HRSD Commission Meeting Agenda
9:00 a.m. – July 27, 2021

Location: 1434 Air Rail Avenue, Virginia Beach, VA 23455

Virtual attendance/observation is available by reservation and must be received by Jennifer Cascio at jcascio@hrsd.com by noon one business day prior to the meeting. We respectfully request all non-vaccinated attendees participate virtually.

Public Comments to be made during the meeting should be submitted to Jennifer Cascio by email to jcascio@hrsd.com or by phone to 757.460.7003, and must be received by noon one business day prior to the meeting.

No.	Topic	Resource
	Call to Order	Elofson
	Roll Call of HRSD Commission	Cascio
1.	Awards and Recognition – Promotion Announcement	Henifin
2.	Consent Agenda	Henifin
	a. Approval of Minutes	
	b. Contract Awards	
	c. Task Order	
	d. Sole Source	
	e. HRSD Use of Existing Competitively Awarded Contract Vehicle	
	f. Vacation of Easement	
3.	Eastern Shore Infrastructure Improvements – Transmission Force Main Phase I Additional Appropriation, Comprehensive Agreement, and Task Order (>$200,000)	Husselbee
4.	High Risk Clamp Replacement Program-Phase 1 Initial Appropriation	Husselbee
5.	James River Treatment Plant Shoreline Stabilization New CIP, Initial Appropriation, and Task Order (>$200,000)	Husselbee
6.	Washington District Pump Station Rehabilitation New CIP and Initial Appropriation	Husselbee
7.	West Road Interceptor Force Main Extension Initial Appropriation and Agreement	Husselbee
8.	Larchmont Area Sanitary Sewer Improvements Acquisition of Real Property – 5406 Powhatan Avenue, Norfolk, VA	Husselbee

No.	Topic	Resource
9.	Suffolk Pump Station Replacement Acquisition of Real Property – Shingle Creek, Highway 460-58, Portsmouth Boulevard, Suffolk, Virginia	Husselbee
10.	COVID-19 Wastewater Surveillance Study Update	Curtis
11.	Capital Improvement Program (CIP) Quarterly Update	Husselbee
12.	Unfinished Business	Henifin
13.	New Business	Henifin
14.	Commissioner Comments	
15.	Public Comments Not Related to Agenda	Cascio
16.	Informational Items	Henifin

a. Management Reports

b. Strategic Planning Metrics Summary

c. Effluent Summary

d. Air Summary

e. Emergency Declaration – Mineral Oil Purchase

Next Regular Commission Meeting Date: **August 24, 2021 at 1434 Air Rail Avenue, Virginia Beach**

Resource: Ted Henifin

AGENDA ITEM 1. – July 27, 2021

Subject: Awards and Recognition

Recommended Action: No action is required.

Brief: Mr. Henifin will introduce Ms. Jill Mergen who was recently promoted to Chief of Customer Care Center. Jill has worked as a public servant for the past 22 years. Originally coming from the City of Chesapeake, she has been with HRSD since February 2013 in the Customer Care Division as a Supervisor, Manager and now Chief. She graduated from ODU with a Bachelor of Science degree in Interdisciplinary Studies and just completed her MBA from the College of William & Mary last month. Jill's approach to leadership involves coaching for individual and team development, instilling trust in her talented teams to solve problems, and promoting an innovative culture to streamline and improve processes.

Resource: Ted Henifin

AGENDA ITEM 2. – July 27, 2021

Subject: Consent Agenda

Recommended Action: Approve the Consent Agenda.

Brief: The items listed below are presented on the following pages for Commission action.

a. Approval of Minutes

The draft minutes of the previous Commission Meeting were distributed electronically prior to the meeting.

b. Contract Awards

1.	Boat Harbor Treatment Plant Pump Station Conversion	$859,523
2.	Computerized Maintenance Management System Managed Services Contract	$449,000
3.	Seismic Monitoring and Earthquake Hazard Assessment for Managed Aquifer Recharge Operations in Southeast Virginia Research Study Contract Award – Multi-Year Research Study	$835,738

c. Task Orders

1.	SWIFT Integrated Planning (Technical Advisor Services for FY-2022)	$779,524
2.	SWIFT Program Management (Program Management Services for FY-2022)	$7,187,976

d. Sole Source

1. BlueTech Research Membership and Services

e. HRSD Use of Existing Competitively Awarded Contract Vehicle and Contract Award

1.	Oracle Annual Maintenance and Support for I-PACS System, WebLogic, and Service-Oriented Architecture (SOA)	$307,135

f. Vacation of Easement

1. Deep Creek Interceptor Force Main Risk Mitigation
2701 Vepco Street, Chesapeake, VA 23323
Parcel ID Number: 0260000000090

Resource: Bruce Husselbee

CONSENT AGENDA ITEM 2.b.1. – July 27, 2021

Subject: Boat Harbor Treatment Plant Pump Station Conversion
Contract Award (>$200,000)

Recommended Action: Award a contract to Rummel, Klepper & Kahl, LLP in the amount of $859,523.

CIP Project: BH0157000

Budget	$74,718,760
Previous Expenditures and Encumbrances	($1,286,844)
Available Balance	$73,431,916

Type of Procurement: Competitive Negotiation

A Public Notice was issued on March 28, 2021. Four firms submitted proposals on May 20, 2021, and all firms were determined to be responsive and deemed fully qualified, responsible, and suitable to the Professional Services Selection Committee (Committee) and to the requirements in the Request for Proposals. Two firms were short listed, interviewed, and technically ranked as listed below:

Proposers	Technical Points	Recommended Selection Ranking
Rummel, Klepper & Kahl, LLP	81.25	1
Arcadis U.S., Inc.	59.60	2

The Committee recommends award to Rummel, Klepper & Kahl, LLP, whose professional qualifications and proposed services best serve the interest of HRSD.

Project Description: The Boat Harbor Treatment Plant will be converted to a pumping station, including equalization and headworks facilities while remaining in operation for wastewater treatment during conversion. The new infrastructure will be designed to meet HRSD's resiliency standards and consider remote operation and access in future conditions including sea level rise. This project is a critical component of the effort to close the Boat Harbor Treatment Plant and must be completed by December 2025.

Contract Description and Analysis of Cost: This contract is for professional services for preliminary engineering report services, design services, pre-construction services, contract administration services, and field engineering and inspection services required to complete the Boat Harbor Treatment Plant Pump Station Conversion project. The initial contract amount reflects services for a Concept Development Study. The Concept Development Study will be used to evaluate screening, grit removal, and pumping equipment, process configuration, and initial evaluation of associated ancillary systems. After the location of the pump station is determined, additional site-specific analyses will be performed to complete the Preliminary Engineering Report. The cost for this initial task is based on a detailed estimate of labor hours and direct costs required to execute the agreed-upon scope of work. The current construction cost estimate for project is $59,630,000. The ratio of Concept Development Study fee to construction cost is 1.1 percent without additional services, which compares well with other pumping and off-line storage projects.

Schedule:

Concept Development Study	July 2021
PER	October 2021
Design	February 2022
Bid	November 2022
Construction	December 2022
Project Completion	December 2025

CONSENT AGENDA ITEM 2.b.2. – July 27, 2021

Subject: Computerized Maintenance Management System Managed Services Contract Contract Award (>$200,000)

Recommended Action: Award a contract for Managed services for the Computerized Maintenance Management System (CMMS) to Advoco Inc. in the estimated amount of $87,500 for year one with four annual renewal options and an estimated cumulative value in the amount of $449,000 per the pre-negotiated annual rates.

Type of Procurement: Competitive Negotiation

Proposers	Technical Points	Recommended Selection Ranking
Advoco Inc.	90	1
EAM Solutions	84	2
Infor US Inc.	83	3

HRSD Estimate: $40,000/year

Contract Description: This contract is an agreement for annual Managed Services for the HRSD Computerized Maintenance Management System (CMMS). Advoco Inc. will provide functional and technical resources to work with HRSD staff to solve production system issues, develop custom code modifications, implement enhancements, functional upgrade work, training, special project work and other services as required. A Public Notice was issued on April 23, 2021. Three firms submitted proposals on May 17, 2021, and all firms were determined to be responsive and deemed fully qualified, responsible and suitable to the requirements in the Request for Proposals. All three firms were short listed, interviewed and technically ranked. The proposal submitted by Advoco Inc. was ranked by technical points to be the highest qualified.

Analysis of Cost: This is an estimated use contract. HRSD Estimate is based on current annual usage for the same services. Independent interviews were held with the three Offerors to further evaluate their qualifications. Negotiations were held with the three Offerors to negotiate contract terms and cost. Advoco labor rates, fixed price components and support were determined to be fair and reasonable compared to similar and current contracted rates.

Resource: Charles Bott

CONSENT AGENDA ITEM 2.b.3. – July 27, 2021

Subject: Seismic Monitoring and Earthquake Hazard Assessment for Managed Aquifer Recharge Operations in Southeast Virginia Research Study
Contract Award – Multi-Year Research Study

Recommended Action: Award a contract to Virginia Polytechnic Institute and State University (Virginia Tech) in the estimated amount of $240,360 for one year with two annual renewal options and an estimated cumulative value in the amount of $835,738 based on the attached proposal.

Project Description: The managed aquifer recharge through HRSD's SWIFT program will replenish depleted groundwater supplies within the Potomac Aquifer System (PAS). Withdrawals from the PAS have far exceeded the natural recharge rate and after decades of use, the pressure within the confined aquifer has been greatly reduced. Recharging the PAS through the SWIFT program will increase pressure and water levels to create a sustainable source of groundwater for eastern Virginia. In addition to increasing water quantity, SWIFT may increase pore fluid pressure within the deep aquifer system to levels sufficient for mitigating coastal land subsidence. While there are numerous economic and societal benefits of the SWIFT program, there may also be potential for changes in pressure to cause unintended seismic activity.

The objective of this multi-year research study is to develop the infrastructure and data management protocols for long-term seismic hazard monitoring in southeast Virginia and to start capturing data prior to the first SWIFT full-scale recharge operation. To meet the objective, this study will consist of three tasks: installing a seismic monitoring network in southeast Virginia, establishing baseline seismic monitoring and event detection; creating earthquake hazard analysis protocols which, will provide long-term earthquake monitoring throughout the operational lifetime of SWIFT managed aquifer recharge.

SEISMIC MONITORING & EARTHQUAKE HAZARD ASSESSMENT FOR MANAGED AQUIFER RECHARGE OPERATIONS IN SOUTHEAST VIRGINIA

Ryan M. Pollyea, Ph.D. (Principal Investigator)
Martin C. Chapman, Ph.D. (Co-Principal Investigator)
Department of Geosciences, Virginia Tech, Blacksburg, Virginia

VT Proposal #: PCT5KEIU

1. INTRODUCTION

The Sustainable Water Initiative for Tomorrow (SWIFT) is an innovative aquifer recharge project designed to enhance long-term groundwater resource sustainability in southeast Virginia while offsetting coastal land subsidence and saltwater intrusion to the Coastal Plain Aquifer system. The SWIFT project is based on the principle of managed aquifer recharge, which replenishes groundwater aquifers by reinjecting unused water and/or tertiary treated wastewater. Groundwater replenishment targets for SWIFT are on the order of 100 million (100M) gallons of water per day (379,000 m^3/day) through a network of seven injection sites located in southeast Virginia. In addition to enhancing the sustainability of groundwater resources in southeast Virginia, the SWIFT injection wells will increase pore fluid pressure within the deep aquifer system to levels sufficient for mitigating coastal land subsidence. While there are numerous economic and societal benefits of the SWIFT project, there may also be the potential for fluid injections to cause unintended seismic activity.

Fluid injections into deep geologic formations induced earthquakes in a wide range of geological engineering applications, including geothermal energy production (Deichmann & Giardini, 2009), oilfield wastewater disposal (Ellsworth, 2013), and fossil fuel recovery (NRC, 2013). These deep fluid injections cause pore pressure to propagate radially and vertically away from injection wells. When pressure fronts intersect faults, the effective normal stress decreases in equal proportion to the fluid pressure change less any poro-elastic relaxation (Zoback & Hickman, 1982). Given a sufficient rise in pore fluid pressure within faults optimally aligned to the regional stress field, the effective normal stress may drop below the Mohr-Coulomb failure threshold, which triggers earthquakes (Raleigh et al., 1976; Hubbert & Willis, 1957). In Alfalfa County, Oklahoma, oilfield wastewater disposal caused the annual rate of magnitude-2.5 or greater (M2.5+) earthquakes to increase from nil before 2013 to more than 320 M2.5+ earthquakes in 2015 (Pollyea et al., 2019). This dramatic rise in earthquake frequency occurred as the volume of wastewater injections increased from ~3 million gallons per day (10,950 m^3/day) in 2010 to over 41 million gallons per day (156,000 m^3/day) in 2014 (Pollyea et al., 2019). By comparison, the target cumulative injection rate for SWIFT is proposed to be on the order of 100 million gallons per day (379,000 m^3/day) in perpetuity. Thus, the SWIFT project is targeting 2.4× more fluid volume than Alfalfa County, Oklahoma, in 2014. In fact, the annual injection volume for the SWIFT project is greater than the total volume of oilfield wastewater injected in the State of Oklahoma in 2014, which was ~93 million gallons per day (~355,000 m^3/day)(Pollyea et al, 2018). Because seismic monitoring has been shown to be the most cost-effective way to manage and mitigate injection-induced seismicity (Walters et al., 2015; NRC, 2013), **the objective of this project is to develop the infrastructure and data management protocols for long-term earthquake hazard monitoring in southeast Virginia.** In doing so, this project will install a seismic monitoring network in southeast Virginia, acquire baseline earthquake magnitude-frequency data, and establish both data transfer and analysis protocols to provide long-term earthquake monitoring throughout the operational lifetime of the SWIFT project. The outcome of this project comprises the infrastructure, data analysis protocols, and operations plan for long-term seismic monitoring and earthquake hazard analysis associated with large-scale fluid injections in southeast Virginia.

2. RATIONALE

Results from a numerical modeling study by Chambers et al. (2020) at Virginia Tech (VT) suggests that managed aquifer recharge operating in the Potomac aquifer at **16M gal/day** from the James River HRSD site **may cause fluid pressure in the basement to reach 40 kPa above hydrostat at depths of 3 km within 6 years** (Fig. 1). In natural geologic settings, fluid pressure changes (and thus effective normal stress

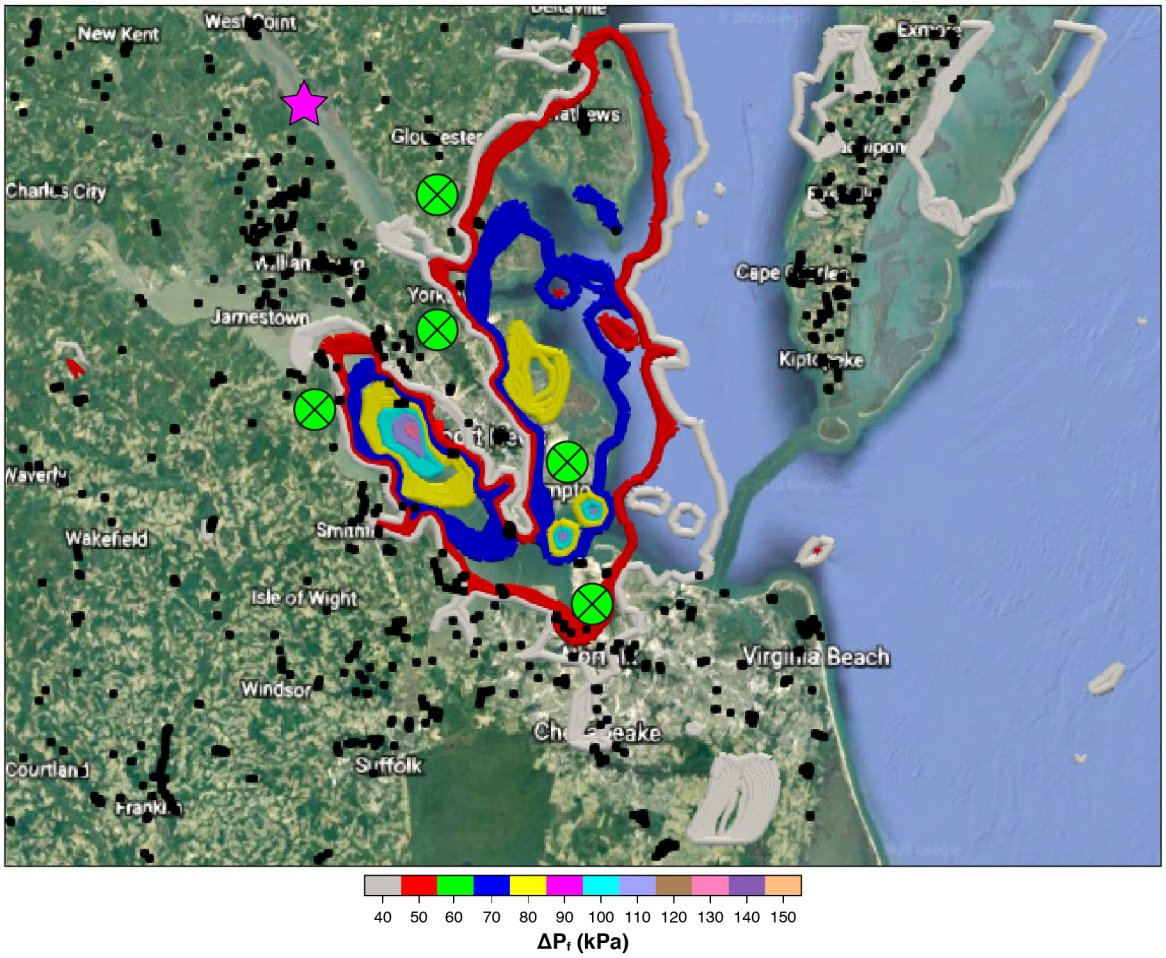

Figure 1: Study area map with approximate location of proposed seismic monitoring stations (green circles) along with their proximity to the contours of simulated fluid pressure change (ΔP_f) above hydrostat after 6 years of aquifer recharge (16 M gal/day) at the James River HRSD site. Pink star denotes epicenter location for the M2.6 earthquake in 1995.

change) as low as 10 kPa have been known to induce earthquakes on faults that are optimally aligned to the regional stress field (Reasenberg & Simpson, 1992). And the landmark modeling study by Keranen et al. (2014) found that the 70 kPa pressure front propagating away from oilfield wastewater injections in central Oklahoma accurately matched earthquake locations during the 2009 – 2012 Jones earthquake swarm. While the precise fluid pressure threshold for injection-induced earthquakes depends in large part on fault orientation and *in situ* stress state, these previous studies suggest that 10 – 70 kPa is sufficient to induce earthquakes in crystalline basement rocks at depths ranging from 2 – 6 km below land surface.

Among the principle uncertainties associated with the potential for aquifer recharge to induce earthquakes in southeast Virginia is that little is known about the presence of seismogenic faults in the region. In fact, there has been only one felt-earthquake in the study area over the last 50 years, which was a M2.6 earthquake in 1995 that occurred at ~5 km depth immediately below the York River (Fig. 1). This earthquake suggests that there is at least one seismogenic fault within the study area. Moreover, the presence of the Chesapeake Bay impact crater also suggests that the shallow (< ~2 km depth) basement may be pervasively faulted around and below the crater rim. In addition, the central Virginia seismic zone occurs just beyond the study area to the west and has been actively generating earthquakes for decades, including the widely felt M5.8 earthquake that occurred in 2011 near Mineral, Virginia.

The target recharge rate for the SWIFT project is 100M gal/day across a network of injection wells at seven sites throughout the study area. Thus, Chambers et al. (2020) suggests that just 16% of the target

injection rate may be sufficient to drive 40 kPa of fluid overpressure to 3 km depth in the basement. Because fluid pressure propagation from multiple injection wells is additive (Pollyea, 2020), full-scale aquifer recharge operations will likely drive substantially more fluid pressure into the basement. Moreover, our modeling study also found that fluid overpressure tends to focus below the James and York Rivers, the latter of which sits above the hypocenter for the only reported earthquake in the study area over the last 50 years (Fig. 1). The aggregate results from Chambers et al. (2020) is that injection-induced earthquakes may occur in response to aquifer recharge operations if seismogenic faults are present within the crystalline basement. To manage the earthquake hazard associated with high-rate fluid injections, this project will develop the infrastructure and data analysis protocols for long-term earthquake hazard monitoring in southeast Virginia.

3. Project Plan

The objective of this project is to install the infrastructure and develop the operational protocols for long-term earthquake hazard analysis in southeast Virginia. To meet this objective, this project comprises three tasks:

Task 1: Install seismic monitoring network;

Task 2: Baseline seismic monitoring and event detection; and

Task 3: Earthquake hazard analysis.

These tasks will be completed over a three-year timeframe with milestones that correspond with the end of each fiscal year (Fig. 2). When this project is complete, the final project deliverable will be an operations and maintenance plan for long-term earthquake monitoring and hazard analysis.

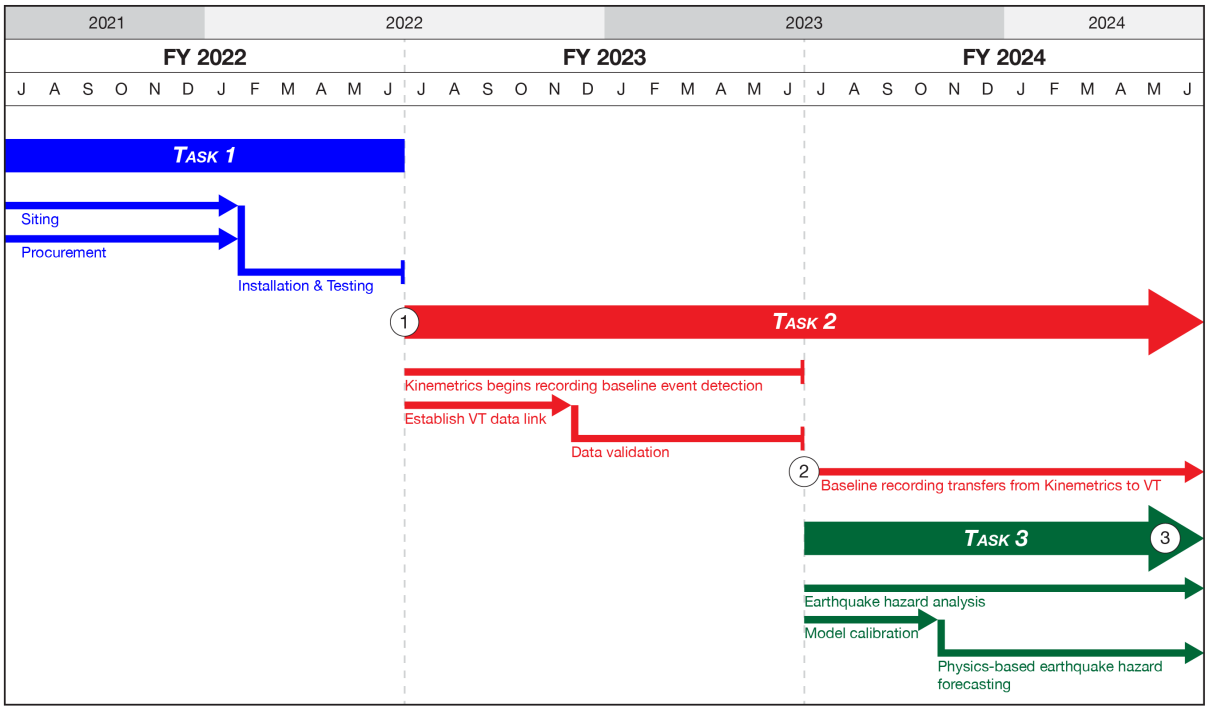

Figure 2: Schematic illustration of project task structure. White circles correspond with project milestones, which will be accompanied with Project Milestone Reports to HRSD within six weeks of completion.

Task 1: Install Seismic Network. Locating earthquakes requires a minimum of three earthquake monitoring stations; however, the extent of fluid pressure propagation from preliminary injection modeling (Fig. 1) suggests that a five monitoring stations will provide the required spatial coverage to detect low-magnitude earthquakes (i.e., earthquake not strong enough to be felt). The additional two stations also

provide redundancy for technical issues, such as power outages, malfunctions, etc., that may occur over a long-term monitoring campaign. The ability to detect low-magnitude earthquakes is critically important for earthquake hazard reduction because earthquake magnitude distributions follow a probabilistic scaling law (the Gutenberg-Richter Law), so the occurrence of low-magnitude earthquakes increases the probability that a larger magnitude earthquake may occur over a given time interval. Moreover, detecting low-magnitude earthquakes provides important location data for hydraulically conductive faults in the basement. Once discovered, such faults can be incorporated into the injection model to improve forward predictions of fluid pressure propagation, the latter of which can be uses to calculate magnitude-exceedance probability on the basis of earthquake frequency rate and simulated fluid pressure rate. The proposed seismic network will continuously record ground motion waveforms and data will be transmitted in real time with cellular data links to provide 24/7 detection and location capability.

Task 1 comprises three subtasks: (i) identifying suitable field sites for seismic stations; (ii) procuring the equipment; and (iii) installing the seismic stations. Suitable field sites for seismic stations require secure locations with onsite electricity, cellular data coverage, and low ambient urban noise. The preferred location for each seismic station is illustrated in Figure 1 (green circles). Siting reconnaissance will be performed by PIs Pollyea and Chapman in coordination with HRSD, USGS, and DEQ. The seismic monitoring hardware will be procured from Kinemetrics, Inc., which provides the only integrated solution for continuous earthquake monitoring, data transmission solutions, and real-time event detection services, the latter of which is required in the year 2 of the project to begin recording baseline data immediately upon network installation. Each seismic station comprises a seismometer (the active ground motion sensor), a three-channel digitizer, aluminum field enclosure, modem, 200W solar panel, and various cables. Each seismic monitoring station will be installed by Kinemetrics field technicians in coordination with PIs Pollyea and Chapman (both of whom will be onsite for installation), as well as appropriate site contacts. We anticipate that hardware installation will take seven days in the field with subsequent site visits by Pollyea or Chapman for troubleshooting. The installation of a functioning, five-station seismic monitoring network marks the first project milestone, which will be reported to HRSD within 6 weeks of completion as Milestone Report #1.

Task 2: Seismic Monitoring & Event Detection. Baseline earthquake seismic recordings can begin immediately upon installation of the seismic network. To begin immediate acquisition of this baseline earthquake record, seismic waveforms will be initially transmitted from the seismic network to Kinemetrics home office in Pasadena for data acquisition and automated earthquake event detection. Earthquake detections will then be forwarded from Kinemetrics to the Virginia Tech Seismological Observatory (VTSO). Contemporaneously with the immediate baseline recording, the project team will establish a data link from the network directly to VTSO using the Antelope Data Acquisition and Seismic Monitoring Platform. Establishing this data link will allow for earthquake event detection within VTSO. When earthquake detection data are received, VTSO will begin developing the seismological tools that will be applied in Task 3. This includes independent verification of hypocenter locations, development of improved velocity models for hypocenter location, development of calibrated magnitude scales, both in terms of seismic moment and the high-frequency magnitude scale mb(Lg) previously used by PI Chapman for studies in central Virginia. The magnitude measures are very important and form the basis for later development of probabilistic hazard assessment. The direct data link will obviate the need for a monthly service charge to Kinemetrics for earthquake detection. However, this transition requires several months of data validation to compare event detections reported by Kinemetrics with those reported at VTSO. We anticipate that approximately seven months of comparative data analysis will be required to fully transition earthquake event detection from Kinemetrics to VTSO, at which point all event detection and earthquake analysis will be performed in-house at VTSO. Nevertheless, we have budgeted for 24-months of event detection to ensure that baseline recording can continue unimpeded in the event that data validation requires more than seven months. The successful transition of earthquake event detection from Kinemetrics to VTSO marks the second project milestone (Fig. 2), which will be reported to HRSD within 6 weeks of completion as Milestone Report #2. To facilitate further scientific discovery, we propose forwarding

seismic monitoring data to the Incorporated Research Institutions for Seismology, which is an NSF-funded consortium for disseminating and managing community-generated seismological data. We provisionally propose a 12-month embargo on data sharing, but this can be altered as desired by HRSD.

Task 3: Earthquake Hazard Analysis. The hazard analysis comprises continued development VT injection model (Chambers et al., 2020) and analyzing earthquake detections. The two data sets will complement each other. The objective of hazard analysis is to be able to make probabilistic statements about the location, frequency, magnitude and expected levels shaking of future shocks. For example, given a sufficient seismic catalog derived under Task 2, we will be able to estimate the probability of an earthquake of a given moment magnitude occurring during a specified time interval, within a specified part of the study area. This type of analysis makes use of the fact that earthquakes follow a stochastic process in time. Furthermore, the magnitudes are exponentially distributed, meaning that small earthquakes are much more likely to occur in a given time interval than a larger earthquake. A useful model which we will test is known as the Gutenberg-Richter recurrence law. This is a linear relationship between the base 10 logarithm of the rate of earthquakes per unit time with magnitudes greater than some value M, and M itself. The slope of the relationship is approximately equal to -1, implying that for every magnitude 4 or greater earthquake, there should be approximately 10 magnitude 3 or greater events, and 100 magnitude 2 or greater events or 100,000 magnitude -1 or greater events. The relationship works for very small events with negative magnitudes, which are anticipated to form the bulk of our data set. Once the slope of the relationship is estimated from the data, the rates of small earthquakes can be used to make estimates of the rates of larger shocks, that may or may not have occurred. The earthquakes can be modeled as either a clustered or un-clustered stochastic process in time. Catalogs of natural earthquakes with foreshocks and aftershocks removed often exhibit un-clustered behavior, and follow what is known as a Poisson process, meaning that the earthquakes are statistically independent. We will initially test this model. It has been shown that induced earthquakes sometimes follow a more clustered process, meaning that the earthquakes are not statistically independent because they are driven by changes in pore fluid pressure, which follows a well-known space-time scaling relationship. Various models can be used for this type of behavior. Much of the work of Task 3 will be to test these various models, to develop a reliable means to assess the hazard. In addition to the spatial and temporal behavior of the seismicity, a complete assessment of hazard requires models for ground motion prediction. Fortunately, much of this work has been recently accomplished, in a major project (NGA-East) funded by the Nuclear Regulatory Commission and others, and recent results developed by PI Chapman for the Atlantic Coastal Plain will be particularly useful.

Finally, the hypocenter locations and focal mechanisms (nature of fault slip) will have a direct bearing on the stress field, and will therefore be influenced by the induced fluid pore-pressure changes. The seismic data will be critical in identifying the faults that are favorably oriented in the stress field, and will also give much insight into the hydrological processes causing the pressure changes. It is anticipated that these processes will not be stationary, but will change with time, and the seismic data will be the key data source for understanding both the hazard, and the physical processes involved. To further develop earthquake risk mitigation strategies, the injection modeling framework developed by Chambers et al. (2020) will be augmented to incorporate fracture zones in the basement that are delineated by microearthquake locations. The injection model will then be inverted to estimate fault permeability so that forward models can account for this fracture heterogeneity. In this manner, seismic monitoring has the additional benefit of improving the injection model, which will be further utilized for physics-based earthquake hazard forecasting using the methods recently developed by Langenbruch et al. (2018). This method combines the Gutenberg-Richter earthquake scaling law with simulated fluid pressure estimates to derive probabilistic magnitude exceedance probabilities for injection-induced earthquakes.

4. PROJECT REPORTING, DELIVERABLES & SCIENCE COMMUNICATION

To facilitate timely communications with HRSD management and the SWIFT Technical team, project reporting comprises two primary mechanisms (i) Project Milestone Reports and (ii) Earthquake Detection

and Hazard Reports. ***Project Milestone Reports*** are detailed descriptions of the work performed to complete each project milestone presented on Figure 2 and summarized in Table 1. Three Project Milestones Reports are planned for this project. Each report will be submitted within six weeks of milestone completion. The third (and final) Project Milestone Report will comprise a detailed Operations and Maintenance Plan for long-term seismic monitoring and earthquake hazard analysis. ***Earthquake Detection and Hazard Reports*** will be submitted semi-annually during project years 2 and 3. Earthquake Detection and Hazard Reports comprise a map of epicenter locations with a corresponding table of earthquake magnitudes, depths, uncertainty estimates, and focal mechanisms for the current reporting period, as well as earthquake magnitude exceedance probabilities for the next reporting period. Since magnitude-2.5 (M2.5) is the lower bound for which people can typically feel earthquakes at the surface, the project team will expedite an Earthquake Detection and Hazard Report for each M2.5+ earthquake reported during project years 2 and 3. For each M2.5+ earthquake detection, the project team will also prepare a public summary statement in collaboration with HRSD to provide contextual information about the relationship between earthquake magnitude and hazard and interpreting earthquake probability statistics. A summary of the reporting types is presented below in Table 2.

Table 1: Milestone reporting

Milestone	Task(s)	Planned Completion Date	Reporting Requirement
1	1	June 2022	Network installation summary, location data for seismic stations
2	2	June 2023	One year of baseline monitoring data, validation study for VTSO event detection
3	2 & 3	June 2024	Operations & Maintenance Plan for long-term earthquake hazard monitoring

Table 2: Report types and frequency

Report Type	Frequency	Description
Project Milestone Report	Completion of Milestone	Detailed description of work performed to complete task
Earthquake Detection & Hazard Report	Semi-Annual in Years 2 & 3	Summary of earthquake detections for reporting period: epicenter, magnitude, focal mechanism. Earthquake magnitude probability for next reporting period
Expedited Earthquake Detection & Hazard Report	If M2.5+ Earthquake	Summary of M2.5+ earthquake location: epicenter, magnitude, focal mechanism, and probability of similar or larger event occurring before the next reporting period.
Public Summary	If M2.5+ Earthquake	Educational summary of the recorded M2.5+ earthquake.

5. PROJECT PERSONNEL

This project is jointly led by Drs. Ryan M. Pollyea and Martin C. Chapman, who have more than 45 years of combined experience managing groundwater and seismological investigations. Since 2016, Pollyea and Chapman have collaborated on several high-impact research studies elucidating the relationship between injection volume, fluid composition and earthquake occurrence in Oklahoma. Biographical summaries for Pollyea and Chapman are presented below. This project also provides funding for a full-time research associate in project years two and three to support operations and maintenance of the seismic network,

earthquake event detection, and earthquake hazard analysis. A general position description for the Research Associate is presented in the Budget Justification that accompanies this proposal.

Biographical Summaries

Dr. Ryan M. Pollyea, PI, is an Assistant Professor of Geosciences in the Department of Geosciences at Virginia Tech. Dr. Pollyea specializes in the geologic fluid system dynamics and subsurface fluid injections. His research contributions include 28 peer-reviewed journal articles and conference proceedings that span a wide range of hydrogeological domains, including fracture-rock characterization, geologic CO_2 sequestration, and injection-induced seismicity. His research in the area of injection-induced seismicity has been published in leading journals, such as *Nature Communications* and *Energy & Environmental Science*. This work has received international media coverage from *National Geographic* and *Scientific American,* among others. Pollyea previously served a four-year appointment as Associate Editor of *Hydrogeology Journal* and he has been invited to speak at national and international venues, including several U.S. Department of Energy Carbon Storage Workshops, the 2018 Oklahoma Seismicity Workshop, and as a visiting scholar to the Department of Civil and Environmental Engineering at the University of Strathclyde, Glasgow. In addition to his academic portfolio, Pollyea has 10 years of prior experience as a consulting geologist in the geotechnical and environmental sectors.

Dr. Martin Chapman, Co-PI, is a Research Professor of Geophysics in the Department of Geosciences at Virginia Tech and director of the Virginia Tech Seismological Observatory. Dr. Chapman has authored more than 75 peer-reviewed journal articles and technical reports. His expertise in earthquake seismology is internationally recognized through a membership on the USGS National Seismic Hazard and Risk Assessment Steering Committee and current appointment as Associate Editor of *Bulletin of Seismological Society of America*.

6. REFERENCES

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Budget: *Seismic monitoring & earthquake hazard assessment for managed aquifer recharge in southeast Virginia*

PI: Ryan M. Pollyea & Co-PI: Martin C. Chapman
Department of Geosciences, Virginia Tech

PERFORMANCE PERIOD: 07/01/2021 – 06/30/2024

NAME/POSITION	**FY 2022**	**FY 2023**	**FY2024**	**TOTAL**
Pollyea/PI (50% effort, SMR)	$ 14,953	$ 15,551	$ 16,173	$ 46,677
Chapman/CoPI (50% effort, SMR)	$ 17,472	$ 18,171	$ 18,898	$ 54,541
TBA/Research Associate (100%, CY)	$ 0	$ 65,452	$ 68,070	$133,522
TOTAL PERSONNEL SALARIES	$ 32,425	$ 99,174	$103,141	$234,740
FRINGE BENEFITS*				
Pollyea (50% effort, SMR)	$ 1,159	$ 1,205	$ 1,253	$ 3,617
Chapman (50% effort, SMR)	$ 1,354	$ 1,408	$ 1,465	$ 4,227
TBA/Research Associate (100%, CY)	$ 0	$ 25,297	$ 26,309	$ 51,606
TOTAL FRINGE BENEFITS	$ 2,513	$ 27,910	$ 29,027	$ 59,450
TOTAL SALARIES & FRINGES	$ 34,938	$127,084	$132,168	$294,190
EQUIPMENT				
- Kinemetrics: Seismic monitoring hardware w/ shipping	$105,470	$ 0	$ 0	$105,470
- Kinemetrics: Antelope software license	$ 0	$ 60,000	$ 0	$ 60,000
- Linux workstation and network storage array	$ 6,000	$ 0	$ 0	$ 6,000
	$111,470	$ 60,000	$ 0	$171,470
SERVICES				
- Kinemetrics: Network installation	$ 39,880	$ 0	$ 0	$ 39,880
- Kinemetrics: Event detection	$ 0	$ 68,400	$ 68,400	$136,800
- Kinemetrics: Antelope software training	$ 0	$ 5,250	$ 0	$ 5,250
	$ 39,880	$ 73,650	$ 68,400	$181,930
TRAVEL (domestic)	$ 6,000	$ 5,000	$ 5,000	$ 16,000
PUBLICATION FEES	$ 0	$ 2,500	$ 2,500	$ 5,000
TOTAL DIRECT COSTS	$192,288	$268,234	$208,068	$668,590
INDIRECT COSTS @ 25% (per HRSD requirement) Base for indirect costs:	$ 48,072 $192,288	$ 67,059 $268,234	$ 52,017 $208,068	$167,148 $668,590
TOTAL COSTS	**$240,360**	**$335,293**	**$260,085**	**$835,738**

* Fringe Rates
SMR Faculty: 7.75% after 6/30/21
CY Research Associate: 38.65% after 6/30/21

DETAILED BUDGET JUSTIFICATION

1. Salaries and Wages

Ryan Pollyea. (PI) Will be responsible for overall project supervision, technical communications with HRSD, project reporting, site coordination and network installation tasks associated with Task 1 and numerical simulation associated with Task 3. Six weeks (1.5 months) of summer salary is requested for each year of the project. The total salary request is $46,677 and is calculated using his current 9-month academic year base-salary of $84,577. This salary request includes 4% annual adjustments in years 2 and 3.

Martin Chapman. (CoPI) Will be responsible for overall supervision of the seismic monitoring network (Task 2) and earthquake hazard calculations (Task 3). Six weeks (1.5 months) of summer salary is requested for each year of the project. The total salary request is $54,541 and is calculated using his current 9-month academic year base-salary of $98,823. This salary request includes 4% annual adjustments in years 2 and 3.

TBN. (Research Associate). Funds are requested for a full-time research associate in project years 2 and 3. The research associate will be responsible for daily operations and maintenance tasks associated with the seismic monitoring network (Tasks 2 & 3). This position will be advertised for a professional seismologist with either a PhD in earthquake seismology or an MS in Geology/Geosciences with 5+ years of experience operating seismic monitoring equipment. The scope of work for this position includes: hardware and software maintenance, field work to check/repair equipment, monitoring the data link, waveform analysis for earthquake event detection, earthquake focal mechanism calculations, producing a local earthquake catalog, forwarding data to IRIS, data validation, and producing maps and tables for Milestone Reports and Earthquake Detection and Hazard reports. The salary range for this type of position is ~$60,000 - $65,000 per year starting in Year 2 or the project. The total salary request for two years is $133,522, which is based on a starting salary of $65,452 in Year 2 with a 4% adjustment in Year 3.

2. Fringe Benefits

The standard VT fringe benefits rate effective July 1, 2021 is 7.75% for summer faculty. The standard VT fringe benefits rate effective July 1, 2021 is 38.65% for research associates and postdoctoral scholars. Fringe Benefits include FICA, workers compensation, unemployment compensation, medical insurance, group life insurance, employee retirement compensation, faculty and staff fee waivers, and educational leave. Total amount requested is $59,450.

3. Equipment

Funds are request in Year 1 of the project to purchase hardware for 5 seismic monitoring stations. Each monitoring station comprises (i) one 3-component seismometer (the active ground-motion sensor), (ii) one network-aware high resolution seismic data acquisition system (signal digitizer), (iii) one GPS antenna; (iv) an aluminum, all-weather enclosure with solar panel, battery bay, and cellular communications modem; and (v) various cables and connectors. The total request for seismic monitoring hardware is $105,470, which includes $6,705 for shipping. Hardware pricing is based on a recent quote from Kinemetrics, Inc., which is the only vendor that can supply a fully integrated solution for seismic monitoring instruments, scientific analysis required for 24/7 event detection and location, and the software and training to enable VTSO to take over the data analysis and full monitoring effort in the 2nd project year.

Funds are requested in Year 1 for the purchase of a Linux workstation and network storage array. The Linux workstation will be used solely for seismic data acquisition, processing, and analysis. The network storage array will be utilized for storage and archiving all seismic waveform data acquired during baseline seismic monitoring. Both the Linux workstation and network storage array will be assigned to this project at a 100% utilization rate The total request is $6,000.

Funds are requested in Year 2 of the project to purchase a site license for the Antelope Data Acquisition and Seismic Monitoring Platform. Antelope offers unique capability to (i) automate earthquake event

detection with tie-in capability to regional and/or global seismic networks, (ii) provide comprehensive state-of-health system checks for the seismic monitoring network, and (iii) implement early-warning systems through magnitude exceedance alarm functionality. The total cost for the Antelope platform is $60,000. We note here that purchasing the Antelope platform will yield cost savings in years 2 and 3 because the monthly service charge for event detection will no longer be necessary after data validation is complete (Task 2). Pricing is based on a recent quote from Kinemetrics, Inc., which is the sole vendor for licensing the Antelope Data Acquisition and Seismic Monitoring Platform.

4. Contractual Services

Funds are requested in Year 1 for two Kinemetrics field technicians to install seismic monitoring hardware at five locations. The total request for network installation is $39,880.

In order to begin baseline earthquake recording immediately upon network installation, funds are requested in Year 2 of the project for earthquake detection services by Kinemetrics. This is a recurring service charge of $5,700 per month and we have budgeted for 12-months of earthquake detection services in Year 2, which includes the seven-month period during which data validation testing will be performed at VTSO. Although we expect that VTSO will be performing earthquake detection in-house by Year 3 of the project, we have budgeted an additional 12-months of service from Kinemtrics to ensure that baseline recording can proceed if data validation takes longer than expected. The total request for earthquake detection services is $136,800 ($5,700/month × 24 months); however, this is an upper bound and actual cost will depend on number of service months required. Pricing is based on a recent quote from Kinemetrics, Inc., which is the sole vendor for fully integrated seismic monitoring hardware, software, and event detection services.

Funds are requested in Year 2 of the project for the project team to receive training on the most recent version of the Antelope Data Acquisition and Seismic Monitoring Platform. The total request for three-days of software training is $5,250 ($350/hr × 5 hours/day × 3 days).

5. Travel

Travel funds are requested for each year of the project to facilitate network installation, quarterly site visits for network maintenance and troubleshooting, and professional meetings with HRSD, the SWIFT technical team. In year 1, travel funds are requested for one week of field work installing the network ($1,500/person × 2 people), two 2-day site visits for troubleshooting and debugging field equipment ($500/person × 2 person), and one two-day trip to HRSD for technical meetings ($500/person × 2 people). In years 2 and 3, we anticipate quarterly, 3-day site visits by the research associate for network maintenance ($750/person × 1 person), annual 2-day trips to HRSD for technical meetings ($500/person × 2 people), and one professional conference for the research associate ($1,000/person × 1 person). The total travel request is $16,000 over the 3-year project duration.

6. Publication Fees

This project is deploying cutting-edge mitigation strategies for injection-induced seismicity, and, as a result, results from this project will be of tremendous value to the science, engineering, and regulatory communities that focus on earthquake mitigation. In order to disseminate results from this project to the widest possible audience, we request $2,500 per year in Years 2 and 3 for publishing research results as Open Access articles in peer-reviewed journals. The total request for publication fees is $5,000.

7. Indirect Costs

Calculated using total direct costs. Pursuant to sponsor requirements, the indirect rate is 25%. Total amount requested is $167,148.

Resource: Bruce Husselbee

CONSENT AGENDA ITEM 2.c.1. – July 27, 2021

Subject: SWIFT Integrated Planning (Technical Advisor Services for FY-2022) Task Order (>$200,000)

Recommended Action: Approve a task order with Jacobs Engineering Group Inc. (Jacobs) in the amount of $779,524.

CIP Project: GN016310

Budget	$8,500,000
Previous Expenditures and Encumbrances	($4,270,000)
Available Balance	$4,230,000

Contract Status:	**Amount**
Original Contract with Jacobs	$1,234,294
Total Value of Previous Task Orders	$0
Requested Task Order	$779,524
Total Value of All Task Orders	$779,524
Revised Contract Value	$2,013,818

Project Description: The Integrated Planning for SWIFT project will provide technical guidance and concept development in support of the SWIFT Full-Scale Implementation Program. The Integrated Planning effort will also provide technical support to HRSD for other aspects of SWIFT that may be separate from the Full-Scale Implementation Program, as SWIFT will have impacts on many facets of HRSD's business, operations, and role in the region. This work will bring in the needed resources to support HRSD staff for planning, modeling, regulatory coordination, operational support, and engagement with stakeholders.

Task Order Description: This task order will provide professional engineering services during FY-2022 for multiple tasks associated with the integrated planning of SWIFT. These services will include but not limited to Research Center operational support, recharge well performance, SWIFT related research, direct filtration pilot, pretreatment program, regulatory coordination, and SWIFT permitting aspects. It is expected that this scope will primarily support SWIFT integration and provide Owner's Technical Advisor services for full scale facility implementation at the James River Treatment Plant during FY-2022. Subsequent support services will be negotiated annually or at such point when a specific need has been identified.

Analysis of Cost: The labor rates for each staff category in the proposed fee are in accordance with the rate structure within the Professional Services Agreement for SWIFT Owner's Technical Advisor Services between Jacobs and HRSD, as approved for FY-2022. The level of effort for each of the sub-tasks included is consistent with previous services provided for SWIFT and with expected levels of effort for similar studies and support tasks. A ten percent contingency was included to cover any small requests for assistance or modifications in scope by HRSD during the fiscal year. The proposed scope and associated fees are considered to be reasonable and appropriate for the negotiated tasks.

Schedule: Services for FY-2022 July 2021

Resource: Bruce Husselbee

CONSENT AGENDA ITEM 2.c.2. – July 27, 2021

Subject: SWIFT Program Management (Program Management Services for FY-2022) Task Order (>$200,000)

Recommended Action: Approve a task order with AECOM in the amount of $7,187,976.

CIP Project: GN016320

Budget	$80,000,000
Previous Expenditures and Encumbrances	($18,886,449)
Available Balance	$61,113,551

Contract Status:	Amount
Original Contract with AECOM	$5,264,440
Total Value of Previous Task Orders	$13,398,890
Requested Task Order	$7,187,976
Total Value of All Task Orders	$20,586,866
Revised Contract Value	$25,851,306

Project Description: The SWIFT Full-Scale Implementation Program (FISP) Management team will manage the delivery of the advanced water treatment facilities to take HRSD's already highly treated wastewater and produce SWIFT water. The Program Management team may also deliver conveyance, wastewater treatment plant improvements, and other such projects to support full-scale SWIFT implementation. The Program Management team will implement the processes, procedures, and systems needed to design, procure, construct, permit, manage, and integrate the new SWIFT related assets.

Task Order Description: This task order will provide professional engineering services during FY-2022 for multiple tasks associated with the program management of the SWIFT FSIP. These services will provide program administration, staff augmentation, federal and state agency funding coordination and funding compliance support, Operations staff training, project sustainability monitoring, program document controls and information management, project cost estimating, public outreach, community commitment plan support, industry outreach, risk identification and tracking, schedule and budget management, quality assurance reviews of deliverables, and additional project development to support HRSD capital improvement program planning related to the SWIFT FSIP.

Analysis of Cost: The professional engineering services task order includes the scope and fee for the fourth year of the program (FY-2022). It is intended that subsequent program management services scopes and fees will be negotiated annually. The proposed activities and number of hours associated with each task are a reasonable estimate of the effort required. The labor rates for each staff category in the proposed fee are in accordance with the Professional Services Agreement with AECOM, as approved for FY-2022, which did not increase from FY-2021. The program management rate schedule is comparable with the typical rate schedule of HRSD's General Engineering Services providers. The proposed scope, rate schedule, and budget fee are reasonable and appropriate for the fourth year of the program. Compensation for program management services will be based on time and materials.

Schedule: Services for FY-2022 July 2021

Resource: Don Corrado

CONSENT AGENDA ITEM 2.d.1. – July 27, 2021

Subject: BlueTech Research Membership and Services
Sole Source (>$10,000)

Recommended Actions:

a. Approve the purchase of BlueTech Research Membership by the current authorized service provider for the Water Technology and Research Division.

b. Approve the use of BlueTech Research Membership Insight Services for the Water Technology and Research Division.

Sole Source Justification:

☐ Compatibility with existing equipment or systems is required

☒ Support of a special program in which the product or service has unique characteristics essential to the needs of the program

☐ Product or service is covered by a patent or copyright

☐ Product or service is part of standardization program to minimize training for maintenance and operation, and parts inventory

Details: Product includes the purchase of BlueTech Annual Membership Subscription. Services include Membership Insight Services which allow access to an online water technology index.

The membership and services include access to an online software platform that tracks and analyzes leading water technology companies and provides associated research publications. The membership includes online resources and tools for up to three users and allows direct access to analyst forecasts and discussions of emerging treatment technologies and trends, reports, maps and briefings.

Resource: Don Corrado

CONSENT AGENDA ITEM 2.e.1. – July 27, 2021

Subject: Oracle Annual Maintenance and Support for I-PACS System, WebLogic, and Service-Oriented Architecture (SOA)
HRSD Use of Existing Competitively Awarded Contract Vehicle and Contract Award (>$200,000)

Recommended Actions:

a. Approve the use of the Virginia Information Technology Agency (VITA) Contract number VA-170130-MYTH for purchase of Oracle Software and Related Services from Mythics, Inc. for the Information Technology Department.

b. Award a contract to Mythics, Inc. in the estimated amount of $307,135.

HRSD Estimate: $313,856

Contract Description: This is the consolidation of three individual contracts into one annual software and maintenance subscription to include the Oracle I-PACS System, WebLogic, and Service-Oriented Architecture (SOA) Suite.

VITA competitively solicited this cooperative contract solution. HRSD is eligible to use this competitively bid contract.

Analysis of Cost: By utilizing the cooperative contract through VITA, HRSD is locking in the annual renewal rate at four percent. Since Oracle typically increases their contracts annually by six percent, this will be a yearly two percent savings for HRSD. In addition, consolidation of the three individual Oracle contracts will result in an additional two percent discount.

Resource: Bruce Husselbee

CONSENT AGENDA ITEM 2.f.1. – July 27, 2021

Subject: Deep Creek Interceptor Force Main Risk Mitigation
2701 Vepco Street, Chesapeake, VA 23323
Parcel ID Number: 0260000000090
Vacation of Easement

Recommended Action: Authorize vacation of an existing easement in the City of Chesapeake and authorize the General Manager to execute deed, substantially as presented, together with such changes, modifications and deletions as the General Manager may deem necessary.

CIP Project: NP013400

Project Description: This project constructed 3,800 linear feet of 6-inch force main and 2,400 linear feet of 4-inch force main in the Deep Creek section of Chesapeake. This allowed for the redirection of flows in this area to the west connecting to the existing HRSD interceptor system at the Deep Creek Pressure Reducing Station. This new force main will be dedicated to the City of Chesapeake upon completion of the project. The existing 24-inch HRSD interceptor force main in this area has been abandoned from the Washington District Pump Station westward to the main line valve at Winslow Avenue. The existing 24-inch HRSD force main in this area was abandoned with flowable fill. This project eliminated the risk associated with operating an aging ductile iron and pre-stressed concrete force main beneath a capped coal ash pile. In addition, this rerouting of flow eliminated a large portion of HRSD's force main within easements with difficult access including residential yards.

As part of the closeout of the recently completed project, HRSD agreed to vacate the existing easement across the Virginia Electric and Power Company's (VEPCO) property that is no longer required. The easement is within Tax Parcel 0260000000090 and recorded as 25-foot Permanent Utility Easement dated August 3, 1973 and recorded in Deed Book 1675, Page 800. The underlying fee interest is owned by VEPCO.

HRSD staff has determined this easement is no longer needed with the abandonment of the old pipeline.

Funding Description: No funding required.

Agreement Description: The attached Deed of Vacation of Easement has been reviewed by HRSD legal counsel. The Location Map is provided for clarification purposes.

Prepared Without Benefit of Title Examination **Tax Exempt—Sections 58.1-811 (C)(4) Code of Virginia**

DEED OF VACATION OF EASEMENT

THIS DEED OF VACATION OF EASEMENT (the ***"Deed"***) made this ___ day of _____, 2021, by and between the **HAMPTON ROADS SANITATION DISTRICT**, a political subdivision of the Commonwealth of Virginia (***"HRSD"***) (Grantor) and the **VIRGINIA ELECTRIC AND POWER COMPANY**, a Virginia corporation ("**VEPCO"**) (Grantee).

W I T N E S S E T H :

WHEREAS, VEPCO is the owner of certain real property located, commonly known as 2701 Vepco Street, Chesapeake, VA 23323, known and designated as Parcel Number 0260000000090, 257.62 acres (the Property) and

WHEREAS, HRSD was granted a perpetual twenty-five foot easement on said property pursuant to Deed of Easement dated August 3, 1973 and recorded in the Chesapeake Clerk's Office on December 20, 1973 in Deed Book 1675, Page 800 and

WHEREAS, it is the desire and intent of HRSD to vacate such easement encumbering the Property identified as a 25 foot permanent utility easement, and

WHEREAS, VEPCO and HRSD acknowledge that such vacation is subject to all existing pipes and/or sewer lines, water lines and other appurtenances existing within said location, which HRSD has no duty or obligation to excavate or remove.

VACATION OF EASEMENT

NOW THEREFORE, in consideration of the premises and the sum of One Dollar ($1.00), cash in hand paid, and other good and sufficient consideration, the receipt and sufficient of

which are hereby acknowledged, HRSD does hereby VACATE, QUITCLAIM AND RELEASE to VIRGINIA ELECTRIC AND POWER COMPANY, Grantee, the twenty-five perpetual easement, the location and the center line of said easement being as follows;

> Beginning at a point in a westerly property line of Grantor's land, 10 feet east of the center line of a Norfolk and Western Railway Company spur track and southwardly 40 feet, measured at right angles, from the center line of a 100-foot right of way of Grantor: thence eastwardly, parallel to and 40 feet southerly of the center line of said 100-foot right of way, to station 59 plus 58.30, which point is eastwardly 374.49 feet, measured parallel to said 100-foot right of way, from station 63 plus 32.79 (which station equals station 62 plus 04.62) in the center line of Steel Street; thence eastwardly, at an angle of 33° 45' to the right of the last course, 392.94 feet to station 55 plus 65.36 at an angle of 22° 30' to the left of the last course, 281.83 feet to station 52 plus 83.53, at an angle of 11° 15' to the left of the last course, 260 feet to station 50 plus 23.53, and at angle of 11° 45' to the left of the last course, 114.59 feet to station 49 plus 08.94, at an angle of 45° to the left of the last course, 193.54 feet, to station 47 plus 15.40 at an angle of 56° 18' to the right of the last course, 219.42 feet to station 44 plus 95.98 at an angle of 22° 30' to the left of the last course 195.98 feet to station 43 plus 00, and at an angle of 22° 30' to the right the last course (parallel to 55 feet southerly of the center line of said 100-foot right of way Grantor), to a point in the easterly property line of Grantor's land, on the west side of the Southern Branch of the Elizabeth River.

MISCELLANEOUS

The undersigned warrants that this Deed is made and executed pursuant to authority properly granted.

WITNESS the following signatures and seals:

HAMPTON ROADS SANITATION DISTRICT,
a political subdivision of the Commonwealth of Virginia

By: _____(SEAL)
Edward G. Henifin, P.E., General Manager

COMMONWEALTH OF VIRGINIA
CITY OF VIRGINIA BEACH, to-wit:

The foregoing instrument was acknowledged before me this ___ day of _____, 2021, by Edward G. Henifin, P.E., General Manager, Hampton Roads Sanitation District.

_____
Notary Public

My Commission expires: _____

Notary Registration Number:_____

[AFFIX SEAL]

DOC-BEACH/HRSD/DEEDS/DEED OF VACATION OF EASEMENT VEPCO AND HRSD

Deed of Vacation

- Area to be vacated is represented by the green line between the two blue stars
- Easement is located on Dominion Energy's property located in Chesapeake

AGENDA ITEM 3. – July 27, 2021

Subject: Eastern Shore Infrastructure Improvements – Transmission Force Main Phase I Additional Appropriation, Comprehensive Agreement, and Task Order (>$200,000)

Recommended Actions:

a. Appropriate additional funding in the amount of $3,643,040.

b. Approve a comprehensive agreement with Garney Companies, Inc. including a Contract Cost Limit (CCL) of $15,764,700.

c. Approve a task order for HDR Engineering, Inc. in the amount of $204,000.

CIP Project: ES010100

Budget	$14,000,000
Previous Expenditures and Encumbrances	($97,870)
Available Balance	$13,902,130
Proposed Comprehensive Agreement to Garney Companies, Inc	($15,764,700)
Proposed Task Order to HDR Engineering, Inc	($204,000)
Proposed Contingency	($1,576,470)
Project Shortage/Requested Additional Funding	($3,643,040)
Revised Total Project Authorized Funding	$17,643,040

Type of Procurement: Competitive Negotiation – Design-Build

The use of the Design-Build project delivery method was approved by the Commission at the December 15, 2020, meeting. A Public Notice of the Request for Qualifications was issued on March 7, 2021. Five teams submitted Statement of Qualifications on March 30, 2021, and all teams were considered to be responsive and deemed to be fully qualified, responsible, and suitable to the requirements of the Request for Qualifications. Three Design-Build teams were short-listed. A Request for Proposals was issued on April 9, 2021, to the short-listed teams. All three short-listed teams submitted Technical Proposals on May 13, 2021, and interviews were held on May 26, 2021. Price Proposals were submitted on June 21, 2021. The points received and the final ranking for each of the short-listed teams is listed below:

Proposers	SOQ	Technical Proposal	Price Proposal	Total Ranking	Recommended Selection Ranking
Garney Companies, Inc.	28.57	33.05	25.00	86.62	1
MEB General Contractors, Inc.	28.19	33.07	19.46	80.72	2
Bridgeman Civil Inc.	25.65	28.92	23.21	77.78	3

The Selection Committee recommends the top ranked team, comprised of Garney Companies, Inc. with AECOM Technical Services, Inc. as the design engineer on their team.

Contract Description: The comprehensive agreement is for design-build services to design and construct two wastewater pumping stations, one in Nassawadox and the second in Exmore. It also includes approximately 118,200 linear feet of 6-inch and 8-inch in diameter sanitary force main. A section of force main will also be installed along Wachapreague Road within two miles of a pumping

station being installed to serve Virginia Institute for Marine Science as well as the Town of Wachapreague. The force main will discharge into the collection system in Onancock and will discharge flow to the Onancock Wastewater Treatment Plant.

Project Description: This project will provide for improved wastewater treatment for the Town of Nassawadox by taking advantage of unused capacity at the Onancock Wastewater Treatment Plant.

Funding Description and Analysis of Cost: The proposed CCL of $15,764,700 reflects the installation of all pumping stations and force main installations. The request includes ten percent contingency to accommodate any additional unforeseen conditions for the approximate 22-mile pipeline and two pumping stations. The Opinion of Probable Construction Costs by HDR Engineering, Inc. (HDR), as HRSD's Owner's Consultant, was $17,434,000. HDR along with HRSD has negotiated the CCL and scope of services for the preconstruction stage of this project. This project requires additional funding due to increased costs associated with the design-build delivery method, which will require the installation of over 118,200 linear feet of pipe and for any change orders which the contractor may encounter.

Task Order Description: This task order to HDR will provide program management services during the design-build project.

Schedule:	Design-Build	August 2021
	Project Completion	January 2024

Resource: Bruce Husselbee

AGENDA ITEM 4. – July 27, 2021

Subject: High Risk Clamp Replacement Program-Phase 1
Initial Appropriation

Recommended Action: Appropriate total project funding in the amount of $455,000.

CIP Project: GN018300

Project Description: This project will replace existing clamps in the interceptor sewer system that are found to be high risk to HRSD. The first phase consists of the replacement of six repair clamps on sections of asbestos cement pipe. Many HRSD pipelines have clamps on them, either as a repair to a break or as a tool to make the pipeline system watertight upon installation. Due to the corrosivity of much of the soils in the region, the bolts are starting to corrode on these clamps, which can lead to an unexpected opening of the clamp. A clamp failure acts much like a pipeline failure, as in both cases there is an opening in the pipe. We have started to identify high risk clamps, those that have the greatest likelihood of failure coupled with a high consequence if they were to fail. This program will replace those clamps to minimize this risk.

Funding Description: The estimated total project cost is $455,000 based on a Class 3 CIP-prioritization level estimate prepared by Hazen & Sawyer, P.C. (Hazen) and includes a 20 percent contingency. Engineering services will be provided by Hazen, through the existing Condition Assessment Program contract, and include design and construction phase services.

Schedule:		
	Design	July 2021
	Construction	December 2021
	Project Completion	May 2022

AGENDA ITEM 5. – July 27, 2021

Subject: James River Treatment Plant Shoreline Stabilization
New CIP, Initial Appropriation, and Task Order (>$200,000)

Recommended Actions:

a. Approve a new CIP project (JR013800) for the James River Treatment Plant Shoreline Stabilization.

b. Appropriate total project funding in the amount of $2,136,000.

c. Approve a task order to Vanasse Hangen Brustlin, Inc. (VHB) in the amount of $243,970.

CIP Project: JR013800

Project Description: This project includes stabilization of approximately 900 linear feet of eroding shoreline along the James River. The project area is located along HRSD's property at the James River Treatment Plant (300 linear feet) and along the City of Newport News's property at the City Farm section of Riverview Farm Park (600 linear feet). The project will incorporate living and hardened shoreline design elements to stabilize the eroding banks.

Funding Description: The total cost for this project is estimated to be $2,136,000 and is based on design, bid, and construction phase scopes of service and associated fees from VHB plus an estimate of project construction costs and a 15 percent project contingency. It is expected that a cost share agreement with be negotiated with the City of Newport News for a portion of the project.

VHB was awarded a contract in November 2020 to perform the James River Land Improvements (GN016344) project. They will continue with engineering services on the individual capital improvement projects identified as part of the James River Treatment Plant land improvement projects, which supports the land purchase Agreement with the City of Newport News. Future phases of work will be negotiated subsequently.

Task Order Description and Analysis of Cost: This task order is for design and bid phase services. The cost for this task order is based on a detailed estimate of labor hours and direct costs required to execute the negotiated scope of work. The total hours budgeted are appropriate for the proposed services. The lump sum fee for design services is 14 percent of the estimated construction cost.

Schedule:

Design	August 2021
Bid	December 2021
Construction	February 2022
Project Completion	August 2022

Resource: Bruce Husselbee

AGENDA ITEM 6. – July 27, 2021

Subject: Washington District Pump Station Rehabilitation
New CIP and Initial Appropriation

Recommended Actions:

a. Approve a new CIP project for the Washington District Pump Station Rehabilitation.

b. Appropriate total project funding in the amount of $9,400,000.

CIP Project: AT013010

Project Description: This project was initiated under AT013200 (Doziers Corner Pump Station and Washington District Pump Station Flooding Mitigation Improvements) to install dry pit submersible pumps and raise or otherwise protect electrical equipment from flooding. After further analysis and taking into consideration cost projections, staff recommends the project be separated into two new CIP projects (AT013010 and AT015400) with a revised scope to replace both pump stations. CIP AT013010 project will replace the existing outdated Washington District Pump Station and will address flooding concerns. This is a Phase 2 Rehabilitation Action Plan project requiring completion by May 2025.

Doziers Corner Pump Station Replacement (AT015400) will be presented to the Commission for approval at a later date.

AT013200 will be deleted from the current CIP Plan.

Funding Description and Analysis of Cost: The total project cost estimate of $9,400,000 includes approximately $840,700 in design phase services, $7,304,000 in construction phase costs, and a 15 percent contingency allowance of $1,255,300 and is based on a Class 5 CIP-prioritization level cost estimate. The Preliminary Engineering Report will be completed by Rummel, Klepper and Kahl, LLP under the Interceptor Systems Projects annual services contract for a fee of $190,644.

Schedule:

PER	August 2021
Design	June 2022
Bid	September 2023
Construction	December 2023
Project Completion	January 2025

Resource: Bruce Husselbee

AGENDA ITEM 7. – July 27, 2021

Subject: West Road Interceptor Force Main Extension
Initial Appropriation and Agreement

Recommended Actions:

a. Appropriate total project funding in the amount of $8,452,148.

b. Authorize the General Manager to sign a letter of intent for a Cost Share Agreement with the City of Chesapeake for the design and construction of the West Road Interceptor Force Main.

CIP Project: NP014600

Project Description: The City of Chesapeake's 2035 Land Use Plan includes development on the west side of the Chesapeake Regional Airport. Chesapeake's "South Central Water Transmission Main & Loop – Phase I" CIP will be extending a water main down West Road towards the airport. The airport site is approximately 3.6 miles away from the nearest HRSD interceptor. In addition to the airport area development, HRSD has been coordinating with Chesapeake to provide sanitary sewer service for the potential development of the Williams Farm tract, due south of the airport along the North Carolina border, commonly referred to as the Coastal Commerce site. The site is approximately 11 miles away from the nearest HRSD interceptor. West Road is a narrow country road, construction will require road closure and road reconstruction. Chesapeake has offered to coordinate an HRSD force main extension as part of their water main extension project. By extending the HRSD system at this time, it will minimize public impact, provide service for the airport area, and provide a connection point for a future pipeline for the Coastal Commerce site. It also has the potential to close a wastewater treatment plant at the Chesapeake Regional Airport.

Funding Description: The total project cost estimate of $8,452,148 includes approximately $400,000 in design phase services, $6,794,000 in construction phase costs, and a contingency allowance of $1,258,148 and is based on a Class 5 CIP-prioritization level cost estimate.

Agreement Description: The project will be administered by the City of Chesapeake and design services will be provided by Hazen and Sawyer. A cost share agreement will be executed later between HRSD and the City. Currently, HRSD needs to provide a letter of intent for HRSD's share of the project.

July 27, 2021

David Jurgens, P.E., Director
Chesapeake Public Utilities
306 Cedar Road
Chesapeake, VA 23322

Re: City of Chesapeake South Central Water Transmission Main & Loop - Phase I
HRSD CIP# NP014600 - West Road Interceptor Force Main Extension

Dear Mr. Jurgens,

This letter is notice that HRSD intends to enter into a Cost Sharing Agreement with the City of Chesapeake to design and construct sanitary sewer force main extension to be included within the City's South Central Water Transmission Main & Loop - Phase I design and construction projects. HRSD will finance the HRSD force main and other cost sharing specifics as delineated in the "Cost Sharing Breakdown" provided by Hazen and Sawyer dated March 17, 2021. The HRSD force main is described as 24-inch diameter traversing from Cedar Road to Number Ten Lane of approximately length equal to 8,150 linear feet, including a horizontal direction drilled pipe section under Dominion Boulevard.

A cost sharing agreement between HRSD and the City has been drafted for approval by the HRSD Commission and City Council. The terms of the agreement will address how HRSD is to reimburse the City for the design and construction work with an approximate value of the work and a set cost percentage split. The terms of this agreement will also address the documentation and records that the City is to provide to HRSD throughout the project duration and at project completion.

We appreciate your willingness to lead the HRSD force main extension effort and foster multiple outcomes for the residents of Chesapeake. We look forward to working with you on future projects.

Sincerely,

Edward G. Henifin, P.E.,
General Manager

AGENDA ITEM 8. – July 27, 2021

Subject: Larchmont Area Sanitary Sewer Improvements
Acquisition of Real Property – 5406 Powhatan Avenue, Norfolk, VA

Recommended Action: Approve the purchase of property at 5406 Powhatan Avenue and associated acquisition costs for $506,400 and $10,000 for moving and housing relocation assistance costs for a total price of $516,400 in accordance with the terms and conditions of the Purchase and Sale Agreement with Sean W. Little and Rachel L. Sleighter, owners of subject property in Norfolk, Virginia and authorize the General Manager to execute same and related acquisition documents in accordance with those terms and conditions, substantially as presented, together with such changes, modifications and deletions as the General Manager may deem necessary and as approved by counsel and further authorize the General Manager to execute the forthcoming deed of bargain and sale upon approval of legal counsel.

CIP Project: VP015320

Budget	$38,734,000
Previous Expenditures and Encumbrances	($5,479,897)
Available Balance	$33,254,103

Project Description: This project involves design and construction of five new sanitary sewer pump stations, approximately 3,700 linear feet of 6-inch, 8-inch, and 10-inch force mains, and approximately 10,000 linear feet of 8-inch and 10-inch gravity mains and appurtenances. The new infrastructure will replace:

(a) five existing HRSD pump stations: Monroe Place PS#114, Powhatan Avenue PS#122, Richmond Crescent PS#124, Hanover Avenue PS#141, and Jamestown Crescent PS#142;
(b) three City of Norfolk pump stations: Larchmont Eleanor Court PS#112; Larchmont Walnut Hill Street PS#113; and Larchmont Westwood Terrace PS#114; and
(c) install new gravity trunk lines to divert the flow to the new pump station locations. This project is part of the EPA Rehabilitation Action Plan Phase 2 with a required substantial completion date of May 5, 2025. The City of Norfolk is cost sharing portions of this project managed by HRSD.

Agreement Description: After preliminary engineering, location and cost evaluations, HRSD staff and engineering consultants selected the referenced property at 5406 Powhatan Avenue as the prime location and most feasible site for the future Powhatan Pump Station replacement based on the size of the lot, proximity to the existing station, aesthetics and engineering feasibility factors. The Purchase and Sale Agreement is attached and upon approval, the deed of bargain and sale will be forthcoming. The final Deed will be reviewed by HRSD staff and legal counsel before execution. A Facilities Orientation Map is also provided for clarification purposes.

Analysis of Cost: The appraised value purchase price of $506,400 reflects sales of single-family homes in the area and an increase in current market prices for homes in this highly sought-after neighborhood with very little supply, as well as a negotiated purchase price with the owner. The owner will also receive $10,000 in moving and housing relocations assistance costs.

PURCHASE AND SALE AGREEMENT

THIS PURCHASE AND SALE AGREEMENT (this "Agreement") made this 12th day of July, 2021, by and between **SEAN W. LITTLE and RACHEL L. SLEIGHTER**, (husband and wife), hereinafter referred to as Seller, and **HAMPTON ROADS SANITATION DISTRICT**, a political subdivision of the Commonwealth of Virginia ("HRSD"), Purchaser.

RECITALS

A. Seller is the owner in fee simple absolute of a certain parcel of property described as Lots 3, 4, 5 Stratford Court, Account# 1428-7900, located at 5406 Powhatan Avenue in the City of Norfolk, such property being more particularly described in Exhibit A and shown on Exhibit B, both of which are attached to and made a part of this Agreement (the "Property").

B. HRSD desires to purchase the Property from the Seller for the purpose of the Larchmont Area Sanitary Sewer Improvements – Powhatan Avenue Pump Station Replacement CIP# VP015320.

C. Seller is willing to sell the Property to HRSD subject to the terms and conditions set forth in this Agreement.

D. These recitals are incorporated by this reference into this Agreement.

NOW, THEREFORE, in consideration of the purchase price and the mutual promises contained in this Agreement, the parties agree as follows:

1. SALE. Seller agrees to sell and HRSD agrees to purchase the Property, together with all rights and appurtenances thereto, including all right, title and interest of Seller in and to any land lying in the bed of any highway, street, road, or avenue, open or proposed, in front of or abutting, or adjoining such tract or piece of land and any riparian rights, if any, and any rights, easements, and appurtenances pertaining thereto, and any building and other property situated thereon, including all personal property, attached or appurtenant to, located in or on, or used in connection with the real property, if any. The real property and the personal property are called "the Property".

2. PURCHASE PRICE. The purchase price (the Purchase Price) for the Property is five hundred six thousand, four hundred Dollars ($506,400), and the Purchase Price shall be paid to the Seller by certified check or wired funds at closing.

3. CONVEYANCE.

a. At the Closing, Seller shall convey title to the Property in fee simple, by general warranty deed, free and clear of any and all liens, mortgages, deeds of trust, security interests, leases, covenants, conditions, restrictions, easements, rights-of-way, licenses, encroachments, judgments or encumbrances of any kind, except for the following permitted exceptions: (a) the lien of real estate taxes not yet due and payable; (b) zoning and building restrictions and other laws, ordinances, and regulations of governmental bodies having jurisdiction over the Property; and (c) matters of record affecting title to the property, as reviewed and approved (or deemed approved) by HRSD in accordance with this Agreement. Except as expressly stated in this Agreement, the Property shall be conveyed in "AS IS" condition.

b. Title to the Property shall be good and marketable and, if HRSD chooses to obtain title insurance, insurable by a nationally recognized ALTA title insurance company of HRSD's choice at or below normal rates. In the event that a title examination discloses defects of title or other matters unsatisfactory to HRSD at HRSD's sole determination, HRSD shall notify Seller in writing (an "Objection Notice"), within 90 days of the Effective Date, of such title defects or other matters to which HRSD objects. Seller covenants that it shall cure all monetary encumbrances and all title objections which may be cured by execution of a document requiring the signature of no party other than Seller (including any affidavits which may reasonably be required by the title insurer). Seller may notify HRSD in writing (an "Objection Response"), within ten (10) business days after receiving an Objection Notice if it believes that the Objection Notice makes reference to any title defect or other matter that Seller cannot or elects not to cure. Upon receipt of an Objection Response from Seller, HRSD shall have the option either to (i) terminate this Agreement by notice to Seller given within ten (10) business days of the Objection Response or (ii) accept the defects, exceptions or other matters referenced in such Objection Response and proceed to Closing hereunder with no reduction of the Purchase Price. Seller shall have the period until the Closing date within which to correct all defects, exceptions or other matters that it is required or elects to cure. Seller shall provide such documents (including evidence of authority), affidavits, and other instruments that may be reasonably required for the issuance of a title insurance policy to HRSD.

c. Possession of the Property will be given to HRSD at Closing, except that HRSD will have access to the Property for the purposes specified herein.

d. Seller agrees to pay proration of real estate taxes and storm water fees and agrees to deliver possession of the Property to HRSD at settlement. HRSD will pay all other fees charged in connection with preparation and recordation of the deed, including grantor's tax.

e. Seller and HRSD agree that the attorney selected by HRSD shall act as the Settlement Agent at HRSD's expense. The Settlement Agent shall prepare the settlement statement, update and record the deed, collect and disburse settlement funds in accordance with this Agreement and the settlement statement, and file any required state and federal tax forms or other certifications.

4. RIGHT OF ENTRY. HRSD and HRSD's authorized representatives may at any reasonable time and after giving reasonable notice to Seller, enter upon the Property for the purpose of making inspections, appraisals, surveys, including but not limited to the cutting of survey lines and putting up markers and driving stubs and stakes, site analysis, engineering studies, core sampling for engineering reports, and locating existing rights of way, easements, and utilities. HRSD will exercise this right of entry in such a way so as to not cause unreasonable damage to the Property. HRSD agrees to indemnify and save harmless the Seller from all claims of liability for any personal injury or property damage or otherwise to any person or property caused by any action or omission of HRSD or its agents on the Property before or after Closing.

5. CONDITIONS AND CONTINGENCIES.

a. HRSD's obligations are expressly conditioned upon the waiver or satisfaction of each of the following conditions in the sole determination of HRSD. If any one of the following conditions cannot be met within 90 days after the Effective Date (the Effective Date being defined as the date the contract is endorsed by both HRSD and Seller), HRSD may unilaterally terminate this Agreement:

i. Receipt of a satisfactory title commitment with all unacceptable title exceptions, encumbrances, and conditions as deemed by HRSD removed or cured at Seller's cost;

however, if Seller chooses not to remove or cure any such title exception, HRSD's sole remedy shall be to terminate this Agreement;

ii. Receipt of a Phase I Environmental Assessment and Report (Phase I Report) conducted and prepared by an environmental engineering and inspection company selected by HRSD at HRSD's expense and such other testing and reports as may be reasonably required by HRSD or recommended in the Phase I Report;

iii. Seller's compliance of all of its obligations under this Agreement.

b. This Agreement is expressly conditioned upon the completion of all title and environmental "due diligence" by HRSD and notification to the Seller in writing of any conditions that are unsatisfactory to HRSD within the 90 day period. In the event HRSD fails to notify the Seller in writing within such 90 day period, any objection to such conditions shall be deemed waived by HRSD and the parties shall proceed to closing; provided, however, in no event shall any mortgage, deed of trust, security agreement or monetary lien against the Property be deemed waived objections and the Seller agrees that the same shall be removed and released as liens on the Property on or before Closing.

c. This Agreement is contingent on the review and approval of the purchase by the Hampton Roads Sanitation District Commission and upon such Commission granting authorization to the General Manager to proceed under the terms of this Agreement.

6. ENVIRONMENTAL AND RELATED MATTERS.

a. As a condition precedent to HRSD's obligation to purchase, HRSD, at HRSD's expense, may have a Phase I Environmental Assessment of the Property performed by a qualified environmental consultant (the Consultant) selected by HRSD and reasonably acceptable to Seller, conducted in accordance with standard commercial practice at the time of the assessment. A copy of the Phase I Environmental Assessment will be made available to Seller, together with copies of any supplemental reports or assessments.

b. If the Consultant recommends soil, water, or structural remediation or further assessment activity after or as a result of performing a Phase I Environmental Assessment or if HRSD otherwise determines, in its reasonable judgment, that further assessment activity (including, but not limited to, a Phase II Environmental Assessment) is desirable, HRSD may at its option:

(i) Terminate this Agreement; or
(ii) Extend the time for closing for an additional period of sixty (60) days in order to perform any such additional assessment at HRSD's expense; or
(iii) Waive the environmental defect and proceed to Closing.

In the event HRSD chooses to perform any additional assessment, such as a Phase II, and determines that the results of such assessment are not satisfactory, HRSD may at its option:

(i) Terminate this Agreement; or
(ii) Waive the environmental defect and proceed to Closing.

7. REPRESENTATIONS AND WARRANTIES BY SELLER. Seller represents and warrants as of the date of this Agreement and as of the date of Closing that: Seller has the right, title, and authority to enter into this Agreement and to perform its obligations hereunder.

Seller further represents and warrants and shall deliver to HRSD at or prior to the Settlement, an Affidavit prepared by HRSD evidencing the following facts:

(i) Other than this Agreement, there are no other contracts for sale or options involving the Property now in effect;

(ii) To the best of Seller's knowledge, no other party has any right, title or interest in the Property;

(iii) There are no unrecorded leases, options, licenses or easements existing in connection with the property to which the Seller has knowledge;

(iv) There are no adverse government notifications or proceedings and there is no pending or threatened

litigation or any other potentially adverse claims affecting the property to which the Seller has knowledge.

(v) Foreign Status. Seller is not a foreign corporation, person or entity and is a "United States Corporations, Person or Entity" as such terms is defined in Section 1445 and in Section 7701 (a)(30) of the Internal Revenue Code of 1986, as amended (the "Code") and shall deliver to HRSD at or prior to the Settlement an Affidavit prepared by HRSD evidencing such fact and such other documents as may be required under the Code.

(vi) From and after the date of this Agreement, Seller shall not transfer any interest in, or grant any easements or enter into any contractual agreement or understanding, written or oral, with respect to the Property or any portion thereof or make any changes at all that require recordation and therefore modifications to title, without the prior written consent of HRSD.

(vii) The Seller warrants that to the best of his knowledge there are no wetlands or hazardous wastes, which would prevent HRSD's intended use of the land. To the best of the Seller's knowledge: (i) none of the Property has been excavated (except for standard grading related to site development); (ii) no hazardous materials, toxic chemicals, or similar substances, as defined by 42 U.S.C. §1251, et seq. or 42 U.S.C. §6901, et seq. or 42 U.S.C. §9601, et seq., or 33 U.S.C. §1317(1), or 15 U.S.C. §2606(f), or 49 U.S.C. §1801, et seq., or regulations adopted pursuant thereto, or any similar provision of any applicable state, Federal, or local law (collectively "Hazardous Materials"), are or were stored or used on or under or otherwise were or are in existence or were in any way dealt with on or under the Property; and (iii) no owner or occupant of the Property has received any notice from any governmental agency with regard to such Hazardous Materials.

8. NOTICES. All notices to the parties hereto will be delivered by hand, via certified mail return receipt requested, or via facsimile and all be deemed effective upon delivery if by hand and upon confirmation of receipt if by

other means, to the following address until the address is changed by notice in writing to the other party:

HRSD: Edward G. Henifin, P.E.
General Manager
P.O. Box 5911
Virginia Beach, Virginia 23471-0911

Copy to: Janice Pickrell Anderson, Esq.
Kellam, Pickrell, Cox & Anderson, PC
403 Boush Street, Suite 300
Norfolk, VA 23510

Seller: Sean Little and Rachel Sleighter
5406 Powhatan Avenue
Norfolk, VA 23508

9. CLOSING. Unless this Agreement is terminated pursuant to its terms or by mutual agreement of the parties, Closing will be made at the offices of the Settlement Agent on or about July 29, 2021.

10. POST-CLOSING POSSESSION. Seller shall comply with all terms and conditions of the Post-Closing Possession Agreement attached hereto as Exhibit "C" and made part of this Agreement.

11. SURVIVAL. The provisions contained in this Agreement will be true as of the date of this Agreement and as of the date of Closing. The terms of the Post-Closing Agreement shall survive the closing.

12. PRORATIONS. All rents, interest, taxes, insurance premiums, utility bills, and fuel oil, if any, will be prorated as of the date of Closing.

13. RISK OF LOSS. All risk of loss or damage to the Property by fire, windstorm, casualty, or other cause is assumed by Seller until Closing. In the event of substantial loss or damage to the Property before Closing, HRSD will have the option of either:

a. Terminating this Agreement, or

b. Affirming this Agreement and proceeding to Closing.

14. FUTURE SALE BY HRSD. In the event that HRSD shall determine to sell all or a portion of the property for private development within two (2) years of the Settlement Date, it agrees to notify Seller and give Seller first opportunity to purchase the property on such terms as the parties shall mutually agree. Such notice shall be writing addressed in accordance with the provisions of Section 8 herein or such other address provided to HRSD by the Seller and shall provide Seller with at least thirty (30) calendar days to present HRSD with an offer to purchase the property.

15. BROKERS. Seller and HRSD both represent and warrant to the other that it has not hired, engaged, or consulted with any broker or agent in regard to this transaction. Each party agrees to indemnify and hold harmless the other from any and all costs, expenses, or damages resulting from any claim for brokerage fees or other similar forms of compensation made by any real estate broker or other person or entity with whom a party has dealt, and who is not expressly named herein.

16. CONDEMNATION. Seller covenants and warrants that Seller has not heretofore received any notice of any condemnation proceeding or other proceeding in the nature of eminent domain in connection with the Property. If prior to Settlement any such proceeding is commenced or any change is made, or proposed to be made, to the current means of ingress and egress to the Property or to the roads or driveways adjoining the Property, or to change such ingress or egress or to change the grade thereof, Seller agrees immediately to notify HRSD thereof. HRSD then shall have the right, at HRSD's option, to terminate this Agreement by giving written notice to Seller within thirty (30) days after receipt of such notice.

17. ITEMS NOT TO CONVEY WITH HOME. Seller may remove items from the property to include but not limited to; gas fireplace insert, all appliances, all fixtures, lighting, fans, cabinets, countertops and child's swing set. The only items no to be removed from the home are the exterior doors, locks and windows allowing buyer to keep the property secure.

18. RELOCATION ASSISTANCE: Buyer agrees to pay Seller $10,000.00 (ten thousand dollars and 00/100 cents) within 30 days of signing this Agreement to assist with moving and relocation expenses. The parties acknowledge that this is a one-time lump sum payment associated with the purchase of 5406 Powhatan Avenue, Norfolk, Virginia but is not part of the purchase price. If closing does not occur due to Seller's fault or breach, Seller hereby agrees to refund and return to HRSD the Relocation Assistance paid by HRSD. Upon closing, in accordance with this Agreement, Buyer shall be entitled to retain all funds received as relocation

assistance.

19. DEFAULT AND REMEDIES.

a. If the sale and purchase contemplated by this Agreement is not consummated because of Seller's or HRSD's default, the non-defaulting party may elect to:

i Terminate this Agreement;

ii Seek and obtain specific performance of this Agreement; or

iii Pursue all other rights or remedies available at law or in equity, including an action for damages.

b. If either Seller or HRSD defaults under this Agreement, the defaulting party will be liable for any expenses incurred by the non-defaulting party in connection with the enforcement of its rights under this Agreement.

c. These remedies are cumulative and non-exclusive and may be pursued at the option of the non-defaulting party without a requirement of election of remedies.

20. ENTIRE AGREEMENT. This Agreement contains the entire agreement of the parties and will supersede the terms and conditions of all prior written and oral agreements, if any, concerning the matters it covers. The parties acknowledge there are no oral agreements, understandings, representations, or warranties that supplement or explain the terms and conditions contained in this Agreement. This Agreement may not be modified except by an agreement in writing signed by the parties.

21. WAIVER. Failure to insist upon strict compliance with any of the terms, covenants, or conditions hereof will not be deemed a waiver of the term, covenant, or condition, nor will any waiver or relinquishment of any right or power at any one time or more times be deemed a waiver or relinquishment of the right or power at any other time or times.

22. SEVERABILITY. This Agreement will be construed in its entirety and will not be divisible, except that the invalidity or unenforceability of any provision hereof will in no way affect the validity or enforceability of any other provision.

23. CAPTIONS. Captions are used in this Agreement for convenience only and will not be used to interpret this Agreement or any part of it.

24. GOVERNING LAW. This Agreement is to be construed in accordance with the laws of the Commonwealth of Virginia.

25. CHOICE OF FORUM/JURISDICTION. The parties hereby consent to the jurisdiction and venue of the courts of the Commonwealth of Virginia, specifically to the courts of the City of Norfolk, Virginia, and to the jurisdiction and venue of the United States District Court for the Eastern District of Virginia in connection with any action, suit, or proceeding arising out of or relating to this Agreement and further waive and agree not to assert in any action, suit, or proceeding brought in the City of Norfolk, Virginia, or the Eastern District of Virginia that the parties are not personally subject to the jurisdiction of these courts, that the action, suit, or proceeding is brought in an inconvenient forum or that venue is improper.

26. WAIVER OF TRIAL BY JURY. THE PARTIES WAIVE TRIAL BY JURY IN ANY ACTION, PROCEEDING, OR COUNTERCLAIM BROUGHT BY EITHER PARTY AGAINST THE OTHER ON ANY MATTER WHATSOEVER ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ANY RELATED AGREEMENTS OR INSTRUMENTS AND THE ENFORCEMENT THEREOF, INCLUDING ANY CLAIM OF INJURY OR DAMAGE TO ANY PARTY OR THE PROPERTY OF ANY PARTY.

27. SUCCESSOR/ASSIGNMENT. This Agreement will be binding upon and the obligations and benefits hereof will accrue to the parties hereto, their heirs, personal representatives, successors, and assigns. This Agreement is assignable by HRSD only upon written consent of the Seller, which consent will not be unreasonably withheld. If this Agreement is assigned by HRSD with Seller's consent, HRSD will nevertheless remain fully liable for its performance.

28. COUNTERPARTS. This Agreement may be executed in any number of counterparts, each will be considered an original, and together they will constitute one Agreement.

29. FACSIMILE SIGNATURES. Facsimile signatures will be considered original signatures for the purpose of execution and enforcement of the rights delineated in this Agreement.

30. ETHICS IN PUBLIC CONTRACTING. By executing this Agreement, the undersigned Seller or its representative, and the representative of HRSD, certify that the prices agreed to in this Agreement were arrived at without collusion or fraud and that they have not offered or received any payment, kickbacks or other inducement from any other party to this Agreement or its agent or employee in connection with this Agreement, and that they have not conferred on any public employee having responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money, services (or anything of more than nominal value, present or promised) unless disclosed in this Agreement.

(Remainder of page intentionally left blank – Signature Pages follow)

SELLER: _____

Name: Sean W, Little

SELLER: Rachel L Sleighter

Name: Rachel L. Sleighter

COMMONWEALTH OF VIRGINIA
CITY OF Norfolk, to-wit:

I, Ninajo McLeod Hennessee, a Notary Public in and for the City of Norfolk, in the Commonwealth of Virginia, whose term of office expires on March 31 2024, do hereby certify that Sean W, Little and Rachel L. Sleighter, Seller herein, whose name is signed to the foregoing Purchase and Sale Agreement, has acknowledged the same before me in my City and State aforesaid.

Given under my hand this 12 day of July, 2021.

Notary Public

My Commission Expires: 03-31-2024

Registration Number: 7522985

NINAJO MCLEOD HENNESSEE
NOTARY PUBLIC
COMMONWEALTH OF VIRGINIA
MY COMMISSION EXPIRES MAR. 31, 2024
COMMISSION # 7522985

IN WITNESS WHEREOF, the Hampton Roads Sanitation District Commission has caused this Agreement to be signed on its behalf by its General Manager in accordance with authorization granted at its regular meeting held on _____, 2021. This Agreement is expressly subject to approval by the HRSD Commission

HAMPTON ROADS SANITATION DISTRICT

By: _____
Edward G. Henifin, P.E.
General Manager

COMMONWEALTH OF VIRGINIA
CITY OF VIRGINIA BEACH, to-wit:

The foregoing Purchase and Sale Agreement was acknowledged before me this _____day of _____, 2021, by Edward G. Henifin, P.E., General Manager, Hampton Roads Sanitation District.

_____
Notary Public

My Commission Expires:_____

Registration No.:_____

EXHIBIT "A"

Legal Description

All That certain parcel of land situate in the City of Norfolk, Commonwealth of Virginia, being more particularly described as follows: Lots 3, 4, and 5, as shown on that certain plat entitled AMENDED PLAT OF STRATFORD COURT (erroneously referred to as Stratford County in the previous deed), which said plat is duly recorded in the Clerk's Office of the City of Chesapeake, Virginia in Map Book 11 at page 61.

BEING the same property conveyed to Sean W, Little and Rachel L. Sleighter from Courthouse Forest, LLC by deed dated August 30, 2013 and recorded October 2, 2013 in the Clerk's Office of the Circuit Court of the City of Norfolk, Virginia as Instrument No. 130027047

EXHIBIT B

PLAT

Map Book 11, Page 61
Amended Plat for Stratford Court

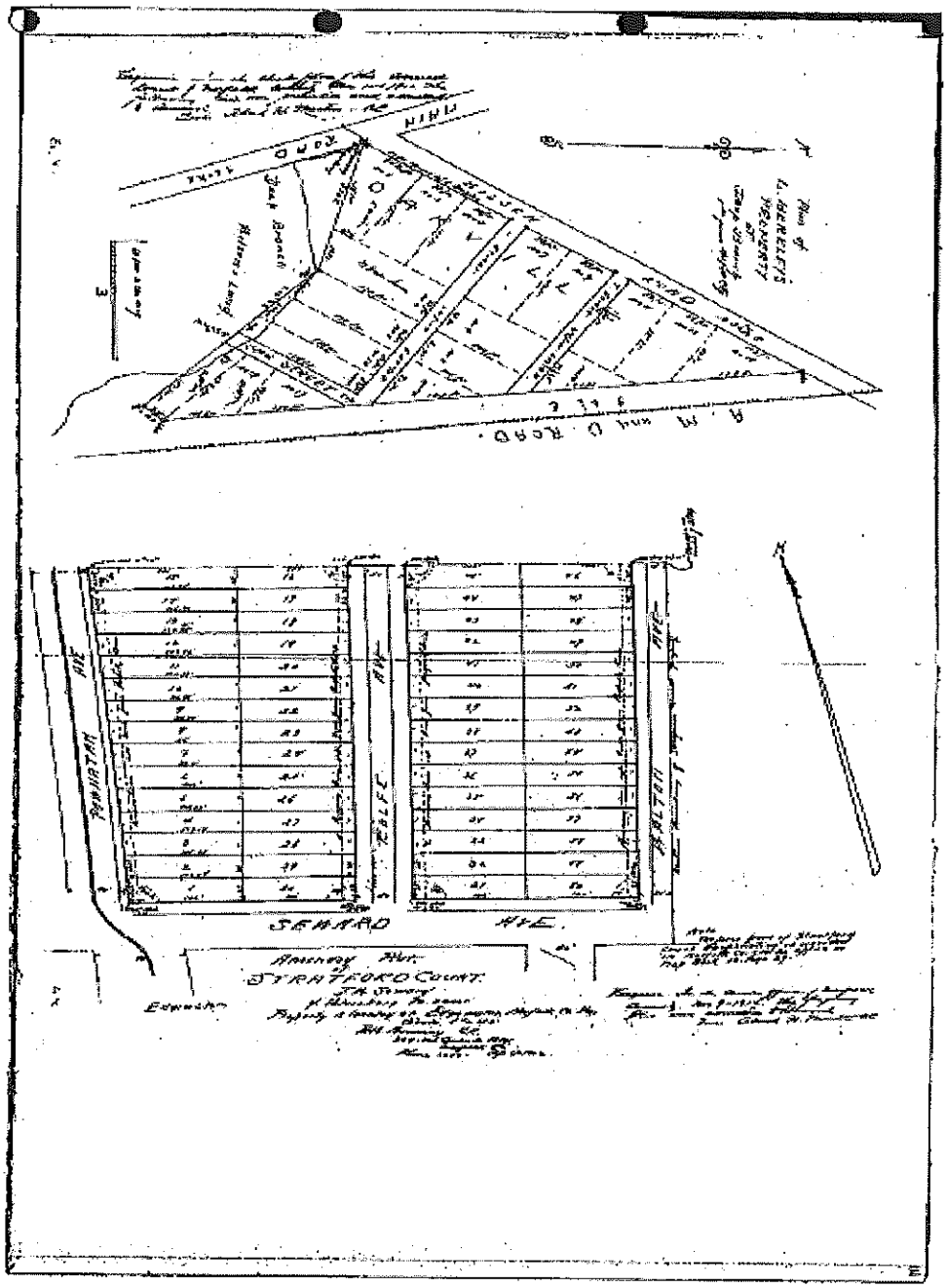


EXHIBIT C

POST-CLOSING POSSESSION AGREEMENT

PURCHASER: **HAMPTON ROADS SANITATION DISTRICT (HRSD),** a political subdivision of the Commonwealth of Virginia

SELLER: **Sean W. Little and Rachel L. Sleighter**

PROPERTY: 5406 Powhatan Avenue, Norfolk, VA 23508
Tax Parcel Identification: 1429226123

DATES OF POSSESSION: **July 30, 2021** to **February 1, 2022**

WHEREAS, the Seller has entered into a Contract for the purchase of the above captioned property from the Purchaser, which contract is dated July , 2021; and

WHEREAS, the Seller wishes to possess and occupy the property after the closing date; July 29, 2021.

NOW, THEREFORE, in consideration of mutual promises, the parties agree as follows:

1. During the Dates of Possession, July 30, 2021 to February 1, 2022, Seller may occupy the property at the rate of $ 0.00 per month.
2. The Seller agrees to procure and maintain in effect, prior to entering into possession, a policy or policies of insurance adequately covering the subject property satisfactory to Purchaser and insuring against fire and any casualty and/or public liability which may arise out of or by virtue of the use and occupancy of the subject property by the Seller.
3. The Seller hereby agrees to indemnify and hold the Purchaser harmless from any and all claims, demands, action, causes of action, damages, expenses, losses, attorney's fees or liabilities arising in any way from or out of this occupancy, use or enjoyment of the subject property after closing.
4. The Seller accepts the subject property "as is" as of the Date of Possession, and will take no action to damage the property during Seller's tenancy. If damage occurs to the property, or any deterioration which is beyond reasonable wear and tear, the Seller shall remediate the property immediately, at his expense.
5. Should Seller maintain possession, or not turn possession over to Purchaser on or before February 1, 2022, Seller owes Purchaser $50.00 per day for rent. Further should Seller not vacate the premises by February 1, 2022, Seller

agrees to be responsible for the expenses of Purchaser in any legal proceedings to evict Seller from premises, to include attorney's fees and costs.

6. The Seller agrees to pay all expenses in connection with his occupancy of the subject property, including, but not limited to, utilities and fuel during possession.
7. Seller agrees to maintain the property in good condition keeping it free and clear of any City or State code ordinance violations, which shall include but not limited to yard maintenance and cutting the grass.
8. This agreement may be executed in counterparts.

IN WITNESS WHEREOF, the parties have caused their hands and seals to be affixed this _____ day of _____, 2021.

Purchaser: HAMPTON ROADS SANITATION DISTRICT

By: _____
Karen Russo-Scarano, RWP
Real Estate Manager, HRSD

Seller: _____
Sean W. Little

Seller: _____
Rachel L. Sleighter

11711.806 /615998 (07-18-2018)

Location Map: Powhatan Pump Station Sites

Resource: Bruce Husselbee

AGENDA ITEM 9. – July 27, 2021

Subject: Suffolk Pump Station Replacement
Acquisition of Real Property – Shingle Creek, Highway 460-58, Portsmouth Boulevard, Suffolk, Virginia

Recommended Action: Approve the purchase of a portion of property and easements at Tax Parcel: 35*147 in Suffolk, Virginia and the associated acquisition costs for $17,500 in accordance with the terms and conditions of the Purchase and Sale Agreement with Shingle Creek Associates, LLC by Richard D. Allred, manager of subject property in Suffolk, Virginia and authorize the General Manager to execute same and related acquisition documents in accordance with those terms and conditions, substantially as presented, together with such changes, modifications and deletions as the General Manager may deem necessary and as approved by counsel; and further authorize the General Manager to execute the forthcoming deed of bargain and sale upon approval of legal counsel.

CIP Project: **NP010620**

Budget	$12,049,000
Previous Expenditures and Encumbrances	($2,647,692)
Available Balance	$9,401,308

Project Description: This project will construct two replacement pump stations to replace the existing Suffolk Pump Station located at 1136 Sanders Drive, in Suffolk. The benefit of this two pump station scenario includes abandonment/removal of over 7,000 linear feet of gravity sewer and 34 manholes along Shingle Creek and associated wetlands with ongoing concerns for potential overflows, pipe failure and difficulty accessing for maintenance.

The new pump stations will meet current capacity needs and provide for future expansion to meet anticipated growth. The existing pump station site does not provide the needed space for expansion, is difficult to access and creates a nuisance traffic to the surrounding residential neighborhood.

Agreement Description: The Purchase and Sale Agreement is attached and upon approval, the deed of bargain and sale will be forthcoming. The final Deed will be reviewed by HRSD staff and legal counsel before execution. A Facilities Orientation Map is also provided for clarification purposes.

This is the second pump station site for this project. The first site was purchased in November 2019. This is the first of two separate abutting properties that HRSD will purchase, subdivide from the parent parcel and add then add two smaller pieces together to make a new parcel for the pump station. HRSD is in negotiations for the second half of what will become the future combined pump station site. That agreement will be presented to the Commission when it is complete.

Analysis of Cost: The appraised value acquisition cost of $17,500 reflects current market values in the area.

PURCHASE AND SALE AGREEMENT

THIS PURCHASE AND SALE AGREEMENT (this "Agreement") made this ____ day of _____, 2021, by and between **SHINGLE CREEK ASSOCIATES, LLC**, a Virginia limited liability company, hereinafter referred to as Seller, and **HAMPTON ROADS SANITATION DISTRICT**, a political subdivision of the Commonwealth of Virginia ("HRSD"), Purchaser.

RECITALS

A. Seller is the owner in fee simple absolute of a certain parcel of property approximately 0.402 Acres, known as Shingle Creek, Hwy.460-58, Portsmouth Boulevard in the City of Suffolk, Tax Parcel: 35*147 such property being more particularly described in Exhibit A and shown on Exhibit B, both of which are attached to and made a part of this Agreement (the "SC Parcel").

B. HRSD desires to purchase and resubdivide a portion of the SC Parcel as follows: (+/-) 2,313 S.F / 0.053 Acre in fee simple and purchase a (+/-) 1,513 S.F. / 0.035 Acre 15 foot non-exclusive, permanent utility easement, and a (+/-) 4,087 S.F./ 0.094 Acre variable width non-exclusive, permanent ingress/egress access easement, from the Seller for the purpose of constructing a new pump station at this location; such property being more particularly described in the subdivision plat referenced as Exhibit B which is attached to and made a part of this Agreement (the "Property") and entitled: "SUBDIVISION PLAT OF TAX MAP #35*147 (P.B. 4,P.3-NANSEMOND CO.) & TAX MAP #35*147A (P.B.6, P.27-NANSEMOND CO.) FOR PROPOSED HAMPTON ROADS SANITATION DISTRICT PUMP STATION 159 DESIGNATED AS PARCEL C, SUFFOLK BOROUGH – SUFFOLK, VA, Project: HRSD CIP #NP010620 – Shingle Creek" and dated February 5, 2021 by Rouse-Sirine Associates, Ltd. (the "Property").

C. Seller is willing to sell the Property to HRSD subject to the terms and conditions set forth in this Agreement.

D. These recitals are incorporated by this reference into this Agreement.

NOW, THEREFORE, in consideration of the purchase price and the mutual promises contained in this Agreement, the parties agree as follows:

1. SALE. Seller agrees to sell and HRSD agrees to purchase the Property, together with all rights and appurtenances thereto, including all right, title and interest of Seller in and to any land lying in the bed of any highway, street, road, or avenue, open or proposed, in front of or abutting, or adjoining such tract or piece of land and any riparian rights, if any, and any rights, easements, and appurtenances pertaining thereto, and any building

and other property situated thereon, including all personal property, attached or appurtenant to, located in or on, or used in connection with the real property, if any. The real property and the personal property are called the "Property".

2. PURCHASE PRICE. The purchase price (the Purchase Price) for the Property is **Seventeen Thousand Five Hundred Dollars ($17,500)**, and the Purchase Price shall be paid to the Seller by certified check or wired funds at closing.

3. CONVEYANCE.

   a. At the Closing, Seller shall convey title to the Property in fee simple, by special warranty deed, free and clear of any and all liens, mortgages, deeds of trust, security interests, leases, covenants, conditions, restrictions, easements, rights-of-way, licenses, encroachments, judgments or encumbrances of any kind, except for the following permitted exceptions: (a) the lien of real estate taxes not yet due and payable; (b) zoning and building restrictions and other laws, ordinances, and regulations of governmental bodies having jurisdiction over the Property; and (c) matters of record affecting title to the Property, as reviewed and approved (or deemed approved) by HRSD in accordance with this Agreement. Except as expressly stated in this Agreement, the Property shall be conveyed in "AS IS" condition.

   b. Title to the Property shall be good and marketable and, if HRSD chooses to obtain title insurance, insurable by a nationally recognized ALTA title insurance company of HRSD's choice at or below normal rates. In the event that a title examination discloses defects of title or other matters unsatisfactory to HRSD at HRSD's sole determination, HRSD shall notify Seller in writing (an "Objection Notice"), within 90 days of the Effective Date, of such title defects or other matters to which HRSD objects. Seller covenants that it shall cure all monetary encumbrances and all title objections which may be cured by execution of a document requiring the signature of no party other than Seller (including any affidavits which may reasonably be required by the title insurer). Seller may notify HRSD in writing (an "Objection Response"), within ten (10) business days after receiving an Objection Notice if it believes that the Objection Notice makes reference to any title defect or other matter that Seller cannot or elects not to cure. Upon receipt of an Objection Response from Seller, HRSD shall have the

option either to (i) terminate this Agreement by notice to Seller given within ten (10) business days of the Objection Response or (ii) accept the defects, exceptions or other matters referenced in such Objection Response and proceed to Closing hereunder with no reduction of the Purchase Price. Seller shall have the period until the Closing date within which to correct all defects, exceptions or other matters that it is required or elects to cure. Seller shall provide such documents (including evidence of authority), affidavits, and other instruments that may be reasonably required for the issuance of a title insurance policy to HRSD.

c. Possession of the Property will be given to HRSD at Closing, except that HRSD will have access to the Property for the purposes specified herein.

d. Seller agrees to pay proration of real estate taxes and storm water fees and agrees to deliver possession of the Property to HRSD at settlement. HRSD will pay all other fees charged in connection with preparation and recordation of the deed, including grantor's tax.

e. Seller and HRSD agree that the attorney selected by HRSD shall act as the Settlement Agent at HRSD's expense. The Settlement Agent shall prepare the settlement statement, update and record the deed, collect and disburse settlement funds in accordance with this Agreement and the settlement statement, and file any required state and federal tax forms or other certifications.

4. RIGHT OF ENTRY. HRSD and HRSD's authorized representatives may at any reasonable time and after giving reasonable notice to Seller, enter upon the Property for the purpose of making inspections, appraisals, surveys, including but not limited to the cutting of survey lines and putting up markers and driving stubs and stakes, site analysis, engineering studies, core sampling for engineering reports, and locating existing rights of way, easements, and utilities. HRSD will exercise this right of entry in such a way so as to not cause unreasonable damage to the Property. HRSD agrees to indemnify and save harmless the Seller from all claims of liability for any personal injury or property damage or otherwise to any person or property caused by any action or omission of HRSD or its agents on the Property or the SC Parcel before or after Closing.

5. CONDITIONS AND CONTINGENCIES.

a. HRSD's obligations are expressly conditioned upon the waiver or satisfaction of each of the following conditions in the sole determination of HRSD. If any one of the following conditions cannot be met within 90 days after the Effective Date (the Effective Date being defined as the date the contract is endorsed by both HRSD and Seller), HRSD may unilaterally terminate this Agreement:

   i. Receipt of a satisfactory title commitment with all unacceptable title exceptions, encumbrances, and conditions as deemed by HRSD removed or cured at Seller's cost; however, if Seller chooses not to remove or cure any such title exception, HRSD's sole remedy shall be to terminate this Agreement;

   ii. Receipt of a Phase I Environmental Assessment and Report (Phase I Report) conducted and prepared by an environmental engineering and inspection company selected by HRSD at HRSD's expense and such other testing and reports as may be reasonably required by HRSD or recommended in the Phase I Report;

   iii. Seller's compliance of all of its obligations under this Agreement.

b. This Agreement is expressly conditioned upon the completion of all title and environmental "due diligence" by HRSD and notification to the Seller in writing of any conditions that are unsatisfactory to HRSD within the 90 day period. In the event HRSD fails to notify the Seller in writing within such 90 day period, any objection to such conditions shall be deemed waived by HRSD and the parties shall proceed to closing; provided, however, in no event shall any mortgage, deed of trust, security agreement or monetary lien against the Property be deemed waived objections and the Seller agrees that the same shall be removed and released as liens on the Property on or before Closing.

c. This Agreement is contingent on the review and approval of the purchase by the Hampton Roads Sanitation District Commission and upon such Commission granting authorization to the General Manager to proceed under the terms of this Agreement.

6. ENVIRONMENTAL AND RELATED MATTERS.

a. As a condition precedent to HRSD's obligation to purchase, HRSD, at HRSD's expense, may have a Phase I Environmental Assessment of the Property performed by a qualified environmental consultant (the Consultant) selected by HRSD and reasonably acceptable to Seller, conducted in accordance with standard commercial practice at the time of the assessment. A copy of the Phase I Environmental Assessment will be made available to Seller, together with copies of any supplemental reports or assessments.

b. If the Consultant recommends soil, water, or structural remediation or further assessment activity after or as a result of performing a Phase I Environmental Assessment or if HRSD otherwise determines, in its reasonable judgment, that further assessment activity (including, but not limited to, a Phase II Environmental Assessment) is desirable, HRSD may at its option:

(i) Terminate this Agreement; or
(ii) Extend the time for closing for an additional period of sixty (60) days in order to perform any such additional assessment at HRSD's expense; or
(iii) Waive the environmental defect and proceed to Closing.

In the event HRSD chooses to perform any additional assessment, such as a Phase II, and determines that the results of such assessment are not satisfactory, HRSD may at its option:

(i) Terminate this Agreement; or
(ii) Waive the environmental defect and proceed to Closing.

7. REPRESENTATIONS, WARRANTIES AND COVENANTS. Seller represents and warrants as of the date of this Agreement and as of the date of Closing that: Seller has the right, title, and authority to enter into this Agreement and to perform its obligations hereunder.

Seller further represents and warrants and shall deliver to HRSD at or prior to the Settlement, an Affidavit prepared by HRSD evidencing the following facts:

(i) Other than this Agreement, there are no other contracts for sale or options involving the Property now in effect;

(ii) To the best of Seller's knowledge, other than (x) the covenants, conditions, restrictions, and easements of record affecting the Property and (y) as shown on Exhibit A and Exhibit B attached hereto, no other party has any right, title or interest in the Property;

(iii) There are no unrecorded leases, options, licenses or easements existing in connection with the Property to which the Seller is a party;

(iv) There are no adverse government notifications or proceedings and there is no pending or threatened litigation or any other potentially adverse claims affecting the Property to which the Seller has knowledge, except those of which Purchaser has knowledge or notice.

(v) Foreign Status. Seller is not a foreign corporation, person or entity and is a "United States Corporations, Person or Entity" as such terms is defined in Section 1445 and in Section 7701 (a)(30) of the Internal Revenue Code of 1986, as amended (the "Code") and shall deliver to HRSD at or prior to the Settlement an Affidavit prepared by HRSD evidencing such fact and such other documents as may be required under the Code.

(vi) From and after the date of this Agreement and until the closing contemplated hereunder with respect to the Property to be conveyed to Purchaser, Seller shall not transfer any interest in, or grant any easements or enter into any contractual agreement or understanding, written or oral, with respect to the Property or any portion thereof or make any changes at all that require recordation and therefore modifications to title, without the prior written consent of HRSD.

(vii) Seller makes no representations or warranties whatsoever concerning wetlands, environmental matters or the existence of hazardous materials, toxic chemicals, or similar substances, as defined by 42 U.S.C. §1251, et seq. or 42 U.S.C. §6901, et seq. or 42 U.S.C. §9601, et seq., or 33 U.S.C. §1317(1), or 15 U.S.C. §2606(f), or 49 U.S.C. §1801, et seq., or regulations adopted pursuant thereto, or any similar provision of any applicable state, Federal, or local law (collectively "Hazardous Materials"), on, under, adjacent to or about the Property. Seller undertakes no duty to conduct inspections for Hazardous Materials on, under, adjacent to or about the Property. Seller understands Purchaser shall rely

upon Purchaser's independent inspections, searches and examinations of all public records including, without limitation, any information on file with the Virginia Department of Environmental Quality and any other federal, state and local agencies, to determine the existence of any Hazardous Materials on, under, adjacent to or about the Property.

Purchaser represents and warrants as of the date of HRSD Commission approval of this Agreement and as of the date of Closing that: Purchaser has the right, title, and authority to enter into this Agreement and to perform its obligations hereunder. Purchaser further represents, warrants and covenants as follows:

(i) Purchaser shall restore pavement, at minimum mill and pave, the full extents of the privately owned road known as Virginia Ham Drive, from the Portsmouth Boulevard entrance (including replacing the apron where affected) to the CSX Railroad Right-of-Way and at the edge of the proposed HRSD fee simple acquisition, and up to and including any disturbed areas abutting the SC Parcel or the property known as Arzillo Investments, Inc. (Parcel ID: 35*147A). The area is further identified as the ingress/Egress Access area within the resubdivision plat, attached as Exhibit "B" in this document. The curb and gutter that is affected by the construction efforts will be replaced with 24-inch and roll-top curb and gutter (HRPDC Standard Details CI-01 and CI-10). The pavement restoration work will take place upon completion of the construction of the Buyer's pump station and associated work and performed outside normal business hours to minimize impacts to the public or patrons.

(ii) Purchaser shall repair and restore, at Purchaser's sole cost and expense, any damage sustained to the SC Parcel, including any improvements located thereon, as a result of Purchaser's acquisition and development of the Property including, without limitation, any damage caused by drilling or excavation activities conducted by Purchaser, such that the SC Parcel remains in the same condition as exists on the date of this Agreement except as the SC Parcel may be modified pursuant to the terms and provisions hereof.

8. NOTICES. All notices to the parties hereto will be delivered by hand, via certified mail return receipt requested, or via facsimile and all be deemed effective upon delivery if by hand and upon confirmation of receipt if by

other means, to the following address until the address is changed by notice in writing to the other party:

HRSD: Edward G. Henifin, P.E.
General Manager
P.O. Box 5911
Virginia Beach, Virginia 23471-0911

Copy to: Janice Pickrell Anderson, Esq.
Kellam, Pickrell, Cox & Anderson, PC
403 Boush Street, Suite 300
Norfolk, VA 23510

Seller: Shingle Creek Associates, LLC
Attn: Richard D. Allred, Manager
301 Cleveland Place, Suite 103
Virginia Beach, Virginia 23462

9. CLOSING. Unless this Agreement is terminated pursuant to its terms or by mutual agreement of the parties, Closing will be made at the offices of the Settlement Agent within 120 days of the Effective Date, unless extended by terms of these agreements or by mutual agreement of the parties.

10. SURVIVAL. The provisions contained in this Agreement will be true as of the date of this Agreement and as of the date of Closing.

11. PRORATIONS. All rents, interest, taxes, insurance premiums, utility bills, and fuel oil, if any, will be prorated as of the date of Closing.

12. RISK OF LOSS. All risk of loss or damage to the Property by fire, windstorm, casualty, or other cause is assumed by Seller until Closing. In the event of substantial loss or damage to the Property before Closing, HRSD will have the option of either:

a. Terminating this Agreement, or

b. Affirming this Agreement and proceeding to Closing.

13. FUTURE SALE BY HRSD. In the event that HRSD shall determine to sell all or a portion of the Property for private development within two (2) years of the Settlement Date, it agrees to notify Seller and give Seller first

opportunity to purchase the Property on such terms as the parties shall mutually agree. Such notice shall be writing addressed in accordance with the provisions of Section 8 herein or such other address provided to HRSD by the Seller and shall provide Seller with at least thirty (30) calendar days to present HRSD with an offer to purchase the Property.

14. BROKERS. Seller and HRSD both represent and warrant to the other that it has not hired, engaged, or consulted with any broker or agent in regard to this transaction. Each party agrees to indemnify and hold harmless the other from any and all costs, expenses, or damages resulting from any claim for brokerage fees or other similar forms of compensation made by any real estate broker or other person or entity with whom a party has dealt, and who is not expressly named herein.

15. CONDEMNATION. Seller covenants and warrants that Seller has not heretofore received any notice of any condemnation proceeding or other proceeding in the nature of eminent domain in connection with the Property. If prior to Settlement any such proceeding is commenced or any change is made, or proposed to be made, to the current means of ingress and egress to the Property or to the roads or driveways adjoining the Property, or to change such ingress or egress or to change the grade thereof, Seller agrees immediately to notify HRSD thereof. HRSD then shall have the right, at HRSD's option, to terminate this Agreement by giving written notice to Seller within thirty (30) days after receipt of such notice.

16. DEFAULT AND REMEDIES.

a. If the sale and purchase contemplated by this Agreement is not consummated because of Seller's or HRSD's default, the non-defaulting party may elect to:

i Terminate this Agreement;

ii Seek and obtain specific performance of this Agreement; or

iii Pursue all other rights or remedies available at law or in equity, including an action for damages.

b. If either Seller or HRSD defaults under this Agreement, the defaulting party will be liable for any expenses incurred by the non-defaulting party in connection with the enforcement of its rights under this Agreement.

c. These remedies are cumulative and non-exclusive and may be pursued at the option of the non-defaulting party without a requirement of election of remedies.

17. ENTIRE AGREEMENT. This Agreement contains the entire agreement of the parties and will supersede the terms and conditions of all prior written and oral agreements, if any, concerning the matters it covers. The parties acknowledge there are no oral agreements, understandings, representations, or warranties that supplement or explain the terms and conditions contained in this Agreement. This Agreement may not be modified except by an agreement in writing signed by the parties.

18. WAIVER. Failure to insist upon strict compliance with any of the terms, covenants, or conditions hereof will not be deemed a waiver of the term, covenant, or condition, nor will any waiver or relinquishment of any right or power at any one time or more times be deemed a waiver or relinquishment of the right or power at any other time or times.

19. SEVERABILITY. This Agreement will be construed in its entirety and will not be divisible, except that the invalidity or unenforceability of any provision hereof will in no way affect the validity or enforceability of any other provision.

20. CAPTIONS. Captions are used in this Agreement for convenience only and will not be used to interpret this Agreement or any part of it.

21. GOVERNING LAW. This Agreement is to be construed in accordance with the laws of the Commonwealth of Virginia.

22. CHOICE OF FORUM/JURISDICTION. The parties hereby consent to the jurisdiction and venue of the courts of the Commonwealth of Virginia, specifically to the courts of the City of Suffolk, Virginia, and to the jurisdiction and venue of the United States District Court for the Eastern District of Virginia in connection with any action, suit, or proceeding arising out of or relating to this Agreement and further waive and agree not to assert in any action, suit, or proceeding brought in the City of Suffolk, Virginia, or the Eastern District of Virginia that the parties are not personally subject to the jurisdiction of these courts, that the action, suit, or proceeding is brought in an inconvenient forum or that venue is improper.

23. WAIVER OF TRIAL BY JURY. THE PARTIES WAIVE TRIAL BY JURY IN ANY ACTION, PROCEEDING, OR COUNTERCLAIM BROUGHT BY

EITHER PARTY AGAINST THE OTHER ON ANY MATTER WHATSOEVER ARISING OUT OF OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ANY RELATED AGREEMENTS OR INSTRUMENTS AND THE ENFORCEMENT THEREOF, INCLUDING ANY CLAIM OF INJURY OR DAMAGE TO ANY PARTY OR THE PROPERTY OF ANY PARTY.

24. SUCCESSOR/ASSIGNMENT. This Agreement will be binding upon and the obligations and benefits hereof will accrue to the parties hereto, their heirs, personal representatives, successors, and assigns. This Agreement is assignable by HRSD only upon written consent of the Seller, which consent will not be unreasonably withheld. If this Agreement is assigned by HRSD with Seller's consent, HRSD will nevertheless remain fully liable for its performance.

25. COUNTERPARTS. This Agreement may be executed in any number of counterparts, each will be considered an original, and together they will constitute one Agreement.

26. FACSIMILE SIGNATURES. Facsimile signatures will be considered original signatures for the purpose of execution and enforcement of the rights delineated in this Agreement.

27. ETHICS IN PUBLIC CONTRACTING. By executing this Agreement, the undersigned Seller or its representative, and the representative of HRSD, certify that the prices agreed to in this Agreement were arrived at without collusion or fraud and that they have not offered or received any payment, kickbacks or other inducement from any other party to this Agreement or its agent or employee in connection with this Agreement, and that they have not conferred on any public employee having responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money, services (or anything of more than nominal value, present or promised) unless disclosed in this Agreement.

(Remainder of page intentionally left blank – Signature Pages follow)

SELLER:

SHINGLE CREEK ASSOCIATES, LLC

By: _____
(Signature)

Name: Richard D. Allred_____

Its: Manager_____

COMMONWEALTH OF VIRGINIA
CITY OF _____, to-wit:

I, _____, a Notary Public in and for the City of _____, in the Commonwealth of Virginia, whose term of office expires on _____, do hereby certify that Richard D. Allred – Manager of Shingle Creek Associates, LLC, whose name is signed to the foregoing Purchase and Sale Agreement, has acknowledged the same before me in my City and State aforesaid.

Given under my hand this _____ day of _____, 2021.

_____
Notary Public

My Commission Expires: _____

Registration Number: _____

IN WITNESS WHEREOF, the Hampton Roads Sanitation District Commission has caused this Agreement to be signed on its behalf by its General Manager in accordance with authorization granted at its regular meeting held on _____, 2021. This Agreement is expressly subject to approval by the HRSD Commission

HAMPTON ROADS SANITATION DISTRICT

By: _____
Edward G. Henifin, P.E.
General Manager

COMMONWEALTH OF VIRGINIA
CITY OF VIRGINIA BEACH, to-wit:

The foregoing Purchase and Sale Agreement was acknowledged before me this _____day of _____, 2021, by Edward G. Henifin, P.E., General Manager, Hampton Roads Sanitation District.

_____
Notary Public

My Commission Expires:_____

Registration No.:_____

HRSD/AGREEMENTS/PURCHASE AND SALE AGREEMENT HRSD AND LANDOWNER/SELLER

EXHIBIT A

Legal Description Parcel 35*147

All that certain tract, piece or parcel of land with the improvements thereon, lying, situate and being in the Sleepy Hole Borough, City of Suffolk, Virginia, as shown on that particular plat entitled: "PHYSICAL SURVEY OF 0.402 ACRE PARCEL PORTSMOUTH BOULEVARD AT SHINGLE CREEK SLEEPY HOLE BOROUGH SUFFOLK, VIRGINIA FOR CHARLES C. DICK", dated June 15, 1996, and made by Baldwin & Gregg, Ltd., Engineers-Surveyors-Planners of Norfolk, Virginia. Said Plat referenced herein is recorded in Deed Book 496 at page 459.

Legal Description for Portion to be Purchased

All that certain tract, piece or parcel of land with the improvements thereon, lying, situate and being in the Sleepy Hole Borough, City of Suffolk, Virginia, as shown and identified as "Area Acquired from Tax Map 35*147 = 2,313 S.F. / 0.53 Acre" and as more particularly shown on plat entitled: "Subdivision Plat of Tax Map #35*147 (P.B. 4, P. 3-Nansemond Co.) & Tax Map #35*147A (P.B. 6, P. 27-Nansemond Co.) for Hampton Roads Sanitation District Pump Station 159 Designated as Parcel C Suffolk Borough – Suffolk, Virginia Project: HRSD CIP#NP010620 – Shingle Creek" dated February 5, 2021 made by Rouse-Sirine Associates, Ltd., Land Surveyors, Mapping Consultants.

It being part of the property conveyed to Shingle Creek Associates, LLC by Deed from Charles C. Dick dated November 6, 2003 and recorded in the aforesaid Clerk's Office as Instrument No. 030022333 on November 18, 2003.

EXHIBIT B

[RESUBDIVISION PLAT]

THE SUBDIVISION OF PROPERTY, AS IT APPEARS ON THIS PLAT, IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE UNDERSIGNED OWNER(S), WHO ALSO DEDICATE THE STREETS TO THE CITY OF SUFFOLK AND AGREE TO COMPLY WITH ALL REQUIREMENTS OF THE SUBDIVISION ORDINANCE PRIOR TO THEIR ACCEPTANCE BY THE CITY.

OWNER: SHINGLE CREEK ASSOCIATES, LLC (INSTRUMENT #030022333)

SIGNED: _____, DATE: _____

PRINTED NAME: _____, TITLE: _____

OWNER: TRUSTEE FOR THE BENEFIT OF TowneBank, VIRGINIA BEACH BUSINESS LENDING CENTER
(INSTRUMENT #050014787)

SIGNED: _____, DATE: _____

PRINTED NAME: _____, TITLE: _____

STATE OF: _____

CITY/COUNTY OF: _____, TO WIT:

I, _____, A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT _____, OF SHINGLE CREEK ASSOCIATES, LLC, WHOSE NAME IS SIGNED TO THE FOREGOING WRITING HAS ACKNOWLEDGED THE SAME BEFORE ME IN MY CITY/COUNTY AND STATE AFORESAID.

GIVEN UNDER MY HAND THIS ____ DAY OF _____, 2021.

SIGNED: _____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

VIRGINIA NOTARY REGISTRATION # _____

STATE OF: _____

CITY/COUNTY OF: _____, TO WIT:

I, _____, A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT _____, TRUSTEE FOR TowneBank, VIRGINIA BEACH BUSINESS LENDING CENTER, WHOSE NAME IS SIGNED TO THE FOREGOING WRITING HAS ACKNOWLEDGED THE SAME BEFORE ME IN MY CITY/COUNTY AND STATE AFORESAID.

GIVEN UNDER MY HAND THIS ____ DAY OF _____, 2021.

SIGNED: _____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

VIRGINIA NOTARY REGISTRATION # _____

THE SUBDIVISION OF PROPERTY, AS IT APPEARS ON THIS PLAT, IS WITH THE FREE CONSENT AND IN ACCORDANCE WITH THE DESIRES OF THE UNDERSIGNED OWNER(S), WHO ALSO DEDICATE THE STREETS TO THE CITY OF SUFFOLK AND AGREE TO COMPLY WITH ALL REQUIREMENTS OF THE SUBDIVISION ORDINANCE PRIOR TO THEIR ACCEPTANCE BY THE CITY.

OWNER: ARZILLO INVESTMENTS INC. (INSTRUMENT #010012756)

SIGNED: _____, DATE: _____

PRINTED NAME: _____, TITLE: _____

STATE OF: _____

CITY/COUNTY OF: _____, TO WIT:

I, _____, A NOTARY PUBLIC IN AND FOR THE CITY/COUNTY AND STATE AFORESAID, DO HEREBY CERTIFY THAT _____, OF ARZILLO INVESTMENTS INC., WHOSE NAME IS SIGNED TO THE FOREGOING WRITING HAS ACKNOWLEDGED THE SAME BEFORE ME IN MY CITY/COUNTY AND STATE AFORESAID.

GIVEN UNDER MY HAND THIS ____ DAY OF _____, 2021.

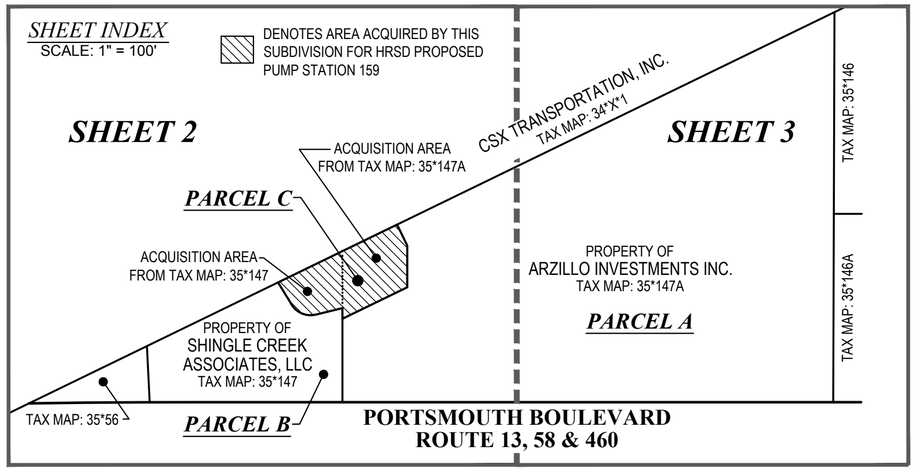
SIGNED: _____
NOTARY PUBLIC

MY COMMISSION EXPIRES: _____

VIRGINIA NOTARY REGISTRATION # _____

TAX MAP 35*147 OWNER/DEVELOPER:
SHINGLE CREEK ASSOCIATES, LLC
301 CLEVELAND PLACE, SUITE 103
VIRGINIA BEACH, VA 23462
TEL: 757-228-5745
CONTACT: RICHARD D. ALLRED
EMAIL: RICHARD @RDALLRED.COM

TAX MAP 35*147A OWNER/DEVELOPER:
ARZILLO INVESTMENTS INC.
302 DORSET WAY
SUFFOLK, VA 23434
TEL: 757-539-8593
CONTACT: JULIANNE ARZILLO
EMAIL: juliannearzillo@gmail.com



SURVEY NOTES

1. MERIDIAN SOURCE IS BASED UPON VIRGINIA STATE PLANE COORDINATE SYSTEM OF 1983, SOUTH ZONE (NAD 83) (1993 HARN), THE SUFFOLK GEODETIC CONTROL SYSTEM. COORDINATE VALUES ARE EXPRESSED IN U.S. SURVEY FEET.
2. THE PROPERTY ENCOMPASSED BY THIS SURVEY FALLS IN TAX MAP 35*147 & TAX MAP 35*147A.
3. TAX PARCEL 35*147 IS ZONED B-2, GENERAL COMMERCIAL. THIS PROPERTY IS IN A SPECIAL CORRIDOR OVERLAY DISTRICT (SCOD). SETBACK LINES ARE TAKEN FROM THE CITY OF SUFFOLK UDO. NO ZONING REPORT WAS FURNISHED AS PART OF THIS SURVEY.
4. TAX PARCEL 35*147A IS ZONED B-2, GENERAL COMMERCIAL AND M-1, LIGHT INDUSTRIAL, SEE RECORDED INSTRUMENT #20080428000059550 FOR RE-ZONING DETAILS, RZ 02-08. THIS PARCEL IS ALSO SUBJECT TO A CONDITIONAL USE PERMIT C03.08, SEE RECORDED INSTRUMENT #20080428000059540. THIS PROPERTY IS IN A SPECIAL CORRIDOR OVERLAY DISTRICT (SCOD). SETBACK LINES SHOWN ARE TAKEN FROM CITY OF SUFFOLK UDO. NO ZONING REPORT WAS FURNISHED AS PART OF THIS SURVEY.
5. TOTAL AREA OF THIS SUBDIVISION IS 132,861 SQUARE FEET OR 3.050 ACRES.
6. THE PROPERTY SHOWN HEREON APPEARS TO FALL WITHIN FLOOD ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN); FLOOD ZONE AE(EL10) WITH REGULATORY FLOODWAYS (SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD, WITH BASE FLOOD ELEVATIONS DETERMINED) AS SCALED FROM FEDERAL EMERGENCY MANAGEMENT AGENCY FLOOD INSURANCE RATE MAP COMMUNITY NUMBER 5101560231E, EFFECTIVE DATE AUGUST 3, 2015.
7. THIS SUBDIVISION PLAT WAS PREPARED IN ACCORDANCE WITH TITLE OPINION FILE NO. T301839, DATED JANUARY 22, 2021 (TAX MAP 35*147); AND FILE NO. T301874, DATED JANUARY 22, 2021 (TAX MAP 35*147A), PROVIDED BY KELLAM, PICKRELL, COX & ANDERSON, A PROFESSIONAL CORPORATION, ATTORNEYS AT LAW.
8. THE INTENT OF THIS SUBDIVISION PLAT CREATING PARCEL C IS FOR HAMPTON ROADS SANITATION DISTRICT PROPOSED PUMP STATION 159 IN CONNECTION WITH THE HRSD PROJECT, CIP#NP010620 - SHINGLE CREEK.

SUBDIVIDED ACQUISITION AREA TABLE

PARCEL	NON-CRITICAL AREA		CRITICAL AREA		TAX PARCEL #	ACCOUNT #	TOTAL AREA	
ORIGINAL PARCEL	SQ. FT.	ACRES	SQ. FT.	ACRES			SQ. FT.	ACRES
TAX MAP 35*147A	115,346	2.648	0	0	35*147A	302581000	115,346	2.648
NEW PARCELS								
PARCEL A	111,651	2.563	0	0	-	-	111,651	2.563
AREA ACQUIRED FROM 35*147A	3,695	0.085	0	0	-	-	3,695,	0.085
ORIGINAL PARCEL	SQ. FT.	ACRES	SQ. FT.	ACRES			SQ. FT.	ACRES
TAX MAP 35*147	17,515	0.402	0	0	35*147	301764000	17,515	0.402
NEW PARCELS								
PARCEL B	15,202	0.349	0	0	-	-	15,202	0.349
AREA ACQUIRED FROM 35*147	2,313	0.053	0	0	-	-	2,313	0.053
PARCEL C	6,008	0.138	0	0			6,008	0.138

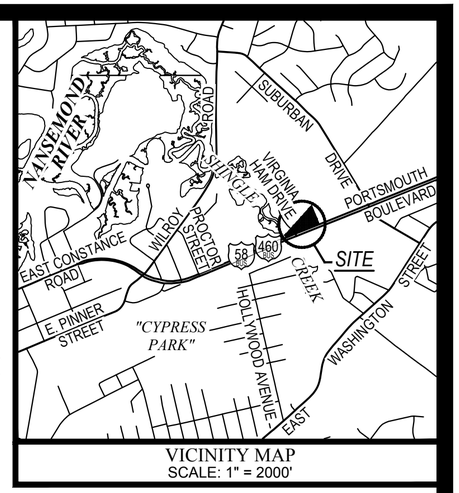
EASEMENTS AREA TABLE

TAX MAP PARCEL	15' PERMANENT UTILITY EASEMENTS TO BE CONVEYED TO CITY OF SUFFOLK			10' & VARIABLE WIDTH TEMPORARY CONSTRUCTION EASEMENT TO BE CONVEYED TO HRSD ONLY			VARIABLE WIDTH INGRESS/ EGRESS EASEMENT TO BE CONVEYED TO HRSD & CITY OF SUFFOLK			VARIABLE WIDTH INGRESS/ EGRESS EASEMENTS TO BE CONVEYED TO CITY OF SUFFOLK ONLY		
	AREA	SQ. FT.	ACRES	AREA	SQ. FT.	ACRES	AREA	SQ. FT.	ACRES	AREA	SQ. FT.	ACRES
35*147A	"A"	1,609	0.037	"C"	874	0.020		-	-	"E"	782	0.018
	"B"	185	0.004	"D"	1,461	0.034		-	-	-	-	-
35*147	"F"	1,513	0.035		-	-	"G"	4,087	0.094	"H"	262	0.006
TOTAL AREA		3,307	0.076		2,335	0.054		4,087	0.094		1,044	0.024

THE UNDERSIGNED CERTIFY THAT THIS SUBDIVISION, AS IT APPEARS ON THIS PLAT, CONFORMS TO THE APPLICABLE REGULATIONS RELATING TO THE SUBDIVISION OF LAND AND IS ACCORDINGLY APPROVED.
BY SUCH APPROVAL, THE UNDERSIGNED DO NOT CERTIFY AS TO THE CORRECTNESS OF THE STREETS, BOUNDARIES OR OTHER LINES SHOWN ON THIS PLAT.

SIGNED: _____, DATE: _____
AGENT, CITY OF SUFFOLK, VIRGINIA

COMMONWEALTH OF VIRGINIA
GREGORY V. O'BRYANT
Lic. No. 2647
LAND SURVEYOR



VICINITY MAP
SCALE: 1" = 2000'

I HEREBY CERTIFY THAT THIS SUBDIVISION PLAT WAS MADE BY ME AT THE DIRECTION OF THE OWNER AND THAT THIS SUBDIVISION IS ENTIRELY WITHIN THE BOUNDARIES OF LAND OWNED BY HIM/HER AND THAT STEEL PINS, AS SHOWN ON THIS PLAT BY SMALL CIRCLES, HAVE ACTUALLY BEEN PLACED AND THEIR LOCATIONS CORRECTLY SHOWN AND THAT THE PLAT DETAILS MEET THE STANDARDS FOR PLATS AS ADOPTED UNDER VC § 42.1-82 OF THE VIRGINIA PUBLIC RECORDS ACT (§ 42.1-76 et. seq.).

SIGNED: _____, DATE: _____
GREGORY V. O'BRYANT, L.S. #2647

SOURCE OF TITLE:

THE PROPERTY SHOWN ON THIS PLAT AS TAX MAP 35*147 WAS CONVEYED FROM CHARLES C. DICK (GRANTOR) TO SHINGLE CREEK ASSOCIATES, LLC (GRANTEE) BY DEED DATED NOVEMBER 6, 2003 AND RECORDED AS INSTRUMENT #030022333; SAID DEED BEING DULY RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF THE CITY OF SUFFOLK, VIRGINIA.

THE PROPERTY SHOWN ON THIS PLAT AS TAX MAP 35*147A WAS CONVEYED FROM INDEPENDENT TRUSTEES, INC., SUBSTITUTE TRUSTEE, AND U.S.A. CONSTRUCTION, L.L.C. (GRANTORS) TO ARZILLO INVESTMENTS INC. (GRANTEE) BY DEED DATED OCTOBER 15, 2001 AND RECORDED AS INSTRUMENT #010012756; SAID DEED BEING DULY RECORDED IN THE CLERK'S OFFICE OF THE CIRCUIT COURT OF THE CITY OF SUFFOLK, VIRGINIA.

SUBDIVISION PLAT
OF
TAX MAP #35*147 (P.B. 4, P. 3-NANSEMOND CO.)
&
TAX MAP #35*147A (P.B. 6, P. 27-NANSEMOND CO.)
FOR
HAMPTON ROADS SANITATION DISTRICT
PUMP STATION 159
DESIGNATED AS
PARCEL C
SUFFOLK BOROUGH - SUFFOLK, VIRGINIA
PROJECT: HRSD CIP#NP010620 - SHINGLE CREEK
SCALE: 1" = 20' MAY 25, 2021

ROUSE-SIRINE ASSOCIATES, LTD.
LAND SURVEYORS, MAPPING CONSULTANTS & S.U.E. QUALITY LEVELS "A-D"
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333 OFFICE SQUARE LANE
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TEL.(757)490-2300
FAX:(757)499-9136
1311 JAMESTOWN ROAD
SUITE 103
WILLIAMSBURG, VIRGINIA 23185
TEL.(757)903-4695

J.O. #13321-2 ACAD:13321-2-HRSD PS 159 Subdivision Plat.dwg

LEGEND

- PROPOSED PERMANENT UTILITY EASEMENT TO BE CONVEYED TO CITY OF SUFFOLK
- PROPOSED VARIABLE WIDTH PERMANENT INGRESS/EGRESS EASEMENT TO BE CONVEYED TO HRSD AND TO THE CITY OF SUFFOLK
- PROPOSED TEMPORARY CONSTRUCTION EASEMENT TO BE CONVEYED TO HRSD
- PROPOSED VARIABLE WIDTH PERMANENT INGRESS/EGRESS EASEMENT TO BE CONVEYED TO THE CITY OF SUFFOLK

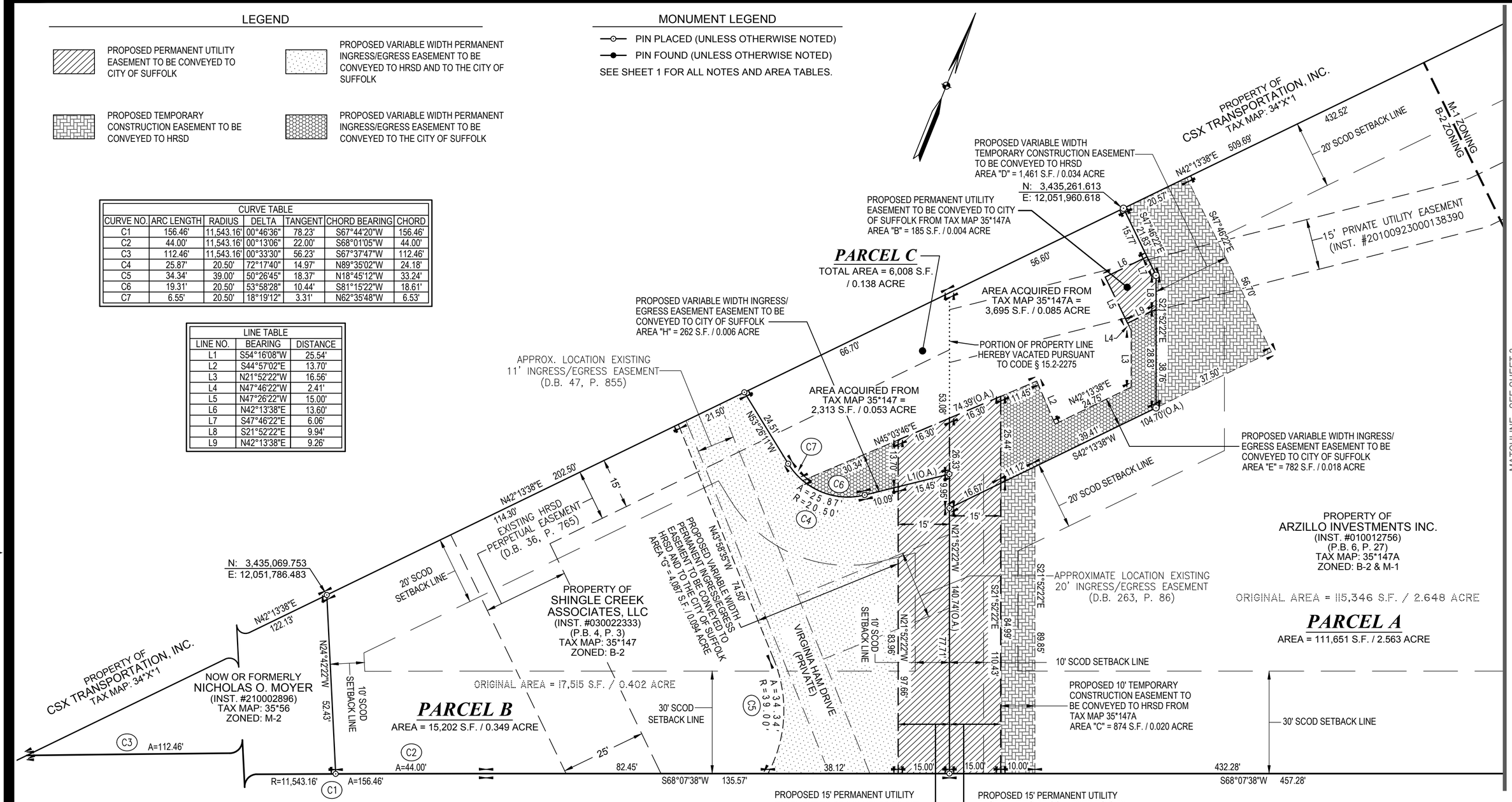
MONUMENT LEGEND

- PIN PLACED (UNLESS OTHERWISE NOTED)
- PIN FOUND (UNLESS OTHERWISE NOTED)

SEE SHEET 1 FOR ALL NOTES AND AREA TABLES.

CURVE TABLE						
CURVE NO.	ARC LENGTH	RADIUS	DELTA	TANGENT	CHORD BEARING	CHORD
C1	156.46'	11,543.16'	00°46'36"	78.23'	S67°44'20"W	156.46'
C2	44.00'	11,543.16'	00°13'06"	22.00'	S68°01'05"W	44.00'
C3	112.46'	11,543.16'	00°33'30"	56.23'	S67°37'47"W	112.46'
C4	25.87'	20.50'	72°17'40"	14.97'	N89°35'02"W	24.18'
C5	34.34'	39.00'	50°26'45"	18.37'	N18°45'12"W	33.24'
C6	19.31'	20.50'	53°58'28"	10.44'	S81°15'22"W	18.61'
C7	6.55'	20.50'	18°19'12"	3.31'	N62°35'48"W	6.53'

LINE TABLE		
LINE NO.	BEARING	DISTANCE
L1	S54°16'08"W	25.54'
L2	S44°57'02"E	13.70'
L3	N21°52'22"W	16.56'
L4	N47°46'22"W	2.41'
L5	N47°26'22"W	15.00'
L6	N42°13'38"E	13.60'
L7	S47°46'22"E	6.06'
L8	S21°52'22"E	9.94'
L9	N42°13'38"E	9.26'



SCOD YARD REQUIREMENTS

30' FRONT SETBACK - ALL BUILDINGS, DRIVES AND PARKING AREAS, STORMWATER DETENTION AND RETENTION STRUCTURES, AND BEST MANAGEMENT PRACTICES (BMPs) SHALL HAVE A MINIMUM 30-FOOT FRONT, SIDE, AND REAR YARD SETBACK FROM AN ADJACENT PUBLIC RIGHT-OF-WAY DESIGNATED AS A SPECIAL CORRIDOR OVERLAY DISTRICT (SCOD).

*10' SIDE SETBACK - THE SIDE YARD SETBACKS FOR BUILDINGS, DRIVES AND PARKING AREAS, AND STORMWATER DETENTION AND RETENTION STRUCTURES, AND BEST MANAGEMENT PRACTICES (BMPs) SHALL BE A MINIMUM OF TEN FEET EXCEPT WHEN ADJACENT TO ANY AGRICULTURAL OR RESIDENTIAL DISTRICT, WHERE THE MINIMUM SETBACK SHALL BE 20 FEET.

*20' REAR SETBACK - THE MINIMUM REAR YARD SETBACK FOR BUILDINGS, DRIVES AND PARKING AREAS, AND STORMWATER DETENTION AND RETENTION STRUCTURES, AND BEST MANAGEMENT PRACTICES (BMPs) SHALL BE 20 FEET, EXCEPT WHEN ADJACENT TO ANY AGRICULTURAL OR RESIDENTIAL DISTRICT, WHERE THE MINIMUM SETBACK SHALL BE 30 FEET.

* = NON-RESIDENTIAL OR AGRICULTURAL ADJACENT DISTANCES

COMMONWEALTH OF VIRGINIA
GREGORY V. O'BRYANT
Lic. No. 2647
LAND SURVEYOR

SUBDIVISION PLAT
OF
TAX MAP #35*147 (P.B. 4, P. 3-NANSEMOND CO.)
&
TAX MAP #35*147A (P.B. 6, P. 27-NANSEMOND CO.)
FOR
HAMPTON ROADS SANITATION DISTRICT
PUMP STATION 159
DESIGNATED AS
PARCEL C
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0 20 40 60 FEET
GRAPHIC SCALE

J.O. #13321-2 ACAD:13321-2-HRSD PS 159 Subdivision Plat.dwg

NOW OR FORMERLY
PRILLAMAN CHEMICAL CORPORATION
(D.B. 251, P. 416)
TAX MAP: 35*146
ZONED: M-2

N: 3,435,597.118
E: 12,052,265.126

187.86'

S21°40'53"E 363.37'

PIN(F) ON LINE

NOW OR FORMERLY
PRILLAMAN CHEMICAL CORPORATION
(D.B. 251, P. 416)
TAX MAP: 35*146A
ZONED: B-2

175.51'

PIN(F)

10' SCOD SETBACK LINE

20' SCOD SETBACK LINE

APPROXIMATE EASEMENT LOCATION AS AGREED OF RAIL-TRACK (INST. #201009230001353390) (D.B. 301, P. 31-38)

EASEMENT (INST. #201009230001353390)

15' PRIMATE UTILITY

1-STORY METAL WAREHOUSE #960

CSX TRANSPORTATION, INC.
PROPERTY OF
TAX MAP: 34-X-1

M-1 ZONING CHANGE
(INST. #200804280000559550)
CONDITIONAL USE PERMIT C03-08
(INST. #200804280000559540)

M-1 ZONING
B-2 ZONING

PROPERTY OF
ARZILLO INVESTMENTS INC.
(INST. #010012756)
(P.B. 6, P. 27)
TAX MAP: 35*147A
ZONED: B-2 & M-1

30' SCOD SETBACK LINE

N42°13'39"E 509.69'

423.42'

432.28'

S68°07'38"W 592.85'(O.A.)

PORTSMOUTH BOULEVARD
ROUTE 13, 58 & 460
(121' RIGHT-OF-WAY)

ORIGINAL AREA = 115,346 S.F. / 2.648 ACRE

PARCEL A
AREA = 111,651 S.F. / 2.563 ACRE

MONUMENT LEGEND

- PIN PLACED (UNLESS OTHERWISE NOTED)
- PIN FOUND (UNLESS OTHERWISE NOTED)

SEE SHEET 1 FOR ALL NOTES AND AREA TABLES.

COMMONWEALTH OF VIRGINIA
GREGORY V. O'BRYANT
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LAND SURVEYOR

SUBDIVISION PLAT
OF
TAX MAP #35*147 (P.B. 4, P. 3-NANSEMOND CO.)
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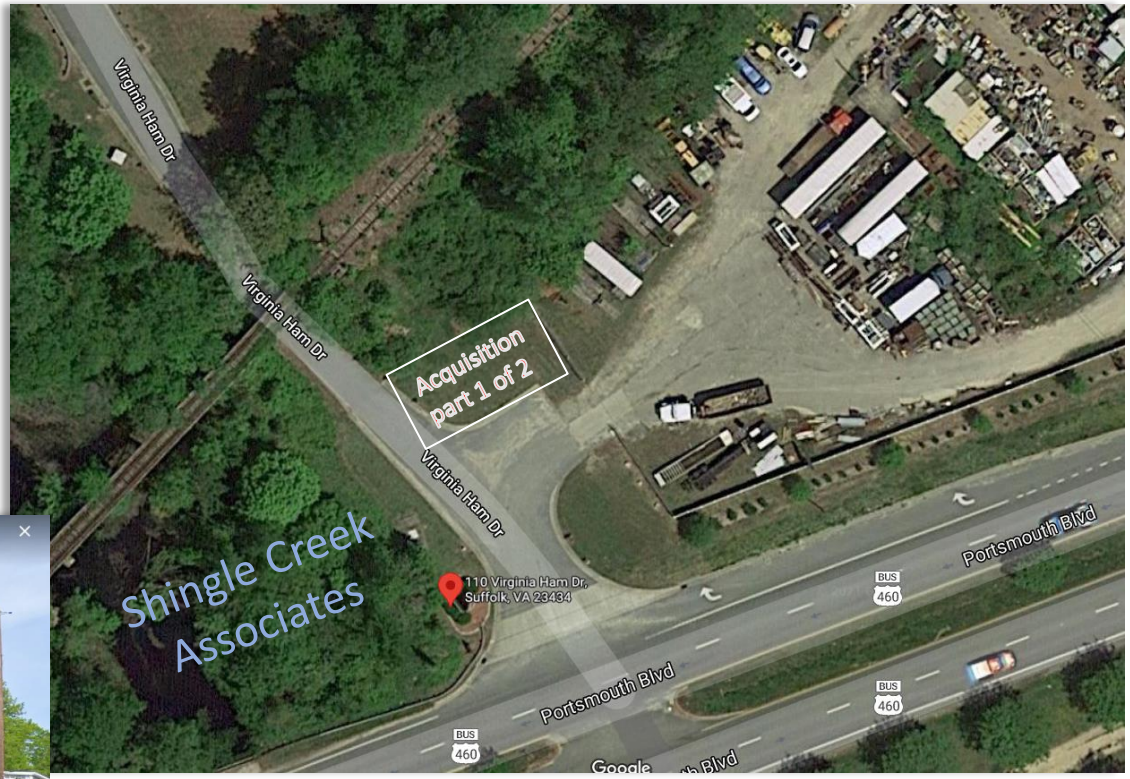
0 20 40 60 FEET
GRAPHIC SCALE

MATCHLINE - SEE SHEET 2

J.O. #13321-2 ACAD:13321-2-HRSD PS 159 Subdivision Plat.dwg

Location Map: portion of larger parcel to be subdivided for the future pump station site



Resource: Kyle Curtis

AGENDA ITEM 10. – July 27, 2021

Subject: COVID-19 Wastewater Surveillance Study Update

Recommended Action: No action is required.

Brief: Staff will present the latest data and status of the COVID-19 surveillance work.

Resource: Bruce Husselbee

AGENDA ITEM 11. – July 27, 2021

Subject: Capital Improvement Program (CIP)
Quarterly Update

Recommended Action: No action is required.

Brief: Implementing the CIP continues to be a significant challenge as we address numerous regulatory requirements, SWIFT Program implementation and the need to replace aging infrastructure. Staff will provide a briefing describing the status of the CIP, financial projections, projects of significance and other issues affecting the program.

Resource: Ted Henifin

AGENDA ITEM 12. – July 27, 2021

Subject: Unfinished Business

AGENDA ITEM 13. – July 27, 2021

Subject: New Business

AGENDA ITEM 14. – July 27, 2021

Subject: Commissioner Comments

AGENDA ITEM 15. – July 27, 2021

Subject: Public Comments Not Related to Agenda

Resource: Ted Henifin

AGENDA ITEM 16. – July 27, 2021

Subject: Informational Items

Recommended Action: No action is required.

Brief: The following items listed below are presented for information.

a. Management Reports

(1) General Manager

(2) Communications

(3) Engineering

(4) Finance

(5) Information Technology

(6) Operations

(7) Talent Management

(8) Water Quality

(9) Report of Internal Audit Activities

(10) Internal Audit – Succession Planning

b. Strategic Planning Metrics Summary

c. Effluent Summary

d. Air Summary

e. Emergency Declarations – Mineral Oil Purchase

July 19, 2021

Re: General Manager's Report

Dear Commissioners:

The early results from Fiscal Year 2021 are reflected in the attached monthly reports. At first glance, we ended the year in good shape, considering the impact of the global pandemic on all aspects of our business. The numbers will change as we close out the year and capture all obligated costs and pay invoices from June, but overall, another good year. We ended with billed revenues exceeding budget and expenses well below budgeted projections. We successfully removed more than 183 million pounds of pollutants and discharged only 20 percent of what our permits allow. The final capital program expenditures are likely to exceed $200 million, approaching our largest CIP execution in a single year. All while working to keep our staff of essential workers safe from COVID.

And while largely successful, there are some areas of concern to be noted. Permit compliance is a hallmark of HRSD's history and culture. We take great pride in meeting all permit compliance limits, and over the course of this past year there were 60,879 points of required compliance. However, we missed the mark 23 times over the course of the fiscal year, largely due to issues with some of our smaller plants. While 23 is high by our own standards, that represents a compliance rate of greater than 99.96 percent. We are working to return to more typical number of permit exceptions in Fiscal Year 2022.

Of greatest concern is the growing number of accounts with overdue balances. We successfully applied nearly $6 million in CARES Act funds to accounts where customers experienced COVID-related financial impact but the number of accounts overdue continues to grow. At year's end we have more than $19.3 million outstanding in active accounts. We are ramping up efforts to begin collection processes that have been suspended during COVID but with the number of accounts impacted, this promises to be challenging. We can anticipate significant attention in the news as we work to get these accounts current. HRSD is not facing this challenge alone. Utilities across the nation are struggling to address this issue and our professional associations continue to advocate for Federal assistance to address this challenge. We will remain engaged at the state and Federal levels, pushing for direct assistance to help HRSD customers recover from this delayed COVID impact.

The highlights of June's activities are detailed in the attached monthly reports.

A. **Treatment Compliance and System Operations:** The Surry County facility had three permit exceedances in June. There were no spills in the Interceptor System. There were several spills in Surry County related to an intense rain event.

B. **Internal Communications:** I participated in the following meetings/activities with HRSD personnel:

1. A meeting to review James River Treatment Plant (JRTP) land acquisition
2. One new employee orientation session
3. A meeting to review contract status for the JRTP advanced nutrient project and SWIFT
4. A meeting to review strategy for requesting American Recovery Plan Act funding
5. The second meeting of the internal Eastern Shore Program Team
6. A meeting to discuss access to Portsmouth's billing system which has been disabled since the ransomware attack
7. A meeting to prepare for the Joslin lawsuit for a claim of damages related to a sewer overflow in Suffolk in September 2020

C. **External Communications:** I participated in the following meetings/activities:

1. The meeting of the Newport News Planning Commission in which they considered HRSD's conditional use permit application for the JRTP expansion
2. Presented a SWIFT update to the Hampton Roads Planning District Commission (HRPDC) Environmental Committee
3. Presented a SWIFT update to a VIMS York River Science Committee
4. Multiple meetings regarding the update to the Virginia Forever strategic plan
5. An Eastern Shore update with community leaders
6. The media day for the Woodstock Skate Park project
7. The dedication ceremony for the Woodstock Skate Park
8. Participated on a panel convened by the Water Tower and Resilience Hub (Gwinnett, GA)
9. The Newport News City Council meeting where they considered the HRSD Conditional Use Permit application for JRTP
10. Participated in a meeting as a member of the Eastern Virginia Groundwater Management Committee
11. The quarterly meeting of the Potomac Aquifer Recharge Oversight Committee
12. The US Water Alliance's One Water Council
13. Two meetings of the Water Agency Leaders Alliance
14. The second coordination meeting with the City of Newport News for due diligence activities related to the land purchase adjacent to the JRTP

D. **Consent Decree Update:**

- The Commonwealth has signed off on the Fifth Amendment. I confirmed that EPA has also signed off on the Fifth Amendment but we are still waiting for DOJ final signatures before lodging with the Norfolk District Court. We continue to anticipate final signatures will be forthcoming, but this unusual delay now threatens the compliance schedule HRSD committed to meeting in the submitted plan. At this pace we will be 2-years into the first 10-year compliance period before we get approval, effectively reducing our compliance period to eight years.

- HRSD submitted a response to the stipulated penalty demand related to the January spill in the James River.

We will be meeting in person next week in the VIP Conference Room at 1434 Air Rail Avenue in Virginia Beach. Each Commissioner will have their individual device connected to Zoom (muted) and a centralized microphone and speaker for audio on Zoom. Zoom will be displayed on the screens in the meeting as well. This will allow the continued remote attendance of the public and staff, minimizing the number of people in the conference room. This is necessary to avoid having to maintain physical distancing of unvaccinated people that may desire to attend. We are under the impression all Commissioners are fully vaccinated. If you are not vaccinated please contact Jennifer to ensure we set the room up to provide appropriate space for your in-person attendance.

The Executive Search Committee (Commissioners Taraski, Levenston, and Rodriguez) will be meeting at 8:15 a.m., before the Commission meeting. All Commissioners are invited to attend as schedules permit. During this month's meeting the Committee will select a chairperson, review the qualifications of three executive recruitment firms, and set the schedule for future meetings.

Immediately following the Commission meeting, we will move to the new Water Quality Services building for a short dedication ceremony followed by building tours and lunch.

The leadership and support you provide are the keys to our success as an organization. Thanks for your continued dedicated service to HRSD, the Hampton Roads region, the Commonwealth, and the environment. **I look forward to seeing you in person on Tuesday, July 27, 2021**.

Respectfully submitted,

Ted Henifin, P.E.
General Manager

TO: General Manager

FROM: Director of Communications

SUBJECT: Monthly Report for June 2021

DATE: July 12, 2021

A. Publicity and Promotion

HRSD and/or SWIFT were mentioned or featured in 11 news stories or media mentions on topics that included:

1. Opening of Woodstock Park
2. Letters to the editor praising Water Workers in honor of Water & Wastewater Professionals Day
3. Virginia Beach Student Artist selected for Mural at Atlantic Treatment Plant

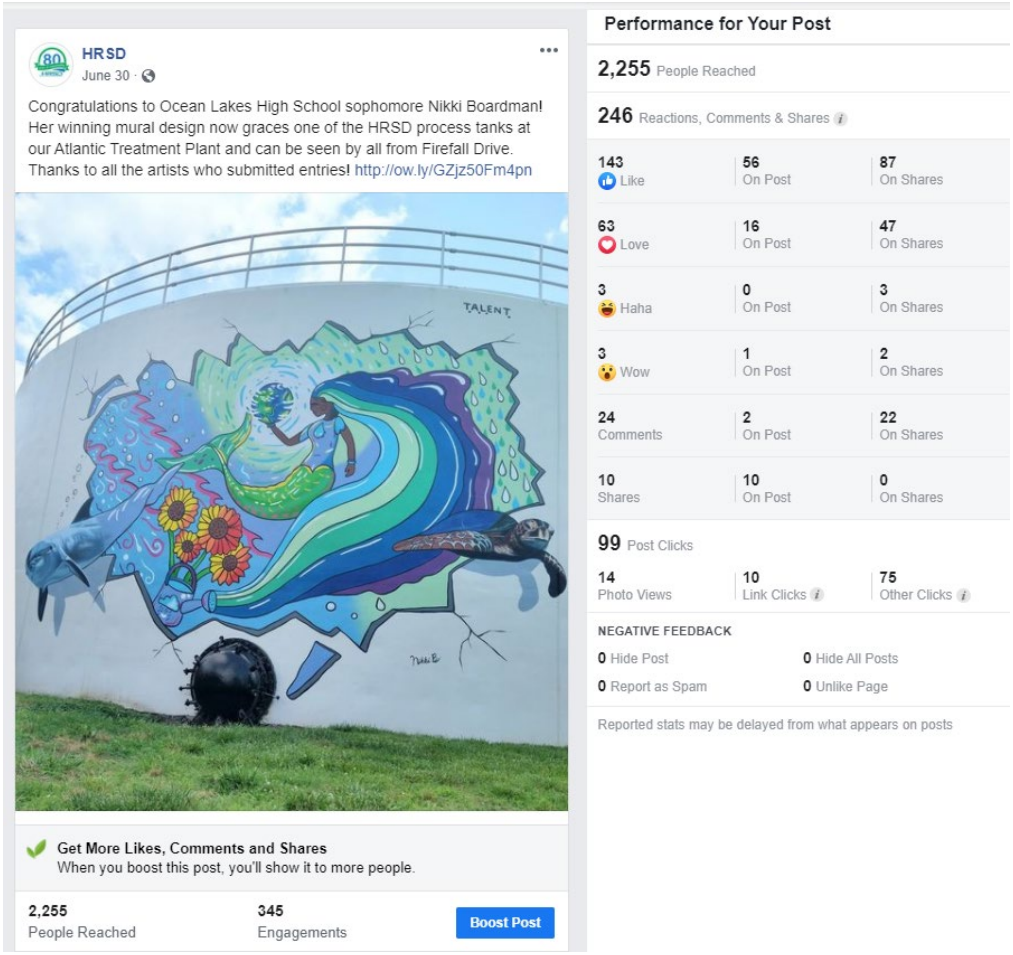
B. Social Media and Online Engagement

1. Metrics

Social Media Metrics June 2021				
METRIC	**FACEBOOK**	**LINKEDIN**	**TWITTER**	**YOUTUBE**
Number of Posts *number of published posts	17 **-3**	2 **-5**	15 **-3**	**1:38** average view duration (down 30% from previous month)
Number of Followers/Likes *total number of fans	1,606 **+10**	5,289 **+13**	559 **+6**	228 **+5**
Engagement *sum of reactions comments and shares	378 **+113**	57 **-70**	29 **-7**	707 unique viewers **-58**
Traffic *total clicks on links posted	78 **-28**	77 **-163**	76 **+1**	3.5% click-through **-.5%**

2. Top posts on Facebook, Twitter, and YouTube

a. Top Facebook post



b. Top Tweet

c. Top YouTube Videos

(1) The Wastewater Treatment Process

(2) HRSD's Woodstock Park Wet Weather Storage Tank

(3) What is Asset Management? HRSD Celebrates Infrastructure Week | United for Infrastructure

(4) RSD Atlantic Treatment Plant Cambi Tour

(5) HRSD Employee Testimonials – Robert

3. Impressions and Visits

a. Facebook: 9.727 page impressions, 8,690 post impressions reaching 2,997 users and Facebook engagement of 632 (324 reactions, 71 link clicks, 26 shares and 27 comments)

b. Twitter: 7,548 tweet impressions; 530 profile visits and 8 mentions, 29 engagements

c. HRSD.com/SWIFTVA.com: 1,093 page visits

d. LinkedIn Impressions: 2,409 page impressions and 1,392 post impressions

e. YouTube: 899 views

f. Next Door unique impressions: 941 post views from five targeted neighborhood postings

g. Blog Posts: 0

h. Construction Project Page Visits – 1534 total visits (not including direct visits from home page, broken down as follows:

(1) 1198 visits to individual pages
(2) 336 to the status page

C. News Releases, Advisories, Advertisements, Project Notices, Community Meetings and Project Web Postings

1. News Releases: 2

2. Traffic Advisories: 0

3. Construction Notices and or notices to neighbors: 4

4. Advertisements: 0

5. Project Notices: 6 (via door hangings and/or mailing reaching approximately 103 residents)

6. Project/Community Meetings: 1 (related to Virginia Beach Boulevard Project impacts)

7. New Project Web Pages: 0

8. New Project Videos: 0

D. Special Projects and Highlights

1. Director and staff, together with the City of Virginia Beach Parks & Recreation staff hosted a media sneak peek ahead of the Woodstock Park Skate Park Grand Reopening on June 15, with the official park reopening event occurring the following day. Media Day featured several demonstration skaters, providing plenty of photo opportunities and park user interviewers for the media in attendance, and both HRSD and the City provided several subject matter experts to answer reporters' questions. The event garnered positive coverage from several news outlets.

2. The Woodstock Park reopening event was the highlight of June, and was by all measures, a huge success, demonstrating the culmination of a solid partnership with the City of Virginia Beach, HRSD and its consultants and contractors. Virginia Beach Mayor Dyer spoke highly of the effort put forth by all partners to deliver such a meaningful facility.

3. Director and staff participated in Larchmont Area Sanitary Sewer Improvement project's partnering session with city stakeholders and consultants and contractors.

E. Internal Communications

1. Director participated in the following internal meetings and events:

   a. DEI council development meetings, including applicant reviews
   b. Meetings with Operations staff for Atlantic Treatment Plant mural project
   c. Meetings with Water Quality staff for upcoming Water Quality Services Building Opening event
   d. Meetings with Customer Care management in preparation to launch PromisePay option to Model 1 customers
   e. Weekly Leadership and COVID-19 meetings
   f. Discharge Monitoring Report (DMR), SWIFT Quality Steering Team (QST) and QST meetings
   g. Potomac Aquifer Recharge Oversight Committee meeting

2. Director conducted biweekly communications department status meetings and weekly one-on-one and team check-in meetings.

3. Staff attended project progress meetings and presentation and outreach development meetings with various project managers.

F. Metrics

1. Educational and Outreach Activities (all virtual unless otherwise noted):

   a. Self-guided SWIFT Virtual Tours – 28 views (analytics specify number of times the “Take a Tour” button was selected)

2. Number of Community Partners: 2

   a. London Bridge Shopping Center, Virginia Beach (Starbucks)
   b. Starbase Victory (Portsmouth)

3. Additional Activities Coordinated by Communications Department: 1

4. Monthly Metrics Summary

Item #	Strategic Planning Measure	Unit	June 2021
M-1.4a	Total Training Hours per Full Time Employee (3) - Current Month	Hours / #FTE	2.83
M-1.4b	Total Training Hours per Full Time Employee (3) - Cumulative Fiscal Year-to-Date	Hours / #FTE	69.66
M-5.2	Educational and Outreach Events	Number	28
M-5.3	Number of Community Partners	Number	2

Respectfully,

Leila Rice, APR
Director of Communications

TO: General Manager

FROM: Director of Engineering

SUBJECT: Engineering Monthly Report for June 2021

DATE: July 12, 2021

A. General

1. Capital Improvement Program (CIP) spending for the 11th month of Fiscal Year (FY) 2021 was above the planned spending target with costs for the James River SWIFT Project becoming more substantial:

CIP Spending ($M):

	Current Period	FYTD
Actual	31.81	191.12
Plan	16.50	218.50

2. A potential master planning effort will be considered at the Atlantic Treatment Plant. Several factors are creating a need to look at the plant and the surrounding Progress Farm in a more global fashion. These issues include:

- Results of the ongoing Climate Change Study and the potential for future flooding
- Staff desire to install more berms and landscaping to limit impacts to the adjacent neighbors
- Plan for future roadway into the plant
- Wetlands impacts of future elimination of farming in portions of the cultivated area
- Future hydraulic expansion and needs to address increases in flow from the Chesapeake-Elizabeth Treatment Plant

This proposed study will be considered and added to future funding requests depending on the scope and cost of this effort.

B. Asset Management Division

1. A special study is underway to better understand the impacts of hydrogen sulfide (H2S) gas on HRSD's force main system. A model known as the Wastewater Aerobic/Anaerobic Transformation Sewer (WATS) is being used to identify potential H2S hot spots. These hot spots have historically caused internal corrosion of force mains and excessive amounts of gas. The challenge is to find these locations prior to the pipeline failing. Engineering is working with both Operations and Water Quality to conduct this study. To calibrate the model, gas samples have been taken from air vents in two pilot areas including Smithfield and Nansemond. An initial phase of the work has been completed and results are under review. The second phase of the work will involve collecting samples during summer months to observe the differences in water temperature on H2S formation.

2. Preparation of an Asset Management Plan is underway for HRSD's Small Communities. The plan will include sewer collection systems, pump stations and treatment plants in the Middle Peninsula, Surry, and eventually the Eastern Shore. The initial effort is focused on condition assessment at the treatment plants in the Middle Peninsula. No condition assessment will be performed at the Surry Treatment Plants since they are closing in the next year. The condition assessment of the sewer collection systems should be relatively straightforward since much of these systems are composed of gravity systems which can be accessed and inspected.Creation of this plan is estimated to take at least a year to complete.

C. North Shore, South Shore and SWIFT Design & Construction Divisions

1. The Surry Force Main and Pump Station – Dominion Power project began in June. This is a joint effort between HRSD and Dominion Power to consider the feasibility of closing the wastewater treatment plant located at the Surry Nuclear Power facility. The project will include a new sewer pump station and approximately 6.5 miles of force main. This force main will be connected to the Mt. Ray Pump Station currently under construction. The Design Engineer has conducted a site visit and has begun preparation of the Preliminary Engineering Report (PER). Once the PER is completed, an updated scope, schedule and cost estimate can be prepared. This updated information will be the basis of a final agreement between HRSD and Dominion Power. The PER should be completed before the end of the year.

2. Two pump station projects under design are in the process of a major change in scope. These projects include the Washington District Pump Station and the Dozier's Corner Pump Station. The project originally entailed the rehabilitation and/or replacement of aging infrastructure at each pump station. A separate but related effort involved the flood mitigation of these pump stations. The best way to address both rehabilitation and flood proofing of these pump stations is to build new stations to meet both requirements. This will increase the project budget but will provide for the best long-term solution at each location. Since the Washington District Pump station project is an EPA rehabilitation Plan Phase 2 project, this work must move forward quickly to meet the May 5, 2025, deadline.

3. The James River SWIFT and James River Advanced Nutrient Reduction Improvements projects have reached two important regulatory milestones. The City of Newport News Planning Commission approved the Conditional Use Permit (CUP) application on June 2 and the City Council approved the CUP on June 22. The next regulatory approval needed is the Site Plan review. The submittal must include these two projects and in addition will require the plan approvals for the recharge well sites, park trails and shoreline stabilization efforts. The Project Team expects to make the formal site plan submittal in October.

D. Planning & Analysis Division

1. The Climate Change Study Team made two presentations to HRSD staff in June. The presentations focused on the analysis at the Atlantic Treatment Plant. This analysis provided information on future flooding potential and the risk to existing infrastructure if efforts are not made to mitigate against this possibility. Infrastructure damage costs were provided so that mitigation options could be compared. This information was provided in a dashboard format to allow for consideration of various mitigation scenarios. This information was found to be very valuable, and a scope/fee was requested to provide a similar analysis at some of HRSD's other large treatment plants.

2. The Planning & Analysis Division continues to review and approve submittals from the various Federal Facilities located here in Hampton Roads as part of the Consent Decree to reduce sanitary sewer overflows in the region. There are 18 Federal Facilities under Administrative Order with HRSD. We are currently reviewing two Federal Facility submittals and four of the facilities are currently working on rehabilitating their systems with the remaining federal facilities in the process of doing system inventory and capacity assessments.

E. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 5

   a. 06/02/2021 – Panel Discussion at the Virginia Water Environment Association (VWEA) Utility of the Future Virtual Seminar.
   b. 06/16/2021 – Presentation of HRSD's HydroGrav Project at the Water Environment Federation (WEF) Innovations in Process Engineering Webinar.
   c. 06/16/2021 – Provided Guided Tours as Part of the Woodstock Park Ribbon Cutting Ceremony in Virginia Beach.
   d. 06/17/2021 – Presentation of HRSD's SWIFT Program to the Virginia Beach Kiwanis Club.
   e. 06/30/2021 – Provided a Guided Virtual Tour of HRSD's SWIFT Research Center to a Student Group as Part of the City of Portsmouth's StarBase Victory Summer Program.

2. Number of Community Partners: 4

   a. VWEA
   b. WEF
   c. Kiwanis Club of Virginia Beach
   d. City of Portsmouth Public Schools

3. Number of Research Partners: 1

   a. Water Research Foundation – Practical Framework for Resiliency Planning

4. Monthly Metrics Summary:

Item #	Strategic Planning Measure	Unit	June 2021
M-1.4a	Total Training Hours per Full Time Employee (44) - Current Month	Hours / #FTE	2.30
M-1.4b	Total Training Hours per Full Time Employee (44) - Cumulative Fiscal Year-to-Date	Hours / #FTE	23.40
M-5.2	Educational and Outreach Events	Number	5
M-5.3	Number of Community Partners	Number	4
M-5.4	Number of Research Partners	Number	1

5. Annual Metrics:

Item #	Strategic Planning Measure	Unit	FY-2021
M-2.1	CIP Delivery – Budget	Percentage	123%
M-2.2	CIP Delivery – Schedule	Percentage	155%
M-5.4	Number of Research Partners	Number	2

Sincerely,
Bruce W. Husselbee, PhD, PE

TO: General Manager

FROM: Director of Finance

SUBJECT: Monthly Report for June 2021

DATE: July 14, 2021

A. General

1. Fiscal Year 2021 year-end billed revenues were strong led by increased water consumption that roughly ties to the ramp up in vaccinations and the ongoing economic recovery. Water consumption ended 3.8 percent higher than budget and 2.5 percent higher than our three-year average. Facility Charges were significantly higher than budget as home sales remain at record levels. Over 3,000 homes were sold in April which is a 37 percent increase from 2019 to 2021. New construction permits remain robust, but labor and material shortages loom. Interest Income was severely impacted by the Federal Reserve's zero percent short-term rate target as it ended the fiscal year at 31 percent of budget. On the flip side, HRSD's $50 million in weekly resetting variable rate has been most recently at 0.02 percent. This asset to liability management approach has worked very well since being implemented in 2012 and has averaged 0.39 percent. Total Revenues ended the fiscal-year 2 percent higher than budget. Personal Services ended below budget which was partially due to the 30-day delay on all job openings. Fringe Benefits ended lower due to reduced medical spending. All other operating expenses, except utilities, were significantly below budget on a cash basis. Some of these funds were encumbered and will be carried over into FY 2022. Overall, revenues exceeded expenses which is great news in a very tough pandemic laden year.

2. Delinquencies have been increasing since April 2021, even with the recovering economy. There was an increase of approximately 3,400 active accounts and $1 million in the greater than 60-day bucket on a month-over-month basis. With the Governor's emergency declaration ending on June 30, 2021, utility service disconnections are allowed to resume after August 29, 2021, and we expect this trend to change. As part of HRSD resuming collections in the coming weeks, we are developing a Communication Plan with the Direction of Communications to ensure customers and locality partners are fully informed, and we have partnered with PromisePay in a pilot program to enhance customers' options for personal debt resolution. PromisePay will be taking COVID-19 attestations so that we can distribute the remaining CARES money, up to $125 per account, with the remaining amount owed placed in a customized pay plan. Based on required notifications from HB919, the first shut-offs should resume this fall. Staff continues to work with the Salvation Army to apply Help to Others (H2O) and is also tracking the new Federal Low Income Household Water Assistance Program (LIHWAP) that is expected to roll out later this year. Even though the Enabling Act revisions provide more options to help customers financially, we need see how LIHWAP rolls out so that we can potentially build our program around it.

B. Interim Financial Report

1. Operating Budget for the Period Ended June 30, 2021

	Amended Budget	Current YTD	Current YTD as % of Budget (100% Budget to Date)	Prior YTD as % of Prior Year Budget
Operating Revenues				
Wastewater	$ 312,218,000	$ 319,593,543	102%	99%
Surcharge	1,522,000	1,635,741	107%	108%
Indirect Discharge	3,200,000	3,232,561	101%	111%
Fees	3,020,000	(379,889)	-13%	95%
Municipal Assistance	700,000	689,898	99%	89%
Miscellaneous	1,165,000	1,597,658	137%	226%
Total Operating Revenue	321,825,000	326,369,512	101%	99%
Non Operating Revenues				
Facility Charge	6,160,000	7,755,180	126%	104%
Interest Income	1,510,000	468,285	31%	147%
Build America Bond Subsidy	2,292,000	2,167,225	95%	92%
Other	610,000	1,271,317	208%	145%
Total Non Operating Revenue	10,572,000	11,662,007	110%	117%
Total Revenues	332,397,000	338,031,519	102%	100%
Transfers from Reserves	28,765,873	28,765,873	100%	100%
Total Revenues and Transfers	$ 361,162,873	$ 366,797,392	102%	100%
Operating Expenses				
Personal Services	$ 60,952,502	$ 59,916,177	98%	100%
Fringe Benefits	24,945,953	24,473,764	98%	99%
Materials & Supplies	9,663,402	9,443,891	98%	103%
Transportation	1,579,254	1,077,967	68%	74%
Utilities	13,019,361	12,698,990	98%	97%
Chemical Purchases	10,500,337	8,183,789	78%	79%
Contractual Services	51,831,008	34,924,415	67%	69%
Major Repairs	13,076,208	7,476,735	57%	63%
Capital Assets	867,079	649,013	75%	47%
Miscellaneous Expense	3,721,391	3,339,764	90%	85%
Total Operating Expenses	190,156,495	162,184,505	85%	87%
Debt Service and Transfers				
Debt Service	61,407,822	59,212,810	96%	99%
Transfer to CIP	109,338,556	103,200,275	94%	100%
Transfer to Risk management	260,000	260,004	100%	100%
Total Debt Service and Transfers	171,006,378	162,673,089	95%	100%
Total Expenses and Transfers	$ 361,162,873	$ 324,857,594	90%	93%

2. Notes to Interim Financial Report

The Interim Financial Report summarizes the results of HRSD's operations on a basis of accounting that differs from generally accepted accounting principles. **Revenues are recorded on an accrual basis, whereby they are recognized when billed**, and expenses are generally recorded on a cash basis. No provision is made for non-cash items such as depreciation and bad debt expense.

This interim report does not reflect financial activity for capital projects contained in HRSD's Capital Improvement Program (CIP).

Transfers represent certain budgetary policy designations as follows:

a. Transfer to CIP: represents current period's cash and investments that are designated to partially fund HRSD's capital improvement program.

b. Transfers to Reserves: represents the current period's cash and investments that have been set aside to meet HRSD's cash and investments policy objectives.

3. Reserves and Capital Resources (Cash and Investments Activity) for the Period Ended June 30, 2021

HRSD - RESERVE AND CAPITAL ACTIVITY June 30, 2021

	General Reserve						Capital	
	General	CARES - HRSD	CARES - JCSA	Debt Service	Risk Mgmt Reserve	Reserve	Paygo	Debt Proceeds
	Unrestricted	Restricted	Restricted	Restricted	Unrestricted	Unrestricted	Unrestricted	Restricted
Beginning - July 1, 2020	**$ 198,874,822**	**$ -**	**$ -**	**$ 28,154,541**	**$ 3,759,535**	**$ 15,266,324**	**$ 22,209,680**	**$ -**
Current Year Sources of Funds								
Current Receipts	316,260,487	8,737,113	315,872					-
Line of Credit								25,298,874
VRA Draws							35,451,533	
CARES Transfer In	4,162,716							-
Days Cash on Hand Transfer In							14,385,444	
Transfers In	-				260,004		104,081,154	
Sources of Funds	320,423,203	8,737,113	315,872	-	260,004	-	153,918,131	25,298,874
Total Funds Available	**$ 519,298,025**	**$ 8,737,113**	**$ 315,872**	**$ 28,154,541**	**$ 4,019,539**	**$ 15,266,324**	**$ 176,127,811**	**$ 25,298,874**
Current Year Uses of Funds								
Cash Disbursements	232,696,294						170,093,898	25,298,874
CARES Transfer Out		7,363,684	147,747					
Days Cash on Hand Transfer Out	14,385,444							
Transfers Out	89,074,835					15,266,324		-
Uses of Funds	336,156,573	7,363,684	147,747	-	-	15,266,324	170,093,898	25,298,874
End of Period - June 30, 2021	**$ 183,141,452**	**$ 1,373,429**	**$ 168,125**	**$ 28,154,541**	**$ 4,019,539**	**$ -**	**$ 6,033,913**	**$ -**
Unrestricted Funds	**$ 193,194,904**							

4. Capital Improvements Budget and Activity Summary for Active Projects for the Period Ended June 30, 2021

HRSD - PROJECT ANALYSIS June 30, 2021

Classification/ Treatment Service Area	Appropriated Funds	Expenditures prior to 7/1/2020	Expenditures Year to Date FY2021	Total Project Expenditures	Encumbrances	Available Funds
Administration	47,227,240	15,313,091	12,345,490	27,658,581	1,872,097	17,696,562
Army Base	155,448,800	123,095,232	442,684	123,537,916	2,960,667	28,950,217
Atlantic	126,759,683	76,561,802	6,315,696	82,877,498	5,119,721	38,762,464
Boat Harbor	288,504,388	36,048,636	16,778,645	52,827,281	9,676,709	226,000,398
Ches-Eliz	166,407,309	67,782,112	37,430,344	105,212,456	21,292,990	39,901,863
Eastern Shore	14,000,000	-	68,570	68,570	28,107	13,903,323
James River	310,816,591	38,156,333	11,444,824	49,601,157	213,229,196	47,986,238
Middle Peninsula	70,401,456	10,777,028	2,734,946	13,511,974	9,898,977	46,990,505
Nansemond	347,091,385	23,061,497	18,151,121	41,212,618	9,189,810	296,688,957
Surry	55,505,027	10,875,464	16,000,248	26,875,712	14,865,134	13,764,181
VIP	304,942,874	178,705,768	4,715,986	183,421,754	2,681,251	118,839,869
Williamsburg	34,622,622	17,684,308	10,216,404	27,900,712	4,273,689	2,448,221
York River	76,430,343	25,864,189	4,500,298	30,364,487	3,567,680	42,498,176
General	783,603,315	155,776,300	58,000,688	213,776,988	284,047,465	285,778,862
	$ 2,781,761,033	$ 779,701,760	$ 199,145,944	$ 978,847,704	$ 582,703,493	$ 1,220,209,836

5. Debt Management Overview

HRSD - Debt Outstanding ($000's) June 30, 2021

	Principal May 2021	Principal Payments	Principal Draws	Principal June 2021	Interest Payments
Fixed Rate					
Senior	198,670	-	-	198,670	-
Subordinate	564,545	(1,145)	3,133	566,533	(357)
Variable Rate					
Subordinate	50,000	-	-	50,000	(3)
Line of Credit	15,299	-	-	15,299	(11)
Total	$ 828,514	$ (1,145)	$ 3,133	$ 830,502	$ (371)

HRSD- Series 2016VR Bond Analysis July 2, 2021

	SIFMA Index	HRSD	Spread to SIFMA
Maximum	4.71%	4.95%	0.24%
Average	0.39%	0.51%	0.12%
Minimum	0.01%	0.01%	0.00%
As of 07/02/21	0.03%	0.03%	0.00%

* Since October 20, 2011 HRSD has averaged 51 basis points on Variable Rate Debt

6. Financial Performance Metrics for the Period Ended June 30, 2021

HRSD - UNRESTRICTED CASH June 30, 2021

Can be used for any purpose since it is not earmarked for a specific use and is extremely liquid

			Days Cash on Hand	Adjusted Days Cash on Hand
Total Unrestricted Cash	**$**	**193,194,904**		**371**
Risk Management Reserve	$	(4,019,539)	(8)	363
Capital (PAYGO only)	$	(6,033,913)	(11)	352
Adjusted Days Cash on Hand	**$**	**183,141,452**		**352**

Risk Management Reserve as a % of Projected Claims Cost is 25% YTD compared to 25% Policy Minimum
Adjusted Days Cash on Hand Policy Minimum is 270-365 days.

HRSD - SOURCES OF FUNDS June 30, 2021

Primary Source	Beginning Market Value July 1, 2020	YTD Contributions	YTD Withdrawals	YTD Income Earned	Ending Market Value June 30, 2021	Allocation of Funds	Credit Quality	Current Mo Avg Yield
BAML Corp Disbursement Account	7,339,242	473,369,533	450,728,743	37,387	30,017,419	21.6%	N/A	0.55%
VIP Stable NAV Liquidity Pool	178,660,390	10,000,000	80,000,000	230,075	108,890,465	78.4%	AAAm	0.06%
Total Primary Source	**$ 185,999,632**	**$ 483,369,533**	**$ 530,728,743**	**$ 267,462**	**$ 138,907,884**	100.0%		

VIP Stable NAV Liquidity Pool out performed Va Local Government Investment Pool (the market benchmark) by 0.01% in the month of June.

Secondary Source	Beginning Market Value July 1, 2020	YTD Contributions	YTD Withdrawals	YTD Income Earned & Realized G/L	Ending Market Value June 30, 2021	Ending Cost	LTD Mkt Adj	Yield to Maturity at Market
VIP 1-3 Year High Quality Bond Fund	64,899,667	-	12,984	675,973	65,054,203	63,399,543	1,654,659	0.26%
Total Secondary Source	**$ 64,899,667**	**$ -**	**$ 12,984**	**$ 675,973**	**$ 65,054,203**	**$ 63,399,543**	**$ 1,654,659**	

VIP 1-3 Year High Quality Bond Fund was out performed by ICE BofA ML 1-3 yr AAA-AA Corp/Gov Index (the market benchmark) by 0.01% in the month of June.

	Total	Fund Alloc
Total Primary Source	$ 138,907,884	68.1%
Total Secondary Source	$ 65,054,203	31.9%
TOTAL SOURCES	$ 203,962,087	100.0%

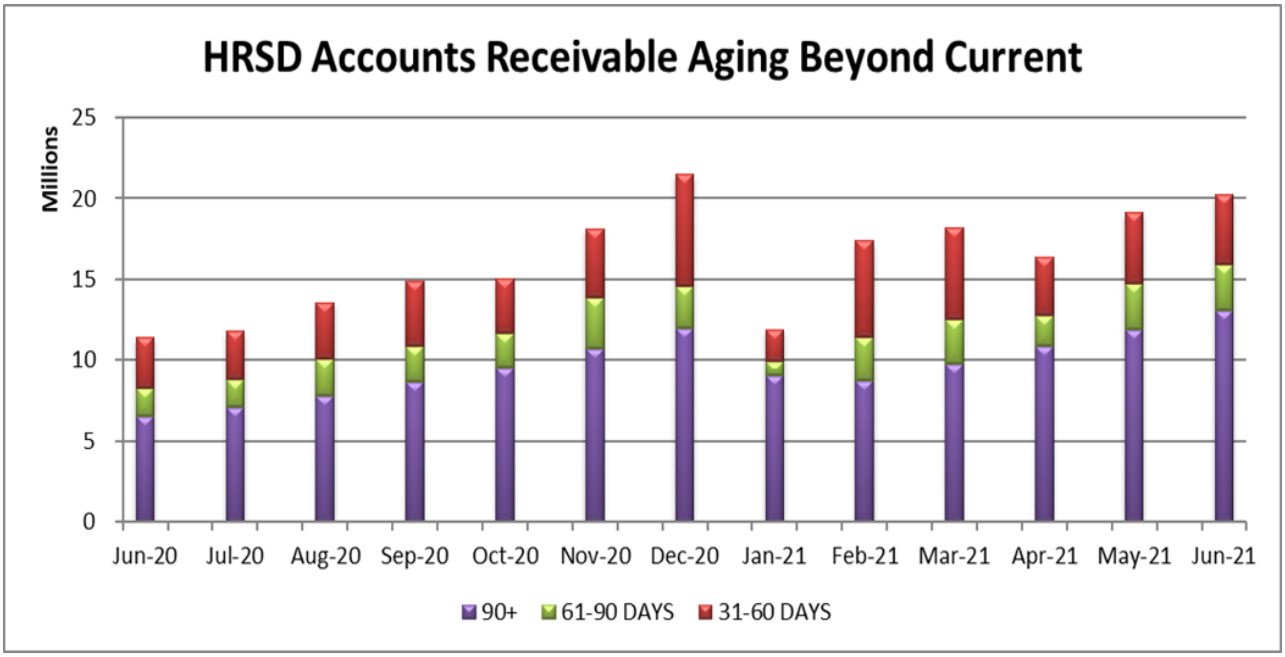
7. Summary of Billed Consumption

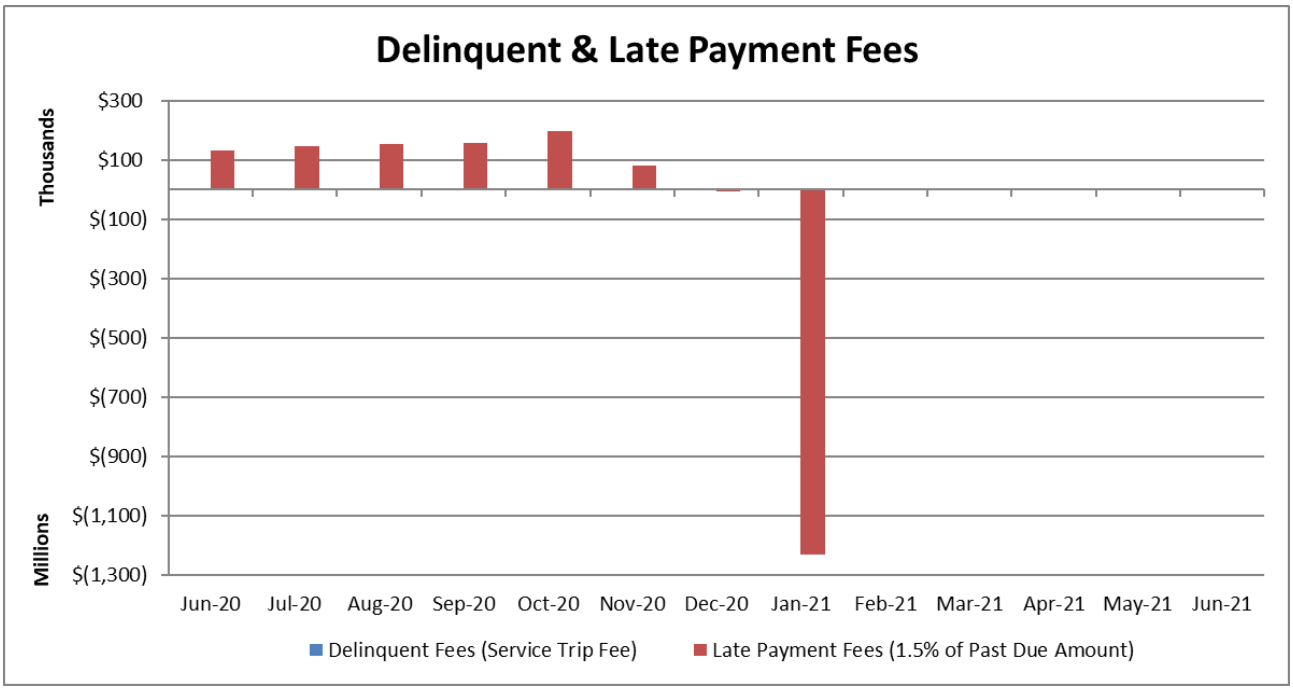
Summary of Billed Consumption (,000s ccf)

Month	*FY2021 Cumulative Budget Estimate*	*FY2021 Cumulative Actual*	% Difference *From Budget*	*Cumulative FY2020 Actual*	% Difference *From FY2020*	*Cumulative 3 Year Average*	*From 3 Year Average*
July	5,086	4,751	-6.6%	5,114	-7.1%	5,045	-5.8%
Aug	10,047	9,459	-5.8%	9,944	-4.9%	10,026	-5.7%
Sept	14,477	14,335	-1.0%	14,354	-0.1%	14,389	-0.4%
Oct	18,951	18,863	-0.5%	18,952	-0.5%	18,966	-0.5%
Nov	22,937	21,192	-7.6%	23,092	-8.2%	23,160	-8.5%
Dec	27,268	27,614	1.3%	27,518	0.3%	27,383	0.8%
Jan	31,818	32,477	2.1%	32,101	1.2%	31,920	1.7%
Feb	36,287	36,067	-0.6%	36,005	0.2%	36,236	-0.5%
March	39,495	41,017	3.9%	40,108	2.3%	40,223	2.0%
Apr	43,441	45,115	3.9%	44,246	2.0%	44,387	1.6%
May	47,762	49,256	3.1%	48,397	1.8%	48,604	1.3%
June	52,222	54,194	3.8%	52,535	3.2%	52,869	2.5%

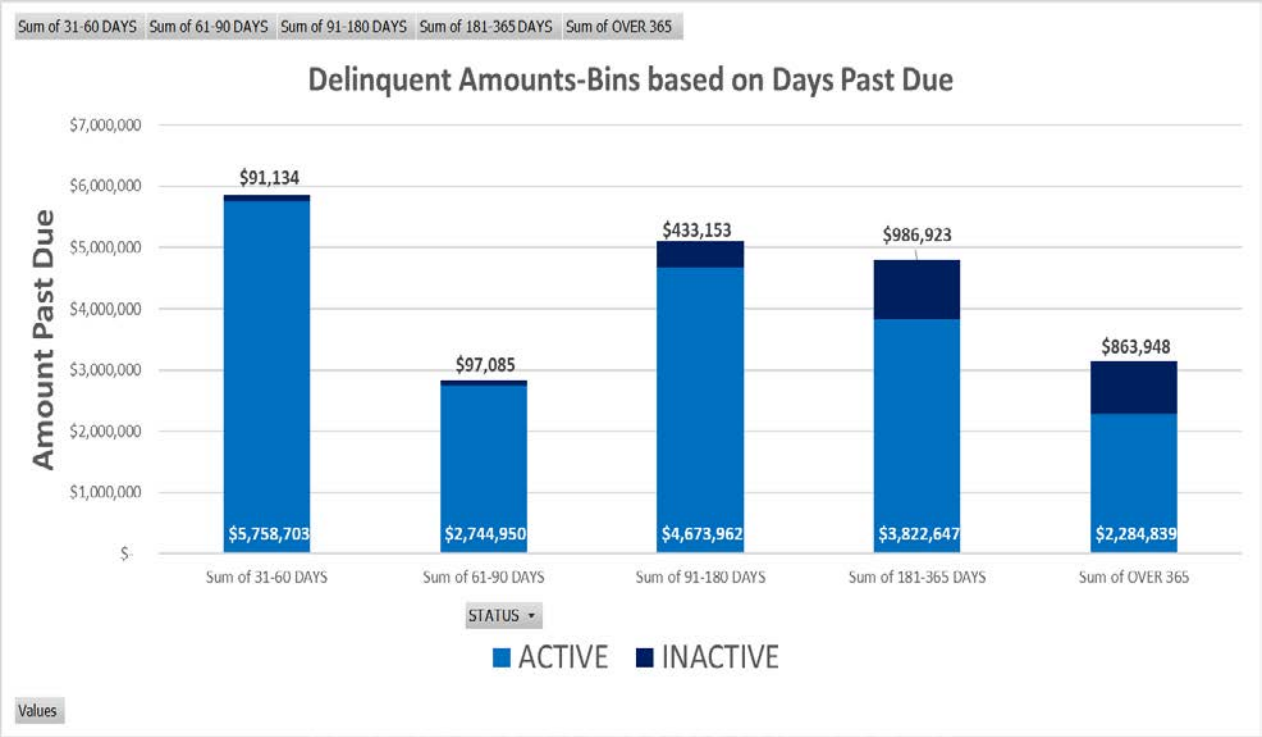
C. Customer Care Center

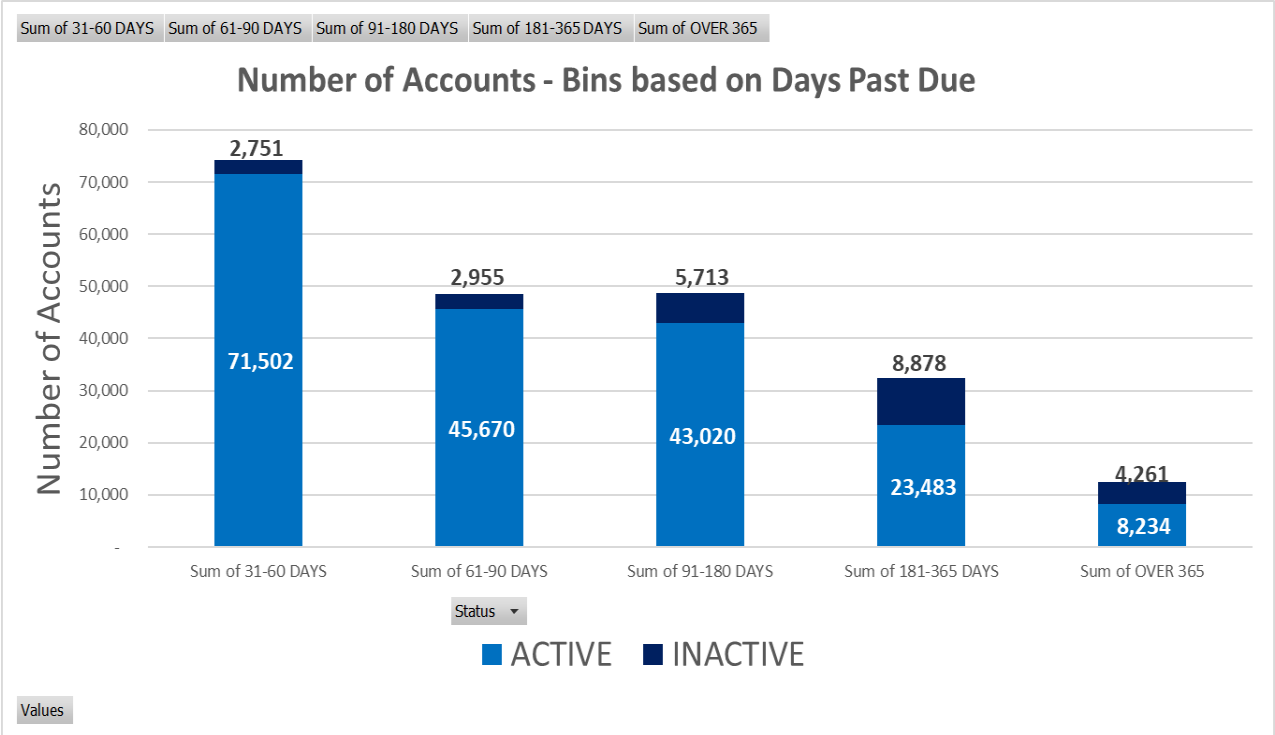
1. Accounts Receivable Overview



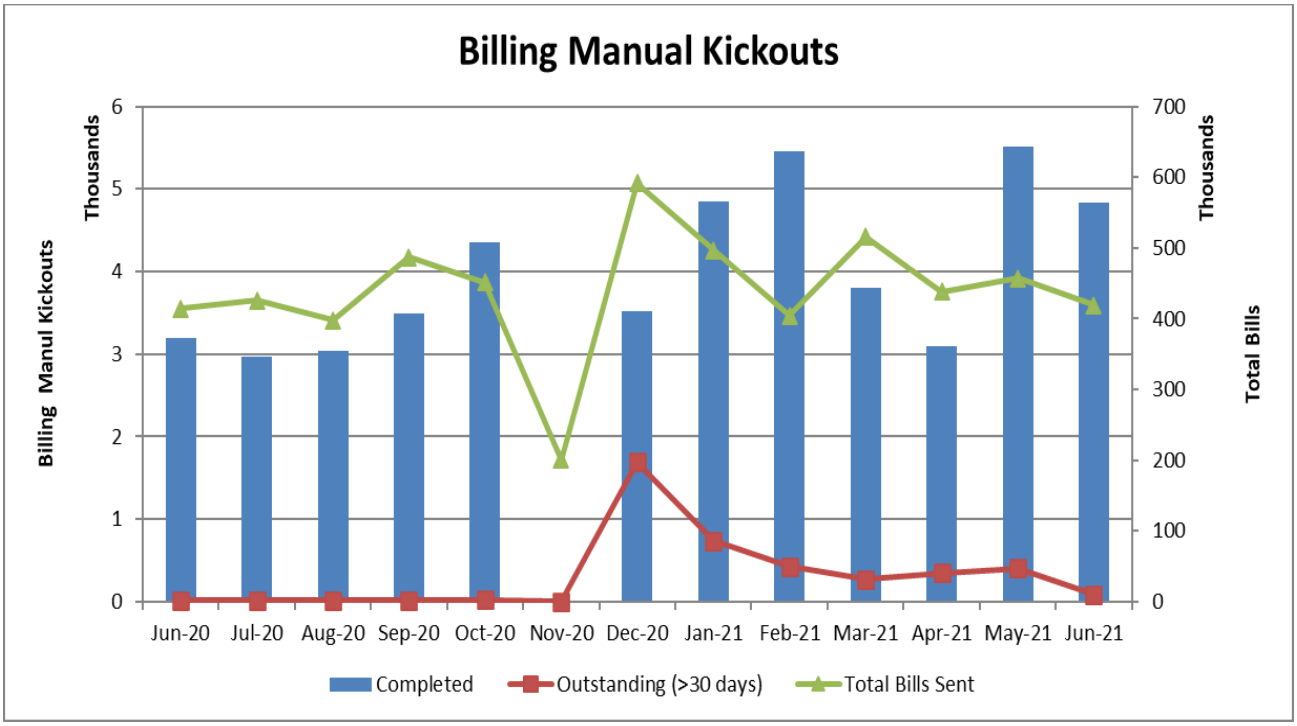


Apr 20-Jun 21 Field Activity was suspended late March 2020 in response to COVID-19.

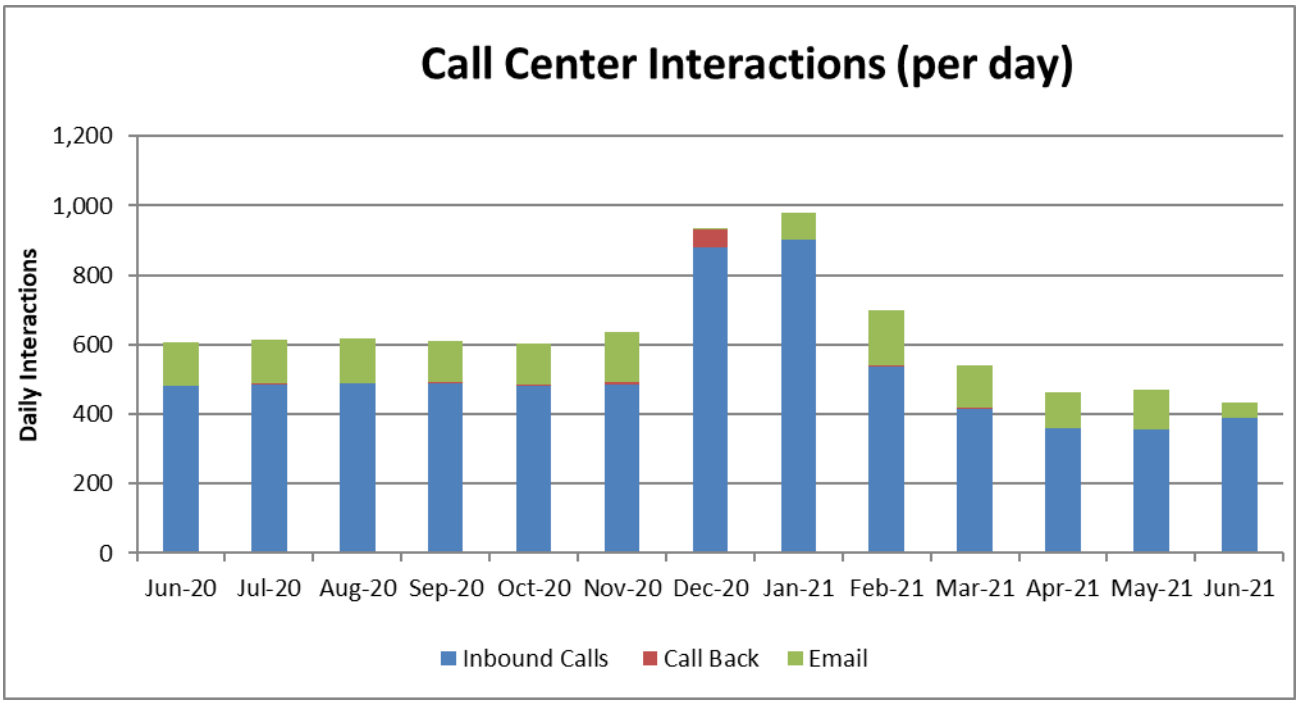

Sum of 31-60 DAYS
Sum of 61-90 DAYS
Sum of 91-180 DAYS
Sum of 181-365 DAYS
Sum of OVER 365
Delinquent Amounts-Bins based on Days Past Due
Amount Past Due
$7,000,000
$6,000,000
$5,000,000
$4,000,000
$3,000,000
$2,000,000
$1,000,000
$-
$91,134
$97,085
$433,153
$986,923
$863,948
$5,758,703
$2,744,950
$4,673,962
$3,822,647
$2,284,839
Sum of 31-60 DAYS
Sum of 61-90 DAYS
Sum of 91-180 DAYS
Sum of 181-365 DAYS
Sum of OVER 365
STATUS
ACTIVE
INACTIVE
Values


Sum of 31-60 DAYS
Sum of 61-90 DAYS
Sum of 91-180 DAYS
Sum of 181-365 DAYS
Sum of OVER 365
Number of Accounts - Bins based on Days Past Due
Number of Accounts
80,000
70,000
60,000
50,000
40,000
30,000
20,000
10,000
-
2,751
2,955
5,713
8,878
4,261
71,502
45,670
43,020
23,483
8,234
Sum of 31-60 DAYS
Sum of 61-90 DAYS
Sum of 91-180 DAYS
Sum of 181-365 DAYS
Sum of OVER 365
Status
ACTIVE
INACTIVE
Values

2. Customer Care Center Statistics



November data not available due to Ransomware attack



Customer Interaction Statistics	Jan	Feb	Mar	Apr	May	Jun
Calls Answered within 3 minutes	41%	90%	97%	98%	98%	98%
Average Wait Time (seconds)	803	48	26	20	16	16
Calls Abandoned	39%	7%	3%	3%	2%	3%

D. Procurement Statistics

ProCard Fraud	External Fraud Transactions *	Comments
July	0	
August	3	One transaction was caught by the card holder and two transactions were caught by the bank immediately.
September	3	Three caught by card holder
October	2	Caught by bank immediately
November	0	
December	0	
January	1	Caught by bank immediately
February	0	
March	0	
April	1	Transaction was caught by the card holder
May	3	Caught by Cardholder
June	0	
Total	**13**	

***External Fraud:** Fraud from outside HRSD (i.e.: a lost or stolen card, phishing, or identity theft)

E. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 0

2. Community Partners: 0

3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	June 2021
M-1.4a	Training During Work Hours Per Full Time Employee (102) – Current Month	Hours / #FTE	1.30
M-1.4b	Total Training During Work Hours Per Full Time Employee (102) – Cumulative Fiscal Year-to-Date	Hours / #FTE	11.39
M-5.2	Educational and Outreach Events	Number	0
M-5.3	Number of Community Partners	Number	0
	Wastewater Revenue	Percentage of budgeted	102%
	General Reserves	Percentage of Operating Budget less Depreciation	111%
	Liquidity	Days Cash on Hand	371 Days
	Accounts Receivable (HRSD)	Dollars	$40,032,946
	Aging Accounts Receivable	Percentage of receivables greater than 90 days	33%

4. Annual Metrics

Item #	Strategic Planning Measure	Unit	FY-2021
M-2.4	Infrastructure Investment	Percentage of Total Cost of Infrastructure	*
M-4.3	Labor Cost/MGD	Personal Services + Fringe Benefits/365/5-Year Average Daily Flow	*
M-4.4	Affordability	6.5 CCF Monthly Charge/Median Household Income[1]	*
M-4.5	Operating Cost/MGD	Total Operating Expense /365/5-Year Average Daily Flow	*
	Billed Flow	Percentage of Total Treated	*
	Senior Debt Coverage	Cash Reserves/ Senior Annual Debt Service	*
	Total Debt Coverage		*

* These metrics will be reported upon completion of the annual financial statements.

Respectfully,
Jay A. Bernas
Jay A. Bernas, P.E.
Director of Finance

[1] Median Household Income is based on the American Community Survey (US Census) for Hampton Roads

TO: General Manager

FROM: Director of Information Technology

SUBJECT: Information Technology Department Report for June 2021

DATE: July 14, 2021

A. General

1. As part of HRSD's cybersecurity strategy, staff began implementing multi-factor network authentication, across the organization.

2. Testing of the new Water Quality building elevator alarm and communications system is complete.

3. ITD upgraded the CEL's Sample Manager application and supporting database.

4. In June, the IT Help Desk processed 513 work orders, ensuring availability of computing resources to those working locally and remotely.

5. Staff upgraded the Oracle database software supporting the Meridian engineering document management application.

6. Microsoft Premier Support is conducting a series of training sessions for ITD staff in preparation for the migration to Microsoft OneDrive, next month.

B. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 0

2. Number of Community Partners: 0

3. Metrics Summary:

Item #	Strategic Planning Measure	Unit	June 2021
M-1.4a	Training During Work Hours Per Full-Time Employee (50) – Current Month	Total Training Hours / # FTE	0.46
M-1.4b	Total Training During Work Hours Per Full-Time Employee (50) – Cumulative Fiscal Year-to-Date	Total Training Hours / # FTE	16.11
M-5.2	Educational and Outreach Events	Number	0
M-5.3	Number of Community Partners	Number	0

Respectfully,

Don Corrado

TO: General Manager

FROM: Director of Operations

SUBJECT: Operations Report for June 2021

DATE: July 9, 2021

A. Interceptor Systems

1. North Shore (NS) Interceptor Systems

Staff responded to and resolved 17 system and seven after-hour emergency Miss Utility tickets this month.

2. South Shore (SS) Interceptor Systems

a. On June 9, a motorist reported a sinkhole near the intersection of Diamond Springs Road and Aragon Drive. Staff informed the HRSD contractor working on the Western Trunk Force Replacement project of the issue. The contractor identified settlement as the cause and filled in the sinkhole.

b. On June 15, the City of Chesapeake called about a valve lid that came off the casing at the intersection of Fentress Boulevard and Priscilla Lane. Staff replaced the lid and secured it with an epoxy coating.

c. Staff responded to and resolved 17 system alarms this month.

B. Major Treatment Plant Operations

1. Army Base Treatment Plant (ABTP)

a. On June 1, three consecutive chlorine residuals (TRC) below 0.50 mg/L (the permitted low-end limit) were recorded. The plant was experiencing a condition where the sodium hypochlorite feed rate was very high, most likely due to breakpoint chlorination caused by a high chlorine dosage with insufficient ammonia present. Earlier in the day staff reduced the hypochlorite feed rate and increased the ammonium sulfate dosage to increase the total residual chlorine. The change appeared to have worked until the final TRC of the day shift. The pass down operator log instructed the evening shift operator only to make small adjustments to the feed rate to reduce the risk of going back into breakpoint chlorination. The increase in the ammonium sulfate dosage was likely insufficient, and the third TRC sample was below 0.5 mg/L. Supervisors were notified, and the operator was instructed to make larger adjustments to the sodium hypochlorite feed rate. Staff, however, failed to report the event within 24-hours as required by permit. Staff was reminded of the existing SOP and the importance of following the guidelines provided. Further guidance and training were provided for the operators with respect to appropriate ammonium sulfate feed rates.

b. On June 17, a Non-Potable Water (NPW) hose used to fill an aeration tank came out of the tank. Most of the NPW was contained inside the containment area. The flow made contact with part of the manhole cover causing a slight spray to leave the containment area. The valve was closed to secure the NPW flow and the hose was secured to a railing to avoid a repeat incident. Approximately 100 gallons of NPW soaked into the ground and/or entered a storm drain leading to the Elizabeth River**.**

c. Chlorides levels increased in the plant's influent flow. The Navy was able to identify the source of the inflow and infiltration and are in the planning stages of making a repair. High chlorides levels will negatively impact the biological phosphorus removal and create challenges with meeting the air permit requirements.

2. Atlantic Treatment Plant (ATP)

a. There were four odor complaints and four hydrogen sulfide (H2S) plant odor wet scrubber exceptions in June. The odor complaints were received on June 11, 12, 14, and 29. Staff responded to all the odor complaints.

(1) On June 11, a report of "porta-potty" type odors was received with a source identified as a wastewater treatment process upset that sent excess solids to the aeration tanks. The abnormal operating condition generated the foul odors. Two of the empty aeration tanks had significant odors from solids in the bottom of the tanks. Staff immediately responded by hosing out the solids from the bottom of the tanks. The rest of the tanks recovered over time to their normal low odor operating condition.

(2) On June 12, a report of odors was received, resulting from the Thermal Hydrolysis Process with source thought to be from the solids pad and the aeration tank odors.

(3) On June 14, reports of the "burning tire" like odors associated with THP was received.

(4) On June 29, another odor complaint was received. The most likely source of the odors occurred when staff, while changing out a faulty sensor, relieved pressure in a THP process tank and released foul odors into the atmosphere. Staff has been instructed to use the process gas unit to transfer gasses from the THP process to the digesters in the future and avoid venting to the atmosphere.

(5) Staff has since identified a "new" source of burnt solids odor that is coming from the annular space of the digesters floating roof covers. This has been clearly identified and is now being addressed as quickly as possible.

b. There were three reportable spills on plant site.

(1) On June 16, staff was flushing out the pressure washer tank with non-potable water (NPW) 65 feet away from a storm drain. After discovering the drainage from the pressure washer, the drain value was secured.

Approximately 2,000 gallons of chlorinated NPW entered the storm drain and could not be recovered.

(2) On June 17, staff accidently left the scum trough of a primary clarifier open which overwhelmed the primary scum concentrator. Most of the flow went into the plant drain system, but some made it to a nearby storm drain. Approximately 200 gallons of primary scum supernatant soaked into the ground or entered a storm drain.

(3) On June 20, the primary scum well overflowed when a scum pump became plugged with rags. Staff secured the pump and cleaned the area. Approximately 200 gallons of NPW/Solids soaked into the ground and could not be recovered.

3. Boat Harbor Treatment Plant (BHTP)

a. The Total Hydrocarbon (THC) cabinet air conditioning unit failed, causing components in the data logger system to fail. The THC unit was down for almost 11 days. The AC unit was replaced. As a result, the THC system was only able to capture 78.4 percent of the data for the month.

b. Contractors finished removing grease from the primary influent aeration channel and completed cleaning the #1 solids handling holding tank. The primary influent channel cleaning had been ongoing from the additional grease loads received during the months of April and May.

4. Chesapeake-Elizabeth Treatment Plant (CETP)

a. The center shaft drive speed reducer for incinerator #1 failed this month. Staff replaced with speed reducer with one from incinerator #2.

b. Staff repurposed a sodium hypochlorite pump usually used for odor control for use as an effluent disinfection pump. Because of the partial flow diversion in anticipation of the plant closure, operators needed a lower capacity pump during low flow conditions to help prevent over feeding of sodium hypochlorite.

5. James River Treatment Plant (JRTP)

a. There was one reportable wastewater event and four odor scrubber deviations. The wastewater event was a spill of 20 gallons of ferric chloride from a failure of a fitting on a line feeding ferric chloride to the Anita-Mox tank. Approximately 19 gallons was recovered. Three odor deviations were caused by issues with the scrubber recirculation pump, and one was caused when switching scrubbers. Staff adjusted pH control setpoints after the two odor exceptions occurred.

b. Staff started construction on a centrifuge centrate foam control system in the thickening building. The new system will include a contained storage area for defoamer totes and defoamer feed pumps. Defoamer chemicals will be fed just upstream of the main grinder serving the centrifuge feeds pumps.

6. Nansemond Treatment Plant (NTP)

a. The discharge piping on a plant drain pump ruptured and spilled approximately 6,250 gallons of treated final effluent to the ground. 10 percent was not recovered.

b. All the blowers at the plant had intermittent operational issues this month. While the situation has been mostly resolved, the reliability of the blowers remains in a state of uncertainty as we await a replacement part for one blower, and a total replacement of programmable logic controllers (PLCs) for all four blowers. Replacement of the blowers will be included in the upcoming nutrient upgrade capital improvement project.

c. A contractor successfully repaired the stuck influent gate on aeration tank #4.

d. Contractors also attempted a repair of a stock gate in aeration tank #6, but the repair was unsuccessful and will require a complete replacement of the gate.

e. Sustainable Water Initiative for Tomorrow (SWIFT) Research Center (RC)

(1) The total volume of SWIFT recharge into the Potomac aquifer for the month of June was 11.0 million gallons (MG) (40.4 percent recharge time based on 600 gallons per minute).

(2) The recharge flow rate remains at 600 gallons per minute (gpm), which has helped to stabilize injectivity.

(3) Staff started recirculating the solids waste coming from the sedimentation tank back to the first flocculation basin. The idea is to save some money on chemicals by recirculating solids. The chemicals that were not completely used will be recycled as well and will potentially decrease the overall chemical dose. This information will be used to inform future full scale SWIFT projects.

7. Virginia Initiative Plant (VIP)

On June 18, a ball check lid on a scum pump was not tightened properly causing NPW and scum to spill on the floor, filling the room. Sandbags were in place containing most of the water, but some leaked past bags onto the ground and surrounding area. Staff tightened the ball check lid securing the water leaking and added more sandbags to prevent additional leakage. The remainder of water left in the room was pumped back into primary tank #6. Approximately 200 gallons of scum/NPW were released, with 125 gallons recovered; the remaining 75 gallons soaked into the ground.

8. Williamsburg Treatment Plant (WBTP)

Discharge of Fats, Oils and Grease (FOG) to the plant remained suspended while contractors performed repairs to the FOG system. Steel structures on the FOG water tank were blasted and coated. A second contractor worked on fabricating a new rake arm for the FOG thickened tank.

9. York River Treatment Plant (YRTP)

The contractor responsible for replacing the corroded pipeline from the headworks to the primary clarifier distribution chamber performed site restoration and reinstalled grit tank side access hatches, through which flow was temporarily pumped from the headworks to the primary clarifier distribution chamber.

10. Incinerator Operations Events Summary

a. Total Hydrocarbon (THC) monthly averages (not to exceed 100 parts per million) were met by all five treatment plants with incinerators with a THC continuous emissions monitoring (CEM) valid data captured of greater than 78%. The data acquisition system at the WBTP failed and required replacement which led to the lower-than-normal data capture percent.

b. There was one deviation from the required minimum operator parameters.

c. On June 9, the ABTP needed to use the emergency bypass damper for one hour and seven minutes after the loss of NPW flow from the contact tanks while repairs were made to the effluent weir. Once the level of the contact tank increased, operators were able to restart the pumps and the induced draft fan ending the bypass event.

C. Small Communities (SC)

1. Middle Peninsula Small Communities Treatment and Collections

a. West Point Treatment Plant (WPTP) and Collections

Restoration of the surrounding area has been completed on the Tertiary Filter. A pump and discharge piping section replaced in the secondary clarifier wasting well.

b. Urbanna Treatment Plant (UBTP) and Collections

Staff completed the installation of the large bubble aeration system in the first equalization basin.

2. Small Communities – Surry Systems

a. There were three copper permit exceedances at the County Treatment plant. There were no know equipment or process issues. The Sussex Service Authority (SSA) is investigating possible sources of copper in the collection system as well as any changes at the treatment plant.

b. One June 10, heavy rains exceeding three inches inundated the Surry County service area. SSA attempted to respond but the area was under flash flood warnings and many roads were impassable. The storm created the following reportable events:

(1) Dendron Pump Station #1 with an unknown quantity spilled,

(2) Dendron Pump Station #2 with an unknown quantity spilled,

(3) Surry County TP with an unknown quantity spilled. High flows into the treatment plant led to an elevated pre-equalization tank level that developed a crack about 92 inches above the tank flow. That, in combination with elevated tank levels throughout the plant resulted in an apparent overflow. A patch was welded across the tank panels to secure the pre-equalization tank.

3. Small Communities – Eastern Shore (Riverside System)

HRSD became the owner of the Riverside Treatment facility in May. There were two copper permit exceedances this month. Staff initiated a program of minor upgrades and process improvements to improve compliance with permit limits until the closure of the facility which is anticipated in 2024. In addition, staff stopped using the laboratory previously used by Riverside and is now conducting the sampling directly.

D. Energy Management (EM)

1. Dominion Energy Virginia (DEV) created a Smart Charging Infrastructure Pilot Program, which provides rebates to customers installing Electric Vehicle (EV) charging stations. Staff installed two chargers that will be ready for duty next month. They are located at the main office complex in Virginia Beach.

2. The solar array at the NS office complex is producing about 35 percent of the building's power requirement. A second array is planned for the complex and will bring this building close to a net zero consumption. A solar array is also planned for the new Water Quality (WQ) Services Building this summer.

3. Oxidation catalysts were recently installed on the diesel generators (DG) at YRTP and ATP. These catalysts are now installed at four of our TPs. These catalysts clean the exhaust streams, extend available operating hours, and allow us to join a demand response (DR) program, which helps to ensure electric grid reliability. The DR program is administered by a regional transmission organizer (RTO) that coordinates the movement of wholesale electricity in a group of mid-Atlantic states. At the RTO's request, we start our DG's and remove the plant loads from the utility grid for a specified amount of time. We are paid to stand by during significant weather events and run the DG's if necessary to support the electric grid. To date, we have not run our engines for a DR event, but we have received compensation ($17,400) for standby operation.

E. Electrical & Instrumentation (E&I)

1. Staff assisted, contractors with removing and replacing bar screen #2 in the preliminary treatment facility at ATP.

2. Staff assisted contractors with replacing the heating ventilation and air conditioning (HVAC) system in the ATP gravity belt thickener (GBT) control room. The new HVAC system will ensure that critical networking equipment for the plant's control network continues operating properly.

3. Staff continue to work with contractors to complete several upgrades in preparation of the CETP closure.

4. Staff replaced the center shaft motor and gear drive for Incinerator #1 at CETP. They used the motor and gear drive from Incinerator 2 as this incinerator is not expected to operate again before the plant is shutdown.

5. Staff assisted contractors with investigating motor overload issues for blowers #3 and #4 at NTP. The contractor installed and programmed a new motor protection relay for each blower motor as part of the overall troubleshooting efforts.

F. Water Technology and Research

With the continued startup of the thermal hydrolysis process at the Atlantic Treatment Plant (ATP), final dewatered biosolids cake concentration has increased from approximately 15 to 23-percent dry solids. This initial improvement is consistent with the projections that were made during preliminary engineering. Based on these initial results, we believe that further improvements are achievable with the completion of targeted research into solids processing, conditioning, and dewatering and the completion of ongoing capital and operations projects. A Virginia Tech Masters student has been located at ATP and is beginning to test alternate sludge conditioning methods and is working with Treatment to develop operational strategies to take advantage of prior and ongoing research to achieve further improvements in dewatering performance.

G. MOM reporting numbers

MOM Reporting #	Measure Name	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June
2.7	# of PS Annual PMs Performed (NS)	4	2	4	3	3	3	4	4	3	2	3	0
2.7	# of PS Annual PMs Performed (SS)	5	7	5	5	5	3	4	5	4	2	1	0
2.7	# of Backup Generator PMs Performed (Target is 4.6)	7	15	6	17	10	5	7	9	15	3	10	18
2.8	# of FM Air Release Valve PMs Performed (NS)	114	42	187	264	182	186	161	43	185	235	233	200
2.8	# of FM Air Release Valve PMs Performed (SS)	220	243	200	316	108	152	249	163	309	244	213	238
2.9	# of Linear Feet of Gravity Clean (NS) (Target is 2,417 for HRSD)	9,394	3,605	5,057	6,050	1,467	3,320	2,062	4,862	3,404	2,692	1,383	769
2.9	# of Linear Feet of Gravity Clean (SS) (Target is 2,417 for HRSD)	10,686	2,217	1,100	6,245	3,687	3,370	1,876	756	759	4,637	7,135	9,142
2.9	# of Linear Feet of Gravity CCTV Inspection (HRSD Target 3,300 LF)	0	0	0	0	0	0	0	0	0	3,589	23,972	11,495

H. Strategic Measurement Data

1. Education and Outreach Events: 8

    a. 06/03/2021 - Participated in National Science Foundation proposal review panel – Charles Bott

    b. 06/09/2021 - WEF Innovations in Process Engineering Conference, podium presentation, Mainstream Anammox Implementation in MBBRs: Journey from Pilot-Scale PNA to Full-scale PdNA Design – Stephanie Klaus

    c. 06/09/2021 - WEF Innovations in Process Engineering Conference, podium presentation, The Theoretical Benefits of Mainsteam Shortcut Nitrogen Removal Revisited and Validated by Full-Scale Implementation of Partial Denitrification-Anammox – Kester McCullough

    d. 06/09/2021 - WEF Innovations in Process Engineering Conference, Co-chair of the conference – Charles Bott

    e. 06/10/2021 - WEF Innovations in Process Engineering Conference, Carbon Management and Diversion session moderator – Stephanie Klaus

    f. 06/10/2021 - WEF Innovations in Process Engineering Conference, podium presentation, Integrated Shortcut Nitrogen Removal with Anammox and Sidestream bioP - Redirecting Carbon for Maximum Benefit – Kester McCullough and Anand Patel

    g. 06/10/2021 - WEF Innovations in Process Engineering Conference, podium presentation, Enhancing 1,4-Dioxane Removal Through Co-Metabolic Biofiltration in Advanced Water Treatment Systems for Potable Reuse – Hannah Stohr

    h. 06/15/2021 - WEF Innovations in Process Engineering Conference, podium presentation, Optimization of Struvite Recovery Utilizing an Alternative Magnesium Source and Process Control Strategies – Sydney Goy

2. Community Partners: 4

    a. Chesapeake Bay Foundation-oyster cage maintenance at BHTP for oyster garden project

    b. Jefferson Lab

    c. Old Dominion University (ODU)

    d. United Way Williamsburg House

3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	June 2021
M-1.4a	Training During Work Hours per Full Time Employee (FTE) (526) – Current Month	Hours / FTE	3.79
M-1.4b	Total Training During Work Hours per FTE (526) – Cumulative Year-to-Date	Hours / FTE	29.34
M-2.3a	Planned Maintenance Total Maintenance Hours	Total Recorded Maintenance Labor Hours	28,722.07
M-2.3b	Planned Maintenance – Preventive and Condition Based	% of Total Maintenance Hours	62.94%
M-2.3c	Planned Maintenance - Corrective Maintenance	% of Total Maintenance Hours	16.89%
M-2.3d	Planned Maintenance - Projects	% of Total Maintenance Hours	20.17%
M- 4.1a	Energy Use: Treatment *reported for June 2021	kWh/MG	3,032
M-4.1b	Energy Use: Pump Stations *reported for June 2021	kWh/MG	182
M-4.1c	Energy Use: Office Building *reported for June 2021	kWh/MG	105
M-5.2	Educational and Outreach Events	Number	8
M-5.3	Number of Community Partners	Number	4

4. Annual Metrics

Item #	Strategic Planning Measure	Unit	FY-2021
M-2.3a	Planned Maintenance Total Maintenance Hours	Total Recorded Maintenance Labor Hours(average)	28,722.07
M-2.3b	Planned Maintenance – Preventive and Condition Based	% of Total Maintenance Hours (average)	62.94%
M-2.3c	Planned Maintenance-Corrective Maintenance	% of Total Maintenance Hours (average)	16.89%
M-2.3d	Planned Maintenance-Projects	% of Total Maintenance Hours (average)	20.17%
M-3.6	Alternate Energy	Total kWh	*
M- 4.1a	Energy Use: Treatment	kWh/MG	*
M-4.1b	Energy Use: Pump Stations	kWh/MG	*
M-4.1c	Energy Use: Office Building	kWh/MG	*

* Will update once data is reported

Respectfully submitted,
Steve de Mik
Director of Operations

TO: General Manager

FROM: Director of Talent Management (TM)

SUBJECT: Monthly Report for June 2021

DATE: July 10, 2021

A. Talent Management Executive Summary

1. Recruitment Summary

New Recruitment Campaigns	16
Job Offers Accepted – Internal Selections	5
Job Offers Accepted – External Selections	16
Average Days to Fill Position	58

2. The following were performed in response to the COVID-19 pandemic:

a. Continued addressing and monitoring suspected COVID-19 cases and potential close contact exposures based on Virginia Department of Health (VDH) guidelines:

Description	June 2021	Total (March 2020 – June 2021)
Quarantines due to illness or direct exposure (household or external)	4	333
Work Related Quarantines	0	34
Personal Travel Quarantines	1	53
Confirmed Employee COVID-19 Cases	0	67
Work Related COVID-19 Cases	0	1
Contractor COVID-19 Cases on HRSD Work Sites*	0	11
Vaccine Acknowledgements	77	649

*No direct exposure to HRSD employees

b. The updated *HRSD Infectious Disease Preparedness and Response Plan* and training was distributed based on new VDH and Center for Disease Control (CDC) guidance for vaccinated and unvaccinated employees. COVID-19 Guidelines for HRSD Suppliers and Contractors were updated

c. Several updated COVID-19 Temporary Policies were distributed including the Vaccination Policy, Temporary Leave Policies and Employee Return to Work Following Personal Travel.

d. An on-site COVID-19 vaccine clinic was held. Twenty employees and spouses received second doses, while five employees and one retiree received first doses.

e. The Safety Manager attended a virtual Virginia Safety and Health Codes Board meeting to determine planned updates to the *Virginia Standard for Infectious Disease Prevention of the SARS-CoV-2 Virus That Causes COVID-19.*

f. The impact of waiving the deductible for COVID-19 vaccine medical claims on the status of HRSD's High Deductible Health Plan and Health Savings Accounts was evaluated.

3. Benefits and Compensation

   a. HR staff worked with the benefit consultant and health plan provider on final preparations for the new plan year which begins July 1st.

   b. The quarterly Employee Assistance Plan (EAP) utilization meeting was held to review trends and discuss upcoming program offerings.

   c. HR staff completed and evaluated pay table adjustments to implement the $15 hourly minimum wage for full time positions.

4. HR staff continued to review and revise the following HR Policies:

   a. Worked with Accounting staff to review overtime pay policies and payroll set up based on the Virginia Overtime Wage Act.

   b. Substance Abuse Policy revisions and development of online employee training were completed. Several drug and alcohol awareness videos were evaluated. Staff met with EAP representatives to discuss drug and alcohol awareness training for supervisors.

   c. Substance Abuse policy changes and the Remote Work policy were reviewed at the Quality Steering Team (QST) meeting.

   d. Work with the drug and alcohol testing provider continued in order to update HRSD's testing program and address Federal Motor Carrier Safety Administration Commercial Drivers License Drug and Alcohol Clearinghouse requirements.

5. The HR Business Analyst presented draft HR reports generated using the new ERP reporting tool and discussed future reporting needs with HR staff.

6. Wellness Program

a. Participation

Year Nine Participation Activities	Unit	June 2021	Year to Date (March 2021– February 2022)
Biometric Screenings	Number	0	187
Preventive Health Exams	Number	0	164
Preventive Health Assessments	Number	24	60
Online Health Improvement Programs	Number	19	59
Web-MD Online Health Tracking	Number	30	117
Challenges: *Clear the Clutter*	Number	94	250
Fit-Bit Promotion	Number	2	17

b. The Wellness Specialist provided the following virtual presentations:

(1) Three health education presentations, *The Power of Nutrition,* to a total of 44 Boat Harbor, Nansemond, and Atlantic Treatment Plant employees.
(2) A guided meditation for the Leadership and Management workshop on Covey's 7th Habit, *Sharpen the Saw*, focusing on self-care.
(3) A lunchtime demonstration, *Nutrition Hack: The Health Benefits of Pickling and How to Pickle Different Foods,* with 76 employees participating.
(4) A guided meditation to begin the *Clear the Clutter* Challenge.

7. HR and Safety staff began evaluating Occupational Health Medical Provider proposals.

8. Input was provided for the Air Rail Administrative Facilities Business Continuity Plan.

9. HR-related information was compiled for HRSD's pre-award compliance report as part of an EPA Loan Application.

10. The following Quality Program facilitators were recruited:

a. Workplace: Katie Markle, Procurement Specialist; and Ivy Ozmon, Water Quality Specialist

b. Teams and Problem Solving: Theresa Black, Accounts Payable Associate

c. Leadership: Natalie Vanvranken, Customer Care Center Supervisor

11. Work Continued with OD&T consultant, Hicks Carter Hicks in the following areas:

    a. The six-month Supervisory Knowledge and Information Program (SKIP) began. The program includes the following workshops: *Essential Skills of Communication, Communicating Up, Essential Skills of Leadership, Delegating, Resolving Conflict, Managing Complaints, Supporting Change* and *Transition*.

    b. Development of a virtual coaching program.

    c. Work with HRSD Leadership on several DE&I actions and strategies, including recruitment of DE&I Council members.

    d. Worked with the Customer Care Division to curate online learning paths for staff members.

12. The Facilitator team conducted the sixth Leadership and Management Academy (LAMA) workshop, *Covey- 7 Habits of Highly Effective People*.

13. Mishaps and Work-Related Injuries Status to Date (OSHA Recordable)

	2020	**2021**
Mishaps	32	14
Lost Time Mishaps	8	4
Numbers subject to change pending HR review of each case.		

14. Safety Division Monthly Activities

Safety Training Classes	33
Work Center Safety Inspections	8
Reported Accident Investigations	3
Construction Site Safety Evaluations	16
Contractor Safety Briefings	5
Hot Work Permits Issued	8
Confined Space Permits Issued/Reviewed	120
Industrial Hygiene Monitoring Events	1

15. The HRSD Safety Team met to discuss Safety Innovation Recognition Program improvements, updates to the Safety SOP, new Water Quality Services facility safety needs, Confined Space Retrieval Systems, Electrical Safety Program training and updates to the *Infectious Disease Preparedness and Response Plan.*

16. Staff participated in the following external activities:

    a. Virginia Retirement System Political Division Roundtable

    b. Virginia Water Environment Association (VWEA)/ American Water Works association (AWWA) DE&I Task Force meeting

c. Hampton Roads Society of Human Resources Management (HR-SHRM) Board of Directors meeting and New Member Meet & Greet

d. Water Environment Federation (WEF) Utility Management Committee workshop proposal development

e. A virtual Former Nansemond Ordnance Depot (FNOD) meeting

f. A virtual City of Suffolk Local Emergency Planning Commission meeting

g. VWEA Leadership Academy planning committee to develop a virtual presentation of *Real Colors* planned in July.

h. A VWEA Education and Development Committee meeting

B. Monthly Strategic Planning Metrics Summary

1. Education and Outreach Events: (1)

   a. 6/15/2021 - Virginia Media Executive Series Panelist for *What Does Back to Work Look Like Post-COVID?*

2. Community Partners: (1)

   a. Virginia Media

3. Monthly Metrics

Item #	Strategic Planning Measure	Unit	June 2021
M-1.1a	Employee Turnover Rate (Total)	Percentage	0.49
M-1.1b	Employee Turnover - Service Retirements	Percentage	0
M-1.4a	Total Training Hours Per Full Time Employee (17)	Total Training Hours/ FTE	3.21
M-1.4b	Total Training During Work Hours Per Full Time Employee (17) – Cumulative Fiscal Year-to-Date	Hours / FTE	33.72
M-5.2	Educational and Outreach Events	Number	1
M-5.3	Community Partners	Number	1

4. Annual Metrics

Item #	Strategic Planning Measure	Unit	FY-2021
M-1.1a	Employee Turnover Rate (Total)	Percentage	6.31%
M-1.1b	Employee Turnover due to Service Retirements	Percentage	5.44%
M-1.1c	Employee Turnover Rate within Probationary Period	Percentage	0.49%
M-1.2	Internal Employee Promotion Eligible	Percentage	78%
M-1.3	Average Time to Fill a Position	Calendar Days	95
M-1.4b	Total Training During Work Hours Per Full Time Employee (17)	Hours / FTE	36.44
M-1.5a	Safety OSHA 300 Incidence Rate Total Cases	# per 100 Employees	4.1
M-1.5b	Safety OSHA 300 Incidence Rate Cases with Days Away	# per 100 Employees	1.3
M-1.5c	Safety OSHA 300 Incidence Rate Cases with Restriction, etc.	# per 100 Employees	4.1

Respectfully submitted,
Paula A. Hogg
Director of Talent Management

TO: General Manager

FROM: Director of Water Quality (WQ)

SUBJECT: Monthly Report for June 2021

DATE: July 13, 2021

A. General

Pretreatment and Pollution Prevention (P3) division staff assessed no civil penalties this month.

B. Quality Improvement and Strategic Activities

1. The Sustainability Environment Advocacy (SEA) Group reported no activities for the month of June.

2. The WQ Communication Team continues monitoring and measuring inter-divisional communication issues within the WQ Department.

C. Municipal Assistance

1. HRSD provided sampling and analytical services to the City of Fredericksburg, Northumberland County, Westmoreland County, and the Town of Lawrenceville to support monitoring required for their respective Virginia Pollution Discharge Elimination System (VPDES) permits.

2. The Municipal Assistance Billed Reimbursements per service collected between April 1 and June 30, 2021, are attached.

3. The Municipal Assistance Invoice Summary for the second quarter of the 2021 calendar year is attached.

D. Strategic Planning Metrics Summary

1. Educational and Outreach Events: 1

   - P3 staff from the Boater Education Program provided information during the Captains at the Virginia Beach Tuna Tournament.

2. Community Partners: 2
   a. Hampton Roads Planning District Commission
   b. Virginia Beach Fire Department

3. Odor Complaints: 4

   - June 11 – Atlantic plant received a report of porta-potty type odors. The source of the odors was a wastewater treatment process upset that sent excess solids to the aeration tanks. This abnormal operating condition generated the odors. Two

of the aeration tanks drained of water had significant odors from solids in the bottom of the tanks. Maintenance operators immediately responded by hosing out the solids from the bottom of the tanks. The tanks recovered over time and exhibited a low odor operating condition.

- June 12 – Atlantic plant received a report of thermal hydrolysis process (THP)-like odors. The source of the odors was thought to be the solids pad and residual aeration tank odors from the previous day.

- June 14 – Atlantic plant received reports of a burning tire-like odor that has been determined to be associated with operation of the THP.

- June 29 – Atlantic plant received a report that an odor originating with the plant has existed for the last six months. It is believed that the primary source of this odor was THP depressurization to the atmosphere. This odor was further exasperated by raw solids sent to the solids storage pad for decanting given they were too wet for transport.

  Operations and TSD have, since these events, identified a "new" source of a burnt (THS digested) solids-like odor that is coming from the annular space of the digesters' floating roof covers. This odor source is now being addressed.

4. Monthly Metrics

Item #	Strategic Planning Measure	Unit	June 2021
M-1.4a	Training During Work Hours Per Full Time Employee (118) (Current Month)	Total Hours / # FTE	2.92
M-1.4b	Total Training During Work Hours Per Full Time Employee (118) (Cumulative Fiscal Year-to-Date)	Total Hours / # FTE	54.67
M-2.5	North Shore/South Shore Capacity Related Overflows	# within Level of Service	0
M-3.1	Permit Compliance	# of Exceedances: # of Permitted Parameters	23:60,879
M-3.2	Odor Complaints	#	4
M-3.4	Pollutant Removal	Total Pounds Removed	183,123,855
M-3.5	Pollutant Discharge	% Pounds Discharged/ Pounds Permitted	20%
M-5.2	Educational and Outreach Events	#	1
M-5.3	Community Partners	#	2

Item #	Strategic Planning Measure	Unit	June 2021
	Average Daily Flow	Total MGD for all Treatment Plants	139.11
	Pretreatment Related System Issues	#	0

5. Annual Metrics

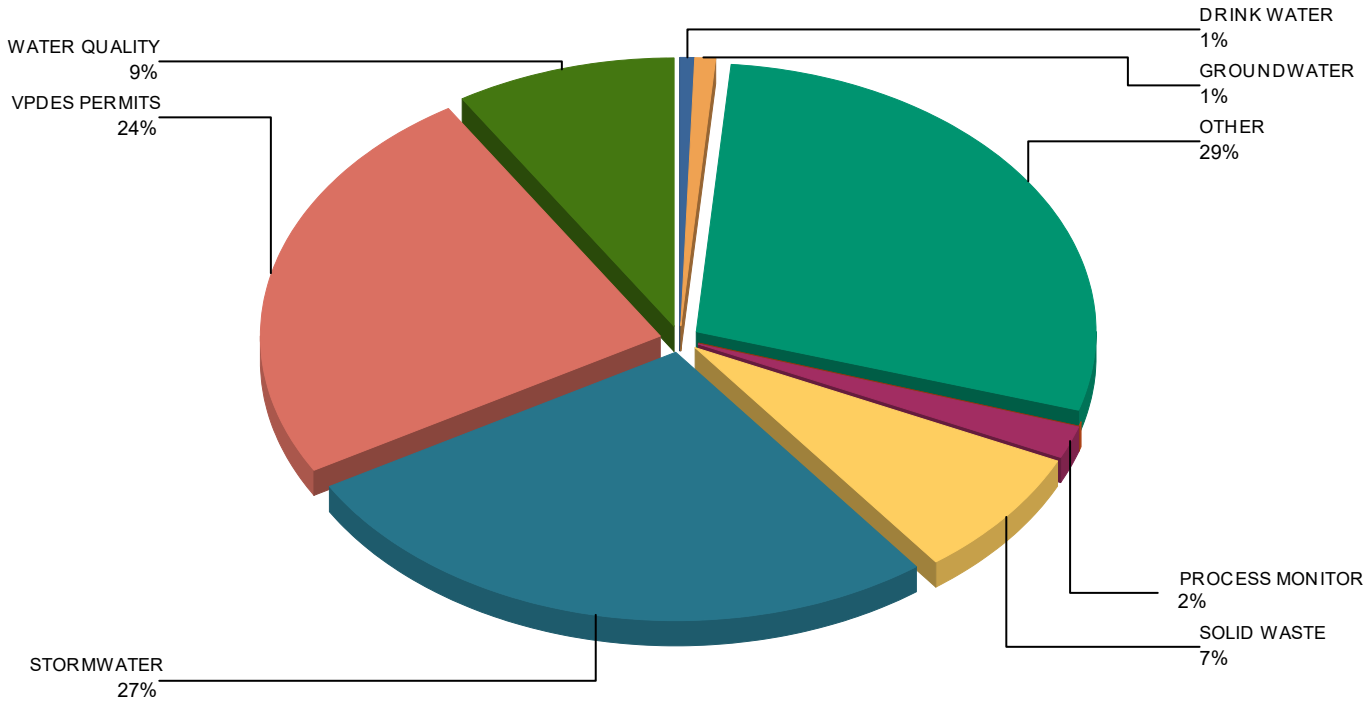
Item #	Strategic Planning Measure	Unit	FY-2021
M-3.3	Carbon Footprint	Tons per MG	*
M-4.2	R & D Budget	Percentage of Total Revenue	*%
M-5.4	Value of Research	Number	*
M-5.5	Number of Research Partners	Number	*
	Rolling 5 Year Average Daily Flow	MGD	149.72
	Rainfall reported at Norfolk International Airport	Inches	54.04”

*These metrics will be reported upon closeout of fiscal year financials.

Respectfully submitted,
James Plott, PhD
Director of Water Quality

Municipal Assistance Billed Reimbursements per Service
From 04/01/2021 to 06/30/2021

Attachment 1



Notes: Other = Equipment purchase, consultation, validation studies, boater pump-out program, etc.

Municipal Assistance Invoice Summary

From 04/01/2021 - 06/30/2021

Municipality	Reimbursements	Reimbursements Fiscal Year 2020
Accomack County	$1,391.84	$11,327.70
Augusta County Service Authority	$0.00	$5,269.06
Buckingham County	$406.84	$2,135.50
Chesapeake Public Utilities Engineering	$178.86	$178.86
Chesapeake Public Works	$2,000.53	$10,475.42
City of Boise	$665.26	$665.26
City of Chesapeake	$3,970.65	$13,939.57
City of Emporia	$205.53	$868.90
City of Fredericksburg	$0.00	$665.62
City of Hampton	$3,801.58	$16,427.74
City of Lynchburg	$0.00	$689.81
City of Newport News	$0.00	$1,567.75
City of Norfolk	$3,278.95	$13,574.09
City of Portsmouth	$6,273.70	$22,948.09
City of Roanoke	$0.00	$3,118.61
City of Suffolk	$5,577.10	$11,299.95
City of Virginia Beach	$7,441.40	$21,345.51
Deerfield Corrections Center	$837.69	$1,675.31
Fort Eustis	$5,529.29	$13,341.93
Frederick County	$6,370.77	$13,607.21
Harrisonburg Rockingham RSA	$5,717.65	$17,958.86
HRPDC	$52,850.82	$208,591.05
Hanover County	$0.00	$5,581.32
Hopewell RWTF	$996.27	$5,874.86
James City County Service Authority	$0.00	$1,108.80
King George County	$0.00	$4,480.20
METRO Wastewater Reclaimation DIST	$0.00	$370.50
New Kent County	$5,438.26	$28,950.93
Norfolk State University	$3,300.00	$3,300.00
Northampton County WWTP	$1,257.16	$6,122.57
Northumberland Co. - Callao WWTP	$1,263.00	$7,219.60
Prince William County	$8,826.22	$33,844.25
Rivanna Water and Sewer Authority	$0.00	$17,396.02
Spotsylvania County	$616.35	$23,788.59

St Brides Corr Ctr COVID		$32,695.00	$54,990.00
St Brides Corr Ctr WWTP		$1,531.36	$8,145.12
Stafford County		$0.00	$283.54
Town of Cape Charles		$5,265.30	$26,432.32
Town of Lawrenceville		$697.74	$3,913.02
Town of Round Hill		$0.00	$138.87
Town of South Hill		$241.17	$241.17
Upper Occoquan Service Authority		$18,411.16	$20,076.93
Virginia Department of Health		$6,550.67	$31,772.24
Western VA Water Authority		$3,598.58	$10,433.33
Westmoreland County		$901.46	$4,073.02
	Totals:	**$198,088.16**	**$690,209.00**

Hampton Roads Sanitation District
Internal Audit Status
June 30, 2021

The following Internal Audit Status document has been prepared by SC&H for the HRSD Commission. Below is a summary of projects in process, upcoming audits, and the status of current management action plan (MAP) monitoring.

I. *Projects in Process*

WIFIA Compliance

- **Tasks Completed (June 2021)**
  - Drafted and shared project deliverables (e.g. checklists and requirements database)
- **Upcoming Tasks (July 2021)**
  - Conduct follow-up meetings as necessary
  - Refine/finalize deliverables based on Management feedback
  - Confirm/finalize next steps

Emergency Repairs

- **Tasks Completed (June 2021)**
  - Drafted and sent initial documentation requests
  - Met with Management to discuss initial documentation requests
- **Upcoming Tasks (July 2021)**
  - Begin Fieldwork Procedures

Model 3 Billing

- **Tasks Completed (June 2021)**
  - Scheduled and conducted scope planning meeting with HRSD Leadership
  - Met with external auditor to discuss scope/leverageable work
- **Upcoming Tasks (July 2021)**
  - Finalize scope and approach with HRSD Leadership
  - Schedule and conduct entrance meeting
  - Begin planning phase procedures

Business Continuity and Disaster Recovery (Audit Fieldwork Complete/ Management Response in Process)

- SC&H is working with HRSD process owners and management to finalize the audit report, incorporating management action plans.

II. Management Action Plan (MAP) Monitoring

SC&H is performing on-going MAP monitoring for internal audits previously conducted for HRSD. SC&H begins MAP follow-up approximately one year following the completion of each audit and will assess bi-annually.

For each recommendation noted in an audit report, SC&H gains an understanding of the steps performed to address the action plan and obtains evidence to confirm implementation, when available.

The following describes the current project monitoring status. This listing does not include audits which were determined by HRSD Management and the Commission to include confidential or sensitive information.

			Recommendations		
Audit	**Report Date**	**Next Follow-up**	**Closed**	**Open**	**Total**
D&C: CIP Project Management	5/11/16	Closed	13	0	13

Biosolids Recycling	10/8/16	Pending Permit	7	1	8
HR Benefits	11/22/16	Closed	15	0	15
Inventory	4/20/17	Closed	5	0	5
Procurement/ ProCard	8/23/17	In process*	8	3	11
Engineering Procurement	4/20/18	Closed	8	0	8
Corporate Governance: Ethics Function	3/21/18	Closed	5	0	5
Treatment Plant Operations	10/15/18	July 2021	5	4	9
Customer Care Division	7/26/19	December 2022	2	2	4
Safety Division	9/12/19	February 2022	0	3	3
Permitting	2/4/20	Closed	2	0	2
Payroll	3/27/20	Closed	3	0	3
Pollution Source Control	6/2/20	January 2022	3	5	8
SWIFT Program	2/24/2021	February 2022	0	12	12
Fleet Services	2/24/2021	February 2022	0	17	17
		Totals	76	47	123

*Indicates follow-up is ongoing and have been sent to Management for comment.

SC&H GROUP

Expertise that Works

Internal Audit

Succession Planning

Hampton Roads Sanitation District

June 4, 2021

Table of Contents

I. Executive Summary

Background

SC&H conducted an internal audit of Hampton Roads Sanitation District's (HRSD) succession planning practices performed by HRSD's Talent Management department and other HRSD departments.

Succession Planning Summary

Succession planning is defined by the Society of Human Resource Management (SHRM)[1] as a future-focused practice of identifying the knowledge, skills and abilities to perform certain functions and developing a plan to prepare multiple individuals to potentially perform those functions.

Talent Management: Succession Planning Summary

Talent Management is comprised of three divisions: Human Resources, Organizational Development & Training (OD&T), and Safety. Talent Management is responsible for performing and overseeing various human resource activities. These activities include facilitating and driving organizational learning and development, managing benefits, recruiting, hiring, onboarding and offboarding HRSD employees. HRSD currently employs approximately 862 employees throughout the following eight departments.

1. General Management
2. Communications
3. Engineering
4. Finance
5. Information Technology
6. Operations
7. Talent Management
8. Water Quality

As part of HRSD's 2020 Strategic Plan, Talent Management oversees the "People" initiative, with the following four focus areas:

1. Developing existing talent with a focus on technical expertise, quality and collaboration.
2. Ensuring talent is used effectively.
3. Increasing the pool of talent by inspiring the next generation to pursue environmental careers.
4. Attracting and retaining top talent with diverse backgrounds.

An organization-wide succession planning policy has not been established and disseminated throughout HRSD that provides a framework for how planning should be performed across each department at HRSD. To achieve the Strategic Plan, however, with HRSD Quality Steering Team (QST) support, there are organization initiatives, several administered by Talent

[1] https://www.shrm.org/resourcesandtools/tools-and-samples/toolkits/pages/engaginginsuccessionplanning.aspx

Management which contribute to an established culture of learning and development to facilitate succession planning at HRSD. Active organization initiatives include the following:

1. HRSD Quality Steering Team (QST): The HRSD QST, made up of Directors and appointed Chiefs and/or Division Leaders, meets bi-monthly to address organizational issues. Appointed Chiefs/Division Leaders are appointed for 2-year terms as a development opportunity.

2. HRSD Benefits: HRSD encourages and supports employee initiative in professional development, providing the following benefits:
    a. **Continuing Education**: HRSD provides tuition to eligible employees for classes and programs that relate an individual's job or to pursue other HRSD career paths.
    b. **Professional Development & Training**: HRSD provides professional and technical training, legal registration, licensing and certification and participation in professional, scientific, technical, management and civic organizations to enhance job related skills and career development.

3. OD&T Programs: Various leadership development programs and training are offered to employees throughout HRSD.
    a. **Supervisor Training Programs**: Provides new supervisors with the necessary knowledge, skills and behaviors to increase their effectiveness.
    b. **Coaching Program**: A voluntary program, to help supervisors develop coaching skills taught by in-house coaches. Participants learn and practice coaching concepts and skills at a basic and advanced level.
    c. **Leadership and Management Academy**: A year- long program, with classes held monthly on a variety of leadership topics including Motivation, Design Thinking, Myers Briggs, Situational Leadership, Strengths and Ethics. The program incorporates a leadership-based class project.
    d. **Emotional Intelligence (EQ)**: A voluntary class helps participants understand EQ competencies and self- assess strengths and weaknesses; how EQ effects work relationships; how to leverage EQ in emotionally charged situations; how to identify and interact with different communication styles and how to eliminate counterproductive behaviors.
    e. **360 Feedback Program**: A voluntary mentoring program, managed by OD&T for individuals seeking opportunities to grow within the organization. Using a 360 tool, feedback is given from subordinates, peers, and supervisors.

4. Internship Program: This program may be utilized by any HRSD department to hire high school and college students, including both undergraduate and graduate, seeking to gain professional experience prior to graduation. HRSD seeks to hire interns based on requests initiated by departments. Departments request interns on an as-needed basis to assist with an array of job duties specific to each department. HRSD offers three types of internships:

a. **High School Summer Internship-Hampton Roads Public Works Academy**: Through the Public Works Academy (a regional coalition of public utility organizations promoting public works and public utility training), high school juniors and seniors are offered an internship at HRSD for a two-month period during the summer months. Students work alongside other full-time employees gaining first-hand experience working in a professional setting. At the program's conclusion, students who are not continuing to a college or university may be offered part- time or full-time positions and may have the opportunity to continue their education through one of the continuing education programs offered by HRSD. Between fiscal years 2016 and 2020, 37 students have participated in this internship program.
b. **College Internship**: Undergraduate college students may be offered internships in any HRSD department. Departments may request an intern for a specified period of time and the position will be filled by Talent Management. Following the end of the internship, interns may be offered a full-time position at HRSD. Between fiscal years 2016 and 2020, 91 students have participated in this internship type.
c. **Water Technology and Research Intern Program**: Research program supporting the Water Quality Department and Water Quality and Research Division, consisting of masters and doctorate level graduate students studying environmental or water treatment engineering. Students perform HRSD research as part of their internship and upon graduating, students may go on to work at other organizations to gain relevant professional experience. Students may then return to HRSD to continue their careers in the field once they have gained adequate experience.

5. Apprenticeship Program: This program is offered to positions within the Operations department and consists of both on-the-job training and academic learning. Employees are able to become certified in one or more of eight available skilled trades and graduate to be fully qualified in their area of choice over the course of a three to a four-year training program. Trades include:
    a. Automotive Technician
    b. Carpenter
    c. Electrical and Instrumentation Specialist
    d. Interceptor Technician
    e. Machinist
    f. Maintenance Operator
    g. Plant Operator
    h. Small Communities Operator

    Multiple employees within Operations are certified in one or more trades due to the complexity of their job responsibilities and the certifications needed to operate equipment. Between fiscal years 2016 and 2020, 82 of 175 employees graduated from the apprenticeship program. Additionally, 67 employees remain actively enrolled.

6. Kenan-Flagler's Water and Wastewater Leadership Training: Specifically, Chief and Director level positions are required to attend a one-time training, intended for current and up-and-coming public and private water and wastewater utility leaders.

HRSD Departments: Succession Planning Summary: Specific succession planning practices are the responsibility of individual departments and managed at a departmental level. Practices performed within each department are tailored 1) to meet the needs of that department and 2) based on department leadership strategies.

Departments have established various efforts that help contribute to succession planning practices and strategies. Some of these efforts are in coordination with the organization initiatives above, while others are more department led. Below is a summary of various efforts and methods communicated by departments.

1. Department QST Meetings: Multiple departments (e.g., Operations, Engineering, and Information Technology) have formed a QST that meets to address various department related matters. QST meetings are held to discuss staffing, current department challenges, and accomplishments. Upcoming retirements or resignations may be discussed, as well as the future needs of the department.

2. Development and Training: Overall, departments view succession planning as an ongoing effort with a goal of ensuring employees have a vast skill set. Both Senior Leaders and Department Leadership establish Acting roles during absences. This is one example of ensuring employees have the tools to assume managerial roles should positions become vacant. An emphasis is also placed on training, and cross-training, to improve the skills of employees as well as teach new skills that can be applied. Departmental procedural documentation is leveraged to ensure the transfer of knowledge and consistent application of procedures across departments.

3. Mentoring: Leadership works with employees to discuss career goals and aspirations and identify the appropriate career milestones to achieve those goals. Employees are encouraged to use Talent Management resources available to further assist them in the achievement of their goals.

4. Communication and Transparency: Departments foster an environment of open communication and seek to allow employees to be vocal about career decisions. Retirements and resignations are generally communicated in a timely manner and allow leadership to make strategic decisions to ensure continuity of operations.

5. Over Hire and Temporary Assignment Strategies: On an as-needed basis, for key positions, HRSD may approve an over-hire strategy as a method for transitioning and onboarding an employee selected to fill a vacancy. Prior to the vacancy, the recruitment and selection process is completed. This enables the new employee to learn the role and

solicit organizational knowledge from the incumbent to ensure continuity of operations and retain institutional knowledge. In addition, temporary assignments with additional compensation may be approved on an as needed basis for employees who take on additional roles and responsibilities during a time of need. This can provide experience and insight on the roles and responsibilities of other positions.

Objectives

The following objectives were established based on the internal audit planning procedures:

A. Evaluate division/department level succession planning policies, procedures, and efforts.
B. Research and document succession planning best practice procedures to recommend criteria for an organization-wide program.
C. Analyze retirement data to identify trends and evaluate organizational preparedness for management-level turnover.

Scope

The internal audit initiated in May 2020. Fieldwork procedures began in July 2020 and were completed in October 2020.

Methodology and Approach

SC&H performed the following procedures:

Understand and Evaluate Current Processes
SC&H obtained and reviewed over 30 Talent Management documents, including procedural documentation, OD&T materials, an HRSD Strategic Plan presentation, and retirement projections data.

SC&H also conducted interviews with Talent Management members to understand succession planning efforts within Talent Management and collaboration with HRSD departments.

Risk Ranking and Creation of Project Plan
Following the process understanding interviews and documentation review, SC&H developed an audit program to achieve the objectives described above. This program included detailed steps to address each objective with the goal of understanding the procedures in place to administer succession planning on an organizational and departmental level.

Audit Program Execution
SC&H executed the audit program by completing the following tasks:

- Developed a questionnaire and conducted interviews with Talent Management and department Directors to gain an understanding of department specific succession planning efforts, practices, policies, and procedures.
- Researched succession planning best practices to identify structure and content that could be useful in developing a guidance document to support department level efforts.

- Performed data analytics on HRSD Virginia Retirement System (VRS) retirement data provided by Talent Management to assess workforce risk of predictable departures of employees (e.g., eligible to retire today and up to 10 years from today).

Summary of Work

SC&H concludes that HRSD has overall organizational and departmental practices in place that incorporate succession planning elements and encourage employee development. Departmental practices are tailored to each department and they appear to be consistent with HRSD's succession planning strategy and serve the needs of the organization. However, SC&H has identified opportunities to address risk factors within HRSD's succession planning practices. These opportunities are presented in the following observation, and focus on providing HRSD with methods to strengthen practices and reduce risk, while not altering its succession planning strategy and approach.

We appreciate the assistance and cooperation of the management and staff from Talent Management and other HRSD departments. Please contact us if you have any questions or comments regarding any of the information contained in the internal audit report.

SC&H Group, Inc.

Matthew Simons, CPA, CIA, CGAP
Principal

II. Detailed Observations and Recommendations

Observation 1

HRSD departments may not have specific guidance available that enables them to successfully implement or leverage helpful succession planning practices into their departments.

Observation Detail

HRSD's succession planning strategy and practices include the following, categorized into two areas:

1. Talent Management: Talent Management supports HRSD's "People" strategic objectives and provides organizational resources including development and training initiatives, performance evaluations and feedback, career and leadership development, as well as apprenticeship and internship programs.
2. HRSD Departments: Departments have the autonomy to manage their succession planning practices and strategies. Further, departments perform supplemental activities that help succession planning efforts including QST meetings, development and training opportunities, and mentoring.

While activities and efforts mentioned above are actively performed, there is not a designated collection of guidance material available to departments to help ensure key succession planning elements are known and applied.

Risks

HRSD and its departments recognize the need for succession planning under their purview, and have implemented practices to address the need. However, the lack of comprehensive guidance could result in ineffective, inconsistent, or incomplete practices. These could lead to extended or costly vacancies, loss of institutional knowledge and experience from skilled and technical employees, and a negative impact to the continuity of business operations.

Recommendation 1.1

HRSD's succession planning vision is not to implement a specific policy that 1) may limit departmental autonomy and 2) may not align with departmental strategies. However, best practices and elements are available that may help departments refine their succession planning strategies and ensure they are complete and effective.

As a result, HRSD should consider developing, formalizing, and communicating succession planning guidance for departments to access and use as a resource when performing their own succession planning functions. The goal of this guidance would be to support departments, and not enforce step-by-step succession planning procedures. This guidance should be based on best practices and organizational needs, and include key elements for each department to understand and incorporate into its operations.

Examples of key elements include, but are not limited to the following. The foundation of the

key elements provided are based on information/guidance offered by SHRM and expanded upon by SC&H, based on professional experience and research procedures performed.

Note: As stated in the report, HRSD does appear to conduct succession planning practices. The below key elements do appear to exist to an extent within HRSD departments and within Talent Management, with levels of detail/execution differing by department. The key elements are designed to provide consistent information and help organize and facilitate continued development of succession planning activities.

1. Training: Preparing and ensuring employees are equipped to perform the tasks required for their role.
    a. Develop a process to evaluate the annual number of hours and types of training (e.g., leadership, technical, and soft skills) and continuing education for certifications required or recommended for department staff.
    b. Develop a process to evaluate the effectiveness/participation of current training offerings.
    c. Partner with OD&T for opportunities to enhance training offerings and to ensure the trainings are meeting the future needs of the department.
2. Career Planning and Development: Identify interests of employees, assist with providing personal development options based on their interests and talents, and prepare employees for future roles and responsibilities.
    a. Understand available career interests and goals of employees and provide opportunities to develop and pursue those interests and goals.
    b. Develop a process to evaluate if a technical certification or secondary degree is desired for certain roles within the department and encourage staff to pursue.
    c. Identify opportunities for staff development, such as cross-training, shadowing, or rotational stints to develop a broader understanding of HRSD's business and operations.
    d. Incorporate annual goal planning and review progress on a defined basis, per Talent Management guidelines.
3. Knowledge Transfer: Ensuring key and technical department level procedures are documented, comprehensive, current, reviewed, and updated on a recurring basis to facilitate institutional knowledge retention.
    a. Determine a frequency for reviewing and updating the applicable critical policies and procedures to ensure the documents are accurate and complete.
    b. Incorporate strategies outlined above, such as cross-training, shadowing, or rotational stints, to foster an environment of knowledge sharing.
4. Workforce Planning: Identifying personnel in key operating positions to ensure there is a broad range of potential candidates, backups, or identified employees to assume Acting Roles.
    a. Develop a process for identifying and updating a broad range of potential candidates, backups, or Acting Roles to step into critical positions, should an opening occur or is temporarily needed.
    b. Ensure critical positions include both management and subject matter expert

roles, within the department.
   c. Incorporate strategies outlined above to help ensure that available staff within the department are willing and able to step into potential openings.
   d. Partner with other department Directors and/or Talent Management to consider potential candidates from other departments.
5. Retirement evaluations: Aggregating and monitoring retirement data to anticipate and plan when employees may separate from HRSD. (See recommendation 1.3 for additional information)
6. Formalized mentoring: Developing and implementing a formal mentoring program to assist with employee professional development. (See recommendation 1.4 for additional information)

HRSD should consider assigning ownership of the guidance to a central department/group within HRSD. This department/group should periodically:

1. Evaluate the internal guidance to determine if it can/should be updated based on industry/professional guidance and updates.
2. Update the guidance as applicable.
3. Inform HRSD leadership of the updates.
4. Make the guidance available for review, consideration, and application (e.g., through HRSD's intranet).

Management's Action Plan

Develop a Succession Planning Guidance Document for Departments to access and use as a resource for succession planning functions. This guidance will be based on best practices and organizational needs, and include key elements for each department to incorporate into its operations. The guidance will address training (technical, leadership and soft skills), career development, knowledge transfer, workforce planning, retirement projections and formalized mentoring that meets Department and organizational needs related to succession planning. The guidance will incorporate goal setting, an evaluation and review process with Departments, and identify measures of success that support HRSD's strategic plan. The guidance will be developed based on industry best practices and department input. Talent Management Department will be responsible for development, posting, review and update of the guidance at a defined frequency.

Implementation Date

July 2022

Recommendation 1.2

On a periodic scheduled basis, the succession planning guidance owner (as suggested in recommendation 1.1) should contact departmental leadership. The intent would be to confirm departments are aware of the guidance, have incorporated or considered incorporating it, have updated their procedures when necessary, and have addressed areas where there may be differences in practices vs. guidance. The result of these communications and updates may help ensure departments are made aware of key succession planning criteria, as well as updates/changes since the last contact, so they are able to effectively incorporate them into their

practices.

Management's Action Plan
Addressed in Management Action Plan 1.1

Implementation Date
July 2022

Recommendation 1.3
Talent Management aggregates data related to retirement eligibility (i.e., current day, 5-year, 10+ years) that departments can request on an ad-hoc basis.

Talent Management should consider formalizing this aggregation process and proactively share retirement projections on a periodic basis (e.g., annually) to department level leadership. Data should include employee name, position, position grade, and eligible retirement date. Departments would be able to utilize this data to anticipate and plan when employees may separate from HRSD. Further, Talent Management should consider monitoring retirements at an incremental level (e.g., current day, one year, two year, etc.). This may help improve transparency and planning for near term retirements. The result of these procedures may help to ensure departments are:

1. Prepared and able to proactively address departures, including key personnel.
2. Suited to transfer knowledge to new employees as well as employees who assume positions that have become vacant.
3. Mitigating risks related to institutional knowledge loss and continuity of operations.

Management's Action Plan
Human Resources will establish an annual process to share retirement eligibility projections for Department leadership. Incremental data such as 1, 5 and 10 year data will be provided based on Department requests and planning needs to proactively address projected departures, plan for knowledge transfer and mitigate risks associated with knowledge loss and continuity of operations.

Implementation Date
January 2023

Recommendation 1.4
HRSD leadership offers employees opportunities to discuss career goals and aspirations through mentoring activities. These activities are department-based and not formally administered by HRSD.

HRSD should consider developing and implementing a formal mentoring program to be administered by individual departments with oversight from Talent Management. Each employee within a department would be assigned a mentor who they would meet at least annually to discuss goals, accomplishments, challenges, etc. Mentors may be used as a continuous resource

to discuss how an employee can ascend through HRSD and continue to have a successful career within the organization. Talent Management should consider developing templates and guidance documents to be used as a resource by mentors and mentees to ensure they have a mutually successful relationship.

Management's Action Plan

HRSD will develop a mentorship program based on key elements identified in the succession planning guidance document. A cross functional team will develop a program that can be administered within each department. The program will be based on the key elements of the Succession Planning program and include opportunities for career development, knowledge transfer, continued learning, workforce planning and will aim to ensure HRSD creates a diverse number of leaders to support HRSD's strategic plan. The plan will identify resources and on-going training required to maintain the program. The program will incorporate an evaluation and update process based on identified goals.

Implementation Date

July 2023

Annual Metrics

Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	FY-18	FY-19	FY-20	FY-21
M-1.1a	Employee Turnover Rate (Total)	Percentage	< 8%	5.63%	4.09%	6.64%	7.62%	8.22%	9.97%	6.75%	6.66%	9.99%	6.63%	6.78%	6.31%
M-1.1b	Employee Turnover Rate within Probationary Period		0%		2.22%	8.16%	14.58%	9.68%	0.66%	0.13%	0.90%	1.01%	2.10%	3.08%	5.44%
M-1.2	Internal Employee Promotion Eligible	Percentage	100%		59%	80%	70%	71%	64%	69%	68%	85%	85%	63%	78%
M-1.3	Average Time to Fill a Position	Calendar Days	< 30		70	60	52	43.76	51	56	67	67	66	60	95
M-1.4	Training Hours per Employee - cumulative fiscal year-to-date	Hours	> 40		30.0	43.8	37.5	35.9	42.8	49.0	48.4	41.1	40.9	39.3	28.2
M-1.5a	Safety OSHA 300 Incidence Rate Total Cases	# per 100 Employees	< 3.5	6.57	6.15	5.8	11.2	5.07	3.87	7	5.5	5.7	4.1	4.8	4.1
M-1.5b	Safety OSHA 300 Incidence Rate Cases with Days Away	# per 100 Employees	< 1.1	0.74	1.13	1.33	0.96	1.4	0.82	1.9	1	1.1	0.8	1.34	1.3
M-1.5c	Safety OSHA 300 Incidence Rate Cases with Restriction, etc.	# per 100 Employees	< 0.8	3.72	4.27	2.55	4.5	2	1.76	3.6	2.8	2.8	1.8	1.6	4.1
M-2.1	CIP Delivery - Budget	Percentage			113%	96%	124%	149%	160%	151%	156%	160%	170%	170%	123%
M-2.2	CIP Delivery - Schedule	Percentage			169%	169%	161%	150%	190%	172%	173%	167%	159%	159%	155%
M-2.3a	Total Maintenance Hours	Total Available Mtc Labor Hours Monthly Avg			16,495	22,347	27,615	30,863	35,431	34,168	28,786	28,372	31,887	29,596	27,654
M-2.3b	Planned Maintenance	Percentage of Total Mtc Hours Monthly Avg			20%	27%	70%	73%	48%	41%	43%	44%	59%	59%	62%
M-2.3c	Corrective Maintenance	Percentage of Total Mtc Hours Monthly Avg			63%	51%	12%	10%	18%	25%	25%	24%	18%	19%	16%
M-2.3d	Projects	Percentage of Total Mtc Hours Monthly Avg			18%	22%	20%	18%	32%	34%	32%	32%	27%	25%	22%
M-2.4	Infrastructure Investment	Percentage of Total Cost of Infrastructure	2%		8.18%	6%	6%	4%	7%	7%	5%	5%	4	5%	*
M-3.3	Carbon Footprint	Tons per MG Annual Total			1.61	1.57	1.47	1.46	1.44	1.45	1.58	1.66	1.58	1.7	*
M-3.6	Alternate Energy (Incl. Green Energy as of FY19)	Total KWH			0	0	0	5,911,289	6,123,399	6,555,096	6,052,142	5,862,256	47,375,940	56,473,800	*
M-4.1a	Energy Use: Treatment	kWh/MG Monthly Avg			2,473	2,571	2,229	2,189	2,176	2,205	2,294	2,395	2,277	2,408	*
M-4.1b	Energy Use: Pump Stations	kWh/MG Monthly Avg			197	173	152	159	168	163	173	170	181	174	*
M-4.1c	Energy Use: Office Buildings	kWh/MG Monthly Avg			84	77	102	96	104	97	104	104	95	102	*
M-4.2	R&D Budget	Percentage of Total Revenue	> 0.5%		1.0%	1.4%	1.0%	1.3%	1.0%	0.8%	1.3%	1.4%	1.8%	1.3%	*
M-4.3	Total Labor Cost/MGD	Personal Services + Fringe Benefits/365/5-Year Average Daily Flow		$1,028	$1,095	$1,174	$1,232	$1,249	$1,279	$1,246	$1,285	$1,423	$1,348	$1,487	*
M-4.4	Affordability	8 CCF Monthly Charge/ Median Household Income	< 0.5%		0.48%	0.48%	0.41%	0.43%	0.53%	0.55%	0.59%	0.60%	0.64%	0.71%	*
M-4.5	Total Operating Cost/MGD	Total Operating Expense/ 365/5-Year Average Daily Flow		$2,741	$2,970	$3,262	$3,316	$3,305	$3,526	$3,434	$3,592	$3,959	$3,823	$4,048	*
M-5.1	Name Recognition	Percentage (Survey Result)	100%	67%	71%	N/A	62%	N/A	60%	N/A	N/A	53%	N/A	53%	N/A
M-5.4	Value of Research	Percentage - Total Value/HRSD Investment			129%	235%	177%	149%	181%	178%	143%	114%	117%	143%	*
M-5.5	Number of Research Partners	Annual Total Number			42	36	31	33	28	35	15	20	26	32	*
	Rolling 5 Year Average Daily Flow	MGD		157.8	155.3	152	154.36	155.2	151.51	153.09	154.24	152.8	152.23	149.84	149.72
	Rainfall	Annual Total Inches		66.9	44.21	56.21	46.65	46.52	51.95	54.14	66.66	49.24	53.1	48.49	54.04
	Billed Flow	Annual Percentage of Total Treated		71.9%	82.6%	78%	71%	73%	74%	72%	73%	76%	72%	78%	*
	Senior Debt Coverage	Net Revenue/Senior Annual Debt Service	> 1.5	2.51%	2.30%	2.07%	1.88%	1.72%	1.90%	2.56%	3.10%	3.59%	4.84%	5.80%	*
	Total Debt Coverage	Net Revenue/Total Annual Debt	>1.4	1.67%	1.67%	1.46%	1.45%	1.32%	1.46%	1.77%	1.93%	2.03%	2.62%	2.81%	*

*to be reported

Monthly Updated Metrics

Item	Strategic Planning Measure	Unit	Target	FY-10	FY-11	FY-12	FY-13	FY-14	FY-15	FY-16	FY-17	FY-18	FY-19	FY-20	FY-21	FY-21 May-21	FY-21 Jun-21
	Average Daily Flow	MGD at the Plants	< 249		136	146.5	158.7	156.3	153.5	155.8	153.5	145.8	152.7	141.5	155.3	124.0	139.1
	Industrial Waste Related System Issues	Number	0		3	6	6	6	2	4	7	4	7	1	2	0	0
	Wastewater Revenue	Percentage of budgeted	100%		97%	96%	98%	107%	102%	104%	103%	103%	104%	104%	106%	104%	102%
	General Reserves	Percentage of Operating and Improvement Budget	75% - 100%		72%	82%	84%	92%	94%	95%	104%	112%	117%	119%	108%	109%	111%
	Accounts Receivable (HRSD)	Dollars (Monthly Avg)			$17,013,784	$17,359,488	$18,795,475	$20,524,316	$20,758,439	$22,444,273	$22,572,788	$22,243,447	$23,900,803	$27,335,100	$34,060,154	$36,752,546	$40,032,946
	Aging Accounts Receivable	Percentage of receivables greater than 90 days			21%	20%	18%	19%	21%	20%	18%	18%	17%	18%	29%	32%	33%
M-2.5	Capacity Related Overflows	Number within Level of Service	0		25	1	30	5	11	16	6	10	5	2	25	0	0
M-3.1	Permit Compliance	# of Exceedances to # of Permitted Parameters	0		12:55,045	1:51995	2:52491	1:52491	2:52491	2:52,491	9:53236	9:58338	2:60879	9:60879	23:60879	20:55806	23:60879
M-3.2	Odor Complaints	Number	0		6	2	7	11	5	9	7	6	9	15	31	1	4
M-3.4	Pollutant Removal (total)	Total Pounds Removed			178,163,629	171,247,526	176,102,248	185,677,185	180,168,546	193,247,790	189,765,922	190,536,910	187,612,572	182,759,003	183,123,855	167,633,415	183,123,855
M-3.5	Pollutant Discharge (% of permitted)	Pounds Discharged/Pounds Removed	< 40%		25%	22%	25%	22%	22%	20%	22%	17%	17%	17%	18%	21%	20%
M-5.2	Educational and Outreach Events	Number			302	184	238	322	334	443	502	432	367	256	145	13	43
M-5.3	Number of Community Partners	Number			280	289	286	297	321	354	345	381	293	230	128	14	13

EFFLUENT SUMMARY FOR JUNE 2021

PLANT	FLOW mgd	% of Design	BOD mg/l	TSS mg/l	FC #/UBI	ENTERO #/UBI	TP mg/l	TP CY Avg	TN mg/l	TN CY Avg	TKN mg/l	NH3 mg/l	CONTACT TANK EX
ARMY BASE	8.51	47%	7	7.8	2	1	0.50	0.53	3.9	4.3	NA	NA	5
ATLANTIC	32.11	59%	17	12	2	3	NA	NA	NA	NA	NA	NA	7
BOAT HARBOR	11.40	46%	8	5.9	2	2	0.48	0.43	17	20	NA	NA	11
CENT. MIDDLESEX	0.013	51%	<2	2.7	2	1	NA	NA	NA	NA	NA	NA	NA
CHES-ELIZ	11.00	46%	18	8.9	8	2	0.53	1.0	29	30	NA	NA	9
JAMES RIVER	12.19	61%	4	2.7	<1	1	0.32	0.34	4.8	6.5	NA	NA	2
KING WILLIAM	0.068	68%	<2	<1.0	NA	<1	0.043	0.036	1.2	2.3	<0.50	NA	NA
NANSEMOND	17.31	58%	4	4.3	3	1	1.3	0.73	4.1	4.7	NA	NA	1
SURRY, COUNTY	0.046	71%	4	1.4	NA	NA	NA	NA	NA	NA	NA	0.15	0
SURRY, TOWN	0.052	86%	3	14	NA	132	NA	NA	NA	NA	1.3	0.15	NA
URBANNA	0.060	60%	5	8.5	7	4	2.5	0.99	10	11	NA	0.16	NA
VIP	26.20	66%	0	1.7	4	2	0.41	0.40	3.6	3.3	NA	NA	5
WEST POINT	0.416	69%	21	8.6	1	<1	3.5	2.6	17	15	NA	NA	0
WILLIAMSBURG	8.84	39%	4	3.8	4	5	0.88	0.60	2.4	4.3	NA	NA	3
YORK RIVER	10.89	73%	3	1.2	1	3	0.27	0.22	5.1	5.2	NA	NA	0
	139.11												

	% of Capacity
North Shore	53%
South Shore	57%
Small Communities	65%

Tributary Summary

	Annual Total Nitrogen			Annual Total Phosphorus		
	Discharged YTD	Operational Projection CY21		Discharged YTD	Operational Projection CY21	
Tributaries	%	Lbs	%	%	Lbs	%
James River	36%	3,324,161	73%	32%	244,888	78%
York River	44%	253,683	88%	35%	15,260	79%
Rappahannock	32%	NA	NA	11%	NA	NA

Permit Exceedances:Total Possible Exceedances, FY21 to Date: 23:60,879
Pounds of Pollutants Removed in FY21 to Date: 183,123,855
Pollutant Lbs Discharged/Permitted Discharge FY21 to Date: 20%

Rainfall (inch)

	North Shore (PHF)	South Shore (ORF)	Small Communities (FYJ)
Month	7.23"	4.44"	5.66"
Normal for Month	4.74"	4.82"	5.17"
Year to Date Total	24.7"	21.61"	25.42"
Normal for YTD	23.07"	21.58"	23.34"

AIR EMISSIONS SUMMARY FOR JUNE 2021

	No. of Permit Deviations below 129 SSI Rule Minimum Operating Parameters								Part 503e Limits		
MHI PLANT	Temp 12 hr ave (F)	Venturi(s) PD 12 hr ave (in. WC)	Precooler Flow 12 hr ave (GPM)	Spray Flow 12 hr ave (GPM)	Venturi Flow 12 hr ave (GPM)	Tray/PBs Flow 12 hr ave (GPM)	Scrubber pH 3 hr ave	Any Bypass Stack Use	THC Mo. Ave (PPM)	THC DC (%)	BZ Temp Daily Ave Days >Max
ARMY BASE	0	1	0	0	0	0	0	0	58	98	0
BOAT HARBOR	0	0	0	n/a	0	0	0	0	13	78	0
CHES-ELIZ	0	0	0	0	0	0	0	0	13	96	0
VIP	0	0	0	n/a	0	0	0	0	26	99	0
WILLIAMSBURG	0	0	0	n/a	0	0	0	0	38	98	0

ALL OPERATIONS

DEQ Reportable Air Incidents:	1
DEQ Request for Corrective Action:	0
DEQ Warning Letter:	0
DEQ Notice of Violation:	0
Other Air Permit Deviations:	0
Odor Complaints Received:	4
HRSD Odor Scrubber H2S Exceptions:	4

Resource: Steve de Mik

AGENDA ITEM 16.e. – July 27, 2021

Subject: Mineral Oil Purchase
Emergency Declaration

CIP Project: Not applicable

Recommended Action: No action is required. Information Only

Brief: HRSD received four odor complaints in the month of June related to its thermal hydrolysis solids operation at the Atlantic Treatment Plant. Staff suspects that some of the offensive odors may be coming from digester gas escaping from the annular space in the floating digester cover.

As a temporary measure, staff believes that the application of food grade mineral oil introduced into the annular space may create barrier sufficient to prevent the digester gas from escaping.

Staff, therefore, purchased 1,800 gallons of mineral oil at a cost of $27,792.96. There was not an existing contract for such a purchase.

Given the nature and frequency of the odor events and the disruption to the community surrounding the treatment plant, staff believes the purchase was justified.