STATE OF TENNESSEE
BEFORE THE TENNESSEE PUBLIC UTILITY COMMISSION

IN RE: **24-00044**

LIMESTONE WATER UTILITY OPERATING COMPANY

DIRECT TESTIMONY

OF

JACOB FREEMAN

ON

CONDITION OF FIVE SYSTEMS TO BE ACQUIRED; SCHEDULED CAPITAL PROJECTS FOR GRASSLAND, SHILOH FALLS, AND CANDLEWOOD LAKES; ACQUISITION ADJUSTMENT RECOVERY

SPONSORING PETITIONER'S EXHIBITS:

Exhibit JF-1: Schematic of Grassland AGS Treatment Facility

FILED: **July 16, 2024**

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I. INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Jacob Freeman. My business address is 1630 Des Peres Road, Suite 140, St. Louis, Missouri, 63131.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am Director of Engineering of CSWR, LLC ("CSWR"), the affiliated company responsible for providing management services and oversight to Limestone Water Utility Operating Company, LLC ("Limestone Water" or "Company"), and all its affiliated utility operating companies. More specifically, I oversee all engineering, surveying, and facility construction for all newly acquired CSWR-affiliated water and wastewater utilities. I also oversee ongoing capital upgrades for those utilities.

Q. PLEASE DESCRIBE CSWR, LLC. AND LIMESTONE WATER UTILITY OPERATING COMPANY, LLC.

A. CSWR is a holding company that, as of March 31, 2024, operated utility operating companies in 11 states. Limestone Water is the CSWR utility operating company in the State of Tennessee.

Q. ON WHOSE BEHALF ARE YOU FILING THIS DIRECT TESTIMONY?

A. I am filing this testimony on behalf of Limestone Water.

Q. PLEASE DESCRIBE YOUR EDUCATION AND PROFESSIONAL BACKGROUND.

A. I hold a Bachelor of Science degree in Mechanical Engineering from the University of Missouri - Columbia. I am a licensed Professional Engineer in the states of Missouri, Illinois, and Kansas.

Before joining CSWR in January 2019, I was employed for two years by Corrigan Mechanical, a design-build mechanical contractor in St. Louis, Missouri. In that position my responsibilities included designing, estimating, and managing plumbing, HVAC, and process piping construction projects in Missouri and southern Illinois. After leaving that position, I spent eleven years performing similar tasks for Brotcke Well & Pump, one of the Midwest's largest well and pump service contractors, servicing wells and water treatment equipment throughout Missouri, Illinois, Kentucky, and Kansas. Immediately prior to leaving Brotcke, I served as Vice President and Principal in charge of all the company's engineering services. I also managed Brotcke's regional office in Kansas City, Missouri.

Q. PLEASE SUMMARIZE YOUR DUTIES AS THEY RELATE TO LIMESTONE WATER.

A. I oversee all engineering, surveying, and facility construction for all newly acquired CSWR-affiliated water and wastewater utilities. I also oversee ongoing capital upgrades for all systems utilities.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE STATE PUBLIC UTILITY COMMISSIONS?

A. Yes. I have testified before the state utility commissions in Missouri, Kentucky, Louisiana, Mississippi, and Texas.

Q. PLEASE DESCRIBE THE SCOPE OF YOUR TESTIMONY.

A. My testimony addresses four points and is arranged as follows:

First, I will generally identify the scope of Limestone Water's current operations, including the various systems, the types of systems, and the date of closing. I will also address the manner in which CSWR acquires construction services as they are needed for Limestone Water projects.

Second, I will address the condition of five (5) systems anticipated to be acquired by Limestone Water. Specifically, I will discuss in order: (1) Cumberland Basin – Genesis Villages Estates wastewater system; (2) Cumberland Basin – The Bluffs at Cumberland Basin wastewater system; (3) Newport Resort drinking water system; (4) IRM Utilities – Riverstone Estates wastewater system; and (5) Sunset Cove condominiums wastewater system. While Limestone Water does not seek to include any of these five systems in this rate case, this discussion, in addition to that provided by Mr. Thomas, further serves to show the condition of the systems that Limestone Water acquires, rehabilitates, and consolidates into its footprint.

Third, I will discuss three (3) large capital projects currently planned at specific Limestone Water systems. These are: (1) the Grassland wastewater system upgrade; (2)

the Shiloh Falls spray field expansion; and (3) the Candlewood Lakes redundant well drilling.

Fourth, as set forth in the Commission's Rule regarding recovery of acquisition adjustments, I will discuss the improvements in utilities services that are typically realized by customers of systems that are acquired by Limestone Water. Specifically, my focus will be on the professional engineering services that have been brought to three Tennessee systems (Grassland, Shiloh Falls, and Candlewood Lakes) that were not available to these systems under previous ownership.

Q. CAN YOU SUMMARIZE HOW THE SCOPE OF YOUR TESTIMONY SUPPORTS THE COMPANY'S RATE CASE?

A. As mentioned, in his testimony, Mr. Thomas provides extensive discussion regarding the improvements that are made to the systems currently owned and operated by Limestone Water. My testimony is focused differently. Specifically, my testimony is designed to show the analysis that Limestone Water conducts prior to closing on a system so that it fully understands the improvements and repairs that will be made to the systems that Limestone Water intends to acquire in the near future. While none of the dollars associated with these improvements are reflected in Limestone Water's rate case, this discussion does show, for purposes of recovering acquisition adjustments, "the improvements in public utilities services" that will typically result from acquisitions that Limestone Water makes.

This same rationale applies to the three capital projects that are discussed herein (Grassland, Shiloh Falls, and Candlewood Lakes). The extensive analysis that has been applied to each of those systems shows the "improvements in public utilities services resulting" from the acquisition by Limestone Water. Specifically, since all of these were

small water / wastewater systems with limited resources, it would have been difficult, if not impossible, for the prior ownership of those systems to have applied the professional managerial, technical, and financial expertise needed to successfully undertake such projects. Through its CSWR parent company, however, Limestone Water can not only design and permit such projects, it can also finance, independent of any customer-financed escrow accounts, these capital projects. As such, Limestone Water believes that the acquisition adjustments are justified as they led to: (1) improvements in public utilities services resulting from the acquisition; (2) remediation of public health, safety and welfare concerns of the selling utility's system resulting from the acquisition; and (3) other measurable benefits, costs, or service changes affecting acquired and/or existing customers resulting from the acquisition.

Q. ARE YOU SPONSORING ANY EXHIBITS?

A. Yes. I am sponsoring Exhibit JF-1.

Q. WAS THIS EXHIBIT PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes.

II. LIMESTONE WATER SCOPE OF OPERATIONS

Q. WHAT IS THE SCOPE OF LIMESTONE WATER'S OPERATIONS?

A. Limestone Water purchased its first systems in Tennessee (Aqua Utilities water and wastewater) in March 2021. Since that time, the Company has purchased several other water and wastewater systems. To date, Limestone Water owns and operates ten (10) water and wastewater systems in Tennessee.[1] In addition, Limestone Water expects to close on

[1] A map showing the location of Limestone Water's systems is attached to the testimony of Mr. Thomas as Exhibit TT-1.

five other systems (4 acquisitions) that are currently pending before the Tennessee Public Utility Commission ("TPUC" or "Commission").

Acquisition	Facility	Type	Connections[2]	County	Date of Closing
Aqua Utilities		Drinking Water	452	Hardin	March 18, 2021
Aqua Utilities		Wastewater	378	Hardin	March 18, 2021
Cartwright Creek	Grassland	Wastewater	563	Williamson	December 21, 2021
	Hideaway	Wastewater	135	Williamson	December 21, 2021
	Arrington Retreat	Wastewater	221	Williamson	December 21, 2021
	Hardeman Springs	Wastewater	90	Williamson	December 21, 2021
Chapel Woods		Wastewater	145	Marshall	October 12, 2022
Shiloh Falls		Wastewater	327	Hardin	February 22, 2023
Candlewood Lakes		Drinking Water	121	Hardeman	May 11, 2023
DSH	Lakeside Estates	Wastewater	55	Campbell	January 23, 2024
Cumberland Basin	Genesis Village	Wastewater	TBD	Cumberland	TBD
Cumberland Basin	The Bluffs	Wastewater	TBD	Putnam	TBD
Estate of Glenna Newport	Newport Resort	Water	TBD	Rhea	TBD
IRM Utilities	Riverstone Estates	Wastewater	TBD	Decatur	TBD
Sunset Cove		Wastewater	TBD	Union	TBD

Q. HOW DOES CSWR IDENTIFY QUALIFIED CONSTRUCTION PARTNERS?

A. CSWR, and its affiliate utility operating companies, typically rely upon recommendations from its third-party engineering consultants, contract operators (who are locally based) and construction managers to identify the group of contractors from which it will request bids on construction projects.

Q. HOW DOES CSWR SELECT A CONSTRUCTION PARTNER FOR SPECIFIC TENNESSEE PROJECTS?

A. When CSWR identifies a construction project that needs to be completed, it will work with its third-party engineering consultant to prepare a bid package describing the project, the

[2] The number of connections indicate the number of residences or facilities that are connected to the Company's system. As discussed in greater detail in the testimony of Mr. Silas, the number of connections does not equate to the number of equivalent residential units ("ERUs") as ERUs attempts to assign a relative level of usage relative to a single-family residence. Additionally, please note that the number of connections for the five systems still to be acquired is subject to some refinement once Limestone Water begins operations and has a better idea of the number

timeline, and any other necessary parameters. Once bid packages are assembled, reviewed, and approved by the third-party engineering consultant, CSWR and, as appropriate, the Tennessee Department of Environment and Conservation ("TDEC") in the form of construction permitting, the bid packages are sent out to our third-party construction manager who will then re-estimate the project and solicit bids from local contractors. Once bids are received, they are evaluated by our third-party construction manager for cost and completeness. A recommendation is then typically made of the lowest-cost responsive bidder to perform the construction project. A purchase order is then issued for the construction project.

Q. ARE ANY OF THE CONSTRUCTION OR ENGINEERING PARTNERS AFFILIATED WITH CSWR?

A. No. While CSWR employs operational, design and construction partners to manage third-party engineering and construction contractors, CSWR does not have, within its organization structure, any engineering, construction, or operations affiliates. Thus, all of the engineering / construction partners are independent third parties and the engineering / construction contracts are reached through arm's-length contracts.

Q. PLEASE DISCUSS HOW THE REMAINDER OF YOUR TESTIMONY IS ORGANIZED.

A. I will first discuss, in order, the five systems (4 acquisitions), identified in the table above that have yet to be closed. I will discuss, based on the information garnered to date, the improvements that will be needed to each of those systems. Next, I will address three large capital projects that will be undertaken in the very near future. These are: (1) Grassland

of locations actually taking service. The connection count for the five systems still to be acquired are being finalized as the Company approaches closing.

wastewater upgrade; (2) Shiloh Falls drain field replacement and (3) Candlewood Lakes secondary well drilling.

III. GENESIS VILLAGE ESTATES WASTEWATER

Q. PLEASE DESCRIBE THE GENESIS VILLAGE ESTATES SEWER SYSTEM.

A. Genesis Village Estates ("Genesis Village") is currently served by Cumberland Basin Wastewater Systems, LLC ("Cumberland Basin").[3] Genesis Village is a non-discharging residential wastewater system located near Crossville, TN in Cumberland County. The system serves approximately 99 condominium units.

The facility consists of a low-pressure collection system fed from individual septic tanks and grinder pumps and feeding into a series of flow equalization tanks. Pumps move waste from the flow equalization tanks through a recirculating media filter, followed by disc filters for removing solids, and final disposal to a fenced 2.7-acre drip irrigation field.

Q. WHILE LIMESTONE WATER HAS NOT YET CLOSED ON THE CUMBERLAND BASIN ACQUISITION, DO YOU HAVE AN OPINION ON THE CURRENT CONDITION OF THE GENESIS VILLAGE SYSTEM?

A. Yes. Limestone Water retained a third-party engineering firm to evaluate the Genesis Village facility and it made several recommendations for repairs and improvements intended to ensure the facility is capable of providing safe, reliable, environmentally responsible service to customers while minimizing rate impact. While the engineering firm's recommendations do not represent a finalized plan and are subject to change based on information gained from actually operating the facility, they do represent Limestone Water's current understanding of the condition of and likely improvements needed at the

[3] The Cumberland Basin acquisition is currently pending before the Commission in TPUC Docket No. 23-00077.

Genesis Village system. Based upon that engineering report, most of the Genesis Village assets are in fair condition and the facility has maintained permit compliance since entering operation in May of 2017.

Q. DO YOU HAVE ANY PICTURES DEPICTING THE GENESIS VILLAGE SYSTEM?

A. Yes. Below are an aerial view of the treatment facility and a photo of the drip irrigation field with the treatment plant in the background.

Aerial view of treatment units and drip irrigation field

Drip irrigation field (foreground) and structure containing treatment units and tanks (background).

Q. PLEASE DESCRIBE THE GENESIS VILLAGE IMPROVEMENTS RECOMMENDED BY THE THIRD-PARTY ENGINEERS.

A. Currently, Limestone Water intends to install remote monitoring equipment at both the lift station and the main wastewater treatment facility. The Company also intends to make improvements to the aging fence, install safety signage on the fence and equipment, and clear nuisance vegetation throughout the site. This is consistent with the requirements of the SOP permit issued by TDEC which states:

> *All drip fields shall be fenced sufficiently to prevent or impede unauthorized entry as well as to protect the facility from vandalism. Fencing shall be a minimum of four feet in height. Fencing shall be constructed of durable materials. Gates shall be designed and constructed in a manner to prevent or impede unauthorized entry.*

Q. WHY DOES LIMESTONE WATER INTEND TO INSTALL REMOTE MONITORING EQUIPMENT AT THE GENESIS VILLAGE SYSTEM.

A. Limestone Water installs remote monitoring equipment on all lift stations and treatment plants it acquires. Remote monitoring equipment allows operations staff to remotely track the status of wastewater equipment and provide notification of any abnormal operating conditions. Status tracking includes live and continuously recorded data on the runtime and operational performance of various system components. This provides for exceptional awareness of the condition of equipment over time and allows equipment to be efficiently maintained or replaced prior to equipment breakdown.

This sort of predictive maintenance, which is impossible without accurate equipment data across time: (1) reduces service interruptions, (2) allows maintenance and equipment replacement to be handled in a non-emergency manner, and (3) provides a

greater understanding of the performance and breakdown modes of specific equipment over time. This enhances the company's ability to efficiently and cost effectively operate and maintain water and wastewater systems.

Beyond the advantages for system operations and maintenance, receiving immediate notification of any abnormal operating condition enables operators to quickly respond to those abnormalities before emergencies occur, or if emergencies occur, before incidents can have greater impacts. Without immediate notification, some equipment malfunctions will inevitably go unnoticed until the next scheduled site visit or until a customer reports an issue. These types of failures can then result in: (1) overflows of sewage from lift stations or treatment plant components, (2) interruption of proper treatment process causing violation of permitted limits or other environmental or health regulatory requirements, (3) damage to equipment, (4) sewage backups, and (5) service interruptions to customers. Immediate response to these sorts of incidents drastically reduces the occurrence and/or impact of emergencies and, as a result, the cost related to responding to them which would otherwise result in higher operational costs for a facility (and therefore a higher rate).

Q. DO YOU HAVE A PICTURE OF A REMOTE MONITORING TERMINAL?

A. Yes. Below is an example of a "High Tide" remote monitoring unit.

"High Tide" remote monitoring unit.

Q. PLEASE DISCUSS THE FENCING AND SIGNAGE IMPROVEMENTS THAT THE COMPANY INTENDS TO MAKE AT THE GENESIS VILLAGE SYSTEM.

A. The existing fencing surrounding the drip irrigation field is in poor condition and has no signage to differentiate it from nearby fencing around farmland. The facility's TDEC permit requires that fencing be sufficient to impede unauthorized entry and protect the facility from vandalism, so improvements to the fencing are essential to maintaining compliance with TDEC requirements. Secure fencing is important for several reasons. First, the Genesis Village system does not include a disinfection system in the treatment process. Disinfection is not required where a drip irrigation field is fenced off and protects the public from exposure to wastewater. Beyond concern with exposure to wastewater, the other concern is trespassers causing damage to treatment equipment. To protect the public, the third-party engineers recommend installing proper fencing with signage indicating the presence of a wastewater dispersal zone.

Q. DO YOU HAVE A PICTURE OF THE CURRENT FENCING?

A. Yes. The attached picture shows that the current fencing is little more than an indication of property boundary and fails to provide any security or deterrent to unauthorized entry.

Existing barbed wire fencing.

Q. WHY DOES LIMESTONE WATER INTEND TO CLEAR NUISANCE VEGETATION THROUGHOUT THE SITE?

A. Controlling vegetation growth on the site is important to maintain proper operational access to all equipment and to prevent damage to fencing and equipment. Currently, some portions of the Genesis Village site are inaccessible due to uncontrolled vegetation. Limestone Water will clear the site and implement a vegetation control process on the site. A facility inspection conducted by TDEC in January of 2024 noted the vegetation was only moderately maintained and that operations staff stated the field used to be mowed annually, but they had stopped for fear of damaging irrigation piping. While they were not specifically cited for the vegetation, the vegetation is more obstructive outside of winter months and would likely result in violations and being evaluated as overgrown in the future left unaddressed.

Q. DO YOU HAVE PHOTOS SHOWING EXAMPLES OF VEGETATION OVERGROWTH?

A. Yes, below are images showing treatment equipment that is completely obstructed by vegetation overgrowth.

Overgrown vegetation throughout the site preventing operational access to equipment.

IV. THE BLUFFS AT CUMBERLAND COVE

Q. PLEASE DESCRIBE THE BLUFFS AT CUMBERLAND COVE SEWER SYSTEM.

A. The Bluffs at Cumberland Cove ("The Bluffs") is the other system that is part of the Cumberland Basin acquisition.[4] The Bluffs is also a non-discharging residential wastewater system located near Monterey, TN in Putnam County. The system serves 7 seasonally occupied residential lots. The facility consists of a drip irrigation system fed from individual septic tanks and through a recirculating media filter.

Q. WHILE LIMESTONE WATER HAS NOT YET CLOSED ON THE CUMBERLAND BASIN ACQUISITION, DO YOU HAVE AN OPINION ON THE CURRENT CONDITION OF THE BLUFFS SYSTEM?

A. Yes. Limestone Water retained a third-party engineering firm to evaluate The Bluffs facility and it made several recommendations for repairs and improvements intended to ensure the facility is capable of providing safe, reliable, environmentally responsible service to customers while minimizing rate impact. While the engineering firm's recommendations do not represent a finalized plan and are subject to change based on information gained from actually operating the facility, they do represent Limestone Water's current understanding of the condition of and the likely improvements needed at The Bluffs system. Based upon that engineering report, most of The Bluffs assets are in generally good condition.

Q. DO YOU HAVE A PICTURE OF THE BLUFFS SYSTEM?

A. Yes. Below is a photo of the media filter treatment plant.

[4] The Cumberland Basin acquisition is currently pending before the Commission in TPUC Docket No. 23-00077.

The Bluffs wastewater treatment plant.

Q. PLEASE DESCRIBE THE IMPROVEMENTS RECOMMENDED AT THE BLUFFS BY THE THIRD-PARTY ENGINEERS.

A. As the system is mostly in good working order, improvements would prioritize maintaining current condition, promoting longevity of the system's assets, and addressing nuisance complaints. Limestone Water plans to install Remote Monitoring and flow metering at the main facility. The Company will also upgrade the facility's security by adding fencing and signage and increase security by installing new locks. Finally, Limestone Water will bring the out of service ultraviolet disinfection system back into service, as discussed in more detail below.

Q. PLEASE DISCUSS THE PLANNED INSTALLATION OF REMOTE MONITORING AT THE BLUFFS.

A. As previously mentioned, Limestone Water installs remote monitoring equipment on all lift stations and treatment plants it acquires. A full discussion of the benefits of remote monitoring and the rationale underlying the installation of that equipment is contained in the section directly above discussing the Genesis Village wastewater facility.

Q. WHY DOES THE COMPANY INTEND TO MAKE IMPROVEMENTS TO SECURITY AND SIGNAGE AT THE BLUFFS?

A. The existing facility does not include any fencing surrounding the drip irrigation field and has no signage to discourage trespassing or entering into areas with treatment equipment and wastewater. Secure fencing is important for several reasons. First, fencing off the plant and drip irrigation field prevents the public from accessing the area and being exposed to harmful wastewater or dangerous treatment equipment. Second, fencing slows trespassers from entering the site and causing damage to treatment equipment. Finally, the facility's permit requires that if disinfection is not in use, fencing is required around the irrigation field. As the system's UV disinfection system is out of service, the fencing is required to maintain permit compliance. While it is the company's intention to restore the UV system, fencing will also be important to ensure compliance in the event the UV system has issues in the future. In a similar vein, locks will be installed on treatment cell lids and a new facility gate to bar site entry. Finally, signage will be installed to further discourage entry onto the site. This is also required by the permit which lays out signage requirements for the land application area at all entrances to the fenced area or any other reasonable approaches to the application area.

Q. DO YOU HAVE PHOTOS SHOWING THE LACK OF FENCING AT THE FACILITY?

A. Yes, below is a photo showing no fencing around the treatment facility.

No fencing present at The Bluffs treatment plant or drip irrigation field.

Q. WHY DOES LIMESTONE WATER INTEND TO RESTORE THE UV DISINFECTION SYSTEM.

A. Restoration of the UV disinfection system will eliminate harmful pathogens from the drain field discharge. Restoring the system is important, not only to reduce environmental impact, but also because the system permit requires the UV system to be in use as this was established as part of the treatment process of the designed facility.

Q. DO YOU HAVE A PICTURE OF THE UV DISINFECTION SYSTEM?

A. Yes. The following picture shows that the UV disinfection system was disassembled and simply placed in a bin. As such, it is not operational.

Out of service UV disinfection system

V. NEWPORT RESORT DRINKING WATER SYSTEM

Q. PLEASE DESCRIBE THE NEWPORT RESORT WATER SYSTEM.

A. The Newport Resort Water System ("Newport Resort") is a community drinking water system located near Spring City, TN in Rhea County.[5] The system serves approximately 55 residential service connections. The system consists of a well, a sodium hypochlorite disinfection system, a polymer ground storage tank, two small hydropneumatic tanks, a booster pump, and distribution system.

Q. DO YOU HAVE AN OPINION ON THE CONDITION OF THE NEWPORT RESORT SYSTEM?

A. Yes. Limestone Water retained a third-party engineering firm to evaluate the Newport Resort facility and it made several recommendations for repairs and improvements intended to ensure the facility is capable of providing safe, reliable, environmentally responsible service to customers while minimizing rate impact. While the engineering firm's recommendations do not represent a finalized plan and are subject to change based on information gained from actually operating the facility, they do represent Limestone

[5] The Newport Resort system is being acquired from the Estate of Glenna Newport through Bridget J. Wilhite, Administrator CTA, and is currently pending before the Commission in TPUC Docket No. 24-00034.

Water's current understanding of the condition of, and likely improvements needed at, the Newport Resort system.

Based upon that engineering report, it appears that the Newport Resort facility was constructed in 1972 and much of the equipment is approaching the end of its useful life and, not surprisingly, is in poor condition. Furthermore, the configuration of the facility is unusual and, in the current configuration, presents some operational safety hazards.

Q. HAS THE POOR CONDITION OF THE EQUIPMENT LED TO PERMIT VIOLATIONS?

A. Yes. The facility has an extensive history of violations of the federal Safe Drinking Water Act and the Tennessee Safe Drinking Water Act with consistent monitoring violations for failure to complete required sampling. While some of these violations have been resolved, there are at least 36 unresolved violations, 6 of which are considered "open" violations requiring resolution and 30 "known" violations for which it is too late to resample inside the scheduled compliance period.

Q. ARE THE SYSTEM ASSETS ADEQUATELY SIZED?

A. No. Beyond the poor condition and compliance issues at the water system, the facility also appears to lack adequate capacity to support the water demand of the community.

Q. PLEASE DESCRIBE THE IMPROVEMENTS RECOMMENDED BY THE THIRD-PARTY ENGINEERSI.

A. The third-party engineers have recommended many improvements be made at Newport Resort. These included: (1) renovation of the well and associated equipment; (2) replacement of the storage tank, (3) installation of a new booster pump system, (4)

installation of remote monitoring, and (5) additional site security. By necessity, this would also include the decommission of nearly all existing equipment on the site.

Q. WHY DOES LIMESTONE WATER INTEND TO REHABILITATE THE NEWPORT RESORT WELL AND RELATED SYSTEMS?

A. The well at the Newport Resort water system is over 50 years old and is due for renovation not only to extend its useful life but also to ensure that it can provide adequate water capacity. Much of the existing well equipment, including the well head and pump, are in poor condition and the configuration of the system makes operational access difficult. This has contributed to a lack of maintenance and incomplete testing in the past.

The third-party engineers recommend a full well rehabilitation, including: (1) new pump, (2) new well head, (3) new above-ground piping, (4) overhaul of the electrical system, and (5) installation of a new flow meter. It is recommended that this be done in a new well house that would contain a second room for housing disinfection equipment. This is important to prevent the well equipment from being exposed to the corrosive effects caused by exposure to sodium hypochlorite. Finally, it is worth noting that TDEC regulations require that systems with more than 50 connections require a redundant water source. This could be accomplished by either drilling an additional well or through an emergency use connection to a nearby water system.

Q. DO YOU HAVE ANY PICTURES OF THE CURRENT NEWPORT RESORT WELL SYSTEM?

A. Yes. The below photos show the poor condition of the system assets, including a degrading concrete box containing the well head, exposed wiring and poor condition of the well itself, and exposed wiring in the control system.

Well box (left), well interior (center), existing well control (right)

Q. PLEASE EXPLAIN WHY THE COMPANY INTENDS TO REPLACE THE NEWPORT RESORT GROUND STORAGE TANK?

A. The existing Newport Resort ground storage tank has many issues. The existing tank is a 10,000-gallon polymer tank set atop a degrading concrete stand. The system's chlorine dosing, hydropneumatic tanks, and booster pump are located under the concrete stand. The above arrangement is unsafe, as the imminent collapse of the concrete stand would cause the tank to collapse onto the other equipment, damaging the equipment, interrupting service, and potentially harming an operator performing regular operations activities. Additionally, the ground storage tank does not provide adequate water storage to provide safe and reliable service to the community. For these reasons, the third-party engineers recommend replacing the current tank with a new 25,000-gallon ground storage tank installed on a new concrete slab on grade.

Q. DO YOU HAVE A PICTURE OF THE CURRENT STORAGE TANK ARRANGEMENT AT NEWPORT RESORT?

A. Yes. Below are photos showing the tank suspended on the concrete ring and the equipment stored underneath.

Existing storage tank and equipment located under the concrete stand.

Q. WHY SHOULD THE BOOSTER PUMP SYSTEM BE REPLACED?

A. As reflected in the previous photo, the distribution system currently consists of two small bladder tanks and a three-horsepower jet pump. These assets are not only in poor condition, they are also poorly configured. With the installation of a new ground storage tank, the third-party engineer recommends removing the existing hydropneumatics tanks and pump from service and installing a dual booster pump skid to ensure reliable pressurization of the water system. This would necessarily include modification of the electrical system and include a quick-connect to a portable generator in the event of power failure.

Q. PLEASE DISCUSS THE PLANNED INSTALLATION OF REMOTE MONITORING AT NEWPORT RESORT.

A. As previously mentioned, Limestone Water installs remote monitoring equipment on all lift stations and treatment plants it acquires. A full discussion of the benefits of remote monitoring and the rationale underlying the installation of that equipment is contained in the earlier section discussing the Genesis Village wastewater facility.

Q. WHAT SITE SECURITY IMPROVEMENTS DOES THE COMPANY INTEND TO MAKE AT NEWPORT RESORT?

A. As the system currently exists, there is essentially no form of site security whatsoever. This includes a lack of fencing, locks, or structures. As a result, trespassers can easily access dangerous equipment and chemicals. As described above, the well rehabilitation project will include a new two-room well house containing the well, disinfection equipment, and booster pumps. This building will include locks, and signage warning of electrical hazards. With the installation of a new 25,000-gallon storage tank, the third-party engineer also recommends the installation of fencing around the tank and well house to further discourage trespassing on the site.

Q. DOES THE COMPANY FORESEE THE NEED FOR ANY OTHER IMPROVEMENTS AT THIS SYSTEM?

A. As previously mentioned, the referenced improvements were based upon an engineering inspection conducted prior to ownership and operation of the system. That said, if other issues become known after operation, the Company will address them as they arise.

VI. RIVERSTONE ESTATES WASTEWATER

Q. PLEASE DESCRIBE THE RIVERSTONE ESTATES SEWER SYSTEM.

A. The Riverstone Estates wastewater system is a non-discharging residential wastewater system (with a NPDES permit for an emergency discharge) located near Bath Springs, TN in Decatur County.[6] The system serves approximately 33 residential service connections units.

[6] The Riverstone Estates system is being acquired from IRM Utility, Inc. and is pending before the Commission as Docket No. 23-00037.

The facility consists of a gravity collection system with lift stations conveying wastewater to an aerated baffled lagoon treatment system. Following the lagoon, wastewater flows into a pumping system that then pumps water through a filtration system and UV disinfection system prior to discharge. Under typical conditions the system pumps effluent to three drip irrigation fields. The system, however, also includes an emergency surface discharge for periods of excessive flow.

Q. DO YOU HAVE AN OPINION ON THE CONDITION OF THE RIVERSTONE ESTATES SYSTEM?

A. Yes. Limestone Water retained a third-party engineering firm to evaluate the Riverstone Estates facility and it made several recommendations for repairs and improvements intended to ensure the facility is capable of providing safe, reliable, environmentally responsible service to customers while minimizing rate impact. While the engineering firm's recommendations do not represent a finalized plan and are subject to change based on information gained from actually operating the facility, they do represent Limestone Water's current understanding of the condition of and likely improvements needed at the Riverstone Estates system. Based upon that engineering report, it appears that the Riverstone Estates facility was constructed in 2004 and is in fair condition with some areas requiring repairs or improvements to ensure safe and reliable service.

Q. DO YOU HAVE ANY PICTURES OF THE RIVERSTONE ESTATES SYSTEM?

A. Yes. The photos below show an aerial and ground view of the treatment facility.

Aerial view of Riverstone Estates treatment facility.

Riverstone Estates lagoon.

Q. PLEASE DESCRIBE THE IMPROVEMENTS RECOMMENDED BY THE THIRD-PARTY ENGINEERS.

A. Currently, based upon the engineering report, Limestone Water intends: (1) to repair the damaged influent structure; (2) to clean out the UV/Filter building (including equipment cleaning and installation of new lighting) and install a new flow meter; (3) to repair the discharge pumping structure, (4) to install remote monitoring; and (5) to clean up the site as a whole.

Q. WHY DOES LIMESTONE INTEND TO REPAIR THE INFLUENT STRUCTURE AT THE RIVERSTONE ESTATES FACILITY?

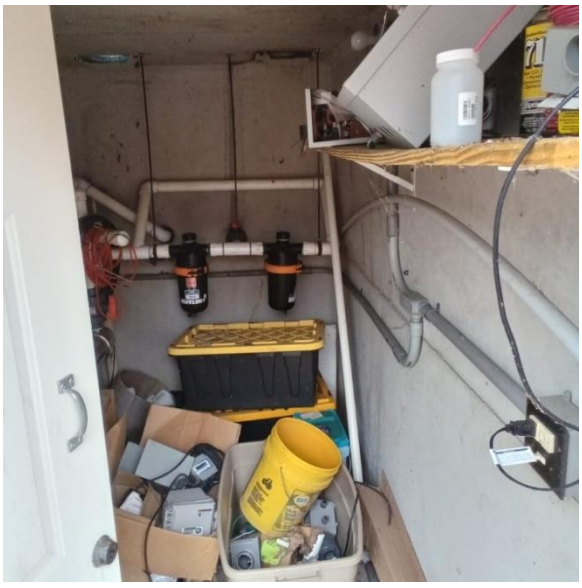
A. The existing influent structure is damaged in a way that is causing wastewater to leak. This is unacceptable as it represents the release of untreated wastewater into the environment. Limestone Water routinely completes repairs on all damaged piping as leaks are identified.

Q. WHY DOES LIMESTONE INTEND TO MAKE REPAIRS TO THE RIVERSTONE ESTATES UV AND FILTER BUILDING?

A. The existing UV disinfection and filtration building is littered with trash and operations equipment which hinders operational access to the treatment equipment. The lighting in the structure is also inadequate to ensure safe operation and was recommended for replacement.

Q. DO YOU HAVE A PICTURE OF THE UV AND FILTER BUILDING?

A. Yes. As described above the picture below shows the cluttered nature of the UV and filter building.



Interior of UV disinfection and filtration structure.

Q. WHY DOES LIMESTONE INTEND TO MAKE REPAIRS TO THE RIVERSTONE ESTATES DISCHARGE PUMPING SYSTEM?

A. The discharge pumping system is in poor condition and lacks important control functionality. The pumps are approaching the end of their useful lives. This can cause issues with proper dispersion of wastewater in the drip field. The pumps will therefore be repaired or replaced to ensure proper function. Also, the drip irrigation field lacks automatically actuated solenoid valves. This sort of system allows different portions of the drain field to be utilized without requiring operations staff to manually operate valves in the drain field. As a result, the discharging pumping controllers have failed to properly rotate across multiple zones as necessary for proper effluent disposal. As a result, some portions of the drip field have become overloaded while others are underutilized. The third-party engineer recommends installation of automatic solenoid valves to resolve this issue and improve the facility operations.

Q. PLEASE DISCUSS THE PLANNED INSTALLATION OF REMOTE MONITORING AT RIVERSTONE ESTATES.

A. As previously mentioned, Limestone Water installs remote monitoring equipment on all lift stations and treatment plants it acquires. A full discussion of the benefits of remote monitoring and the rationale underlying the installation of that equipment is contained in the earlier section discussing the Genesis Village wastewater facility.

Q. WHY DOES LIMESTONE WATER INTEND TO PERFORM A GENERAL CLEANUP OF THE ENTIRE SITE?

A. Currently, the Riverstone Estates treatment site is severely overgrown with vegetation, has trash and debris spread throughout the site, and has areas with damaged fencing. The

vegetation overgrowth and trash hinder access to the facility for general operations and maintenance activities and prevents proper operation of the facility. Furthermore, the vegetation overgrowth has caused damage to the fencing, and poses a risk of damaging other treatment equipment. The damaged portions of fencing must be repaired to ensure proper site security. The lift station sites, currently unfenced, should be fenced to protect equipment and eliminate the risk of public exposure to harmful wastewater and dangerous equipment.

VII. SUNSET COVE CONDOMINIUMS

Q. PLEASE DESCRIBE THE CURRENT CONDITION OF THE SUNSET COVE CONDOMINIUMS SEWER SYSTEM.

A. The Sunset Cove Condominiums wastewater treatment plant is a non-discharging residential wastewater system located near Maynardville, TN in Union County.[7] The system serves a 12-unit condominium complex. The facility consists of a drip irrigation system fed by a recirculating media filter and septic tanks.

Q. DO YOU HAVE AN OPINION OF THE CONDITION OF THE SUNSET COVE SYSTEM?

A. Yes. Limestone Water retained a third-party engineering firm to evaluate the Sunset Cove facility and it made several recommendations for repairs and improvements intended to ensure the facility is capable of providing safe, reliable, environmentally responsible service to customers while minimizing rate impact. While the engineering firm's recommendations do not represent a finalized plan and are subject to change based on information gained from actually operating the facility, they do represent Limestone

[7] The Sunset Cove acquisition is currently pending before the Commission in TPUC Docket No. 23-00070.

Water's current understanding of the condition of and likely improvements needed at the Sunset Cove system.

Based upon that engineering report, it appears that the Sunset Cove facility is in good condition but has a history of compliance issues mostly, it appears, focused on difficulties properly identifying the legal owners of the system, which led to a long period with no valid permit.

Q. DO YOU HAVE A PICTURE DEPICTING THE SUNSET COVE FACILITY?

A. Yes. Below is a photo of the media filter plant.

Sunset Cove media filter and septic tanks.

Q. PLEASE DESCRIBE THE IMPROVEMENTS RECOMMENDED BY THE THIRD-PARTY ENGINEERS.

A. As the system is mostly in good working order, improvements would prioritize maintaining condition and promoting longevity of the system's assets and addressing nuisance complaints. First, the Company intends to upgrade the facility's security by adding fencing, installing site safety signage, and providing new locks. Second, Limestone Water will install carbon caps on vents, or an equivalent odor mitigation technology, as there have been persistent odor complaints from residents. Third, Limestone will repair the isolation

valving and piping in the drain field system. Finally, as with all acquired systems, Limestone Water plans to install remote monitoring and flow metering at the main facility.

Q. PLEASE EXPLAIN THE ANTICIPATED IMPROVEMENTS TO THE SUNSET COVE FENCING AND SIGNAGE.

A. The existing facility does not include any fencing surrounding the drip irrigation field and has no signage to discourage trespassing or tampering with treatment equipment. Secure fencing is important to prevent public exposure to untreated wastewater or dangerous treatment equipment. In addition, fencing will help prevent trespassers from damaging treatment equipment. In addition, locks will also be installed on treatment cell lids and a new facility gate to bar entry. Finally, signage will be installed to further discourage entry onto the site.

Q. DO YOU HAVE PHOTOS SHOWING THE LACK OF FENCING?

A. Yes, below are photos showing no fencing at the treatment plant and irrigation field.

No fencing present at treatment plant or drip irrigation field.

Q. WHY DOES LIMESTONE INTEND TO INSTALL ACTIVATED CARBON CAPS ON THE TREATMENT PLANT VENTS?

A. Residents in the condominium complex have submitted consistent complaints concerning odor from the treatment plant. The third-party engineers have recommended installing activated carbon caps on vents to reduce or eliminate odors from the treatment facility.

Q. WHY DOES LIMESTONE WATER INTEND TO REPAIR ISOLATION VALVING AND PIPING IN THE DRAIN FIELD.

A. The isolation valves and piping in the drain field are damaged. This reduces the ability to properly operate the drain field and could result in overloading of some portions of the field, as well as ponding and runoff of wastewater.

Q. PLEASE DISCUSS THE PLANNED INSTALLATION OF REMOTE MONITORING AT SUNSET COVE.

A. As previously mentioned, Limestone Water installs remote monitoring equipment on all lift stations and treatment plants it acquires. A full discussion of the benefits of remote monitoring and the rationale underlying the installation of that equipment is contained in the earlier section discussing the Genesis Village wastewater facility.

VIII. GRASSLAND WASTEWATER REHABILITATION

Q. IN HIS TESTIMONY, MR. THOMAS INDICATES HIS BELIEF THAT THE GRASSLAND WASTEWATER PLANT IS 50 YEARS OLD AND WOULD NEED TO BE REPLACED. IS THIS CORRECT?

A. Yes, a new treatment plant will be required to ensure the system can offer safe, reliable, environmentally responsible service to customers. Mr. Thomas describes many of the issues encountered at the Grassland wastewater treatment plant, which is located in

Williamson County. Many of the assets are in poor condition including tanks with significant rusting, temporary PVC piping instead of proper metal aeration and water piping throughout the facility, and aging power and control systems. While the operations team has done an excellent job making triage improvements to restore and maintain a minimum operational functionality with the current infrastructure, more pervasive issues exist at the facility that dictate a total plant replacement.

As described in Mr. Thomas's testimony, in addition to the fact that the facility is beyond its useful life, the facility requires diligent operations due to the age of the collection system and the high amount of inflow and infiltration ("I&I") into the collection system. As a result, while initially designed for 250,000 GPD, the facility has experienced average daily flows of approximately 450,000 GPD over the past year. This additional flow of groundwater into the facility makes operation of the facility and its ability to meet permitted limits challenging.

The I&I issue is further pronounced when one considers the size of population served by the facility and the expected flows to the facility. With approximately 1,665 persons served by the treatment facility, and a reasonable anticipated flow of 100 gallons per person, anticipated flows are approximately 166,000 GPD. Prior to acquisition by Limestone Water, the previous ownership began a collection system repair project which limited flows to the facility during summer months to an average of 250,000 GPD. While an improvement, the system still routinely sees peak flows exceeding 1,000,000 GPD during the wet months of winter and early spring. This indicates that ongoing I&I will require further repairs or facility expansion.

Repair work to address I&I in the collection system at this facility is more difficult than at a typical collection system as, in some areas, the piping is buried exceptionally deep to account for the topography in the area. In fact, in some areas the collection system piping is more than 50 feet deep.

Further complicating the issue with excessive flow at the facility, there are a significant number of areas with new and ongoing development that are seeking to connect to the treatment facility. This desire in the area to connect to this treatment facility is spurred by a resistance to permit the construction and operation of single home septic systems. In fact, in many cases, there has been a revocation of existing permits for septic systems in the area due to soil conditions and local regulation. With: (1) the already excessive flows received by the facility; (2) the construction of additional homes; and (3) the desire of new development to connect to the facility, addressing I&I and expanding the treatment facility is a necessity.

Q. WERE THE INVESTMENTS MADE TO DATE PRUDENT IF LIMESTONE PLANS TO REPLACE THE TREATMENT FACILITY?

A. Absolutely. The timeline required to complete a wastewater treatment plant replacement is lengthy, involving evaluation of the existing collection and treatment infrastructure at a level of detail not feasible prior to closing on and operating the facility. Such an evaluation was necessary to determine if the existing facility could conceivably be rehabilitated or I&I reduced to a point where flows to the facility could be reduced to comply with facility design flow.

After determining that neither of these options were feasible, Limestone Water's third-party engineers completed an alternatives analysis to make a recommendation on: (1)

the types of plant replacement possible within the geographic footprint available, or (2) the feasibility of decommissioning the plant entirely and simply connecting to and purchasing treatment from a publicly owned treatment works. Following selection of an alternative (the current stage of the process), preliminary permitting and design must be completed. This is followed by final design and approval, solicitation of bids, selection of a contractor for the project, construction, and startup of the new facility. Limestone Water estimates it is 24 months from the completion of the Grassland replacement project and is currently working through design and permitting details with TDEC.

The existing facility therefore must continue to operate in a safe and reliable manner consistent with the timeline for a replacement plant. Basic functionality must be maintained, operational safety ensured, and service interruptions avoided. The maintenance and improvement projects completed to date have been intended to accomplish these goals while minimizing costs wherever possible.

Furthermore, where possible, improvements that can be made that are consistent with the projected design of the new treatment plant are undertaken. Examples of this include: (1) utilizing less expensive, but shorter lasting, PVC piping for piping and aeration improvements that will only need to function until the new facility can be constructed, (2) making improvements to the blower and lab structure which can be retained and remain useful when the new facility is constructed, and (3) installing remote monitoring equipment that can be utilized at the new facility when it is constructed. It is unacceptable to allow issues at the plant to worsen and remain unaddressed until the new facility can be completed. Furthermore, ignoring current issues could result in potential harm to operations staff, increased environmental impact from the facility, and poor service to

customers. For this reason, the improvements that have been made to date are prudent, cost-justified, and designed to minimize cost impacts on customers.

Also worth noting, the improvements made to date have had a positive impact on reducing pollution to the environment from the facility. One of the clearest metrics to depict these improvements can be observed in total pollutant loadings from the facility, where under previous ownership, in 2019 the facility discharged 19,171 lbs of pollution into the environment and under Limestone's operation in 2023 the facility only discharged 6,380 lbs.

Q. WHAT REPLACEMENT ALTERNATIVES FOR GRASSLAND WERE CONSIDERED BY THE COMPANY?

A. As described above, Limestone Water retained a third-party engineering firm to evaluate alternatives which could achieve compliance with likely permit limits for the expanded capacity while providing safe and reliable service to customers. The firm identified three potential technologies which could be capable of realistically complying with stringent total nitrogen limits of 15 pounds per day and phosphorus limits of 5 pounds per day. The three alternatives were: (1) an aerobic granular sludge (AGS) treatment facility (a type of sequencing batch reactor), (2) a membrane bioreactor (MBR), and (3) a membrane aerated biofilm reactor (MABR). All systems were deemed capable of achieving biological treatment of total nitrogen and phosphorus using novel combinations of aerobic and anaerobic treatment.

Q. WHAT ASSESSMENT APPROACH WAS DEEMED THE BEST ALTERNATIVE?

A. The alternatives analysis considered feasibility, treatment effectiveness, and life cycle cost including operational costs. These areas were aggregated into a scoring mechanism

compiling all areas into a possible score of 1-3, with 3 being the highest possible score. The AGS process scored a 2.8, the MBR approach a 2.1, and the MABR design a 1.4. Thus, the AGS methodology was deemed the best alternative.

To provide greater insight into the upfront cost of each alternative, the total cost estimates including construction, design, and permitting costs was estimated by the third-party engineers at $12.4 Million for the AGS, $12.9 million for the MABR, and $13.9 million for the MBR. Another factor considered was the ongoing annual operational costs of the three alternatives where the AGS system annual operational costs were only 32% of the MBR system and only 21% of the MABR system. This is mostly due to the higher, chemical, electrical and maintenance costs of the other two systems. Site layout and space footprint for equipment were also considered and while the AGS requires more space than the MBR option, it is significantly less than the MABR option and is workable given the space available at the site.

Q. DO YOU HAVE A SCHEMATIC SHOWING THE PROPOSED PROCESS FLOW FOR THE AGS SYSTEM?

A. Yes, a schematic of the AGS process is attached as **Exhibit JF-1**.

IX. SHILOH FALLS SPRAY FIELD

Q. IN HIS TESTIMONY MR. THOMAS STATES THAT THE SHILOH FALLS SPRAY FIELD WOULD NEED TO BE EXPANDED / REPLACED. WOULD YOU DISCUSS THIS PROJECT?

A. Yes, the Shiloh Falls facility needs an expanded spray field. This necessity is largely realized from the history of the facility. Originally, the Shiloh Falls facility was designed

to discharge treated wastewater as irrigation water onto a large portion of a golf course through its spray irrigation system. This was roughly 15.5-acres of mostly flat land with highly permeable soil.

At some point in the past, however, the golf course terminated the agreement with the previous Shiloh Falls ownership. Owning no other nearby property, the previous ownership installed a new spray field on a small patch of wooded land immediately to the south and west of the treatment lagoon. The new area, however, is only 6.0 acres, is less flat, is wooded, and has much less permeable soil. While it is possible to utilize uneven ground, less permeable soil, and wooded areas for spray application of treated wastewater, such areas have lower absorption rates than areas with conditions similar to the golf course. Therefore, this lower quality soil requires a larger, not smaller, disposal area to achieve the same level of absorption as the 15.5-acres of golf course space.

With the new spray field representing an area less than 40% of the size of the previous spray field, and with much lower absorption rates, it is woefully inadequate as a proper disposal site for the treated Shiloh Falls wastewater. The result has been consistent ponding and overloading in the area with erosion and unauthorized runoff into the surrounding area.

Q. DO ANY OTHER FACTORS MANDATE THE DEVELOPMENT OF A NEW SPRAY FIELD?

A. Yes. In the most recent permit renewal cycle prior to acquisition by the Company, TDEC mandated that the facility develop and implement a plan to create a new spray field that is engineered to adequately support and absorb the water dispersed from the Shiloh Falls facility without ponding or runoff. This renewal application included plans submitted for

a new drip irrigation system surrounding the lagoon on all sides. The inclusion of the commitment to establish a new disposal system in the permit renewal means that, not only is the construction of a new solution necessary for safe and reliable disposal of treated wastewater, it is also an enforceable requirement under the terms of the facility permit.

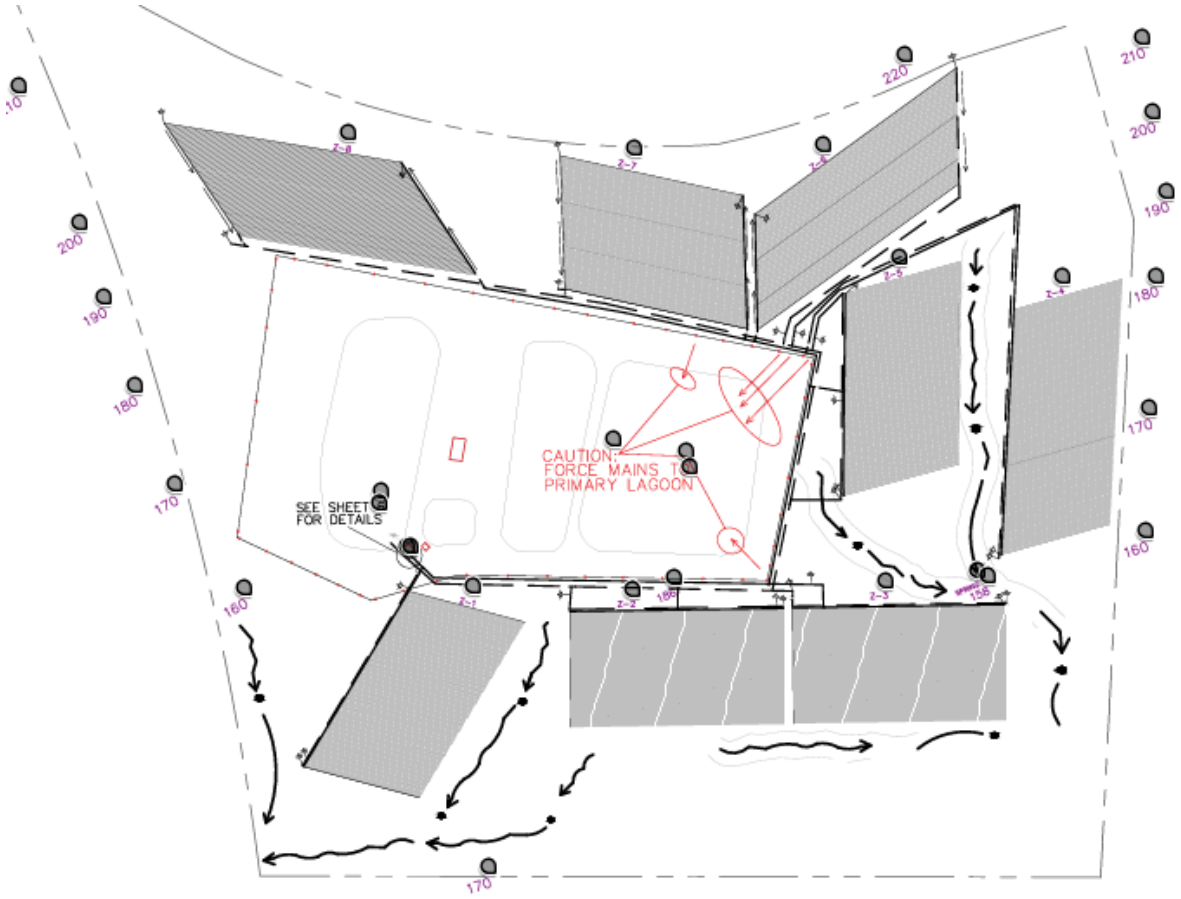
Q. DO YOU HAVE A PICTURE OF THE OVERLOADED CURRENT SPRAY FIELD?

A. Yes. The attached picture shows the significant ponding at the Shiloh Falls spray field. This clearly indicates the inadequacy of the land devoted to the spray field as well as the absorption level of that land relative to the current output of the facility.

Typical overloading of existing Shiloh Falls spray field area (note, ponding and runoff).

Q. DO YOU HAVE A DIAGRAM OF THE NEW DRIP IRRIGATION SYSTEM INCLUDED IN THE PERMIT RENEWAL BY PREVIOUS OWNERSHIP?

A. Yes.



Layout proposed by previous ownership for new drip irrigation field.

Q. DOES LIMESTONE WATER INTEND TO PROCEED WITH THE PREVIOUSLY PLANNED DRIP FIELD?

A. Limestone Water is currently assessing alternatives to the drip field. The previous owner's plan called for complete deforestation of the disposal area. The plans then require that, in order to facilitate drip field requirements, all trees be removed from the area rather than burned on site. Furthermore, onsite processing of lumber must be receivable by lumber yards, and all root structures removed, and topsoil replaced in the area to achieve adequate drip field permeability. After bidding the previous owner's permitted plan to local contractors, the plan was determined to be infeasible due to high costs and resulting rate impact.

As a result, Limestone Water is investigating other disposal alternatives that could utilize the same land area, but would not require complete deforestation, removal of all subsurface roots and replacement of topsoil in order to remove those costs from the previous owner's plan. In lieu of that possibility, Limestone Water's other alternative would be to acquire additional property to provide enough land for a traditional spray disposal system.

Q. WHERE IS LIMESTONE WATER CURRENTLY AT IN ITS PLAN TO INSTALL A NEW SPRAY FIELD?

A. As stated above, Limestone Water is currently weighing alternatives to the proposed drip system. At this point, Limestone Water is coordinating with TDEC to facilitate the design and permitting of a spray field. As the spray field design is further refined, Limestone Water's third-party engineers are working to determine if the area from the previous drain field plan will be adequate (pending State approval) or if additional property will be required. Additional properties are being evaluated for this purpose with a priority being placed on lower property cost, proximity to the facility, and advantageous soil properties. After the design and permits are finalized, plans and specifications will be prepared, bids accepted, a contractor selected, and spray field constructed. A conservative timeline would anticipate project completion in the next 18 to 24 months.

X. CANDLEWOOD LAKES REDUNDANT WELL

Q. MR. THOMAS STATES IN HIS TESTIMONY THAT AN ADDITIONAL WELL IS REQUIRED AT THE CANDLEWOOD LAKES WATER FACILITY. WHY IS THIS REQUIRED?

A. A TDEC Notice of Violation ("NOV") was issued prior to acquisition by Limestone Water for violation of the following TDEC rule:

> ***All community water systems serving 50 connections or more shall install duplicate pumps for the raw water, finished water, and distribution pumping stations.*** A water system will not be required to have duplicate pumps in a distribution pumping station under the following conditions: limited number of service connections, availability of replacement pumps, maintaining adequate flows and pressures without the pumping station, and for emergency use only. All community public water systems using ground water supplies and having more than 50 service connections must have duplicate wells and/or duplicate pumps in a spring supply unless fed by gravity flow.[8]

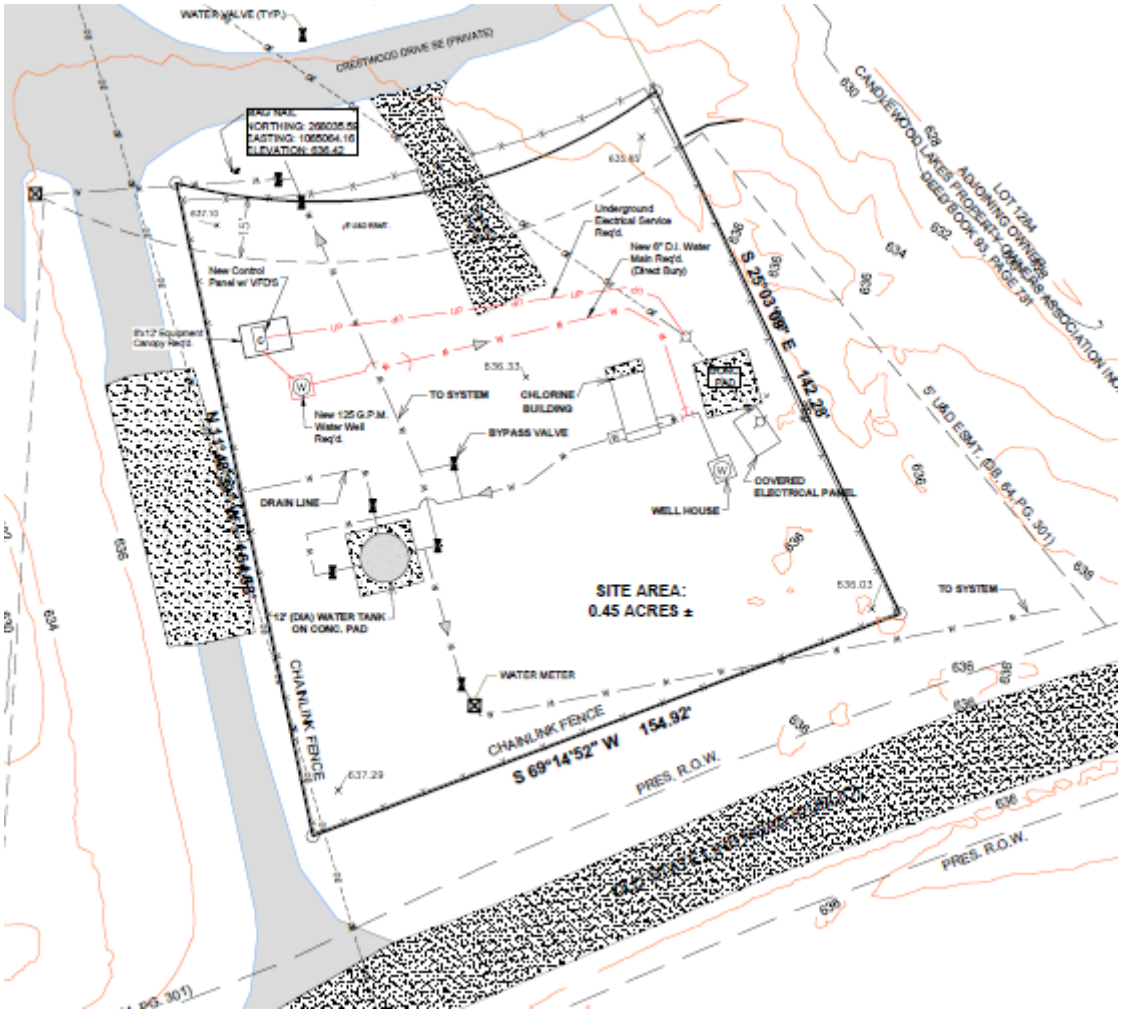
Q. WHERE IS LIMESTONE WATER IN THE PROCESS OF ADDING A SECOND WELL?

A. Limestone Water is in the process of completing a TDEC permit application to drill and install new Candlewood Lakes well. This application will be submitted shortly, and, upon approval, the project will be bid out and a well driller selected for the project. The project is conservatively expected to be completed in the next 12 to 18 months. This allows time for final preparation of plans and specifications, bidding, contractor selection, and construction.

Q. DO YOU HAVE A DIAGRAM OF THE LOCATION OF THE NEW WELL RELATIVE TO THE CURRENT CANDLEWOOD LAKES FACILITY?

[8] Rules of the Tennessee Department of Environment and Conservation, Division of Water Resources, Chapter 0400-45-01-.17(13) (emphasis added).

A. Yes. The new well (identified with the W in the center left) and the associated piping (in red) is reflected in the attached diagram.



XI. ACQUISITION ADJUSTMENT RECOVERY

Q. PLEASE PROVIDE YOUR UNDERSTANDING OF THE COMMISSION'S RULE FOR RECOVERY OF ACQUISITION ADJUSTMENTS.

A. It is my understanding, from talking to counsel in advance of this filing, that the Tennessee Commission has a rule that provides, based upon the consideration of several factors, for the inclusion of an acquisition adjustment in rate base. While Mr. Thies will address the mechanics of including an acquisition adjustment in rate base, as well as the ratemaking

implications of that determination, I have been asked to simply address "improvements in public utilities services resulting from the acquisition." With this task in mind, I will address improvements in public utilities services, from an engineering perspective, that have resulted from three Limestone Water acquisitions: (1) Cartwright Creek, (2) Shiloh Falls, and (3) Candlewood Lakes.

Q. DO YOU BELIEVE THAT THERE HAVE BEEN "IMPROVEMENTS IN PUBLIC UTILITIES SERVICES" THAT HAVE RESULTED FROM LIMESTONE WATER'S ACQUISITION OF CARTWRIGHT CREEK?

A. Yes. As I mentioned previously, in addition to the operational improvements discussed by Mr. Thomas, the Cartwright Creek - Grassland system acquisition by Limestone Water has already yielded improvements in public utilities service. Specifically, it is very clear, given the age and condition of the Grassland wastewater treatment plant, that the previous owners were satisfied simply letting that facility continue to deteriorate and ignoring treatment limits. As Mr. Thomas mentioned, the Grassland facility has struggled to meet permitted limits, including violations of biochemical oxygen demand, ammonia, total nitrogen, dissolved oxygen, suspended solids, total residual chlorine, and *E coli* within the 12 quarters of discharge monitoring report testing immediately prior to acquisition by Limestone Water. There is little indication that the previous owners made any modifications to the Grassland facility, either from a design or an operational perspective, to address the continuing history of environmental non-compliance.

As I mentioned, however, upon acquiring the system, Limestone Water immediately set out to address these shortcomings. The Company engaged in triage to attempt to understand the capabilities of the plant. Specifically, Limestone Water set out

to determine whether the plant, if repaired and modified, was capable of meeting permitted limits. Given the excessive inflows and infiltration, as well as the age and deteriorated nature of the facility, however, the Company determined that modifications and improvements to that plant were simply short-term efforts that were unlikely to succeed. The Grassland facility needed a long-term solution.

Once the Company realized that a long-term replacement was necessary, Limestone Water's third-party engineers completed an alternatives analysis to make a recommendation on: (1) the types of plant replacement possible within the geographic footprint available, or (2) the feasibility of decommissioning the plant entirely and simply connecting to and purchasing treatment from a publicly owned treatment works. After determining that interconnection with an existing plant was not feasible, the Company considered multiple different types of technology and determined that an aerobic granular sludge (AGS) treatment facility (a type of sequencing batch reactor) was the best alternative from a treatment and cost perspective.

As previously mentioned, the Company is now in the process of permitting and design work. This will necessarily be followed by a solicitation of bids to ensure best possible construction option, the selection of a contractor, construction and system startup.

The ultimate solution that is designed, permitted, constructed, and financed will be professionally managed by experienced wastewater professionals at Limestone Water. Specifically, given the Grassland existence as part of the Limestone Water, it has ready access to an experienced engineering department. As such, much like the hundreds of other systems that CSWR has acquired nationwide, the Grassland project will be managed to ensure that the solution is the least cost alternative that best considers the unique factors

in place at that system. Moreover, given the CSWR experienced construction department, the project will be constructed based upon an RFP process that ensures a least cost solution.

Finally, as with most small water / wastewater systems, the upfront financing of a project like Grassland can be a formidable undertaking. Specifically, many owners of small water / wastewater systems lack the financial means to finance such a project. For this reason, owners may look to customers to assist with the financing of the construction project. As part of Limestone Water, however, the financing for this construction project will be financed upfront by the Company and simply recovered in rates. For this reason, there are assurances for construction vendors that the project will be funded in a timely manner and the project ultimately completed. Therefore, from an engineering, construction, and financing point of view, I believe that the Grassland customers have experienced, and will continue to experience, "improvements in public utilities services."

Q. DO YOU BELIEVE THAT THERE HAVE BEEN "IMPROVEMENTS IN PUBLIC UTILITIES SERVICES" THAT HAVE RESULTED FROM LIMESTONE WATER'S ACQUISITION OF SHILOH FALLS?

A. Yes. I believe that the Shiloh Falls system, and its customers, have benefited as a result of Limestone Water's existence as part of CSWR. As a result, Shiloh Falls has ready access to professional engineering services at CSWR as well as CSWR's extensive experience with managing systems like Shiloh Falls. As a result, the Shiloh Falls need for an upgrade to its spray field was critically reviewed and an alternatives analysis was conducted. While the Shiloh Falls upgrade is still in the permitting stage and will then be subject to a construction bid process, I am hopeful that the Shiloh Falls solution will be the best

alternative that fits the needs of the system and considers the rate impact on Limestone Water customers.

Equally important, however, any solution to the Shiloh Falls drain field will be financed by Limestone Water. For a system that size of Shiloh Falls, with only 327 connections, financing the cost of such an upgrade can be daunting. As part of Limestone Water, however, the solution will be financed by the Company and recovered through rates. Therefore, from an engineering, construction, and financing perspective, I believe that the Shiloh Falls customers are seeing "improvement in public utilities services."

Q. DO YOU BELIEVE THAT THERE HAVE BEEN "IMPROVEMENTS IN PUBLIC UTILITIES SERVICES" THAT HAVE RESULTED FROM LIMESTONE WATER'S ACQUISITION OF CANDLEWOOD LAKES?

A. Again, I believe that customers have benefitted from Limestone Water's acquisition of Candlewood Lakes. Prior to its acquisition by Limestone Water, Candlewood Lakes received a Notice of Violation from TDEC for its failure to have a redundant water source. Based upon my frequent discussions with TDEC, it is apparent that the Candlewood Lake homeowner's association was struggling with where to locate a second well, how to tie the second well into the distribution system, and, most importantly, its lack of ability to finance the drilling of a second well. The cost component is not insignificant as the cost can be as much as $300,000.

Following its acquisition of Candlewood Lakes, Limestone Water immediately set out to identify a solution and resolve the TDEC Notice of Violation. Limestone Water is in the process of completing a TDEC permit application to drill and install new Candlewood Lakes well. This application will be submitted shortly, and, upon approval,

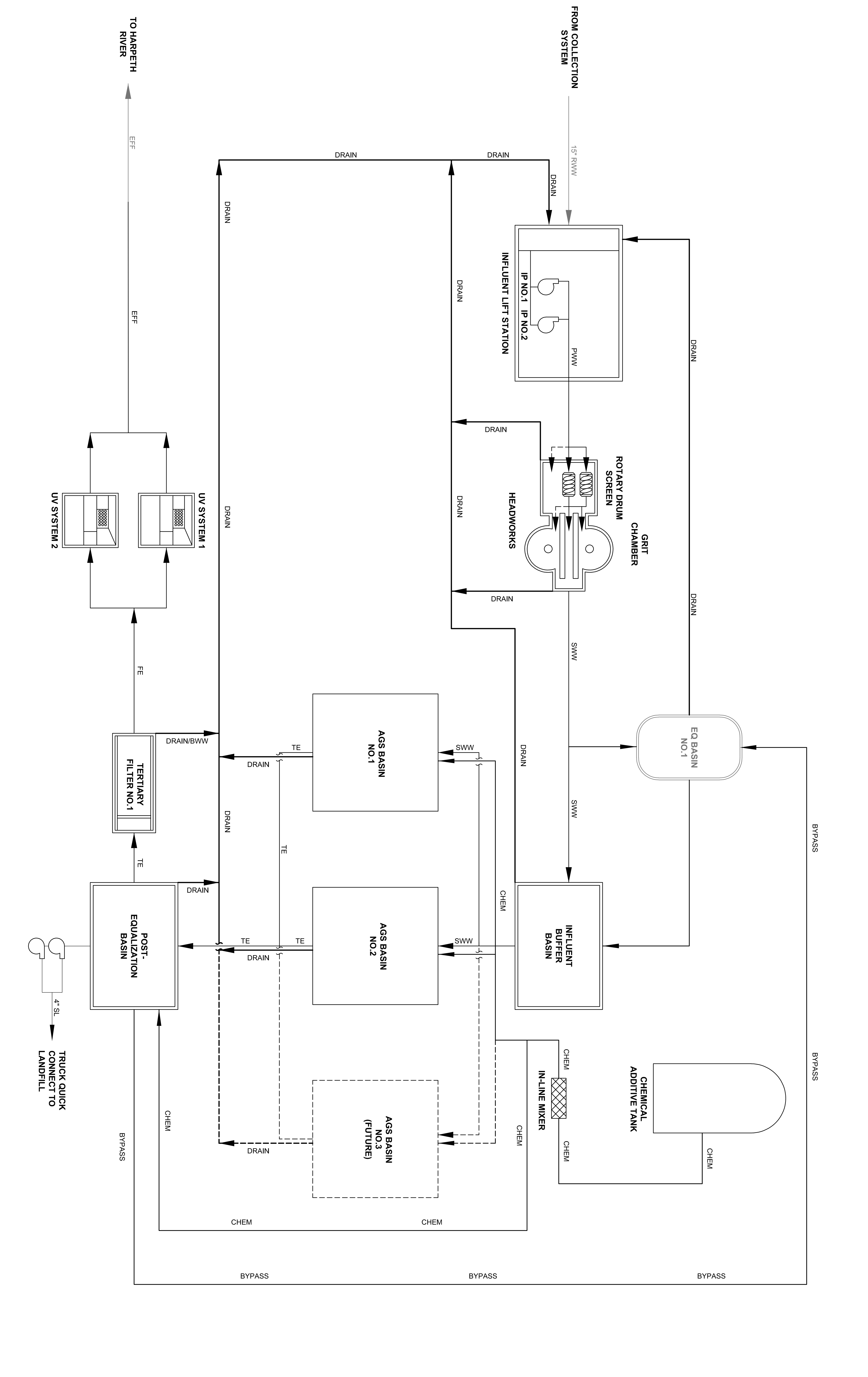
the project will be bid out and a well driller selected for the project. Again, from my regular conversations with Candlewood Lakes, it is apparent that it did not possess the managerial, technical, nor financial means to address the Notice of Violation or to drill a new well. The professional engineering services offered by Limestone Water has definitely led to "improvements in utilities service" for these customers that will be most apparent when the secondary well is completed.

Q. DOES THIS COMPLETE YOUR DIRECT TESTIMONY?

A. Yes.

FLOWS

	ROTARY DRUM SCREEN	GRIT CHAMBER	EQUALIZATION BASIN	INFLUENT BUFFER BASIN	AGS REACTOR	POST-EQUALIZATION BASIN	TERTIARY FILTRATION	UV SYSTEM	PARSHALL FLUME
AVERAGE DAILY FLOW (MGD)	0.60	0.60		0.30	0.23	0.30	0.45	0.45	0.30
MAXIMUM MONTHLY FLOW (MGD)	1.20	1.20	0.25	0.60	0.45	0.60	0.90	0.90	0.60
PEAK HOURLY FLOW (MGD)	3.60	3.60		1.80	1.35	1.80	2.70	2.70	2.53



FLOW LINES

- PRIMARY FLOW PATH
- BY-PASS FLOW PATH
- SECONDARY FLOW PATH
- DRAIN LINES
- EXISTING LINES

PROCESS FLOW DIAGRAM NOTES:

1. EQUIPMENT ARRANGEMENTS ARE BASED ON THE EQUIPMENT BASIS OF DESIGN IN THE SPECIFICATIONS. CHANGES TO THE LISTED BASIS OF DESIGN RESULTING IN DIFFERENCES OF THE SHOWN ARRANGEMENT SHALL BE THE CONTRACTORS RESPONSIBILITY. NO PAYMENT WILL BE ISSUED TO THE CONTRACTOR FOR MODIFICATIONS.
2. THE CONFIGURATION SHOWN ON THE PROCESS FLOW SCHEMATIC SHALL NOT BE USED FOR CONSTRUCTION BECAUSE THE LAYOUT IN THE PROCESS FLOW DIAGRAM IS NOT TO SCALE AND IS NOT REPRESENTATIVE OF THE ACTUAL FIELD LAYOUT.

PROPOSED PROCESS FLOW DIAGRAM

GRASSLAND STP
CENTRAL STATES WATER RESOURCES
FRANKLIN, TENNESSEE

GMC Project # CNAS230028

ISSUE	DATE
30% SUBMITTAL	TBD
60% SUBMITTAL	TBD
90% SUBMITTAL	TBD
100% SUBMITTAL	TBD
PROJECT MANAGER:	TBD
ENGINEER:	TBD
DESIGNER:	TBD
DRAWN BY:	TBD

STATE OF TENNESSEE
GOODWYN MILLS CAWOOD, LLC
No.PEF007898
Exp.06.30.2024
CERTIFICATE OF AUTHORIZATION

GMC
3310 West End Avenue Suite 420
Nashville, TN 37203
T 615.333.7200

Petitioner's Exhibit JF-1

VERIFICATION

I, Jake Freeman, Director of Engineering, verify, state, and affirm that I prepared or supervised the preparation of the Direct Testimony filed with this Verification, and that Direct Testimony is true and accurate to the best of my knowledge, information, and belief after a reasonable inquiry on this 12th day of July, 2024.

Jake Freeman
Director of Engineering

STATE OF MISSOURI)
)
COUNTY OF ST. LOUIS)

SUBSCRIBED AND SWORN TO before me on this the 12th day of July, 2024.

DANIEL RYAN JANOWIAK
Notary Public, Notary Seal
State of Missouri
St. Louis County
Commission # 20374795
My Commission Expires 05-04-2028

Notary Public, State of Missouri
My Commission Expires 5/4/28