b>		<b>Other</b>		<b>Total</b>
2015	\$	22,641,543	\$	96,992	\$	33,437	\$	102,469	\$	680,717	\$	23,555,158
2016		23,460,681		117,728		27,645		215,035		675,878		24,496,967
2017		25,786,007		138,553		17,213		59,576		738,948		26,740,297
2018		26,453,332		140,451		16,603		348,572		843,004		27,801,962
2019		27,053,948		135,007		16,603		946,599		364,584		28,516,741
2020		29,502,041		147,876		16,603		733,385		639,080		31,038,985
2021		29,883,684		141,043		15,539		82,900		532,947		30,656,113
2022		32,825,048		131,415		18,357		(631,796)		363,569		32,706,593
2023		34,052,322		178,642		270		1,084,854		461,806		35,777,894
2024		39,119,362		178,849		-		2,810,568		441,025		42,549,804

Table 14

**ALBEMARLE COUNTY SERVICE AUTHORITY  
EXPENSES BY FUNCTION  
LAST TEN FISCAL YEARS**

<b>Fiscal Year</b>	<b>Water &amp; Sewer Costs</b>	<b>Departmental Operating Expenses</b>	<b>Bond Interest Charges</b>	<b>Depreciation</b>	<b>Other</b>	<b>Total</b>
2015	13,901,732	6,433,114	414,813	3,026,916	193,203	23,969,778
2016	14,795,643	6,843,659	395,056	3,158,144	22,163	25,214,665
2017	14,928,569	7,501,581	374,726	3,302,779	4,761	26,112,416
2018	15,289,280	7,404,479	353,776	3,336,765	55,201	26,439,501
2019	18,154,657	8,076,009	332,183	3,625,254	438,731	30,626,834
2020	18,694,581	8,441,727	309,946	3,669,899	7,553	31,123,706
2021	19,858,509	8,845,385	287,044	3,898,244	161,972	33,051,154
2022	21,923,767	9,271,273	235,937	4,114,076	325,933	35,870,986
2023	24,189,739	10,775,280	102,153	4,305,016	219,564	39,591,752
2024	27,585,689	12,051,902	82,250	4,354,813	681,357	44,756,011

Table 15

**ALBEMARLE COUNTY SERVICE AUTHORITY**  
**SCHEDULE OF INSURANCE IN FORCE**  
**June 30, 2024**

Insurer	Type of Coverage	Policy Number	Policy Period		Annual Premium
			From	To	
Virginia Risk Sharing Association	Local Government Liability Boiler & Machinery Cyber Liability General Business Policy: Auto General Liability/Excess Property Fidelity & Crime Workers' Compensation	P-2023-2024-VRSA-0107-1	7/1/2023	6/30/2024	\$128,670

Table 16

**ALBEMARLE COUNTY SERVICE AUTHORITY  
BILLED SERVICES AND CONNECTIONS  
LAST TEN FISCAL YEARS**

<b>Fiscal Year</b>	<b>Water Connections</b>	<b>Water Billions Gallons</b>	<b>Consumption Ratio Water/Sewer</b>	<b>Sewer Billions Gallons</b>	<b>Sewer Connections</b>
2015	18,466	1.57	1.2	1.33	15,508
2016	18,764	1.61	1.2	1.35	15,805
2017	19,257	1.70	1.2	1.41	16,299
2018	19,738	1.68	1.2	1.41	16,764
2019	20,252	1.63	1.2	1.41	17,273
2020	20,787	1.68	1.2	1.45	17,803
2021	21,238	1.70	1.1	1.48	18,257
2022	21,595	1.78	1.1	1.55	18,611
2023	22,138	1.74	1.2	1.51	19,146
2024	22,640	1.81	1.2	1.57	19,650

Table 17

**ALBEMARLE COUNTY SERVICE AUTHORITY  
CONSTRUCTION ACTIVITY, PROPERTY VALUE, AND CASH EQUIVALENTS  
LAST TEN FISCAL YEARS**

<b>Fiscal Year</b>		<b>Construction</b>		<b>Property Value</b>		<b>Cash &amp; Cash Equivalents</b>
2015	\$	8,531,307	\$	120,017,051	\$	23,466,968
2016		8,420,418		125,645,948		24,367,711
2017		11,673,410		127,628,676		30,010,727
2018		6,325,642		140,750,579		38,385,906
2019		9,392,718		145,137,081		40,275,478
2020		8,448,320		154,012,341		45,017,607
2021		8,639,796		162,344,686		21,749,451
2022		15,581,064		161,494,661		23,200,232
2023		11,563,824		168,443,035		28,535,583
2024		13,011,706		172,125,164		30,692,277

## **COMPLIANCE SECTION**

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## Independent Auditor's Report on Internal Control over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

To the Honorable Members of the Board of Directors  
Albemarle County Service Authority  
Charlottesville, Virginia

We have audited, in accordance with the auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the *Specifications for Audits of Authorities, Boards, and Commissions*, issued by the Auditor of Public Accounts of the Commonwealth of Virginia, the financial statements of the Albemarle County Service Authority (the "Authority"), as of and for the year ended June 30, 2024, and the related notes to the financial statements, which collectively comprise the Authority's basic financial statements, and have issued our report thereon dated October 25, 2024.

### Report on Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the Authority's internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control. Accordingly, we do not express an opinion on the effectiveness of the Authority's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. **Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that have not been identified.**

### Report on Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Authority's financial statements are free of material misstatement, we performed tests of its compliance with certain provisions of laws, regulations,



contracts, and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. **The results of our tests disclosed no instances of noncompliance that are required to be reported under *Government Auditing Standards*.**

### Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Authority's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

*Brown, Edwards & Company, L.L.P.*

CERTIFIED PUBLIC ACCOUNTANTS

Harrisonburg, Virginia  
October 25, 2024

## **Albemarle County Service Authority**

### **Summary of Compliance Matters**

**Year Ended June 30, 2024**

As more fully described in the Independent Auditor's Report on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with Government Auditing Standards, we performed tests of the Authority's compliance with certain provisions of the laws, regulations, contracts, and grants shown below.

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#### **State Compliance Matters**

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##### *Code of Virginia*

Cash and Investment Laws

Local Retirement Systems

Debt Provisions

Procurement Laws

Uniform Disposition of Unclaimed Property Act

Conflicts of Interest

# ALBEMARLE COUNTY SERVICE AUTHORITY

## AGENDA ITEM EXECUTIVE SUMMARY

<p><b>AGENDA TITLE:</b> ACSA General Construction Specifications - Adoption</p> <p><b>STAFF CONTACT(S)/PREPARER:</b> Jeremy M. Lynn, P.E., Director of Engineering</p>	<p><b>AGENDA DATE:</b> November 21, 2024</p> <p><b>ACTION:</b> <input type="checkbox"/> <b>INFORMATION:</b> <input type="checkbox"/></p> <p><b>CONSENT AGENDA:</b></p> <p><b>ACTION:</b> <input checked="" type="checkbox"/> <b>INFORMATION:</b> <input type="checkbox"/></p> <p><b>ATTACHMENTS:</b> YES</p>
--	--

**BACKGROUND:** Over the past year, ACSA staff from the Engineering and Maintenance Departments performed an in-depth review of our General Water and Sewer Construction Specifications. The goal of this review was to make improvements based on new construction techniques, improved materials and better testing methods. During our internal review, it was determined that a restructuring and reorganization of the document was desired in hopes of making it more clear for design consultants and contractors. Parts 1-3 of the updated construction specifications include general information and administrative policies, as well as design standards for water and sewer systems. Contractors can primarily focus on Parts 4-8 where the specifications cover material and construction requirements. Part 9 includes a reduced set of updated construction details. These updated specifications have been submitted to the Virginia Department of Health (VDH) for their approval in accordance with the conditions of our permit to operate a Local Review Program. We have obtained VDH approval and now ask our Board of Directors to adopt the updated General Water and Sewer Construction Specifications. Although DEQ no longer has a permit program for wastewater facilities, they do review wastewater pump station designs. DEQ did indicate they would include these updated construction specifications in their records.

**DISCUSSION:** Even with the restructuring of the document, a significant portion of the specifications remained materially unchanged. Below is a summary of some of the more substantive changes:

- Section 1.7 Plan Review and Approval Process – Based on conversations with the development community, we have added language about ACSA's review of preliminary plans, including rezoning documents and plats.
- Section 1.10 Dedication – This section reiterates the dedication requirements, which are outlined in Section 3 of the ACSA Rules and Regulations.

# ALBEMARLE COUNTY SERVICE AUTHORITY

## AGENDA ITEM EXECUTIVE SUMMARY

- Section 2.1 Independent Waterline Connections – Developments that have 100 or more Equivalent Residential Connections (ERCs) are required to have a second independent water connection for redundancy and water quality purposes.
- Section 2.7.1 Thrust Restraint – Instead of continuing the practice of utilizing concrete thrust blocks to restrain new water mains, use of restrained joints will be required. This seems to be an industry standard in other jurisdictions and is beneficial in congested utility corridors and fill areas.
- Section 2.11 Crossing Water Courses – Increase the minimum cover from three (3) feet to five (5) feet and elimination of concrete encasement for utility stream crossings.
- Section 3.1 Location of Sewerlines – Provides guidance on sanitary sewer locations, with preference being within VDOT right-of-way, adjacent to the right-of-way or in open space. Placing sewers in backyards has become increasingly difficult for access and maintenance, and negatively impacts a property owner's ability to construct fencing and other improvements.
- Section 3.4.1 Sewers Exceeding Twenty Percent (20%) Slope – Simplification in concrete anchor spacing, reduced from three to two categories.
- Section 3.5 Structural Design and Pipe Material – Require ductile iron pipe (DIP) for sewer depths greater than twelve (12) feet. Sewers over 12' deep are very difficult to excavate and use of DIP material decreases the likelihood of needing to excavate the sewerline in the future.
- Section 3.6 Depth of Cover – Stating the preferred sewer depth of 6-8 feet and limiting sewer to a depth of 16 feet unless no practical alternative exists.
- Section 7.6.3 Valve Box Installation – Allow usage of valve box riser rings on new construction for easy adjustment at the time of final paving.
- Details W-8 and W-9 – ACSA has significantly reduced the size of meter vaults for 1.5-inch and 2-inch to aid in the placement of meters in congested areas.
- Detail W-14 – Distinguish the difference between ARV's placed in paved areas vs. non-paved areas.

**BUDGET IMPACT:** None.

**RECOMMENDATIONS:** Approve the adoption of the revised ACSA General Water and Sewer Construction Specifications.

**BOARD ACTION REQUESTED:** Adopt the revised ACSA General Water and Sewer Construction Specifications.

**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY****ATTACHMENTS:**

- General Water and Sewer Construction Specifications, Revision Date October 21, 2024.





# GENERAL WATER AND SEWER CONSTRUCTION SPECIFICATIONS



## **Albemarle County Service Authority**

168 Spotnap Road  
Charlottesville, Virginia 22911  
Office: (434) 977-4511

**REVISION DATE:** October 21, 2024

## **DIGITAL RESOURCES**

ACSA General Water and Sewer  
Construction Specifications

(QR code to be inserted with new  
ACSA website)

ACSA Approved Products List

(QR code to be inserted with new  
ACSA website)



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## **Part 1 – General Information and Administrative Policies**

### **1.1 Purpose**

These construction specifications of the Albemarle County Service Authority (ACSA) cover general conditions, technical specifications, and details for water and sewer utilities to be incorporated into the ACSA's infrastructure. These specifications are for use by experienced design professionals as they are minimum requirements and are not a substitute for well-reasoned and thoughtful engineering design. The design of water and sewer Facilities shall consider the future operation and maintenance of the Facilities.

Requests for additional information or clarification shall be submitted to the Director of Engineering, Albemarle County Service Authority, 168 Spotnap Road, Charlottesville, Virginia 22911. Additional information can be obtained on the ACSA website: [www.serviceauthority.org](http://www.serviceauthority.org).

If any part of these specifications is held to be invalid, it shall not affect the validity of any other part of these specifications.

The Virginia Department of Health (VDH) Waterworks Regulations and the Virginia Department of Environmental Quality (DEQ) Sewage Collection and Treatment Regulations are included herein by reference. In the event of any discrepancy between these specifications and applicable rules and regulations of the VDH or the DEQ, the more stringent requirement will govern.

### **1.2 Definitions**

Unless the context specifically indicates otherwise, the meaning of terms used herein shall be as follows:

**AASHTO** – American Association of State Highway Transportation Officials.

**ANSI** – American National Standards Institute.

**AWWA** – American Water Works Association.

**ACSA** – The Albemarle County Service Authority, including its governing and operating bodies and designated agents. Any office referred to solely by title (e.g., Executive Director, Director of Engineering) shall be the person retained in this position by the ACSA.

**As-Built Plans** – Construction plans and details that have been updated after the Facilities have been constructed to reflect accurate locations and features of all Facilities. All structures shall have field survey information regarding their location. Sewer service connections shall be labeled with the distance to the nearest downstream manhole.

**Construction Approval** – A letter issued by the ACSA to a Developer which authorizes them to construct Facilities for which the Construction Plans have been approved by the ACSA.

**Construction Plans** – Plans that are prepared by the Developer’s Engineer showing the Facilities that will be constructed as part of a development project. These plans will be reviewed and approved by ACSA prior to the start of construction.

**Contractor** – Any person, firm, group, or affiliates hired by the Developer to construct the Facilities.

**County** - The County of Albemarle, Virginia, its governing and operating bodies, and designated agents.

**Equivalent Residential Connections (ERCs)** - The conversion of metered services to the equivalent of single-family residential connections. See ACSA Rules and Regulations – Appendix B for the current conversion schedules.

**DEQ** – Virginia Department of Environmental Quality.

**Developer** – Any person, firm, corporation, or association having an interest in any land or parcel requiring the design and construction of Facilities which would be under the jurisdiction of the ACSA and would become part of the public utilities system of the ACSA.

**Developer’s Engineer** – The Professional Engineer, hired by the Developer, that prepares and seals the Construction Plans showing the water and sanitary sewer Facilities that will be built by the Developer as part of their project.

**EPA** – U.S. Environmental Protection Agency.

**Facilities** – Any and all water and sewer infrastructure including waterlines and their appurtenances, water storage tanks, filtration or treatment facilities and pump stations, sewerlines and their appurtenances, sewage pumping stations and treatment plants that a Developer constructs and then dedicates to ACSA to become part of the public water and sewer systems that the ACSA owns and maintains.

**OSHA** – U.S. Department of Labor Occupational Safety and Health Administration, administered by the Virginia Department of Labor and Industry.

**Public Sewer** – A sanitary sewer which is owned and operated by the ACSA.

**RWSA** – The Rivanna Water and Sewer Authority, its representatives, and designated agents.

**Sanitary Sewage** – Water-carried waste which derives principally from dwellings, business buildings, institutions, industrial establishments, and the like, exclusive of any storm and surface waters.



**Sanitary Sewer** – A sewer that has its use limited to sanitary sewage and to which storm, surface and ground waters are not intentionally admitted.

**Sewerline** – A gravity sanitary sewer main that is owned by ACSA.

**Sewer Lateral** – The privately owned sanitary sewer pipe that extends from the ACSA sewerline to the building or point of use.

**Shall or Will** – Are mandatory; may is permissive.

**VDH** – Virginia Department of Health - Office of Drinking Water.

**VDOT** – Virginia Department of Transportation.

**VMRC** – Virginia Marine Resources Commission.

**Water Service** – The pipe which extends underground from the ACSA waterline to the ACSA water meter. This is owned and maintained by the ACSA.

**Water Lateral** – The privately owned water pipe that extends from the ACSA water meter to the building or point of use.

**Waterline** – A water main that is owned by ACSA.

### ***1.3 Responsibility***

The ACSA has entered a Memorandum of Understanding with the Virginia Department of Health (VDH) and the Virginia Department of Environmental Quality (DEQ) authorizing local review of utility designs. The ACSA is responsible to ensure construction of Facilities in accordance with these specifications as well as the regulations of the VDH and of the DEQ.

The Developer is responsible to employ reliable Contractors with sufficient skills and experience to perform all work in an acceptable manner relative to the Facilities herein described. Failure to do so may result in work stoppage and/or refusal by the ACSA to accept the project as part of its system.

The Contractor is responsible to ensure the safe and proper construction of the Facilities herein mentioned. If any person is in doubt as to the true meaning of any part of these specifications, a written request shall be submitted to the ACSA for interpretation. Any questions concerning the standards shall be governed by the final decision of the ACSA.

The Developer's Engineer is responsible for design and submission of the proper number of plans and specifications for the proposed work.

The ACSA reserves the right to make adjustments in types of materials and methods of construction required, should field inspections reveal unforeseen and/or unfavorable conditions for installation of the utilities, as designed.

All work relative to connecting the existing ACSA water and sewer systems shall be performed by the Contractor or ACSA work forces. All related costs shall be the responsibility of the Contractor and/or Developer, unless specifically preempted by a formal contractual arrangement.

#### **1.4 *Underground Utility Damage Prevention Act***

In accordance with the Underground Utility Damage Prevention Act, no person shall begin excavation or demolition without making required notification and confirmation of cleared ticket.

#### **1.5 *Regulations and Ordinances of Other Agencies***

All Developers and Contractors should be familiar with all policies and laws that involve the VDH, DEQ, VDOT, VMRC, and any State Building and Fire Codes. Specifically noted are rules governing cross connections and backflow prevention.

All Developers and Contractors should be familiar with and shall comply with the Ordinances of Albemarle County including the Building, Water Protection Ordinance, and Zoning requirements.

In addition to the regulations herein, utility designs shall comply with the following:

1. VDH Waterworks Regulations, 12 VAC 5-590, 2021 or latest revision.
2. DEQ Sewage Collection and Treatment Regulations 9 VAC 25-790, latest revision.
3. Local Ordinances and State Building Codes, as adopted.
4. Local and State stormwater and erosion control rules and regulations.
5. Any utility crossing navigable streams or regulated wetlands must meet the requirements of the U.S. Army Corp of Engineers, DEQ, and VMRC. A joint permit application should be made to VMRC for review by these agencies.

#### **1.6 *Extension of Water and Sewer Systems***

Any new water or sanitary sewer systems to be connected to the public supply shall not be constructed until Construction Drawings are approved by the ACSA. Construction Plans shall be in sufficient detail to accurately indicate all pertinent design and construction details for a comprehensive interpretation of the work to be performed. The adequacy of the plans as designed will be determined by the ACSA.

It is recommended on large projects that the Developer and/or Developer's Engineer hold a preliminary conference with the ACSA regarding the project prior to its design phase. All water and sanitary sewer systems shown on the plans must be located and sized to serve the entire service area. Where it is determined by ACSA that water or sanitary sewer lines should serve adjoining properties or properties beyond the development in question, the Developer will be required to adequately design and construct the water and sewer systems at an appropriate location and depth to permit future extensions to be made.

The Developer's Engineer shall coordinate the location of all proposed water and sanitary sewer lines within existing and proposed rights-of-way with regard to existing and proposed roads and drainage structures. In addition, coordination shall be made with other utility companies and agencies regarding their existing easements, rights-of-way and facilities. Where there is a possibility of conflicts with existing utilities, the ACSA reserves the right to require the Developer's Engineer to secure accurate information on the horizontal and vertical location of such utilities through subsurface exploration prior to approving the Construction Plans.

### ***1.7 Plan Review and Approval Process***

If a Developer desires ACSA's review and feedback of proposed Facilities on preliminary plans, including rezoning documents and plats, the Developer shall submit a Utility Master Plan for the development to ACSA. If the Developer does not submit a Utility Master Plan, the proposed Facilities have not been approved by ACSA and significant changes to the development may be required once ACSA reviews the Construction Plans.

#### ***1.7.1 Utility Master Plan***

For any phased development the Developer shall submit a Utility Master Plan to the ACSA for review. Utility Master Plans shall include the location, size, and approximate elevation (depth) of waterlines and sewerlines, all proposed ACSA easements, lot and road layouts, proposed grading, estimated build-out flow requirements for the development, and the proposed phasing of development. The Utility Master Plan shall be approved by ACSA prior to review of Construction Plans for any portion of the development. When Construction Plans are submitted for review and the proposed phase is not in accordance with the approved master plan, ACSA may require the master plan be amended and re-submitted for review and approval.

Approval of a Utility Master Plan is not a reservation of system capacity, either water or sewer, for the entire development. ACSA does not reserve capacity in its system. If the existing ACSA infrastructure is not adequate to serve the entire project, the Master Plan shall also address off-site utility improvements.

If the development build-out sewer flows exceed 40,000 gallons per day, a capacity certification from RWSA and/or the City of Charlottesville will be required. This certificate shall address capacity in the existing sewerlines, as well as the receiving

wastewater treatment plant. For any wastewater flows received downstream by the City of Charlottesville, the Developer shall consult with the City regarding sewer capacity.

### 1.7.2 Construction Plans

The Developer shall submit Construction Plans to ACSA for review and approval prior to beginning construction of any Facilities. ACSA may require digital and/or paper copies of plans to review depending on the project.

Drawings, plans, specifications, and engineer's reports submitted for approval shall be prepared by a Professional Engineer registered in the Commonwealth of Virginia. The front sheet of each set of Construction Plans shall bear the original imprint of the P.E. seal, signature, and date of the responsible registered professional and all following sheets shall bear at least a legible copy of that seal, signature, and date.

The VDH and DEQ have delegated certain rights to the ACSA to review local water and sewer projects. Any projects that include pump stations, pretreatment or storage facilities must also be submitted to VDH and/or DEQ for review. VDH and/or DEQ reserve the right to require any project regardless of size, and scope, to be submitted for their review.

Plan sheets shall be twenty-four (24) inches by thirty-six (36) inches. Each set of Construction Plans shall be provided with a cover letter and water and sewer data sheets. Any supplemental specifications shall be attached to or shown on plans to govern work not covered by these specifications. Each set of plans shall contain the current version of the ACSA General Water & Sewer Conditions.

### 1.7.3 Plan Review

The ACSA's goal is to review Construction Plans within forty-five (45) days of receipt. Comments on the plans shall be returned to the Developer and the Developer's Engineer. All plans will be stamped upon receipt and reviewed in order of receipt, except plans with minor edits requiring minimal review may be expedited at ACSA's discretion.

### 1.7.4 Plan Approval

Once the Construction Plans are approvable, two (2) paper copies and one (1) electronic copy shall be submitted to ACSA. ACSA will issue a Construction Approval to the Developer's Engineer. Approval is for basic compliance with these Specifications and does not relieve the Developer, Contractor, or Developer's Engineer from responsibility for their work.

Approvals are valid for a period of eighteen (18) months from date of issue. If water and sewer construction is not in progress at the end of that period, or if construction becomes inactive for a period of twelve (12) months, the ACSA approval shall be void.

Construction Plans may need to be submitted as a new project, if deemed necessary by the ACSA, to conform to the most current specifications.

#### 1.7.5 Plan Review and Inspection Fee

To defray, in part, the cost of reviewing plans and inspecting the construction of new water and/or sanitary sewer infrastructure, ACSA charges a plan review and inspection fee for all projects. Fees must be paid prior to scheduling a Preconstruction Conference. The current fee schedule is posted in the ACSA Rules and Regulations.

#### 1.7.6 Preconstruction Conference

Prior to beginning construction on the project, the Developer and Contractor must hold a preconstruction conference with ACSA personnel. To schedule a conference, contact the ACSA engineer who issued the Construction Approval.

### **1.8 Inspection**

An inspector from the ACSA will be assigned to each project to ensure that all work is completed, and materials are installed, in compliance with these specifications. Any deviation from the approved Construction Plans must be approved by the ACSA before incorporation into the work. ACSA shall be permitted access to the construction of the Facilities at any time, including access to use the airspace above the locations of construction for flight of unmanned aerial vehicles for the purpose of imagery collection.

### **1.9 As-Built Plans**

Construction Plans with field markups shall be maintained by the Contractor in the field. These shall be provided to the Developer or their representative to assist in the preparation of the final As-Built Plans. The Developer shall have all structures surveyed after installation to accurately show their location on the final As-Built Plans.

Where available, control shall be based on the Virginia State Plane Coordinate System South Zone NAD 1983. Vertical reference shall be based on NAVD 1988.

One (1) paper copy and one (1) PDF copy of the As-Built Plans shall be provided to the ACSA by the Developer. All plan preparation, printing and duplicating cost shall be borne by the Developer. ACSA's goal will be to review As-Built Plans within thirty (30) days after receipt. ACSA will provide comments to the Developer or their representative once the review of the As-Built Plans is complete. The As-Built Plans shall be approved prior to Initial Acceptance.

### **1.10 Dedication**

Upon completion of construction of the Facilities, the Developer must dedicate the Facilities to the ACSA. See Section 3 of the ACSA Rules and Regulations for the requirements of dedicating the Facilities to ACSA and receiving Initial Acceptance. The entire set of

Construction Plans must receive Initial Acceptance before any water meters will be installed for that project. Construction of Facilities shown on a single set of Construction Plans cannot be subdivided into phases to receive Initial Acceptance for part of the project.

After completion of all sitework, paving, required landscaping and building construction, the Developer shall apply for Final Acceptance of the Facilities by the ACSA. The developer shall be responsible for any repair or maintenance of the Facilities during the time between Initial Acceptance and Final Acceptance and then for one (1) year from the date of Final Acceptance.

### **1.11 Easements**

Easements shall be required for all water lines, sewer lines, and appurtenances that are not installed within a public right-of-way of VDOT. Easements will be a minimum of twenty (20) feet in width, centered on the utility line. Wider easements will be required based on the depth and size of the utility as shown in the table below.

Trench Depth (ft)	8-12" Diameter	15-18" Diameter	20-27" Diameter	30-36" Diameter	36+" Diameter
0-6	20'	20'	25'	25'	30'
6-8	20'	20'	25'	25'	30'
8-10	20'	25'	25'	25'	30'
10-12	25'	25'	25'	30'	30'
12-14	30'	30'	30'	35'	35'
14-16	35'	35'	35'	40'	40'
16-18	40'	40'	40'	40'	40'
18+	40'	40'	45'	45'	45'

If the utility is placed in a VDOT right-of-way but is closer than  $\frac{1}{2}$  the required easement width to the edge of the right-of-way, an ACSA easement shall be provided abutting the right-of-way so that ACSA has the equivalent of the full width easement. For example, if a waterline that requires a twenty (20) foot wide easement is installed seven (7) feet from the edge of the right-of-way but inside the right-of-way, then a three (3) foot wide easement abutting the right-of-way would be required.

The ACSA reserves the right to require additional easement width if construction or maintenance activities require it. The ACSA also reserves the right to require access easements where appropriate. All easements shall have the right of ingress and egress fully provided for in the recorded document. Where deemed necessary by the ACSA, easements shall extend to adjacent property for orderly extensions of service. Easements shall be corrected to reflect the as-built conditions and shall be recorded prior to Initial Acceptance being granted.

All appurtenances (blow-off, hydrants, etc.) shall be provided with an easement twenty (20) feet in width centered on the interconnecting piping and shall extend ten (10) feet beyond the center of the appurtenance.

No buildings or permanent structures shall be constructed within ACSA easements. No trees, shrubs, structures, fences, or obstacles shall be placed within an easement. Any person who constructs a structure within the utility easement shall be liable for the cost of removal and any damage to the ACSA infrastructure.

### ***1.12 Liability***

The ACSA shall have no liability, resulting from any reason whatsoever, in connection with the design, construction, installation, or testing of the Facilities.

## **Part 2 – Design of Water Systems**

The water system must be designed and constructed through the development to facilitate future extensions and connections to neighboring properties. Typically, this will include the construction of waterlines along the full extent of any public road frontage of development. Waterlines shall be constructed beyond the proposed improvements within a development so that future extensions and interconnections to adjoining properties will not disrupt any improvements.

### **2.1 *Independent Waterline Connections***

All developments that have 100 or more ERCs or serve significant customers, such as schools, nursing homes or hospitals, must have two independent connections to the water distribution system. Phased developments may develop up to 100 ERCs without a second independent connection. At the time that more than 100 ERCs are approved, the second independent connection must be made. The distribution system shall be designed so that any portion of the development that has 100 or more ERCs or a significant customer shall have two independent connections.

### **2.2 *Location of Waterlines***

Generally, waterlines are to be installed along public or private streets or travel aisles so they can be easily accessed. Waterlines should not be placed under parking spaces. In subdivisions, waterlines will be permitted in easements only when there is no other feasible alternative.

Waterlines should be placed five (5) feet from the outside edge of the pavement or seven (7) feet from the face of curb on undivided roadways.

Dead-ends shall be minimized by looping all waterlines. It may be necessary to install waterlines in areas of limited accessibility to comply with requirements for looping waterlines. Where dead-ends are necessary they shall be provided with a fire hydrant, blow-off assembly, or automatic flushing assembly as directed by ACSA.

### **2.3 *Flow Requirements***

All distribution system additions shall be designed to provide a minimum residual pressure of twenty (20) pounds per square inch at all service connections. The design shall be based on the more restrictive condition of either the peak hour demand or the maximum daily demand plus applicable fire flows. The required fire flow is determined by the Albemarle County Department of Fire and Rescue.

To determine maximum daily demands and peak hourly demands the following multipliers shall be used:

Maximum Daily Demand (residential) = 1.8 times Average Daily Demand



Maximum Daily Demand (non-residential) = 1.3 times Average Daily Demand

Peak Hourly Demand = 2.7 times Average Daily Demand

In the design of new water distribution systems, a pipe friction factor of  $C=120$  (as defined by the Hazen-Williams Equation) shall be used to calculate flow rates. The Developer's Engineer shall be responsible to properly design the water system. Hydraulic calculations for sizing the water system must be submitted to the ACSA for review.

## **2.4 Pipe Size**

All waterlines shall be sized to adequately serve all the needs of the proposed subdivision or water system. The minimum size of the pipe where fire protection is to be provided or required shall be eight (8) inches in diameter. If a waterline will not be extended in the future and only serves a single fire hydrant, it may be six (6) inches in diameter. On dead end lines that will not be extended in the future, the waterline should be reduced to four (4) inches in diameter after the last fire hydrant.

ACSA may require a Developer to increase the size of the waterlines above what is required to serve the project in order to meet the overall needs of the area or to improve distribution system performance or reliability.

## **2.5 Depth of Cover**

Water pipe shall be laid with a cover of three and one-half ( $3\frac{1}{2}$ ) feet measured from established finished grade to the top of the pipe. For waterlines twelve (12) inches in diameter and larger, additional cover is required near gate valves to ensure that valve nuts have at least fourteen (14) inches of cover. Any potential changes in alignment or grade of roadways shall be considered in the original utility design. Excessive depth or loss of adequate cover will necessitate relocation or lowering of the water line. Every effort shall be made to maintain the finished grade to not exceed a trench depth of five (5) feet.

## **2.6 Pipe Deflection**

Wherever it is necessary to deflect the pipe from a straight line, either in the vertical or horizontal plane, to avoid obstructions to plumb the line for valve installation, or where long-radius curves are permitted, the amount of deflection allowed shall not exceed the following table or 80% of the deflection allowed by the pipe manufacturer, whichever is less.

<b>Pipe Size (inches)</b>	<b>Allowable Joint Deflection (degrees)</b>	<b>Minimum Allowable Radius (feet)</b>	<b>Offset per full length joint of pipe (inches)</b>
4	4	286	17
6	4	286	17
8	4	286	17
10	4	286	17
12	4	286	17
16	3	382	13
18	3	382	13
20	2	573	8
24	2	573	8

## **2.7 Structural Design of Waterlines**

The Developer's Engineer is responsible for the structural design of all waterlines and appurtenances. The table below lists the minimum allowable thickness class of ductile pipe for various sizes, but the Developer's Engineer shall determine if a thicker class of pipe should be utilized. The thickness class of all waterlines shall be identified on the Construction Plans.

<b>Pipe Size (inches)</b>	<b>Minimum Thickness Class</b>
4	53
6	52
8	52
10	52
12	51
16	50
18	50
20	50
24	50

### **2.7.1 Thrust Restraint**

Waterlines and appurtenances shall be restrained against thrust forces and movement utilizing restrained joints. Unless otherwise approved by ACSA and specifically shown on the Construction Plans, all joints and fittings shall be restrained. Joints and fittings can be restrained with restrained push-on gaskets, specially designed push-on restrained joints or mechanical restrained joints. The method and all materials for restraint shall be approved by the pipe manufacturer.

Thrust blocking shall not be used unless approved by ACSA and specifically called out on the Construction Plans with the following exception: a thrust block shall be

poured behind the base of every fire hydrant as shown in Detail W-3. Fire hydrant leads shall also utilize restrained joints for every joint and fitting.

## **2.8 *Separation from other Utilities***

### **2.8.1 *Separation from Sanitary Sewers***

There shall be no physical connection between drinking water supplies and sewers or appurtenances. No sewer shall pass within 100 feet of a potable water supply well or other potable water supply source or structure unless special construction and/or pipe materials are used to obtain adequate protection. No water pipe shall pass through or come in contact with any part of a sewer manhole.

#### **Parallel Installations**

Water lines shall be laid at least ten (10) feet horizontally from a sewer or sewer manhole whenever possible; the distance shall be measured edge-to-edge.

When local conditions prevent a horizontal separation of ten (10) feet, the water line may be laid closer to a sewer or sewer manhole provided that the bottom (invert) of the waterline shall be at least eighteen (18) inches above the top (crown) of the sewer. Where this vertical separation cannot be obtained, the sewer shall be constructed of AWWA approved Ductile Iron water pipe, pressure tested in place without leakage prior to backfilling.

Any manhole within ten (10) feet of a waterline shall be of watertight construction and tested in place.

#### **Crossing Installations**

Waterlines crossing sewerlines shall be laid to provide a separation of at least eighteen (18) inches between the bottom of the waterline and the top of the sewerline. When local conditions prevent this vertical separation, the following construction shall be used:

1. Sewerlines shall be constructed of AWWA approved Ductile Iron water pipe and pressure tested in place without leakage prior to backfilling.
2. Sewer laterals shall be installed inside an appropriately sized Ductile Iron casing pipe, centered at the point of crossing.
3. Waterlines passing under sewers shall also be protected by providing:
  - a) A vertical separation of at least eighteen (18) inches between the bottom of the sewer and the top of the waterline.
  - b) Adequate structural support for the sewers to prevent excessive deflection of the joints and the settling on and breaking of the

waterline.

- c) That the length of the water pipe be centered at the point of the crossing so that joints shall be equidistant and as far as possible from the sewerline. The length of sewer pipe shall also be centered at the point of crossing, so that joints shall be equidistant and as far as possible from the waterline.

### 2.8.2 Horizontal Separation from other Utilities

Other utilities, excluding sanitary sewers, shall have a minimum of five (5) feet of horizontal separation with waterlines.

### 2.8.3 Vertical Separation from other Utilities

When other utilities, excluding sanitary sewers, must cross a waterline, eighteen (18) inches of vertical separation is preferred, with the other utility crossing below the waterline. If eighteen (18) inches of separation cannot be achieved, then twelve (12) inches of separation is acceptable.

Storm sewers will only be allowed to cross over waterlines when the storm sewer cannot be lowered to cross under the waterline. Avoiding lowering downstream sections of storm sewer is not an acceptable reason for a storm sewer to cross over a waterline.

When a storm sewer is crossing a waterline and the storm sewer cannot cross under the waterline with twelve (12) inches a separation, the required separation may be reduced to six (6) inches and the required cover over the waterline may be reduced to three (3) feet if these reductions allow the waterline to pass over the storm sewer.

### 2.8.4 Crossing Over or Under Culverts

The minimum vertical separation between a waterline and an open-ended culvert is twelve (12) inches with insulation to prevent freezing or twenty-four (24) inches without insulation. The type of insulation and the method of application shall conform to the manufacturer's published recommendation.

## **2.9 Installation Under Existing Roads**

Waterlines under existing public highways shall be installed by open cutting if approved by VDOT. Otherwise, they shall be installed by bore and jacking with a spiral-welded steel casing pipe with a minimum thickness of one-half (1/2) inch. The casing pipe shall extend from back of curb to back of curb, beyond concrete or paved ditches, or a minimum of five (5) feet beyond the edge of pavement, whichever is greatest.

The steel casing pipe shall be no less than twice the diameter of the carrier pipe for water installations. All carrier pipe installed in steel casings shall be restrained joint ductile iron and shall be supported with steel casing spacers. See Detail W-15 for additional information.

Bore and jacking of pipe or tunneling under pavement shall be done only upon prior written approval by the ACSA. If any pipe is installed in this manner, the Contractor shall submit a detailed schedule of operation and shall show the equipment and the exact method to be used.

## ***2.10 Pipeline Installation Under Railroads***

Local railway companies require permits for any construction within the confines of their right-of-way limits or properties. All requirements relative to design and construction must be met prior to approval by the ACSA. Notice or verification of meeting such requirements shall be submitted to the ACSA with the Construction Plans. Approvals by the railway company involved and the ACSA are necessary prior to authorization of work to commence. See Detail W-16 for additional information.

## ***2.11 Crossing Water Courses***

Waterlines intended to cross streams, rivers, or other surface waters, either continuous or intermittent flows, present special problems and should be discussed with the ACSA and the VDH before final plans are prepared. The waterline shall be installed a minimum of five (5) feet under the stream or riverbed. Valves shall be provided at both ends of the water crossing so that the section can be isolated for tests or repairs; the valves shall be easily accessible and not subject to flooding. Permanent one (1) inch taps shall be made for testing and locating leaks at each end of the water crossing. The minimum thickness class for the pipe shall be Class 52. See Detail W-17 for additional information.

The Developer is reminded that specific requirements of the U.S. Army Corp of Engineers, DEQ, and/or VMRC may apply to perennial stream crossings. A joint permit application may be filed with VMRC for review of these agencies.

## ***2.12 Appurtenances***

### ***2.12.1 Isolation Valves***

Approved gate valves shall be installed at all pipe junctions and street intersections in such a manner as to control and cut off flows in all segments of the system. A minimum of three (3) valves are required at crosses and a minimum of two (2) valves are required at tees. The valves are to be placed on the smaller lines at each cross and tee location, unless otherwise approved by the ACSA. Additional valves may be required in many circumstances, such as in looped systems, where it is necessary to isolate limited areas. In other areas, valves will be required every 500 feet, except as may otherwise be approved by the ACSA. No valve shall be located under a concrete storm gutter, curb, or sidewalk.

Isolation valves will be gate valves for waterlines four (4) inches through twelve (12) inches in diameter. For waterlines larger than twelve (12) inches in diameter, butterfly valves may be used reduce the cover required over the waterline, if approved by ACSA. The type of valve shall be labeled on the Construction Plans for every valve.

#### 2.12.2 Fire Hydrants

Fire hydrants shall be installed in such a manner as to provide the proper fire protection as approved by the County's Fire Official to all structures. Generally, fire hydrants shall be placed no closer than forty (40) feet to any major structure. Hydrants shall be placed every 500 feet measured along the centerline of the public right-of-way, private road, or other applicable access route. The maximum distance to a fire hydrant from any point on a dead-end street or road frontage shall be 200 feet. Where new waterlines are extended along streets where hydrants are not needed for fire protection, fire hydrants shall be provided at a spacing not to exceed 1,000 feet.

Fire hydrants shall be installed in areas where weep holes are above the prevailing groundwater table. Design elevations and the location of drainage structures shall be used to ensure the weep holes of the hydrant are not subject to groundwater immersion.

#### 2.12.3 Blow-Offs

Provisions for flushing waterlines shall be made at all dead-ends and low points by means of a regular blow-off assembly or fire hydrant assembly, as directed by the ACSA. Blow-off assemblies shall be placed behind the curb. See Detail W-13 for additional information. Blow-off assemblies shall not be connected directly to any storm drain or sanitary sewer systems.

#### 2.12.4 Air Release Valve Assemblies

Approved automatic air release valves shall be installed at the high points in the system when other means of removing air from the waterlines are not present. A one (1) inch diameter air release valve shall be used on waterlines smaller than twelve (12) inches in diameter. A two (2) inch diameter air release valve shall be used on waterlines equal to or larger than twelve (12) inches in diameter. All two (2) inch taps shall be made using saddles. See Detail W-14 for additional information.

#### 2.12.5 Water Services and Meters

Water services are to be installed for all lots within the development and shall extend from the waterline to the property line of the lot or edge of the ACSA easement.

Detached single family and attached single family residences shall be served with a one (1) inch diameter water service and a three-quarter ( $\frac{3}{4}$ ) inch water meter. Two

(2) attached single-family residences can be served by a single one (1) inch water service as shown in Detail W-4.

Water meters that serve customers other than single family residences shall be sized by ACSA based on flow data provided by the Developer, typically plumbing fixture counts. Three-quarter ( $\frac{3}{4}$ ) inch and one (1) inch meters will be served by a one (1) inch water service as shown in Detail W-4. One and a half (1.5) inch and two (2) inch meters shall be served by a four (4) inch ductile iron water service that reduces to two (2) inch brass beyond the pavement or sidewalk as shown in Detail W-7. In lieu of a single three (3) inch meter, the typical installation shall be dual two (2) inch meters, each served by a separate four (4) inch ductile iron water service.

Meter boxes and meter vaults shall be in non-paved areas and outside of sidewalks. They should be located as close to the waterline as possible.

All irrigation systems shall be served by a separate water meter, sized based on system demand. Separate irrigation meters serving single family detached residences may be provided using the dual service detail shown in Detail W-4.

Pressure reducing valves shall be installed on the customer side of the meter by the builder or property owner when the service connection system pressure will be greater than eighty (80) psi. The pressure reducing valve shall be owned, operated and maintained by the property owner and shall be inspected by the County's building inspector.

#### **2.12.6 Private Fire Protection Line**

All fire sprinkler systems shall be designed with a gate valve at the connection with the ACSA waterline. This gate valve shall be restrained utilizing a method approved by the ACSA and will mark the end of the public water system (the valve is part of the public water system and owned by ACSA).

Private fire lines are required to have a private backflow prevention assembly installed prior to any branches or tees in the fire line. The maximum allowable distance between the ACSA gate valve and the backflow prevention assembly is seventy-five (75) feet, measured along the route of the water pipe.

### **2.13 Cross Connections and Backflow Prevention Assemblies**

Any cross connection between the ACSA potable water system and a non-potable system, or between the ACSA potable water system and another system containing water of unknown or questionable quality, is strictly prohibited, except where an approved backflow prevention assembly has been installed, tested, and maintained.

The installation of an approved private backflow prevention assembly on a customer's Water Lateral, or within a customer's building, is required for all commercial, industrial, institutional, multi-family, irrigation, and fire suppression connections to the ACSA

distribution system. The backflow prevention assembly shall be installed after the water meter and before any branches or tees in the Water Lateral.

The installation, maintenance, and testing of a backflow prevention assembly on the customer's Water Lateral, or within the customer's building, shall be the sole responsibility of the customer. Backflow assembly inspection and testing must be coordinated with the County and ACSA.

#### ***2.14 Pressure Reducing Valve and Check Valve Vaults***

The ACSA, during its plan review of proposed Construction Plans, may identify locations where the installation of a Master Pressure Reducing Valve Vault or a Master Check Valve Vault may be necessary to reduce the water pressure for an area, to reduce water age in an area, or to provide a redundant water supply to an area. All Pressure Reducing Valve Vaults and Master Check Valve Vaults shall be designed and constructed in close coordination with ACSA.



## **Part 3 – Design of Sewer Systems**

The sanitary sewer system must be designed and constructed through the development to facilitate future extensions and connections to neighboring properties. Sanitary sewers shall be constructed beyond the proposed improvements within a development so that future extensions to adjoining properties will not disrupt improvements. Elevations of the sanitary sewer system must be designed such that future extensions are taken into consideration to allow service to entire area which naturally drains towards the system.

Sanitary sewers that are located on a parcel, only serve that parcel, and will not be extended in the future to serve other parcels shall be privately owned and maintained.

### **3.1 Location of Sewerlines**

It is understood that topographic constraints dictate the appropriate location for installation of sanitary sewers. Sewers shall be designed to accommodate gravity sewer flow. Whenever possible, sanitary sewers shall be constructed within VDOT right-of-way or adjacent to the right-of-way. When sewers must be located in other locations, they should be located in common areas rather than on private lots whenever possible.

Sanitary manholes and surface structures should be located outside the roadway and beyond the back of the curb or ditch line whenever practicable. Connecting lines between manholes will be allowed under the pavement around curves. Special situations beyond these guidelines, including placing manholes under the pavement should be coordinated with ACSA and VDOT. The Developer's Engineer should provide supporting documentation for the design.

Whenever possible, sewers should not be in areas subject to flooding, in drainage ditches, or in any location that would encourage inflow and infiltration. Structures located by necessity in areas prone to inundation shall be provided with watertight covers.

### **3.2 Hydraulic Design**

Sewer collection systems shall be designed to serve buildout of the planned development.

Hydraulic analysis of the sewer system should be completed using the Manning Formula with an "n" value of 0.014.

Projected flows should be based on the following table. When existing flows are unknown, the unit flows in the table should be used.

<b>Discharge Facility</b>	<b>Contributing Design Units</b>	<b>Flow gpd</b>	<b>Flow duration, hrs.</b>
Dwellings	Per unit	270	24
Schools w/ showers and cafeteria	Per person	16	8
Schools w/out showers w/ cafeteria	Per person	10	8
Boarding Schools	Per person	75	16
Motels @ 65 gal. per person (rooms only)	Per room	130	24
Trailer courts	Per trailer	270	24
Restaurants	Per seat	50	16
Interstate or through highway restaurants	Per seat	180	16
Interstate rest areas	Per person	5	24
Service Stations	Per vehicle served	10	16
Factories	Per person/per 8 hr shift	25	Match Shifts
Shopping centers	Per 1,000 square feet of ultimate floor space	250	12
Commercial Office	Per 1,000 square feet	90	12
Hospitals	Per bed	300	24
Nursing Homes	Per bed	200	24
Doctor's offices in medical centers	Per 1,000 square feet	500	12
Laundromats, 9-12 machines	Per machine	500	16
Community colleges	Per student & faculty	15	12
Swimming pools	Per swimmer	10	12
Theaters (drive-in type)	Per car	5	4
Theaters (auditorium type)	Per seat	5	12
Picnic areas	Per person	5	12
Camps, resort day & night w/ limited plumbing	Per camp site	50	24
Luxury camps w/ flush toilets	Per camp site	100	24

The minimum allowable peaking factors, of the average design flow, are shown in the table below.

<b>Sewer Type</b>	<b>Min. Peaking Factor</b>
Submain	400%
Main or Trunk	250%
Interceptor	200%

ACSA may require a Developer to increase the size of the sewerlines above what is required to serve the project to meet the overall needs of the area.

### 3.2.1 Downstream Improvements

If the projected flows from a development will cause any downstream sewerline to be at ninety percent (90%) or more of full pipe capacity during peak flows, as determined solely by ACSA, then the Developer shall be responsible for the design and construction of a larger replacement sewerline as part of their development. If a development is phased, the Developer shall design the replacement sewerline before Construction Plan approval of the portion of the development that causes the downstream sewerline to be at eighty percent (80%) of full pipe capacity. Similarly, the Developer shall construct the replacement sewerline before Initial Acceptance of the portion of the development that causes the downstream sewerline to be at ninety percent (90%) of full pipe capacity.

### **3.3 Minimum Size**

The minimum size for public sewerlines shall be eight (8) inches in diameter. The minimum size for sewer lateral connections is four (4) inches in diameter.

The diameter of a sewerline should increase as its drainage area increases. A larger diameter pipe should not flow into a smaller diameter pipe.

### **3.4 Slope**

Sewers shall have a uniform slope and straight alignment between manholes. Minimum grades are shown in the table below, but whenever possible, the slope on eight (8) inch sewerlines should be at least one percent (1.0%).

<b>Sewer Diameter</b>	<b>Minimum Slope</b>
8"	0.50%
10"	0.28%
12"	0.22%
14"	0.17%
15"	0.15%
18"	0.12%
21"	0.10%
24"	0.08%

Pipe sizes shall not be arbitrarily increased to take advantage of a flatter grade.

### 3.4.1 Sewers Exceeding Twenty Percent (20%) Slope

Sewers on a twenty percent (20%) slope or greater shall be anchored securely with concrete anchors and be constructed of ductile iron pipe (See Detail S-11). Anchor spacing shall be in accordance with the following table.

<b>Sewer Slope</b>	<b>Required Anchor Spacing</b>
20% to 35%	every other joint of pipe
35% or greater	every joint of pipe

The first anchor shall be placed on the first joint upstream from the lower manhole. The location of the first anchor and the maximum spacing required shall determine the number of anchors used between manholes.

The use of transition fittings at the upper and lower manholes along steep sewers shall be permitted as approved by the ACSA.

### **3.5 *Structural Design and Pipe Material***

The Developer's Engineer is responsible for the structural design of all sewerlines and appurtenances. SDR 26 is the only allowable class of PVC sewer pipe. The minimum allowable thickness class for ductile iron sewerlines is Class 50. The Developer's Engineer shall determine if PVC SDR 26 pipe is acceptable. If it is not, they shall determine the appropriate thickness class of ductile iron pipe.

If a sewer has less than three (3) feet of cover, the pipe shall be Class 52 ductile iron and adequately protected. If a sewer has more than twelve (12) feet of cover, the pipe shall be ductile iron and the Developer's Engineer shall determine the thickness class.

The pipe material shall be the same for the entire length of sewer pipe between manholes. The pipe material and thickness class of all sewer pipe shall be labelled on the Construction Plans.

### **3.6 *Depth of Cover***

Generally, sewerlines should be constructed with six (6) to eight (8) feet of cover. This typically allows the sewerlines to cross under waterlines with eighteen inches of clearance and to provide gravity sewer service to the primary floor of adjacent lots. Greater depths may be required to provide service to adjacent properties or to serve lower-lying properties. Sewers with more than sixteen (16) feet of cover shall only be allowed when no practical alternative exists. The minimum allowable cover over sewerlines is three (3) feet. Only under extraordinary conditions shall any sewerline be installed with less than three (3) feet of cover.

### **3.7 *Separation from other Utilities***

See Part 2.8.1 regarding the separation requirements between waterlines and sanitary sewers.

Storm sewers and natural gas lines should have a minimum of ten (10) feet of horizontal separation with sanitary sewers, unless the other utility is installed below the sanitary sewer. In that instance, five (5) feet of horizontal separation is acceptable. Other utilities should have a minimum of five (5) feet of horizontal separation with sanitary sewers.

When other utilities cross a sewerline, eighteen (18) inches of vertical separation is preferred. If eighteen (18) inches of separation cannot be achieved, then twelve (12) inches of separation is acceptable.

### **3.8 *Installation Under Existing Roads***

Sanitary sewerlines under existing public highways shall be installed by open cutting if approved by VDOT. Otherwise, they shall be installed by bore and jacking with a spiral-welded steel casing pipe with a minimum thickness of one-half (1/2) inch. The casing pipe shall extend from back of curb to back of curb, beyond concrete or paved ditches, or a minimum of five (5) feet beyond the edge of pavement, whichever is greatest.

The steel casing pipe shall be no less than three (3) times the diameter of the carrier pipe for gravity sewer installations and two (2) times the diameter of the carrier pipe for force main installations. All carrier pipe installed in steel casings shall be restrained joint ductile iron and shall be supported with steel casing spacers. See Detail S-12 for additional information.

Bore and jacking of pipe or tunneling under pavement shall be done only upon prior written approval by the ACSA. If any pipe is installed in this manner, the Contractor shall submit a detailed schedule of operation and shall show the equipment and the exact method to be used.

### **3.9 *Pipeline Installation Under Railroads***

Local railway companies require permits for any construction within the confines of their right-of-way limits or properties. All requirements relative to design and construction must be met prior to approval by the ACSA. Notice or verification of meeting such requirements shall be submitted to the ACSA with the Construction Plans. Approvals by the railway company involved and the ACSA are necessary prior to authorization of work to commence.

The steel casing pipe shall be no less than three (3) times the diameter of the carrier pipe for gravity sewer installations. All carrier pipe installed in steel casings shall be restrained joint ductile iron and shall be supported with steel casing spacers. See Detail S-13 for additional information.

### **3.10 *Stream Crossings***

Sewers crossing streams shall remain fully operational during flooding. Sewers shall be watertight when located within the 100-year Flood Plain. Sewers shall be constructed of watertight restrained joint ductile iron pipe from manhole to manhole. The pipe and joints shall be tested in place, shall exhibit zero infiltration, and shall be designed, constructed and

protected against anticipated hydraulic and physical, longitudinal, vertical and horizontal loads and erosion and impact.

Where stream crossings are proposed below the channel, the tops of all sewers crossing streams shall be five (5) feet below the natural bottom of the stream to protect the sewerline. The sewer pipe shall be restrained joint ductile iron with a minimum thickness class of Class 52. See Detail S-14 for additional information.

Sewers laid on piers across ravines or streams shall be allowed only when it can be demonstrated that no other practical alternative exists. Construction methods and materials of construction shall be such that sewers will remain watertight and free from change in alignment or grade. Pier and pipeline design shall be prepared by a Professional Engineer and submitted to the ACSA for approval.

### **3.11 Manhole Requirements**

Manholes shall be provided at all intersections with other sewerlines, at all points of change in alignment, change in sewerline grade, change in pipe material, and change in pipe size. The maximum distance between manholes shall be 400 feet. All sewerlines shall be straight between manholes. A manhole shall be constructed at the end of all lines, regardless of length.

Sewer manholes for sewers up to twenty-four (24) inch diameter shall not be less than forty-eight (48) inch inside diameter. Manholes for sewers larger than twenty-four (24) inches and up to forty-eight (48) inches shall have an inside diameter of not less than sixty (60) inches. The minimum angle between an incoming sewerline and the outgoing sewerline is ninety (90) degrees. The angles between incoming sewerlines shall be large enough that there is a minimum of six (6) inches of concrete between the two manholes cores on the interior wall of the manhole.

Incoming sewerlines, that are the same diameter, shall enter a manhole at the same invert elevation. If the incoming lines are different sizes, the crowns of the pipes shall be the same elevation. Typically, the outgoing pipe invert elevation shall be two tenths (0.2) of a foot below the lowest incoming pipe invert elevation. If the incoming and outgoing sewers are steep, the elevation drop across the manhole can match the slope of the sewers, up to maximum of a one (1) foot drop across the manhole.

Manhole top elevations shall be above the 100-year flood elevation or watertight. Manholes in unmaintained areas shall have top elevations six (6) inches above grade.

When a new sewerline needs to connect to an existing sewerline at a location between existing manholes, the standard practice shall be to cut in a new precast manhole. A doghouse manhole will only be allowed when cutting in a standard manhole is not practical, as determined solely by ACSA.

### 3.11.1 Drop Manhole Requirements

The use of drop manholes shall be minimized to the fullest extent possible. Ease of construction or cost of excavation are not acceptable reasons to utilize a drop manhole.

If a drop manhole is used in new construction, it shall be an internal drop manhole. Manholes with a sewerline internal drop connection shall have an inside diameter of at least sixty (60) inches. Manholes with two eight (8) inch diameter internal drop connections, a single ten (10) inch internal drop connection, or a single twelve (12) inch diameter internal drop connection shall have an inside diameter of at least seventy-two (72) inches.

If a sewerline internal drop connection needs to be added to an existing forty-eight (48) inch diameter manhole, the manhole shall be replaced with a larger diameter manhole. An external drop connection shall only be allowed when adding a drop sewerline connection to an existing manhole and the replacement of the existing manhole is not feasible. One (1) sewer lateral internal drop connection is allowed in an existing forty-eight (48) inch diameter manhole.

### 3.11.2 Ventilation

Ventilation of gravity sewers shall be provided where continuous watertight sections greater than 1,000 feet in length are incurred. Vents shall be protected against the 100-year flood either by elevation or mechanical means.

## **3.12 Sewer Laterals**

A sewer lateral shall be required for each customer and/or lot, unless otherwise approved by the ACSA. Sewer laterals shall be constructed to the property line or edge of the ACSA easement and sealed until said sewer lateral is put in use. In no case shall the gravity lateral be less than four (4) inches in diameter. All sewer laterals shall be privately owned from the point of connection at the sewerline or manhole, to the structure served.

When new sewerlines are installed, sewer laterals shall connect to the sewerline with an inline tee-wye fitting. When a new sewer lateral connects to an existing sewerline, it shall connect to the sewerline utilizing an approved saddle. If multiple new sewer lateral connections are proposed on an existing run of sewerline, ACSA may require the sewerline to be replaced with tee-wye fittings rather than having multiple saddles installed on the existing sewerline.

Private force mains smaller than four inches in diameter conveying wastewater from a grinder pump shall connect to a ten-foot section of four (4) inch diameter gravity sewer lateral before connecting to the ACSA sewerline or manhole, unless field conditions dictate otherwise (See Detail S-10).

Sewer lateral connections to sewerlines eighteen (18) inches in diameter, or larger, shall only be made at manholes. If necessary, a new manhole shall be installed on the existing sewerline to accommodate a new connection.

No sewer lateral connections shall be allowed on sewerlines with more than fifteen (15) feet of cover. A sewer lateral connection can be made at a manhole but a parallel sewer that has less cover may need to be installed to accommodate multiple sewer laterals.

### ***3.13 Protection of Potable Water***

The proposed design shall identify and adequately address the protection of all potable water supply structures within 100 feet of the proposed project.

### ***3.14 Industrial Waste***

Sources of waste other than domestic sewage shall be evaluated on an individual basis and plans of all industrial or commercial pretreatment facilities shall be reviewed by the ACSA in accordance with current ACSA and RWSA regulations.

### ***3.15 Grease Control Devices***

The installation of a grease control device is mandated for most restaurants and other food service establishments by Section 19 of the ACSA Rules and Regulations. Details of the design, sizing, and installation requirements of grease traps and grease interceptors is found in Section 19.

A grease control device shall receive the discharge of only gray water associated with kitchen activities. All other domestic wastewater shall drain separately from the facility and enter the sewer lateral downstream from the grease control device discharge.



## Part 4 – Water System Materials

### 4.1 *Water Pipe Material and Jointing*

All pipe shall be approved by the ACSA.

Unless otherwise approved in writing by the ACSA, all waterlines and distribution lines shall be of the material herein listed. The ACSA reserves the right to select the type and/or class material which shall be used.

#### 4.1.1 Ductile Iron Pipe and Fittings

Ductile iron pipe shall be centrifugally cast pipe manufactured in accordance with AWWA C151, current revision. The joints shall be push-on, mechanical or flanged in accordance with AWWA C111, current revision. All ductile iron pipe shall have a cement mortar lining in accordance with AWWA C104, current revision.

Ductile iron fittings shall have standard mechanical joints manufactured in accordance with AWWA C110, current revision, or AWWA C153, current revision. All fittings shall be cement mortar lined inside in accordance with AWWA C104, current revision.

**The exterior surface of all ductile iron pipe and fittings shall be coated with arc-sprayed zinc per ISO 8179.** The application rate shall be a minimum of 200 grams per square meter of pipe surface area. A finishing layer topcoat shall be applied to the zinc.

#### 4.1.2 Copper Pipe and Fittings

Copper pipe for Water Services shall be soft type "k" copper with standard water works flare or compression fittings.

#### 4.1.3 Brass Pipe and Fittings

Brass pipe and fittings shall conform to ASTM B-43, current revision, and shall only be used for two (2) inch diameter Type A blow-off assembly piping, piping to one and one-half (1.5) inch and two (2) inch meters, or for piping in two (2) inch air release valve assemblies. Brass pipe threads shall conform to ASME B1.20.1, current revision.

#### 4.1.4 Jointing

Jointing of all pipes shall conform to the manufacturer's published recommendations and specifications. Gaskets for water pipe and fittings shall be vulcanized natural or vulcanized synthetic rubber, free of porous areas, foreign material, or visible defects. Rubber gaskets shall conform to all applicable provisions of AWWA C111, current revisions. Gaskets shall be protected from exposure to excessive heat and cold, direct

sunlight, ozone (from electric motors and equipment), oil, grease or other contaminants.

## **4.2 Valves and Accessories**

### **4.2.1 Gate Valves**

Gate valves shall be resilient seated. They shall be non-rising stem, fully encapsulated wedge in accordance with AWWA C509, current revision.

Gate valves shall be one make and shall open by a counterclockwise rotation of the valve stem with a two (2) inch square operating nut. Operating nuts placed greater than five (5) feet below finished ground shall be equipped with approved operating nut extensions to meet the minimum depth requirement.

Gate valves fourteen (14) inches and larger shall have a working pressure of no less than 250 psi and a test pressure of 300 psi. Four (4) inch to twelve (12) inch gate valves shall have a working pressure of no less than 250 psi and a test pressure of 400 psi. Gate valves shall have one O-ring above and one O-ring below the stem thrust collar. The thrust collar shall be lubricated with oil to ensure positive operation in opening and closing.

### **4.2.2 Butterfly Valves**

Butterfly valves shall be designed, manufactured, and tested in accordance with the provisions and requirements of AWWA C504, current revision. All valves shall be drop-tight when subjected to the specified working pressure (differential pressure), and all valves shall be capable of drop-tight seating under bidirectional flow conditions (maximum working pressure applied as differential pressure from either direction). All valves shall open counterclockwise.

Operator extension, valve box, indicator, and cover shall be provided for each valve. Operating nuts placed greater than five (5) feet below finished ground shall be equipped with approved operating nut extensions to meet the minimum depth requirement.

### **4.2.3 Tapping Valves**

Tapping valves shall meet the same specifications as gate valves, except they shall have a full, unobstructed opening to receive a full-size shell cutter. They shall have a standard mechanical joint on one end and a flanged joint on the other end.

### **4.2.4 Tapping Sleeves**

Tapping sleeves may be split sleeve with mechanical joint type end seals or stainless-steel meeting the requirements of AWWA C223, current revision. They shall have the same working and test pressures as noted for the gate valves.

#### 4.2.5 Check Valves

Check valves shall be designed for 250 psi working pressures and 350 psi test pressures for sizes up to twelve (12) inches. Check valves from fourteen (14) inches to twenty-four (24) inches shall have an opening suitable for cleaning without disconnecting from the pipe. Check valves shall conform to AWWA C-508, current revision.

#### 4.2.6 Valve Boxes

Each valve on underground piping shall be provided with a screw-type, adjustable, cast-iron, heavy-duty traffic-rated, valve box. They shall have a round shaft five and one-quarter ( $5\frac{1}{4}$ ) inch inside diameter, a flared base, and a coat of bituminous paint applied to both surfaces. Also, the lid shall be cast iron, round, and have the word "Water" cast on it.

Riser rings for valve boxes shall have an internal set screw.

### **4.3 Fire Hydrants**

Hydrants shall be manufactured in accordance with AWWA C502, current revision, and shall be approved by the National Board of Fire Underwriters. Hydrants shall have a six (6) inch barrel with five and one-quarter ( $5\frac{1}{4}$ ) inch clear opening through the valve and shall be provided with a four and one-half ( $4\frac{1}{2}$ ) inch pumper connection and two (2) two and one-half ( $2\frac{1}{2}$ ) inch inner diameter hose connections.

Hydrants shall be of the frost-proof and non-flooding type which will not flood in case the barrel or valve stem is damaged, with orifices for draining the hydrant when the valve is closed. Hydrants shall have a forty-two (42) inch minimum bury and be designed for 150 psi working pressure and 300 psi hydrostatic pressure. All working parts shall be bronze to bronze. All hydrants shall open counterclockwise and be preceded in the line by a gate valve. The pumper connection shall face the roadway. Fire hydrants shall have a moisture-proof chamber around operating threads filled with USDA H-1 food grade oil or grease which shall lubricate the threads.

The threads on the four and one-half ( $4\frac{1}{2}$ ) inch pumper (steamer) connection and on the operating nut shall be National Standard threads. The threads on the hose connections shall be Albemarle County Service Authority standard thread (Charlottesville thread), 3-21/64" female, 3-9/32" male, eight threads per inch (Gauge 8-322) except for the Scottsville service area which are National Standard threads. All threads shall be thoroughly lubricated with a food grade lubricant. All male connections shall have caps. The cap nuts and the operating nut shall be a one and one-half ( $1\frac{1}{2}$ ) inch pentagon and shall open counterclockwise.

#### **4.4 Blow-Off Assemblies**

All pipe work for the hydrant blow-off assemblies shall conform in all respects to applicable portions of these specifications and to the Construction Plans.

Dead-end blow-off assemblies (Type A) shall be installed as shown. Blow-off lines shall be two (2) inch diameter brass pipe. A brass nipple shall be provided at the end of the assembly with a PVC threaded cap. The threads between the nipple and the cap shall be lubricated before installation to allow removal when needed. Gate valves and boxes shall be of the type described in the applicable sections of these specifications.

#### **4.5 Air Release Valve Assemblies**

Each assembly shall consist of a corporation stop, riser pipe, ball valve, fittings, and either a precast concrete manhole cone section (including frame and cover with the word "WATER" cast on it), or a meter box depending upon traffic loading or location requirements. The riser shall be Type K copper for one (1) inch air release valves or brass pipe for two (2) inch air release valves and shall be installed with a continuous rise from the pipe to the air release valve. Fittings shall be brass or bronze. See Detail W-14 for additional information.

Air release valve assemblies shall not be connected directly to any storm drain or sanitary sewer systems

#### **4.6 Corporation Stops**

All corporation stops shall have ball style valves and have a pressure rating of 300 psi.

#### **4.7 Coppersettters**

All three-quarter (3/4) inch and one (1) inch water meters shall be placed in a horizontal inlet and outlet coppersetter. The coppersetter shall have a multi-purpose connection on the customer side and the supply side. It shall also have a lock-winged ball valve on the supply side and a ball valve on the customer side.

All one and one-half (1½) inch and two (2) inch water meters shall be placed in a horizontal inlet and outlet two-inch coppersetter. The coppersetter shall have FIP threads on the customer side and the supply side. It shall also have a lock-winged ball valve on the supply side and a ball valve on the customer side. The coppersetter shall be fifteen (15) inches tall.

#### **4.8 Meter Boxes and Meter Vaults**

##### **4.8.1 Meter Boxes**

All meter boxes shall have non-locking lids and will be used for water meters up to and including one (1) inch in size. See Detail W-5 for additional information. Lids shall be provided with a two (2) inch recessed hole tapped into the lid. Blind taps or plugs shall be provided to prevent debris from entering the box prior to use. The

Contractor must ensure a clear two (2) inch opening where the hole is cast into the lid to accommodate a touch read sensor.

#### 4.8.2 Meter Vaults

##### *1½" and 2" Meters*

Meter vaults shall be heavy duty monolithic boxes with a nominal size of twenty-four (24) inches wide, thirty-six (36) inches long and twenty-four (24) inches tall. The base shall flare out. The box and lid shall be rated for ANSI/SCTE Tier 15 loading. The lid shall have a two (2) inch diameter hole. See Details W-8 and W-9 for additional information.

##### *Meters 3" and Larger*

A concrete structure shall be used for meters three (3) inches or larger. The outside shall be waterproofed with a tar-based paint or approved equal. Sleeves will be required around the water pipe entering and leaving the vault. The openings around the sleeves shall be sealed against water seepage. A positive drain extending to grade, or a sump pump shall be provided, whichever is more practical. A sump shall be located on the side of the vault with the floor sloping to it. The top shall be made of reinforced concrete or metal with two (2) metal door inserts. In any case, the access doors must be waterproof, air-tight, two (2) feet by three (3) feet in size, one (1) located over the meter and the other against a wall, and easy for one (1) person to lift. The door located over the meter shall be provided with a two (2) inch hole, properly plugged, for future installation of a Touch-Read sensor. Doors shall have a lift handle and hinges. See Details W-10, W-11, and W-12 for additional information.

## Part 5 – Sewer System Materials

### 5.1 General Requirements

Unless otherwise approved in writing by the ACSA all sanitary sewerlines and appurtenances shall be of the material herein listed. The ACSA reserves the right to select the type and/or class material which shall be used.

### 5.2 Sewerlines

#### 5.2.1 Ductile Iron Pipe and Fittings

Ductile iron pipe shall be centrifugally cast pipe manufactured in accordance with AWWA C151, current revision. All ductile iron pipe shall have a cement mortar lining and a seal coat of asphaltic material in accordance with AWWA C104, current revision.

Fittings shall be standard mechanical joint fittings in accordance with AWWA C110 current revision, AWWA C153, current revision and AWWA C111, current revision. All fittings shall be cement mortar lined inside and have a seal coat of asphaltic material in accordance with AWWA C104, current revision.

**Ductile iron pipe and fittings for both gravity sewerlines and sewer force mains shall have an interior epoxy coating that is resistant to hydrogen sulfide corrosion.** The lining shall be applied by a certified firm with a successful history of applying linings to the interior of ductile iron pipe and fittings. The lining shall have a nominal dry thickness of forty (40) mils and shall be applied in strict conformance with the manufacturer's requirements regarding surface preparation, temperature, and number of coats.

#### 5.2.2 Polyvinyl Chloride (PVC) Pipe

PVC pipe shall only be used for non-pressure sewerlines. PVC gravity sewer pipe shall be manufactured of compounds conforming to ASTM D-1784, current revision. Pipe and fittings shall meet and/or exceed all the requirements of ASTM D-3034, current revision, for **SDR 26** heavy wall PVC.

PVC pipe shall be shipped and stored so that warping of pipe does not occur. PVC pipe to be stored outside should be covered to protect it against the sun's rays, per manufacturer's published recommendation.

Certificates of compliance with applicable ASTM designations and strength classifications covering the pipe, joints, gaskets, and fittings will be required directly from the pipe manufacturer as deemed necessary by the ACSA.

### 5.2.3 Joints

Jointing of ductile iron and PVC pipe shall conform to the manufacturer's published recommendations and specifications.

Joints in sewer pipe shall conform to the following:

#### *Ductile Iron Pipe*

Gravity Sewers without Restrained Joints: Push-on joints in accordance with AWWA C111, current revision.

Sewer Force Mains and Gravity Sewers with Restrained Joints: All joints and fittings in sewer force mains shall be restrained. Restrained joints can be restrained utilizing restrained push-on joint gaskets, specially designed push-on restrained joints or mechanical restrained joints as long as the method of restraint is approved by the pipe manufacturer and meets AWWA C111, current revision.

#### *Polyvinyl Chloride Pipe*

PVC pipe shall be joined by bell and spigot type connections. The pipe joint shall be tightly sealed against infiltration and exfiltration by means of a locked-in rubber sealing ring conforming to ASTM D-3212, current revision. The connection shall also permit the thermal expansion or contraction of the pipe.

### 5.2.4 Gaskets

Gaskets for sewer pipe and fittings shall be vulcanized natural or vulcanized synthetic rubber free of porous areas, foreign material or visible defects. Rubber gaskets for ductile iron pipe shall conform to all applicable provisions of AWWA C111, current revision.

Gaskets shall be protected from exposure to excessive heat, cold, direct sunlight, ozone (from electric motors and equipment), oil, grease, or other contaminants.

## **5.3 Precast Concrete Manholes**

### 5.3.1 General Information

Manholes shall be constructed of precast reinforced concrete manhole sections conforming to ASTM C-478, current revision. Manholes will be required to have a flexible boot connection at the pipe entry to prevent infiltration.

The minimum inside diameter of the manhole shall conform to the requirements of Section 3.11, unless otherwise approved by the ACSA.

The uppermost section of the manhole shall be tapered eccentrically and shall be a minimum of three (3) feet in height. Where field conditions dictate their use, "flat top" manhole sections can be utilized with the approval of the ACSA. The height of the base section of the manhole shall be at least three (3) times the diameter of the largest sewer pipe entering the section and in no case less than two (2) feet.

#### 5.3.2 Concrete

The walls of the manholes shall have a minimum thickness of five (5) inches and shall be constructed of reinforced concrete with a compressive strength of 3000 psi at twenty-eight (28) days. If the manhole bottom is not monolithically molded with the walls, a concrete floor slab shall be provided with a minimum thickness of twelve (12) inches and a minimum outside diameter of five (5) feet, ten (10) inches. The concrete shall have a minimum compressive strength of 3000 psi at twenty-eight (28) days.

#### 5.3.3 Joints

The joints between manhole sections shall be tongue and groove with an O-ring rubber gasket or "STEP" section with sliding flap seal ring, conforming to ASTM designation C-443, current revision. Jointing of the precast manhole sections shall conform to the manufacturer's published recommendations and specifications. A flexible joint sealant may be required between precast manhole sections.

#### 5.3.4 External Sealant

The entire exterior surface of all manholes shall be coated with a coal-tar epoxy type bituminous coating to a minimum thickness of twenty-three (23) mils. An external wrap shall be used at all joints where precast concrete manhole sections join. The wrap shall be made of a stretchable, self-shrinking, intra-curing halogenated based rubber with a minimum thickness of thirty (30) mils and a minimum width of twelve (12) inches. The wrap shall have a non-hardening butyl adhesive backing used to attach the wrap to the structure. The external wrap shall meet or exceed the requirements of ASTM C877 Type III and C990-01a, current revisions. All external sealants shall be applied in strict conformance with manufacturer's recommendations.

#### 5.3.5 Steps

Manhole steps shall be designed for installation in a sanitary sewer and shall be steel encapsulated in corrosion resistant rubber and shall be in accordance with OSHA standards and ASTM C-478, current revision. Manhole steps shall be a minimum of ten (10) inches wide and shall project no less than five (5) and no more than seven (7) inches from the wall. Vertical spacing of manhole steps shall be uniform with a maximum of sixteen (16) inches and a minimum of twelve (12) inches.



### **5.3.6 Inverts**

Standard practice shall be for the manhole inverts and benches to be provided from the precast manhole manufacturer. All flow lines shall be constructed through manholes to a minimum of three-fourths ( $3/4$ ) the depth of the largest contributing sewerline. Inverts shall be true to line and grade with flow lines having the fall that is specified in the Construction Plans.

If the inverts and channels are constructed in the field, the sides of flow lines shall be built up with low slump concrete to provide a smooth channel and prevent solids deposition. No filler material is allowed when constructing inverts and channels. Manhole benches shall be sloped to drain to flow lines.

## **5.4 Frames and Covers**

Manhole frames and covers shall be heavy duty, traffic-rated, gray cast iron. Frame and cover castings shall conform to the details and dimensions shown in these specifications and shall be true to pattern in form and dimensions, free from pouring faults, sponginess, cracks, blow-holes, and other defects in positions affecting their strength and value for the use intended. They shall be boldly filleted on angles and the arises shall be sharp and perfect. They shall be sand blasted or otherwise cleaned or scaled to present a smooth, clean, and uniform surface.

Standard and watertight manhole covers shall have no pick holes. The marking "Sewer" must be cast in their body. Watertight manhole covers provided with locking lugs or similar restraints shall be required in all low-lying areas subject to flooding and as required by the ACSA.

## **Part 6 – General Construction Requirements**

### **6.1 *Safety of Public***

Construction operations shall be scheduled to interfere as little as possible with public travel, whether vehicular or pedestrian. Whenever it is necessary to cross or interfere with roads, driveways, and walkways, whether public or private, suitable and safe bridges, detours, or other temporary provisions for the accommodation of public and private travel shall be provided and maintained. Reasonable notice shall be given to owners of private driveways before disturbing the driveway. The Contractor shall designate a safety officer from their staff to be responsible for their operation. The Contractor shall adhere to all VDOT requirements when working in the public right-of-way.

### **6.2 *Protection of Existing Facilities***

All construction operations in the vicinity of other existing utilities shall be performed with great care to prevent damage to these utilities. Prior to construction operations commencing, all utility companies shall be requested to verify location of their utilities in the field. It shall be the Contractor's responsibility to conduct the work in such a manner as to avoid damage to, or interference with, other utilities. If damage or interruption of service occurs because of their work, it is the Contractor's responsibility to promptly notify the ACSA inspector and the utility owner and to repair or correct it immediately at the Contractor's expense and to the satisfaction of the ACSA and the utility owner.

In accordance with the Underground Utility Damage Prevention Act and specifically Section 56-265.17 of the Virginia Code, no person shall begin or make any excavation or demolition without making required notification.

### **6.3 *Pipeline Installation in VDOT Right-Of-Way***

Work in public right-of-way shall be subject to VDOT approval. A VDOT Land Use Permit must be obtained before beginning any work. Permit requirements are outlined in the VDOT Land Use Permit Manual, current revision. The VDOT Regional Traffic Operations Center shall be contacted for all work in VDOT right-of-way. No work will be authorized by the ACSA that has not been approved by VDOT. VDOT Specifications regarding work within public right-of-way shall govern this work and where there is a conflict between the VDOT specifications and these specifications, the more stringent requirement shall apply.

Construction operations in public streets, roads, or alleys shall be confined to as small a working space as practical so as not to cause undue inconvenience to the public or to adjacent properties. At the time of undertaking the work, the Contractor shall comply with all VDOT notification requirements in advance of construction.

### **6.3.1 Pavement and Shoulder Replacement**

The work includes the replacement of all pavement and shoulders removed or damaged by the Contractor during construction. All work replaced shall match the existing work as nearly as practicable. Materials to be replaced shall be as required in the VDOT Land Use Permit, but no less than one and one-half (1½) times the thickness of the component layers removed and shall be in accordance with the VDOT Road and Bridge Specifications, latest revision.

## **6.4 Blasting**

Blasting, where required, shall be done with care by skilled and experienced blasters and in accordance with all applicable Federal, State, and local laws, ordinances, rules, and regulations. A blasting permit must be obtained from Albemarle County Fire Rescue prior to commencing the work. All Federal, State, and local regulations governing construction safety shall be adhered to and any violation of such regulations shall be deemed the sole responsibility of the Contractor and Developer. Proper notification shall be given to the ACSA and the public prior to the commencement of blasting operations. Blasting on Saturdays, Sundays, and holidays will only be permitted with written permission from the ACSA.

Precautions shall be taken to prevent injury to persons and damage to property. No blasting shall be done within twenty-five (25) feet of any completed work or adjacent to any other structures or ACSA infrastructure. Ends of utility lines adjacent to the blasting area shall be covered to avoid debris and damage. Any damage because of blasting operations shall be the sole responsibility of the Contractor and Developer.

## **6.5 Restoration**

The Contractor shall restore all surfaces disturbed by their operations to a condition at least equal to that which existed prior to commencement of the work. Restoration work shall be commenced immediately following the completion of the work on any section of the project.

All drainage structures shall be restored using like materials and details. All ditches shall be restored to the prior existing grade and cross section. All pavement, walks, curbs, gutters, and entrances removed or damaged by the Contractor shall be replaced to equal or better condition. All public streets, roads, and highways shall be restored as required by VDOT. All private streets shall be restored to VDOT standards with materials one and one-half (1½) times the thickness of the surface disturbed.

Work performed on private property shall be confined to the easements obtained and the area shall be seeded or sodded. Landscaping, fences, or other improvements shall be restored, where applicable, to their original condition.

The Developer shall be responsible for all restoration necessary because of the Contractor's operations for the period of one (1) year following Final Acceptance of the Facilities by the ACSA.

## **6.6    *Erosion Control***

Prior to beginning any land disturbing activity, the Developer and Contractor shall obtain all required stormwater management and soil erosion control permits from the Albemarle County Department of Community Development. Special precaution shall be taken for activities occurring within the drainage basin of any water supply impoundment.

## **Part 7 – Water System Construction**

Construction of waterlines and appurtenances shall be in accordance with the approved Construction Plans. The ACSA shall insist that good workmanship and standard waterline construction principles are used in the construction of the Facilities. ACSA reserves the right to refuse acceptance of the Facilities if there are concerns regarding the materials, construction methods, or workmanship.

Waterlines shall be installed and maintained to the required lines and grades with fittings, valves, hydrants, and accessories set at the required locations as indicated on the Construction Plans. The Contractor shall establish adequate elevation control to ensure that, upon final grading, a minimum of forty-two (42) inches of cover over the waterlines is maintained. It shall be the Contractor's responsibility and expense to verify the cover at any location questioned by the ACSA. No waterline shall terminate under a curb, gutter, ditch, or storm drainage structure.

Wherever obstructions are encountered during progress of the work, the ACSA or its representative shall be advised. If any deviation is contemplated from the approved Construction Plans, details shall be submitted for review and approval before construction. Verbal approval may be granted for minor alterations. Major alterations will require written approval. The severity of the alteration and its remedial action shall be determined by the ACSA.

### **7.1 *Handling of Materials***

Pipe, fittings, valves, hydrants, and accessories shall be loaded and unloaded by lifting with hoists or skidding to avoid shock or damage. Under no circumstances shall they be dropped. Pipe shall not be skidded or rolled against pipe already on the ground. Pipe shall be handled so that the coating and lining are not damaged. ACSA, at its sole discretion, has the right to reject any materials.

### **7.2 *Tapping Waterlines***

All tapping of existing waterlines shall be accomplished with ACSA forces or an approved contractor. Taps shall be located at least eighteen (18) inches from a fitting or joint. Tapping procedures shall be in accordance with the manufacturer's published recommendations. Tapping sleeves and valves shall be used on four (4) inch or larger taps. All two (2) inch taps for Air Release Valves shall be made using saddles.

Tapping sleeves shall be subjected to an air pressure test or a hydrostatic pressure test prior to making the tap. For an air pressure test, the sleeve shall hold thirty-five (35) psi of pressure for a duration of five (5) minutes. For a hydrostatic pressure test, the sleeve shall hold 200 psi of pressure for 120 minutes.

#### **7.2.1 *Special Requirements for Tapping PVC Pipe***

1. Only one (1) tap shall be located in a common line parallel to the longitudinal axis.

2. When multiple taps are necessary on the same joint of pipe, they shall be located on slightly different planes and separated by at least three (3) feet.
3. Saddles shall be used on all taps.
4. Tapping sleeves shall be supported by a concrete pad, cast in-place, prior to the tap being made. Alternatively, a concrete block may be used instead of the concrete pad. A concrete thrust block shall also be provided behind the tapping sleeve.
5. No taps shall be made where the pipe is discolored.
6. The pipe shall be tapped only when the ambient temperatures fall within the following range:

<u>Connection</u>	<u>Minimum</u>	<u>Maximum</u>
Dry Taps	0° F (-18° C)	100° F (38° C)
Wet Taps	32° F (0° C)	90° F (32° C)

#### 7.2.2 Special Requirements for Tapping Asbestos-Cement (AC) Pipe

1. Only one (1) tap shall be located in a common line parallel to the longitudinal axis.
2. When multiple taps are necessary on the same joint of pipe, they shall be located on slightly different planes and separated by at least three (3) feet.
3. Saddles shall be used on all taps.
4. Tapping sleeves shall be supported by a concrete pad, cast in-place, prior to the tap being made. Alternatively, a concrete block may be used instead of the concrete pad. A concrete thrust block shall also be provided behind the tapping sleeve.
5. Special precautions shall be taken preparing and tapping AC pipe. The EPA has recognized asbestos as presenting a cancer or lung disease health hazard. The EPA in conjunction with the OSHA have established regulations to address asbestos exposure. 29 CFR 1926.1101 addresses asbestos in the construction industry and 29 CFR 1910.134 addresses the use of respirators approved for use working with asbestos products. Any Contractor working with or around asbestos-cement pipe shall be familiar with and abide by these regulations.

### **7.3 Excavation**

Waterline construction shall be made by open cut unless otherwise specified or required. All open trenches shall be adequately shored and braced to provide a safe working environment. It is the Contractor's responsibility to comply with the requirements of OSHA as pertaining to people working in an open trench.

During the excavation operations, material suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid overloading and

to prevent slides or cave-ins. All excavated material not suitable for backfill shall be removed and disposed of in an acceptable manner. The trench shall be kept free of water during the laying operation and any water accumulating therein shall be removed by approved methods. No more than one hundred (100) feet of trench shall be opened in advance of the installed waterline when located along streets or highways, and no more than two hundred (200) feet at other locations.

#### 7.3.1 Construction in Fill Areas

Where pipelines are to be installed in fill areas, the fill shall be compacted to ninety-five percent (95%) of the optimum density as determined by AASHTO T-99 before excavation begins for the pipe trench. Certification shall be required of all compaction in fill areas, at intervals as directed by the ACSA. This certification shall be signed by a Professional Geologist or a Professional Engineer and shall state the exact area the certification applies to.

#### 7.3.2 Trench Size

Whenever the trench depth is less than five (5) feet, the trench width shall be as narrow as is practicable to permit the pipe to be laid and joined properly, and to permit the backfill to be placed and compacted properly. In general, the clear width of the trench at an elevation of one (1) foot above the top of the pipe shall be approximately equal to the external diameter of the pipe plus sixteen (16) inches. The provisions of this section shall not relieve the Contractor from responsibility to ensure all trenching methods are in accordance with the appropriate safety requirements and the applicable OSHA regulations. Whenever the trench depth exceeds five (5) feet, approved shoring or trench boxes shall be used.

#### 7.3.3 Rock Excavation

Where rock is encountered in trench excavation, whether solid or in the form of loose rock, shale, or large boulders, it shall be removed by approved methods to the extent that no projection of rock shall be nearer than six (6) inches to any part of the water pipe, valves and fittings when laid, nor project beyond the lines and grades of structures.

#### 7.3.4 Over Excavation

Where the excavation has been carried too deep, the Contractor shall refill the over-excavated trench with VDOT No. 57 or No. 68 stone to the required depth.

### **7.4 Pipe Foundation**

The trench shall be excavated to a depth required to provide a uniform and continuous bearing and support for the pipe. It shall be permissible to disrupt the finished surface of the trench over a maximum length of eighteen (18) inches near the middle of each length of

pipe for the withdrawal of pipe slings or other lifting tackle. The finished subgrade shall be prepared accurately by means of hand tools.

See Detail W-1 for bedding requirements for different soil conditions. Whenever the soil at the bottom of the trench is soft, unstable, or saturated with water, VDOT No. 57 or No. 68 stone shall be placed as bedding to the depth required to stabilize the soil and shall be thoroughly compacted. If necessary, a suitable foundation shall be established prior to placement of bedding material. The bedding material shall extend evenly to the trench wall. See Detail W-1 for additional information.

## **7.5 Pipe Installation**

Ductile iron pipe shall be installed in accordance with AWWA C600, current revision. When installing pipe in the trench, proper implements, tools, and equipment, satisfactory to the ACSA and as recommended by the material manufacturer, shall be provided and used by the Contractor for the safe and convenient prosecution of the work. All pipe, valves, fittings, hydrants, and accessories shall be carefully lowered into the trench piece by piece by means of a derrick, ropes, slings, or other suitable tools or equipment in such a manner as to prevent damage to the waterline materials and any protective coatings and linings. Under no circumstances shall waterline materials be dropped or dumped into the trench. The exposed end of all pipes shall be fully closed by means of an approved stopper or plug to prevent earth, water, or other substances from entering the pipe.

**All pipe joints and connections to fittings and appurtenances shall be restrained from thrust forces and movement utilizing restrained joints.** Joints can be restrained utilizing restrained push-on joint gaskets, specially designed push-on restrained joints or mechanical restrained joints as long as the method of restraint is approved by the pipe manufacturer.

### 7.5.1 Condition of Pipe

All lumps, blisters, and excess coal tar coating shall be removed from the ends of each pipe. The outside of the spigot and the inside of the bell shall be thoroughly cleaned and be free from oil and grease before the pipe is joined.

### 7.5.2 Special Precautions

The Contractor shall visually examine each joint of pipe to prevent foreign material from entering the pipe while it is being placed in the trench. During the laying operations, no debris, tools, clothing, or other materials shall be placed in the pipe. Water lines shall be plugged at the end of each construction day to prevent foreign matter from entering them.



### 7.5.3 Cutting of Pipe

The cutting of pipe for inserting valves, fittings, or closure pieces shall be done in a neat and workmanlike manner without damage to the pipe or cement lining and to leave a smooth end at right angles to the axis of the pipe.

When machine cutting is not available for cutting pipe twenty (20) inches in diameter or larger, the electric-arc cutting method will be permitted using a carbon or steel rod. Only qualified and experienced workmen shall undertake this work. The flame cutting of pipe by means of an acetylene torch shall not be allowed.

### 7.5.4 Pipe Deflection

See Section 2.5 for allowable joint deflection of ductile iron waterline. Pipe should not be deflected at connections to valves, bends or other fittings.

### 7.5.5 Polyethylene Encasement

Where new ductile iron pipe is to be installed in potentially corrosive environments, as determined solely by ACSA, the pipe shall be protected with polyethylene encasement. At a minimum, eight (8) mil thick V-Bio polyethylene encasement is required. Copper service lines shall also be polywrapped a minimum of three (3) feet out from the connection to the ductile iron waterline. Installation by Modified Method A, as outlined in AWWA C105, current revision, shall be followed.

The corrosiveness of the environment where the ductile iron pipe is to be installed shall be determined using the 10-Point Soil Evaluation Procedure included in the Appendix to the AWWA C105 Standard. The ACSA reserves the right to specify soil corrosion testing prior to Construction Plan approval or pipe installation. The requirement of polyethylene encasement for ductile iron pipe shall be at the sole discretion of the ACSA.

### 7.5.6 Marking Tape

Blue water marking tape, a minimum of two (2) inches wide, shall be buried approximately two (2) feet above all waterlines to alert future construction workers that a water pipe is below. The marking tape shall be continuous. Marking tape disturbed during construction on existing waterlines shall be restored to its original condition and to the satisfaction of the project inspector.

## **7.6 Appurtenances and Fittings Construction**

### 7.6.1 Restraint of Fittings

All tees, valves, fittings, plugs, caps, and fire hydrants shall be restrained using mechanical joint restraints.

### 7.6.2 Fitting Installations

Hydrants, valves, and valve boxes shall be set plumb, and centered, with valve boxes placed directly over the valves. Valves shall be backfilled with no less than four (4) cubic feet of clean VDOT No. 57 or No. 68 stone to a depth six (6) inches above the base of the valve box. VDOT No. 57 or No. 68 stone shall be carefully tamped around the valve box to a distance of four (4) feet on all sides of the box, or to the undisturbed trench face if less than four (4) feet.

### 7.6.3 Valve Box Installation

Valve boxes shall be adjusted flush with the finish grade. If the street surfaces are renewed or replaced after the water system has been approved and accepted by the ACSA, but while such streets are still the obligation of the Developer, the valve boxes therein shall be readjusted to the proper finished grade at the Developer's expense. The use of a single valve box riser ring with set screws is permitted on new construction.

In remote areas, valve boxes shall extend six (6) inches above finished grade and have a witness post securely placed next to the box. The witness post shall consist of a five (5) foot long, two (2) inch diameter galvanized pipe, capped on either end and painted blue.

### 7.6.4 Fire Hydrant Installation

If, during construction, groundwater is observed in the trench, the fire hydrant shall be moved to higher ground and the separation between fire hydrants will be adjusted accordingly. Hydrants shall be set plumb with the centerline of the pumper connection no less than eighteen (18) inches and no more than twenty-two (22) inches above grade. For new construction, the maximum number of allowable hydrant risers for each hydrant is one (1). Unless the hydrant location is specifically indicated otherwise, it shall be located so that the center is between two and ten feet from the back of the curb of the adjacent street. The pumper connection should face the street, unless directed otherwise by the Fire Official. The connecting pipe shall have the same depth of cover as the waterline and shall not include bends.

The base and back of the hydrant, opposite the pipe connection, shall have a thrust block poured behind it as shown in Detail W-3. Fire hydrant leads shall also utilize restrained joints for every joint and fitting.

Not less than seven (7) cubic feet of VDOT No. 57 or 68 stone shall be placed around the base of the hydrant to ensure drainage. The backfill around hydrants shall be thoroughly compacted to grade line. Hydrants and valves shall have the interiors cleaned of all foreign matter before installation. The hydrant and valve shall be inspected in open and closed positions, to see that all parts are in working condition. Black bags shall be tied securely over all fire hydrants as soon as they

are installed. These bags shall not be removed until approved by the ACSA. Each new fire hydrant shall be painted, if the ACSA determines the factory finish has been compromised.

#### 7.6.5 Corporation Stops

At the location indicated on the plans and where directed, corporation stops with eighth-bend couplings, if required, shall be furnished, and installed approximately forty-five (45) degrees below the top of the pipe in accordance with AWWA C800, current revision.

#### 7.6.6 Water Service Construction

Water Services are to be installed at a minimum depth of thirty-six (36) inches below finished grade from the waterline to a meter setter. Meter boxes with coppersettors are to be installed at the end of each water service.

For two-inch brass service lines, a three-part union shall be installed on the supply side of the coppersetter.

See Details W-4 for additional information on one (1) inch service lines and W-7 for additional information on two (2) inch service lines.

#### 7.6.7 Meter Coppersettors

For three quarter ( $\frac{3}{4}$ ) inch and one (1) inch meters, the coppersetter shall be installed no less than twelve (12) inches or more than sixteen (16) inches from the top of the meter box. For one and one-half (1.5) inch and two (2) inch meters, the coppersetter shall be installed twelve (12) inches from the top of the meter box. See Details W-4 and W-9 for additional information on coppersetter installation.

#### 7.6.8 Meter Box and Meter Vault Installation

Meter boxes and vaults of appropriate size shall be installed around all meter coppersettors as indicated on the plans. They shall be installed in non-paved areas. The box/vault and lid shall conform to the finished grade after installation. Meter boxes and vaults shall be located and installed to prevent water, dirt, or debris from entering or covering them. If changes in grade at the meter box or vault are made before Final Acceptance is granted or during the 1-year warranty period after Final Acceptance, the Developer is responsible for resetting the meter box or vault to match the finished grade.

### **7.7 Backfilling and Compaction**

All trenches or excavations shall be backfilled to the original surface of the ground or to such other grades as may be shown on the approved plans. The ACSA inspector shall make the final determination on all backfill requirements. All backfilling shall be carried along as

speedily as possible. New trenching will not be permitted when earlier trenches need backfilling or labor is needed to restore the surfaces of streets or other areas to a safe and proper condition.

Backfilling shall be done in such a way as to prevent dropping of material directly on top of the pipe from more than a three (3) foot vertical distance. When placing material from a bucket it must be lowered so that the shock of the falling earth will not damage the waterline.

#### 7.7.1 Materials

All material used for backfilling of trenches shall be free of excessive amounts of unsuitable materials such as all organic material, frozen clods, and sticky masses of clay and gumbo which are difficult to properly compact. Backfill material shall contain no rock or asphalt larger than six (6) inches in any dimension and in no case shall rock or asphalt be placed closer than two (2) feet vertically to the installed pipe.

#### 7.7.2 Backfilling

Backfill, over all pipe to a depth of twenty-four (24) inches, shall be carefully placed in layers approximately six (6) inches thick, each layer being thoroughly tamped and compacted by hand or pneumatic tamper in place. Special care shall be taken in using a mechanical tamper directly over the pipe.

In traffic areas, backfill more than twenty-four (24) inches above the pipe shall be deposited in six (6) inch layers or a thickness which will permit compaction of at least ninety-five percent (95%) of the optimum density, as determined by AASHTO T-99. Backfill in existing traffic areas shall be in accordance with VDOT standards.

In non-traffic areas, backfill more than twenty-four (24) inches above the pipe shall be deposited in twelve (12) inch layers or a thickness which will permit compaction of at least ninety percent (90%) of the optimum density, as determined by AASHTO T-99.

#### 7.7.3 Compaction

Unless otherwise shown on the plans, the backfill in all trenches shall be thoroughly compacted. The compacting shall be done by suitable mechanical means. In all cases, special care shall be taken to see that the spaces at the sides of the trench are thoroughly filled and compacted. If necessary, the earth shall be moistened during the operations.

The Contractor may be required, at the sole discretion of the ACSA, to conduct compaction tests on trench backfill. The Contractor shall bear the expense of all compaction tests. The location of tests shall be selected in the field by the ACSA and will not necessarily be limited to regular intervals.

The results of all compaction tests shall be submitted to the ACSA for review and approval prior to acceptance of construction. The degree of compaction required for trenches in streets and paved areas is ninety-five percent (95%) of maximum density and for trenches in all other areas the required density shall be ninety percent (90%) of maximum density. If the tests indicate the required density has not been obtained, the Contractor shall remove, replace and recompact the material to the specified density. Failure of any compaction tests may result in additional compaction tests being required at the Contractor's expense.

## **7.8    *Pressure Testing***

All pressure testing will be performed in accordance with the AWWA C600, current revision. The Contractor shall provide the ACSA with two (2) business days' notice prior to undertaking any tests.

All newly laid pipe or any valved section thereof shall be subjected to a hydrostatic pressure of at least two hundred (200) psi or one hundred fifty percent (150%) of the average working pressure, whichever is greater. The test duration shall be two (2) hours, and the pressure shall not vary by more than five (5) psi without adding any additional water to the line once the test begins.

Each valved section of pipe shall be filled with water slowly and the specified test pressure shall be applied by means of a pump connected to the pipe in a manner satisfactory to the ACSA. The water and container used to pressurize the line shall be properly disinfected. Before applying the specified test pressure, air shall be expelled completely from the pipe, valves, and hydrants.

All exposed pipe, fittings, valves, hydrants, and joints shall be examined carefully during the test. Any damaged or defective pipe, fittings, valves, or hydrants that are discovered following the pressure test shall be repaired or replaced with sound material and the test shall be repeated until it is satisfactory to the ACSA. All visible leaks shall be repaired, regardless of the results of the pressure test.

## **7.9    *Disinfection***

Precautions shall be taken to protect pipe interior, fittings, and valves against contamination. When pipe laying is not in progress, all openings in the pipeline shall be closed with watertight plugs. If water accumulates in the trench, plugs shall remain in place until the trench is dry. All pipe and fittings shall be kept free of dirt or any foreign material.

The Contractor shall provide the ACSA with two (2) business days' notice prior to undertaking any disinfection efforts.

Waterlines shall be disinfected by the continuous feed method or the tablet method in accordance with AWWA C651, current revision, except as specified otherwise or approved in writing by the ACSA.

### 1. Continuous Feed Method

Prior to feeding chlorine, the water line shall be thoroughly flushed with potable water to remove any debris that may have entered the line during construction. Potable water shall be introduced into the pipeline at a constant flow rate, protected by an approved backflow prevention assembly or other precautionary measures. Liquid sodium hypochlorite solution shall be added at a constant rate to this flow so that the chlorine concentration in the water in the pipe is at least fifty (50) mg/L. The highly chlorinated water shall remain in the waterline for twenty-four (24) hours and a chlorine residual of at least ten (10) mg/L must be present after this initial period.

### 2. Tablet Method

Tablets or granules of calcium hypochlorite, shall be placed into the waterline as it is constructed. The tablets or granules should contain sixty-five percent (65%) available chlorine by weight. Calcium hypochlorite tablets for swimming pool or spa disinfection are not allowed.

After completion of the construction, the waterline shall be filled with water at a velocity of less than one (1) foot per second in accordance with the following table:

<b>Pipe Diameter</b>	<b>Maximum Fill Rate (gpm)</b>
4"	40
6"	90
8"	160
10"	260
12"	350
14"	500
16"	600
18"	800
20"	1,000
24"	1,400

A minimum concentration of fifty (50) mg/L of chlorine shall be in the waterline after it is filled. The highly chlorinated water shall remain in the waterline for twenty-four (24) hours and a chlorine residual of twenty-five (25) mg/L must be present after this initial period.

<b>Required Calcium Hypochlorite Dosing For Every Twenty (20) Feet of Waterline to Achieve a Fifty (50) mg/L Chlorine Concentration</b>							
Waterline Size (inches)	4"	6"	8"	10"	12"	16"	24"
Number of five (5) gram tablets	1	2	4	5	7	13	28
Weight of Granules (grams)	4	9	15	24	34	61	137

All valves and appurtenances shall be operated while the highly chlorinated water is in the pipeline. After the retention period, the waterline shall be flushed of the high chlorine water until the water leaving the system shows a chlorine concentration of less than one (1) mg/L or no higher than that prevailing in the water used for flushing. Water with a chlorine concentration greater than two (2) mg/L shall either be dechlorinated or the high chlorine water shall be discharged directly to sanitary sewer line. After this flushing, two (2) sets of water samples shall be collected at least sixteen (16) hours apart for bacteriological tests. The samples shall be collected at regular intervals not to exceed 1,200 feet throughout the length of the pipe. All bacteriological samples collected following disinfection shall be analyzed by a lab certified by the Virginia Department of General Services, Consolidated Laboratory Services. The results of these samples must indicate the absence of coliform contamination.

Disinfection shall include hydrants and other special pipe, taps and fittings used at connections to existing piping. These shall be thoroughly disinfected before installation. Excavation for such connections shall be kept free from water until the connection is completed and great care shall be exercised to prevent contamination of the pipe and connection fittings.

It is the Contractor's and Developer's responsibility to ensure their operations do not contaminate the public water supply. If at any time the water in the existing system becomes contaminated, they shall be held financially accountable for any corrective action taken by the ACSA. In addition, the Contractor and Developer shall be responsible for the cost of defending and settlement of all claims resulting from their actions including, but not limited to, court costs and attorney's fees.

### **7.10 Flushing**

Every effort shall be made to prevent any debris from entering the water pipes during construction.

All new waterlines shall undergo a thorough flushing at a flow rate of at least three (3) feet per second, prior to being placed into service. Flushing shall be accomplished using a combination of fire hydrants and blow-off assemblies, as directed by the ACSA. In the case of looped portions of the new water distribution system, valves shall be operated to create uni-directional flows through the looped areas.

## **Part 8 – Sewer System Construction**

### **8.1 General Requirements**

Construction of sanitary sewer lines and appurtenances shall be in accordance with the approved Construction Plans. The ACSA shall insist that good workmanship and standard sewerline construction principles are used in the construction of the Facilities. ACSA reserves the right to refuse acceptance of the Facilities if there are concerns regarding the materials, construction methods or workmanship.

Sewerlines shall be installed at the required lines and grades with manholes, lateral connections, and other appurtenances set at the required locations as indicated on the Construction Plans. The Contractor shall be required to field verify the installed pipe slope for each run of sewer before continuing additional sewerline installation. If the installed slope does not match the approved Construction Plans, the Contractor shall make necessary revisions as determined by the ACSA.

Whenever obstructions are encountered during progress of the work, which interfere to such an extent that an alteration in plans is required, the ACSA shall be notified. If any deviation is contemplated in location, alignment, or grade of any sewerline, concrete structure, or accessory from that shown on the plans approved by the ACSA, details of the proposed deviation shall be submitted to the ACSA for review and approval before the changes are constructed. Verbal approval may be granted for minor alterations. Major alterations will require written approval before such alterations are put into effect. The severity of the alteration and its remedial action shall be determined by the ACSA.

### **8.2 Excavation**

Sewerline construction shall be made by open cut unless otherwise specified or required. All open trenches shall be adequately shored and braced to provide a safe working environment. It is the Contractor's responsibility to comply with the requirements of OSHA as pertaining to people working in an open trench.

During the excavation operations, material suitable for backfilling shall be piled in an orderly manner a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or cave-ins. All excavated material not suitable for backfill shall be removed and disposed of in an acceptable manner. The trench shall be kept free of water during the laying operation and any water accumulating therein shall be removed by approved methods. No more than one hundred (100) feet of trench shall be opened in advance of the installed sewerline when located along streets or highways, and no more than two hundred (200) feet at other locations.

#### **8.2.1 Construction in Fill Areas**

Where pipelines are to be installed in fill areas, the fill shall be compacted to ninety-five percent (95%) of the optimum density, as determined by AASHTO T-99, before



excavation begins for the pipe trench. Certification of compaction at intervals determined by the ACSA shall be required in fill areas.

### 8.2.2 Trench Width

The width of the trench at any point below the crown of the pipe shall be no greater than the width necessary to accommodate shoring the trench, setting, and aligning the pipe. Minimum clearance between side of trench and pipe shall be eight (8) inches. Trench walls in this area shall be kept as nearly vertical as possible. Trench walls above the crown of the pipe may be sloped or shored to meet the applicable OSHA trenching standards.

Excavation at manholes and similar structures shall be sufficient to leave at least twelve (12) inches clearance between their outer surface and the embankment or sheeting.

### 8.2.3 Rock Excavation

Where rock is encountered in trench excavation, whether solid or in the form of loose rock or shale, or large boulders, it shall be removed to the extent that no projection of rock shall be nearer than six (6) inches to any part of the sewer pipe when laid, nor project beyond the lines and grades of structures.

### 8.2.4 Over Excavation

Where the excavation has been carried too deep the Contractor shall refill the over excavated trench with VDOT No. 57 or No. 68 stone to the required depth.

## **8.3 Pipe Foundation**

### 8.3.1 Foundation in Good Soil

For PVC pipe, the bottom of the trench shall be excavated four (4) to six (6) inches below the bottom of the barrel of the pipe and a bedding shall be provided of VDOT No. 57 or No. 68 Stone. The bedding shall be shaped to the top of the exterior diameter of the pipe to support the pipe for the entire length of the barrel and shall extend to the trench walls.

For ductile iron pipe, the bottom of the trench shall be scraped and compacted, and all stones shall be removed, or a four (4) inch bedding of VDOT No. 57 or No. 68 stone shall be provided. Bell holes shall be cut to prevent the pipe from resting on the bells.

Where excavation is made in rock or boulders a bedding of VDOT No. 57 or No. 68 stone with a minimum thickness of six (6) inches shall be provided for both PVC and ductile iron pipe. The bedding material shall extend evenly to the trench wall.

### 8.3.2 Foundation in Poor Soil

Whenever the soil at the bottom of the trench is soft, unstable, or saturated with water, VDOT No. 57 or No. 68 stone shall be placed as bedding to the depth required to stabilize the soil and shall be thoroughly compacted. If necessary, a suitable foundation shall be established prior to placement of bedding material. The bedding material shall extend evenly to the trench wall.

## **8.4 Pipe Installation**

When installing pipe in the trench proper implements, tools, and equipment, satisfactory to the ACSA and as recommended by the material manufacturer, shall be provided and used by the Contractor for the safe and convenient prosecution of the work. All sewers shall be laid true to line and grade with bells upstream. The sections of pipe shall be so laid and fitted together that, when complete, the sewer will have a smooth and uniform invert. PVC pipe shall be installed in strict conformance with ASTM D-2321, current revision.

All pipe, fittings, and accessories shall be carefully lowered into the trench piece by piece by means of a derrick, ropes, slings, or other suitable tools or equipment in such a manner as to prevent damage to the sewerline materials. Under no circumstances shall sewerline materials be dropped or dumped into the trench. Lined ductile iron pipe and fittings shall be handled from the outside; no forks, chains, straps, hooks, etc. shall be placed inside the pipe or fittings, for lifting, positioning, or laying.

Where a proposed sewerline connects to part of the existing ACSA sewer system, the outlet pipe of the first manhole upstream from the connection shall be completely blocked with an expansion plug. This plug shall be securely fastened to a step and remain in place throughout the construction and testing phases of the project and shall not be removed until authorized by the ACSA.

### 8.4.1 Condition of Ductile Iron Pipe

All lumps, blisters and excess coal tar coating shall be removed from the ends of each pipe. The outside of the spigot and the inside of the bell shall be thoroughly cleaned and be free from oil and grease before the pipe is laid.

### 8.4.2 Special Precautions

Every precaution shall be taken to prevent foreign material from entering the pipe while it is being placed in the trench. During the laying operation, no debris, tools, clothing, or other materials shall be placed in the pipe. The exposed end of all pipes shall be fully closed by means of an approved stopper or plug to prevent earth, water, or other substances from entering the pipe.

### 8.4.3 Pressure Sewer

For pressure sewers, all fittings and joints shall be restrained with mechanical joint restraint or other pipe joint restraint approved by the pipe manufacturer. Thrust blocks or concrete bracing shall not be used.

### 8.4.4 Marking Tape

Green sewer marking tape, a minimum of two (2) inches wide, shall be buried approximately two (2) feet above the top of all sewerlines to alert future construction crews that a sewer pipe is below. The marking tape shall be continuous between manholes. Marking tape disturbed during construction on existing sewerlines shall be restored to its original condition and to the satisfaction of the ACSA inspector.

## **8.5 Backfilling and Tamping**

All trenches or excavations shall be backfilled to the original surface of the ground or to such other grades as may be shown on the approved plans. The ACSA inspector shall make the final determination on all backfill requirements. All backfilling shall be completed promptly. Backfilling around structures should be started as soon as the concrete is sufficiently set. New trenching will not be permitted when earlier trenches need backfilling or labor is needed to restore the surfaces of streets or other areas to a safe and proper condition.

Backfilling shall be done in such a way as to prevent dropping of material directly on top of the pipe from more than a three (3) foot vertical distance. When placing material from a bucket it must be lowered so that the shock of the falling earth will not damage the sewer line or structure.

### 8.5.1 Materials

All material used for backfilling of trenches shall be free of excessive amounts of unsuitable materials such as all organic material, frozen clods, and sticky masses of clay and gumbo which are difficult to properly compact. Backfill material shall contain no rock or asphalt larger than six (6) inches in any dimension and in no case shall rock or asphalt be placed closer than two (2) feet vertically to the installed pipe.

### 8.5.2 Backfilling

Backfill over all pipe to a depth of twenty-four (24) inches shall be carefully placed in layers approximately six (6) inches thick, each layer being thoroughly tamped and compacted in place. Special care shall be taken in using a mechanical tamper directly over the pipe. Above this point, backfill shall be deposited in layer thicknesses which will permit compaction to a density of at least ninety-five percent (95%) of the maximum density at optimum moisture content as determined by the AASHTO T-99. Backfill in existing traffic areas shall be in accordance with the VDOT's standards.

### 8.5.3 Compaction

The contractor may be required, at the sole discretion of the ACSA, to conduct compaction tests on trench backfill. The location of tests shall be selected in the field by the ACSA and will not necessarily be limited to regular intervals. The Contractor shall bear the expense of all compaction tests.

The results of all compaction tests shall be submitted to the ACSA for review and approval prior to acceptance of construction. The degree of compaction required for trenches is 95% of maximum density. If the tests indicate the required density has not been obtained, the Contractor shall remove, replace, and re-compact the material to the specified density. Failure of any compaction tests may result in additional compaction tests being required at the Contractor's expense.

## **8.6 Manholes**

Where practical, manholes shall be placed on undisturbed soil. Where manholes must be installed in fill areas, the fill shall be compacted to ninety-five percent (95%) of the optimum density, as determined by AASHTO T-99, to an elevation not less than thirty-six (36) inches above the proposed invert before excavation begins. Certification of compaction at the manhole location shall be provided before setting the manhole base.

Height control rings may be used to adjust manhole tops to proper grade; however, a maximum of twelve (12) inches total of height control rings will be permitted. In no case shall more than three (3) height control rings be used.

### 8.6.1 Connecting to Manholes

Pipe connections to manholes shall be made with flexible boot connections. Existing manholes not provided with flexible boot connections already cast in place, shall be field cored and have boots installed.

Sealing around all pipes entering manholes shall be done with a quick setting non-shrinking grout.

Whenever connections are to be made to an existing manhole, care shall be taken to prevent debris from entering the sewerline. Flow into existing manholes will not be permitted until all "upstream" sewerlines have been tested, approved and thoroughly cleaned of all debris.

Force mains shall connect at the invert of a manhole.

### 8.6.2 Drop Manholes

Drop manholes shall only be allowed when they are specifically called out on the Construction Plans. They shall be constructed in one of two configurations. An

internal drop pipe in a minimum five (5) foot diameter precast concrete manhole shall be standard practice for new drop manholes. Internal drop connections shall be PVC pipe bolted to the manhole wall with stainless steel straps. See Detail S-4 for additional information.

An external drop pipe with tee fitting for vertical pipe shall only be allowed for making a new drop connection to an existing manhole and where specifically called out on the Construction Plans. External drop connections shall be ductile iron pipe, backfilled in six (6) inch lifts and compacted by hand tampers. See Detail S-5 for additional information.

### **8.6.3 Doghouse Manholes**

The standard practice for connecting a new sewerline to an existing sewerline is to cut in a new precast manhole. Doghouse manholes are only allowed when they are specifically called out on the Construction Plans. They shall be made by constructing a “doghouse” style manhole with a base as shown in Detail S-6. The doghouse opening shall be no less than four (4) inches or more than eight (8) inches greater than the outside diameter of the existing pipe. The doghouse shall sit on a twelve (12) inch thick stone sub-base and twelve (12) inch concrete base. The new sewer shall connect with a flexible boot at the pipe entry. An invert shall be formed in the shelf to allow flow to the existing pipe. The space between the existing pipe and doghouse opening shall be filled with 3,000 psi concrete and coated with a waterproof sealant. The manhole shall be tested in accordance with these specifications prior to cutting into the existing sewerline. The top half of the pipe shall be cut and removed after the shelf and invert have cured.

## **8.7 Frame and Cover Installation**

Manhole frame and cover castings shall be installed so that the cover shall be exposed and flush with the existing street surface. In no case shall the existing pavement surface be raised or lowered to meet the grade of installed manhole frame and cover castings. If street surfaces are renewed or replaced after the sewer system has been approved and accepted by the ACSA, but while such streets are still the obligation of the Developer, the manhole frames and covers therein shall be readjusted to proper location relative to new street surfacing by the Developer. Where frames and covers are in off-street areas, they shall be placed flush with the finished grade. Where manholes are installed in sloped areas, the finished grade of the slope shall intersect the top rim of the frame and cover on the uphill side.

The manhole frame shall be sealed to the concrete manhole section using a bed of mortar on either side of a butyl rubber sealant. The frame shall be mortared to the outside of the concrete manhole section.

Four (4) anchor bolts, five-eighths (5/8) inch in diameter, shall be placed in the cone section of watertight manholes to secure the manhole frame to the concrete cone.

## **8.8 Sewer Lateral Construction**

When new sewerlines are installed, sewer laterals shall connect to the sewerline with an inline tee-wye fitting. When a new sewer lateral connects to an existing sewerline, it shall connect to the sewerline utilizing a saddle. Saddles shall be approved by the ACSA, prior to installation.

Where dissimilar materials exist between along the sewer lateral, a satisfactory adaptor shall be provided to ensure a tight joint and smooth transition.

### **8.8.1 Marking**

All sewer lateral stub-outs shall be capped and marked with a pressure treated 2x4 piece of lumber no less than four (4) feet in length. The 2x4 shall extend approximately two (2) feet above grade and shall be painted green. The depth to the sewer lateral shall be noted on the 2x4. Alternate markers may be approved by the ACSA.

### **8.8.2 Inspection**

All sewer lateral saddles shall be left exposed for visual inspection by the ACSA. The Contractor shall obtain measurements to the nearest downstream manhole for all inline wyes, tees, or saddle connections for inclusion on the As-Built Plans.

## **8.9 Sewer Testing**

All sanitary sewerlines and manholes shall be subjected to the applicable tests described in this section. All labor and equipment for such tests shall be furnished by the Contractor. If leakage exceeds the stated allowance in any section tested, the Developer shall cause such repairs to be made to the line, manholes or appurtenances as may be necessary to comply with the specifications, to the satisfaction of the ACSA. The Contractor shall provide the ACSA with two (2) business days' notice prior to undertaking any tests.

### **8.9.1 Gravity Sewers**

#### *Alignment*

The Contractor is responsible for completing an alignment test of each sewerline. A light will be flashed between manholes by means of a flashlight or reflection of sunlight with a mirror or by other methods. If the illuminated interior to the pipe shows poor alignment, displaced pipe, blockages or other defects, the defects shall be corrected to meet all standards governing the construction of sewerlines. All costs involved shall be borne by the Contractor.

### *Deflection*

All PVC gravity sewerlines shall be subject to vertical deflection testing as deemed necessary by the ACSA. The maximum allowable deflection following completion of backfill shall not exceed 5% of the pipe's internal diameter. Deflection testing shall be conducted by the Contractor using methods approved by the ACSA. Any sewer sections failing to meet deflection requirements shall, at the Contractor's expense, be corrected to meet all standards governing the construction of sewerlines.

### *Low Pressure Air Test*

A low air pressure test shall be used to test all gravity sewerlines. The air test is to be conducted between two (2) consecutive manholes. The test equipment shall consist of two (2) plugs (one tapped and equipped for air inlet connection), a shut-off valve, a pressure regulating valve, a pressure reduction valve, and a monitoring pressure gauge having a pressure range from zero (0) to five (5) psi, graduated in one-tenth (0.10) psi increments with an accuracy of plus or minus four-hundredths (+/- .04) psi. The test equipment shall be set up outside the manhole for easy access and reading. No person shall remain in the manhole while the pipe is being pressurized or throughout the test for safety reasons.

Air shall be supplied to the equipment slowly and shall be regulated to prevent the pressure inside the pipe from exceeding five (5.0) psig. The pipeline shall be filled until a constant internal pressure of three and one-half (3.5) psi is maintained. The internal pressure shall be maintained at three and one-half (3.5) psi or slightly above for a five (5) minute stabilization period, after which time the internal pressure will be adjusted to three and one-half (3.5) psi, the air supply shut off and the test will begin.

The table below specifies the minimum allowable time for the pressure to drop one half (0.5) psi based on the pipe diameter and length of sewer pipe being tested.

Pipe Dia. (inches)	Minimum Allowable Time for a 0.5 psi Pressure Drop for Various Lengths of Sewerline (minutes:seconds)							
	<100 ft	100 ft	150 ft	200 ft	250 ft	300 ft	350 ft	400 ft
8	3:47	3:47	3:47	3:47	3:47	3:48	4:26	5:04
10	4:43	4:43	4:43	4:43	4:57	5:56	6:55	7:54
12	5:40	5:40	5:40	5:42	7:08	8:33	9:58	11:24
15	7:05	7:05	7:05	8:54	11:08	13:21	15:35	17:48
18	8:03	8:03	9:37	12:49	16:01	19:14	22:26	25:38
21	9:55	9:55	13:05	17:27	21:49	26:11	30:32	34:54
24	11:20	11:24	17:57	22:48	28:30	34:11	39:53	45:35
27	12:45	14:25	21:38	28:51	36:04	43:16	50:30	57:42

An air pressure correction for groundwater shall be required when the prevailing groundwater table is above the sewer being tested and shall be calculated as follows:

$$\frac{\text{Groundwater Depth (ft. above sewer line)}}{2.31} + 3.5 \text{ psi} = \text{Starting Pressure (psi)}$$

$$\text{Ending Test Pressure} \geq \text{Starting Pressure (psi)} - 0.5 \text{ psi}$$

There is no change in the time requirement when the groundwater correction is applied.

Should any test on any section of the pipeline disclose an air loss rate greater than permitted, the Contractor shall, at their own expense, locate and repair the defective joints or pipe sections. After the repairs are completed, the section shall be retested until the air loss rate is within the specified allowance.

### 8.9.2 Manhole Testing

All manholes shall be tested by vacuum. Installation and operation of vacuum testing equipment and indicating devices shall be in accordance with ASTM C1244, current edition. Testing shall include the joint between the concrete cone section and the manhole frame, unless otherwise directed by the ACSA. Stub-outs, boots, and pipe plugs shall be secured to prevent movement while the vacuum is being drawn.

A measured vacuum of ten (10) inches of mercury shall be established in the manhole. The time for the vacuum to drop to nine (9) inches of mercury shall be recorded. The time recorded for the pressure drop must be greater than the time listed in the table below for the manhole to pass the vacuum test. Manholes greater than twenty-five (25) feet in depth shall be reviewed and testing requirements established on a case-by-case basis.

Manhole Diameter	Manhole Depth	Minimum Time for a 1" Hg Pressure Change
4 feet	Less than 10 ft.	60 seconds
4 feet	Between 10 ft. and 15 ft.	75 seconds
4 feet	Between 15 ft. and 25 ft.	90 seconds
5 feet	Less than 10 ft.	75 seconds
5 feet	Between 10 ft. and 15 ft.	90 seconds
5 feet	Between 15 ft. and 25 ft.	105 seconds
6 feet	Less than 10 ft.	90 seconds
6 feet	Between 10 ft. and 15 ft.	105 seconds
6 feet	Between 15 ft. and 25 ft.	120 seconds

If the manhole fails the test, necessary repairs shall be made, and the vacuum test shall be repeated until the manhole passes the test. If a manhole joint mastic is pulled



out during the vacuum test, the manhole shall be disassembled, and the mastic replaced. The test shall then be repeated as specified above.

#### 8.9.3 Pressure Sewer

All sewer force mains shall be tested at a hydrostatic pressure of one hundred fifty (150) psi or one hundred fifty percent (150%) of the design operating pressure, whichever is greater. The test duration shall be two (2) hours, and the pressure shall not vary by more than five (5) psi without adding any additional water to the force main once the test begins. The method and equipment for conducting this test and specific pressure of the test shall be subject to the approval of the ACSA.

#### 8.9.4 Acceptance

Should deflection, air test, vacuum test or pressure leakage limits be exceeded as specified above, the ACSA reserves the right to reject all or any portion of the Facilities. Any project or portion of a project rejected by the ACSA or its authorized representative shall not be permitted to discharge into any part of the ACSA sewer system.

All repair methods, other than replacement of the defective area with new sound materials, shall be subject to prior approval of the ACSA. Grouted, collared, clamped or otherwise patched-up sewerline or force main sewer pipe will not be acceptable.

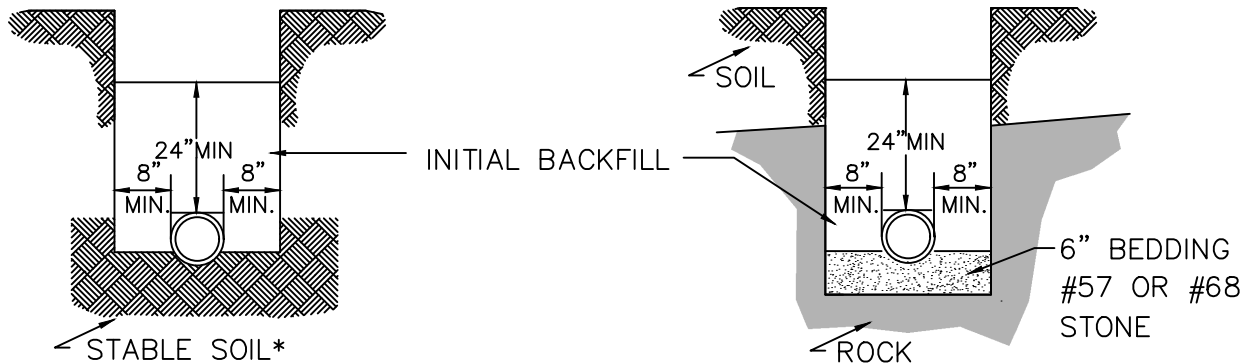
Upon completion of such inspection or tests as required in these specifications, all foreign matter, including sand, rock, gravel, etc. shall be removed from all sewers and manholes before final approval is granted.

## **Part 9 – Details**

- A. Water Details
- B. Sewer Details

## GOOD FOUNDATION MATERIAL

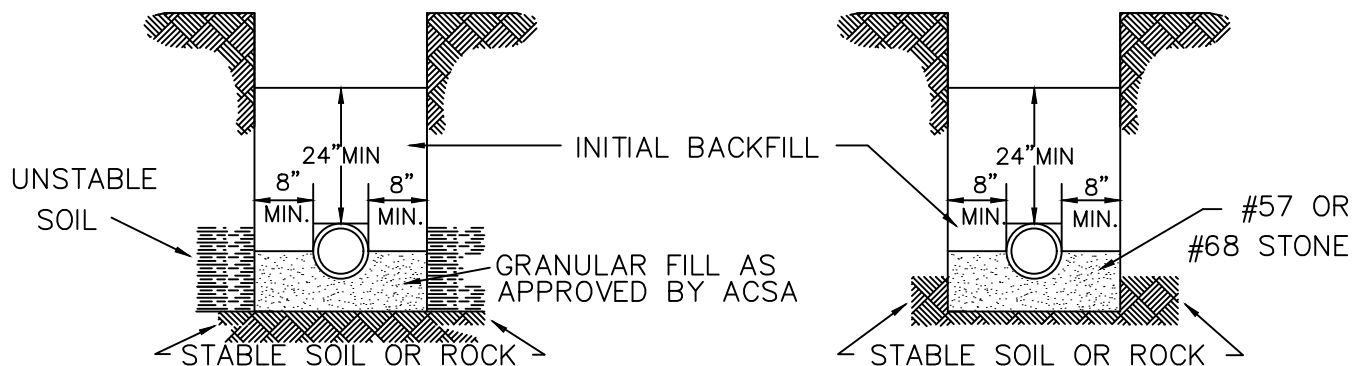
## ROCKY FOUNDATION MATERIAL



\* SCRAPE THE BOTTOM OF THE TRENCH. REMOVE ALL STONES TO ENSURE THE PIPE DOESN'T REST ON ROCK AND THEN COMPACT THE SOIL OR PROVIDE A 4\" BEDDING OF #57 OR #68 STONE.

## FOUNDATION IN POOR SOIL

## UNDER-CUT CONDITION



## NOTES:

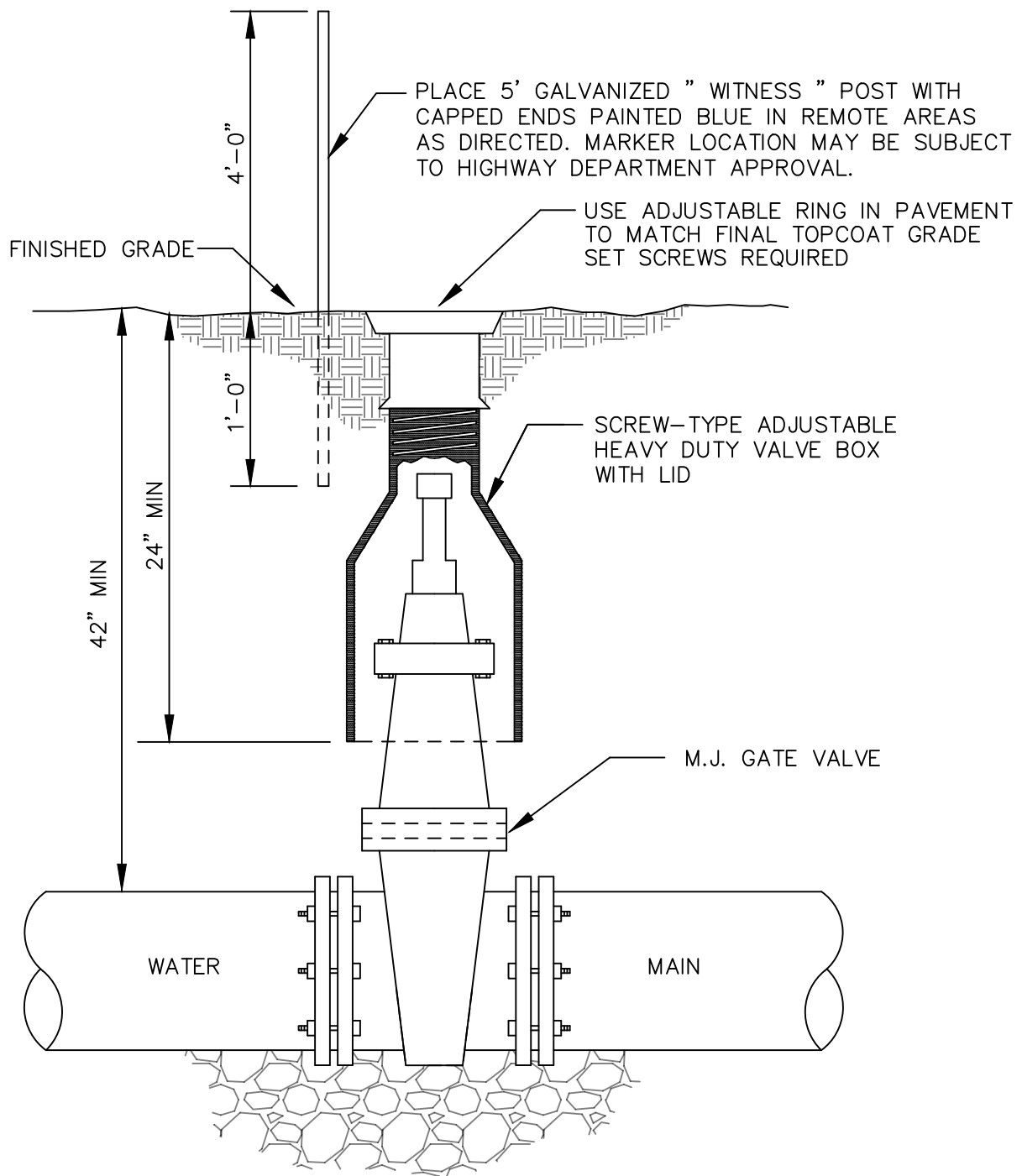
1. NO ROCKS SHALL BE ALLOWED WITHIN 24\" OF THE WATER LINES.
2. NO ROCKS LARGER THAN 6\" IN ANY DIMENSION SHALL BE ALLOWED ABOVE THE INITIAL BACKFILL.
3. THE INITIAL BACKFILL SHALL BE PLACED AND COMPACTED IN 6\" LIFTS.
4. NO ORGANIC OR FROZEN MATERIAL OR DEBRIS SHALL BE ALLOWED IN THE TRENCH.
5. BELL HOLES SHALL BE DUG OUT IN ALL CASES.
6. OPEN CUTS IN PAVED AREAS WITHIN EXISTING VDOT RIGHT-OF-WAY SHALL BE BACKFILLED ENTIRELY WITH NO. 21A STONE.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

DUCTILE IRON WATER MAIN  
INSTALLATION AND BEDDING  
NOT TO SCALE

REV 8/6/2024

DETAIL  
W-1



NOTES:

1. MINIMUM 6" OF #57 OR #68 STONE TO BE PLACED UNDER GATE VALVE.
2. IN REMOTE AREAS, VALVE BOXES SHALL EXTEND SIX (6) INCHES ABOVE GRADE.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

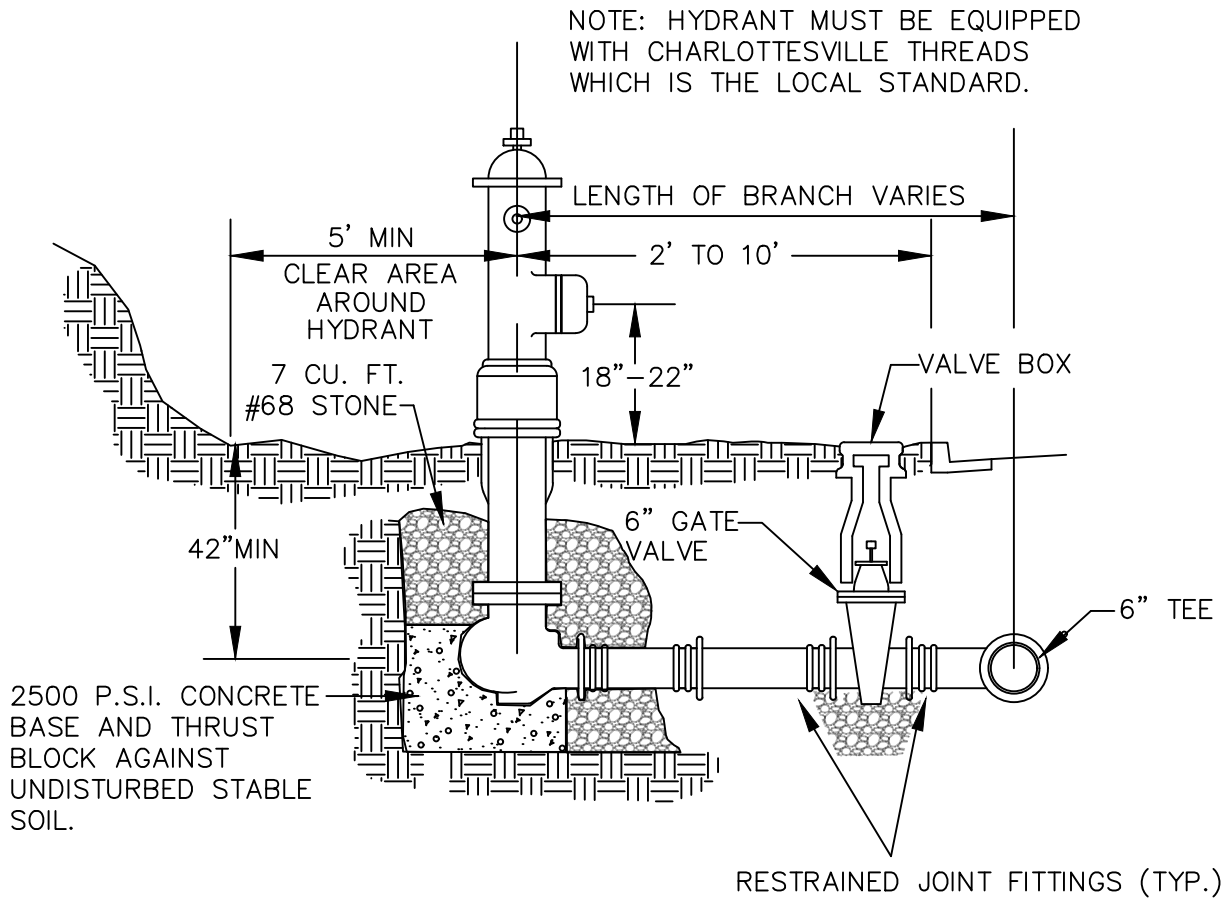
TYPICAL GATE VALVE

NOT TO SCALE

REV 8/6/2024

DETAIL

W-2



NOTES:

1. SURROUND WEEP HOLES WITH GRAVEL AND KEEP FREE OF CONCRETE.
2. MAINTAIN A 42" MINIMUM COVER FROM THE MAIN TO THE FIRE HYDRANT ( INCLUDING DITCHES )
3. FINISHED GRADE SHALL SLOPE AWAY FROM THE FIRE HYDRANT AND VALVE BOX.
4. THE GATE VALVE IS PREFERRED IN PAVEMENT AFTER TEE WITH MAIN. IT IS ALLOWED IN SHOULDER, OR BEHIND DITCH, BUT NOT ALLOWED IN DITCH OR GUTTER.
5. FIRE HYDRANTS SHALL BE INSTALLED AT LOCATIONS WHERE WEEP HOLES ARE ABOVE THE PREVAILING GROUNDWATER ELEVATION. IF REQUIRED TO BE IN WET AREAS, THE WEEP HOLES SHALL BE PLUGGED AND THE HYDRANT SHALL BE PUMPED DRY.

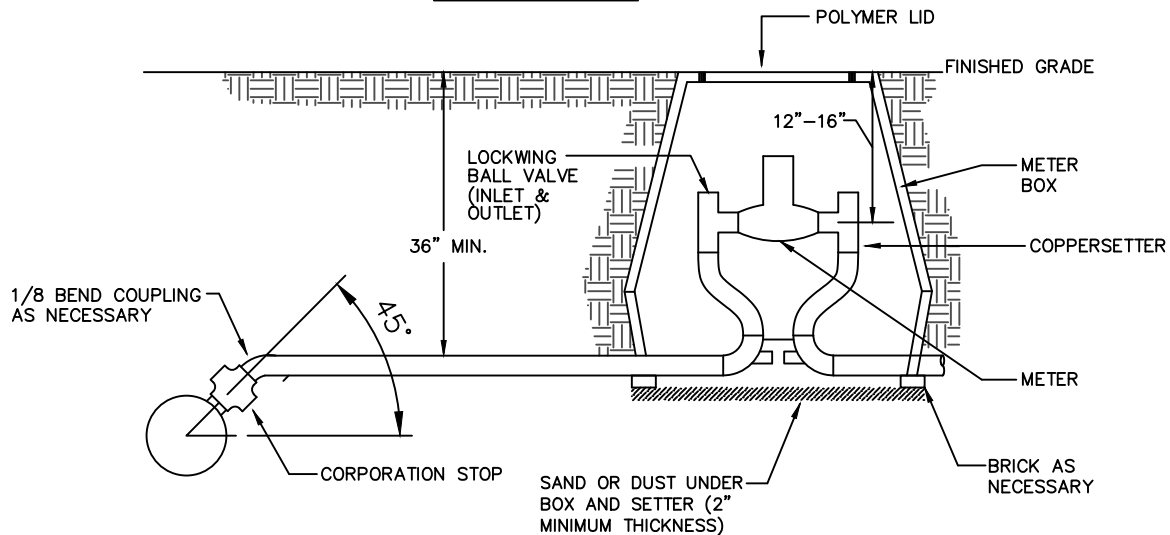
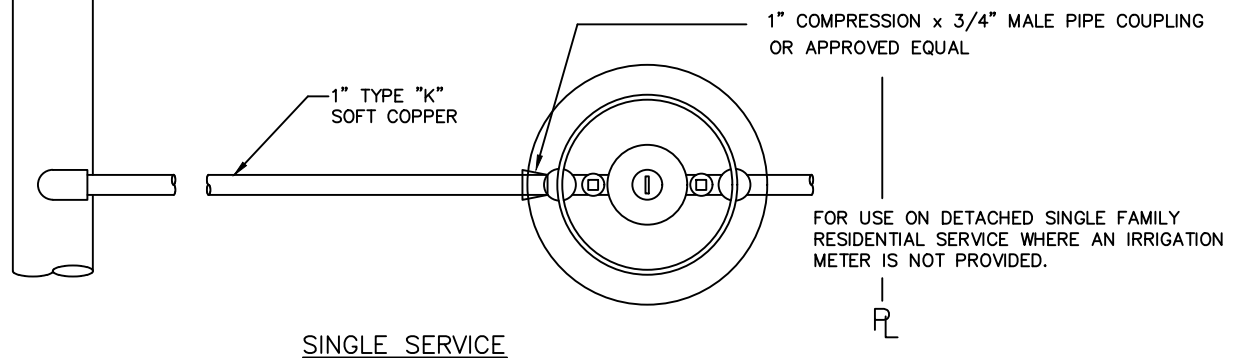
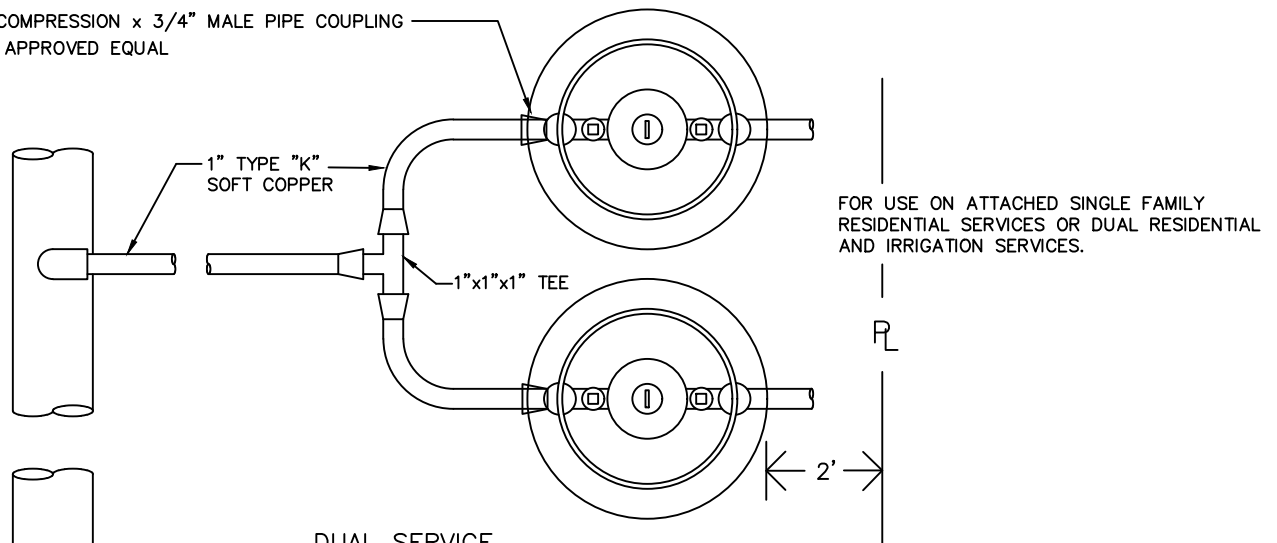
ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL FIRE HYDRANT  
ASSEMBLY DETAIL  
NOT TO SCALE

REV 8/6/2024

DETAIL  
W-3

1" COMPRESSION x 3/4" MALE PIPE COUPLING  
OR APPROVED EQUAL



NOTES:

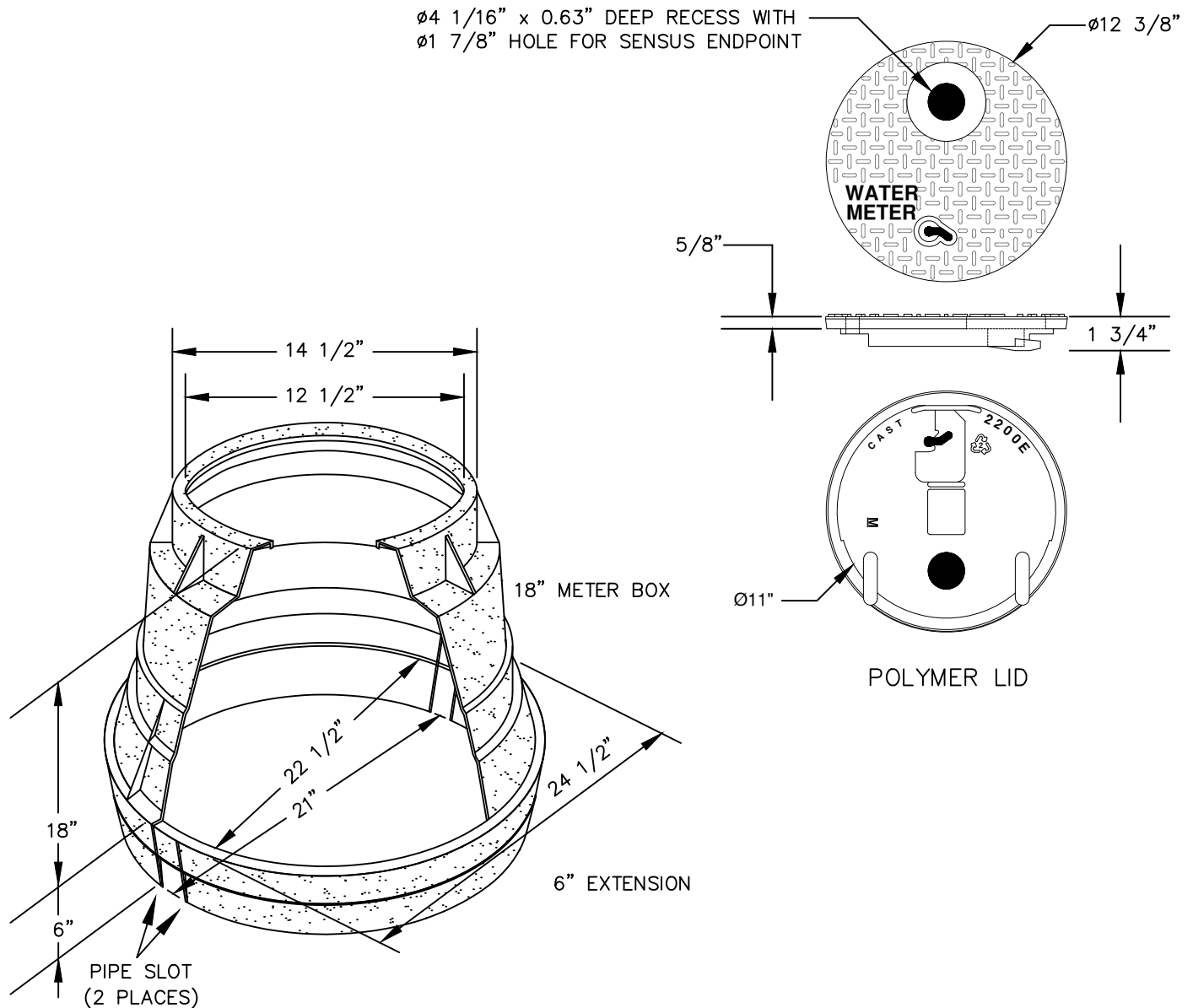
1. SADDLES SHALL BE USED TO TAP PLASTIC AND AC WATER MAINS.
2. NO SWEATED FITTINGS.
3. 36 INCHES OF COVER OVER SERVICE LINE SHALL BE MAINTAINED FOR UP TO 5 FEET BEFORE METER BOX. SERVICE LINE SHALL BE BROUGHT TO SETTER ELEVATION WITHIN THE LAST 5 FEET TO METER BOX.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL SERVICE LATERAL INSTALLATION  
(3/4" AND 1" METERS)  
NOT TO SCALE

REV 8/6/2024

DETAIL  
W-4



**NOTES:**

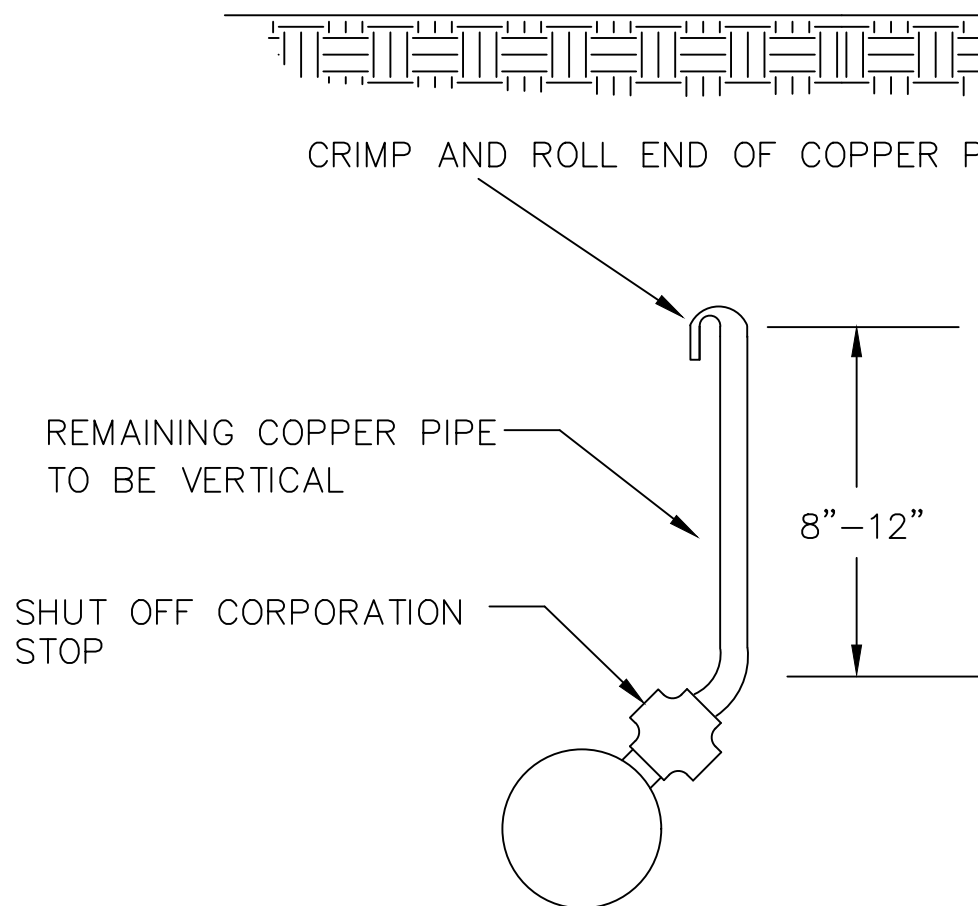
1. THE POLYMER LID SHALL HAVE A MOLDED KEYHOLE OR PICK BAR FOR LID REMOVAL.
2. THE POLYMER LID SHALL HAVE A MAGNET OR REBAR MOLDED WITHIN THE LID FOR LOCATING.
3. THE POLYMER LID SHALL BE BLACK.
4. BOX SHALL BE TRAFFIC RATED IF A 1" METER IS INSTALLED.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL METER BOXES  
(3/4" AND 1" METERS)  
NOT TO SCALE

REV 8/6/2024

DETAIL  
W-5



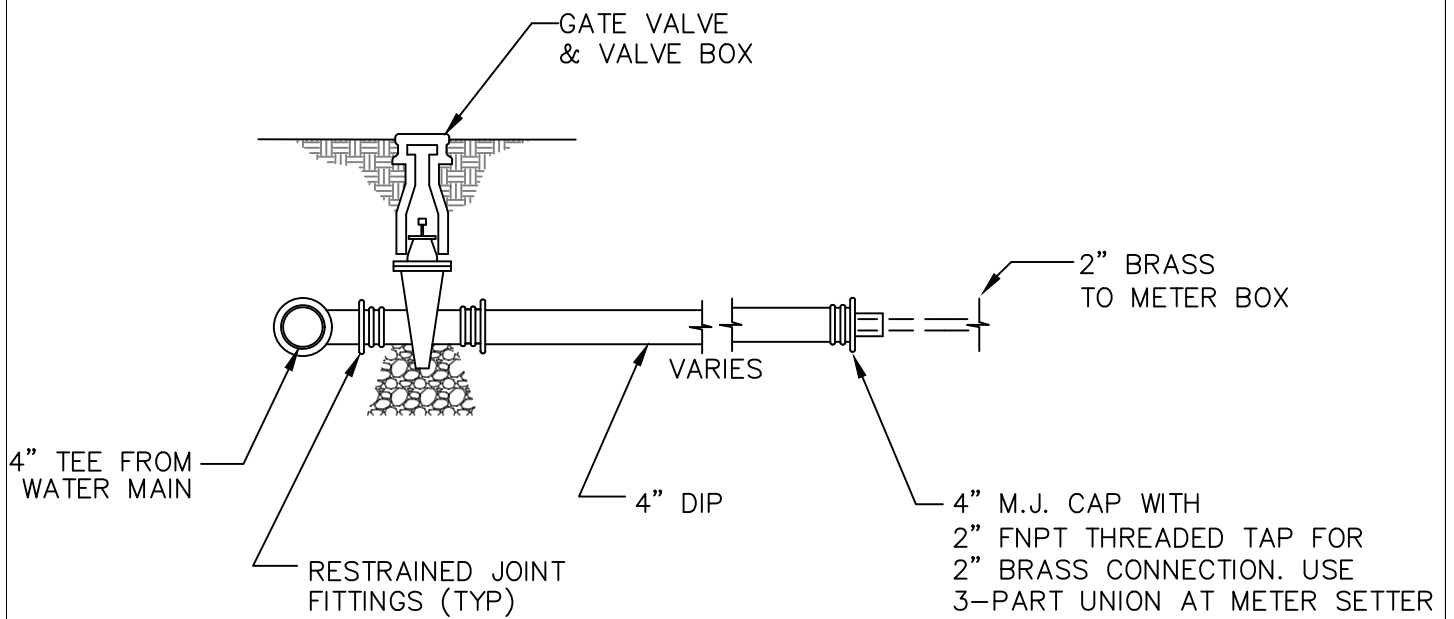
ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL SERVICE TAP  
ABANDONMENT  
NOT TO SCALE

REV 8/6/2024

DETAIL  
W-6





NOTES:

1. GATE VALVE WILL BE 4" UNLESS OTHERWISE SPECIFIED BY THE ACSA.
2. DIP TO EXTEND AT LEAST 24" BEYOND CURB, OR TO WITHIN 24" OF METER BOX.
3. SERVICE LINE CONNECTS AT MAIN WITH X"x4" TEE (OR TAPPING SLEEVE FOR RETROFIT).

ALBEMARLE COUNTY  
SERVICE AUTHORITY

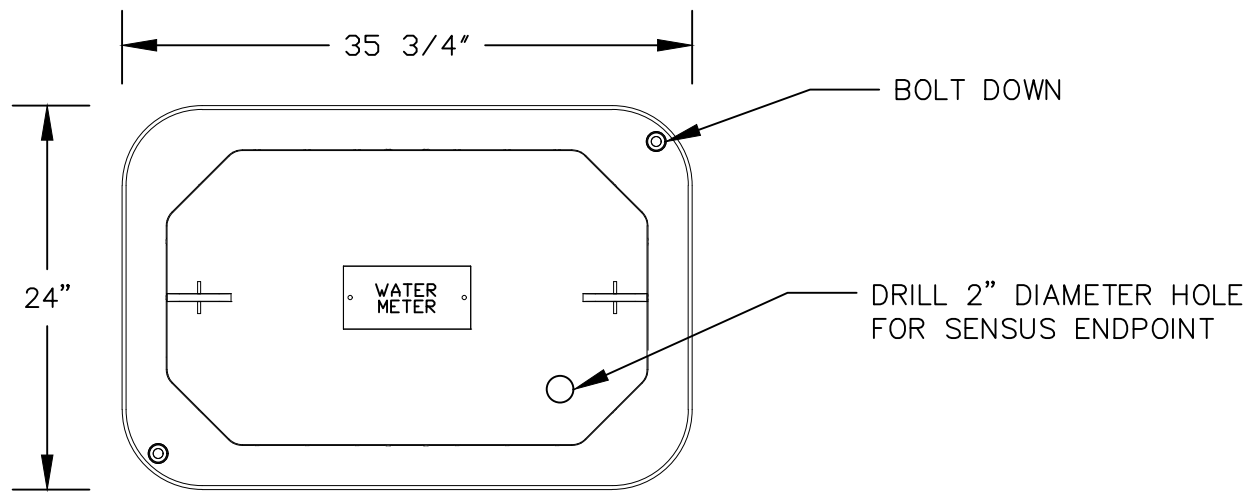
LARGE METER SERVICE LINE

NOT TO SCALE

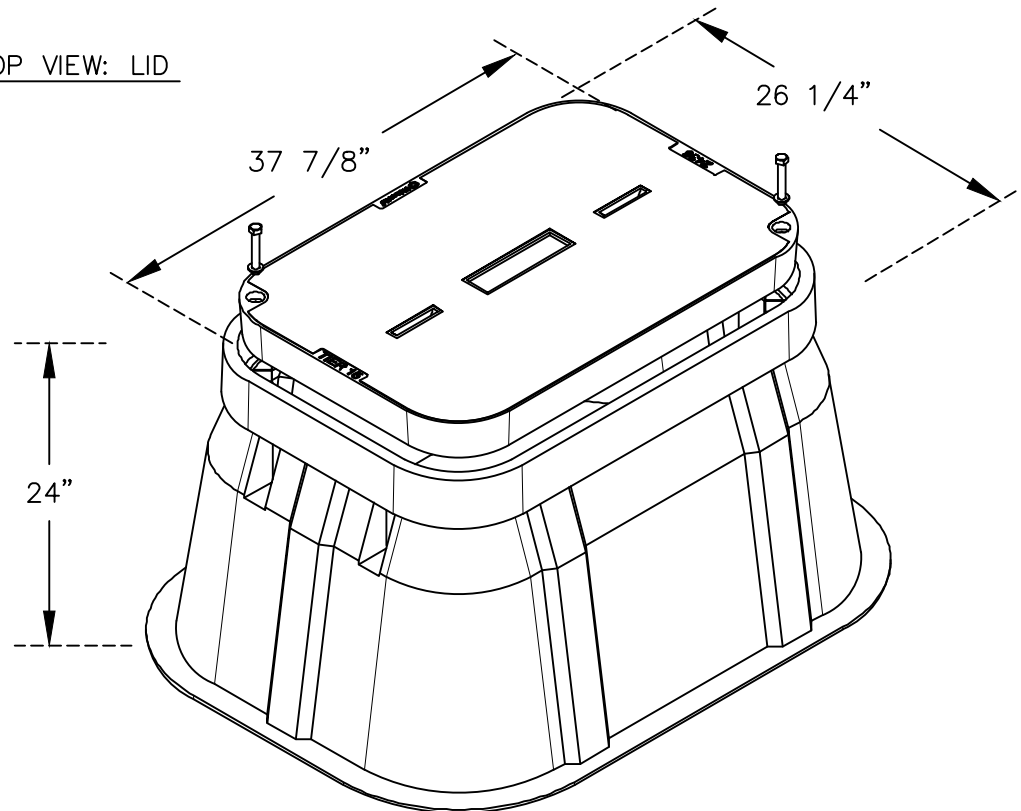
REV 8/6/2024

DETAIL

W-7



TOP VIEW: LID



PERSPECTIVE: BOX

NOTES:

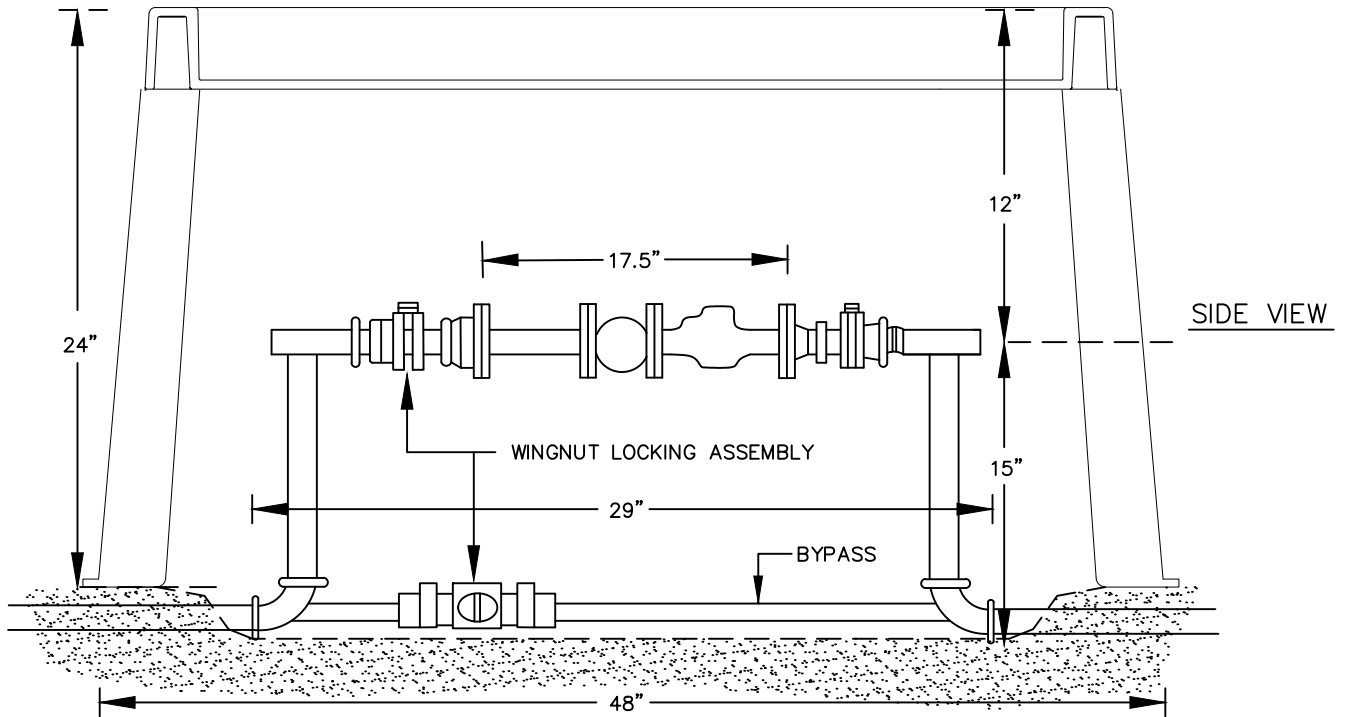
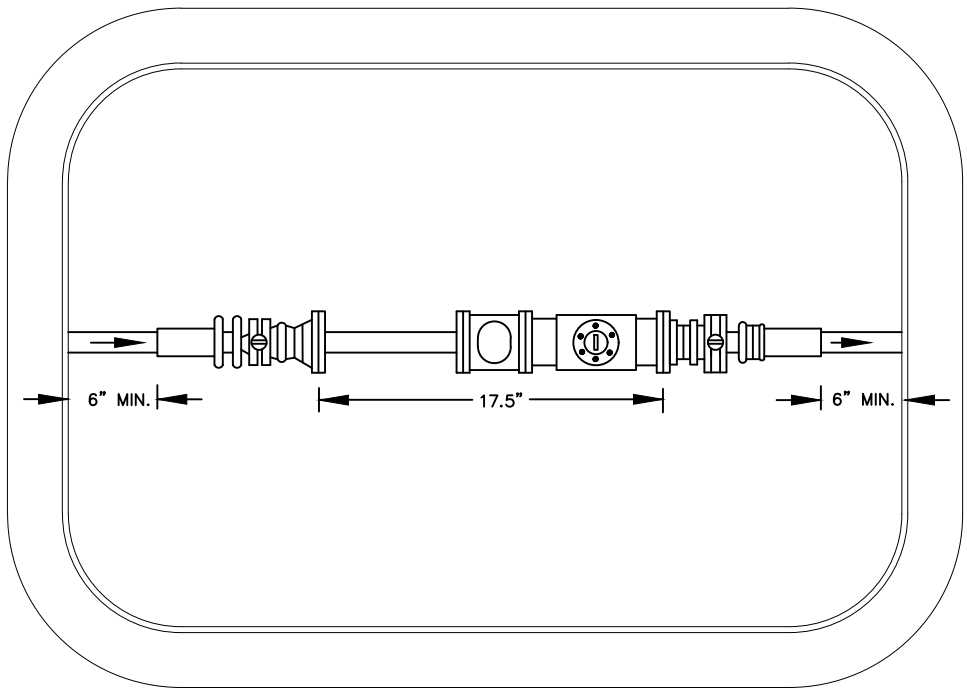
1. METER BOX TO BE ANSI TIER 15 RATED
2. LID SHALL BE POLYMER MATERIAL
3. BOX SHALL BE FLARED OUTWARD AT BOTTOM
4. BOX SHALL BE LOCATED IN TURF OR LANDSCAPE STRIP

ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL METER BOXES  
(1.5" AND 2" METERS)  
NOT TO SCALE

REV 8/6/2024

DETAIL  
W-8



NOTES:

1. 2" WATER METER FEED SHALL BE LOCATED BELOW BASE OF BOX.
2. PROVIDE A 6" THICK GRAVEL BED BENEATH THE METER BOX.

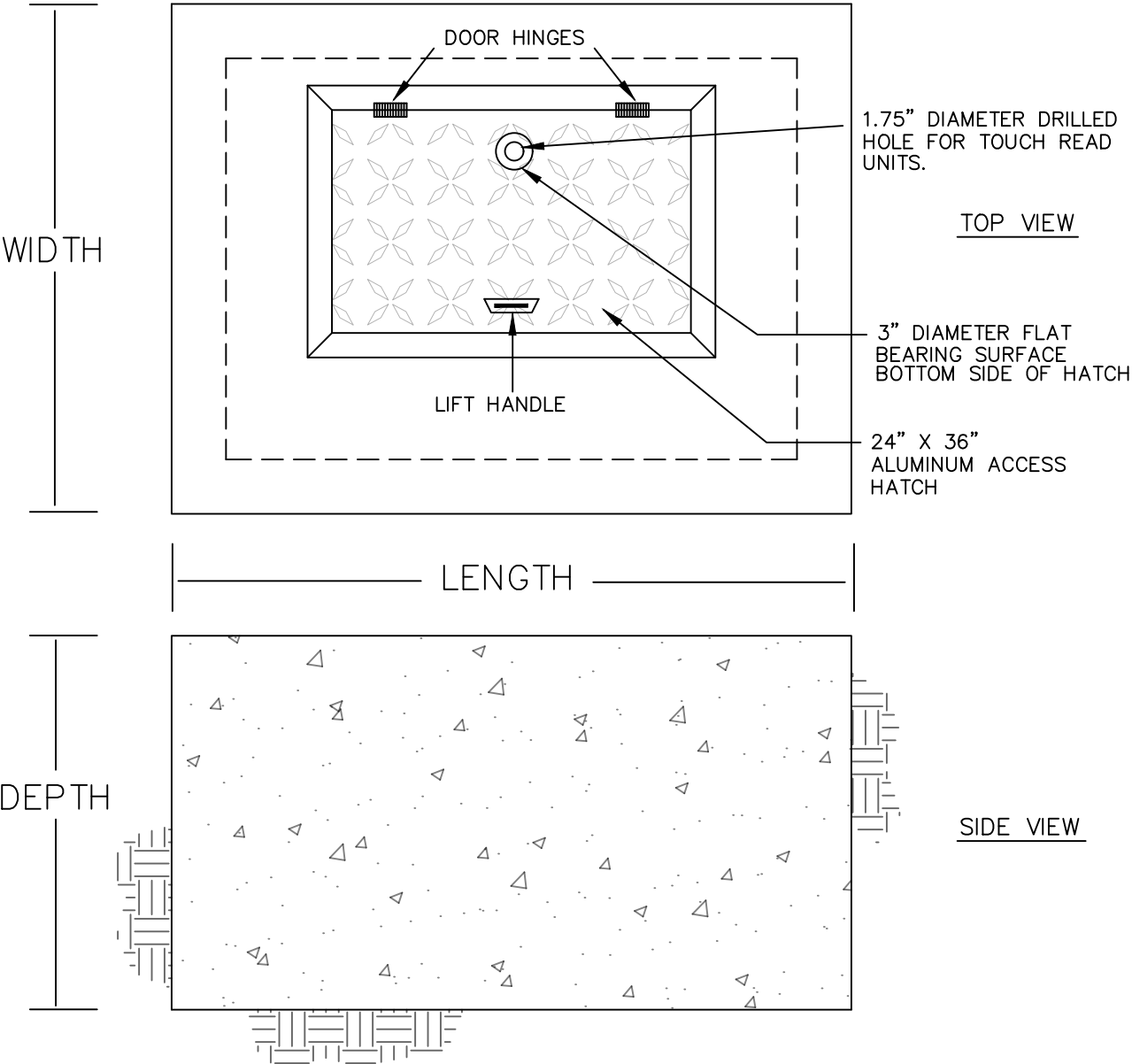
ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL METER INSTALLATION  
(1.5" AND 2" METERS)  
NOT TO SCALE

REV 8/6/2024

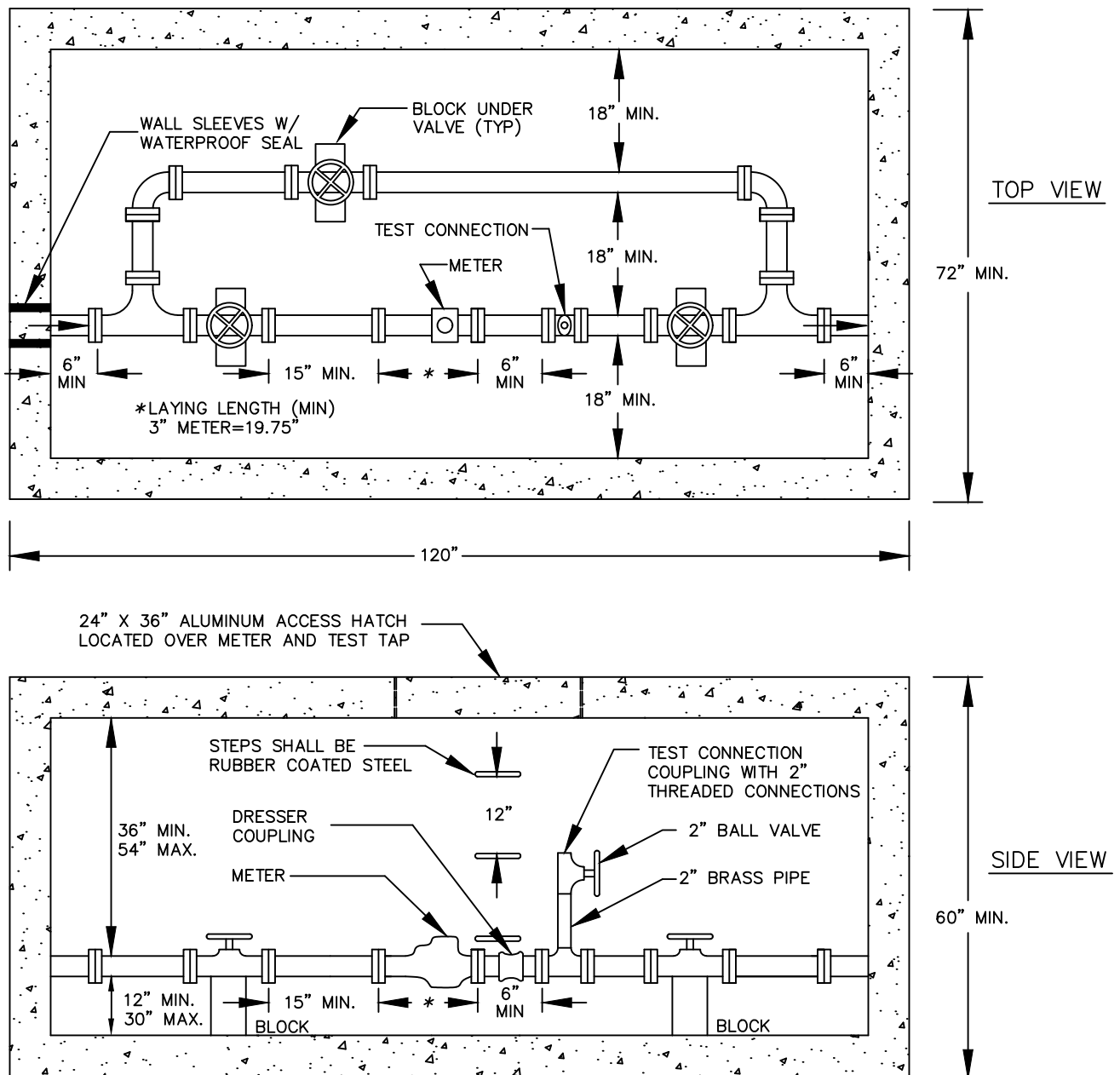
DETAIL  
W-9

METER SIZE	DEPTH	LENGTH	WIDTH
3"	5' MIN.	10' MIN.	6' MIN.
4"	5' MIN.	12' MIN.	6' MIN.
GREATER THAN 4"	PROPOSALS WILL BE SUBMITTED.		



NOTE: CONSULT WITH ALBEMARLE COUNTY SERVICE AUTHORITY BEFORE SPECIFYING 3" OR 4" METER VAULT

ALBEMARLE COUNTY SERVICE AUTHORITY	TYPICAL METER VAULT (3" AND 4" METERS) NOT TO SCALE	REV 8/6/2024
		DETAIL W-10



**NOTES:**

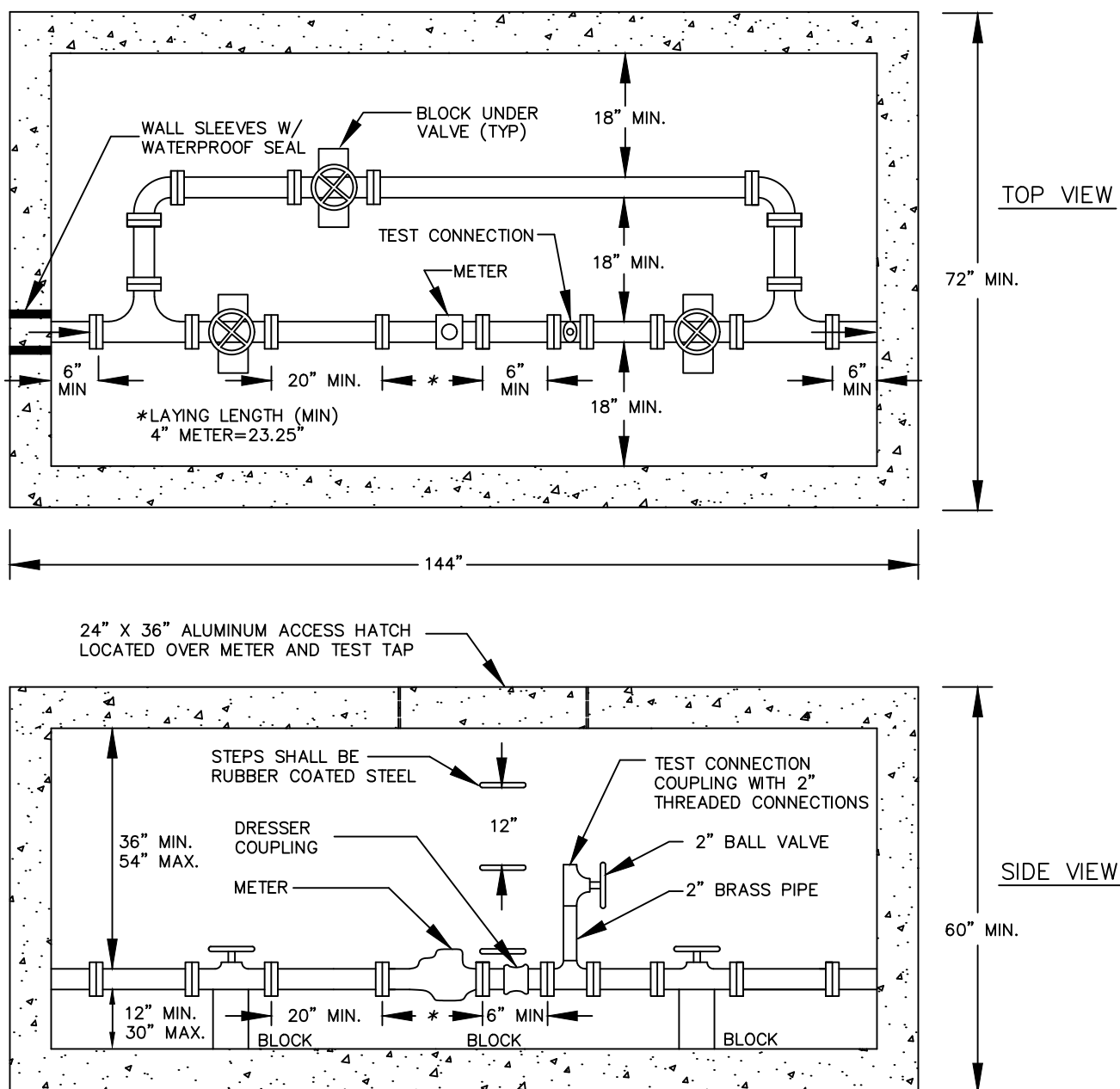
1. CONSULT WITH ALBEMARLE COUNTY SERVICE AUTHORITY BEFORE SPECIFYING 3" OR 4" METER VAULT
2. MINIMUM WALL THICKNESS FOR PRECAST OR POUR-IN-PLACE VAULTS SHALL BE 4".
3. THE OUTSIDE OF THE VAULT BELOW GRADE SHALL BE COATED WITH AN APPROVED WATERPROOFING COMPOUND.
4. PROVIDE A FLOOR DRAIN WITH A 2" DRAIN PIPE RUN TO DAYLIGHT OR INSTALL A SUMP PUMP. IN EITHER CASE THE FLOOR OF THE VAULT SHALL SLOPE TO THE DRAIN OR SUMP.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL METER INSTALLATION  
(3" METER)  
NOT TO SCALE

REV 8/6/2024

DETAIL  
W-11



**NOTES:**

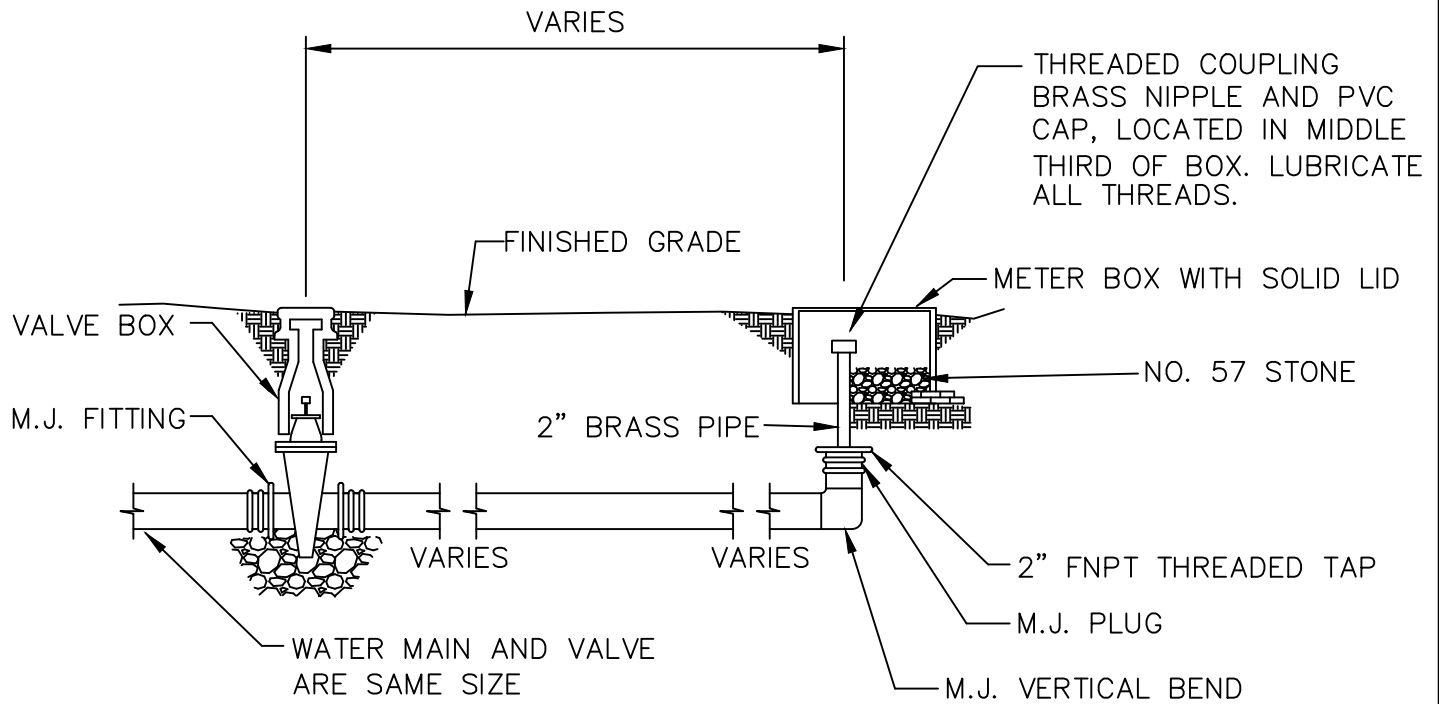
1. CONSULT WITH ALBEMARLE COUNTY SERVICE AUTHORITY BEFORE SPECIFYING 3" OR 4" METER VAULT
2. MINIMUM WALL THICKNESS FOR PRECAST OR POUR-IN-PLACE VAULTS SHALL BE 4".
3. THE OUTSIDE OF THE VAULT BELOW GRADE SHALL BE COATED WITH AN APPROVED WATERPROOFING COMPOUND.
4. PROVIDE A FLOOR DRAIN WITH A 2" DRAIN PIPE RUN TO DAYLIGHT OR INSTALL A SUMP PUMP. IN EITHER CASE THE FLOOR OF THE VAULT SHALL SLOPE TO THE DRAIN OR SUMP.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

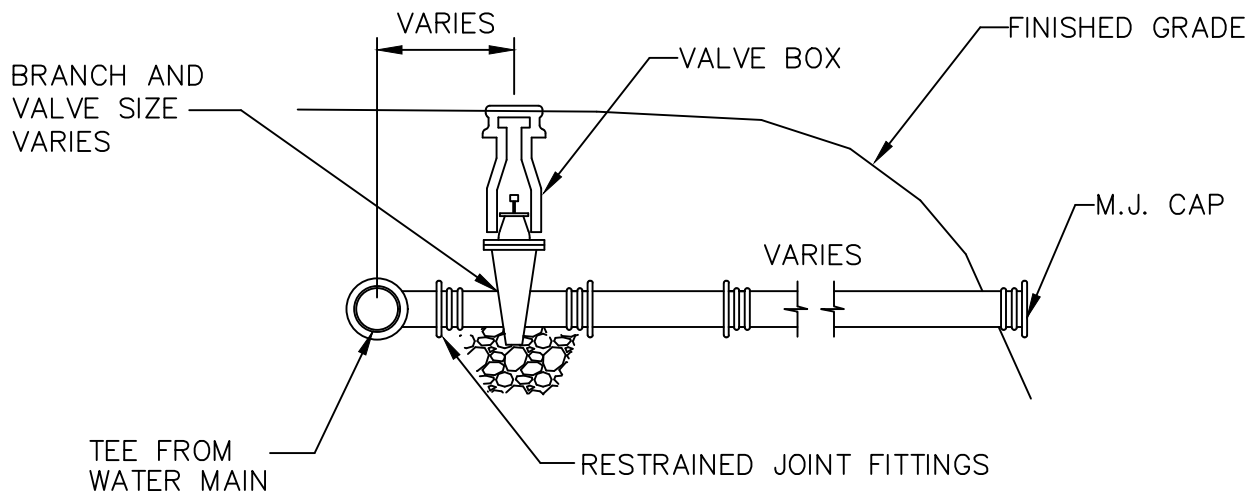
TYPICAL METER INSTALLATION  
(4" METER)  
NOT TO SCALE

REV 8/6/2024

DETAIL  
W-12



DEAD END  
(TYPE "A")



ON-LINE  
(TYPE "B")

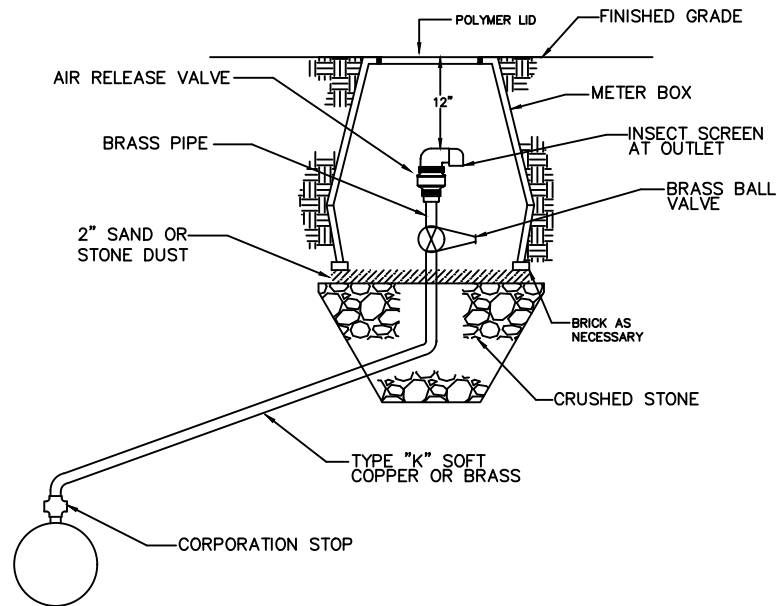
ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL BLOW-OFF ASSEMBLY (BOA)

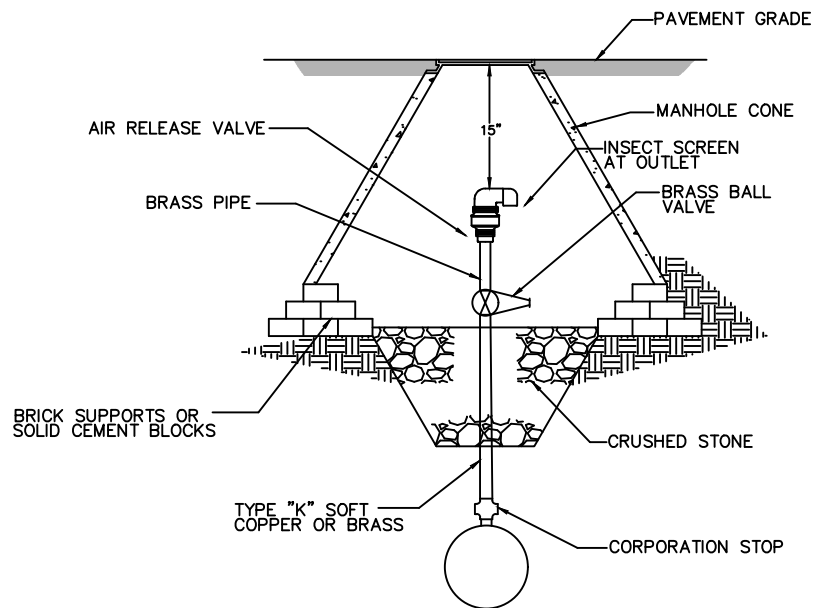
NOT TO SCALE

REV 8/6/2024

DETAIL  
W-13



NON-PAVEMENT AREA



PAVEMENT AREA

NOTES:

1. USE PRECAST MANHOLE CONE AND COVER, WITH "WATER" CAST ON LID FOR TRAFFIC AREAS.
2. FOR WATER MAINS SMALLER THAN 12" USE A 1" ARV AND FITTINGS. FOR WATER MAINS 12" AND LARGER USE 2" ARV AND FITTINGS.
3. TWO INCH TAPS MUST USE SADDLE FOR CONNECTION TO WATER MAIN.
4. IN SITUATIONS WHERE THE ARV ASSEMBLY CANNOT BE OFFSET FROM THE MAIN, AN ADEQUATE FOUNDATION SHALL BE INSTALLED SO THE WATER LINE DOES NOT SUPPORT THE MANHOLE CONE.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

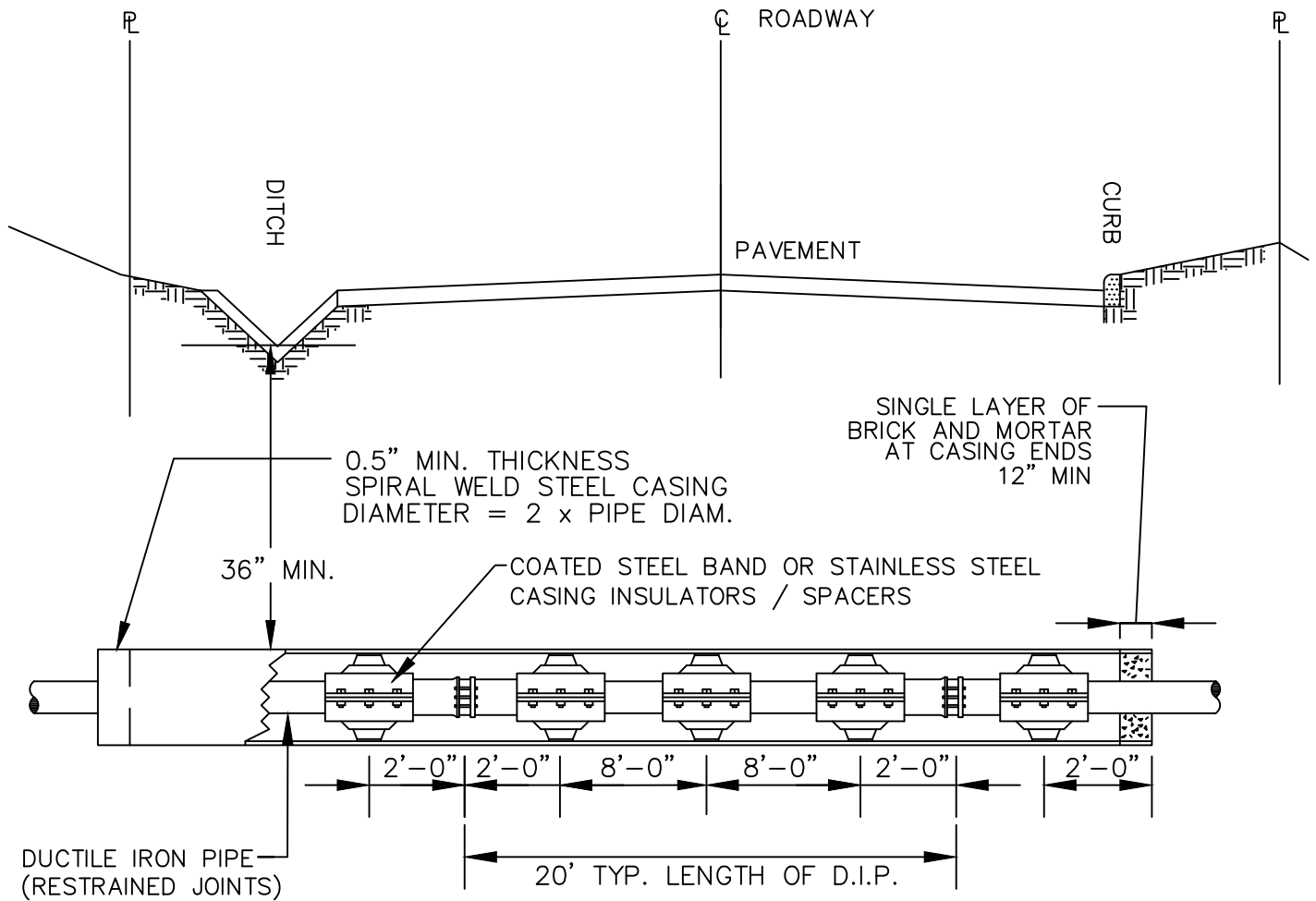
TYPICAL AIR RELEASE VALVE (ARV)

NOT TO SCALE

REV 8/6/2024

DETAIL  
W-14





**NOTES:**

1. STEEL CASING TO EXTEND TO BACK OF CURB, DITCH, SIDEWALK, ETC. OR A MINIMUM OF 5' BEYOND THE EDGE OF PAVEMENT, WHICHEVER IS GREATER.
2. MIDDLE SPACER SHALL BE PLACED AT THE CENTERPOINT OF PIPE.
3. THREE CASING SPACERS TO BE USED PER STICK OF PIPE.

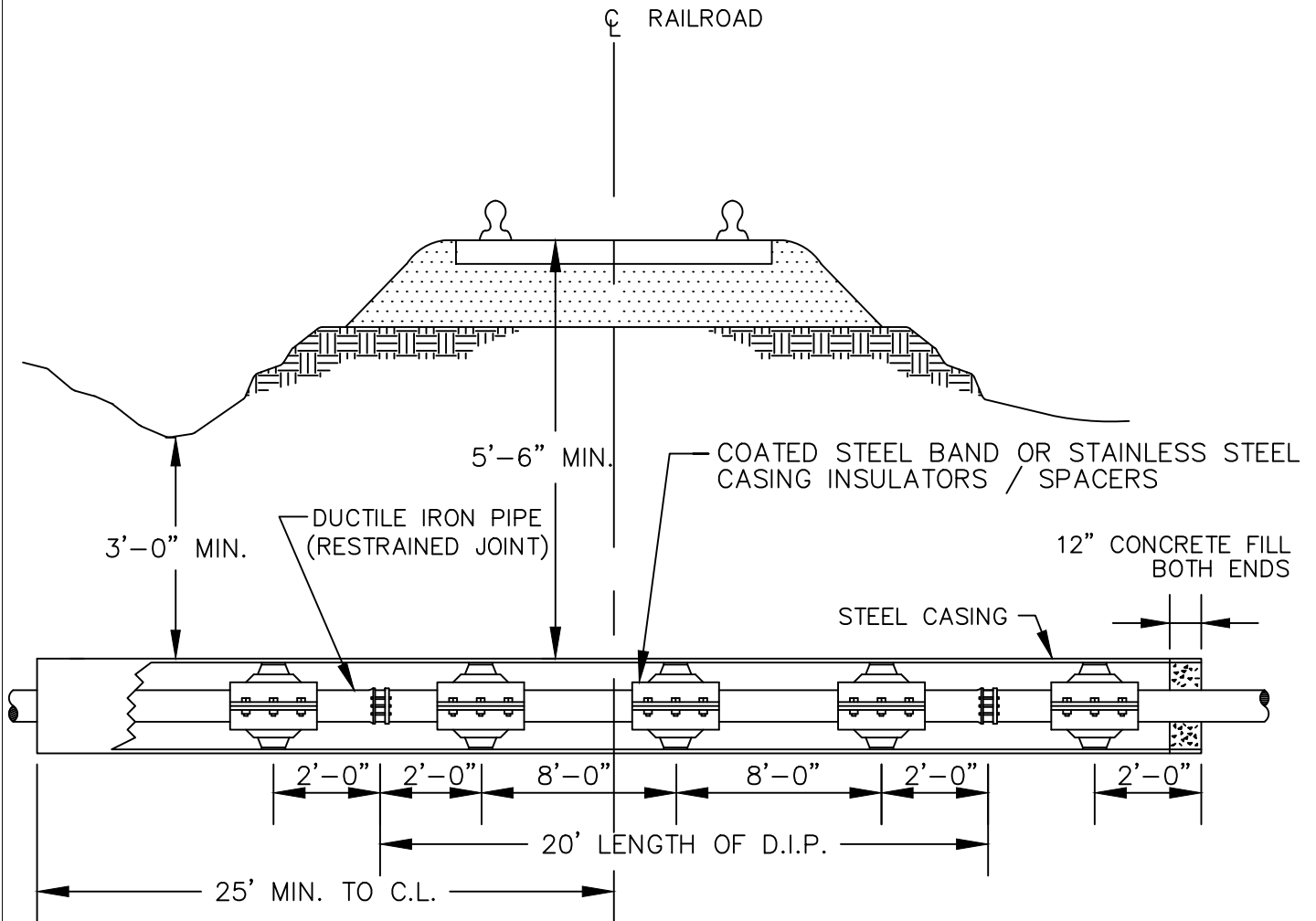
ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL STEEL SLEEVE INSTALLATION  
UNDER ROADWAYS

NOT TO SCALE

REV 8/6/2024

DETAIL  
W-15



ALSO SEE THE "AREA MANUAL FOR RAILWAY ENGINEERING – PART 5, PIPELINES"

**NOTES:**

1. MIDDLE SPACER SHALL BE PLACED AT THE CENTERPOINT OF PIPE.
2. THREE CASING SPACERS TO BE USED PER STICK OF PIPE.

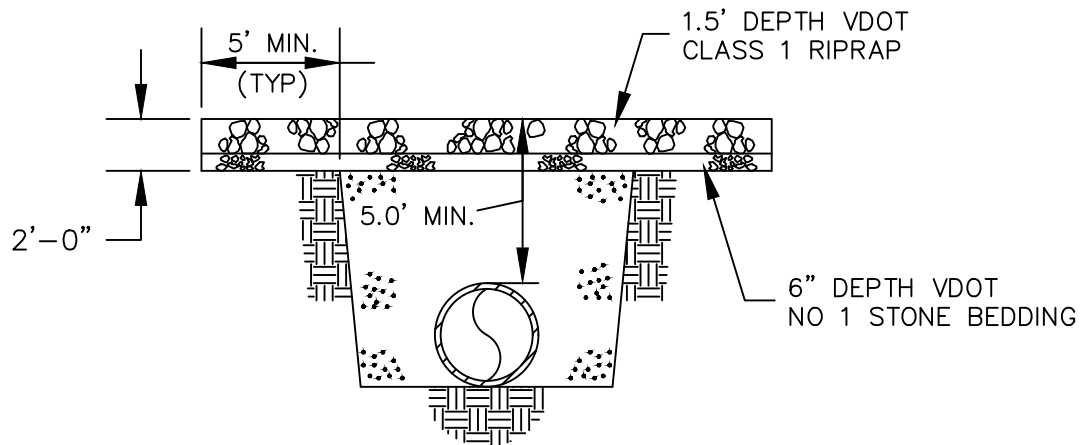
ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL STEEL SLEEVE INSTALLATION  
UNDER RAILROADS

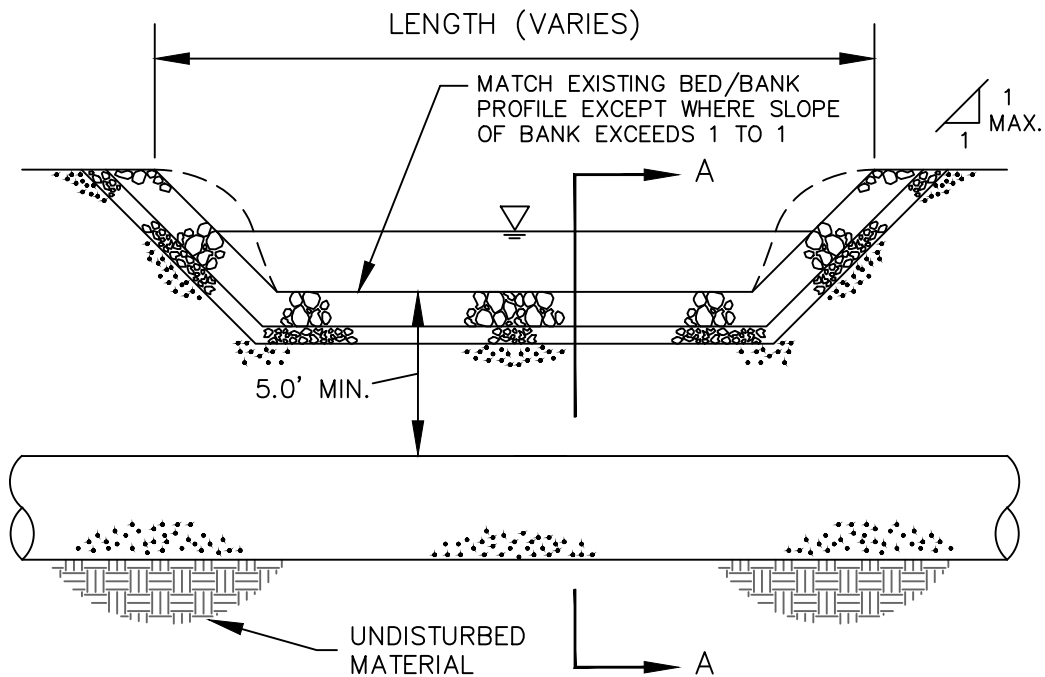
NOT TO SCALE

REV 8/6/2024

DETAIL  
W-16



SECTION A-A



ELEVATION

NOTES:

1. RESTRAINED JOINTS REQUIRED.
2. WHEN BEDROCK IS ENCOUNTERED AND COVER EQUALS OR EXCEEDS 3', THE TRENCH SHALL BE BACKFILLED WITH COMPACTED 21A STONE AND TOPPED WITH 18" OF VDOT CLASS 1 RIPRAP.

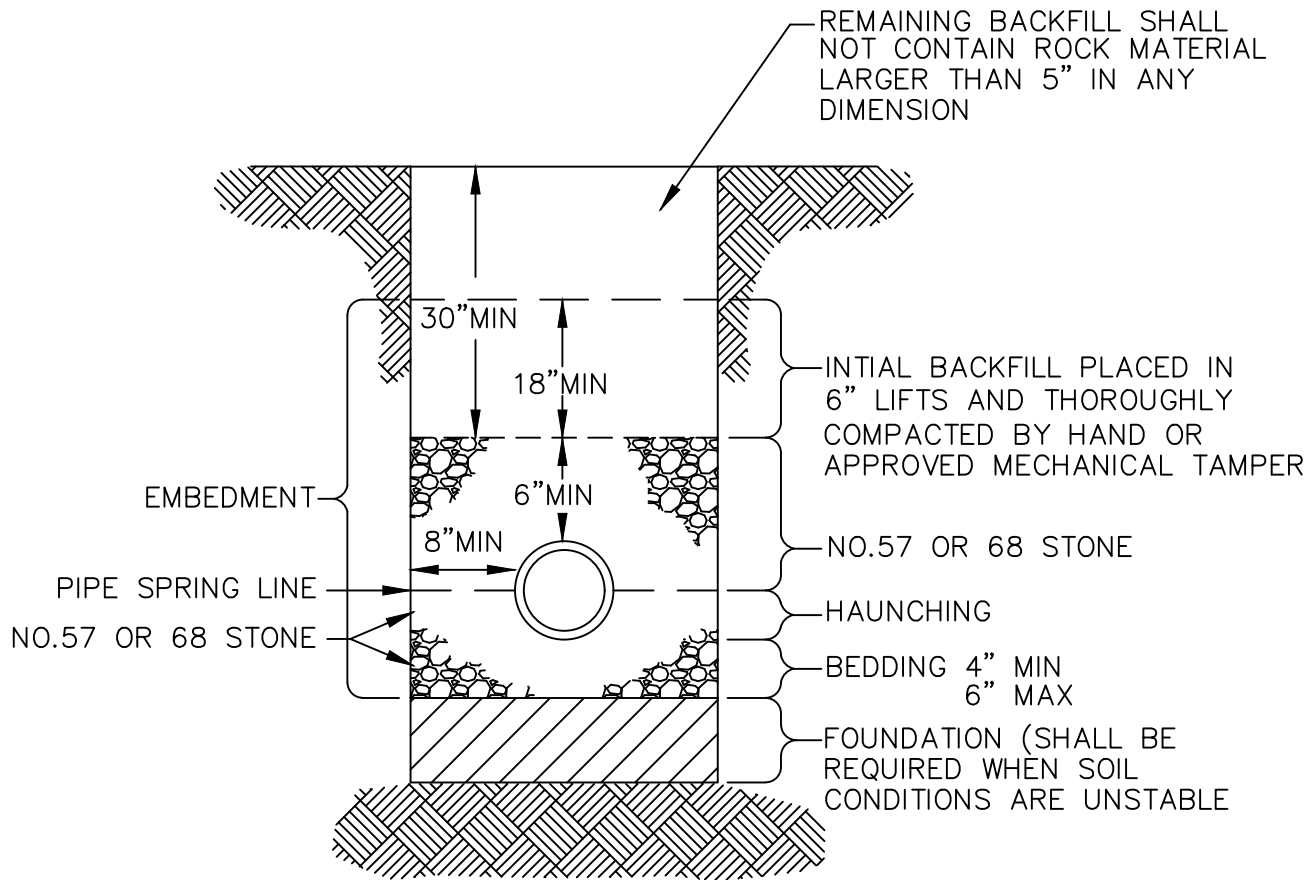
ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL STREAM CROSSING

NOT TO SCALE

REV 8/6/2024

DETAIL  
W-17



NOTES:

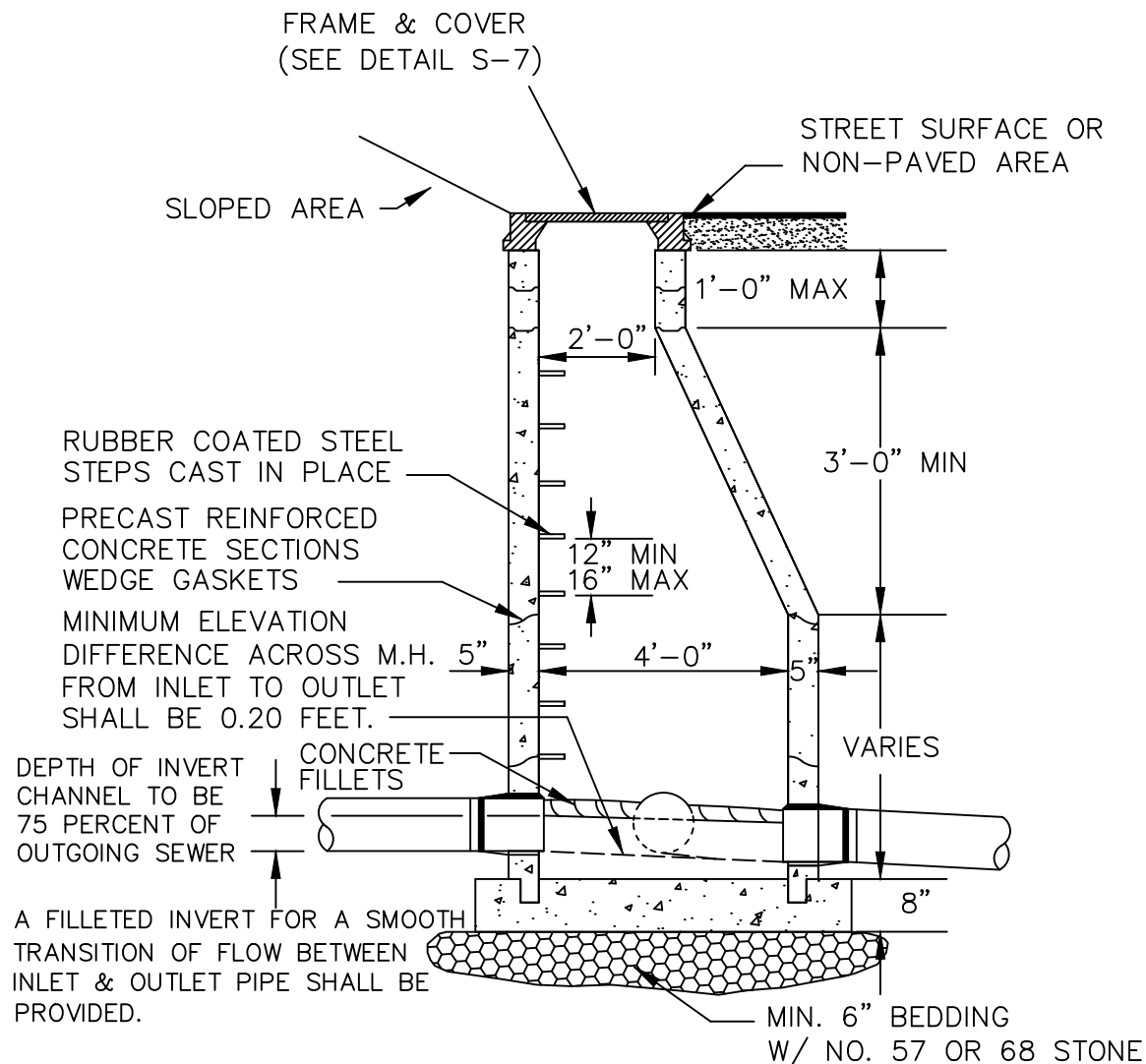
1. OPEN CUTS IN PAVED AREAS WITHIN EXISTING VDOT RIGHT-OF-WAY SHALL BE BACKFILLED ENTIRELY WITH NO. 21A STONE.
2. FOR DUCTILE IRON PIPE THE BOTTOM OF THE TRENCH SHALL BE SCRAPED AND COMPACTED, AND ALL STONES REMOVED OR A 4" BEDDING OF NO. 57 OR 68 STONE SHALL BE PROVIDED.
3. WHERE ROCK IS ENCOUNTERED PIPE SHALL BE INSTALLED ON A MINIMUM 6" BEDDING OF NO. 57 OR 68 STONE.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL SEWER PIPE  
INSTALLATION IN TRENCH  
NOT TO SCALE

REV 8/6/2024

DETAIL  
S-1



NOTES:

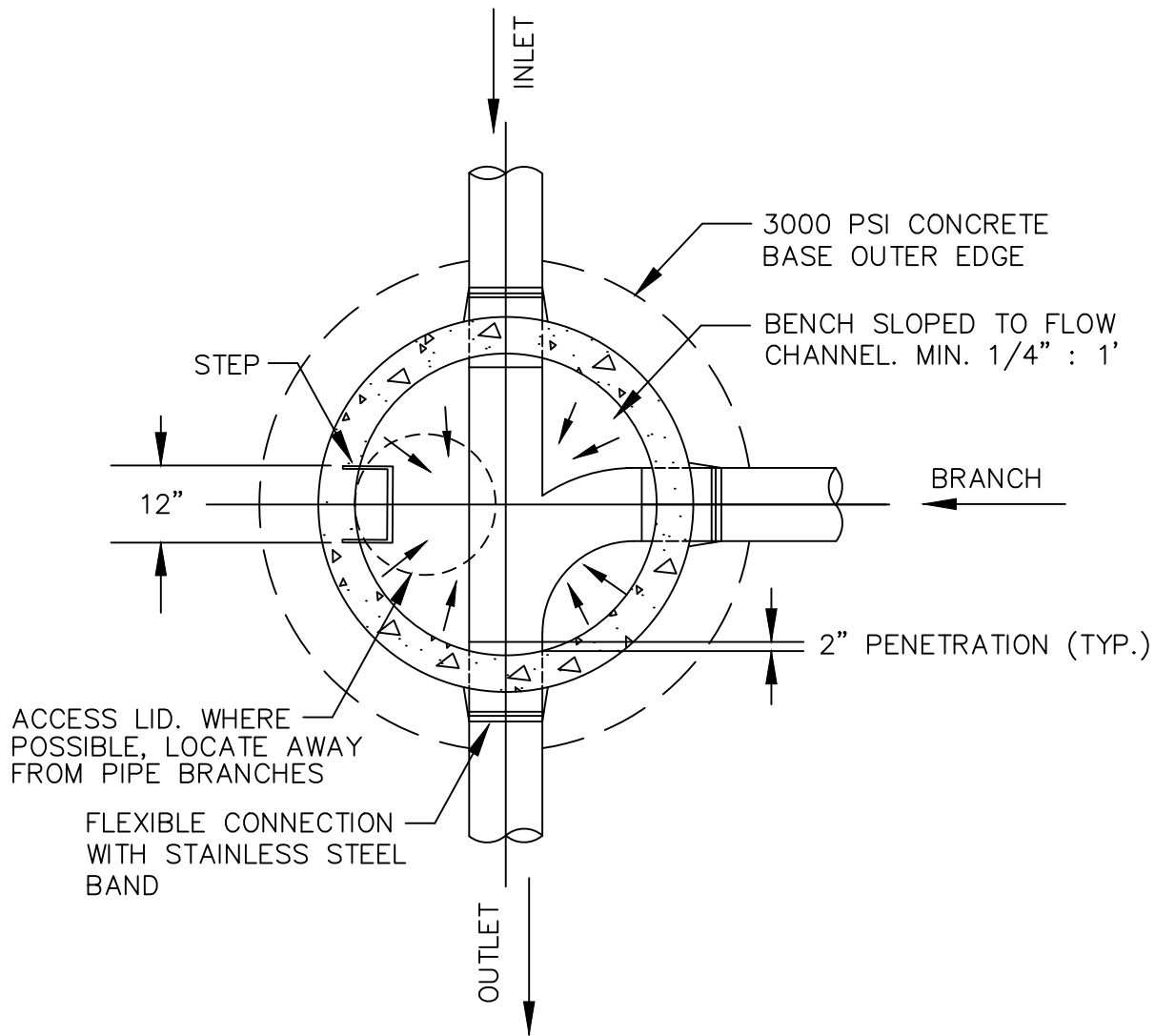
1. BEDDING THICKNESS REQUIREMENT SHOWN IS MINIMUM AND SHALL BE SPECIFICALLY DETERMINED BY THE CONSULTANT FOR THE SOIL CONDITIONS.
2. THE DEVELOPER'S ENGINEER WILL DETERMINE WHETHER MANHOLES SHALL HAVE EXTENDED OR NON-EXTENDED BASES.
3. ALL JOINTS AND LIFT HOLES TO BE SEALED & GROUTED OUTSIDE OF MANHOLE. INLETS AND OUTLETS TO BE SEALED & GROUTED INSIDE AND OUTSIDE OF MANHOLE.
4. BUOYANCY CALCULATIONS FOR MANHOLE BASES TO BE SUBMITTED FOR MANHOLES WITHIN 100-YEAR FLOODPLAIN.
5. ELEVATION DIFFERENCE ACROSS M.H. FROM ANY INLET TO OUTLET SHALL BE MINIMUM 0.2 FEET, MAXIMUM EQUAL TO THE OUTLET PIPE DIAMETER.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL MANHOLE SECTION  
SHOWING BRANCH TIE-IN  
NOT TO SCALE

REV 8/6/2024

DETAIL  
S-2



NOTES:

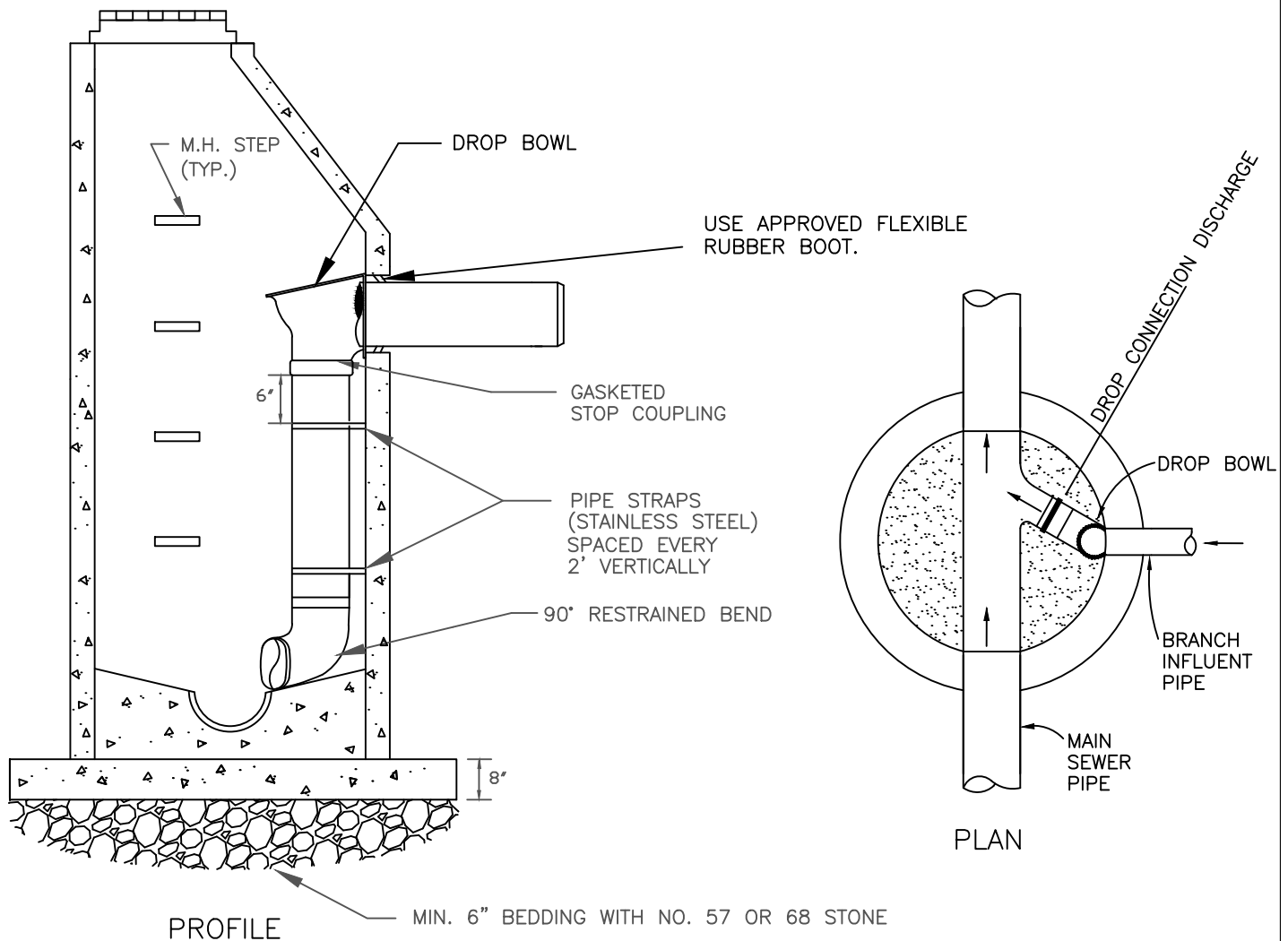
1. ALL CONNECTIONS TO EXISTING MANHOLES SHALL BE CORED AND A FLEXIBLE CONNECTION " BOOT " INSTALLED.
2. MANHOLE BENCH AND INVERT TO BE FACTORY-POURED OR SOLID CONCRETE.
3. BRANCH CONNECTIONS SHALL OCCUR WITH MINIMUM 90° ANGLE FROM OUTLET.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL MANHOLE PLAN  
SHOWING BRANCH TIE-IN  
NOT TO SCALE

REV 8/6/2024

DETAIL  
S-3

**NOTE:**

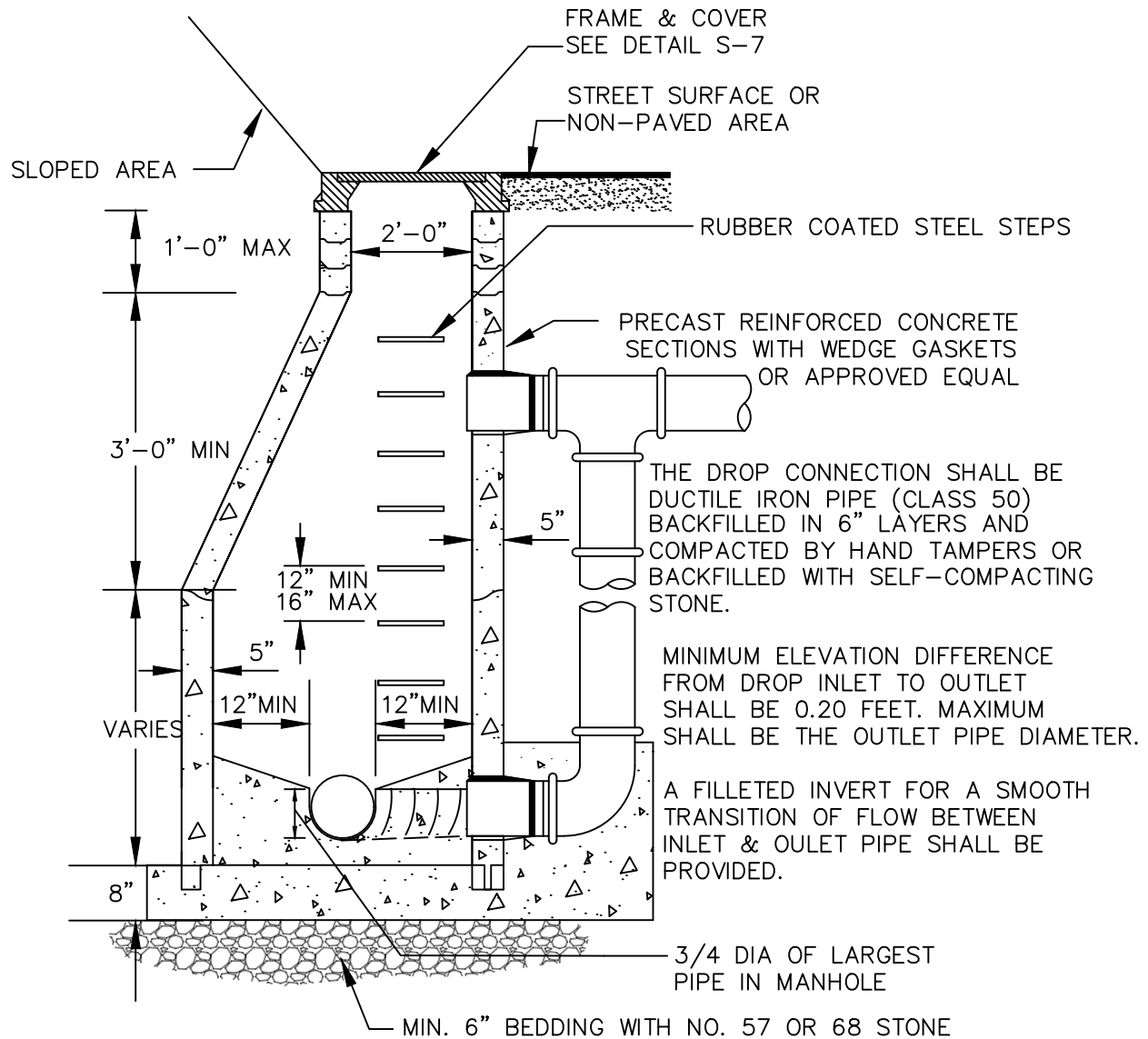
1. VERTICAL DROP PIPE SHALL BE SDR 26 P.V.C, SIZED THE SAME AS THE INCOMING PIPE AND CONNECTED TO THE DROP FITTING WITH STANDARD GASKET JOINT.
2. VERTICAL DROP PIPE SHALL BE STRAPPED TO THE MANHOLE AT PIPE JOINTS. STRAPS SHALL BE MADE OF STAINLESS STEEL.
3. SHAPE INVERT AS NEEDED TO PROVIDE SMOOTH TRANSITION FROM DROP CONNECTION DISCHARGE POINT TO SPRING LINE OF MANHOLE INVERT.
4. DROP CONNECTION DISCHARGE FITTING SHALL BE ORIENTED AT 45 DEGREES, INTO THE FLOW.
5. VERTICAL DROP PIPE SHALL BE INSTALLED AT 90 DEGREES FROM THE ACCESS STEPS.
6. MINIMUM 60" DIAMETER MANHOLE REQUIRED. MINIMUM 72" DIAMETER MANHOLE REQUIRED FOR A SINGLE 10" OR 12" DIAMETER DROP CONNECTION, OR TWO 8" DIAMETER DROP CONNECTIONS.
7. IF 90-DEGREE BEND IS NOT IN CHANNEL, PVC PIPE SHALL EXTEND TO THE EDGE OF THE CHANNEL. HORIZONTAL PIPE SHALL BE GLUED TO THE 90-DEGREE FITTING. STRAP, AS NEEDED, TO BE DETERMINED BY ACSA.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

STANDARD INTERNAL  
DROP CONNECTION  
NOT TO SCALE

REV 8/6/2024

DETAIL  
S-4



NOTES:

1. BEDDING THICKNESS REQUIREMENTS SHOWN ARE MINIMUM AND SHALL BE SPECIFICALLY DETERMINED BY THE CONSULTANT FOR THE SOIL CONDITIONS.
2. THE DEVELOPER'S ENGINEER SHALL DETERMINE WHETHER MANHOLES SHALL HAVE EXTENDED OR NON-EXTENDED BASES.
3. ALL JOINTS, LIFT HOLES, INLETS, OUTLETS TO BE SEALED & GROUTED INSIDE AND OUT.
4. SPECIAL CONSIDERATION SHALL BE GIVEN FOR ENTRANCE DESIGN ON SEWERS WITH STEEP SLOPES.
5. IMPORTANT: EXTERNAL DROP CONNECTIONS TO ONLY BE USED FOR NEW CONNECTIONS TO EXISTING SANITARY MANHOLES.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

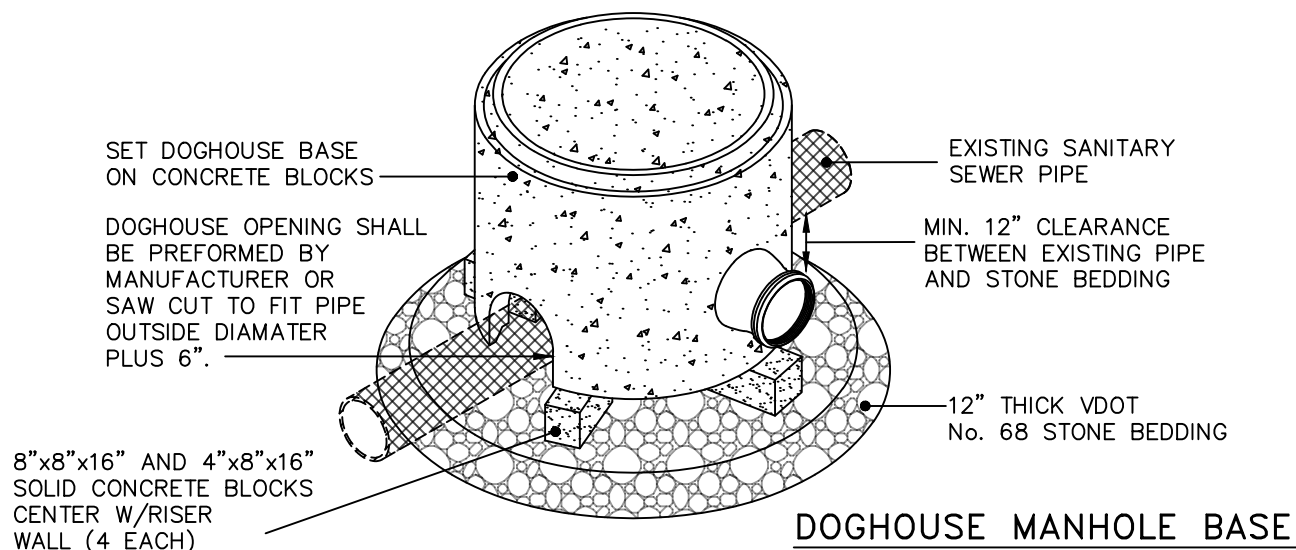
STANDARD EXTERNAL  
DROP CONNECTION  
NOT TO SCALE

REV 8/6/2024

DETAIL  
S-5

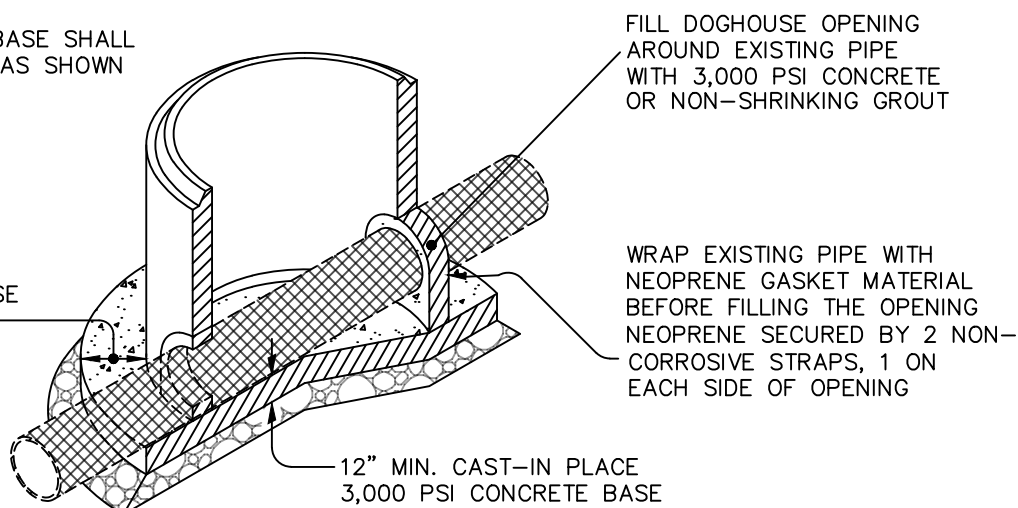


PRECAST CONCRETE MANHOLE BASES SHALL BE FABRICATED IN ACCORDANCE WITH DETAIL S-2 OF THESE SPECIFICATIONS.



MANHOLE ABOVE BASE SHALL BE CONSTRUCTED AS SHOWN ON FIGURE S-1-A

ALLOW CONCRETE TO FLOW A MIN. 1'-0" BEYOND BASE OF STRUCTURE



**FOUNDATION SECTION VIEW**

**NOTES:**

1. CONSTRUCT A FORMED INVERT FROM NEW SEWER LINE TO ALLOW FLOW TOWARD THE EXISTING OUTLET PIPE.
2. POUR A SHELF TO THE LOWER HALF OF THE EXISTING PIPE.
3. CUT AND REMOVE THE TOP HALF OF EXISTING PIPE TO WITHIN 6" OF THE MANHOLE WALLS AFTER THE INVERT AND SHELF HAVE BEEN FORMED, AND THE MH HAS BEEN FULLY TESTED IN ACCORDANCE WITH THESE SPECIFICATIONS.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

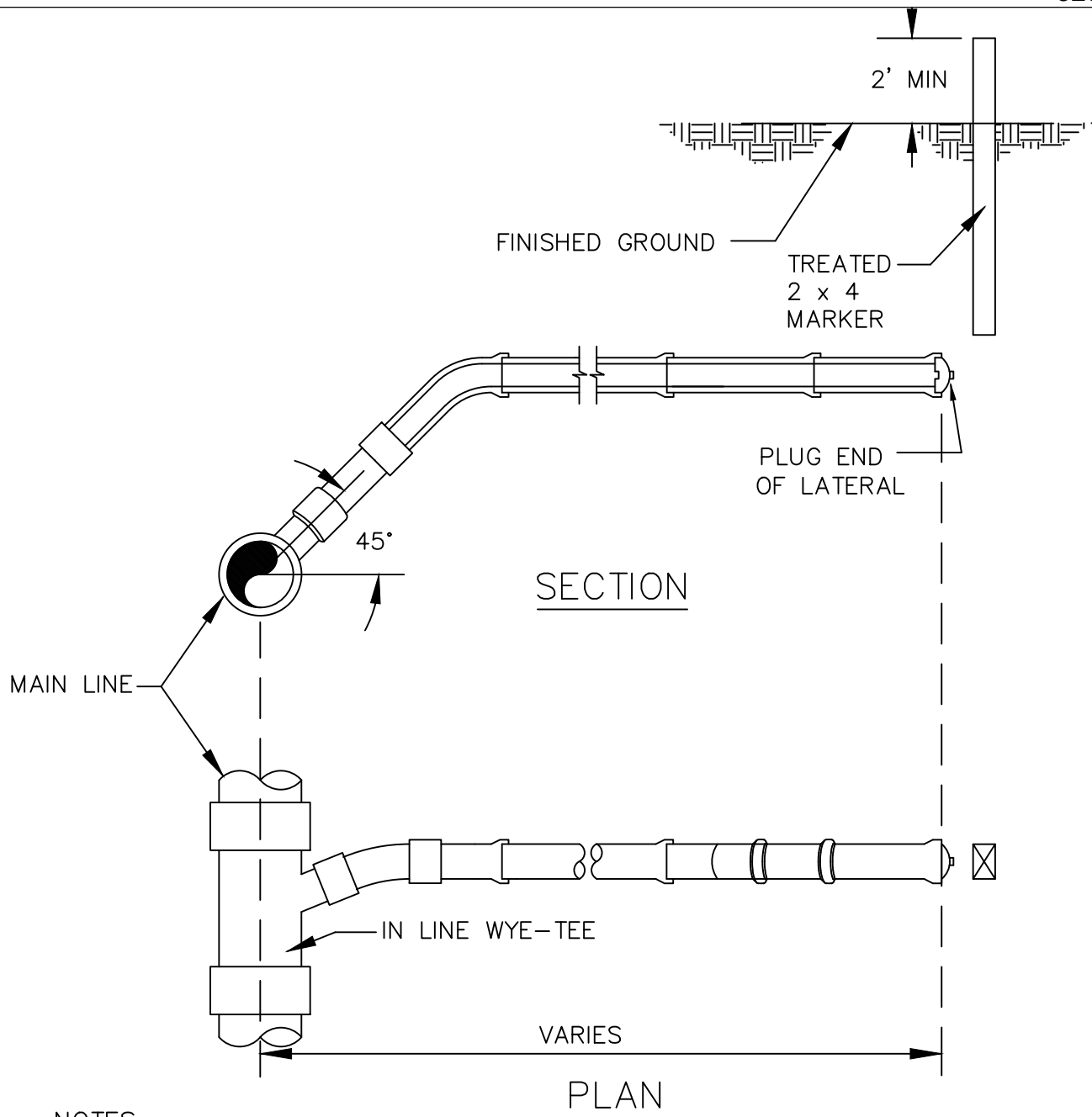
TYPICAL MANHOLE BASE  
SHOWING "DOGHOUSE" INSTALLATION  
NOT TO SCALE

REV 8/6/2024

DETAIL  
S-6





**NOTES:**

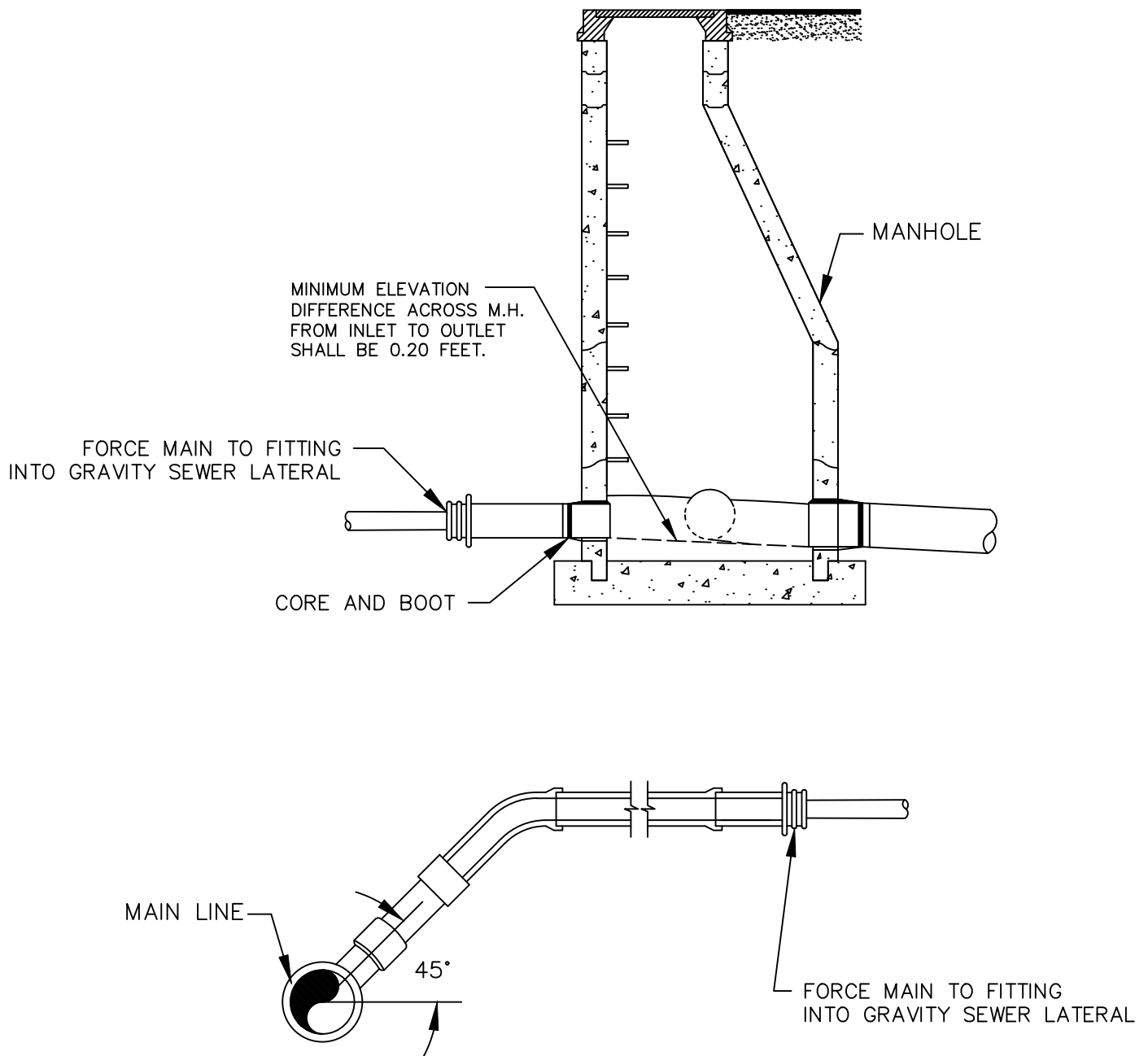
1. WHERE A SEWER SERVICE LATERAL CONNECTS TO A MANHOLE AND NO INVERT ELEVATION FOR THE SERVICE LATERAL IS INDICATED, THE TOP (CROWN) ELEVATION OF THE SERVICE LATERAL PIPE SHALL BE AT LEAST 0.2' HIGHER THAN THE TOP (CROWN) ELEVATION OF THE THE LOWEST PIPE CONNECTED TO THE MANHOLE.
2. SEWER LATERALS TAPPED INTO AN EXISTING SEWER MAIN SHALL BE CONNECTED USING A PIPE SADDLE.
3. SEWER LATERAL SHALL BE SLOPED PER PLUMBING CODE. MINIMUM 2% (1/4" PER FOOT) IS DESIRED.
4. ALL SEWER LATERALS SHALL HAVE A MINIMUM DIAMETER OF 4".

ALBEMARLE COUNTY  
SERVICE AUTHORITY

SEWER SERVICE  
LATERAL CONNECTION  
NOT TO SCALE

REV 8/6/2024

DETAIL  
S-9



**NOTES:**

1. PROVIDE A FILLETED INVERT FOR A SMOOTH TRANSITION OF FLOW BETWEEN INLET & OUTLET.
2. EXTEND GRAVITY SEWER LATERAL 5-10 FEET AT 2% POSITIVE SLOPE FROM SEWER MANHOLE OR MAIN FOR FORCE MAIN CONNECTION.

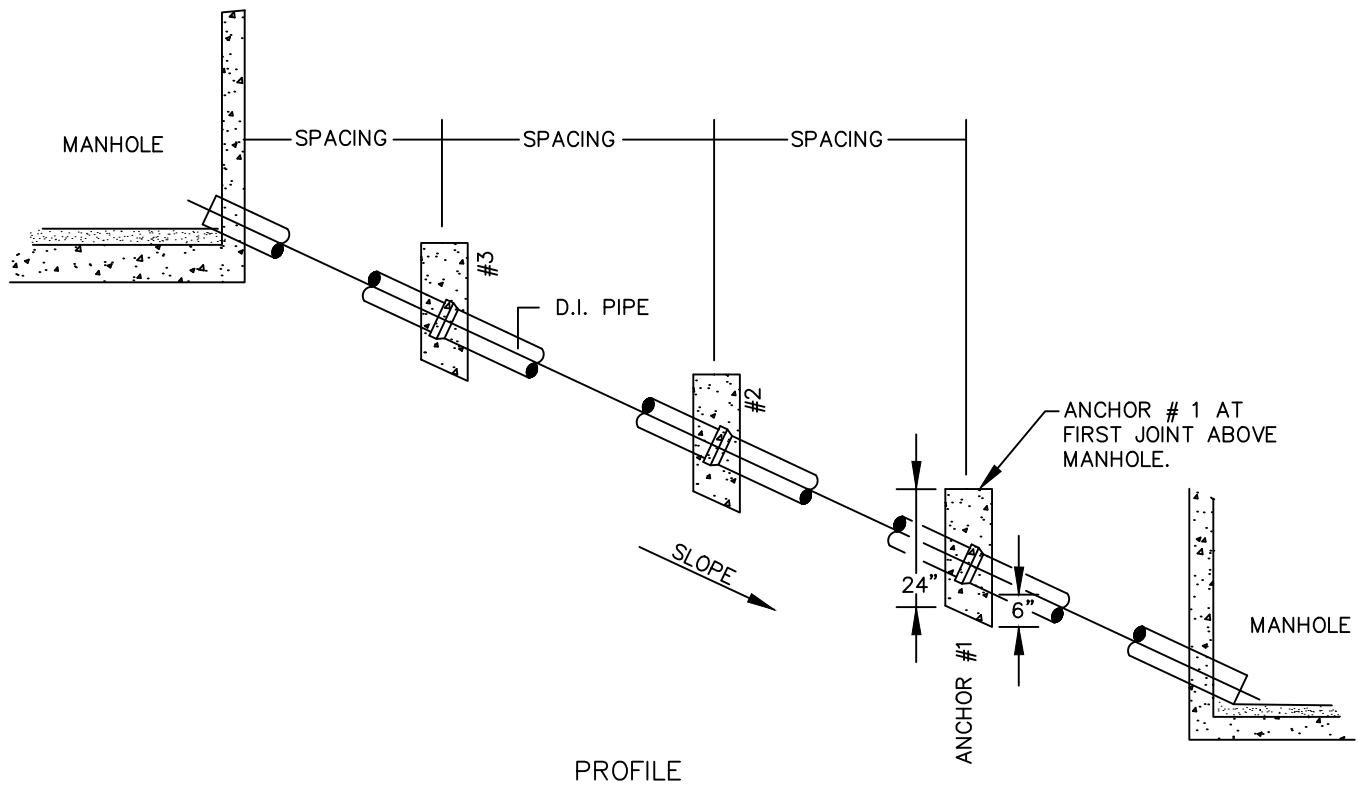
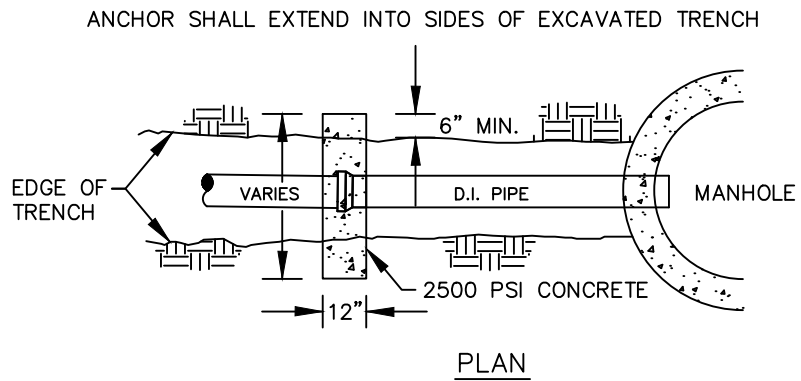
ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL FORCE MAIN CONNECTION

NOT TO SCALE

REV 8/6/2024

DETAIL  
S-10



NOTES:

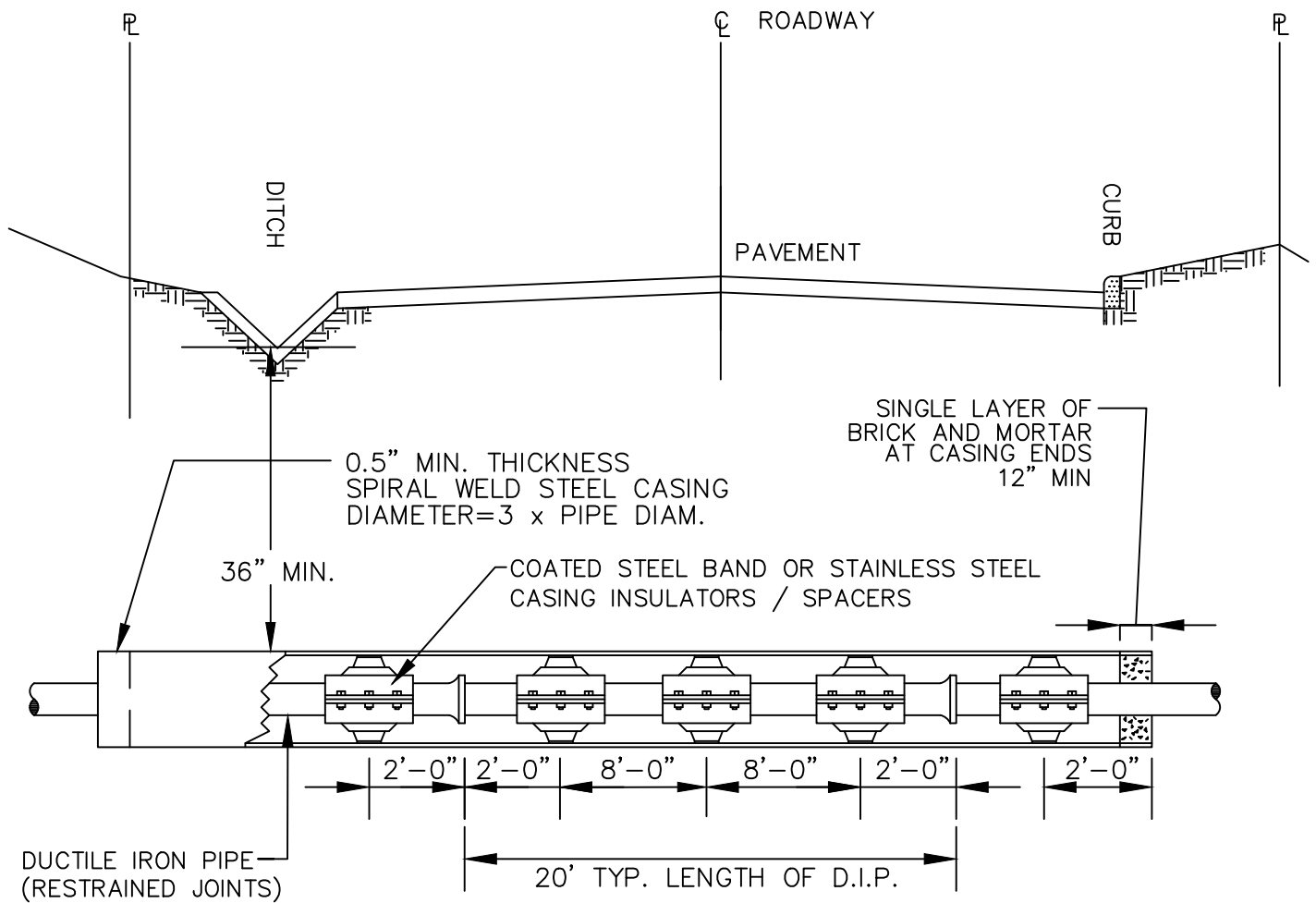
1. FOR SLOPES LESS THAN 35%, MAX. SPACING = 40' (ANCHOR TO BE USED EVERY OTHER JOINT).
2. FOR SLOPES 35% AND GREATER, MAX. SPACING = 20' (ANCHOR TO BE USED AT EVERY JOINT).

ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL ANCHOR DETAIL FOR  
SEWERS ON GRADES 20% AND GREATER  
NOT TO SCALE

REV 8/6/2024

DETAIL  
S-11



**NOTES:**

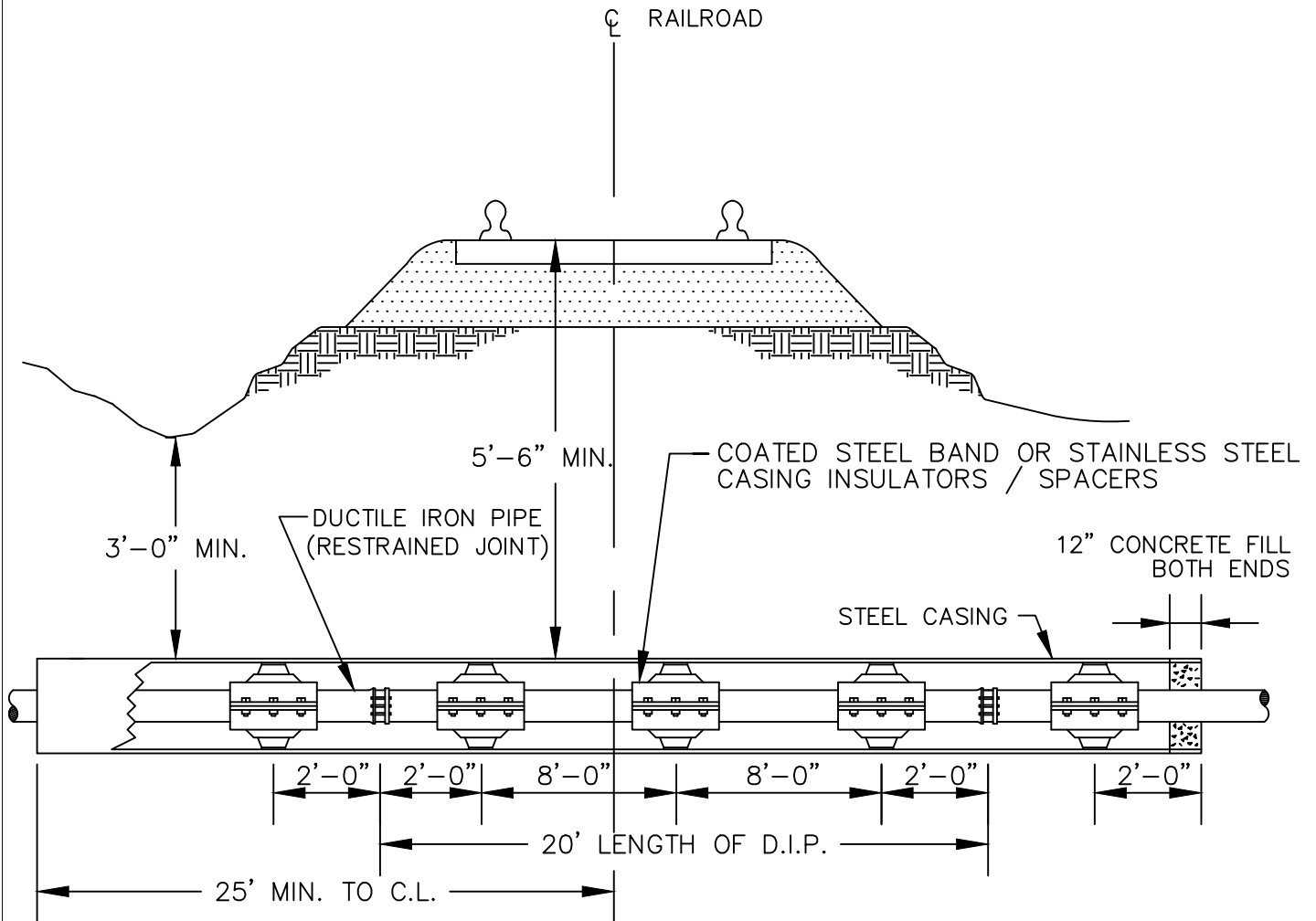
1. STEEL CASING TO EXTEND TO BACK OF CURB, DITCH, SIDEWALK, ETC. OR A MINIMUM OF 5' BEYOND THE EDGE OF PAVEMENT, WHICHEVER IS GREATER.
2. MIDDLE SPACER SHALL BE PLACED AT THE CENTERPOINT OF PIPE.
3. THREE CASING SPACERS TO BE USED PER STICK OF PIPE.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL STEEL SLEEVE INSTALLATION  
UNDER ROADWAYS  
NOT TO SCALE

REV 8/6/2024

DETAIL  
S-12



ALSO SEE THE "AREA MANUAL FOR RAILWAY ENGINEERING – PART 5, PIPELINES"

NOTES:

1. MIDDLE SPACER SHALL BE PLACED AT THE CENTERPOINT OF PIPE.
2. THREE CASING SPACERS TO BE USED PER STICK OF PIPE.

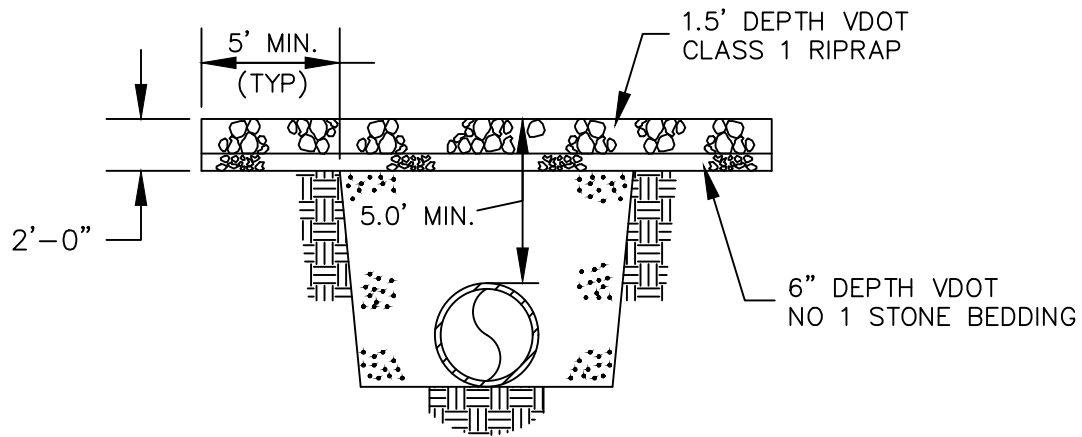
ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL STEEL SLEEVE INSTALLATION  
UNDER RAILROADS  
NOT TO SCALE

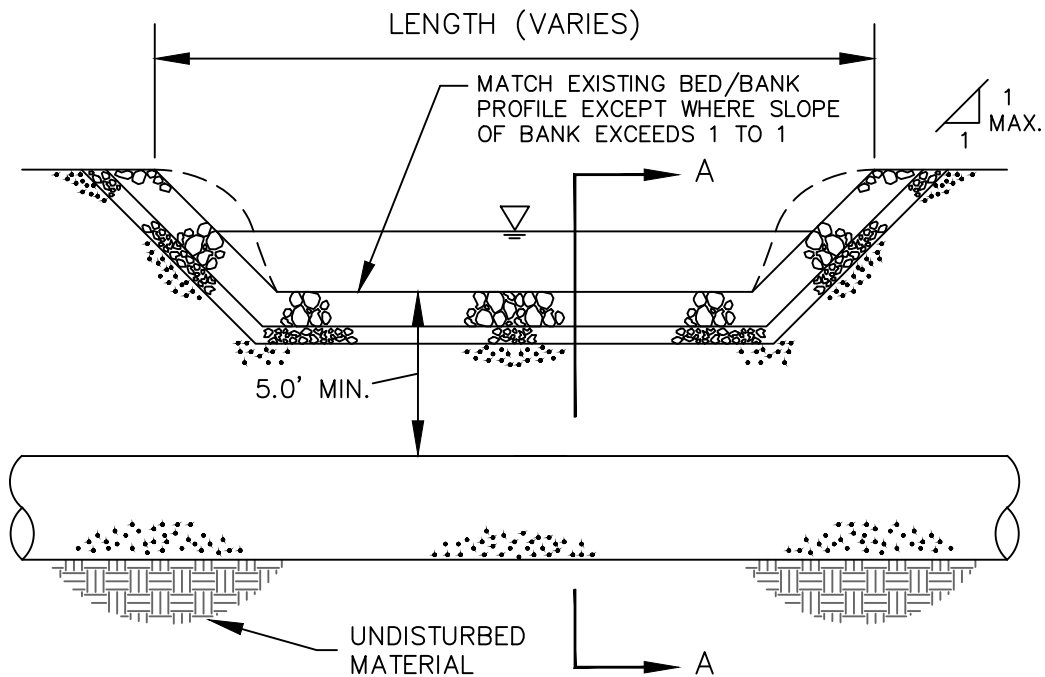
REV 8/6/2024

DETAIL  
S-13





SECTION A-A



ELEVATION

## NOTES:

1. RESTRAINED JOINTS REQUIRED.
2. WHEN BEDROCK IS ENCOUNTERED AND COVER EQUALS OR EXCEEDS 3', THE TRENCH SHALL BE BACKFILLED WITH COMPACTED 21A STONE AND TOPPED WITH 18" OF VDOT CLASS 1 RIPRAP.

ALBEMARLE COUNTY  
SERVICE AUTHORITY

TYPICAL STREAM  
CROSSING  
NOT TO SCALE

REV 8/6/2024

DETAIL  
S-14



# ALBEMARLE COUNTY SERVICE AUTHORITY

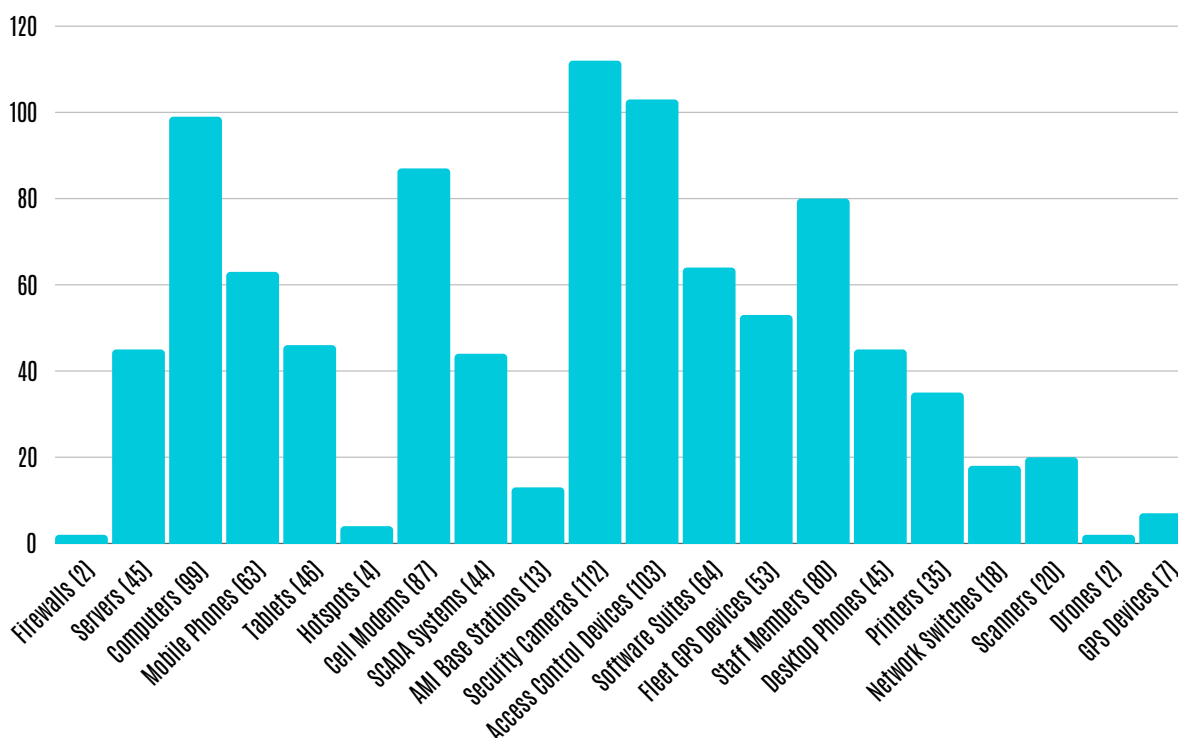
## AGENDA ITEM EXECUTIVE SUMMARY

<b>AGENDA TITLE:</b> Monthly Information Technology Department Update  <b>STAFF CONTACT(S)/PREPARER:</b> April Walker, Director of Information Technology	<b>AGENDA DATE:</b> November 21, 2024  <b>ACTION:</b> <input type="checkbox"/> <b>INFORMATION:</b> <input checked="" type="checkbox"/>  <b>ATTACHMENTS:</b> No
---	--

### BACKGROUND:

The ACSA's Information Technology Department includes eight full-time positions: the Director of Information Technology, GIS & CMMS Coordinator, GIS Technician, ISO Systems Engineer, Systems Engineer, Systems Analyst, SCADA Technician and I.T. Technician.

Below are just some of the items we are responsible for:



## I.T. DEPARTMENT'S MONTHLY ROUTINES

### Information Technology

Last month, we:

- Resolved **65** Help Desk Tickets
- Upgraded **1** tablet
- Upgraded **1** Computer
- Onboarded **1** new employee
- Deployed **1** new computer
- Deployed **1** new cell phone
- Upgraded **1** software suite
- Investigated **4** server backup errors

### Digital & Physical Security

Last month, we:

- Secured **2,308.3 GB** of application data
- Secured **1,559.66 GB** of web data
- Secured **78.57 GB** of user data
- Investigated **433** physical security alerts at the Operations Center
- Investigated **3274** physical security alerts at pump stations
- Implemented **391** firewall pattern updates and 1 firmware update.

### SCADA & AMI

Last month, we:

- Completed **3** SCADA Work Orders
- Completed **1** AMI Collector Inspection
- Investigated **904** SCADA alarms
- Investigated **401** Cell Modem alarms
- Investigated **28** AMI Base Station Alarms

### GIS

Last month, we:

- Digitized **54 (1,862.7 ft)** sewer lateral lines.
- Digitized **1 (26.8 ft)** sewer force main.
- Digitized **22 (3,479 ft)** sewer gravity mains.
- Digitized **73 (3,944.6 ft)** water mains.
- Digitized **95 (1,530.8 ft)** water service lines.
- Fulfilled **12** external map requests.
- Completed **3** Update GIS Work Orders
- GPS located **18** assets.

# ALBEMARLE COUNTY SERVICE AUTHORITY

## AGENDA ITEM EXECUTIVE SUMMARY

### I.T. DEPARTMENT'S LARGE PROJECT PARTICIPATION



#### PHONE SYSTEM REPLACEMENT PROJECT

We have reviewed the contract and submitted our questions. We have purchased and configured the network switches required to implement this project but are awaiting a response from the vendor to proceed.

---



#### UTILITY NETWORK

401 high-priority water data errors remain to be corrected out of the original 1,134. 749 high-priority sewer data errors remain out of the original 1,350. 10,006 sewer and 6,829 water low priority data errors remain.

---



#### WEBSITE REPLACEMENT PROJECT

We are working with our contractor to move our current website to a new platform that is hosted by a third party. We have chosen a wireframe and several webpage templates. We are working on obtaining headshots of our Board of Directors to incorporate.

---



#### MADISON PARK PHYSICAL SECURITY

As the pump station construction nears completion, we recently purchased and programmed the security equipment. Once the building is completed, we will install the new equipment.

---



#### ELECTRIC VAN PURCHASE

We have completed our research and submitted a Purchase Order for the purchase of a E-Transit Cargo Van to be utilized by our SCADA and I.T. Technicians to securely transport needed parts and tools. The build is expected to last 5 months.

---



#### ESRI ARCGIS ENTERPRISE SOFTWARE UPGRADES

We are in the process of upgrading our software to version 11.1 from 10.9.1.

---

# ALBEMARLE COUNTY SERVICE AUTHORITY

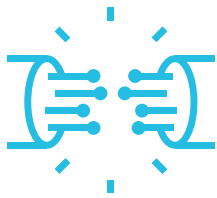
## AGENDA ITEM EXECUTIVE SUMMARY



### SCADA SYSTEM ASSESSMENT

Our consultant has returned our SCADA System Assessment findings. We have purchased new PLCs and HMIs to remedy some of the identified items and are upgrading firmware to satisfy others.

---



### REDUNDANT FIBER CONNECTION

Construction of a new fiber line is complete. We are configuring the redundant connection within our firewall and will need to reach out to several organizations we work with to ensure they whitelist both IP addresses to ensure seamless switchovers.

---



### GRANITENET SOFTWARE UPGRADES

**COMPLETED:** The software has been upgraded to version 5.10 and is installed on all machines. We migrated away from the deprecated GIS integration and are now using web services for more up-to-date data.

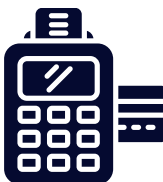
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### SCADA SERVER UPGRADES

Working with our contractor, we are upgrading all SCADA software applications and migrating to new servers. We are also tightening the security of the SCADA servers.

---



### METER READING HANDHELDS MIGRATION

**COMPLETED:** We worked with the vendor to migrate the meter reading handhelds and software to the cloud in lieu of on-premise network.

---



### CYBERSECURITY UPGRADES

We are working to ensure all of our users and devices are meeting or exceeding the CISA standards. We have also assigned mandatory cybersecurity training to all staff to complete.

---

# ALBEMARLE COUNTY SERVICE AUTHORITY

## AGENDA ITEM EXECUTIVE SUMMARY

### SECURE PASSWORD SOFTWARE



**COMPLETED:** We have implemented a new software to manage passwords securely. The software has been deployed to the I.T. Team and to the Department Heads.

---



### CITYWORKS

As a part of continuous improvement, we are still building dashboards and reports to ensure we are using all data we collect. In addition, we are expanding use of Cityworks in the Facilities and SCADA teams.

---



### OPERATIONAL INSIGHTS/ASSET MANAGEMENT

Configured fleet within Operational Insights so you can see remaining useful life and other insightful data. We are currently working on configuring pumps into the system but are awaiting the field data.

---



### NEW HELP DESK & I.T. INVENTORY SOFTWARE

We are in the process of configuring our new Help Desk ticketing and IT Inventory software for implementation. Our goal is to implement the system to the ACSA in December.

---



### SHAREPOINT RE-DESIGN

We are in the process of scheduling meetings with each Department Head to gather their requests and needs for their departmental SharePoint pages. We will then configure their pages with a goal of implementation by February.

---

**ACKNOWLEDGEMENTS:** We thank you for your continued support in our efforts.

**BOARD ACTION REQUESTED:** Informational

**ATTACHMENTS:** None

---





**ALBEMARLE COUNTY SERVICE AUTHORITY****AGENDA ITEM EXECUTIVE SUMMARY**

<b>AGENDA TITLE:</b> New Customer Packet Introduction	<b>AGENDA DATE:</b> November 21, 2024
<b>STAFF CONTACT/PREPARER:</b> Tanya Johnson, Director of Finance Terri Knight, Customer Service Supervisor	<b>ACTION:</b> Informational  <b>ATTACHMENTS:</b> Yes

**BACKGROUND:** The Albemarle County Service Authority's Strategic Plan aspires to "provide best-in-class service ensuring the needs of our customers are exceeded" and we have embarked on a number of initiatives to further improve in this regard. Through interactions with customers and conversations with staff, we identified a need for a readily available informational packet outlining who the ACSA is, what we do, and other relevant information that might be useful to customers new to the area and our service.

**DISCUSSION:** Working closely with our communications consultant and diverse ACSA teams, we have developed a "Customer Guide" which outlines who the ACSA is, our mission/vision, and our services. Additionally, we provide information related to water quality, conservation, ACSA programs, billing/rates, and other community resources.

The presentation today provides an overview of the "Customer Guide" and how we plan to distribute and share this information.

**RECOMMENDATIONS:** None

**BOARD ACTION REQUESTED:** None

**ATTACHMENTS:**

1. Albemarle County Service Authority Customer Guide



A stylized illustration of a teal water pipe with a valve on top. The pipe is horizontal and has several joints. It is partially obscured by a dark blue rectangular box that contains the text "Customer Guide".

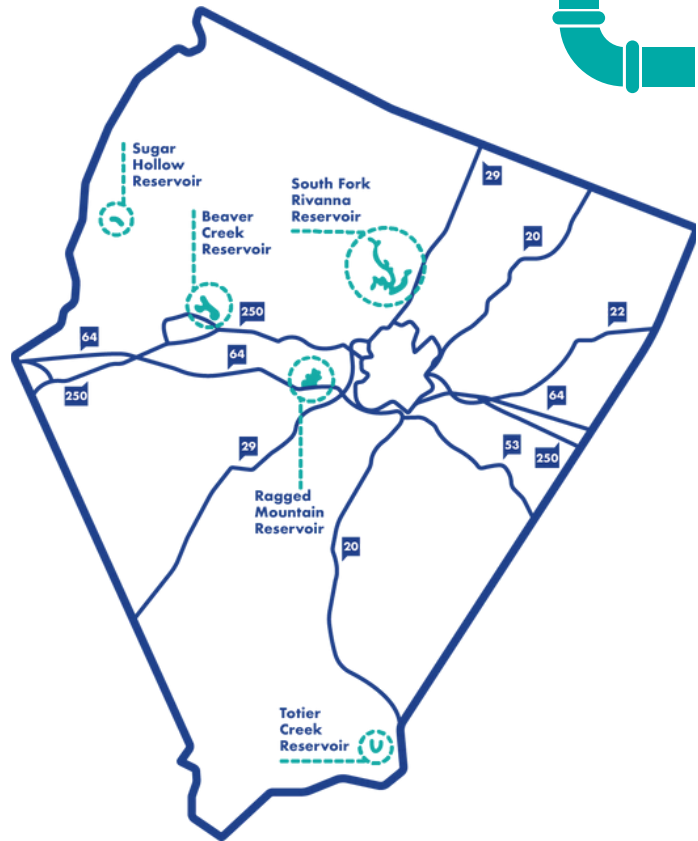
## Customer Guide

168 Spotnap Road, Charlottesville, VA 22911  
[custserv@serviceauthority.org](mailto:custserv@serviceauthority.org) (General Customer Service)  
Phone: (434) 977-4511 | Fax: (434) 979-0698  
[www.ServiceAuthority.org](http://www.ServiceAuthority.org)

# Introduction

ACSA customers are served by a variety of water supplies, drawn from a protected watershed, including

- Beaver Creek Reservoir
- North Fork Rivanna River
- Ragged Mountain Reservoir
- Red Hill Well
- South Fork Rivanna Reservoir
- Sugar Hollow Reservoir
- Totier Creek Reservoir



## Mission

With pride and dedication, we serve our customers by providing clean and safe water, exemplary wastewater services, and fire protection infrastructure. Together with our community partners, we maintain and improve our utility system in a timely, cooperative, and financially responsible manner.

## Vision

Serve and conserve today, sustain for tomorrow, and protect our resources forever.

## Our Services

Water Supply + Sewer Services  
Engineering + Development  
Infrastructure Maintenance  
Sustainability Education  
Conservation

# Table of Contents

## Contents



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Reporting Problems & Outages .....	6
Water Conservation Rebate Programs .....	7
Water Quality .....	8
Water Conservation .....	9
Community Resources .....	10

Dear Valued Customer,

On behalf of Albemarle County Service Authority (ACSA), I want to extend a warm welcome to you as a new customer for our services. We are delighted that you have chosen ACSA for your water and wastewater needs, and we are committed to providing you with reliable, high-quality service.

We understand that you may have questions about our services and how we can best meet your needs. This resource provides an overview of what we do and answers frequently asked questions. From breaking down your bill to providing water conservation tips, this guide will assist you on every step of your customer journey. Our dedicated team is always available to answer any questions you may have, so please don't hesitate to reach out. Once again, welcome to ACSA – we are honored to serve you.

Warm regards,

*Quin Lunsford*

Quin Lunsford  
Executive Director  
Albemarle County Service Authority

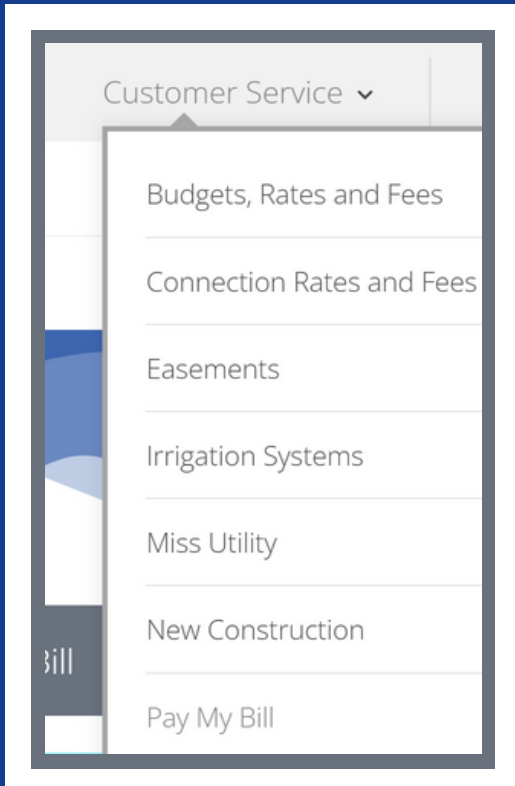
# Billing/Rates

## Paper/Paperless Billing



### Ways to Pay

- In-Person at ACSA Office
- Red Drop Box Outside of ACSA Office
- Online (See Below)



View / Pay My Bill

4

### How do we set rates?

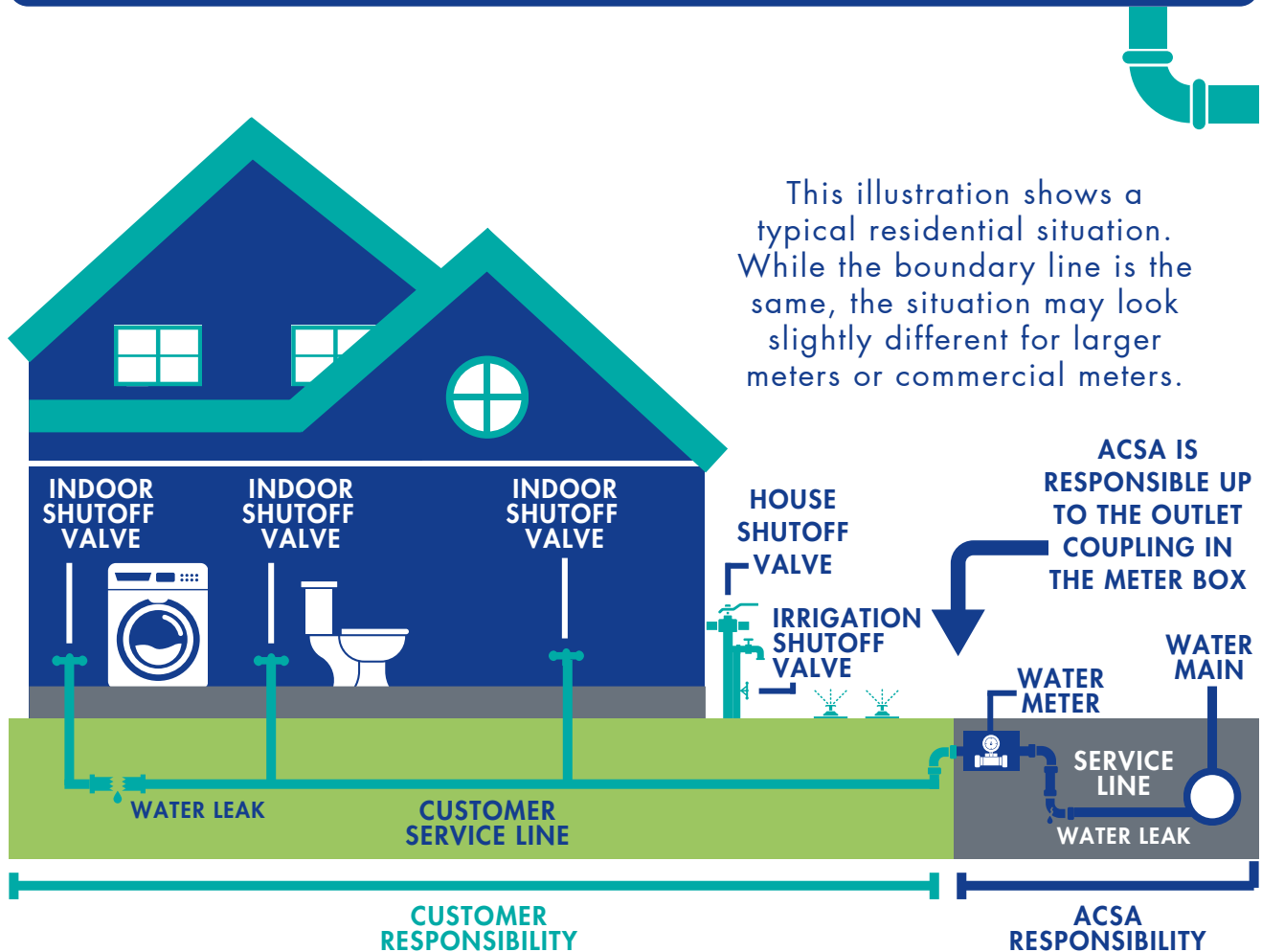
The ACSA's mission is to provide safe and reliable water for a good value. To succeed in that mission, the ACSA must support the Rivanna Water and Sewer Authority (RWSA), our wholesale treatment provider, as they heavily invest in the long-term health of their water and wastewater systems. Our rates reflect our collaboration with the RWSA.

### What should you expect on your first bill?

Your first bill will be delivered to the address listed on your account. After your first bill has been generated, you may sign up for paperless billing on our website.

A \$13.00 initial bill fee will be charged to your account and will appear on your first month's bill.

# Who's responsible for what?



ACSA maintains and services the pipes and accompanying infrastructure that your water travels through on its way from the water main to your home. This includes:

- Connection to the main water line in the street ("water main")
- Service line from the main to the inlet side shutoff valve (curb stop or angle stop)
- Water meter, water meter box and outlet side coupling on your residence

## Where's my meter?

**CLICK HERE  
TO VIEW**



# Reporting Problems & Outages

## Report a Problem



Submit general problems, concerns and questions through our [website](#).

**For any requests submitted outside normal business hours (8 a.m. – 5 p.m. Monday through Friday), we will respond the next business day. If you have an emergency, please skip the submission form and call us immediately at (434) 977-4511.**

Report water main breaks and sewer line problems by calling 434-977-4511 (24 hours a day, 7 days a week).

## Outage Alerts



Planned outage alerts are posted [on our website](#).

Emergency outage alerts are posted on our:



Sign up for emergency alerts by texting 226787 with the following keywords:

- ALBEMARLE for Albemarle alerts
- CVILLE for Charlottesville alerts
- UVA for UVA alerts



# Water Conservation Rebate Programs



## Toilet Rebate

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Did you know that toilets account for 35% of residential water use? Can you imagine how much a leaking toilet accounts for? Our Toilet Rebate Program offers \$100 for each water-guzzling toilet (up to three) that you replace with a low-flow toilet (1.8 gallons per flush or less). To participate, complete and submit a Toilet Rebate Form to our Administration Department. The ACSA must also pick up your old toilet in order for you to receive a rebate. Please call the Administration Department at (434) 977-4511 (ext. 3) or [toiletrebate@serviceauthority.org](mailto:toiletrebate@serviceauthority.org) for more program details.

## Rain Barrel

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Our Rain Barrel Rebate Program offers you \$30 for each rain barrel you purchase (up to two) and install at your home. Rain water harvested from the rain barrels can be used to water your lawn or garden, amongst several other uses. To participate, complete and submit a Rain Barrel Rebate Form to the Administration Department. Please call the Administration Department at (434) 977-4511 (ext. 3) for more program details.

## Water Conservation Kits

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Our Administration Department distributes free water conservation kits at our office. Conservation kits may include water-saving showerheads, water-saving faucet aerators, shower timers, water displacement bags, toilet dye kits to check for leaks and tips for conserving. Updating old fixtures saves water and money. Consider that a conventional faucet uses up to 7 gallons per minute (gpm) and that by simply adding an aerator, this can be reduced to 1.5-2.5 gpm. Installing low-flow showerheads also saves, reducing a typical 8 gpm showerhead to just 2.5 gpm with minimal impact to customers. Additionally, customers can save water used for flushing the toilet by adding a water displacement bag to the tank. To pick up your free conservation kit, simply stop by the ACSA.

# Water Quality

## Water Quality Statement



- The ACSA strives to provide our customers with high-quality, reliable, and safe drinking water at a reasonable rate. Our raw water is supplied from local rivers and reservoirs and is pumped to one of five water treatment plants, which are owned and operated by the RWSA.
- Once the raw water arrives at the treatment plant, it is treated with a coagulant, the pH is adjusted, and the water is mixed to help particulates stick together. The flocculation basins are where the water flow is slowed to allow particulates to stick to other particulates. When the water flows to the sedimentation basins, the particulates sink to the bottom and are removed. The water then flows through several large filters, removing the remaining microscopic particles and microorganisms. Thereafter, chlorine is added to disinfect the water. Final treatment includes further adjustment of the pH before it reaches your faucets.
- All water sampling is conducted by our wholesaler, RWSA. Results of annual water sampling can be found in your Annual Consumer Confidence Report (Water Quality Report on the left). For more in-depth information on sampling and treatment processes, please contact RWSA at 434-977-2970.
- ACSA also uses granular activated carbon (GAC) during the treatment process to improve overall water quality. GAC also provides improved water taste and odor, and it is proven to be highly effective at removing both manufactured and naturally occurring contaminants that are being found in a growing number of water supplies across the country. While testing has shown our service areas are not impacted by these contaminants, GAC provides an added level of treatment for the protection of our drinking water.

Should you have any further questions, please contact our Environmental Compliance Specialist at 977-4511, ext. 119.

Click here to view the online Water Quality Reports



# Water Conservation

## Save Water at Home Tips



Take shorter showers. Cutting one minute off your shower can save up to 75 gallons per month!



Do not pour fats, oils and grease (FOG) down any pipes; instead, dispose of them in the trash.



Fix leaking taps and toilets to save 27-90 gallons of water per day.



Invest in indigenous plants that thrive in our area. Examples include Virginia bluebells, Black-Eyed Susan and geranium.



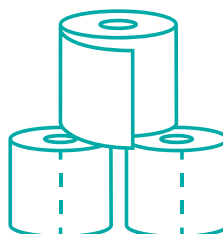
Don't rinse dishes under running water.



Water your garden at night to ensure your plants are hydrated before water evaporates.



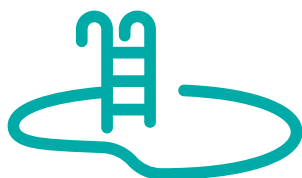
Recycle used water to the garden to decrease your consumption.



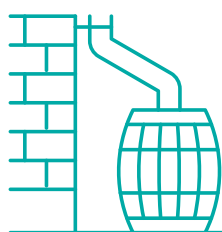
Only flush the 3 P's (pee, poop and toilet paper) down your toilet to prevent clogs and damage to pipes.



Install a water-saving low-flow toilet. (And check out [ACSA's toilet rebate program!](#))



Use a pool cover over outdoor pools to limit evaporation.

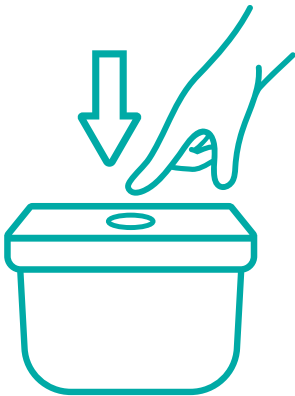


Collect and reuse rainwater by installing a rain barrel. (And check out ACSA's [rain barrel rebate program!](#))

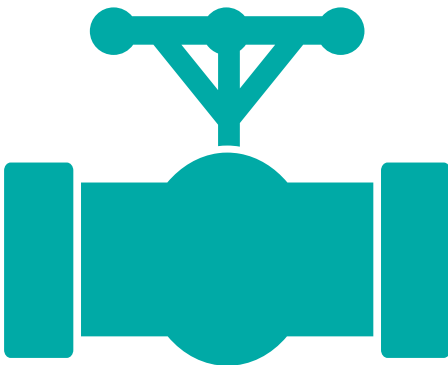
## Leaking Toilets: What to Do



Regularly inspect your toilet to ensure that any leaks are caught early and fixed quickly.



Check the toilets for leaks by adding food coloring to the water in the tank. Do not flush. Wait 15 minutes to see if the colored water appears in the toilet bowl. If it does, there is a leak.



If you need to shut off your home's main water supply to stop the leak and make a repair, turn the valve clockwise (to the right). Keep in mind that even though you've now shut the main-line supply, there's still water in the water pipes within your home, so it's important to drain all the faucets until the water stops running.

# Community Resources

## Get Engaged IN YOUR COMMUNITY



### SIGN UP FOR EMAILS

Albemarle County News (ACN) is an email service to share information about the services, programs, and events important to our community.



**SCAN ME!**

### VISIT OUR WEBSITE

Our online home for community news, calendar, resources, staff contacts, programs, and policies.  
[albemarle.org](http://albemarle.org)



**SCAN ME!**

### FOLLOW US ON SOCIAL



@Albemarle.County  
@AlbemarleCoVAPolice  
@ACFireRescue



@AlbemarleCounty  
@ACPD\_VA  
@AlbemarleFire



@albemarlecountyva  
@ACPD\_VA  
@albemarlefire

### LISTEN TO OUR PODCAST

Listen in, suggest topics, and ask questions as we explore a variety of important topics in Albemarle County.  
[albemarle.org/lets-talk](http://albemarle.org/lets-talk)



**SCAN ME!**

# Community Resources



## Rivanna

### Water & Sewer Authority

 695 Moores Creek Lane  
Charlottesville, VA 22902

 434-977-2970

 @RivannaWaterandSewerAuthority

 [www.rivanna.org](http://www.rivanna.org)



- Drinking Water Services
- Wastewater Services
- Recycling & Waste Disposal Services
- Community Projects
- Environmental Stewardship



## Albemarle County Government Offices

 401 McIntire Road  
Charlottesville, VA 22902

 434-243-7929

 @Albemarle.County

 @albemarlecountyva

 [www.ServiceAuthority.org](http://www.ServiceAuthority.org)



**168 Spotnap Road  
Charlottesville, VA 22911**

**[custserv@serviceauthority.org](mailto:custserv@serviceauthority.org) (General Customer Service)**

**Phone: (434) 977-4511**

**Fax: (434) 979-0698**

**[www.ServiceAuthority.org](http://www.ServiceAuthority.org)**