

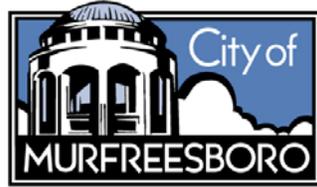
# WATER AND SEWER BOARD

Tuesday, July 26, 2016  
Operations & Maintenance Facility  
1725 South Church Street  
3:30 PM

## AGENDA

Brian Kidd Oath of Office

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  - A. Consider purchase of flow monitors and rain gauge ..... 2
  - B. Consider purchase of Rockwell Automation TechConnect Software Support ..... 6
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10. Adjourn



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# MEMORANDUM

**DATE:** July 15, 2016  
**TO:** Water and Sewer Board  
**FROM:** Valerie Smith  
**SUBJECT:** Flow Monitor & Rain Gauge Replacements

---

## Background

Currently, the Department is contracted with ADS, LLC to operate and maintain the Department's nineteen (19) permanent flow monitors and seven (7) rain gauges within the sewer system. As of now, out of the nineteen (19) monitors, there are four (4) remaining that are an older model of flow monitor called the Flowshark. These have been budgeted to be replaced because ADS has received notifications from AT&T to phase out the monitors and rain gauges that required the "2G" network. The Flowshark Models use this "2G" network.

With the replacement of the old flow monitors, staff also budgeted to install stand-alone Rain Alert III rain gauges along with a replacement of one tipping bucket. Six (6) of the seven (7) rain gauges utilized the old Flowshark monitors that are being phased out. ADS has developed these new Rain Alert III gauges as replacements.

Staff has taken a phased approach for replacement of all of this equipment and these purchases will conclude our replacements. ADS is also continuing to offer the trade-in value of \$1,500 each.

In addition to budgeting the replacement of the monitors, staff budgeted to install one additional monitor for the Joe B. Jackson "Area". This area is currently added into the MF 12 flow basin. This new basin will be called MF12A as shown in the attached exhibit. With all of the construction and growth in this Area a monitor will help determine if a section of line is damaged during construction for the short term, but also help staff determine if I/I starts occurring in the system for the long term.

Funding for the replacement of four (4) monitors, purchase of one (1) new monitor, the replacement of six (6) rain gauges and one (1) tipping bucket was approved within the 2016/2017 Rate Funded Capital Budget at a total of \$44,740.

## **Recommendations**

Staff would like to recommend the Board to recommend approval from the City Council to purchase the five (5) monitors, six (6) rain gauges and one (1) tipping budget in the amount of \$38,887.41, which is \$5,852.59 under budget.

## **Fiscal Impact**

This purchase was approved as a rate funded capital purchase within the 2016/2017 Rate Funded Capital Budget.

## **Attachments**

ADS quote for equipment  
Flow Monitor Area Exhibit



1300 Meridian Street, Suite 3000  
 Huntsville, AL 35801  
 256-430-3366  
[www.adsenv.com](http://www.adsenv.com)  
 A Division of ADS LLC

**ADS Contact/Signature**  
 Luis Mijares  
 1300 Meridian Street, Suite 3000  
 Huntsville, AL 35801  
 Phone: 256-430-6494  
 E-Mail: LMijares@ldexcorp.com

**Murfreesboro Water & Sewer Department**  
**2200 NW Broad Street**  
**Murfreesboro, TN 37130**  
**Ms. Valerie Smith**

Quote Reference	Murfreesboro.EQP.TN.16-1
Date	3/2/2016
Terms	Net 30
Shipment	FOB Shipping Point
Delivery	30 days ARO
Price Validity	60 days

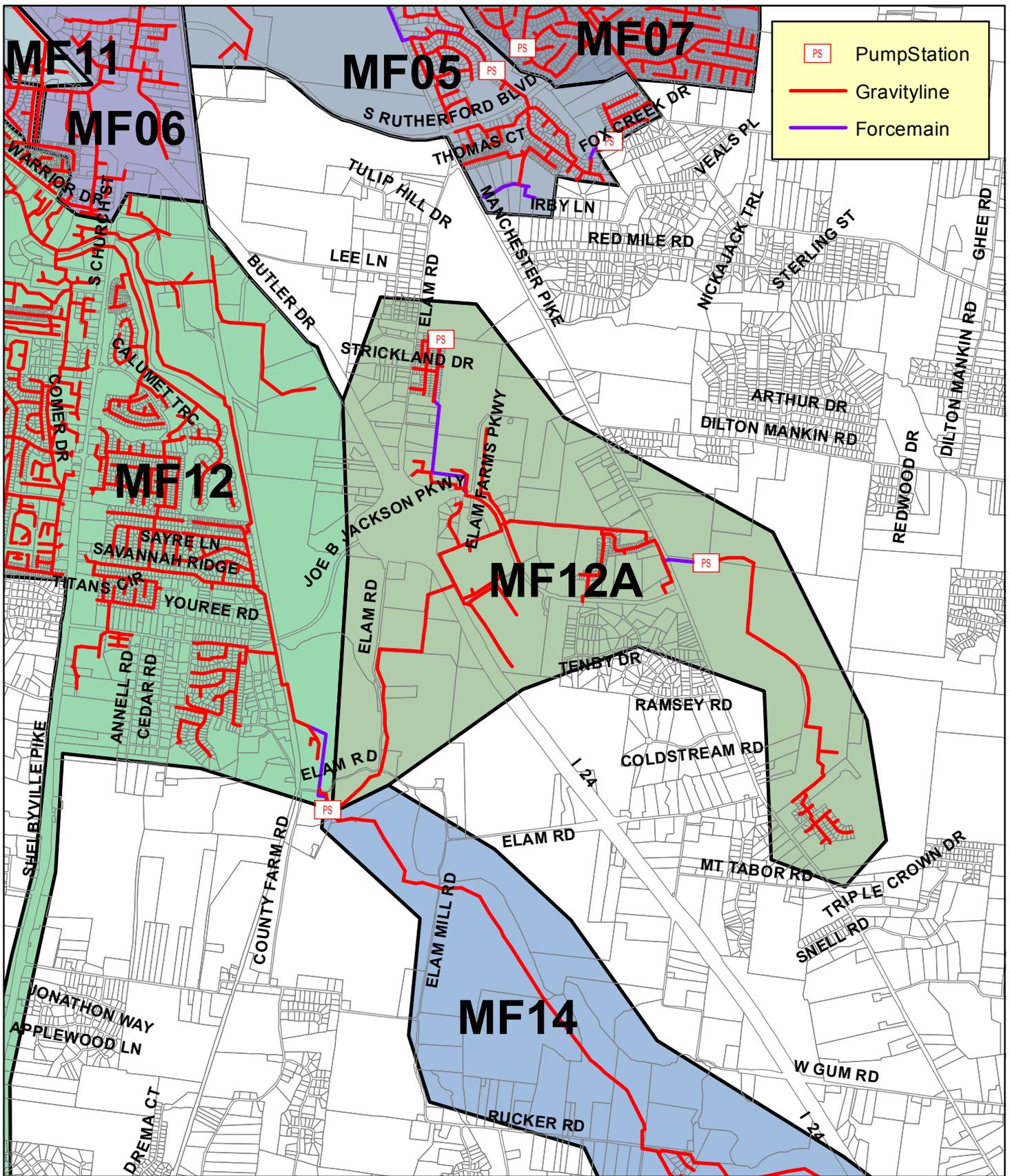
**5 Triton+ monitors with Trade in Allowance, 6 RainAlert III, 1 TB6**

Description	System(s)	Part Number	System Quantity	Spare Quantity	Unit Retail Price	Extended Price
<b>Complete Flow Monitoring Systems (Excluding Software)</b>						
FlowShark Triton +, GI, Wireless Monitoring System. IS Rated. Includes internal modem, mini wing antenna, peak combo sensor, and installation kit.	FS Triton +	FST+ Kit	5		5,840.00	29,200.00
<b>Rain Gauges and Tipping Buckets</b>						
RainAlert III with Wireless Modem & Antenna (Sun Shield and Tipping Bucket Not Included)	RainAlert III	6000-RA	6		1,430.00	8,580.00
TIPPING BUCKET,8",STANDARD,PLASTIC BASE (TB6)	RainAlert III	6000-0054	1		665.29	665.29
CABLE,TIPPING BUCKET,EXT 25'	RainAlert III				159.23	-
<b>Shipping (ODC) and Labor</b>						
Estimated Shipping at 1% of order					442.12	442.12
Extraordinary Labor (Enter total labor cost not including fringe)					-	-
Subtotal						38,887.41
Sales Tax	0%				-	0.00

**NOTES:**

- The above prices do not include labor to support the installation of the flow monitors.
- The above prices do not include any special, modified, or custom documentation or manuals that may be required. Standard ADS Environmental Services manuals, appropriate to the flow monitors delivered, are included with the equipment.
- Sale of the above equipment and software is subject to acceptance of ADS Environmental Services Equipment Sale Agreement. Activation of software requires users to execute
- Acceptance of this proposal for the purchase of ADS Products constitutes your and/or your company's agreement to ADS' Standard Terms and Conditions of Sale found at

<b>Client Name:</b>	<b>ADS LLC</b>
<b>Signature</b>	<b>Signature</b>
<b>Printed Name/Title</b>	<b>Printed Name/Title</b>
<b>Date</b>	<b>Date</b>



	PumpStation
	Gravityline
	Forcemain



MURFREESBORO WATER AND SEWER DEPARTMENT

# MF12A FLOW BASIN

City of  
**MURFREESBORO**  
TENNESSEE  
KMC 7/21/2016  
MF12A.MXD



*... creating a better quality of life*

# MEMORANDUM

**DATE:** July 15, 2016  
**TO:** Water and Sewer Board  
**FROM:** Brian Pollock  
**SUBJECT:** Request to Purchase Rockwell Automation TechConnect Support

---

## **Background**

Our current Rockwell Automation software support will expire on July 31, 2016. The Department uses the Rockwell Automation applications to run, program, connect, and view the collection and water treatment control systems. It is critical that these control systems continue to function as needed to enable the processes to run. This TechConnect Support includes technical support for any issues with the systems and software updates.

The pricing is available single sourced from our appointed distributor, Stuart C. Irby Co.

## **Recommendation**

Staff recommends the Water and Sewer Board recommend to City Council approving the purchase of the referenced TechConnect Support for 1 year in the amount of \$9,936.00.

## **Fiscal Impact**

Funding for the support would come from prepaid maintenance accounts for water and wastewater in the Department's approved FY17 operating accounts. Cost for 1 year renewal is \$9,936.00. A multi-year option is available, which locks in the current price for 3 years for a cost of \$29,808.00. The 3 year term will not be a viable option because the current legacy hardware support will be removed when the wastewater plant controls are replaced in the 4D expansion project.

## **Exhibits**

TechConnect Support Quote 2016

4/6/2016

CITY OF MURFREESBORO  
2032 BLANTON DR  
MURFREESBORO, TN 37129-2912

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## Act Now to Continue Uninterrupted Technical Support & Product Updates

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To renew TechConnect<sup>SM</sup> support for another year, please reference the attached quote. To change service levels, add products or place an order, contact your local Rockwell Automation distributor. With a TechConnect program, your plant can always be connected to Rockwell Automation's world-class phone and electronic technical support. Whether you need help installing, configuring and maintaining equipment and software, obtaining current software updates, diagnosing and fixing operating problems, or performing basic programming tasks, we deliver the tools and answers you need to get and keep your industrial automation systems up and running.

### TECHCONNECT PROGRAM DELIVERABLES:

**Welcome Kit.** Materials include your service agreement (complete program details & authorization number), wallet cards, user's guide, and list of the software licenses at your site supported by the TechConnect agreement.

**Technical Support.** Real-time phone<sup>1</sup> and electronic support directly connects you with a product specialist who can help you install and configure, troubleshoot and diagnose.

**Technical Reference Library on DVD.** Updated annually, this electronic technical library puts user manuals and technical notes for Rockwell Automation products at your finger tips. Advanced search and on-demand printing capabilities make this portable resource the most convenient way to access technical information on the plant floor or off site.

**Software Updates.** For each software license covered by your TechConnect agreement, the latest revision is available for download 24x7x365 from our Web site with media shipments available upon request<sup>2</sup>. Upon renewal of your TechConnect agreement, we will automatically send update media for any supported license at your site that is not at the current revision.

**Training Advisor.** Assess the knowledge of your work force and build your tailored training plan with an expert online consultant. With the purchase of a TechConnect Support contract, your business location is entitled to one manager/administrator license for the length of the TechConnect Support contract.

<sup>1</sup> Excludes Self-Assist customers.

<sup>2</sup> Software updates are made available on disc for select products.

## TechConnect Support Options

Self-Assist Support	<b>WELCOME KIT</b> Essential support agreement information / Support authorization number / Local support telephone number / User guide
	<b>SOFTWARE MAINTENANCE I</b> Software update downloads
	<b>ONLINE SUPPORT CENTER ACCESS</b> Knowledgebase tech notes / Interactive forums / Product notifications / Manage service tickets / Submit questions via email
Product Support*	<b>REAL-TIME, PRODUCT-LEVEL PHONE SUPPORT</b> Standard product and programming software / Telephone and live chat support available in more than 20 languages
	<b>TRAINING ADVISOR</b> An online assessment tool to help you determine the knowledge of your work force and to build a tailored training plan
	<b>SOFTWARE MAINTENANCE II</b> Software update media / Emergency software replacement
System Support*	<b>REAL-TIME, SYSTEM-LEVEL SUPPORT</b> Standard product and programming software / Advanced software / Proactive followup / Single-point resolution
	<b>REMOTE DESKTOP TROUBLESHOOTING</b> Remote connection to your system, allowing Rockwell Automation engineers access troubleshoot issues collaboratively
	<b>GENIUS WEBINARS</b> Extend and apply knowledge gained via access to on-demand library of online technical seminars
Application Support*	<b>REAL-TIME APPLICATION-LEVEL SUPPORT</b> Designated support team / Dedicated telephone and email / Documentation and code familiarization / Application knowledge management / Periodic performance reviews
	<b>SURVEILLANCE AND ALARMING AND DATA ARCHIVING</b> Device and/or process monitoring and alarming at Rockwell Automation facility or remotely / Access to historical data for troubleshooting
	<b>APPLICATION-LEVEL ADMINISTRATION</b> Emergency backup / Performance tuning / Guaranteed field service call-out

\* Optional 24x7x365 upgrade

NOTE: You may select different TechConnect Support service levels for different areas of your plant or application. Please consult your local Rockwell Automation sales representative or distributor for details.

# TechConnect Support Quotation

**Quote Number: 3800350212**  
**Quote Expires: 8/4/2016**

**Customer:**  
 CITY OF MURFREESBORO  
 2032 BLANTON DR  
 MURFREESBORO, TN 37129-2912

**Appointed Distributor:**  
 NANCY RAMER  
 STUART C IRBY CO  
 1284 HEIL QUAKER BLVD  
 LA VERGNE, TN 37086-3515

**Support Start Date: 8/1/2016**  
**Support Expiration Date: 7/31/2017**

## Contracts List

Item	Product	Qty	List Price	Sell Mult	Ext Net
1	<b>9800-DC8AUTOC</b> <i>Automation Control Hardware, Product Support, 8-5, M-F, 11-25 TOTAL DEVICES</i>	1	\$3,680.00	0.9	\$3,312.00
2	<b>9800-DC8LEHDWB</b> <i>Legacy Hardware, Product Support, 8-5, M-F, 6-20 TOTAL DEVICES</i>	1	\$2,270.00	0.9	\$2,043.00
3	<b>9800-DC8APP</b> <i>Application Software, Product Support, 8-5, M-F</i>	1	\$72.00	0.9	\$64.81
4	<b>9800-DC8HMICOM</b> <i>HMI Software, Product Support, 8-5, M-F</i>	1	\$5,018.00	0.9	\$4,516.19
<b>*Grand Total</b>					Net: \$9,936.00

## Multi-Year Option

### Multi-Year Option - Fixed Price 3-Year Contract

One-Time Payment or Billed Annually - Single PO for 3-Year Amount Required \$29,808.00

Attached to this quote is a list of software packages registered to this site and covered by this support agreement. The above quoted price(s) is based on that list. During the term of this support agreement (including any Multi-Year term), Rockwell Automation reserves the right to periodically review the list of supported products registered to this site, and to make commensurate adjustments to the above quoted price(s) by way of supplemental billings in the event there are significant additions to the number of support products.

All prices are quoted in local currency. Prices and other commercial terms of sale are suggested only if support agreement is purchased through the local authorized Rockwell Automation distributor.

Cancellation of service is subject to a 25% charge, including reimbursement for direct costs. Cancellation is null and void if updates cannot be returned unopened, or if remaining term of service is less than 2 months.

**\*Important:** For support agreements that are renewed following their expiration date either:

- The support agreement will be back dated to the expiration date of the previous contract **OR**
- The customer will be charged a 30% reinstatement fee and the actual renewal date will be used as the new start date of the service.
  - If the customer's TechConnect support agreement has never included support for the product family in question, then the commercial "waive reinstatement" program applies for the respective packages.

For software packages that are removed from support and later reinstated, often referred to as 'frozen' and 'unfrozen', a 1.3 multiplier will be applied to each individual serial number, excluding Automation, Drives and Motion family products.

**Note:** There is a grace period of 10 business days after the date of the contract expiration where the customer can still access support. If the customer renews after the expiration date of the contract, the policy above will be enforced regardless of this grace period.

**Important:** This quote is for *TechConnect* technical support. The entitlements of the program are detailed in the accompanying letter.

# TechConnect Support Quotation

**Quote Number: 3800350212**  
**Quote Expires: 8/4/2016**

**Customer:**  
 CITY OF MURFREESBORO  
 2032 BLANTON DR  
 MURFREESBORO, TN 37129-2912

**Appointed Distributor:**  
 NANCY RAMER  
 STUART C IRBY CO  
 1284 HEIL QUAKER BLVD  
 LA VERGNE, TN 37086-3515

## Software Listing

The following packages have been included in quote 3800350212

### Software Listing Report

Product	Description	Status	Install Count
9800-DC8AUTOC	Automation Control Hardware		11
9357-ENETL3			2
1669055230	RSNetworx For Ethernet/Ip		1
1669069546	RSNetworx For Ethernet/Ip		1
9326-LGXARCHENE			1
2075015473	RSLogix Architect Software		1
9357-DNETL3			2
1235083419	RSNetworx For DeviceNet		1
1235097542	RSNetworx For DeviceNet		1
9357-CNETL3			2
1163068496	RSNetworx For Controlnet		1
1163084224	RSNetworx For Controlnet		1
9324-RLD700ENE			4
2022024726	Studio 5000 PRO, REPLACED W/9324-RLD700		1
2022029326	Studio 5000 PRO, REPLACED W/9324-RLD700		1
2022029325	Studio 5000 PRO, REPLACED W/9324-RLD700		1
2022029327	Studio 5000 PRO, REPLACED W/9324-RLD700		1



9310-WED200ENE			1
1835022715	RSLogix Emulate 5000		1
9324-RL0300ENE			3
1012065354	RSLogix 500 Standard Edition Software		1
1012048863	RSLogix 500 Standard Edition Software		1
1012060138	RSLogix 500 Standard Edition Software		1
9310-WE0200E			2
1067042122	RSLogix Emulate 500 Software		1
1067029660	RSLogix Emulate 500 Software		1
9324-RL0700ENE			1
1014009191	RSLogix 500 Professional Edition swf		1
1760-PICOSOFTPRO			2
1899016031	PicoGFX Programming Software		1
1899016032	PicoGFX Programming Software		1
9800-DC8LEHDWB	Legacy Hardware		6
9310-WE5200E			1
1068028876	RSLogix Emulate 5 Software		1
9324-RL5300ENE			6
1112010038	RSLogix 5 Design and Config std Edn swf		1
1112045661	RSLogix 5 Design and Config std Edn swf		1
1112045665	RSLogix 5 Design and Config std Edn swf		1
1112045676	RSLogix 5 Design and Config std Edn swf		1
1112052327	RSLogix 5 Design and Config std Edn swf		1
1112052328	RSLogix 5 Design and Config std Edn swf		1
2706-MB1			1
ST0VB6WA	MessageBuilder Software		1
2711-ND3			1
ST1MC4JI	PanelView Accessory		1
9800-DC8APP	Application Software		1
9393-RST5000NENE	RSTRAINER FOR RSLOGIX 500 (ONLINE) SOFTWARE		1
2709000237	RSTrainer NL RSLogix 500 Online Mon S/w		1
9800-DC8HMICOM	HMI Software		10
9301-2SE2400	RSVIEW32 WORKS 32000 SOFTWARE		1
1340015749	RSView32 Works 32000 Tag 1 User Lic swf		1
9301-2SE3400	RSVIEW32 RUNTIME 32000 SOFTWARE		1
1420032683	RSView32 RT 32000 Tag 1 User Lic swf		1
9355-WABENE	RSLINX CLASSIC PROFESSIONAL SOFTWARE		2
1008002599	RSLINX CLASSIC PROFESSIONAL - ENGLISH		1
1008002101	RSLINX CLASSIC PROFESSIONAL - ENGLISH		1
9355-WABGWENE	RSLINX CLASSIC GATEWAY SOFTWARE		1
1006025513	LnX Classic Gateway Data Management swf		1
9355-WABOEMENE	RSLINX CLASSIC OEM SOFTWARE		4
1005021226	LnX Classic OEM Data Management EN swf		1
1005021236	LnX Classic OEM Data Management EN swf		1

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1005083755	LnX Classic OEM Data Management EN sfw		1
1005231752	LnX Classic OEM Data Management EN sfw		1
9701-VWSTENE	FACTORYTALK VIEW STUDIO FOR FACTORYTALK ENTERPRISE SOFTWARE		1
2529050096	FT View Studio SE for FT View Ent EN sfw		1

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# 1 Commitment for Services Sales through Distribution

**General.** This Commitment ("Commitment") covers purchase by Distributor's customer ("Customer") from Distributor of services described in the Statement of Work (the "Work") to be provided by Rockwell Automation, Inc. and/or its affiliates ("Rockwell Automation"). Its terms are integral to the Statement of Work. In other words, Customer purchases the Work subject to the terms contained in this Commitment (as well as other terms that may be included elsewhere in the Statement of Work). These terms apply directly to Customer and Rockwell Automation. Previously negotiated and signed terms and conditions with Customer that include provisions between Rockwell Automation and Customer for sale of services through distribution supersede these terms.

**Warranty.** Rockwell Automation warrants that the Work will be performed in a workmanlike manner conforming to standard industry practice. Rockwell Automation must receive written notification of non-conforming Work within 30 days after the Work are provided. If the Work are confirmed to be non-conforming, Rockwell Automation will, at its option, re-perform the non-conforming Work or provide a refund or credit processed through Distributor in the amount paid for the non-conforming Work. THESE ARE THE EXCLUSIVE REMEDIES FOR ANY BREACH OF WARRANTY OR BREACH OF CONTRACT ARISING FROM WARRANTED NON-CONFORMING SERVICES. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESSED, IMPLIED, OR STATUTORY, INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, OR PERFORMANCE OR APPLICATION WARRANTIES, OR INFRINGEMENT, WHETHER EXTENDING FROM ROCKWELL AUTOMATION OR DISTRIBUTOR.

NEITHER ROCKWELL AUTOMATION NOR CUSTOMER WILL BE LIABLE TO THE OTHER FOR BUSINESS INTERRUPTION OR LOSS OF PROFIT, REVENUE, MATERIALS, OR THE LIKE (WHETHER DIRECT OR INDIRECT) OR FOR ANY INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES. EACH PARTY'S MAXIMUM CUMULATIVE LIABILITY TO EACH OTHER FOR ALL OTHER CLAIMS AND LIABILITIES WILL NOT EXCEED THE LESSER OF \$1,000,000 OR THE COST OF THE SERVICES. ROCKWELL AUTOMATION DISCLAIMS ALL LIABILITY FOR TO GRATUITOUS ASSISTANCE PROVIDED BY ROCKWELL AUTOMATION BUT NOT REQUIRED BY THE STATEMENT OF WORK. THESE DISCLAIMERS AND LIMITATIONS OF LIABILITY WILL APPLY REGARDLESS THE FORM OF ACTION, WHETHER CONTRACT, TORT, OR OTHERWISE, AND EXTEND TO THE BENEFIT OF ROCKWELL AUTOMATION'S VENDORS AND APPOINTED DISTRIBUTOR.

**Software.** To the extent Rockwell Automation provides or incorporates any software code that is not licensed under separate terms, Rockwell Automation grants Customer the nonexclusive, royalty free, non-transferable right and license to use the software code as set forth in the Work.

**Government Clauses and Contracts.** No government contract clauses, specification, or regulations apply to the Work, except to the extent agreed in writing by Rockwell Automation.

**Independent Terms.** Rockwell Automation is not a party to or bound by any contract between Customer and Distributor, including by Distributor's acceptance of a Customer purchase order. Distributor is an independent enterprise, not an agent or representative of Rockwell Automation, and is not authorized to bind Rockwell Automation.

**Effective Date.** This Commitment will become effective when Customer purchases the Work from Distributor. Customer agrees that by purchasing the Work it accepts the Statement of Work and Commitment. Absent such purchase, this Commitment will become null and void. No addition or modification to the Commitment and Statement of Work, including terms appearing in Customer's purchase order or requisition, will bind Rockwell Automation unless mutually agreed to in writing.



*... creating a better quality of life*

## Consent Agenda

**DATE:** July 14, 2016  
**TO:** Water and Sewer Board  
**FROM:** Alan Cranford  
**SUBJECT:** Streaming Current Charge Analyzer Replacement

---

### **Background**

The Stones River Water Treatment Plant uses a Streaming Current Charge Analyzer to optimize coagulant and polymer dosing. This piece of equipment is instrumental to maintaining a stable dosage for treatment. We currently have a Streaming Current Charge Analyzer that has failed and needs to be replaced as soon as possible.

Staff received a quote from Chemtrac, Inc. the sole source vendor for Chemtrac, Inc. manufactured equipment.

### **Recommendations**

Staff recommends that the Water and Sewer Board recommend the City Council to approve the purchase of the Streaming Current Charge Analyzer in accordance with the quote provided by Chemtrac, Inc.

### **Fiscal Impact**

The cost of the Streaming Current Charge Analyzer is \$10,593. Total cost of the instrument will come from rate funded capital reserves.

### **Attachments**

Chemtrac, Inc. Quote

# Chemtrac, Inc.

1555 Oakbrook Drive  
 Suite 100  
 Norcross, Georgia 30093  
 Phone (770) 449-6233 Fax (770) 447-0889

# QUOTATION

REFERENCE # MV0500131  
 DATE: APRIL 19, 2016

**TO:**

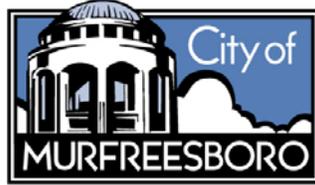
Allison McGee  
 Stones River WTP  
 5528 Sam Jared Road  
 Murfreesboro, TN 37130  
 PH: (615) 848-3222, FX: (615) 848-3244

SALESPERSON	LOCAL REPRESENTATIVE	PROJECT	SHIP VIA	F.O.B. POINT	TERMS
Mark Vandiver	R28 The C.I. Thornburg Co	Murfreesboro, TN / Stones River WTP / HA600 & DT4	UPS	Norcross, GA	Net 30

QTY	MODEL	DESCRIPTION	UNIT PRICE	TOTAL
1	HA600-DT4-CC	Streaming Current Charge Analyzer with Color ¼ VGA Display, Graphical Trending, Data-Logging, Cascade Control, Flow Signal, 3 4-20mA Outputs, 2 Relays, Heavy-Duty Motor, Larger Probe Block for Higher Flows & Larger Solids, O&M Manual, 2 yr Warranty	\$10,593.00	\$10,593.00
<b>Delivery: 2 – 3 weeks</b>			SUBTOTAL	\$10,593.00
			SHIPPING & HANDLING	T.B.D.
			TOTAL	T.B.D.

This quote is valid for 90 days. The above pricing **does not** include cost associated with taxes, shipping, installation, or startup services unless otherwise stated. If you have any questions concerning this quotation, contact Mark Vandiver at (770) 449-6233.

**Thank you for your business!**



..... *creating a better quality of life.*

## MEMORANDUM

**DATE:** July 21, 2016  
**TO:** Water and Sewer Board  
**FROM:** Jimmy Stacey  
**SUBJECT:** State Chemical - Sole Source Purchase

---

### **Background**

The department has been using the odor control product called “Pit Raider” and “Nutri Pro” developed and furnished by State Chemical since 2013. These chemicals are being fed through the Kensington Pump Station to Saratoga Subdivision to control ongoing odor issues. Since the department started using these products, the odor in this area has been all but eliminated. This worked to eliminate resident complaints. To keep costs down, the department works closely with a state chemical representative who performs weekly visits to develop optimal feed rates during summer dry and winter wet months.

### **Recommendations**

Staff recommends the Water and Sewer Board recommend to City Council to approve the sole source purchase of Pit Raider and Nutri Pro odor control from State Industrial Products.

### **Fiscal Impact**

State Chemical pricing for the Pit Raider and Nutri Pro will remain the same through the FY 2016/2017. The cost of the product used during last year’s budget was \$45,732.87. The department has budgeted \$50,000 in the operating account *Sewer Pump Station Operations & Maintenance\Odor Control*.

### **Attachment**

Letter from State Chemical



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Care for Work Environments®

---

July 15, 2016

Jimmy

State Chemical will hold the 55 gallon Drum price for both Nutri Pro and Pit Raider the same for the City of Murfreesboro for the fiscal year of 2016/2017. During this time period there will be no price increases on the product.

The price per product will be as follows:

Pit Raider Drum 55 delivered price of \$ 1364.75

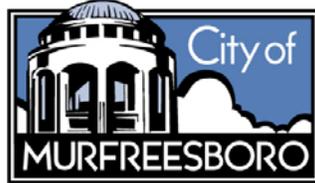
Nutri Pro Drum 55 delivered price of \$ 379.85

Please feel free to contact me if you have any other questions and as always it is a pleasure working with your team.

Sincerely,

Sherri Johnson  
Territory Manager  
615 -972-5196 cell

Craig Adams  
District Sales Manager  
State Industrial Products  
865-386-8553



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## MEMORANDUM

**DATE:** July 21, 2016  
**TO:** Water and Sewer Board  
**FROM:** Terry Taylor  
**SUBJECT:** Contract Renewal - Parking Lot Sealant

---

### Background

On May 21, 2015, bids were opened at Operations and Maintenance to prepare surfaces, seal asphalt, and repaint traffic markings for the parking lots located at the Administration Building, Operations & Maintenance, and Water Plant. We received three bids and accepted the lowest from Pavement Restorations. We were satisfied with the quality of work provided and the project was completed in a timely fashion.

### Recommendations

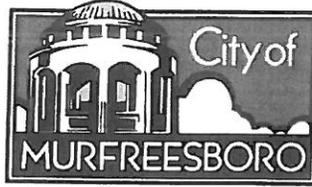
Staff recommends extending the contract term for an additional 2 year period with the entire contract not to exceed five (5) years.

### Fiscal Impact

Staff anticipates an \$8,500 expense to furnish sealcoating services to various pump station locations. The funding for this project was included in the **Collection & Sewer Rehab Capital Budget 2016-2017**. A line item for *Pump Station Asphalt Sealing* for \$10,000 is listed in *Account 350 Land Improvements/Structure Improvements*.

### Attachments

Renewal Letter  
First Amendment to Contract



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June 15, 2016

Pavement Restorations, Inc.  
Jon Hargett, President  
10162 Stinson St  
Milan TN 38358

Dear Mr. Hargett:

This letter is to inform you that the Murfreesboro Water & Sewer Department is by this letter renewing the contract in place with Pavement Restorations for an additional two year period. The current contract for parking lot sealant and painting expires June 15, 2015. The contract terms included in the Invitation to Bid Section 1.41 are detailed below.

***Contract Terms:*** *The term of this contract shall be from June 15, 2015 through June 14, 2016 with the option to renew two additional (2) year option renewal periods with the entire contract not to exceed five (5) years.*

If you concur, please sign and return the enclosed First Amendment which will confirm you wish to continue the parking lot sealant and painting contract for the period of June 15, 2016 through June 14, 2018.

If you have any questions, please let me know.

Yours truly,

Terry Taylor  
Operations Manager  
Operations & Maintenance

**FIRST AMENDMENT OF CONTRACT  
BETWEEN  
PAVEMENT RESTORATIONS  
AND  
THE CITY OF MURFREESBORO, TENNESSEE**

This First Amendment ("First Amendment") to the Contract dated June 15th, 2015 ("Contract") is effective as of this 15 day of June 2016, by and between the City of Murfreesboro ("City"), a municipal corporation of the State of Tennessee and Pavement Restorations ("Contractor").

**RECITALS**

WHEREAS, on June 15th, 2015, the City of Murfreesboro, hereinafter referred to as "City", entered into a contract with Pavement Restorations, hereinafter referred to as "Contractor", for the provision of parking lot sealing and painting; and,

WHEREAS, the term of the contract between the City and Contractor is currently from June 15, 2015 to June 14, 2016; and,

WHEREAS, pursuant to clause 1.41. of the Invitation to Bid, the Contract automatically renews for an additional period or periods of time representing increments of no more than one (2) year for a total contract term of not more than five (5) years;

WHEREAS, the City and Contractor wish to extend the Contract term pursuant to clause 1.41 of the Invitation to Bid for additional year(s);

NOW THEREFORE, the City and Contractor mutually agree to extend the term of the current Contract, with all previous amendments, from June 15, 2016 until June 14, 2018, with all terms, conditions and pricing of the contract remaining the same.

**CITY OF MURFREESBORO**

By: \_\_\_\_\_  
Shane McFarland, Mayor

**APPROVED AS TO FORM:**

\_\_\_\_\_  
Craig Tindall, City Attorney

\_\_\_\_\_  
Kelley Blevins Baker, Staff Attorney

**PAVEMENT RESTORATIONS**

By: Jon Hargett  
Printed Name: Jon Hargett  
Title: President

Kristi R. Collins  
Comm. exp. 1-19-20





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## MEMORANDUM

Date: July 21, 2016  
To: Water and Sewer Board  
From: Robert Haley  
Subject: Invasive plant parrot feather at Murfree Spring wetlands  
Extension of contract with Aqua Services for herbicide treatments

---

### Background

Parrot feather (*Myriophyllum aquaticum*) is an invasive, non-native plant that thrives in spring-fed, slow moving waters. Native to South America, it is a detriment to native flora and fauna here. Since 2006 or 2007, it has been present in Murfree Spring wetlands. Between the fall of 2011 and spring of 2014, the City employed an aquatic weed specialist to apply herbicides to reduce and control the parrot feather in the Murfree Spring wetlands. Without treatment in 2014, the parrot feather returned to cover a large part of the wetland.

After considering two or three methods for management of the parrot feather, staff concluded it best to continue herbicide treatments. The City contracted with Aqua Services in 2015 for one year of treatment with provision for second year.

In addition to this treatment, a Murfree Spring wetlands task force is developing a management plan for maintaining the wetlands as a park and a sensitive ecosystem. The task force formed earlier this year is comprised of staff from Urban Environmental, Parks and Recreation, Engineering, and Water and Sewer.

### Recommendation

Staff recommends that the Board recommend to City Council extension of our contract with Aqua Services, for a second year of herbicide application to combat the parrot feather at the Murfree Spring wetlands.

### Fiscal Impact

Cost will be \$22,200, and funds will be drawn from the stormwater fund; reference ORG 32720698, object 52900, other contractual services. The FY 2016-17 budget includes \$30,000 for invasive plant treatments.

### Attachments

Photos; contract extension



*During lapse in treatment*



*During treatment*

Amendment to the Contract between  
Aqua Services, Inc. and  
The City of Murfreesboro, Tennessee

The Contract dated May 13, 2015, by and between Aqua Services, Inc. and the City of Murfreesboro ("City"), acting through its Murfreesboro Water and Sewer Department, for Aqua Services, Inc. to provide for herbicide treatment of the Discovery Center wetlands is here amended as follows:

1. To provide for a second, one year extension in accordance with Section 3 of the Contract.
2. In all respects, the terms, conditions and pricing (not to exceed \$22,200) of the Contract for the second year will remain the same as those in the first year.

AGREED:

CITY OF MURFREESBORO:

\_\_\_\_\_  
Shane McFarland, Mayor

\_\_\_\_\_  
Date

Approved as to form:

\_\_\_\_\_  
Craig Tindall, City Attorney

\_\_\_\_\_  
Date

AQUA SERVICES, INC.:

\_\_\_\_\_  
Terry Goldsby, President

\_\_\_\_\_  
Date



*... creating a better quality of life*

# *MEMORANDUM*

DATE: July 21, 2016  
TO: Water and Sewer Board  
FROM: Valerie H. Smith  
RE: Middle Tennessee Blvd. (MTB)  
Work Change Directive  
Additional 8" Sewer Main to Alumni Gym

---

## **Background**

This project was originally bid June 2, 2015 and then re-bid October 8, 2015. Jarrett Builders, Inc. was awarded the project by City Council at the November 19, 2015 meeting. The total water and sewer bid was in the amount of \$1,640,567.50.

A notice to proceed was issued on January 11, 2016 and construction is well underway. During the re-construction of the sewer main extending from Bell Street north along MTB it was determined that an existing 8" sewer service extended from the existing sewer main over to the MTSU Alumni Gym. This sewer service was not shown as existing in our GIS maps. This service being unknown along with the fact that the sewer main replacement was designed by Wisser Company shallower than the existing sewer was going to require the entire length of sewer service from MTB to the Gym to be re-laid. The distance from MTB is over 200 feet in length and crosses multiple utilities both public and private. A better route was determined, which was to re-route the existing service over to Faulkinberry Drive. Either replacement scenario will require the installation of two (2) manholes, but extending the sewer from Faulkinberry is only 182 feet and doesn't cross as many utilities.

## **Recommendation**

Staff recommends the Board recommend to City Council approval of the Work Change Directive to replace the 8" sewer service with an 8" sewer main to the Alumni Gym. This work will be added to a future Change Order for the project and will increase the contract in the amount of \$32,320.

## **Fiscal Impact**

This project was funded from working capital reserves. Funds are available for this work change directive.

## **Attachments**

Work Change Directive  
GIS Exhibit



**CHANGE CONTROL FORM (CCF)**

City of Murfreesboro  
Engineering Department  
111 West Vine Street  
Murfreesboro, TN 37133

Contract No. 90036  
Project Reconstruction of Middle TN Boulevard  
PIN 112090.00  
Fed. Proj. No. HPP/CM/STP-M-9311(19)

**DESCRIPTION OF CHANGE:**

An unknown existing 8" sanitary sewer lateral from Alumni Memorial Gym was discovered, and due to the elevation of the proposed sanitary sewer line within Middle Tennessee Boulevard being higher than the invert of the lateral, the lateral had to be re-routed in order to tie into a proposed manhole within Faulkinberry Drive. This resulted in the installation of 182 linear feet of 8" SDR 35 PVC along with the installation of 2 new sanitary sewer manholes. This work will be accomplished per the unit prices set forth within the contract documents for sanitary sewer pipe and manholes. The revised plan, Sheet U3-3, dated 05-26-16 has been approved by MWSD.

**Attachments (List documents supporting change):**

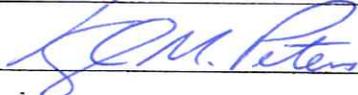
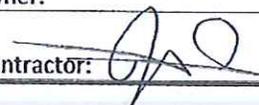
Requested By: **MURFREESBORO WATER AND SEWER (MWSD)**  
This Document is a: **WORK CHANGE DIRECTIVE**  
Drawing Reference: **Middle Tennessee Boulevard Plans Plan Sheets: U3-3**

**WORK CHANGE DIRECTIVE**

We propose to perform the Work or make the Claim described above for the following change in Contract Cost and Contract Times:

- No Change in Contract Amount is required.
- A Change in Contract Amount is required: \$32,320.00
- No Change in Contract Time is required.
- A Change in Contract Time is required: 0 days

You are directed to proceed to make the changes to the Work described in this Work Change Directive. Any change in Contract Price or Contract Time will be determined in accordance with the General Conditions.

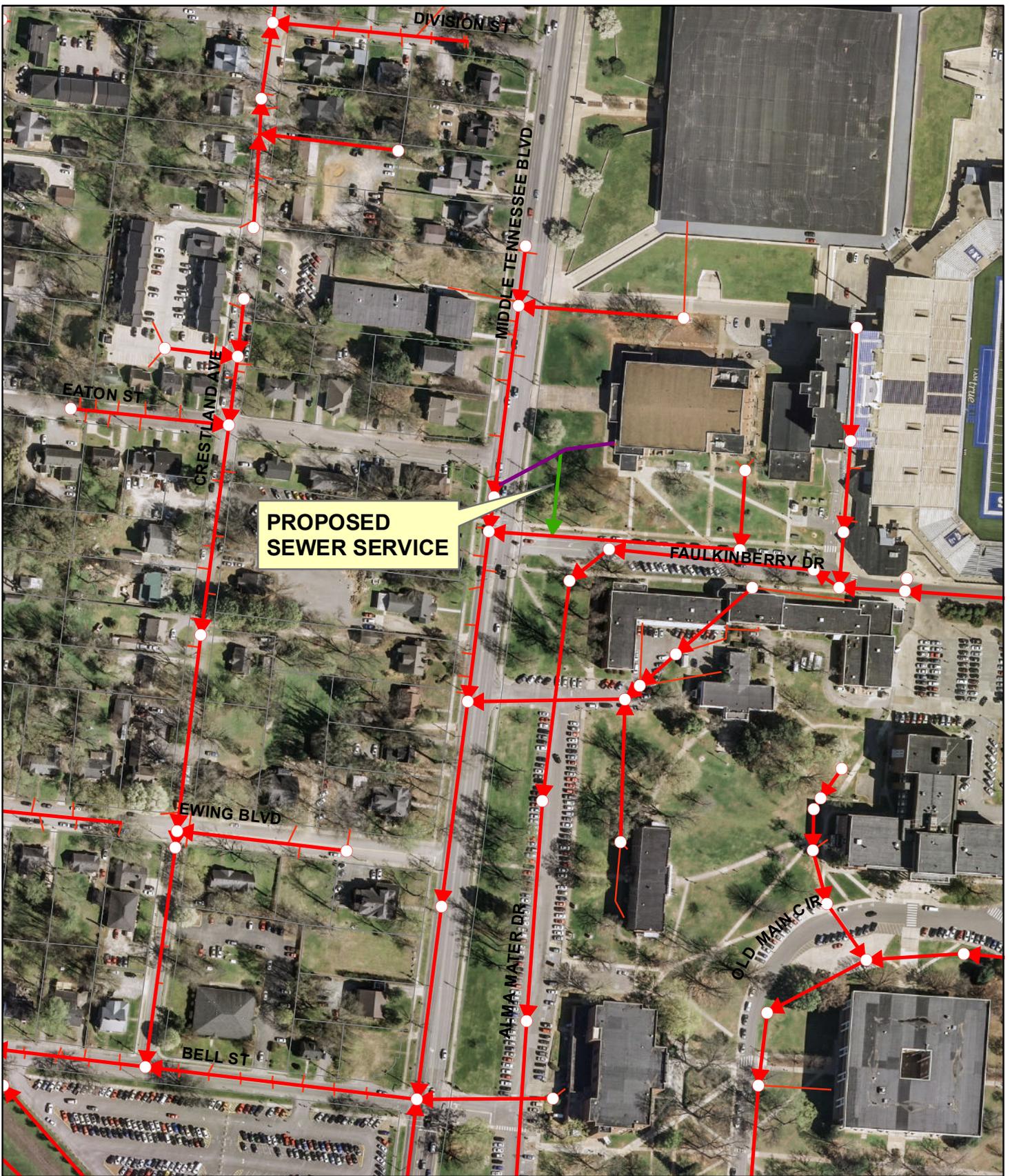
Recommended by Engineer: 	Date: <u>6/20/16</u>
Authorized by Owner:	Date:
Acceptance by Contractor: 	Date: <u>6/20/2016</u>

**FIELD ORDER**

This Field Order issued in accordance with the General Conditions for minor changes in the Work without change in the Contract Price or Contract Time. If you consider that a change in Contract Price or Contract Times is required, notify the Project Manager immediately and before proceeding with the Work.

Recommended by Engineer:	Date:
Authorized by Owner:	Date:
Acceptance by Contractor:	Date:



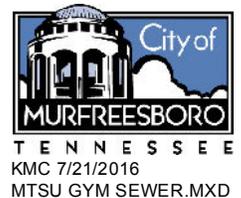


**PROPOSED  
SEWER SERVICE**



MURFREESBORO WATER AND SEWER DEPARTMENT

# MIDDLE TN BLVD ALUMNI GYM SEWER





*... creating a better quality of life*

# MEMORANDUM

DATE: July 21, 2016  
TO: Water and Sewer Board  
FROM: Valerie H. Smith  
SUBJECT: 2015 Sanitary Sewer Rehabilitation  
Change Order #2

---

## BACKGROUND

Bids were received for the 2015 Sewer Rehabilitation project on October 13, 2015 and the Board approved to award the project to SBW Constructors, LLC (SBW) in the amount of \$2,737,276.90. At the April 2016 Board meeting, Change Order #1 was approved.

One of the items within Change Order #1 was for SBW to sand-blast, clean and coat the inside of the VA Pump Station dry-pit (PS#28) with an epoxy coating. This work is going to be in conjunction with the work on the pump station wet well, which is also being completed per the original contract amount with SBW. SBW has agreed to perform this work at the time that John Bouchard, through our Mechanical & Electrical Services Contract, will be changing and upsizing the pumps within the station.

Long story short, the pumps for the John Bouchard work are not scheduled for delivery until August which is after the July 12<sup>th</sup> completion date for the contract with SBW. Therefore, this change order is to request additional time so all of the above work can take place at the same time.

The requested time is for 80 days. This will give time for the pumps to be delivered as well as time for coordination and installation between John Bouchard and SBW.

## RECOMMENDATION

Staff would like to recommend the Board to recommend approval from the City Council for Change Order #2 to add 80 additional days to the contract.

## FISCAL IMPACT

No additional impact. Funding is coming from the 2014/2015 & 2015/2016 Rate Funded Rehabilitation Budgets & 2014/2015 Working Capital Reserves. The below table shows the remaining allocation.

<b>Rehab Rate Funded Budget 2014/2015</b>				
<b>Total Budget</b>	<b>WO#</b>	<b>Project</b>	<b>Project Expenditure</b>	<b>Remaining 2014/2015 Budget</b>
\$1,250,000	112.233	Basin MF02,07, 09B & MH's	\$158,677.45	\$1,091,322.55
	112.369	Rehab Specifications	9,833.75	\$1,081,488.80
	112.334	LEA Review of Basins 6-3 & 6-4	\$6,922.50	<b>\$1,074,566.30</b>
<b>Rehab Rate Funded Budget 2015/2016</b>				
<b>Total Budget</b>	<b>WO#</b>	<b>Project</b>	<b>Project Expenditure</b>	<b>Remaining 2015/2016 Budget</b>
\$1,250,000 + \$1,074,566.30	112.369	Rehab Specifications	\$5,166.25	\$2,319,400.05
	112.466	Rehab Project Design	<b>\$233,250</b>	<b>\$2,086,150.05</b>
<b>Working Capital Reserves 2014/2015</b>				
<b>Total Budget</b>	<b>WO#</b>	<b>Project</b>	<b>Project Expenditure</b>	<b>Remaining 2015/2016 Budget</b>
\$1,000,000 + <b>\$2,086,150.05</b>	112.142	LMK Demo	\$4,650.00	<b>\$3,081,500.05</b>
	112.467	Rehab Project Construction	<b>\$2,795,063.50</b>	<b>\$286,436.55</b>

**ATTACHMENTS**

LEA Recommendation  
Change Order #2



July 12, 2016

Ms. Valerie Smith, PE  
Assistant Director  
Murfreesboro Water & Sewer Department  
220 NW Broad Street  
Murfreesboro, TN 37130

**RE: Murfreesboro 2015 Rehabilitation Project  
Murfreesboro, Tennessee  
Proposed Change Order No. 2**

Dear Ms. Smith:

Attached is proposed Change Order No. 2 describing a time extension to be added to the above project as requested by Murfreesboro Water & Sewer Department.

The contractor, SBW, has agreed to coordinate the pump station rehabilitation (included in their existing rehabilitation contract) with the timing of the pump replacement, being performed by another contractor as part of a different project managed by MWSD. Since the exact date of the pump delivery cannot be verified/confirmed with certainty (pumps are scheduled for delivery in August 2016), the time extension allows for the delivery of the pumps at the end of the month. It is anticipated; however, that the pumps will be delivered prior to the end of August and thus the rehabilitation project would finish prior to the date indicated on the change order.

The additional time will also be utilized to complete service lateral connection repairs and mainline point repairs in the Salem Creek, Kings Highway, and Toddington Drive areas.

Please review the enclosures, and if acceptable, execute and forward a copy to me.

If you have any questions regarding this change order, please contact me to discuss at your convenience.

Sincerely,

**LITTLEJOHN – AN S&ME COMPANY**

A handwritten signature in black ink that reads "Travis E. Wilson". The signature is written in a cursive, flowing style.

Travis E. Wilson, PE  
Principal Engineer

Attachment – Proposed Change Order No. 2

CHANGE REQUEST FORM (CRF)

Owner Contract No. **Project No. 15075**  
 Project Name: **Murfreesboro 2016 Rehabilitation Project**  
 Engineer: **Littlejohn - An S&ME Company**  
 Contractor: **SBW Constructors, LLC**

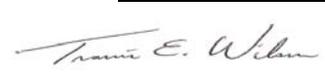
Requested By: **Murfreesboro Water & Sewer Department**  
 Drawing:  
 Problem Desc: **Additional items were requested to be repaired not originally in the project scope**

Revised Scope Description/Details

Item No.	Description	Unit	Qty	Unit Price	Item Total
<b>ADD</b>					
<b>DEDUCT</b>					
CHANGE IN CONTRACT VALUE					-
ORIGINAL CONTRACT VALUE					\$2,737,276.90
CONTRACT VALUE AFTER CHANGE ORDER #1					<b>\$2,795,064.00</b>

Contractor Acknowledgement:  
 No Change in Contract Amount is required.       A Change in Contract Amount is required:  
 No Change in Contract Time is required.       A Change in Contract Time is required: 80 days

\_\_\_\_\_  
 Architect / Engineer / Inspector / RPR      \_\_\_\_\_  
 Contractor

Change in Contract Amount is within the Contingency Amount authorized under Resolution No. NA  
 Yes     No  
  
 \_\_\_\_\_  
 Engineer / Architect Project Manager

**Proceed with Execution**  
 Yes     No  
 \_\_\_\_\_  
 Owner's Representative

Distribution: Engineer, Owner; Central Files



# MEMORANDUM

**DATE:** July 21, 2016  
**TO:** Water and Sewer Board  
**FROM:** Valerie H. Smith  
**SUBJECT:** NW Broad Street Pump Station Replacements  
Change Order #4

---

## Background

Within the original contract, there was a \$10,000 Miscellaneous Allowance set up to be used for unforeseen circumstances and small miscellaneous changes to the project. Within the previous three (3) change orders it has been approved to use \$4,705 of this allowance for various changes.

Attached is a recommendation letter from Civil Infrastructure Associates (CIA) that requests the additional use of this allowance in the amount of \$2,200, for the upsize of the access gate. A total of \$3,095 will remain.

Also begin requested, through Change Order #4 is 45 additional days to complete the project. J. Cumby Construction (Cumby) and their sub-contractor has experienced numerous problems with the bore under NW Broad Street as explained in CIA's letter. Cumby cannot complete the remaining gravity sewer construction and landscaping in front of the Kubota until the bore is complete. This additional time will give them time to install the landscaping at a more appropriate time of the year as well.

## Recommendation

Staff recommends the Board recommend to City Council approval of Change Order #4 to add 45 days to the construction contract time. The work completed through the Miscellaneous Allowance does not change the original contract amount.

## Fiscal Impact

\$1.5M was committed in the Working Capital Reserves account for FY 2015-2016 for pump station upgrades.

## Attachments

- CIA Recommendation Letter
- Change Order #4
- J. Cumby Request Letter

July 22, 2016

Ms. Valerie Smith, P.E.  
Assistant Director, Murfreesboro Water and Sewer Department  
220 NW Broad Street  
Murfreesboro, TN 37130

RE: Northwest Broad Street SPS Replacements  
Proposed Change Order #4  
Recommendation Letter  
MWSD Project No: 13003, CIA Project No: 2013-02

Dear Valerie:

Attached are four (4) copies of proposed Change Order #4 for the referenced project. The proposed changes are further described below:

1. Site Access Gate:

- The site access gate – needs widening from 12' to 16' to further assist with backing trailered emergency generator/pumping equipment into the needed position within the parking area.

CIA concurs with MWSD operations personnel regarding the need for a larger turning radius and recommends the change to the gate width. The additional cost of the wider gate will result in a deduction of \$2,200.00 from the Miscellaneous Allowance. This change does not affect the total contract sum.

2. Contractor's Request for Additional Time; Road Bore:

- While boring and jacking the 24 inch sewer casing pipe under Northwest Broad Street, time delays have been incurred because of the hardness of the rock which slows the boring process and increases the wear and damage to boring equipment. Informal conversations with geotechnical engineers in our area have indicated that we are likely boring in "Murfreesboro Limestone" which is mostly pure limestone and very dense and hard. During inspection, we have seen the boring contractor change boring heads 3 times, the Christmas tree head, the roller cone head, and now the Robbins roller disc head which is the most effective on the hardest of rocks. In the attached letter, JCumby requests 45 days be added to the contract time to allow the boring contractor to finish, which will then allow JCumby to finish.

The bore appears to be on-grade and very close to completion. The boring subcontractor estimates he is within 10 feet of completion. CIA concurs with the above listed information and recommends the additional time request be granted.

If you have any questions, please call.

Ms. Valerie Smith, P.E.  
RE: Northwest Broad Street SPS Replacements  
07/22/2016  
Page 2 of 2

Sincerely,

A handwritten signature in cursive script that reads "Linda Sullivan". The signature is written in dark ink and is positioned above the typed name.

Linda Sullivan, P.E.  
President  
CIA - Civil Infrastructure Associates, LLC

Cc: Darren Gore – MWSD Director  
Greg Shirley – JCumby, Inc.  
Charles White - MWSD Inspector

**PROJECT:**

NW Broad St. SPS Replacements  
 Murfreesboro Water and Sewer Department  
 220 NW Broad Street  
 Murfreesboro Tennessee 37130

**CHANGE ORDER NUMBER: 4**

**DATE OF ISSUANCE:** July 22, 2016

**ENGINEER PROJECT NO:** 2013-02

**TO:**

J. Cumby Construction, Inc.  
 C/O Mr. Greg Shirley  
 165 W. Broad Street  
 Cookeville, TN 38501

**ENGINEER:**

Civil Infrastructure Associates, LLC  
 Linda Sullivan, P.E.  
 602 North Walnut Street  
 Murfreesboro, TN 37130

The contract is changed as follows (See attached sheets for additional details):

1. Item No. 33 – Miscellaneous Allow Lump Sum (\$5,295.00 remaining after CO#3)(Wider SPS gate) ..... \$2,200.00
2. Request for an additional forty five calendar (45) days to complete project.

Original Contract Sum was ..... \$976,089.00  
 Net change by previous authorized Change Orders ..... \$91,300.00  
 The Contract Sum prior to this Change Order was ..... \$1,067,389.00  
 The Contract Sum will be **(unchanged)** by this Change Order ..... \$1,067,389.00  
 The New Contract Sum including this Change Order ..... \$1,067,389.00  
 The Contract Time will be increased by an additional forty-five (45) Days.  
 The Date of Substantial Completion as of the date of this Change Order therefore is August 26, 2016.

**Authorized:**

<p><b>Engineer:</b>                  Linda Sullivan, P.E.                  Civil Infrastructure Associates, LLC                  602 North Walnut Street                  Murfreesboro, Tennessee 37130</p>	<p><b>Contractor:</b>                  J. Cumby Construction, Inc.                  165 W. Broad Street                  Cookeville, Tennessee 38501</p>	<p><b>Owner:</b>                  MWS Department                  220 NW Broad Street                  Murfreesboro, Tennessee 37130</p>
		
<p>Linda Sullivan, P.E.</p>	<p>Greg Shirley</p>	<p>Shane McFarland, Mayor</p>
<p>Date</p>	<p>Date</p>	<p>Date</p>



J. Cumby Construction, Inc

General Construction • Construction Management

June 21, 2016

Linda Sullivan, P.E.  
Civil Infrastructure Associates  
602 North Walnut Street  
Murfreesboro, TN. 37130

**RE: Northwest Broad Street Sewage Pump Station Replacements  
Time Extension Request – Boring Issues**

Linda:

As you are aware, our boring subcontractor is having issues with the road bore on this project. He has been on site since mid-January working on this project. We are encountering very hard rock that is damaging his equipment and causing delays. We have completed approximately 130-135 lf of the approximately 146 lf bore. We are continuing to work on this remaining 10-15 lf and are requesting an additional 45 days contract time as J. Cumby Construction has about 3 – 4 weeks of work to complete after the boring contractor is complete. Additionally, the last item we intend to complete is the landscaping. The 45 day extension will get us into a more appropriate time of year to plant the landscaping material.

Please let me know if you have any questions.

Sincerely,

Greg Shirley  
Project Manager  
J. Cumby Construction, Inc.



July 26, 2016

## **MURFREESBORO WATER AND SEWER BOARD**

**RE: Spence Creek Watershed Study  
Phase 1 Budget Amendment  
Phase 2 Proposal FEMA Conditional Letter of Map Revision**

---

We requested and are presenting for your approval a proposal from Neil-Schaffer (NS) to provide a budget amendment for the current Spence Creek Watershed Study and a Phase 2 Proposal to submit a request for a Conditional Letter of Map Amendment (CLOMR) to FEMA.

### **Background**

In March 2014, the City of Murfreesboro authorized NS to conduct the Spence Creek Watershed Study in an area located along New Salem Highway (State Route 99) west of Interstate 24. An exhibit of the study area is attached. The purpose was to study an existing flooding condition on Spence Creek at St. Andrews Drive, update the flood study of Spence Creek, and perform a water quality evaluation of Spence Creek. The study is approximately 80 percent complete.

During the course of the study, NS coordinated and evaluated several proposed modifications to St. Andrews Drive crossing at Spence Creek between the City and the roadway designer. Because of the complexity of the crossing as an existing floodplain, existing utilities, existing homes, and limited ROW and easements, these complex evaluation and models could not be anticipated in the initial scoping. However, as a significant goal of the Watershed Study, we determined that this level of evaluation and modeling was appropriate to address the existing flooding condition at this location.

During the performance period of the Study, we engaged the Tennessee Department of Transportation (TDOT) regarding the improvements to New Salem Highway (State Route 99). It was determined that the modifications proposed along Spence Creek would be best addressed in the flood study of this Watershed Study. Therefore, NS incorporated additional study information on the proposed New Salem Highway improvements.

We then discussed study strategy and approval approach with FEMA Region 4 and their FEMA Map Update contractor. FEMA Region 4 indicated the most appropriate method to incorporate the flood study work, proposed modifications to St. Andrews Drive, and proposed modifications to New Salem Highway along Spence Creek was to submit a request for a Conditional Letter of Map Revisions (CLOMR) for review and approval by FEMA.

NS has provided the attached proposal for a budget amendment to Phase 1 for \$30,000. Additionally, NS proposes to complete the CLOMR submittal for \$75,500.

### **Recommendation**

We recommend approval of the attached NS proposal for \$105,500 from the Stormwater Capital Reserve. We are available to review the proposal and answer your questions.

### **Fiscal Impact**

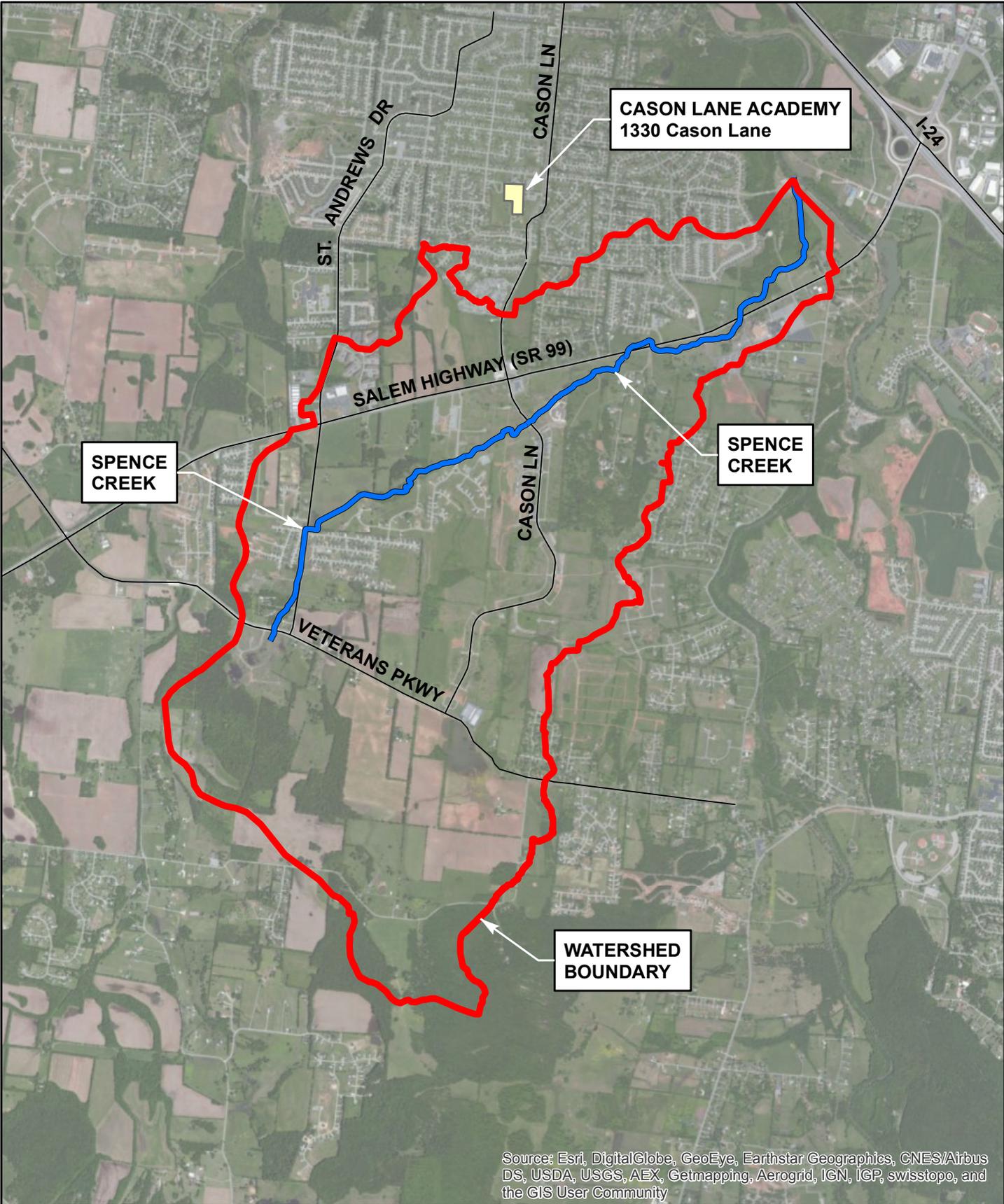
Spence Creek Watershed Study and flooding improvements to St Andrews Drive are identified in the current version of the Stormwater CIP and the NS proposal for \$105,500 is proposed to be funded from the Stormwater Capital Reserves.

Sincerely,



Sam A. Huddleston, PE  
Assistant City Engineer

Enclosure: Spence Creek Watershed Study Vicinity Map  
Neil-Schaffer Proposal



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

**Legend**

-  Watershed Boundary
-  Spence Creek
-  Roads



**SPENCE CREEK WATERSHED STUDY**



**SPENCE CREEK WATERSHED BOUNDARY**

February 19, 2016

Mr. Sam Huddleston, P.E.  
City Environmental Engineer  
City of Murfreesboro Engineering Department  
111 West Vine Street  
Murfreesboro, Tennessee 37130-1139

**RE: Amendment for the Spence Creek Watershed Water Quality and Flood Study**

Dear Mr. Huddleston:

As a result of unanticipated constraints, issues, and additional tasks; Neel-Schaffer, Inc. is requesting an amendment to the original professional services contract, dated February 20, 2014, to complete the Spence Creek Water Quality and Flood Study watershed management plan. The requested amendment also includes a scope of work and fee for assisting the City with preparation of a Letter of Map Revision (LOMR) application for submittal to FEMA. The LOMR will update the existing Spence Creek Flood Insurance Study. The proposed fee for a LOMR was not included in the original professional services contract. This amendment covers services listed in the **Scope of Work** which is contained in **Exhibit A**. The Scope of Work in Exhibit A includes two phases:

Phase 1A consists of finalizing the Spence Creek Watershed Water Quality and Flood Study management plan.

Phase 2A consists of assisting the City in preparation and submittal of the LOMR application to FEMA.

**Professional Fee**

It is anticipated the fee, based on time and materials, for the Scope of Work shown in **Exhibit A** will not exceed \$30,000.00 for Phase 1A and \$75,500.00 for Phase 2A. The Phase 2A fee includes the \$8,250.00 FEMA application fee. The total fee for Phase 1A and 2A is \$105,500.00. The professional services fee for the scope of work outlined in **Exhibit A** will not exceed \$105,500.00 without written authorization from you. Professional fees are to be payable to Neel-Schaffer, Inc. with a net term of 30 days.

Neel-Schaffer will proceed with each item contained in the scope of work only at your direction. If at any step in the scope of work, it is determined that the proposed project is unfeasible to complete or is not to your expectations, Neel-Schaffer will stop work until further direction from you. You will be billed for work performed to that point. If additional services to the scope of work are required, a separate fee proposal will be prepared and the additional services will be provided after your approval of the professional fee for the additional services.

**Schedule**

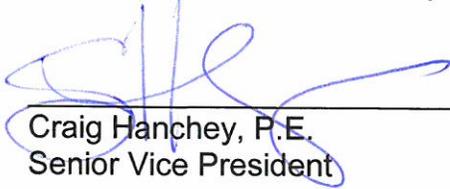
It is anticipated that the watershed study will be completed and the LOMR application submitted to FEMA within four months after receiving the notice to proceed. The notice to proceed is a signed copy of this professional fee proposal. Intermediate deliverables and tasks will be completed and submitted as described in **Exhibit A**.

**Limitations**

See Standard Terms and Conditions presented in **Exhibit B.**

**Authorization**

Please return one of the signed originals to authorize this work. Should you have any questions and/or comments please do not hesitate to call.



---

Craig Hanchey, P.E.  
Senior Vice President

**Neel-Schaffer, Inc.**

Authorized By:

---

Mayor Shane McFarland

**City of Murfreesboro**

Approved as to form:

---

David Ives

**City Attorney**



## **Exhibit A**

### **Spence Creek Watershed Water Quality and Flood Study**

#### **Amendment 1**

#### **Scope of Work to Finalize Watershed Plan and Appendices and Prepare a Letter of Map Revision for Spence Creek**

##### **Background**

The original scope of work included development of a watershed management plan (watershed plan) for the Spence Creek watershed. The watershed plan was developed in four phases. Phase 1 consisted of a peer review of proposed drainage improvements to the St. Andrews Drive crossing of Spence Creek.

Phase 2 consisted of updating and extending the effective FEMA floodplain and floodway hydraulic and hydrologic models for Spence Creek and its tributaries. Tasks included updating the Flood Insurance Study (FIS), and effective Flood Insurance Rate Maps (FIRMs) from the mouth of Spence Creek at West Fork Stones River to the headwaters. The FIS and FIRM update also included major tributaries to Spence Creek. The Phase 2 task did not include submittal of a Letter of Map Revision application to FEMA.

The updated hydrologic and hydraulic models included future development for known projects (roads and subdivisions) and inclusion of the current land use master plan.

Phase 3 consisted of developing a water quality master plan as part of the watershed plan. The water quality plan includes sampling, stream assessment, and evaluation of karst areas. The impact on storm water quality from future development will also be evaluated.

Phase 4 consisted of developing a watershed planning document that evaluates impact of future development on land use, water quantity, quality, and sediment loss. Alternatives to address future impacts to the watershed include proposed revisions to storm water regulations and requirements, and storm water capital improvement projects to improve existing conditions flooding and mitigate or improve potential flooding and drainage from future development.

##### **Phase 1A – Finalize Watershed Plan and Appendices (\$30,000 budget, 90 days)**

During the course of developing, executing, and performing technical review of the hydrologic and hydraulic models and other scope items under the initial professional services agreement, constraints, issues, and additional tasks not in the initial professional services agreement were encountered. These constraints and issues were not anticipated during development of the initial scope of work and professional fee. In

addition to unanticipated constraints and other issues, additional tasks were identified that add data, technical information, and exhibits to the watershed plan that will improve the value of the watershed plan. The watershed plan will address the impact of future development and proposed land use on watershed water quantity and quality. The plan will also include a determination whether the City's existing storm water regulations and development requirements (requirements) are adequate in protecting the stream from future development. If the existing requirements are not adequate or could be strengthened, proposed revisions will to the requirements will be presented.

The following unanticipated constraints, issues, and additional tasks were encountered during development of the watershed plan under the initial professional services agreement.

1. Number of proposed and new developments under construction that were incorporated into hydrologic and hydraulic models;
2. Effort required to correlate floodway boundaries between surveyed cross sections and cross sections generated from 2006 Lidar contours (i.e. mapping constraints);
3. Effort required to correlate the 100-year floodplain and floodway shape files to 2006 and 2014 Lidar contours and field survey data (i.e. mapping constraints);
4. Effort required to review and incorporate proposed St. Andrews drainage improvements into hydraulic model (includes revisions to typical sections of St. Andrews Drive roadway improvements);
5. Effort required to review and incorporate proposed SR 99 improvements into hydraulic model; and
6. Amount of data that was available and developed during the execution of the scope items that will be included in the final watershed plan.

### **Scope of Work**

The following tasks remain to complete the scope of work for the initial professional services agreement.

- Incorporate technical approach and results of hydrologic and hydraulic modeling into final watershed plan and appendices;
- Incorporate background data such as known geologic information, location of sanitary sewer improvements, and consultation with MWSD to identify known overflows in the watershed, etc. into final watershed plan and appendices;
- Determine and incorporate into final watershed plan adequacy of existing storm water regulations and storm water capital improvement projects to prevent degradation of the stream and watershed natural resources as the watershed undergoes development;
- Incorporate water quality findings and analyses such as results of water quality sampling, visual site assessments, jurisdictional assessment, karst inventory, biological monitoring, and sediment loss modeling into final watershed plan and appendices;
- Submit draft watershed plan to City;

- Resolve City comments;
- Submit final watershed plan to City; and
- Assist City with public meetings (2) to present final results to the residents within the Spence Creek watershed and members of the WSB.

### **Phase 2A - Spence Creek Letter of Map Revision (LOMR) (\$75,000 budget, 120 days)**

Based on discussions with the City, the hydrologic and hydraulic models developed for the watershed study will be used to obtain a LOMR for Spence Creek and major tributaries. A scope of work and professional fee to prepare the LOMR application and assist the City with the LOMR process was not developed as part of the original professional services agreement.

The LOMR application for the Spence Creek watershed will consist of two MT-2 forms. Form 1 is the Overview and Concurrence Form. This form provides basic information regarding the LOMR request and requires signatures of the requester, community official, and engineer. Form 2 is the Riverine and Hydraulics Form. This form provides basic information on the scope and methodology of hydrologic and hydraulic analyses that were prepared in support of the LOMR request. The form is used for revision requests that involve new or revised hydrologic and hydraulic analyses of the stream.

It is anticipated the scope of work required to obtain a LOMR for Spence Creek will include the tasks listed below. The tasks include preparing data used in determining the revised floodplain boundaries, flood profiles, and floodway boundaries. Data will be developed and provided that is necessary to demonstrate the physical modifications made to the floodplain and floodway meet National Flood Insurance Program (NFIP) regulations. The data and revised information (hydrologic and hydraulic analyses and resulting floodplain and floodway boundaries) must also be consistent with the effective flood insurance information.

### **Scope of Work**

- Complete MT-2 Forms 1 and 2;
- Prepare narrative for LOMR and submittal;
- Submit hydrologic and hydraulic computations with digital files;
- Prepare and submit a certified topographic map with floodplain and floodway delineations;
- Prepare and submit annotated Flood Insurance Rate Maps to reflect changes due to LOMR;
- Prepare applicable additional items to satisfy NFIP regulatory requirements;
- Two meetings with City to discuss LOMR application;
- Resolve City comments on LOMR application;
- Submit LOMR application to FEMA;
- Resolve three sets of FEMA comments;

- Prepare and send property notification letters to properties impacted by the LOMR;
- Assist City with public meeting to discuss the LOMR and process;
- Address questions from impacted property owners during the 90 day appeal period;
- Revise LOMR if credible technical data or additional information is presented during the 90 day appeal period; and
- Submit final floodplain and floodway shape files and information and data to be included in updated FIS to FEMA.

**EXHIBIT B**  
**NEEL-SCHAFFER, INC.**  
**GENERAL TERMS AND CONDITIONS**

1. **Relationship Between Engineer and Client.** Engineer shall serve as Client's professional engineering consultant in those phases of the Project to which this Agreement applies. The relationship is that of a buyer and seller of professional services and it is understood that the parties have not entered into any joint venture or partnership with the other. The Engineer shall not be considered to be the agent of the Client.

2. **Responsibility of the Engineer.** Engineer will perform services under this Agreement in a manner consistent with that standard of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. No other representation, express or implied, and no warranty or guarantee is included or intended in this Agreement or in any report, opinion, document, or otherwise.

3. **Responsibility of the Client.** Client shall provide all criteria and full information as to his requirements for the Project, including budgetary limitations.

Engineer shall arrange entrance upon private land and private property and obtain all necessary approvals and permits required from all government authorities having jurisdiction over the Project. The Client will provide assistance as necessary.

Client shall give prompt written notice to the Engineer whenever Client observes or otherwise becomes aware of any development that affects the scope or timing of Engineer's services, or any defect or nonconformance in the work of any construction contractor.

Client shall examine all documents presented by Engineer, obtain advice of an attorney or other consultant as Client deems appropriate for such examinations and provide decisions pertaining thereto within a reasonable time so as not to delay the services of the Engineer.

4. **Designation of Authorized Representatives.** Each party shall designate one or more persons to act with authority in its behalf with respect to appropriate aspects of the Project. The persons designated shall review and respond promptly to all communications received from the party.

5. **Ownership of Documents.** Drawings, specifications, reports and any other documents prepared by Engineer in connection with any or all of the services furnished hereunder shall be the property of Client. Engineer shall have the right to retain copies of all documents and drawings for its files.

6. **Reuse of Documents.** All documents, including drawings and specifications, furnished by Engineer pursuant to Phase 1 of Attachment A of this Agreement are intended for use on the St. Andrews Drive crossing only. They should not be used by Client or others on any other site. Any such reuse, without written verification or adoption by the Engineer, shall be at Client's sole risk and Client shall, to the extent currently permitted under state law, indemnify and hold Engineer

harmless from all claims, damages, losses and expenses, including attorney's fees arising out of or resulting therefrom.

All documents furnished by Engineer pursuant to Phases 2 through 5 of Attachment A of this Agreement are intended, after approval by Client, to be public planning documents and are intended to be used for multiple purposes by multiple persons in addition to Client.

7. **Opinions of Cost.** Since the Engineer has no control over the cost of labor, materials, equipment or services furnished by the contractor, or over the contractor's methods of determining prices, or over competitive bidding or market conditions, the Engineer cannot and does not guarantee that proposals, bids or actual construction costs will not vary from his opinions or estimates of construction costs.

8. **Changes.** Client reserves the right by written change order or amendment to make changes in requirements, amount of work, or engineering time schedule adjustments; and Engineer and Client shall negotiate appropriate adjustments in fee and/or schedule acceptable to both parties to accommodate any changes.

9. **Delays.** If the Engineer's services are delayed by the Client, or for other reasons beyond the Engineer's control, for more than one year, the fee provided for in this Agreement shall be adjusted equitably.

10. **Subcontracts.** Engineer may subcontract portions of the services, but each subcontractor must be approved by Client in writing.

11. **Suspension of Services.** Client may, at any time, by written order to Engineer, require Engineer to stop all, or any part, of the services required by this Agreement. Upon receipt of such an order, Engineer shall immediately comply with its terms and take all reasonable steps to minimize the occurrence of costs allocable to the services covered by the order. Client, however, shall pay all costs associated with suspension including all costs necessary to maintain continuity and the staff required to resume the services upon expiration of the suspension of work order. Engineer will not be obligated to provide the same personnel employed prior to suspension when the services are resumed in the event the period of any suspension exceeds 30 days. Client will reimburse Engineer for the costs of such suspension and remobilization.

12. **Termination.** This Agreement may be terminated by either party upon 30 days' written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof through no fault of the terminating party. This Agreement may be terminated by Client, under the same terms, whenever Client shall determine that termination is in its best interests. Cost of termination, including salaries, overhead and fee, incurred by Engineer either before or after the termination date shall be reimbursed by Client.

13. **Notices.** Any notice or designation required to be given by either party hereto shall be in writing and, unless receipt of such notice is expressly required by the terms hereof, it shall be deemed to be effectively served when deposited in the mail with sufficient first class postage affixed and addressed to the party to whom such notice is directed at such party's place of business or such other address as either party shall hereinafter furnish to the other party by written notice as herein provided.

14. **Indemnification.** Engineer shall indemnify and hold harmless Client from Client's loss or expense, including reasonable attorney's fees for claims for personal injury (including death) or property damage arising out of the sole negligent act, error or omission of Engineer.

Client shall indemnify and hold harmless Engineer from Engineer's loss or expense, including reasonable attorney's fees, for claims for personal injuries (including death) on property damage arising out of the sole negligent act, error or omission of Client to the extent permitted under state law.

In the event of joint or concurrent negligence of Engineer and Client, each shall bear that portion of the loss or expense that its share of the joint or concurrent negligence bears to the total negligency (including that of third parties) which caused the personal injury or property damage.

Client shall not be liable to the Engineer, and the Engineer shall not be liable to the Client, for any special, incidental or consequential damages, including, but not limited to, loss of use and loss of profit, incurred by either party due to the fault of the other, regardless of the nature of this fault, or whether it was committed by the Client or the Engineer or their employees, agents or subcontractors, by reason of services rendered under this Agreement.

15. **Legal Proceedings.** In the event Engineer's employees are at any time required by Client to provide testimony, answer interrogatories or otherwise provide information ("testimony") in preparation for or at a trial, hearing, proceeding on inquiry ("proceeding") arising out of the services that are the subject of this Agreement, where Engineer is not a party to such proceeding, Client will compensate Engineer for its services and reimburse Engineer for all related direct costs incurred in connection with providing such testimony. This provision shall be of no effect if the parties have agreed in a separate agreement or an amendment to this Agreement to terms which specifically supersede this provision, nor shall this provision apply in the event Client engages Engineer to provide expert testimony or litigation support, which services shall be the subject of a separate agreement or an amendment to this Agreement.

16. **Successors and Assigns.** The terms of this Agreement shall be binding upon and inure to the benefit of the parties and their respective successors and assigns; provided however, that

neither party shall assign this Agreement in whole or in part without the prior written approval of the other.

17. **Insurance.** Within the context of prudent business practices, Engineer shall endeavor to maintain workers' compensation and unemployment compensation of a form and in an amount as required by state law; comprehensive general liability with maximum limits of \$1,000,000/ \$1,000,000; automotive liability with maximum limits of \$1,000,000/ \$1,000,000; and professional liability insurance with an annual limit of \$1,000,000. Client recognizes that insurance market is erratic and Engineer cannot guarantee to maintain the coverages identified above. The Engineer will name the Client as an Additional Insured on the comprehensive general liability and automobile liability policies as respects the work under the Agreement. The Engineer will provide Client with a certificate of insurance and endorsements documenting the required insurance coverage and will give the Client at least 15 days notice of any changes to said insurance coverage.

18. **Information Provided by the Client.** The Engineer shall indicate to the Client the information needed for rendering of services hereunder. The Client may elect to provide this information (including services by others) to the Engineer. In this case, the Client recognizes that the Engineer cannot assure the sufficiency of such information. Accordingly, the Engineer shall not be liable for any claims for injury or loss arising from errors, omissions or inaccuracies in documents or other information provided by the Client. In addition, the Client agrees to compensate the Engineer for any time spent or expenses incurred in defending such claim or in making revisions to his work as a direct or indirect result of information provided by the Client which is insufficient.

19. **Subsurface Conditions and Utilities.** Client recognizes that a comprehensive sampling and testing program implemented by trained and experienced personnel of Engineer or Engineer's subconsultants with appropriate equipment may fail to detect certain hidden conditions. Client also recognizes that actual environmental, geological and geotechnical conditions that Engineer properly inferred to exist between sampling points may differ significantly from those that actually exist.

Engineer will locate utilities which will affect the project from information provided by the Client and utility companies and from Engineer's surveys. In that these utility locations are based, at least in part, on information from others, Engineer cannot and does not warrant their completeness and accuracy.

20. **Hazardous Materials.** When hazardous materials are known, assumed or suspected to exist at a project site, Engineer is required to take appropriate precautions to protect the health and safety of his personnel, to comply with the applicable laws and regulations and to follow procedures deemed prudent to minimize physical risks to employees and the public. Client hereby warrants that, if he knows or has any reason to assume or suspect that hazardous materials may exist at the project site,

he will inform Engineer in writing prior to initiation of services under this Agreement.

Hazardous materials may exist at a site where there is no reason to believe they could or should be present. Client agrees that the discovery of unanticipated hazardous materials constitutes a changed condition mandating a renegotiation of the scope of work or termination of services. Engineer agrees to notify Client as soon as practically possible should unanticipated hazardous materials or suspected hazardous materials be encountered.

21. **Anticipated Change Orders.** Client recognizes and expects that a certain amount of imprecision and incompleteness is to be expected in construction contract documents; that contractors are expected to furnish and perform work, materials and equipment that may reasonably be inferred from the contract documents or from the prevailing custom or trade usage as being required to produce the intended result whether or not specifically called for; and that a certain amount of change orders are to be expected. As long as Engineer provides services in a manner consistent with that standard of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions, client agrees not to make any claim against Engineer for cost of these change orders unless these costs become a significant part of the construction contract amount. In no case will Client make claim against Engineer for costs incurred if the change order work is a necessary part of the Project for which Client would have incurred cost if work had been included originally in the contract documents unless Client can demonstrate that such costs were higher through

issuance of the change order than they would have been if originally included in the contract documents in which case any claim of Client against Engineer will be limited to the cost increase and not the entire cost of the change order.

22. **Payment.** Engineer shall submit monthly statements to Client. Payment in full shall be done upon receipt of the invoice. If payments are delinquent after 30 days from invoice date, the Client agrees to pay interest on the unpaid balance at the rate of one percent per month. Payment for Engineer's services is not contingent on any factor except Engineers ability to provide services in a manner consistent with that standard of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions.
23. **Force Majeure.** Neither Client nor Engineer shall be liable for any fault or delay caused by any contingency beyond their control, including, but not limited to, acts of God, wars, strikes, walkouts, fires, natural calamities, or demands or requirements of governmental agencies.
24. **Compliance with Laws.** To the extent they apply to its employees or its services, the Engineer shall comply with all

applicable United States, state, territorial and commonwealth laws, including ordinances of any political subdivisions or agencies of the United States, any state, territory or commonwealth thereof.

25. **Separate Provisions.** If any provisions of this Agreement are held to be invalid or unenforceable, the remaining provisions shall be valid and binding.
26. **Governing Law.** This Agreement shall be governed by and construed in accordance with the laws of the state of Tennessee.
27. **Amendment.** This Agreement shall not be subject to amendment unless another instrument is executed by duly authorized representatives of each of the parties.
28. **Entire Understanding of Agreement.** This Agreement represents and incorporates the entire understanding of the parties hereto, and each party acknowledges that there are no warranties, representations, covenants or understandings of any kind, matter or description whatsoever, made by either party to the other except as expressly set forth herein. Client and Engineer hereby agree that any purchase orders, invoices, confirmations, acknowledgments or other similar documents executed or delivered with respect to the subject matter hereof that conflict with the terms of this Agreement shall be null, void and without effect to the extent they conflict with the terms of this Agreement.



July 26, 2016

## **MURFREESBORO WATER AND SEWER BOARD**

**RE: Pre-Bid, Bid, and Construction Phase Services  
North Murfreesboro Drainage Study  
Basins 1, 2, 23 and 24**

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We requested and are presenting for your approval a proposal from Huddleston Steele Engineering (HSE) to provide pre-bid, bid, and construction phase services for Basins 1, 2, 23, and 24 (Haynes Drive and Memorial Boulevard) in the North Murfreesboro Drainage Study.

### **Background**

In June 2010, the City of Murfreesboro authorized HSE to conduct the North Murfreesboro Drainage Study in an area located along and east and west of Memorial Boulevard between Haynes Drive and Thompson Lane. The study resulted in the identification, characterization, and evaluation of 25 sub-area drainage basins. Basins 1, 2, 23, and 24 were identified as needing additional study and surveying to address water quality and existing drainage system inadequacies. In October 2012, HSE was authorized to conduct a Preliminary Engineering and Surveying Task. An exhibit representative of this work is attached. Later, HSE conducted 6 detailed easement surveys of properties in Basins 1, 2, 23, and 24. Based on discussions with City staff, City Administration, and the design team, the project is ready to progress to the next stage. To that end, HSE has provided the attached proposal for pre-bid, bid, and construction phase services in three phases for a total of \$32,500.

### **Recommendation**

We recommend approval of the attached HSE proposal for \$32,500 from the Stormwater Capital Reserve. We are available to review the proposal and answer your questions.

**Fiscal Impact**

Haynes Drive and Memorial Boulevard is on the current version of the Stormwater CIP and the HSE proposal for \$32,500 is proposed to be funded from the Stormwater Capital Reserves.

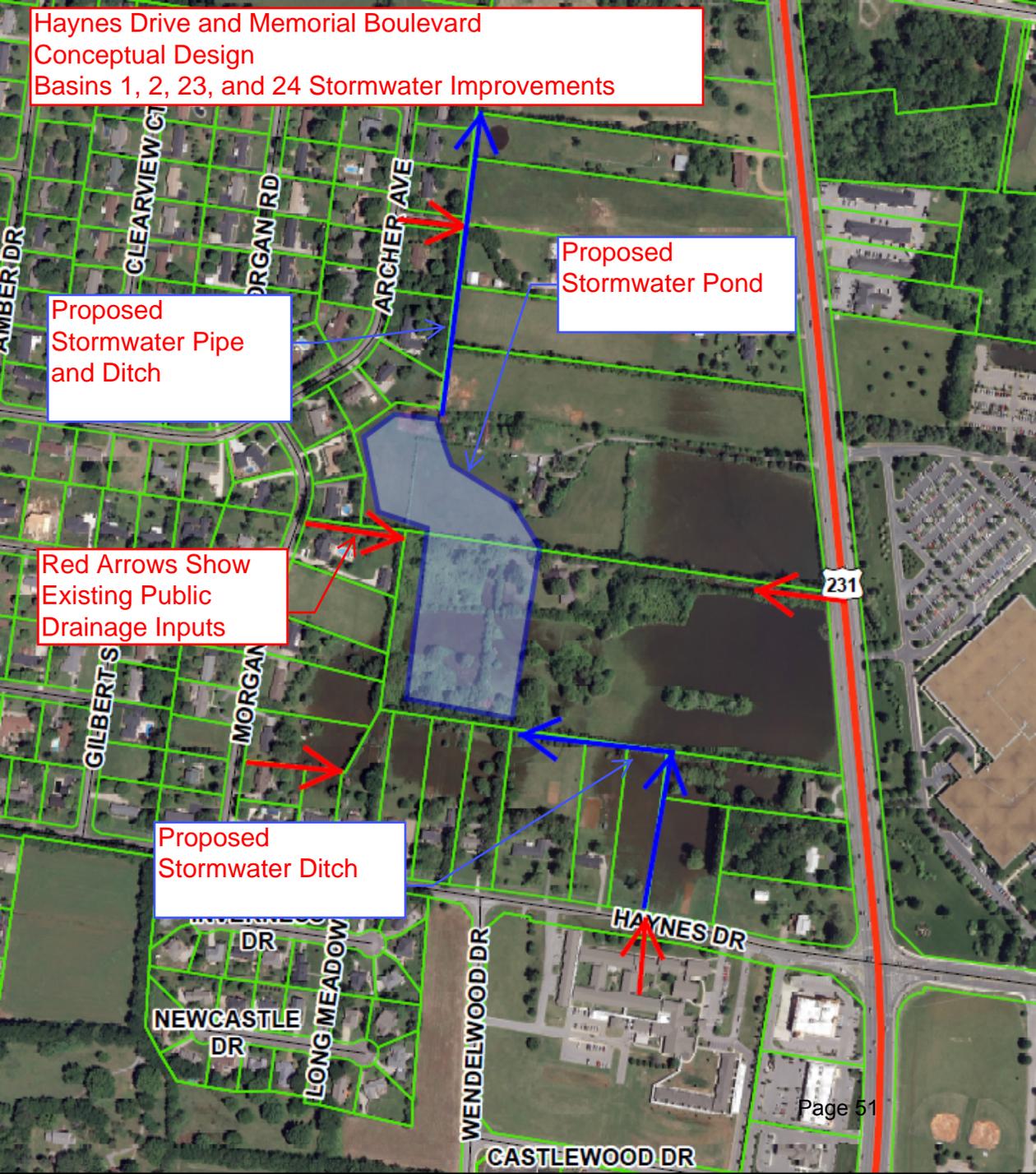
Sincerely,



Sam A. Huddleston, PE  
Assistant City Engineer

Enclosure:      Conceptual Design Plan North Murfreesboro Drainage Study Basins 1, 2,  
                         23, and 24  
                         Huddleston Steele Proposal

Haynes Drive and Memorial Boulevard  
Conceptual Design  
Basins 1, 2, 23, and 24 Stormwater Improvements



Proposed  
Stormwater Pipe  
and Ditch

Proposed  
Stormwater Pond

Red Arrows Show  
Existing Public  
Drainage Inputs

Proposed  
Stormwater Ditch

June 13, 2016

Mr. Sam Huddleston, P.E.  
City of Murfreesboro  
111 W. Vine Street  
Murfreesboro, TN 37130

Re: Memorial Boulevard/Haynes Drive  
Storm Drainage Improvements  
Murfreesboro, TN

Dear Sam:

Huddleston-Steele Engineering, Inc., is pleased to provide this proposal for Pre-Bid, Bid and Construction Phase Services on the above-referenced project. The Services to be provided are outlined as follows:

**Phase I: Pre-Bid Services**

We will coordinate and attend Neighborhood Meetings and Design Meetings with City Staff. We will perform hydraulic calculations and amend the plans as instructed. We will perform Public Outreach and Correspondence. We will prepare documentation necessary to get to the Bid Phase.

**Phase II: Bid Services**

We will prepare Specification Books and Bid Documents. We will assist with the Advertisement and Receiving of Bids. We will check the bids and make a recommendation for contractor selection. We will prepare documentation necessary to provide a Notice to Proceed with the Construction Phase.

**Phase III: Construction Phase Services**

We will provide Construction Layout and Construction Administration. We will review submittals, shop drawings, and pay applications. Services may be provided in addition to those outlined above.

We will perform these services at our standard hourly rates as follows:

Principal	\$150.00/Hr.
Landscape Architect	\$125.00/Hr.
Engineer, Surveyor or Senior Planner	\$110.00/Hr.
Survey Crew (GPS)	\$160.00/Hr.
Survey Crew (Construction Layout)	\$145.00/Hr.
Survey Crew (Other)	\$110.00/Hr.
Technician	\$ 80.00/Hr.
Technical/Clerical Support	\$ 65.00/Hr.



Phase I: Pre-Bid Services shall not exceed \$7,500.00.

Phase II: Bid Services shall not exceed \$5,000.00.

Phase III: Construction Phase Services shall not exceed \$20,000.00.

Please contact us if you have any questions or comments. We look forward to working with you on this project.

Sincerely,

HUDDLESTON-STEELE ENGINEERING, INC.

*Bill*

William H. Huddleston IV, P.E., R.L.S.



*... creating a better quality of life*

# MEMORANDUM

**DATE:** July 21, 2016  
**TO:** Water and Sewer Board  
**FROM:** Valerie H. Smith  
**SUBJECT:** Additional Geotechnical Engineering Services  
& Materials Testing  
Sinking Creek WWTP-Phase 4D

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## **Background**

At the February 2015 meeting, the Board approved a proposal from TTL, Inc. to perform geotechnical engineering services and materials testing during the proposed construction of the Sinking Creek Wastewater Treatment Plant Phase 4D Expansion. Their proposal was estimated using the number of trips to the site, the number of inspections as well as the number of concrete tests that would be required during construction, which is based on the information provided from 3D Enterprises and Smith Seckman Reid (SSR).

TTL has worked for the Department in the past on the Headworks and Southwest Pump Station projects and their estimations were fairly correct. However, it came to staff's attention last month that the total invoiced amount was approaching the total previously approved by the Board, which was \$76,000. After a call to TTL and SSR, staff realized that the work TTL was to perform was not near complete. Therefore TTL has provided the attached explanation and requested to approve an additional \$70,000 to complete the project.

The original proposal as well as this additional proposal is on a time and materials basis and per the unit pricing in the construction testing schedule originally submitted.

## **Recommendation**

Staff recommends that the Board recommend to City Council approval of the addition \$70,000 for the geotechnical engineering services and materials testing associated with the construction of the Sinking Creek Wastewater Treatment Plant Phase 4D Expansion.

## **Fiscal Impact**

Funding the engineering services is recommended to come from the secured SRF loans designated for the Phase 4D Expansion project.

## **Attachments**

TTL- Additional Construction Testing Proposal & Spreadsheet



5010 Linbar Drive,  
Suite 153  
Nashville, TN 37211  
615.331.7770

[www.TTLUSA.com](http://www.TTLUSA.com)

July 21, 2016

Ms. Valerie Smith  
Murfreesboro Water & Sewer Department  
220 NW Broad Street  
Murfreesboro, Tennessee 37130

**RE: Construction Materials Engineering and Testing Services  
Sinking Creek WWTP – Phase 4D  
Murfreesboro, Tennessee  
TTL Project No. 200815029**

Dear Ms. Smith:

We are providing Construction Materials Engineering and Testing Services for the Sinking Creek – Phase 4D expansion in Murfreesboro, Tennessee. The estimated project budget established in our proposal (TTL Proposal No. P02814057) has been exceeded. Information provided by 3D Enterprises and Smith Seckman Reid personnel indicates that the project is about 75 percent complete. Our original budget was developed based on project information provided by both the contractor and Smith Seckman Reid personnel. This information showed that one concrete pour would occur per day. Due to the accelerated schedule and project sequencing, 3D Enterprises has been coordinating two to three concrete pours/site visits per day. This has resulted in multiple trips and/or longer site visits than were originally budgeted. Based on the recently provided revised schedule information, we recommend that our budget be increased by approximately \$70,000 for the remaining concrete testing, site grading, and paving activities.

We appreciate the opportunity to be of continued service to you. If you have any questions or need further assistance, please let me know.

Sincerely,  
TTL, Inc.

Martin L. Medley, II, P.E.  
CMT Group Leader

Mark Herrmann, P.E.  
Principal Engineer

**TTL, Inc.**  
**CONSTRUCTION TESTING ESTIMATE**  
**Project - Sinking Creek Phase 4D**

---PROJECTED SCHEDULE---			UNIT COST	TOTAL
Days	Hrs/Day	Total-Hrs.	Rate	Extension
Subgrade Review & Proofrolling	5	4	20.0	\$840.00
Monitoring Fill Placement & Density Testing	5	8	40.0	\$1,680.00
Monitoring of Basestone Placement	10	5	50.0	\$2,100.00
Monitoring of Asphalt Placement	5	8	40.0	\$1,680.00
Oxidation Ditch and Ancillary Bldgs.	67	6	402.0	\$16,884.00
Clarifiers #5 and #7 and Ancillary Bldgs	57	6	342.0	\$14,364.00
Masonry and Mortar Observation & Testing	10	5	50.0	\$2,100.00
Proj. Man. &/or Engineer's Review	159	0.25	39.8	\$4,571.25
PM Support Services	159	0.25	39.8	\$1,987.50
			<b>1023.5</b>	<b>\$46,206.75</b>
Number	Units	Total	Rate	Extension
Laboratory Tests (Proctor w/Atterberg Limits)	2	1	2	\$360.00
Laboratory Tests (Proctor Stone)	0	0	0	\$0.00
Compression Testing Concrete Specimens	225	7	1575	\$20,475.00
Compression Testing Masonry and Mortar Specimens	10	10	100	\$1,300.00
Mileage Charge	159	66	10494	\$7,345.80
<b>Grand Total</b>				<b>\$75,687.55</b>

*Note: This is a good faith estimate based on our understanding of the project. The actual schedule may vary and billing will be based on the unit rates shown on the attached fee schedule for actual hours worked.*

---ACTUAL BILLED (AS OF 2016-07-03)---				
Days	Hrs/Day	Total-Hrs.	Rate	Extension
Technician		879.5	\$42.00	\$36,939.00
Technician , Overtime		16.0	\$63.00	\$1,008.00
Senior Engineer		5.0	\$175.00	\$875.00
Project Manager & Engineer's Review		140.3	\$115.00	\$16,128.75
PM Support Services		37.0	\$50.00	\$1,850.00
			<b>1077.8</b>	<b>\$56,800.75</b>
Number	Units	Total	Rate	Extension
Laboratory Tests (Proctor w/Atterberg Limits)				
Laboratory Tests (Proctor Stone)				
Compression Testing Concrete Specimens		2291	\$13.00	\$29,783.00
Compression Testing Masonry and Mortar Specimens				
Mileage Charge		14248	\$0.70	\$9,973.60
<b>Grand Total</b>				<b>\$96,557.35</b>

---ESTIMATED WORK REMAINING---				
Days	Hrs/Day	Total-Hrs.	Rate	Extension
Subgrade Review & Proofrolling				
Monitoring Fill Placement & Density Testing	30	4	120.0	\$5,040.00
Monitoring of Basestone Placement			0.0	\$0.00
Monitoring of Asphalt Placement			0.0	\$0.00
Oxidation Ditch and Ancillary Bldgs.			0.0	\$0.00
Clarifiers #5 and #7 and Ancillary Bldgs	90	6	540.0	\$22,680.00
Masonry and Mortar Observation & Testing			0.0	\$0.00
Proj. Man. &/or Engineer's Review	105	0.5	52.5	\$6,037.50
PM Support Services	105	0.25	26.3	\$1,312.50
			<b>738.8</b>	<b>\$35,070.00</b>
Number	Units	Total	Rate	Extension
Laboratory Tests (Proctor w/Atterberg Limits)				
Laboratory Tests (Proctor Stone)				
Compression Testing Concrete Specimens	110	7	770	\$10,010.00
Compression Testing Masonry and Mortar Specimens				
Mileage Charge	110	50	5500	\$3,850.00
<b>Grand Total</b>				<b>\$48,930.00</b>

AMOUNT OVER ORIGINAL ESTIMATE (AS OF 2016-07-03)	\$20,869.80	
ADDITIONAL AMOUNT REQUESTED (AS OF 2016-07-03)	\$69,799.80	~\$70K
<b>TOTAL REVISED PROJECT ESTIMATE</b>	<b>\$145,487.35</b>	<b>~\$146K</b>



*... creating a better quality of life*

# MEMORANDUM

**DATE:** July 21, 2016  
**TO:** Water and Sewer Board  
**FROM:** Darren Gore  
**SUBJECT:** Murfreesboro Electric Department  
Required Power Contracts

---

## **Background**

Department staff was contacted by Murfreesboro Electric Department (MED) regarding the attached power contracts. It has been the practice of MED, in the past, to not obtain a power contract for any account that belongs to the City of Murfreesboro. However, TVA requires power contracts on all customers whose demand exceeds 1000 kW regardless if the customer is considered governmental, commercial, industrial, non-profit, etc. During a recent audit by TVA, two (2) of our accounts were flagged for not having a power contract since the demand for these accounts exceeded 1000 kW. Both of these accounts are for the Stones River Water Treatment Plant at 5528 Sam Jared Dr. Account 18034-063 establishes a 1500 kW demand, based upon the 1500 KVA transformer and the second account, 180434-064, establishes a 2500 kW demand, based upon the 2500 KVA transformer.

The power contracts that were originally submitted were the same format that MED used for every other customer, however, these contracts have been reviewed, revised and approved as to form by the City's Legal Department. These contracts will not change any of the services provided to us, they just establish a formal agreement for providing power.

None of the accounts have exceeded the maximum demand that has been established for them.

## **Recommendation**

Staff recommends that the Board recommend to City Council approval of the power contracts.

## **Fiscal Impact**

These power rates in the attached contracts are accounted for in the Water Treatment Plant's operating accounts.

## **Attachments**

General Power Contract for the Water Treatment Plant Account 18034063  
General Power Contract for the Water Treatment Plant Account 18034064

**GENERAL POWER CONTRACT  
CITY OF MURFREESBORO**

THIS CONTRACT, made and entered into as of this \_\_\_<sup>th</sup> day of July 2016, by City of Murfreesboro, a Tennessee municipality (the "City"), for the benefit of its Murfreesboro Electric Department ("Distributor") with respect to a facility of its Murfreesboro Water and Sewer Department ("Customer").

**WITNESSETH**

WHEREAS, Customer receives electricity from Distributor for the operation of a municipal water treatment plant at 5528 Sam Jared Drive, Murfreesboro, Tennessee for Account Number 18034063.

WHEREAS, the Tennessee Valley Authority ("TVA") requires Distributor to maintain contracts with customers that exceed a certain level of electricity demand.

WHEREAS, Customer maintains an electricity demand exceeding the level for which the TVA requires a contract.

WHEREAS, the City desires to and does hereby comply with TVA's requirements for a contract by executing this agreement between its departments.

NOW, THEREFORE, for and in consideration of the premises and mutual covenants hereinafter set forth, the parties hereto covenant and agree as follows:

1. The Distributor will supply, and the Customer will take and pay for, all electricity required for the operation of the above in accordance with the terms hereof and the Rules and Regulations of the Distributor, a copy of which is attached hereto and hereby made a part hereof. This contract allows a maximum demand not exceeding 1500 kW, which amount shall be the contract demand hereunder. The Customer shall not take electricity in excess of such contract demand except by agreement of Distributor and revision of contract, but nothing herein contained shall be construed to relieve the Customer of the obligation to pay for such amounts of electricity as may actually be taken.
2. **Rates and Charges.** Customer shall pay Distributor monthly for power and energy available under this contract in accordance with the rates, charges, and provisions of Distributor's General Power Rate, Schedule GSA as modified, adjusted or replaced from time to time by agreement between Distributor and the Tennessee Valley Authority. Said rate schedule, which is Distributor's currently effective standard rate schedule applicable to consumers of the same class as Customer, together with its current adjustment addendum, is attached hereto and hereby made a part hereof; provided by, however, that the paragraph thereof headed "Seasonal Service" shall be of no force and effect. In the event of any conflict between the provisions of said rate schedule, as so modified, or replaced, and other provisions of this contract, the latter shall control.
3. **Minimum Monthly Bill.** The Customer shall pay a Minimum Monthly Bill as determined by the provision entitled "Minimum Bill" of the rate schedule attached as Exhibit A, as modified or replaced from time to time by agreement between Distributor and the Tennessee Valley Authority, but in no case shall the minimum monthly bill be less than the Minimum Monthly Bill reflected in Exhibit A.
4. **Term.** This contract shall become effective as of April 26, 2016; provided, however, that all provisions hereof relating to the availability of and payment for power and energy shall become effective on April 26<sup>th</sup>, 2016 which date shall be the date of initial availability hereunder. This contract shall continue in effect for an initial term of five (5) years from said date of initial availability and, at the end of said initial term, the contract shall be renewed automatically for an additional term of one (1) year and from year to year thereafter unless written notice to the

contrary is given by either party to the other at least three (3) months prior to the expiration of said initial term or any then existing renewal term.

**5. Facilities.**

- a. It is recognized that Distributor has provided certain facilities to supply power and energy to Customer's operations. Said facilities shall include, at the request of Customer, one (1) 1500 KVA 277/480 volt grounded-wye transformer.
- b. Customer acknowledges that Distributor has rights in, over, and across Customer's property as may be necessary or desirable to permit the installation, maintenance, operation, repair and replacement of the Distributor's facilities required to supply Customer with power and energy hereunder. The rights of way for Distributor's facilities shall be at locations on Customer's property mutually satisfactory to Distributor and Customer. In the event that Customer requires the relocation of said facilities which shall be and remain the personal property of Distributor, such relocation shall be made at Customer's expense.

**6. Availability of Power.**

- a. Subject to the other provisions of this contract, Distributor will, commencing with the date of initial availability hereunder, make available to Customer, and Customer will take and buy from Distributor, Customer's requirements of firm power and energy for the operation of Customer's said operations.
- b. The Customer agrees that the Distributor may be limited in the amount of power that it can furnish due to limitations made by the Tennessee Valley Authority, Distributor's supplier of power. The Customer further understands that the Distributor on some occasions may be unable to furnish electric power due to unforeseen, unavoidable circumstances and agrees to make no claim against Distributor as a result of any such inability to furnish power.

**7. Conditions of Delivery.**

- a. The above rates and charges are based upon the supply of service through a single delivery and metering point. The point of delivery for power and energy made available hereunder shall be the point of connection of Distributor's facilities to Customer's facilities. The power and energy made available by Distributor hereunder shall be in the form of three-phase, alternating current at a frequency of approximately 60 hertz and, under normal operating conditions be within the range of voltage specified by ANSI standards. Maintenance by Distributor at said point of delivery of approximately the above-stated voltage and frequency shall constitute availability of power and energy for purposes of this contract. The power and energy to be supplied hereunder shall be measured by Distributor's metering facilities near said point of delivery.
- b. Distributor shall not be obligated to provide protective equipment for Customer's facilities, but Distributor may provide such protective equipment, as it deems necessary for the protection of its own property and operations. The electrical equipment installed by Customer shall be capable of satisfactory coordination with any protective equipment installed by Distributor. Customer shall be responsible for protection of own equipment against loss of phase occurrence (partial power). Customer shall exercise all reasonable precautions and install all equipment necessary to limit its total demand as determined in accordance with the rate schedule hereinafter specified to the amount to which it is entitled hereunder.

**8. Phase Balancing.** Customer shall endeavor to take and use power and energy in such manner that the current will be reasonably balanced on the three phases. In the event that any

check indicates that the current on the most heavily loaded phase exceeds the current on either of the other phases by more than 20 percent, Customer shall make at its expense, upon request, the changes necessary to correct the unbalanced condition. If said unbalanced condition is not corrected within 60 days, or such other period as may be agreed upon, Distributor may thereafter elect to meter the load on individual phases and compute the billing demand as being equal to three times the maximum kilowatt load on any phase. For all purposes hereunder, the load on any phase shall be the load measured by a wattmeter connected with the current coil in that phase wire and the potential coil connected between that phase wire and the neutral voltage point.

- 9. Electrical Fluctuations.** The power and energy taken by Customer hereunder shall not be used in such manner as to cause unusual voltage fluctuations or disturbances to Distributor's or TVA's system. In the event Customer's use of power causes fluctuations or disturbances on Distributor's or TVA's system, Distributor may require Customer, at customer's expense, to install suitable apparatus to keep such fluctuations or disturbances within reasonable limits.
- 10. Notices.** Any notice or demand required by this contract shall be deemed properly given if mailed, postage prepaid, to the General Manager of Murfreesboro Electric Department on behalf of Distributor, or to Customer at Murfreesboro Water and Sewer Department on behalf of Customer. The designation of the person to be so notified or the address of such person may be changed at any time and from time to time by either party by similar notice.
- 11. Waiver.** A waiver of one or more defaults shall not be considered a waiver of any other or subsequent default.
- 12. Successors and Assigns.** This contract may not be assigned by Customer.
- 13. Counterparts.** This contract may be executed in any number of counterparts, and all such counterparts, each executed and delivered as an original, shall constitute but one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have caused this contract to be executed by their respective officers thereunto duly authorized, as of the day and year first above written.

City of Murfreesboro  
Murfreesboro Electric Department

City of Murfreesboro  
Murfreesboro Water & Sewer Department

\_\_\_\_\_  
Steve Sax, General Manager

\_\_\_\_\_  
Rob Lyons, City Manager

Approved as to form:

\_\_\_\_\_  
Craig D. Tindall, City Attorney

## EXHIBIT A

### MURFREESBORO ELECTRIC DEPARTMENT

#### GENERAL POWER RATE--SCHEDULE GSA

(October 2015)\*

##### Availability

This rate shall apply to the firm power requirements (where a customer's contract demand is 5,000 kW or less) for electric service to commercial, industrial, and governmental customers, and to institutional customers including, without limitation, churches, clubs, fraternities, orphanages, nursing homes, rooming or boarding houses, and like customers. This rate shall also apply to customers to whom service is not available under any other resale rate schedule.

##### Character of Service

Alternating current, single- or three-phase, 60 hertz. Power shall be delivered at a service voltage available in the vicinity or agreed to by Distributor.

##### Base Charges

1. If (a) the higher of (i) the customer's currently effective contract demand, if any, or (ii) its highest billing demand during the latest 12-month period is not more than 50 kW and (b) the customer's monthly energy takings for any month during such period do not exceed 15,000 kWh:

Customer Charge: \$24.86 per delivery point per month

Energy Charge:

Summer Period 8.329¢ per kWh per month

Winter Period 8.003¢ per kWh per month

Transition Period 7.815¢ per kWh per month

2. If (a) the higher of (i) the customer's currently effective contract demand or (ii) its highest billing demand during the latest 12-month period is greater than 50 kW but not more than 1,000 kW or (b) the customer's billing demand is less than 50 kW and its energy takings for any month during such period exceed 15,000 kWh:

Customer Charge: \$49.00 per delivery point per month

Demand Charge:

Summer Period First 50 kW of billing demand per month, no demand charge

Excess over 50 kW of billing demand per month, at \$12.62 per kW

Winter Period First 50 kW of billing demand per month, no demand charge

Excess over 50 kW of billing demand per month, at \$11.69 per kW

Transition Period First 50 kW of billing demand per month, no demand charge

Excess over 50 kW of billing demand per month, at \$11.69 per kW

\*Net Effective Rate Schedule incorporating adjustments set forth in the October 2015 Adjustment Addendum but excluding the monthly Total Fuel Cost.

Energy Charge:

Summer Period	First 15,000 kWh per month at 8.438¢ per kWh Additional kWh per month at 4.183¢ per kWh
Winter Period	First 15,000 kWh per month at 8.112¢ per kWh Additional kWh per month at 3.874¢ per kWh
Transition Period	First 15,000 kWh per month at 7.924¢ per kWh Additional kWh per month at 3.759¢ per kWh

3. If the higher of (a) the customer's currently effective contract demand or (b) its highest billing demand during the latest 12-month period is greater than 1,000 kW:

Customer Charge: \$122.00 per delivery point per month

Demand Charge:

Summer Period	First 1,000 kW of billing demand per month, at \$11.69 per kW Excess over 1,000 kW of billing demand per month, at \$11.65 per kW, plus an additional \$11.65 per kW per month for each kW, if any, of the amount by which the customer's billing demand exceeds the higher of 2,500 kW or its contract demand
Winter Period	First 1,000 kW of billing demand per month, at \$10.76 per kW Excess over 1,000 kW of billing demand per month, at \$10.72 per kW, plus an additional \$10.72 per kW per month for each kW, if any, of the amount by which the customer's billing demand exceeds the higher of 2,500 kW or its contract demand
Transition Period	First 1,000 kW of billing demand per month, at \$10.76 per kW Excess over 1,000 kW of billing demand per month, at \$10.72 per kW, plus an additional \$10.72 per kW per month for each kW, if any, of the amount by which the customer's billing demand exceeds the higher of 2,500 kW or its contract demand

Energy Charge:

Summer Period	4.482¢ per kWh per month
Winter Period	4.173¢ per kWh per month
Transition Period	4.059¢ per kWh per month

Adjustment

The base demand and energy charges shall be increased or decreased in accordance with the current Adjustment Addendum published by TVA. In addition, such charges shall be increased or decreased to correspond to increases or decreases determined by TVA under Adjustment 4 of the wholesale power rate schedule applicable under contractual arrangements between TVA and Distributor.

\*Net Effective Rate Schedule incorporating adjustments set forth in the October 2015 Adjustment Addendum but excluding the monthly Total Fuel Cost.

## Determination of Seasonal Periods

Summer Period shall mean the June, July, August, and September billing months. Winter Period shall mean the December, January, February, and March billing months. Transition Period shall mean the April, May, October, and November billing months.

## Determination of Demand

Distributor shall meter the demands in kW of all customers having loads in excess of 50 kW. The metered demand for any month shall be the highest average during any 30-consecutive-minute period of the month of the load metered in kW. The measured demand for any month shall be the higher of the highest average during any 30-consecutive-minute period of the month of (a) the load metered in kW or (b) 85 percent of the load in kVA plus an additional 10 percent for that part of the load over 5,000 kVA, and such measured demand shall be used as the billing demand, except that the billing demand for any month shall in no case be less than 30 percent of the higher of the currently effective contract demand or the highest billing demand established during the preceding 12 months.

## Minimum Bill

The monthly bill under this rate schedule shall not be less than the sum of (a) the base customer charge, (b) the base demand charge, as adjusted, applied to the customer's billing demand, and (c) the base energy charge, as adjusted, applied to the customer's energy takings; provided, however, that, under 2 of the Base Charges, the monthly bill shall in no event be less than the sum of (a) the base customer charge and (b) 20 percent of the portion of the base demand charge, as adjusted, applicable to the second block (excess over 50 kW) of billing demand, multiplied by the higher of the customer's currently effective contract demand or its highest billing demand established during the preceding 12 months.

Distributor may require minimum bills higher than those stated above.

## Seasonal Service

Customers who contract for service on a seasonal basis shall be limited to 2,500 kW and shall pay the above charges, as adjusted, plus an additional seasonal use charge equal to (1) 1.33¢ per kWh per month under 1 of the Base Charges, (2) the sum of 1.33¢ per kWh for the first 15,000 kWh per month and \$4.00 per kW per month of billing demand in excess of 50 kW under 2 of the Base Charges, and (3) \$4.00 per kW per month of billing demand under 3 of the Base Charges. Consistent with Distributor's standard policy, the customer may arrange for seasonal testing of equipment during offpeak hours.

For such customers, the minimum bill provided for above shall not apply. Distributor may require additional charges to provide recovery of costs for customer-specific distribution facilities.

## Contract Requirement

Distributor may require contracts for service provided under this rate schedule. Customers whose demand requirements exceed 1,000 kW shall be required to execute contracts and such contracts shall be for an initial term of at least 1 year. The customer shall contract for its maximum requirements, which shall not exceed the amount of power capable of being used by customer, and Distributor shall not be obligated to supply power in greater amount at any time than the customer's currently effective contract demand. If the customer uses any power other than that supplied by Distributor under this rate

\*Net Effective Rate Schedule incorporating adjustments set forth in the October 2015 Adjustment Addendum but excluding the monthly Total Fuel Cost.

schedule, the contract may include other special provisions. The rate schedule in any power contract shall be subject to adjustment, modification, change, or replacement from time to time as provided under the power contract between Distributor and TVA.

### Payment

Bills under this rate schedule will be rendered monthly. Any amount of bill unpaid after due date specified on bill may be subject to additional charges under Distributor's standard policy.

### Single-Point Delivery

The charges under this rate schedule are based upon the supply of service through a single delivery and metering point, and at a single voltage. If service is supplied to the same customer through more than one point of delivery or at different voltages, the supply of service at each delivery and metering point and at each different voltage shall be separately metered and billed.

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Service is subject to Rules and Regulations of Distributor.

\*Net Effective Rate Schedule incorporating adjustments set forth in the October 2015 Adjustment Addendum but excluding the monthly Total Fuel Cost.

**GENERAL POWER CONTRACT  
CITY OF MURFREESBORO**

THIS CONTRACT, made and entered into as of this \_\_\_<sup>th</sup> day of July 2016, by City of Murfreesboro, a Tennessee municipality (the "City"), for the benefit of its Murfreesboro Electric Department ("Distributor") with respect to a facility of its Murfreesboro Water and Sewer Department ("Customer").

**WITNESSETH**

WHEREAS, Customer receives electricity from Distributor for the operation of a municipal water treatment plant at 5528 Sam Jared Drive, Murfreesboro, Tennessee for Account Number 18034064.

WHEREAS, the Tennessee Valley Authority ("TVA") requires Distributor to maintain contracts with customers that exceed a certain level of electricity demand.

WHEREAS, Customer maintains an electricity demand exceeding the level for which the TVA requires a contract.

WHEREAS, the City desires to and does hereby comply with TVA's requirements for a contract by executing this agreement between its departments.

NOW, THEREFORE, for and in consideration of the premises and mutual covenants hereinafter set forth, the parties hereto covenant and agree as follows:

1. The Distributor will supply, and the Customer will take and pay for, all electricity required for the operation of the above in accordance with the terms hereof and the Rules and Regulations of the Distributor, a copy of which is attached hereto and hereby made a part hereof. This contract allows a maximum demand not exceeding 1500 kW, which amount shall be the contract demand hereunder. The Customer shall not take electricity in excess of such contract demand except by agreement of Distributor and revision of contract, but nothing herein contained shall be construed to relieve the Customer of the obligation to pay for such amounts of electricity as may actually be taken.
2. **Rates and Charges.** Customer shall pay Distributor monthly for power and energy available under this contract in accordance with the rates, charges, and provisions of Distributor's General Power Rate, Schedule GSA as modified, adjusted or replaced from time to time by agreement between Distributor and the Tennessee Valley Authority. Said rate schedule, which is Distributor's currently effective standard rate schedule applicable to consumers of the same class as Customer, together with its current adjustment addendum, is attached hereto and hereby made a part hereof; provided by, however, that the paragraph thereof headed "Seasonal Service" shall be of no force and effect. In the event of any conflict between the provisions of said rate schedule, as so modified, or replaced, and other provisions of this contract, the latter shall control.
3. **Minimum Monthly Bill.** The Customer shall pay a Minimum Monthly Bill as determined by the provision entitled "Minimum Bill" of the rate schedule attached as Exhibit A, as modified or replaced from time to time by agreement between Distributor and the Tennessee Valley Authority, but in no case shall the minimum monthly bill be less than the Minimum Monthly Bill reflected in Exhibit A.
4. **Term.** This contract shall become effective as of April 26, 2016; provided, however, that all provisions hereof relating to the availability of and payment for power and energy shall become effective on April 26<sup>th</sup>, 2016 which date shall be the date of initial availability hereunder. This contract shall continue in effect for an initial term of five (5) years from said date of initial availability and, at the end of said initial term, the contract shall be renewed automatically for an additional term of one (1) year and from year to year thereafter unless written notice to the

contrary is given by either party to the other at least three (3) months prior to the expiration of said initial term or any then existing renewal term.

**5. Facilities.**

- a. It is recognized that Distributor has provided certain facilities to supply power and energy to Customer's operations. Said facilities shall include, at the request of Customer, one (1) 1500 KVA 277/480 volt grounded-wye transformer.
- b. Customer acknowledges that Distributor has rights in, over, and across Customer's property as may be necessary or desirable to permit the installation, maintenance, operation, repair and replacement of the Distributor's facilities required to supply Customer with power and energy hereunder. The rights of way for Distributor's facilities shall be at locations on Customer's property mutually satisfactory to Distributor and Customer. In the event that Customer requires the relocation of said facilities which shall be and remain the personal property of Distributor, such relocation shall be made at Customer's expense.

**6. Availability of Power.**

- a. Subject to the other provisions of this contract, Distributor will, commencing with the date of initial availability hereunder, make available to Customer, and Customer will take and buy from Distributor, Customer's requirements of firm power and energy for the operation of Customer's said operations.
- b. The Customer agrees that the Distributor may be limited in the amount of power that it can furnish due to limitations made by the Tennessee Valley Authority, Distributor's supplier of power. The Customer further understands that the Distributor on some occasions may be unable to furnish electric power due to unforeseen, unavoidable circumstances and agrees to make no claim against Distributor as a result of any such inability to furnish power.

**7. Conditions of Delivery.**

- a. The above rates and charges are based upon the supply of service through a single delivery and metering point. The point of delivery for power and energy made available hereunder shall be the point of connection of Distributor's facilities to Customer's facilities. The power and energy made available by Distributor hereunder shall be in the form of three-phase, alternating current at a frequency of approximately 60 hertz and, under normal operating conditions be within the range of voltage specified by ANSI standards. Maintenance by Distributor at said point of delivery of approximately the above-stated voltage and frequency shall constitute availability of power and energy for purposes of this contract. The power and energy to be supplied hereunder shall be measured by Distributor's metering facilities near said point of delivery.
- b. Distributor shall not be obligated to provide protective equipment for Customer's facilities, but Distributor may provide such protective equipment, as it deems necessary for the protection of its own property and operations. The electrical equipment installed by Customer shall be capable of satisfactory coordination with any protective equipment installed by Distributor. Customer shall be responsible for protection of own equipment against loss of phase occurrence (partial power). Customer shall exercise all reasonable precautions and install all equipment necessary to limit its total demand as determined in accordance with the rate schedule hereinafter specified to the amount to which it is entitled hereunder.

**8. Phase Balancing.** Customer shall endeavor to take and use power and energy in such manner that the current will be reasonably balanced on the three phases. In the event that any

check indicates that the current on the most heavily loaded phase exceeds the current on either of the other phases by more than 20 percent, Customer shall make at its expense, upon request, the changes necessary to correct the unbalanced condition. If said unbalanced condition is not corrected within 60 days, or such other period as may be agreed upon, Distributor may thereafter elect to meter the load on individual phases and compute the billing demand as being equal to three times the maximum kilowatt load on any phase. For all purposes hereunder, the load on any phase shall be the load measured by a wattmeter connected with the current coil in that phase wire and the potential coil connected between that phase wire and the neutral voltage point.

- 9. Electrical Fluctuations.** The power and energy taken by Customer hereunder shall not be used in such manner as to cause unusual voltage fluctuations or disturbances to Distributor's or TVA's system. In the event Customer's use of power causes fluctuations or disturbances on Distributor's or TVA's system, Distributor may require Customer, at customer's expense, to install suitable apparatus to keep such fluctuations or disturbances within reasonable limits.
- 10. Notices.** Any notice or demand required by this contract shall be deemed properly given if mailed, postage prepaid, to the General Manager of Murfreesboro Electric Department on behalf of Distributor, or to Customer at Murfreesboro Water and Sewer Department on behalf of Customer. The designation of the person to be so notified or the address of such person may be changed at any time and from time to time by either party by similar notice.
- 11. Waiver.** A waiver of one or more defaults shall not be considered a waiver of any other or subsequent default.
- 12. Successors and Assigns.** This contract may not be assigned by Customer.
- 13. Counterparts.** This contract may be executed in any number of counterparts, and all such counterparts, each executed and delivered as an original, shall constitute but one and the same instrument.

IN WITNESS WHEREOF, the parties hereto have caused this contract to be executed by their respective officers thereunto duly authorized, as of the day and year first above written.

City of Murfreesboro  
Murfreesboro Electric Department

City of Murfreesboro  
Murfreesboro Water & Sewer Department

\_\_\_\_\_  
Steve Sax, General Manager

\_\_\_\_\_  
Rob Lyons, City Manager

Approved as to form:

\_\_\_\_\_  
Craig D. Tindall, City Attorney

## EXHIBIT A

### MURFREESBORO ELECTRIC DEPARTMENT

#### GENERAL POWER RATE--SCHEDULE GSA

(October 2015)\*

##### Availability

This rate shall apply to the firm power requirements (where a customer's contract demand is 5,000 kW or less) for electric service to commercial, industrial, and governmental customers, and to institutional customers including, without limitation, churches, clubs, fraternities, orphanages, nursing homes, rooming or boarding houses, and like customers. This rate shall also apply to customers to whom service is not available under any other resale rate schedule.

##### Character of Service

Alternating current, single- or three-phase, 60 hertz. Power shall be delivered at a service voltage available in the vicinity or agreed to by Distributor.

##### Base Charges

1. If (a) the higher of (i) the customer's currently effective contract demand, if any, or (ii) its highest billing demand during the latest 12-month period is not more than 50 kW and (b) the customer's monthly energy takings for any month during such period do not exceed 15,000 kWh:

Customer Charge: \$24.86 per delivery point per month

Energy Charge:

Summer Period 8.329¢ per kWh per month

Winter Period 8.003¢ per kWh per month

Transition Period 7.815¢ per kWh per month

2. If (a) the higher of (i) the customer's currently effective contract demand or (ii) its highest billing demand during the latest 12-month period is greater than 50 kW but not more than 1,000 kW or (b) the customer's billing demand is less than 50 kW and its energy takings for any month during such period exceed 15,000 kWh:

Customer Charge: \$49.00 per delivery point per month

Demand Charge:

Summer Period First 50 kW of billing demand per month, no demand charge  
Excess over 50 kW of billing demand per month, at \$12.62 per kW

Winter Period First 50 kW of billing demand per month, no demand charge  
Excess over 50 kW of billing demand per month, at \$11.69 per kW

Transition Period First 50 kW of billing demand per month, no demand charge  
Excess over 50 kW of billing demand per month, at \$11.69 per kW

\*Net Effective Rate Schedule incorporating adjustments set forth in the October 2015 Adjustment Addendum but excluding the monthly Total Fuel Cost.

Energy Charge:

Summer Period	First 15,000 kWh per month at 8.438¢ per kWh Additional kWh per month at 4.183¢ per kWh
Winter Period	First 15,000 kWh per month at 8.112¢ per kWh Additional kWh per month at 3.874¢ per kWh
Transition Period	First 15,000 kWh per month at 7.924¢ per kWh Additional kWh per month at 3.759¢ per kWh

3. If the higher of (a) the customer's currently effective contract demand or (b) its highest billing demand during the latest 12-month period is greater than 1,000 kW:

Customer Charge: \$122.00 per delivery point per month

Demand Charge:

Summer Period	First 1,000 kW of billing demand per month, at \$11.69 per kW Excess over 1,000 kW of billing demand per month, at \$11.65 per kW, plus an additional \$11.65 per kW per month for each kW, if any, of the amount by which the customer's billing demand exceeds the higher of 2,500 kW or its contract demand
Winter Period	First 1,000 kW of billing demand per month, at \$10.76 per kW Excess over 1,000 kW of billing demand per month, at \$10.72 per kW, plus an additional \$10.72 per kW per month for each kW, if any, of the amount by which the customer's billing demand exceeds the higher of 2,500 kW or its contract demand
Transition Period	First 1,000 kW of billing demand per month, at \$10.76 per kW Excess over 1,000 kW of billing demand per month, at \$10.72 per kW, plus an additional \$10.72 per kW per month for each kW, if any, of the amount by which the customer's billing demand exceeds the higher of 2,500 kW or its contract demand

Energy Charge:

Summer Period	4.482¢ per kWh per month
Winter Period	4.173¢ per kWh per month
Transition Period	4.059¢ per kWh per month

Adjustment

The base demand and energy charges shall be increased or decreased in accordance with the current Adjustment Addendum published by TVA. In addition, such charges shall be increased or decreased to correspond to increases or decreases determined by TVA under Adjustment 4 of the wholesale power rate schedule applicable under contractual arrangements between TVA and Distributor.

\*Net Effective Rate Schedule incorporating adjustments set forth in the October 2015 Adjustment Addendum but excluding the monthly Total Fuel Cost.

## Determination of Seasonal Periods

Summer Period shall mean the June, July, August, and September billing months. Winter Period shall mean the December, January, February, and March billing months. Transition Period shall mean the April, May, October, and November billing months.

## Determination of Demand

Distributor shall meter the demands in kW of all customers having loads in excess of 50 kW. The metered demand for any month shall be the highest average during any 30-consecutive-minute period of the month of the load metered in kW. The measured demand for any month shall be the higher of the highest average during any 30-consecutive-minute period of the month of (a) the load metered in kW or (b) 85 percent of the load in kVA plus an additional 10 percent for that part of the load over 5,000 kVA, and such measured demand shall be used as the billing demand, except that the billing demand for any month shall in no case be less than 30 percent of the higher of the currently effective contract demand or the highest billing demand established during the preceding 12 months.

## Minimum Bill

The monthly bill under this rate schedule shall not be less than the sum of (a) the base customer charge, (b) the base demand charge, as adjusted, applied to the customer's billing demand, and (c) the base energy charge, as adjusted, applied to the customer's energy takings; provided, however, that, under 2 of the Base Charges, the monthly bill shall in no event be less than the sum of (a) the base customer charge and (b) 20 percent of the portion of the base demand charge, as adjusted, applicable to the second block (excess over 50 kW) of billing demand, multiplied by the higher of the customer's currently effective contract demand or its highest billing demand established during the preceding 12 months.

Distributor may require minimum bills higher than those stated above.

## Seasonal Service

Customers who contract for service on a seasonal basis shall be limited to 2,500 kW and shall pay the above charges, as adjusted, plus an additional seasonal use charge equal to (1) 1.33¢ per kWh per month under 1 of the Base Charges, (2) the sum of 1.33¢ per kWh for the first 15,000 kWh per month and \$4.00 per kW per month of billing demand in excess of 50 kW under 2 of the Base Charges, and (3) \$4.00 per kW per month of billing demand under 3 of the Base Charges. Consistent with Distributor's standard policy, the customer may arrange for seasonal testing of equipment during offpeak hours.

For such customers, the minimum bill provided for above shall not apply. Distributor may require additional charges to provide recovery of costs for customer-specific distribution facilities.

## Contract Requirement

Distributor may require contracts for service provided under this rate schedule. Customers whose demand requirements exceed 1,000 kW shall be required to execute contracts and such contracts shall be for an initial term of at least 1 year. The customer shall contract for its maximum requirements, which shall not exceed the amount of power capable of being used by customer, and Distributor shall not be obligated to supply power in greater amount at any time than the customer's currently effective contract demand. If the customer uses any power other than that supplied by Distributor under this rate

\*Net Effective Rate Schedule incorporating adjustments set forth in the October 2015 Adjustment Addendum but excluding the monthly Total Fuel Cost.

schedule, the contract may include other special provisions. The rate schedule in any power contract shall be subject to adjustment, modification, change, or replacement from time to time as provided under the power contract between Distributor and TVA.

### Payment

Bills under this rate schedule will be rendered monthly. Any amount of bill unpaid after due date specified on bill may be subject to additional charges under Distributor's standard policy.

### Single-Point Delivery

The charges under this rate schedule are based upon the supply of service through a single delivery and metering point, and at a single voltage. If service is supplied to the same customer through more than one point of delivery or at different voltages, the supply of service at each delivery and metering point and at each different voltage shall be separately metered and billed.

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Service is subject to Rules and Regulations of Distributor.

\*Net Effective Rate Schedule incorporating adjustments set forth in the October 2015 Adjustment Addendum but excluding the monthly Total Fuel Cost.



*... creating a better quality of life*

# MEMORANDUM

**DATE:** July 21, 2016  
**TO:** Water and Sewer Board and City Council  
**FROM:** Darren Gore  
**SUBJECT:** Emergency Purchase Replacement Aerator Impellor

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## **Background**

On July 14<sup>th</sup> at the Sinking Creek treatment plant, the submerged portion of the shaft of 1B Aerator at the Carrousel<sup>TM</sup> tore into two pieces. The 4,000 pound impellor fell to the bottom of the 17' deep oxidation ditch. This immediately impacted the plant's ability to nitrify and meet NPDES permit limit for ammonia (2.0 mg/L daily average, 1.5 mg/L weekly average, and 1.0 mg/L monthly average). No exceedances have occurred yet. The daily average peaked on July 17<sup>th</sup> at 1.41 mg/L. It is currently less than 1.0 mg/L and is holding steady. However, the potential for an exceedance is significant.

Operations is actively managing all processes to equipment limits. Additionally, large air compressors have been rented and are being used to supply oxygen to the biological process on a temporary basis.

Staff, John Bouchard & Sons (the Department's mechanical and electrical contractor), and the equipment manufacturer, Ovivo, have determined that the impellor is damaged beyond repair, necessitating the purchase of a replacement. The plant's maintenance staff is working in coordination with John Bouchard & Sons to replace the impellor. A dive team was mobilized to assist in the removal of the impellor from the bottom of the oxidation ditch and all of the work necessary to prepare for the installation of the replacement impellor is currently being completed.

## **Recommendation**

Staff is notifying the Water and Sewer Board and City Council of the emergency purchase of one (1) Replacement Aerator Impellor from Ovivo USA, LLC in the amount of \$43,394.00 from working capital reserves. Please note this is an original equipment manufacturer (OEM) purchase from OVIVO and cannot be competitively bid.

## **Fiscal Impact**

There are available funds in the Department's working capital reserves for the emergency purchase in the amount of \$43,394.00.

## **Exhibits**

OVIVO proposal for replacement aerator

## **SINKING CREEK WWTP MURFREESBORO, TN**

### **PREPARED FOR**

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John Strickland, Plant Manager

### **AREA REPRESENTATIVE**

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Principle Environmental  
John Harward  
(423) 402-0588  
johnharward@mindspring.com

### **PREPARED BY**

Daniel Kirby  
Phone (801) 931-3177  
Fax (801) 931-3090  
daniel.kirby@ovivowater.com

Ovivo USA, LLC  
4246 Riverboat Road – Suite 300  
Salt Lake City, Utah 84123-2583



**PROJECT SUMMARY:**

Ovivo USA, LLC (formerly EIMCO Water Technologies – EWT™) is pleased to offer the following proposal to replace one (1) set of Carrousel Aerator steel components. This is for existing EIMCO LSC AERATORS, Basin #1 north most aerator, Serial #25520-01.

Replacement set of steel components include the following:

- One (1) Adapter shaft (A36).
- One (1) surface aerator impeller w/extended shaft (A36).
- One (1) submerged radial pumping turbine (A36).
- Assembly bolts (A325).
- Painting as noted in the SURFACE PREPARATION AND PAINTING segment of this proposal.
- Service as noted in the FIELD SERVICE segment of this proposal.
- Freight, FCA factory, freight allowed.

**Items – NOT included**

- Installation
- Motor
- Reducer
- Mounting plate/bars.
- Jack studs.
- Partition wall extension plate.

**FIELD SERVICE**

Our proposal includes the service of a qualified service engineer for the following:

1 Day(s) / 1 Trip(s)

at the site to assist in adjusting, servicing, and checking out these mechanisms, and in training the operators in maintenance, troubleshooting, and repair of the equipment.

Additional service days can be purchased at the current rate.

**SURFACE PREPARATION AND PAINT**

Submerged and non-submerged fabricated steel shall be shop-cleaned per SSPC-SP-10, shop primed 1 coat(s) of Tnemec 161-1211 (3.0 to 5.0 Mils D.F.T) and finish 1 coat of Tnemec 161-32GR (Grey) (3.0 to 5.0 Mils D.F.T).

ITEM	SPECIFICATION SECTION	EQUIPMENT	ESTIMATED LEAD TIME	PRICE
I	N/A	Carrousel Aerator steel components	2 Weeks	\$43,394.00

**DELIVERY**

Ovivo intends to ship all Products as indicated above after receipt of approved purchase order and approved submittal drawings from Purchaser. However, the date of shipment of the Products represent Ovivo's best estimate, but is not guaranteed, and Ovivo shall not be liable for any damages due to late delivery. The Products shall be delivered to the delivery point or points in accordance with the delivery terms stated in this proposal. If such delivery is prevented or postponed by reason of Force Majeure, as defined in Ovivo's standard terms and conditions of sale, Ovivo shall be entitled at its option to tender delivery to Purchaser at the point or points of manufacture, and in default of Purchaser's acceptance of delivery, to cause the Products to be stored at such a point or points of manufacture at Purchaser's expense. Such tender, if accepted, or such storage, shall constitute delivery for all purposes of this proposal. If shipment is postponed at request of Purchaser, or due to delay in receipt of shipping instructions, payment of the purchase price shall be due on notice from Ovivo that the Products are ready for shipment. Handling, moving, storage, insurance and other charges thereafter incurred by Ovivo with respect to the Products shall be for the account of Purchaser and shall be paid by Purchaser when invoiced.

### **PRICING TERMS**

All prices quoted are in US Dollars. Prices are good for 45 days. After expiration of the pricing effective period, prices will be subject to review and adjustment. Prices quoted are FOB point of shipment, with freight included to an accessible point nearest the jobsite. Federal, state or local sales, use or other taxes are not included in the sales price.

### **PAYMENT TERMS**

Payment terms are: One hundred percent (100%) payment due within forty five (45) days after Purchaser's receipt of invoice. Invoice will be submitted after all materials have been received at the job site or they have been successfully installed by an Ovivo contractor and the field service check-out and start-up procedure is finalized. Credit is subject to acceptance by the Ovivo Credit Department.

Purchaser shall remit payment for proper invoices received from Ovivo in accordance with the payment terms stated above even if the Purchaser has not been paid by the Purchaser's customer (the "Owner"), if Purchaser is not the end-user of the Products. Payments are due within forty five (45) days after Purchaser's receipt of invoice. Overdue and unpaid invoices are subject to a service charge of 2% per month until paid.

If Purchaser requests or causes cancellation, suspension or delay of Ovivo's work, Purchaser shall accept transfer of title and pay Ovivo all appropriate charges incurred up to date of such event plus Ovivo's overhead and reasonable profit. Additionally, all charges related to and risks incidental to storage, disposition and/or resumption of work shall be borne solely by Purchaser. Full payment for all work shall be due and payable forty five (45) days from the date work is placed into storage.

**TAXES**

Federal, State or local sales, use or other taxes are not included in the sales price. Such taxes, if applicable, shall be for Purchaser's account.

**BACKCHARGES**

In no event shall Purchaser/Owner do or cause to be done any work, purchase any services or material or incur any expense for the account of Ovivo, nor shall Ovivo be responsible for such work or expenses, until after Purchaser/Owner has provided Ovivo's PROJECT MANAGER full details (including estimate of material cost and amount and rate of labor required) of the work, services, material or expenses, and Ovivo has approved the same in writing. Ovivo will not accept Products returned by Purchaser/Owner unless Ovivo has previously accepted the return in writing and provided Purchaser/Owner with shipping instructions.

**\*\*PURCHASE ORDER SUBMISSION\*\***

In an effort to ensure all purchase orders are processed timely and efficiently, please submit all purchase order documentation to the following department and address:

Ovivo USA, LLC  
 4246 Riverboat Road - Suite 300,  
 Salt Lake City, Utah 84123-2583  
 Fax #: 801-931-3080  
 Tel. #: 801-931-3240  
[daniel.kirby@ovivowater.com](mailto:daniel.kirby@ovivowater.com)

**ADDITIONAL FIELD SERVICE**

When included and noted in the Product pricing of each proposal item, Ovivo will supply the service of a competent field representative to inspect the completed installation and adjustment of equipment, supervise initial operation, and instruct Owner's personnel in the operation and maintenance of each proposal item for the number of eight (8) hour days. Notwithstanding Ovivo's performance of the above-referenced services, Ovivo shall not be held liable for any faulty workmanship or other defects in the Products' installation, or for other goods and/or services, performed by third parties unless such goods and/or services are expressly included under Ovivo's scope of work.

If additional service is required over and above the Field Services described above, it will be furnished to the Purchaser and billed to him at the current rate for each additional day

required, plus travel and lodging expenses incurred by the service personnel during the additional service days.

It shall be the Purchaser's responsibility to provide for all necessary lubrication of all equipment prior to placing equipment in operation. All equipment must be in operating condition and ready for the Field Service Engineer when called to the project location. Should the Contractor not be ready when the Field Service Engineer is requested or if additional service is requested, the Ovivo current service rates will apply for each additional day required, plus travel and lodging expenses incurred by the service personnel during the additional service days.

### **SURFACE PREPARATION AND PAINTING GENERAL INFORMATION**

If painting the Products is included under Ovivo's scope of work, such Products shall be painted in accordance with Ovivo's standard practice. Shop primer paint is intended to serve only as minimal protective finish. Ovivo will not be responsible for condition of primed or finished painted surfaces after equipment leaves its shops. Purchasers are invited to inspect painting in our shops for proper preparation and application prior to shipment. Ovivo assumes no responsibility for field service preparation or touch-up of shipping damage to paint. Painting of fasteners and other touch-up to painted surfaces will be by Purchaser's painting contractor after mechanism erection. Clarifier motors, gear motors and center drives shall be cleaned and painted with manufacturer's standard primer paint only. It is our intention to ship major steel components as soon as fabricated, often before drives, motors and other manufactured components. Unless you can insure that shop primed steel shall be field painted within thirty (30) days after arrival at the jobsite, we encourage you to purchase these components in the bare metal (no surface prep or primer) condition. Ovivo cannot accept responsibility for rusting or deterioration of shop applied prime coatings on delivered equipment if the primed surfaces have not been field painted within thirty (30) days of arrival at the jobsite using manufacturers' standard primers. Other primers may have less durability.

### **GENERAL ITEMS NOT INCLUDED**

Unless specifically and expressly included above, prices quoted by Ovivo do not include unloading, hauling, erection, installation, piping, valves, fittings, stairways, ladders, walkways, grating, wall spools, concrete, grout, sealant, dissimilar metal protection, oakum, mastic, field painting, oil or grease, electrical controls, wiring, mounting hardware, welding, weld rod, shims, leveling plates, protection against corrosion due to unprotected storage, special engineering, or overall plant or system operating instructions or any other products or services.

Performance and payment security, including but not limited to bonds, letters of credit, or bank guarantees, are not included, but can be provided if purchased for an additional cost.

## **MANUALS**

The content of any and all installation, operation and maintenance or other manuals or documents pertaining to the Products are copyrighted and shall not be modified without the express prior written consent of Ovivo. Ovivo disclaims any liability for claims resulting from unauthorized modifications to any such manuals or other documents provided by Ovivo in connection with the Project.

## **WARRANTY AND CONDITIONS**

Ovivo standard Terms and Conditions of Sale is attached and made an essential part of this proposal. These terms and conditions are an integral part of Ovivo's offer of Products and related services and replace and supersede any terms and conditions or warranty included in Purchaser or Owner requests for quotation or specifications and cannot be changed without written approval from an authorized representative of Ovivo.

**1. ACCEPTANCE.** The proposal of **OVIVO USA, LLC** ("SELLER"), as well as these terms and conditions of sale (collectively the "Agreement"), constitutes SELLER's contractual offer of goods and associated services, and PURCHASER's acceptance of this offer is expressly limited to the terms of the Agreement. The scope and terms and conditions of this Agreement represent the entire offer by SELLER and supersede all prior solicitations, discussions, agreements, understandings and representations between the parties. Any scope or terms and conditions included in PURCHASER'S acceptance/purchase order that are in addition to or different from this Agreement are hereby rejected.

**2. DELIVERY.** Any statements relating to the date of shipment of the Products (as defined below) represent SELLER'S best estimate, but is not guaranteed, and SELLER shall not be liable for any damages due to late delivery. The Products shall be delivered to the delivery point or points in accordance with the delivery terms stated in SELLER'S proposal. If such delivery is prevented or postponed by reason of Force Majeure (as defined below), SELLER shall be entitled at its option to tender delivery to PURCHASER at the point or points of manufacture, and in default of PURCHASER'S acceptance of delivery to cause the Products to be stored at such a point or points of manufacture at PURCHASER'S expense. Such tender, if accepted, or such storage, shall constitute delivery for all purposes of this agreement. If shipment is postponed at request of PURCHASER, or due to delay in receipt of shipping instructions, payment of the purchase price shall be due on notice from SELLER that the Products are ready for shipment. Handling, moving, storage, insurance and other charges thereafter incurred by SELLER with respect to the Products shall be for the account of PURCHASER and shall be paid by PURCHASER when invoiced.

**3. TITLE AND RISK OF LOSS.** SELLER shall retain the fullest right, title, and interest in the Products to the extent permitted by applicable law, including a security interest in the Products, until the full purchase price has been paid to SELLER. The giving and accepting of drafts, notes and/or trade acceptances to evidence the payments due shall not constitute or be construed as payment so as to pass SELLER'S interests until said drafts, notes and/or trade acceptances are paid in full. Risk of loss shall pass to PURCHASER at the delivery point.

**4. PAYMENT TERMS.** SELLER reserves the right to ship the Products and be paid for such on a pro rata basis, as shipped. If payments are not made by the due date, interest at a rate of two percent (2%) per month, calculated daily, shall apply from the due date for payment. PURCHASER is liable to pay SELLER'S legal fees and all other expenses in respect of enforcing or attempting to enforce any of SELLER'S rights relating to a breach or threatened breach of the payment terms by PURCHASER.

**5. TAXES.** Unless otherwise specifically provided in SELLER'S quotation/proposal; PURCHASER shall pay and/or reimburse SELLER, in addition to the price, for all sales, use and other taxes, excises and charges which SELLER may pay or be required to pay to any government directly or indirectly in connection with the production, sale, transportation, and/or use by SELLER or PURCHASER, of any of the Products or services dealt with herein (whether the same may be regarded as personal or real property). PURCHASER agrees to pay all property and other taxes which may be levied, assessed or charged against or upon any of the Products on or after the date of actual shipment, or placing into storage for PURCHASER'S account.

**6. MECHANICAL WARRANTY.** Solely for the benefit of PURCHASER, SELLER warrants that new equipment and parts manufactured by it and provided to PURCHASER (collectively, "Products") shall be free from defects in material and workmanship. The warranty period shall be twelve (12) months from startup of the equipment not to exceed eighteen (18) months from shipment. If any of SELLER'S Products fail to comply with the foregoing warranty, SELLER shall repair or replace free of charge to PURCHASER, EX WORKS SELLER'S FACTORIES or other location that SELLER designates, any Product or parts thereof returned to SELLER, which examination shall show to have failed under normal use and service operation by PURCHASER within the Warranty Period; provided, that if it would be impracticable for the Product or part thereof to be returned to SELLER, SELLER will send a representative to PURCHASER'S job site to inspect the Product. If it is determined after inspection that SELLER is liable under this warranty to repair or replace the Product or part thereof, SELLER shall bear the transportation costs of (a) returning the Product to SELLER for inspection or sending its representative to the job site and (b) returning the repaired or replaced Products to PURCHASER; however, if it is determined after inspection that SELLER is not liable under this warranty, PURCHASER shall pay those costs. For SELLER to be liable with respect to this warranty, PURCHASER must make its claims to SELLER with respect to this warranty in writing no later than thirty (30) days after the date PURCHASER discovers the basis for its warranty claim and in no event more than thirty (30) days after the expiration of the Warranty Period. In addition to any other limitation or disclaimer with respect to this warranty, SELLER shall have no liability with respect to any of the following: (i) failure of the Products, or damages to them, due to PURCHASER'S negligence or willful misconduct, abuse or improper storage, installation, application or maintenance (as specified in any manuals or written instructions that SELLER provides to the PURCHASER); (ii) any Products that have been altered or repaired in any way without SELLER'S prior written authorization; (iii) The costs of dismantling and reinstallation of the Products; (iv) any Products damaged while in transit or otherwise by accident; (v) decomposition of Products by chemical action, erosion or corrosion or wear to Products or due to conditions of temperature, moisture and dirt; or (vi) claims with respect to parts that are consumable and normally replaced during maintenance such as filter media, filter drainage belts and the like, except where such parts are not performing to SELLER'S estimate of normal service life, in which case, SELLER shall only be liable for the pro rata cost of replacement of those parts based on SELLER'S estimate of what the remaining service life of those parts should have been; provided, that failure of those parts did not result from any of the matters listed in clauses (i) through (v) above. With regard to third-party parts, equipment, accessories or components not of SELLER'S design, SELLER'S liability shall be limited solely to the assignment of available third-party warranties. **THE PARTIES AGREE THAT ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY, WHETHER WRITTEN, ORAL OR STATUTORY, ARE EXCLUDED TO THE FULLEST EXTENT PERMISSIBLE BY LAW.** All warranties and obligations of SELLER shall terminate if PURCHASER fails to perform its obligations under this Agreement including but not limited to any failure to pay any charges due to SELLER. SELLER'S quoted price for the Products is based upon this warranty. Any increase in warranty obligation may be subject to an increase in price.

**7. CONFIDENTIAL INFORMATION.** All nonpublic information and data furnished to PURCHASER hereunder, including but not limited to price, size, type and design of the Products is the sole property of SELLER and submitted for PURCHASER'S own confidential use solely in connection with this Agreement and is not to be made known or available to any third party without SELLER'S prior written consent.

**8. PAINTING.** The Products shall be painted in accordance with SELLER'S standard practice, and purchased items such as motors, controls, speed reducers, pumps, etc., will be painted in accordance with manufacturers' standard practices, unless otherwise agreed in writing.

**9. DRAWINGS AND TECHNICAL DOCUMENTATION.** When PURCHASER requests approval of drawings before commencement of manufacture, shipment may be delayed if approved drawings are not returned to SELLER within fourteen (14) days of receipt by PURCHASER of such drawings for approval. SELLER will furnish only general arrangement, general assembly, and if required, wiring diagrams, erection drawings, installation and operation-maintenance manuals for SELLER'S equipment (in English language). SELLER will supply six (6) complete sets of drawings and operating instructions. Additional sets will be paid for by PURCHASER. Electronic files, if requested from SELLER, will be provided in *pdf, jpg or rtf* format only.

**10. SET OFF.** This Agreement shall be completely independent of all other contracts between the parties and all payments due to SELLER hereunder shall be paid when due and shall not be setoff or applied against any money due or claimed to be due from SELLER to PURCHASER on account of any other transaction or claim, except for archival or security purposes; b) not to use the program on any computer other than the computer with which it is supplied; and c) to limit access to the program to those of its employees who are necessary to permit authorized use of the program. PURCHASER agrees to execute and be bound by the terms of any software license

applicable to the Products supplied.

**11. SOFTWARE.** PURCHASER shall have a nonexclusive and nontransferable license to use any information processing program supplied by SELLER with the Products. PURCHASER acknowledges that such programs and the information contained therein is Confidential Information and agrees: a) not to copy or duplicate the program **12. PATENT INDEMNITY.** SELLER will defend at its own expense any suit instituted against PURCHASER based upon claims that SELLER'S Product hereunder in and of itself constitutes an infringement of any valid apparatus claims of any United States patent issued and existing as of the date of this Agreement, if notified promptly in writing and given all information, assistance, and sole authority to defend and settle the same, and SELLER shall indemnify the PURCHASER against such claims of infringement. Furthermore, in case the use of the Products is enjoined in such suit or in case SELLER otherwise deems it advisable, SELLER shall, at its own expense and discretion, (a) procure for the PURCHASER the right to continue using the Products, (b) replace the same with non-infringing Products, (c) modify the Product so it becomes non-infringing, or (d) remove the Products and refund the purchase price less freight charges and depreciation. SELLER shall not be liable for, and PURCHASER shall indemnify SELLER for, any claim of infringement related to (a) the use of the Products for any purpose other than that for which it was furnished by SELLER, (b) compliance with equipment designs not furnished by SELLER or (c) use of the Products in combination with any other equipment. The foregoing states the sole liability of SELLER for patent infringement with respect to the Products

**13. GENERAL INDEMNITY.** Subject to the rights, obligations and limitations of liabilities of the parties set forth in this Agreement, PURCHASER shall protect and indemnify SELLER, its ultimate parent, its ultimate parent's subsidiaries and each of their respective officers, directors, employees and agents, from and against all claims, demands and causes of action asserted by any entity to the extent of PURCHASER'S negligence or willful misconduct in connection with this Agreement.

**14. DEFAULT, TERMINATION.** In the event that PURCHASER becomes insolvent, commits an act of bankruptcy or defaults in the performance of any term or condition of this Agreement, the entire unpaid portion of the purchase price shall, without notice or demand, become immediately due and payable. SELLER at its option, without notice or demand, shall be entitled to sue for said balance and for reasonable legal fees, plus out-of-pocket expenses and interest; and/or to enter any place where the Products are located and to take immediate possession of and remove the Products, with or without legal process; and/or retain all payments made as compensation for the use of the Products; and/or resell the Products, without notice or demand, for and on behalf of the PURCHASER, and to apply the net proceeds from such sale (after deduction from the sale price of all expenses of such sale and all expenses of retaking possession, repairs necessary to put the Products in salable condition, storage charges, taxes, liens, collection and legal fees and all other expenses in connection therewith) to the balance then due to SELLER for the Products and to receive from the PURCHASER the deficiency between such net proceeds of sale and such balance. PURCHASER hereby waives all trespass, damage and claims resulting from any such entry, repossession, removal, retention, repair, alteration and sale. The remedies provided in this paragraph are in addition to and not limitations of any other rights of SELLER.

**15. CANCELLATION.** PURCHASER may terminate this Agreement for convenience upon giving SELLER thirty (30) days prior written notice of such fact and paying SELLER for all costs and expenses (including overhead) incurred by it in performing its work and closing out the same plus a reasonable profit thereon. All such costs and expenses shall be paid to SELLER within ten (10) days of the termination of the Agreement, or be subject to an additional late payment penalty of five percent (5%) of the total amount of costs and expenses owed.

**16. REMEDIES.** The rights and remedies of the PURCHASER in connection with the goods and services provided by SELLER hereunder are exclusive and limited to the rights and remedies expressly stated in this Agreement.

**17. INSPECTION.** PURCHASER is entitled to make reasonable inspection of Products at SELLER'S facility. SELLER reserves the right to determine the reasonableness of the request and to select an appropriate time for such inspection. All costs of inspections not expressly included as an itemized part of the quoted price of the Products in this Agreement shall be paid by PURCHASER.

**18. WAIVER.** Any failure by SELLER to enforce PURCHASER'S strict performance of any provision of this Agreement will not constitute a waiver of its right to subsequently enforce such provision or any other provision of this Agreement.

**19. COMPLIANCE WITH LAWS.** If applicable laws, ordinances, regulations or conditions require anything different from, or in addition to, that called for by this Agreement, SELLER will satisfy such requirements at PURCHASER'S written request and expense.

**20. FORCE MAJEURE.** If SELLER is rendered unable, wholly or in material part, by reason of Force Majeure to carry out any of its obligations hereunder, then on SELLER'S notice in writing to PURCHASER within a reasonable time after the occurrence of the cause relied upon, such obligations shall be suspended. "Force Majeure" shall include, but not be limited to, acts of God, laws and regulations, strikes, civil disobedience or unrest, lightning, fire, flood, washout, storm, communication lines failure, delays of the PURCHASER or PURCHASER'S subcontractors, breakage or accident to equipment or machinery, wars, police actions, terrorism, embargos, and any other causes that are not reasonably within the control of the SELLER. If the delay is the result of PURCHASER'S action or inaction, then in addition to an adjustment in time, SELLER shall be entitled to reimbursement of costs incurred to maintain its schedule.

**21. INDEPENDENT CONTRACTOR.** It is expressly understood that SELLER is an independent contractor, and that neither SELLER nor its principals, partners, parents, subsidiaries, affiliates, employees or subcontractors are servants, agents, partners, joint ventures or employees of PURCHASER in any way whatsoever.

**22. SEVERABILITY.** Should any portion of this Agreement, be held to be invalid or unenforceable under applicable law then the validity of the remaining portions thereof shall not be affected by such invalidity or unenforceability and shall remain in full force and effect. Furthermore, any invalid or unenforceable provision shall be modified accordingly within the confines of applicable law, giving maximum permissible effect to the parties' intentions expressed herein.

**23. CHOICE OF LAW, CHOICE OF VENUE.** This Agreement shall be governed and construed in accordance with the laws of the State of Utah, without regard to its rules regarding conflicts or choice of law. The parties submit to the jurisdiction and venue of the state and federal courts located in Salt Lake City, Utah.

**24. ASSIGNMENT.** PURCHASER shall not assign or transfer this Agreement without the prior written consent of the SELLER. Any attempt to make such an assignment or transfer shall be null and void. SELLER shall have the authority to assign, or otherwise transfer, its rights and obligations in connection with this Agreement, in whole or in part, upon prior written notice to PURCHASER.

**25. LIMITATION ON LIABILITY.** TO THE EXTENT PERMISSIBLE BY LAW, SELLER SHALL HAVE NO FURTHER LIABILITY IN CONNECTION WITH THIS AGREEMENT IN EXCESS OF THE COST OF CORRECTING ANY DEFECTS, OR IN THE ABSENCE OF ANY DEFECT, IN EXCESS OF THE VALUE OF THE PRODUCTS SOLD HEREUNDER, NOTWITHSTANDING ANY LIABILITIES OR RESPONSIBILITIES ASSUMED BY SELLER HEREUNDER, SELLER SHALL IN NO EVENT BE RESPONSIBLE TO PURCHASER OR ANY THIRD PARTY, WHETHER ARISING UNDER CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT LIABILITY, OR OTHERWISE, FOR LOSS OF ANTICIPATED PROFITS, LOSS BY REASON OF PLANT SHUTDOWN, NON-OPERATION OR INCREASED EXPENSE OF OPERATION, SERVICE INTERRUPTIONS, COST OF PURCHASED OR REPLACEMENT POWER, COST OF MONEY, LOSS OF USE OF CAPITAL OR REVENUE OR ANY OTHER INDIRECT, INCIDENTAL, SPECIAL, PUNITIVE, EXEMPLARY, OR CONSEQUENTIAL LOSS OR DAMAGE, WHETHER ARISING FROM DEFECTS, DELAY, OR FROM ANY OTHER CAUSE WHATSOEVER.

REVISION DATE – SEPTEMBER 2010

**NORTH AMERICAN  
FIELD SERVICE RATE SHEET**

Effective January 1, 2013

Standard (Travel)	Daily Rate (8 hour day)	\$ 1,200.00
Hourly Rate (4 hour minimum)		\$ 150.00
Standard (Labor)	Daily Rate (8 hour day)	\$ 1,200.00
Hourly Rate (4 hour minimum)		\$ 150.00
Saturday	Daily Rate (8 hour day)	\$ 1,800.00
Hourly Rate (4 hour minimum)		\$ 225.00
Sundays/Holidays *	Daily Rate (8 hour day)	\$ 2,400.00
Hourly Rate (4 hour minimum)		\$ 300.00
Overtime **	Hourly Rate - Standard Day	\$ 225.00
Hourly Rate - Weekends & Holidays		\$ 300.00

\* Except Christmas Day and New Year's Day

\*\* For all hours worked over eight (8) hours per day

**UNLESS OTHERWISE ARRANGED; EXPENSES ARE CHARGED AT ACTUAL COST PLUS 10%**

**Please Note:**

- All of the rates provided are portal to portal. In addition, travel and living expenses will be invoiced at actual cost PLUS 10 % and documentation will be provided for these expenses. ***If a fixed Per Diem rate is required, it will be charged at \$250.00 per day (lodging and meals) with the exception of the East Coast where the price will be \$300.00.*** Travel on Saturday, Sunday or Holidays, and after 8 hours per day will be billed at the overtime rate.
- Use of **Ovivo** Fleet vehicles for travel will be charged at the rate of \$0.56 per mile.

MINUTES  
MURFREESBORO WATER AND SEWER BOARD  
June 28, 2016

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The Murfreesboro Water and Sewer Board met on Tuesday, June 28, 2016 in the conference room 4at the Operations and Maintenance Building, 1725 S. Church Street. Present at the meeting were Board members: Mr. John Sant Amour, Mr. Ron Crabtree, Mr. Ron Washington, Clay Beach, Sandra Trail, Kathy Nobles, and Dr. Al Carter. Also present were Darren Gore, Valerie Smith, Michele Pinkston, Craig Tindall, Doug Swann, Steve Tate, Alan Cranford, Terry Taylor, Alison McGee, Daniel Tribble, Kenny Diehl, Mike Bernard, and Lynda Sullivan, along with other members of the public.

The Consent Agenda was presented for the following considerations:

*A. Consider single source purchase and installation of GAC Effluent Valve Actuators –*

The Stones River Water Treatment Plant has four Granular Activated Carbon (GAC) contactors. Each contactor has one GAC effluent valve. During the week of June 6, 2016, three of the effluent valve actuators failed and must be operated manually. These valves are critical to the operation of the facility and are located in an area that is difficult for operators to access to operate them manually. Staff has not maintained a spare actuator for the control valves. One of the four actuators ordered is to be a spare in the event of a future emergency.

Staff received a quote from Eco-Tech, Inc., the sole source vendor for Rotork Controls, Inc. manufactured actuators. The quote included the purchase and installation of the actuators.

Staff recommended that the Board recommend City Council approve the purchase and installation of the actuators in accordance with the quote provided by Eco-Tech, Inc.

The cost of the four actuators is \$26,436 and the installation of the actuators is \$4,500. Total cost of the project is \$30,936 recommended to be funded from working capital reserves.

*B. Consider John Bouchard and Sons Task Order 16-04 for Raw Water #1 and Task Order 16-05 for Raw Water #6 pump repairs –*

On December 18, 2014, the Department received bids for the MWSD Water/Wastewater System Mechanical/Electrical Services contract. John Bouchard and Sons Co. (JB&S) was awarded the bid after approval by the Water and Sewer Board and City Council. The contract is effective through January 28, 2017.

The River Raw Water Pumps (RWP) #1 and #6 experienced major pumping capacity in May 2016. Based upon staff's inspection of the two pumps it was decided to request a representative from JB&S to look at the pumps. Staff and JB&S discussed the potential issues and it was determined that the best way to determine the resolution was to pull both pumps.

RWP #1. JB&S previously rebuilt the #1 Raw Water Pump in 2015 under our existing service contract. Staff recently informed JB&S that the pump was spraying water from the oil column. JB&S agreed to remove and inspect the pump to determine whether the issue was warranty related, as the issue was noted within a year of the rebuild. JB&S removed the pump and found that a foreign material had clogged the water discharge nozzles. The material was white in color, and had been observed during the previous JB&S rebuild. During the first rebuild, it was thought that the material was caulk that a previous contractor may have used, but it appears that the material is something being sucked into the pump from the raw water pit. As a result, JB&S has proposed to modify the pump to reduce the potential for this issue to re-occur. They propose to modify and add lip seals, and extend the bottom bowl assembly to fit in the oil column with the new seals. The intent is to prevent water from entering the oil column; however, this will not prevent any foreign material from clogging the water discharge nozzles. Staff is trying to have the material analyzed to determine if there is a solution. Upon completion of repairs the pump will be reinstalled and placed back into service.

RWP #6. JB&S had removed and assessed RWP #6 under our existing service contract. JB&S's assessment revealed that the pump had several worn parts that would likely result in the diminished flow capacity observed when the pump was in operation. Staff visited the JB&S shop and was shown the various worn components of the pump. JB&S has prepared an estimate for the repair/rebuild of the pump for consideration. Pricing includes re-sleeving the impeller, shafts, sleeves, mechanical seal, coupling, spider bushings, brass bearings, pump shaft, bolts, sandblasting, paint, re-installation, and start-up assistance. In addition, JB&S prepared an estimate for the replacement of this pump for comparison totaling \$113,400.

Staff recommended that the Board recommend City Council approve Task Order 16-04 and Task Order 16-05 by John Bouchard & Sons Co.

Repair for RWP #1 is \$12,266 and RWP #6 is \$29,440. The total amount to repair both raw water pumps is \$41,706 coming from rate funded capital reserves.

*C. Consider contingency allocations for Sinking Creek WWTP Phase 4D –*

The Department received bids for the Sinking Creek Plant Expansion – Phase 4D on January 8, 2015. The Board approved to award the project to 3D Enterprises the contract in the amount of \$30,472,000. As part of the referenced project, Item #4 within Schedule C of the Construction Contract is a contingency allowance of \$500,000.

The change control log identifies the recent allowance allocation issued through field work change directives. These work change directives do not change the contract price, only adjust the remaining balance of the contingency allowance. The final contract price will be adjusted accordingly in a future change order or a final balancing change order at the end of the project.

The following table is provided to update the Board on the current field work change directives and the remaining contingency allowances.

Project	Contingency Allowance	Prior Contingency Allocations	Current Contingency Allocations	Remaining Contingency Allowance
<b>Phase 4D Expansion</b>	\$500,000	\$200,389.00**	\$ 12,998 *	\$286,613.00

\*CCF # – 20, 21 & 26 (Current)

\*\*CCF #'s (1 Rev. 2, 2, 5-9, 11-13, 17-19 & 22-25 previously approved)(cumulative)

Staff recommended the referenced contingency allocation for the Phase 4D Expansion be authorized. A final contract amount accounting for all contingency items will be brought to the Board and City Council for approval in a final balancing change order.

There is no fiscal impact at this time to the Department’s State Revolving Fund (SRF) loan, as the contingency allowance has been approved within the contract and the contract amount remains unaffected.

A motion was made by Clay Beach to accept the Consent Agenda as presented and it was seconded by Sandra Trail. The Board voted unanimously to approve.

The May 24, 2016 Board Minutes were unanimously accepted as presented.

The Board considered John Bouchard and Sons Task Order 15-06 for Installation Services of Three Biosolids Press Replacements and a Professional Services Agreement with MR Systems, Inc.

Staff requested approval for Task Order 15-06 with the City of Murfreesboro’s standing contract with John Bouchard and Sons in conjunction with a professional services agreement with MR Systems, Inc. services to replace three Fournier biosolids rotary presses at the Sinking Creek Wastewater Treatment Plant, purchased with State Revolving Fund (SRF) loans.

Since the beginning of 2014, it has been the intent of staff to replace four older Fournier biosolids presses at the Sinking Creek Wastewater Treatment Plant. The plan was to replace one press every other year funding the replacement from the Department’s working capital reserves. At the August 2015 meeting, the Board approved for Smith Seckman and Reid (SSR) to provide engineering consulting services to replace two Fournier biosolids rotary presses at the Sinking Creek Wastewater Treatment Plant and purchase the rotary presses using State Revolving Fund (SRF) loans. Afterward, SRF stated that there were remaining funds in the subsidized loan available to MWSD and recommended a purchase of a third press. Based on the business case developed in August and the need to replace older presses, staff recommended at the October 2015 meeting and the Board approved purchasing a third Fournier press using SRF Loan CW0 2012-303 which allows for 24.7% principal forgiveness. The SRF principal forgiveness on the loan affords the Department \$330,743 savings. The debt incurred is therefore \$1,008,297.

The new Fournier presses are the major components of this dewatering system project. However, installation requires significant coordination with various manufacturers. Penn Valley double disc pumps that transfer the sludge from the holding facility to the Fournier presses were approved for purchase in April 2016. The existing pumps are near the end of their useful lives. The costs associated with procuring the

pumps were quoted as \$91,550; funding coming from SRF loan CW0 2012-303, affording the same 24.7% principal forgiveness as the presses, or \$22,613.

As was qualified since the beginning, the labor associated with the installation of the new presses would need to be funded through the Department's standing contract with John Bouchard & Sons (JB&S) and a professional services agreement with MR Systems, Inc. (MRS), both funded through the Department's working capital reserves.

The costs associated with JB&S mechanical and electrical services are \$223,254 and \$68,455, respectively. Funding for these engineering services is recommended to come from the Department's working capital reserves.

The cost associated with MRS controls and integration services is \$27,592.50. Funding for these engineering services is recommended to come from the Department's working capital reserves.

The total project costs are tabulated as follows:

Item	Funding Source	Cost	Principal Forgiveness
<b>Three (3) Fournier Biosolids Presses</b>	CW0 2012-303*	\$1,339,040	\$(330,743)
<b>Three (3) double-disc Penn Valley Sludge Transfer Pumps</b>	CW0 2012-303*	\$91,550	\$(22,613)
<b>Mechanical / Electrical Installation Services</b>	Working Capital Reserves	\$291,709	\$0
<b>Controls &amp; Integrations Services</b>	Working Capital Reserves	\$27,592.50	\$0
<b>Engineering Design Services</b>	Working Capital Reserves	\$130,255	\$0
	<b>Sub-Total</b>	\$1,880,146.5	\$(353,356)
	<b>Total Outlay</b>	<b>\$1,526,790.50</b>	

\* 20-yr fixed SRF loan at 1.01%

Staff recommended that the Board recommend to City Council approving John Bouchard and Sons Task Order 15-06 for mechanical and electrical work associated with the three biosolids press replacements.

Clay Beach made a motion to approve. Sandra Trail seconded. The motion unanimously passed.

Staff also recommended that the Board recommend to City Council approving MR Systems, Inc. professional services agreement for controls and integration work associated with the three biosolids press replacements.

Clay Beach made a motion to approve. Sandra Trail seconded. The motion unanimously passed.

The Board considered Rooms To Go sewer connection fees.

Per City Code, Chapter 33, Sections 50(A) (2) and (3) below, the Board is to recommend to City Council the sewer connection fees associated with Commercial Buildings exceeding 35,000 sq. ft.

Section 50

- (2) When the applicant for sewer services does not fit into one of the foregoing categories, the connection fee shall be based on \$2,550.00 for each two hundred sixty gallons per average daily demand (gpd).
- (3) The sewer connection fee for sewer service to any industrial use, or commercial space exceeding thirty-five thousand square feet, shall be fixed and established by the City Council upon recommendation of the Board after considering and taking into account the location, size, extent, nature and requirements of such customer, and the estimated cost of furnishing such sewer service to the customer, and further considering the estimated usage, occupancy and plumbing fixtures to be installed.

The fees for the Rooms To Go have been calculated based on an average of 12 months of water usage from three different Cities. The sewer information wasn't used because of the "set rate" for sewer provided by Brentwood.

The average water usage was determined to be 10,034 gallons/month which is 334.5 gallons per day (10,034 gallons per month /30 days per month). The current and standard sewer connection fee is \$2,550 per single family unit (sfu) respectively. A sfu is defined as consuming 260 gallons per day of potable water. Taking 334.5 gallons per day usage equates to 1.3 sfu's (i.e., 334.50 gpd divided by 260 gpd). Therefore, 1.3 sfu's times \$2,550 equals \$3,315 in sanitary sewer connection fees.

In addition to the standard connection fees this address is within two Sanitary Sewer Assessment Districts (SSAD). It is within the Medical Center Parkway SSAD, which is a charge of \$10,900 per acre at 3.36 acres, and the Overall Creek SSAD, which is \$1,000 per sfu or equivalent. Since the Rooms To Go is equivalent to 1.3 sfu's as shown above, the Overall Creek SSAD fee is \$1,300 (1.3 x \$1000).

Staff recommended the Board recommend to City Council approval of the Standard Sewer Connection Fee of \$3,315 and the Overall Creek SSAD Fee of \$1,300 for the Rooms To Go development.

Clay Beach made a motion to approve. Kathy Nobles seconded. The motion unanimously passed.

Staff informed the Board of the Water Resources Utility of the Future Joint Recognition Program Application.

The Murfreesboro Water and Sewer Department submitted an application for the Water Resources Utility of the Future (UOTF) Joint Recognition Program and wanted to share the application with the Board. The Utility of the Future Today Recognition Program seeks to reach deeply into the water sector to form and motivate a community of like-minded, self-identified water utilities engaged in advancing resource efficiency and recovery, developing proactive relationships with stakeholders, and establishing resilient, sustainable, and livable communities.

Eligible Applicants – 1) Public and private wastewater utilities of all sizes. 2) Applicants must have no major permit violations in the past year prior to the submission date of their application.

Basis for Recognition – successful applicants will demonstrate that they are engaged in their selected Activity Areas in a meaningful and robust manner, consistent with the principles of the Utility of

the Future. Reviewers will take into consideration an applicant's current engagement and performance, as well as projected future results.

There are eight (8) activity areas that can be applied for; they are:

- Activity Area 1: Organizational Culture
- Activity Area 2: Beneficial Biosolids Reuse
- Activity Area 3: Community Partnering & Engagement
- Activity Area 4: Energy Efficiency
- Activity Area 5: Energy Generation & Recovery
- Activity Area 6: Nutrient & Materials Recovery
- Activity Area 7: Water Reuse
- Activity Area 8: Watershed Stewardship

A utility must choose to apply for at least two (Organizational Culture being a requirement) or all eight. MWSD submitted on the required Activity Area 1: Organizational Culture as well as Activity Area 7: Water Reuse and Activity Area 8: Watershed Stewardship. Staff looks forward to being recognized as a Utility of the Future. Applicants will be informed whether or not they were selected for recognition by or before July 29, 2016.

Under Other Business, the Board considered an Internal Control Policy.

The Tennessee Legislature amended TCA Section 9-2-102 to require local governments to establish and maintain internal controls in accordance with guidance issued by the U.S. Government Accountability Office (GAO), in a written form and approved by the oversight board by June 30, 2016.

While staff has provided process documentation to auditors as part of our annual audits, having these processes documented and approved by our Board is now a State requirement.

This is a beginning document to summarize current processes. This document will be reviewed and updated as necessary.

Staff recommended the Board recommend City Council approve the Internal Control Policy document.

Clay Beach made a motion to approve. Kathy Nobles seconded. The motion unanimously passed.

Staff presented and discussed the Water and Sewer Dashboard Performance for May 2016.

Staff presented and discussed the Financial Reports for the year ending May 31, 2016.

The Board and staff thanked Vice-Chairman Clay Beach for his many years of service on the Board.

There being no further business, the meeting was adjourned.



*... creating a better quality of life*

# MEMORANDUM

**DATE:** July 14, 2016  
**TO:** Water and Sewer Board  
**FROM:** Darren Gore  
**SUBJECT:** Biosolids Master Plan – SSR Task Order 14-41-018.1  
In Conjunction with the City of Murfreesboro Comprehensive Plan

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## SUMMARY STATEMENT

Staff requests approval of Smith Seckman Reid (SSR) Task Order 14-41-018.1 to create a Biosolids Master Plan. SSR's proposed task order and accompanying scope of services is attached.

## BACKGROUND

As you may recall, staff had interactions in February of this year with Republic Services, the owner and operator of Middlepoint landfill in the Walter Hill area, regarding odors they were claiming came from the biosolids generated at the Sinking Creek plant. The general public was complaining significantly to their State of Tennessee congressman, who in turn forced a response and subsequent action plan by Republic Services.

I asserted at that time and still maintain the assertion that the biosolids were not the cause of the odor at the landfill. MWSD dumps approximately 75 tons per day at Middlepoint, which constitutes 2.5% of the total tonnage of garbage, or 3,000 tons, dumped on a daily basis at the landfill. However, the end result was that MWSD was limited to what times we were allowed to dump biosolids at the landfill.

As somewhat of a fall-out from this interaction, a Mr. Jason Repsher with the Tennessee Department of Environment and Conservation (TDEC) Solid Waste Division met with Mr. John Strickland and conducted a site visit of the Sinking Creek Plant's biosolids facility to see if the odor was as egregious as claimed at the landfill. Mr. Repsher agreed that MWSD's biosolids were most likely not the issue. Mr. Strickland prepared the attachment suggesting how MWSD could help and recommended that Republic only limit our windows of time for dumping to "screenings". Ultimately, TDEC agreed to this condition and our permit was modified accordingly.

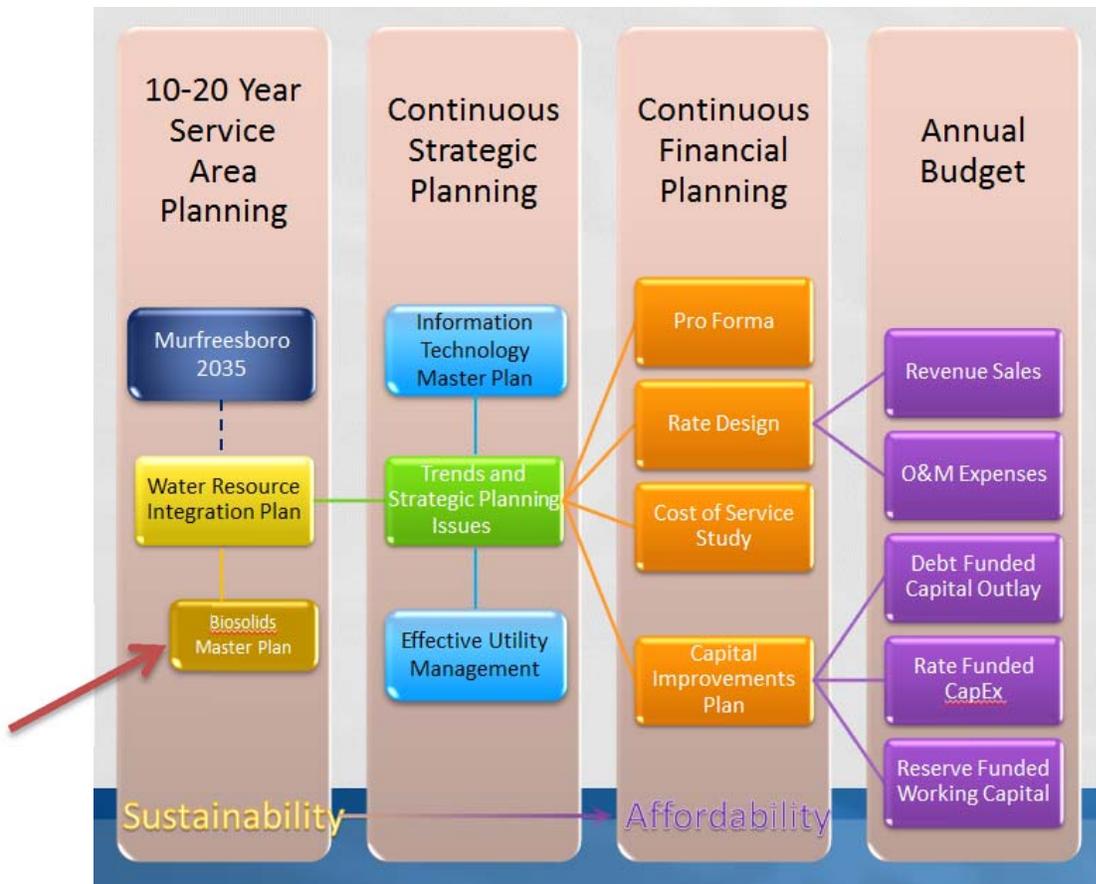
I bring up this history to not only demonstrate how professional our staff handled this challenge, but also to bring up Mr. Repsher's professional opinion that Middlepoint landfill would not be able to accept MWSD's biosolids outside of a five (5) year horizon. This came as somewhat of a shock to staff, having always thought we had a seven (7) to eight (8) year window. Mr. Repsher stated that while municipal

Water and Sewer Department

300 NW Broad Street \* P.O. Box 1477 \* Murfreesboro, TN 37133-1477 \* Office: 615 890 0862 \* Fax: 615 896 4259  
TTY 615 848 3214 \* [www.murfreesborotn.gov](http://www.murfreesborotn.gov)

solid waste would have that amount of time, the biosolids would not be able to be dumped due to the steep slopes that would start to form on the face of the landfill.

This epiphany caused staff to start discussing biosolids handling and management sooner than expected. We sat down with Smith Seckman and Reid, who has expertise in biosolids management master planning and treatment, and requested a task order that would complement the Water Resource Integration Plan (WRIP) and City Comprehensive plan (Murfreesboro 2035) currently underway. The WRIP only had allotted around \$1,800 to a biosolids evaluation. That is not enough to guide MWSD through the next twenty (20) years. I have modified a graphic that I have brought before the Board several times, that demonstrates the Department’s overall goal to balance sustainability with affordability. The WRIP is identified as the longer term planning or parent document to the Department’s annual Trends and Strategic Planning Issues document (which is supported by the Department’s Information Technology Master Plan and the Effective Utility Management model). The Trends and Strategic Planning document guides our financial planning and financial commitments as well as ultimately controls our annual budget. We believe that the Biosolids Master Plan is a companion document to the WRIP. Although biosolids management and handling will be somewhat less significant than how we integrate our water resources, it nonetheless will have a considerable social, economic and environmental impact.



An additional need for this document is to provide support for the City of Murfreesboro’s Solid Waste Master Plan. The City’s Solid Waste Master Plan is around \$250,000 and will be created by Gershman,

Brickman and Bratton (GBB). The City dumps approximately 110 tons of garbage on a daily basis as compared to the Department’s 75 tons of biosolids per day.

To give the Board an assessment of cost associated with handling and disposing of biosolids, the Department’s fiscal year 2015 cost of service study indicates that the total cost of sludge hauling and disposal was \$1,078,065. If you add a tipping fee of \$35 per ton that a landfill would charge, you are adding \$958,125 annual costs to the operation.

Similar to the WRIP, the Biosolids Master Plan is intended to provide pragmatic solutions to anticipated growth by leveraging existing infrastructure, but also to provide vision regarding paradigm shifts occurring within the water utility industry. For example, the Water Resources Utility of the Future ... A Blueprint for Action jointly developed by the North American Clean Water Association (NACWA), Water Environment Research Foundation (WERF) and the Water Environment Federation (WEF), espouses the following transitions from the past to the future:

Past Mindset	Future Paradigm
Handlers of wastewater	Managers of sustainable resources
Seeking permit compliance	Watershed-scale environmental leaders seeking least-cost, highest return solutions
Engineers designing treatment plants	Regional planners of weather-resilient, green communities
Isolated public service units	Integrated members of economically thriving local communities

There is cause for optimism; as water is able to be beneficially reused, so can biosolids. Biosolids are a local and renewable resource. Their reuse is the ultimate in recycling. We have the potential (based on the business case) of taking something that was considered a waste, treating it, and converting it to a valuable product and using it to benefit the environment. There is attractiveness to the environmental and social benefit of reusing something that was once considered a waste.

Biosolids are a great soil conditioner. They contain slow-releasing nutrients that are more eco-friendly than chemical fertilizers because they add organic matter to enrich depleted soils and fibrous matter to improve the soil's ability to hold water. Biosolids are highly valued by many - especially farmers - because they contain all of the essential plant nutrients as well as vital organic matter that help plants grow.

**RECOMMENDATION**

Staff recommends the Water and Sewer Board recommends that City Council approve SSR Task Order 14-41-018.1 to create a Biosolids Master Plan in support of the City of Murfreesboro’s Comprehensive Plan and Solid Waste Master Plan.

**FISCAL IMPACT**

The creation of the Biosolids Master Plan is an hourly not to exceed fee of \$84,740. The funding for this task order is recommended to come from working capital reserves. This amount has not been programmed into the 5-yr CIP; however, ample funds exist to conduct this study in FY17.

<b>TASK</b>	<b>COST</b>
Task 1- Summarize Existing Biosolids Management Approach, Review of Viable Alternatives Workshop & Costs	\$25,660
Task 2- Comprehensive Evaluation of Selected Solids Mgmnt Plan Alternatives	\$47,960
Task 3- Recommended Biosolids Management Plan Report	\$11,120
<b>TOTAL</b>	<b>\$84,740</b>

**ATTACHMENTS**

- Memo dated 2/5/16 to TDEC Regarding Odor Complaints at Middlepoint Landfill
- SSR Amendment to Task Order 14-41-018.1
- Hourly Breakdown of Project Tasks



Date: February 5, 2016  
To: Jason Repsher, TDEC  
From: John Strickland, Wastewater Manager  
Re: Citizens' complaints of odor at Middle Point Landfill

*Creating a Better  
Quality of Life*

1. **Murfreesboro Water & Sewer Department (MWSD) believes its dewatered sludge is not the cause of the complaints from citizens about the odor at Middle Point landfill.**
  - a. Because dewatered sludge has such little odor, the engineering firm designed our production facility without an odor control system.
  - b. Our facility is located between two neighborhoods and in almost two decades of operation, we have never received a dewatered sludge odor complaint.
  - c. Our experience is that the smell of garbage is much worse than the dewatered sludge.
  - d. We are a small fraction of the material that is hauled to the landfill. If we were the cause of the complaints, the stench would be overwhelming and obvious.
  - e. Over 10 years ago, the landfill conducted tests that compared our dewatered sludge to Metro's. The conclusion was that ours was not an extraordinary source of odor.
  - f. We don't have scientific data that shows MWSD's dewatered sludge is the problem.
2. **Including restricted access for MWSD's dewatered sludge is unnecessary.**
  - a. TDEC & Republic have developed a thorough plan that does not depend on MWSD.
  - b. Including MWSD would create an unwarranted expectation among the public as to the elimination of odors from the landfill.
3. **How else can MWSD help?**
  - a. The following ideas have been explored, but will not help:
    - i. Changing the route of the trucks to the landfill.
      1. The current route is the least residential route.
    - ii. Storing dewatered sludge at the plant.
      1. There are no storage facilities.
      2. If the dewatered sludge were the problem, storing it between two neighborhoods would create another problem site.
    - iii. Use MWSD staff for public outreach to environmental groups.
      1. The case is very sensitive and MWSD staff is unlikely to be able to improve matters beyond what Republic & TDEC have achieved.
  - b. The following ideas may help:
    - i. Restrict the times that headworks screenings are dumped.
      1. The odor of the screenings is much worse than dewatered sludge.
    - ii. Use MWSD staff with expert knowledge to evaluate the odor control systems at the landfill and suggest improvements.
    - iii. Use MWSD consultants with expert knowledge to evaluate the odor control systems at the landfill and suggest improvements.

**Recommendation**

TDEC limit Murfreesboro's inclusion in its action plan to address citizens' complaints about odor at Middle Point landfill to restricting the timeframe in which MWSD may haul headworks screening to the landfill.

## **AGREEMENT FOR ENGINEERING CONSULTING SERVICES FOR THE PREPARATION OF BIOSOLIDS MASTER PLAN**

This Task Order, made and entered into by and between the Murfreesboro Water and Sewer Department (MWSD), hereinafter called the "OWNER" and Smith Seckman Reid, Inc., hereinafter called the "ENGINEER" shall be in accordance with our Master Services Agreement and as described herein.

### **Purpose**

This Task Order authorizes and directs the ENGINEER to proceed in providing to the OWNER engineering services for the **development of a Biosolids Master Plan (BMP) at the Sinking Creek Wastewater Treatment Plant.**

### **Project Understanding**

The OWNER currently has solids holding tanks, rotary press dewatering and truck offload for the biosolids generated at their Sinking Creek Wastewater Treatment Plant. Offloaded sludge is transported to Middle Point landfill for final disposal. The OWNER has been informed that the Middle Point landfill will not be accepting sludge for final disposal after Year 2020. As a result, the OWNER would like the ENGINEER to prepare a Biosolids Master Plan. The BMP is intended to serve as a planning document and a roadmap to the continued development of wastewater treatment infrastructure through a planning period of twenty (20) years. This roadmap will be tailored to the MWSD stated objectives through its priority ranking of the 10 Attributes of Effective Utility Management. It will also be directly coordinated to the City's Comprehensive Plan. Through this coordination, the BMP will project the anticipated needs of the wastewater treatment plant and will evaluate alternatives for the Department to meet those needs.

### **Engineer's Scope of Services**

Engineer shall provide Study Phase Services associated with the preparation of the BMP. Those services will include the following individual tasks and sub-tasks:

#### **Task 1 - Summarize Existing Biosolids Management Approach and Costs**

##### **Subtasks**

- 1.1 Develop a summary of current solids production for SCWWTP. The summary will focus on the current capability of SCWWTP to process solids. The work effort will include:

- Review operating records to develop historical data on solids handling production.
  - Review existing wastewater disposal operation and future plans.
  - Review existing biosolids disposal costs.
  - Evaluate the solids handling capacity of existing equipment.
  - Identify any upgrades and improvements either underway or planned.
  - Identify existing structures useful for future solids handling.
  - Determine inefficiencies and bottlenecks in existing solids handling unit processes.
- 1.2 Develop future solids production projections based on current data (for 5-Year Plan) and Comprehensive Plan projected flows (for 20-Year Plan) including:
- annual average daily flow rate;
  - maximum month daily flow rate; and
  - peak day daily flow rate.
  - Solids production estimates will be used as a basis for comparison of alternative biosolids handling, treatment and reuse or disposal processes.
- 1.3 Prepare a summary technical memorandum of the findings from this phase of work.
- 1.4 Develop preliminary list of biosolids management alternatives with short narrative descriptions including: Landfilling of Dewatered Sludge (unstabilized or Class B), Class B land application, Third-Party Management of biosolids (e.g., commercial product or fuel), Municipal Use of Class A, and Distribution of Class A biosolids products.
- 1.5 Organize the first workshop with MWSD to review the current solids handling information, the projected solids production rates (5-Year and 20-Year), and other findings of this phase.
- Discuss technological and industry trends in biosolids management, solids handling processes, and solids handling equipment in order to achieve Class A and Class B biosolids quality with an emphasis on successful regional approaches.
  - Discuss the impact of applicable and anticipated State and Federal regulations.

- Develop a list of guiding principles for Biosolids Master Plan which incorporate MWSD mission, goals, preferences and 10 Attributes of Effective Utility Management.
- Establish the weighting of the criteria to be utilized during the evaluation of each alternative.
- Develop a consensus opinion of the most favored solids management alternatives (5\_year and 20-Year) which are practical and have a high probability of successful implementation in the future.
- Prepare a workshop summary.

### **Deliverables**

- Summary of Monthly Operating Report Data including charts of relevant factors including flow, water quality and chemical consumption.
- A Technical Memorandum will be compiled, including Workshop Summary.

### **Schedule**

The task is projected to be complete within 6 weeks of contract execution.

## **Task 2 – Comprehensive Evaluation of Select Solids Management Plan Alternatives**

### **Subtasks**

- 2.1 Develop the requirements to implement most favored solids management alternatives concepts by considering the following:
- Develop a site specific description and concept site plan along with major equipment list for each alternative.
  - Identify additional considerations for MWSD management, including potential contingency planning, and effects on operations and staffing.
  - Describe potential impacts, requirements and restrictions of applicable and anticipated Federal and State regulations.
  - Arrange for and conduct up to six (6) tours of other wastewater treatment plants that operate and maintain biosolids processing facilities using the **representative technologies** included in the favored solids management alternatives. The visits will include an opportunity for MWSD representatives to observe the operation of the process and the associated ancillary systems.

Discuss the operation and maintenance requirements of the process with the plant staff and to gather detailed information on staffing requirements, energy consumption, process reliability, monitoring requirements, etc. SSR will prepare a narrative summary of each plant tour.

- 2.2 Evaluate each alternative in terms of guiding principles (i.e., weighted criteria) and 10 Attributes of Effective Utility Management. Planning levels cost estimates for the capital and operation and maintenance costs. Capital costs will include construction costs, and associated indirect costs such as engineering, inspection, construction management, permitting, etc. Operations costs will include labor, utilities, consumable materials such as polymer for dewatering, and costs for hauling (if applicable). Costs associated with this planning phase will be order-of-magnitude type estimates (i.e., -50%, +200%).
- 2.3 Prepare a summary technical memorandum of the findings from this phase of work.
- 2.4 Conduct a Second workshop presenting the development and evaluation of Solids Handling Alternatives. The purpose of the second workshop will be to select the most appropriate biosolids management strategy. MWSD and SSR will collaboratively review the score card criteria identified in Task 1 for the most favored alternatives and make adjustments or refinements as needed based on the findings of the evaluation and workshop discussions. Prepare workshop summary.

### **Deliverables**

- Plant tour summaries.
- Technical memorandum No. 1
- Workshop summary.

### **Schedule**

Work on these subtasks will begin immediately upon completion of the Task 1 deliverables and will be complete in eight (8) weeks

## **Task 3 - Biosolids Management Plan Report Preparation**

### **Subtasks**

- 3.1 Prepare a draft report summarizing the analysis and results of the project.
- 3.2 After receipt of comments from MWSD on the draft report, prepare a final report.
- 3.3 Conduct a briefing for the MWSD Board.

### **Time of Completion**

The Draft Biosolids Master Plan will be complete and ready for OWNER review within four (4) weeks of completion of Task 2. The Final Biosolids Master Plan will be complete within 30 days of receiving OWNER's comments.

### **Compensation**

The ENGINEER will be compensated based upon the Standard Hourly Rates method as described in the Master Services Agreement executed in 2002 and updated in April 2016.

The fee ceiling for these services is established at a maximum cost of \$84,740.00, which will not be exceeded without written authorization of OWNER. If the OWNER requires additional services related to this project, the work will be compensated based upon the Standard Hourly Rates as described in the Master Services Agreement. These additional services will only be performed upon written authorization from OWNER.

Reimbursables, as described in the Master Services Agreement, shall be billed at cost and shall include out of town travel, laboratory testing, and outside plotting and printing.

### **Coordination with County Solid Waste Disposal Feasibility Study**

Any effort to coordinate with the County and/or County representative related to the Solid Waste Disposal Feasibility Study is excluded from this work order. Should the OWNER require these services for this project, ENGINEER will provide services under the terms and rates established in the Master Services Agreement.

### **Invoicing**

Invoices will be sent monthly for progress to date. Invoices will be due upon receipt.

### **Deliverables**

ENGINEER will deliver for OWNER's review and use eight (8) hardcopies and one (1) electronic copy of:

1. Technical memorandum No. 1;
2. Technical memorandum No. 2;
3. Plant Tour Summaries;
4. Workshop No. 2 Summary;
5. DRAFT Biosolids Master Plan; and
6. FINAL Biosolids Master Plan.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement on this, the \_\_\_\_\_ day of \_\_\_\_\_ 2016.

SMITH SECKMAN REID, INC.

WITNESS

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: Principal

Title: Project Manager

CITY OF MURFREESBORO

WITNESS

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

APPROVED AS TO FORM:

\_\_\_\_\_  
City of Murfreesboro Legal Department

Hourly Rate	TOTALS	Summary								
		Principal 180	Project Manager 150	Senior Engineer I 145	Engineer II 125	Engineer I 105	Sr. Designer II 125	Sr. Designer I 105	Technician 90	Admin/ Clerical 65
<b>Task 1- Summarize Existing Biosolids Management Approach and Costs</b>										
SubTask 1.1	Develop current solids production and handling	0	0	40	0	0	0	0	0	0
	Review operating records solids handling production									
	Review existing wastewater and solids disposal practices									
	Evaluate solids handling capacity of existing equipment									
	Identify upgrades underway or planned									
	Determine remaining useful life of key processing equipment									
SubTask 1.2	Develop future solids production projections	2	0	16	0	0	0	0	0	0
	5YR - AA, MM, PD									
	20YR - AA, MM, PD									
SubTask 1.3	Prepare technical memorandum	0	0	16	0	0	0	0	0	8
SubTask 1.4	Develop preliminary list of biosolids management alternatives	0	0	16	0	0	0	0	0	0
SubTask 1.5	Conduct first workshop	6	8	52	0	0	0	0	0	8
	Technology and industry trends in biosolids management									
	Impact of applicable and anticipated State and Federal Regs									
	Develop list of guiding principles									
SubTask 1.6	Prepare workshop summary	0	0	8	0	0	0	0	0	8
<b>Task 1 Subtotal Hours</b>		<b>188</b>	<b>8</b>	<b>148</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>24</b>
<b>Task 1 Subtotal Cost</b>		<b>25,660</b>	<b>\$1,440</b>	<b>\$1,200</b>	<b>\$21,460</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,560</b>
<b>Task 2- Equ Comprehensive Evaluation of Selected Solids Management Plan Alternatives</b>										
SubTask 2.1	Develop most favored solids management alternatives	0	0	0	0	0	0	0	0	0
	Develop description and site plan	0	0	32	0	0	0	16	0	0
	Develop contingency plan and effects on operations/staffing	0	0	24	0	0	0	0	0	0
	Describe regulatory impacts, requirements and restrictions	0	0	12	0	0	0	0	0	0
	Conduct up to six plant tours	16	48	60	0	0	0	0	0	0
SubTask 2.2	Evaluate each alternative	1	0	32	0	0	0	0	0	0
SubTask 2.3	Prepare technical memorandum	0	0	16	0	0	0	8	0	8
SubTask 2.4	Conduct second workshop	4	8	16	0	0	0	0	0	0
SubTask 2.5	Evaluation Documentation	0	0	24	0	0	0	0	0	0
SubTask 2.6	Prepare workshop summary	0	0	8	0	0	0	0	0	4
<b>Task 2 Subtotal Hours</b>		<b>337</b>	<b>21</b>	<b>56</b>	<b>224</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>24</b>	<b>12</b>
<b>Task 2 Subtotal Cost</b>		<b>47,960</b>	<b>\$3,780</b>	<b>\$8,400</b>	<b>\$32,480</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,520</b>	<b>\$780</b>
<b>Task 3- Recommended Biosolids Management Plan Report</b>										
SubTask 3.1	Prepare draft report	2	4	32	0	0	0	12	0	12
SubTask 3.2	Prepare final report	1	2	16	0	0	0	4	0	4
<b>Task 3 Subtotal Hours</b>		<b>89</b>	<b>3</b>	<b>6</b>	<b>48</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>16</b>
<b>Task 3 Subtotal Cost</b>		<b>11,120</b>	<b>\$540</b>	<b>\$900</b>	<b>\$6,960</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$1,680</b>	<b>\$1,040</b>
<b>LABOR HOURS</b>		<b>614</b>	<b>32</b>	<b>70</b>	<b>420</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>40</b>	<b>52</b>
<b>LABOR COST</b>		<b>84,740</b>	<b>5,760</b>	<b>10,500</b>	<b>60,900</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,200</b>	<b>3,380</b>



July 26, 2016

## **MURFREESBORO WATER AND SEWER BOARD**

**RE: Land Acquisition – Church and Broad Street  
Town Creek Conveyance Phase 1**

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City staff has been approached about our interest in purchasing properties at the corner of South Church Street and Southeast Broad Street. The three parcels are impacted by Town Creek Conveyance Phase 1 project area and Staff believes that acquisition of the parcels would simplify the reconstruction of Town Creek and reduce overall construction costs. We are presenting for your consideration and approval authorization to negotiate and contract for the purchase of three parcels. Exhibit showing the three parcels and Town Creek is attached.

### **Background**

Following the construction of Broad Street through the downtown area, The Bottoms Urban Renewal Plan resulted in placing Murfree Springs/Town Creek in culverts in circa-1952. Circa-1970, development plans on the east side of South Church Street resulted in additional culverts being installed across the lot used for KFC. In 2007, a portion of the culvert on KFC failed and the City responded by implementing an emergency replacement project. Video and engineering inspections revealed significant concerns about the condition of the conveyance between Murfree Springs and South Church. City staff then added the system to the Stormwater Capital Improvement Plan for evaluation and reconstruction.

In 2015, Griggs and Maloney was authorized to develop a conceptual design of Town Creek Phase 1. As the conceptual design was advance, several private developers approached the City about redevelopment plans for the three parcels. As site layouts were compared to easements and infrastructures, most of the redevelopment plans failed to meet land development standards. Recently, City staff was approached by a private developer that proposed to work with the City to purchase and redevelop the properties and implement the Town Creek Phase 1 conceptual design. The developer proposed to have the City acquire the property, complete the reconstruction of Town Creek, and sell

the remainder developable lot back to the Developer at a pre-determined price. The approach was reviewed with City Administration and they were favorable to begin negotiations.

**Recommendation**

We recommend approval of the land acquisition proposed for improvements to Town Creek with funding of up to \$800,000 from the Stormwater Capital Reserve. We are available to review the proposal and answer your questions.

**Fiscal Impact**

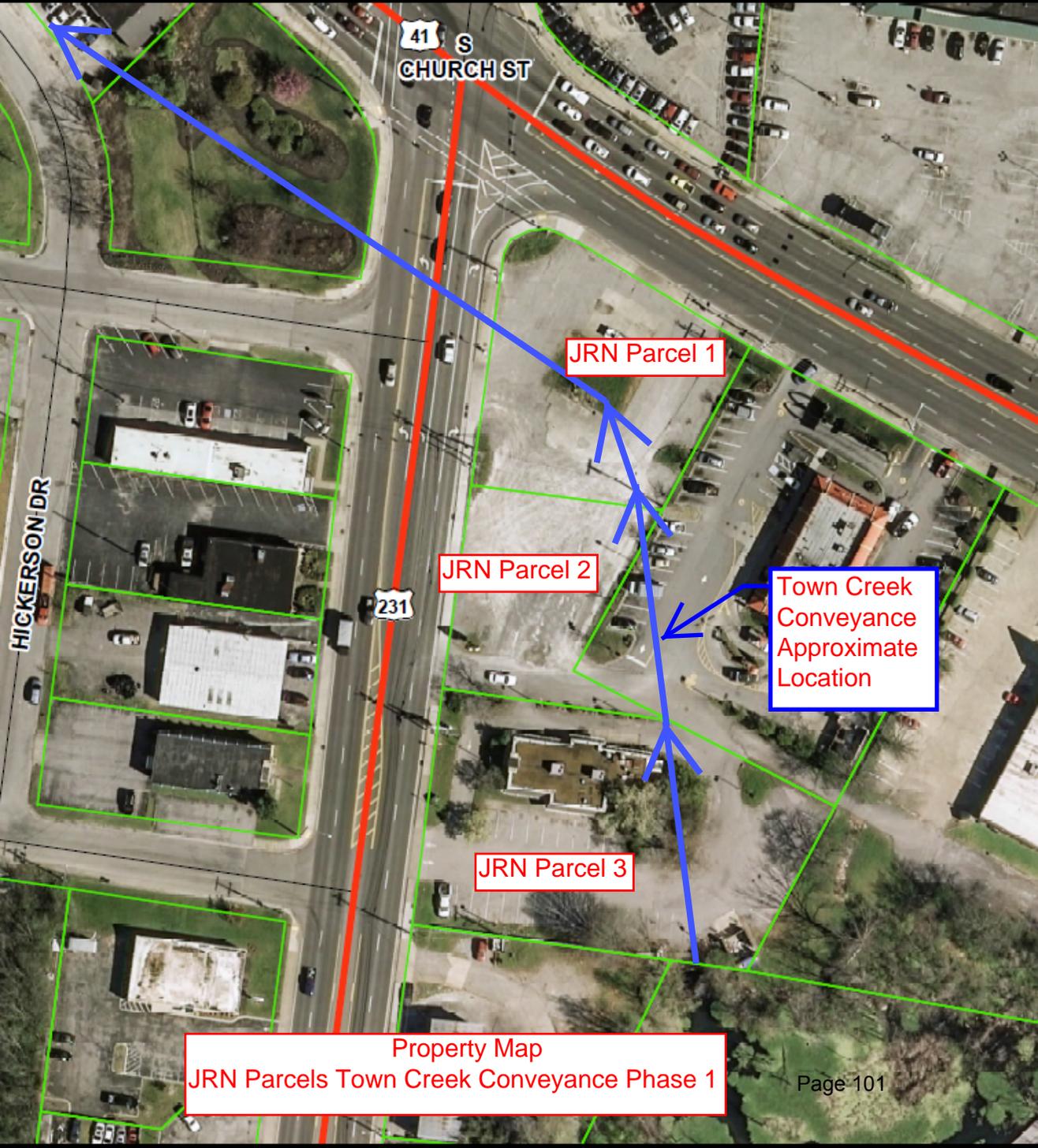
Town Creek Conveyance is on the Stormwater CIP and the land acquisition is anticipated to be \$800,000 from the Stormwater Capital Reserves. There is a potential to recover approximately \$400,000 in 2 to 3 years with the future sell of the remainder parcel the proceeds of which would be refunded to the Stormwater Capital Reserves.

Sincerely,



Sam A. Huddleston, PE  
Assistant City Engineer

Enclosure: Property Map South Church at Southeast Broad  
Town Creek Vicinity Map



41 S  
CHURCH ST

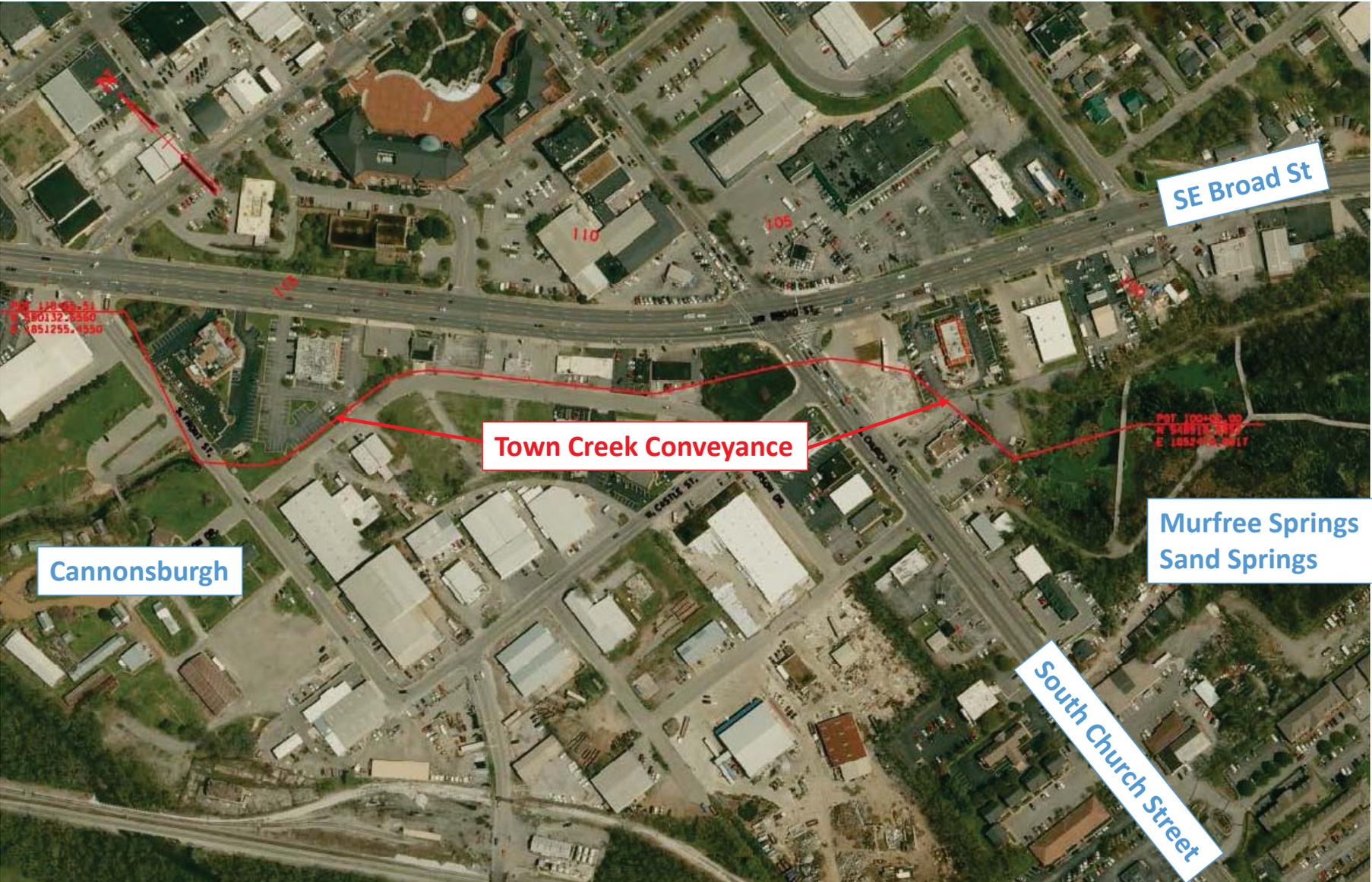
JRN Parcel 1

JRN Parcel 2

Town Creek  
Conveyance  
Approximate  
Location

JRN Parcel 3

Property Map  
JRN Parcels Town Creek Conveyance Phase 1



**Town Creek Conveyance**

**Cannonsburgh**

**SE Broad St**

**Murfree Springs  
Sand Springs**

**South Church Street**



*... creating a better quality of life*

# MEMORANDUM

DATE: July 21, 2016  
TO: Water and Sewer Board  
FROM: Valerie H. Smith  
RE: Dejarnette Lane PS #13 Replacement  
Award of Contract

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## **Background**

In May of 2013 the Board approved the Engineering, for the replacement of Pump Station #13 along Dejarnette Lane, to Huddleston Steele Engineering (H/S). Pump station #13 is located north of Dejarnette Lane across from Oakland High School. This pump station went into service in 1972 so it has been in operation for forty-three (43) years. The most recent estimate for the project was in the amount of \$1M.

The design has been completed and bids were received on July 14<sup>th</sup>. Only two (2) bids were received out of four (4) plan holders. Even though only two bids were received, they were within \$15,000 of each other. A recommendation from H/S along with the bid tabulation is attached. H/S recommends awarding the project to W&O Construction in the amount of \$1,515,000.00. They were the lowest responsible and responsive bidder for the project.

## **Recommendation**

Staff recommends the Board recommend to City Council awarding the contract to W&O Construction.

## **Fiscal Impact**

Funding of the low bid amount of \$1,515,000 is recommended to come from the Department's working capital reserves. This construction project has been programmed into the Department's 5-year capital improvement plan in the amount of \$1M, but there is enough within the reserves account to fund the additional \$515,000. The 5-yr CIP has been updated and highlighted to reflect the adjusted amount.

## **Attachments**

H/S Recommendation & Bid Tabulation

July 20, 2016

Ms. Valerie Smith, Assistant Director  
Murfreesboro Water & Sewer Dept.  
300 N. W. Broad Street  
Murfreesboro, TN 37130

Re: Replacement of DeJarnette Lane Pump Station No. 13  
Murfreesboro, Tennessee

Dear Valerie:

Enclosed is a copy of the Bid Tabulation on the bids received July 14, 2016. The low bidder is W & O Construction, Parsons, TN. We recommend the award of this project to W & O Construction for their low bid of \$1,515,000.00.

Sincerely,

HUDDLESTON-STEELE ENGINEERING, INC.



William H. Huddleston IV, P.E., R.L.S.

Enclosures

**BID TABULATION**

Replacement of Dejarnette Lane Pump Station No. 13

Murfreesboro, Tennessee

July 14, 2016 - 10:00 AM

**GRAND TOTAL  
(Stipulated Bid Price)**

**CONTRACTOR**

Haren Construction

\$1,532,000.00

W & O Construction

\$1,515,000.00



*... creating a better quality of life*

# MEMORANDUM

**DATE:** July 21, 2016  
**TO:** Water and Sewer Board  
**FROM:** Darren Gore  
**SUBJECT:** Extension of SSR Task Order 09-47-001.3 (Amendment #3)  
for 2016 East and West Fork Stones River Bioassessment Sampling

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## Summary Statement

AquAeTer has completed its water quality and stream assessments for the West and East Fork Stones River commissioned for 2014 and 2015. The bioassessment monitoring results were very encouraging and demonstrate that the West Fork Stones River is healthy and meeting its designated uses. The Department's 2016 draft National Pollution Discharge Elimination System (NPDES) permit incorporated some of these results in the rationale and we believe the Tennessee Department of Environment and Conservation (TDEC) is open to further dialog about how bioassessment sampling can be incorporated in the Department's 2021 NPDES permit. We believe the attached summary of work and associated task order is necessary to continue this work through the summer and fall of 2016, as a next installment of developing the protocol that we believe will help create a new permitting framework for the City of Murfreesboro with TDEC.

## Background

In June 2013 and March of 2014, the Board approved Smith Seckman Reid, Inc. (SSR) and AquAeTer to commence sampling of the East Fork and West Fork Stones River in support of renewing our existing NPDES permit application, and introduce the option to TDEC for an additional outfall on the East Fork Stones River.

These sampling results are intended to support the strategy of approaching TDEC to offer alternate permitting potentials to the City of Murfreesboro as we attempt to get ahead of the growth projected in the City's Murfreesboro 2035 Comprehensive Plan. One of the main overarching goals that the Department has over the next twenty (20) years is to influence the regulatory framework focusing on reclaimed water.

Effluent discharged from "wastewater" plants is no longer a "waste" product, but in fact becoming an ever increasing, sought after commodity. The results of AquAeTer's sampling reinforce the argument that the effluent released from the Sinking Creek Plant actually improves the health of the West Fork Stones River.

[Water and Sewer Department](#)

300 NW Broad Street \* P.O. Box 1477 \* Murfreesboro, TN 37133-1477 \* Office: 615 890 0862 \* Fax: 615 896 4259  
TTY 615 848 3214 \* [www.murfreesborotn.gov](http://www.murfreesborotn.gov)

SSR and AquAeTer have been assembling a data set that staff believes demonstrates that effluent discharged into W. Fork enhances the water quality of the river. The data demonstrates that the biology in the stream is healthy and that the stream is in fact meeting its designated uses. See attached exhibit.

Staff supplied the Board a summary of future objectives and action items associated with the on-going dialog with TDEC. The following bullets are an update of previous objectives and action items:

- 1) Demonstrate the Sinking Creek plant's effluent meets the Environmental Protection Agency's (EPA) anti-degradation criteria:
  - a. **Ongoing** – Through continued biological sampling of the West and East Fork Stones River.
  - b. **Ongoing** – Through enhanced monitoring techniques such as a 90-day time series Biochemical Oxygen Demand (BOD) test.
  - c. **New** – Developing a Waste Load Allocation Study that proves there is no anti-degradation (“backsliding”) associated with increased effluent BOD/ammonia load to the W. Fork Stones River.
- 2) **Completed** – Meet with TDEC officials to change the dialog from “reviewing the model results”, to “reviewing the observed site-specific data results”.
- 3) **Completed & Ongoing** – Initiate attempts to “de-list” the West Fork Stones River from the 303d impaired water bodies list.
- 4) **Ongoing** – Partner with TDEC in the paradigm shift that they are attempting to develop. Develop tactics that TDEC approves as proper implementation protocols and conforms to the new paradigm.
- 5) **Completed** – Ask for an extension of the Sinking Creek plant's current NPDES permit (expires May 31<sup>st</sup>, 2016, but must be reapplied for in November 2015) in a time frame that allows incorporation of site specific data (not modeling outputs) to properly determine if the West Fork Stones River is meeting its designated uses.
- 6) **New** – Develop a new NPDES permit rationale and framework “prototype” for TDEC review between now and MWSD's 2021 permit renewal.

I've attached an exhibit that shows how the Department's “dual path” approach is necessary to develop a new NPDES permitting framework prototype. I believe we've made great progress with TDEC in the bioassessment pathway, but need to meet with them and get their buy-in prior to initiating the waste load allocation modeling pathway.

### **Recommendation**

Approve amendment #3 to SSR Task Order 09-47-001.3 to allow for continued biological sampling of the West and East Fork Stones River as well as conducting 90-day time series Biochemical Oxygen Demand (BOD) sampling.

### **Fiscal Impact**

The extension to sampling and monitoring the West and East Fork Stones River is a **net additional fee of \$98,920** from previous approved fee ceilings. The table below accounts for the increase in fee to a

revised total of \$332,181. Staff recommends funding coming from the Department’s working capital reserves. MWSD’s 5-yr CIP budgeted \$375,000 for Stones River Water Quality studies between FY15 through FY17. \$50,000 is programmed into the 5-yr CIP for FY17 (highlighted). Previous years have had a shortfall of approximately \$100,000 on what was budgeted for FY15 and FY16.

<b>Firm</b>	<b>Scope</b>	<b>Original Fee</b>	<b>Amended #1</b>	<b>Amended #2</b>	<b>Amended #3</b>
SSR, Inc.	Complete 2016 NPDES Permit Application	\$0	\$0	\$12,000	\$0
SSR, Inc.	Project Management	\$25,000	\$25,000	\$25,000	\$0
AquAeTer, Inc.	Sampling of Water Quality Data	\$149,000	\$162,051	\$162,051	\$87,500
Laboratory	Testing	\$33,000	\$34,210	\$34,210	\$11,420
<b>TOTAL</b>		<b>\$207,000</b>	<b>\$221,261</b>	<b>\$233,261</b>	<b>\$332,181</b>

I have also increased the budget associated with the bullet items labeled as **NEW** in the background section of this memo to cover costs associated with developing a waste load allocation model and writing a new NPDES permit rationale for TDEC to consider as a new permitting framework prototype.

**Attachments**

- SSR Amendment to Task Order 09-47-001.2 Amendment #3
- AquAeTer Proposal to Conduct Water Quality and Biological Analyses of the East Fork and West Fork Stones River
- 2021 NPDES Permit Rationale Flowchart

**AMENDMENT TO OWNER-ENGINEER AGREEMENT**  
**Engineering Work Order 09-47-001.2**  
**Amendment No. 3**

1. *Background Data:*

- a. Effective Date of Owner-Engineer Agreement: May 2, 2014
- b. Owner: Murfreesboro Water and Sewer Department
- c. Engineer: Smith Seckman Reid, Inc
- d. Project: West Fork NPDES Application

2. *Description of Modifications:*

- a. Summer and Fall Sampling for 2016- In order to continue establishing a baseline of data to support MWSD's contention that the SCWWTP effluent is helping rather than hurting the overall health of the West Fork Stones River, and to further that baseline for a potential NPDES permit application on the East Fork Stones River, two additional sampling events will occur in the Summer of 2016 and the Fall of 2016/2017. It is anticipated that there will be two meetings at MWSD to review the results of these efforts. The approximate cost of this effort is \$98,920.00.

3. Agreement Summary (Reference only)

- a. Original Agreement amount: \$ 207,000.00
- b. Net change for prior amendments: \$ 26,261.00
- c. This amendment amount: \$ 98,920.00
- d. Adjusted Agreement amount: \$ 332,181.00

The foregoing Agreement Summary is for reference only and does not alter the terms of the Agreement.

Owner and Engineer hereby agree to modify the above-referenced Agreement as set forth in this Amendment. All provisions of the Agreement not modified by this or previous Amendments remain in effect. The Effective Date of this Amendment is \_\_\_\_\_.

OWNER:

ENGINEER:

\_\_\_\_\_  
By: \_\_\_\_\_

\_\_\_\_\_  
By: \_\_\_\_\_

Title: \_\_\_\_\_

Title: \_\_\_\_\_

Date  
Signed: \_\_\_\_\_

Date Signed: \_\_\_\_\_



July 15, 2016

152384

Mr. Mike Bernard, P.E.  
Smith Seckman Reid, Inc.  
2995 Sidco Drive  
Nashville, Tennessee 37204

Sent via e-mail to [MBernard@ssr-inc.com](mailto:MBernard@ssr-inc.com)

**RE: Proposal to Conduct Water Quality and Biological Analyses of the East Fork Stones River and the West Fork Stones River and to Develop a Permit Rationale for the Murfreesboro Water and Sewer Department**

Dear Mr. Bernard:

At your request, AquAeTer, Inc. has prepared a Scope of Work to continue providing water quality analyses and biological analyses of the East Fork Stones River and the West Fork Stones River. The biological investigations are to be conducted in both streams to continue to develop a database to determine if these streams are meeting their designated uses. The work will include biological and nutrient data collection to evaluate the health of both Rivers. These data will be collected over one summer and one late fall sample period with field collections for macroinvertebrates and water quality, and three individual 90-day time-series Biological Oxygen Demand (BOD) analyses. The biological and nutrient data can then be submitted to the State to provide additional real data to demonstrate that the West Fork Stones River is meeting its designated use and is not impaired. The study area extends on the West Fork Stones River from Nice Mill Dam Recreation area to the City of Murfreesboro Greenway Trailhead and on the East Fork Stones River from the transition zone of the backwaters of Percy Priest Lake and the free flowing portion of the river to the upstream extent of the Coleman Farm.

## **SCOPE OF WORK**

**AquAeTer** has prepared the following scope of work for this project. The scope of work will include monitoring both the East Fork Stones River and the West Fork Stones River to assess the current status with regards to their designated uses.

## **Work Plan**

A Work Plan was previously developed for the work in 2015. This Work Plan will be amended to account for the additional sample collection during the late fall period. The Work Plan will provide specific details to sampling and methodology. The Work Plan will be submitted to SSR and to the MWSD for review. Upon review and acceptance, **AquAeTer** will start in the planning of executing process.

## **Stream Investigations**

The West Fork Stones River is currently listed as impaired due to nutrient enrichment and sedimentation. Biological studies that have been completed by the state and various other constituents appear flawed according to the Standard Operating Procedures established by the state. Also, there is no specific impairment that is caused by nitrate other than the 10 mg/L drinking water standard for nitrate. Nitrate is not toxic to fisheries or macrobenthos at the concentrations that have been found in the previous sampling events. It is used by algae for primary productivity, but no algae studies have been completed by the state to demonstrate that the algal populations are not healthy. The other issue here is that the water quality regulations promulgated by the Tennessee Department of Environment and Conservation has a DO of 5 mg/L at all times versus the more normal DO standard for southern streams of 5 mg/L as a 24-hr average with no 8 hour period during the 24-hour day being less than 4 mg/L. In other words, TDEC's water quality standard does not allow for the natural diurnal cycle that is expected due to primary productivity. This is a fallacy within the TDEC regulations since natural systems can result in diurnal DOs less than a fixed 5 mg/L DO standard and still be a non-impaired stream with healthy aquatic resources. The biological investigations will be done to determine if the current diurnal DO swing negatively or positively affects the aquatic resources of the two rivers.

To continue building the database of data for the West Fork Stones River, we propose to do the following investigations:

1. Macrobenthological Collections will be conducted at six stations on the West Fork Stones River and at three locations on the East Fork Stones River, a total of nine stations. These collections will be completed during the summer months and again in the late fall. **AquAeTer** will follow the TDEC SOP for macrobenthos collections. **AquAeTer** will collect the macrobenthos samples in the field and bring them back to the laboratory for sorting and identification of the macrobenthos under the microscope. One part of the TDEC macrobenthological standard operating procedure uses a field procedure that takes about 1 hour to complete in the field and then calls for laboratory confirmation of the rapid field bioassessment. According to the State SOP, the field rapid bioassessment cannot be relied on to make assessments or conduct statistical metrics on the macrobenthological community. The semi-quantitative method described in the SOP will be utilized. Macrobenthos specimens

will be identified to the species level, except for chironomids which will be identified to the genus, and a third party will be used to verify the reference collection. Macroinvertebrates will be collected sometime from July to as late as September during periods when high flows have not occurred for 2 weeks prior to the specimen collection period, per the TDEC SOP.

During the macroinvertebrate sample collections an invitation will be extended to TDEC to attend the sampling event to observe the techniques being utilized by **AquaAeTer**. This will allow TDEC to visually witness that all State SOPs are being followed as written in the 2011 *Standard Operating Procedures for Macroinvertebrate Stream Surveys*.

During each macroinvertebrate sample event, habitat assessments will be completed. The TDEC SOP will be followed when completing the habitat assessment at each station.

2. Water Quality analyses will be performed during the macroinvertebrate collection and will include samples from the locations of which the macroinvertebrates were collected. The following is a list of the proposed analyses for each sample:
  - a. Nitrogen including:
    - i. Total Kjeldahl nitrogen (TKN);
    - ii. Ammonia nitrogen; and
    - iii. Nitrite + nitrate.
  - b. Phosphorous:
    - i. Total phosphorus; and
    - ii. Dissolved orthophosphate; and,
  - c. In-situ water quality measurements.
  
3. 90-Day time-series Biological Oxygen Demand  
Monthly water samples will be collected from three locations during three consecutive months, the first of which will coincide with the macroinvertebrates collection. The proposed locations for collection are as follows:
  - a. Upstream of the current POTW outfall on the West Fork Stones River;
    - i. Will serve as a background sample to characterize the upstream contributions.
  - b. Current effluent; and,
  - c. Downstream of the current POTW outfall near WF003 from 2014 sampling;
    - i. Will allow for a correlation of the high TMI score with recalcitrant nitrogen and phosphorus.

Samples will be transported back to the **AquAeTer** lab and set up for future analysis. 9 individual water quality samples will be taken from each sample location. These samples will be taken at approximately Time 0, Day 5, Day 10, Day 15, Day 20, Day 30, Day 45, Day 60, and Day 90. The following nutrients will be analyzed:

- a. TKN (Time 0 and Day 90);
- b. Nitrite + Nitrate;
- c. Ammonia;
- d. Total Phosphorus; and,
- e. Dissolved orthophosphates.

Dissolved oxygen content will be measured approximately 18 times throughout the duration of the 90-day period. These oxygen measurements will be recorded and used to calculate a BOD for each sample. This calculation will provide the amount of dissolved oxygen needed by aerobic organisms to breakdown organic material over a specific time period, in this case 90 days.

The end result will provide the ultimate carbonaceous oxygen demand as well as the potential nitrogenous oxygen demand for the stream and effluent samples.

### **Meetings**

We have included costs for five meetings over the course of the study. We anticipate one meeting with the State to discuss the results of field activities following the completion of the study. The other three meetings are intended for periodic updates during the course of the study.

### **Report**

At the completion of all field events, one full report will be developed summarizing the findings of all events. In addition, a separate BOD sample report will be provided.

## **SCHEDULE**

**AquAeTer** is prepared to begin this project upon authorization from the City of Murfreesboro. The Work Plan can be completed within two weeks after authorization. It is anticipated that the field work for the summer investigation will begin in July and continue through November of 2016. The BOD samples take 90 days to complete plus time for the final analytical laboratory results to be provided. It is likely that this portion of the work will extend into January 2017.

It is anticipated that the first draft of the summary report will be available in January 2017, although this will depend upon the exact date of the late fall macrobenthic sampling.

## **COST ESTIMATE**

**AquAeTer** has prepared a cost estimate for this work, as presented in Table 2. The total estimated cost is \$94,300. This cost includes water quality collection and three collections of water for the time-series BOD analysis, including the 90-day monitoring of water samples. We have also included costs of five meetings during the course of the work. The summer and fall 2016 sample is currently scheduled for a three day event due to the expected time demands of TDEC.

## **PROJECT EXPERIENCE**

**AquAeTer** professionals have extensive water quality and NPDES Permitting project experience in 29 states, 1 territory and 6 foreign countries. A few projects pertinent to this project include work in Tennessee, Georgia, Alabama, Florida, South Carolina, North Carolina, Arkansas, Louisiana, Texas, and Oklahoma.

Our team has conducted numerous comprehensive water quality and TMDL analyses including nutrient eutrophication issues as well as biological investigations. Previous work experience includes:

- East Fork Stones River, Murfreesboro, Tennessee;
- West Fork Stones River, Murfreesboro, Tennessee;
- Harpeth River, Franklin, Tennessee;
- Cumberland River, Nashville, Tennessee;
- Mill Creek, a tributary to the Cumberland River, Nashville, Tennessee;
- Overall Creek, a tributary to the Cumberland River, Nashville, Tennessee;
- Tennessee River, Counce, Tennessee;
- Tennessee River, New Johnsonville, Tennessee;
- Clinch River, Oak Ridge and Clinton, Tennessee;
- Duck River, Columbia, Tennessee;
- Pigeon River, Tennessee;
- French Broad River, Tennessee;
- Pigeon River, North Carolina;
- Tombigbee River, Naheola, Alabama;
- Intracoastal Waterway, Gulf Shores, Alabama;
- Alabama River, Burkville, Alabama;
- Alabama River, Yellow Bluff, Alabama;
- Huntsville Spring Branch/Indian Creek, Redstone Arsenal, Alabama;
- Tennessee River, Decatur, Alabama;
- Tombigbee River, Naheola, Alabama;
- Conecuh, Brewton, Alabama;
- Escambia River and Escambia Bay, Pensacola, Florida;
- St. Johns River, Palatka, Florida;

- Hillsborough Bay, Tampa, Florida;
- Manatee River, Bradenton, Florida;
- North and West Bays, Panama City, Florida;
- Turtle River, Brunswick, Georgia;
- North Newport River, Georgia;
- Conasauga, Coosawattee and Oostanaula Rivers, Dalton, Georgia;
- Chattahoochee River, Atlanta, Georgia;
- Ocmulgee and Altamaha Rivers, Georgia;
- Flint River, Woodbine and Oglethorpe, Georgia;
- Savannah River, Augusta, Georgia;
- Broad River/Savannah River/Lake Murray, Elberton, Georgia;
- Ouachita River, Camden and Crossett, Arkansas;
- Red River, Ashdown and Fulton, Arkansas;
- Arkansas River, Little Rock, Arkansas;
- Arkansas River, Russellville, Arkansas;
- Pearl River, Monticello, Mississippi;
- Tennessee River, Calvert City, Kentucky;
- Arkansas River, Muskogee, Oklahoma;
- Grand Neosho River, near Pryor, Oklahoma;
- Mississippi River, Cordova, Alton, and Sauget, Illinois;
- Illinois River, Ottawa and Henry, Illinois;
- Illinois River, Liverpool, Illinois
- Wabash River, Cowling, Illinois;
- Rock River, Rockford and Joslin, Illinois;
- St. Joseph River, Auburn, Indiana;
- Lake Michigan, Whiting, Indiana;
- Wabash River, Terre Haute, Indiana;
- Fox River, Twin Locks, Wisconsin;
- Superior Bay, Duluth, Minnesota;
- St. Louis River, Cloquet, Minnesota;
- Embarrass River, Aurora, Minnesota;
- Fields Brook/Ashtabula River, Ashtabula, Ohio;
- Lake Erie, Ashtabula, Ohio
- Ohio River, Cincinnati, Ohio
- Paint Creek, Greenville, Ohio
- Amuay Bay, Amuay, Venezuela;

## **PROJECT TEAM**

**AquaTer** will assign Mike Corn, P.E. (TN), BCEE as Technical Director. Mr. Corn worked with Smith Seckman Reid on the original Wasteload Allocation Study for the West Fork Stones River in the early 1980's. He recently directed the field work on the East Fork Stones River. Mr. Corn has been involved in TMDL and assimilative capacity studies, as well as the

subsequent dispersion modeling and permit negotiations, for over 40 years. Mr. Corn has been involved in multiple diffuser design/installation projects, including Alaska, Louisiana, Illinois, and other states. Mr. Corn recently directed the work designing the diffuser that is to be installed at the Ferro facility. He has studied over 200 stream, river, lake, estuary, and open ocean systems both in the U.S. and abroad. He has assisted the USEPA, Athens, in the calibration of the dynamic (WASP) wasteload allocation model on the Alabama River near Montgomery, Alabama. He has completed numerous water quality projects in USEPA, Region 4, including projects in Tennessee, Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, and South Carolina.

John Michael Corn, P.E. (TN) will serve as the Project Manager. Mr. Corn recently managed the simulation and design of the diffuser that is to be installed at the Ferro facility. Mr. Corn has more than 13 years' experience in conducting water quality surveys.

Other **AquAeTer** staff members who will likely assist on the project include Nick Carmean, Richard Rogers, Jerrod Manning, and Rachel Stribling. Other staff may be employed as needed to complete the project.

## **STANDARD CONTRACTURAL TERMS**

This project will be conducted pursuant to AquAeTer's contractual terms provided in the Standard Contractual Terms section of this proposal. AquAeTer will use good engineering and scientific practices consistent with the profession and regulatory requirements. Payment will be due 30 days after receipt of invoice. Acceptance of this proposal, standard contractual terms, and attachments can be accomplished by signing and returning one copy (along with an accompanying purchase order) to the following address:

AquAeTer, Inc.  
215 Jamestown Park, Suite 100  
Brentwood, TN 37027

This proposal will remain valid if accepted within 30 days from July 15, 2016.

**CONCLUDING REMARKS**

If you have questions or comments pertaining to this proposal, please contact us by telephone at (615) 373-8532, by FAX at (615) 373-8512, or by e-mail at [jmcom@aquaeter.com](mailto:jmcom@aquaeter.com) or [mcorn@aquaeter.com](mailto:mcorn@aquaeter.com). We appreciate the opportunity to assist you on this project.

Sincerely,

**AquAeTer, Inc.**



John Michael Corn, P.E. (TN)  
Project Manager



Michael R. Corn, P.E. (TN), BCEE  
President

TABLE 2. COST ESTIMATE TO PERFORM ENVIRONMENTAL ASSESSMENT

CATEGORY	TASK 1 SITE EVALUATION, WORK PLAN, HEALTH&SAFETY PLAN		TASK 2 WATER QUALITY ANALYSES		TASK 3 MACROBENTHOS COLLECTION X 2 EVENTS		TASK 4 BIOLOGICAL OXYGEN DEMAND		TASK 5 FIVE MEETINGS		TASK 6 SUMMARY REPORT AND BOD DATA REPORT		TOTAL HOURS	BILL RATE	TOTAL COST
	(hrs)	(\$)	(hrs)	(\$)	(hrs)	(\$)	Per Sample	Flat Rate	(hrs)	(\$)	(hrs)	(\$)	(hrs)	(\$/hr)	(\$)
<b>LABOR</b>															
<b>Technical Director</b>															
Michael R. Corn, P.E.		\$0	2	\$450	8	\$1,800			20	\$4,500	16	\$3,600	46	\$225	\$10,350
<b>Project Manager</b>															
John Michael Corn, P.E.	0.5	\$66	4	\$524	12	\$1,572			40	\$5,240	24	\$3,144	80.5	\$131	\$10,546
<b>Project Scientist/Engineer</b>															
Nick Carmean	2	\$168	6	\$504	68	\$5,712			40	\$3,360	40	\$3,360	156	\$84	\$13,104
Richard Rogers	1	\$84	6	\$504	68	\$5,712				\$0	20	\$1,680	95	\$84	\$7,980
Jerrold Manning		\$0	6	\$444	60	\$4,440				\$0		\$0	66	\$74	\$4,884
Rachel Stribling		\$0		\$0		\$0				\$0	20	\$1,480	20	\$74	\$1,480
<b>Technician</b>		\$0		\$0		\$0				\$0		\$0	0	\$58	\$0
<b>Administrative</b>	1	\$58	2	\$116	4	\$232				\$0	4	\$232	11	\$58	\$638
<b>Total Labor Expenses</b>	4.5	\$376	26	\$2,542	220	\$19,468	\$2,100	\$21,000	100	\$13,100	124	\$13,496	474.5		<b>\$69,982</b>
<b>EXPENSES</b>															
Copies, Fax, Telephone		\$50		\$25		\$25				\$50		\$100			\$250
<b>Travel and Per Diem</b>															
Rental Car and Gas		\$0										\$0			\$0
<b>Laboratory Expenses</b>															
Sort, ID, Data Entry, Supplies						\$5,500									\$5,500
<b>Equipment Rentals</b>															
GPS				\$45		\$90									\$135
Boat						\$500									\$500
Water Quality Multi-Probe				\$275		\$220									\$495
Current Meter															\$0
Boat Electrofisher															\$0
Backpack Electrofisher															\$0
Generator															\$0
Miscellaneous Equipment				\$200		\$400									\$600
Shipping				\$500		\$400									\$900
<b>Total Expenses</b>		\$50		\$1,045		\$7,135		\$0		\$50		\$100			\$8,380
<b>ANALYTICAL LABORATORY</b>															
TKN, NO2+NO3, NH3			20	\$1,540											\$1,540
TP, PO4			20	\$880											\$880
<b>Total Laboratory Expenses</b>		\$0		\$2,420		\$0		\$0		\$0		\$0			\$2,420
<b>SUB-CONTRACTOR</b>															
Third Party Verification						\$9,000									\$9,000
<b>Total Sub-Contractor Costs</b>		\$0		\$0		\$9,000		\$0		\$0		\$0			\$9,000
<b>Sub-Total All Categories</b>		<b>\$426</b>		<b>\$6,007</b>		<b>\$35,603</b>		<b>\$21,000</b>		<b>\$13,150</b>		<b>\$13,596</b>			<b>\$89,782</b>
<b>Contingency</b>		\$21		\$302		\$1,792		\$1,057		\$662		\$684			\$4,519
<b>GRAND TOTAL</b>		\$447		\$6,309		\$37,395		\$22,057		\$13,812		\$14,280			<b>\$94,300</b>

## **STANDARD CONTRACTUAL TERMS**

**AQUAETER, INC. CONTRACTUAL TERMS**  
**(Effective January 1, 2016)**

This document presents the "**AquAeTer, Inc. Contractual Terms**" (Terms) for providing **AquAeTer** (Company) services on the project addressed in **Section 2.0**, unless otherwise stipulated and specifically explained in **Section 1.0**. These Terms include only the topics and content presented in the appropriate section below.

- 1.0 TERMS APPLICATION**
- 2.0 SCOPE OF WORK**
- 3.0 INVOICING**
- 4.0 LIABILITY AND WARRANTIES**
- 5.0 INSURANCE COVERAGE**
- 6.0 PROJECT INTERRUPTION OR TERMINATION**
- 7.0 AUTHORIZATION TO PROCEED**
- EXHIBIT 1 NON-DISCLOSURE AGREEMENT**
- EXHIBIT 2 BILLING SCHEDULE**
- EXHIBIT 3 FORCE MAJEURE**

**1.0. TERMS APPLICATION**

- 1.1 These Terms form the sole basis for Company personnel, agents, subcontractors and/or corporate services to provide services to the Client pursuant to relevant verbal or written agreements; such as those normally presented in project work scopes, proposals, purchase orders, and/or contracts. On some projects the Client and Company will agree that changes, such as scope, schedule, and/or budget, are warranted. These terms will apply to the agreed changes to Company services.
- 1.2 These Terms apply unless otherwise specifically modified in writing by a Company officer.
- 1.3 The Company will serve the Client as an independent contractor and will direct the activities of the Company's employees, agents and subcontractors. For all purposes of this agreement and all work conducted by the Company under the terms of this agreement, the Company includes all of its branch offices, subsidiaries and affiliates, and all officers and employees thereof.
- 1.4 Data, reports, drawings and other information developed specifically for the project will be owned by the Client, with the Company maintaining a copy of information for its records. Proprietary Client information used or developed for the Client will be controlled by the Company pursuant to "**AquAeTer Inc. Non-Disclosure Agreement**" presented in **Exhibit 1**.

- 1.5 The Company will allow the Client to review project information (on-site and/or in Company offices) including project accounting audits during normal working hours and with one week advance notice. Company costs for such visits/audits will be discussed with the Client and handled on a case-by-case basis.
- 1.6 In accomplishing its work, the Company requests that the Client provide timely project information and make decisions consistent with that required for the project scope. Unless written specifically into the project scope, it is expected that the Company will have full Client cooperation and assistance as warranted to complete the project.
- 1.7 Company will comply with identified Client safety programs and procedures with which the Company has knowledge. The Client will provide any special safety training as part of projects and as such, Company personnel time spent on such training is considered billable time.
- 1.8 Company proposals, including work scopes and cost information, remain the sole property of the Company and may not be disclosed to any person or entity other than Client personnel or representatives without prior Company approval.

## **2.0 SCOPE OF WORK**

These Terms apply to work conducted by the Company for the Client as described in a Company Proposal or Work Description that is cited in an Authorization that is approved and signed by the Company and Client.

## **3.0 INVOICING**

Company invoices will be issued on completion of the work or on a frequency that is not longer than once each month. These invoices will include sufficient referencing (e.g., client name, purchase order or contract number, and Company project title and number) to allow the Client to orderly process and pay Company billings. The Company will provide the type of accounting backup information that is applicable to the specific project, as presented in Section 2.

- 3.1 For time and materials projects, reasonable backup documentation will be provided, if requested by the Client. The Company billing schedule is presented in Exhibit 2. The labor billing will be the sum of charges based on the total time for each individual doing project-related work multiplied by the applicable billing rate. Billing for project-related expenses, including subcontractor services, will be based on the actual cost of such expenses multiplied by the appropriate factor in Exhibit 2. The Company will maintain reasonable records for project-related labor hours, subcontract costs, and expense items.
- 3.2 For fixed cost projects, invoicing will depend on the specific arrangements that are mutually acceptable to the Company and Client. Typically, fixed cost project billings for the total fixed cost amount will be made at the end of the project, if the project is completed within one month or less. For projects extending over a period longer than one month, billings will be made no less frequently than monthly with the billing total for

each invoice based on the "percentage-completed during the billing period." Unless otherwise agreed by the Company, the cost of its services for Environmental Audits and its associated project-chargeable direct costs will be billed as a lump-sum at the completion of the project or at the completion of each identifiable project task, as determined by the Company.

- 3.3 Full payment of Company invoices (in U.S. dollars), including cost of services and associated project-chargeable direct costs, is due within 15 days of invoice date for Environmental Audits. Payment for all other services and project-chargeable direct costs will be due within 30 days of invoice date. A past-due service charge of 1.5% per month will be applicable, and may be invoiced to the Client, for any amounts not paid within these time periods. Any additional costs incurred by the Company (such as reasonable legal or collection services costs) because of a Client's delay in payment will be invoiced to the Client for payment to the Company.

#### **4.0 LIABILITY AND WARRANTIES**

- 4.1 The Company will strive to perform services in a manner consistent with that level of care and skill ordinarily exercised by other members of the Company's profession currently practicing in the same locality under similar conditions. No other representation, express or implied, and no warranty or guarantee is included or intended in this agreement, or in any report, opinion, document, or other instrument of service.
- 4.2 The Client will be responsible for informing the Company personnel, agents and/or subcontractors of relevant project hazards, including health and/or safety issues, areas of concern related to the site, facilities, and/or wastes. The Client also will indemnify and will hold harmless the Company, its agents and subcontractors with respect to any health-related issues arising from the presence of chemicals or contaminants on the Client's property or other properties temporarily occupied or visited by the Company or Company representatives during the normal course of conducting the work, including surface and subsurface sampling or investigation, that is the subject of this agreement.
- 4.3 The Company will be responsible only for its activities and those of its employees and subcontractors at the project site. Neither the professional activities of the Company, nor the presence of Company employees or subcontractors at the project site, shall relieve the Client or its contractor(s) of their obligations, duties and responsibilities including, but not limited to, construction means, methods, sequence, techniques or procedures necessary for performing, superintending and coordinating the contractor's work in accordance with its applicable contract documents and any health and safety requirements of the Client and regulatory agencies. The Company and its personnel have no authority to exercise any control over the Client, its contractor(s), or their employees or subcontractors in connection with their work or any health and safety programs or procedures; however, the Consultant reserves the right to report to the Client any unsafe condition observed at the site without altering the foregoing.

- 4.4 The Company's liability shall be limited to the smaller of \$50,000 or the dollar amount of the cost of Company services for the Project.
- 4.5 If it is determined after completion of the Project that some work needs to be redone as a result of the Company's intentional or unintentional errors or omissions, then the Company will spend the extra time and expenses to amend its services without additional cost to the Client to the extent of the agreed work scope and project budget. Company (including its personnel, agents and subcontractor) liability will be limited to the original agreed project fee total for such corrective work.

## 5.0 INSURANCE COVERAGE

- 5.1 The Company has the following insurance coverage:
- a. Worker's Compensation (Including Occupational Diseases) Insurance  
 Policy Limits:  
 Worker's Compensation: Statutory Limits  
 Employer's Liability: \$1,000,000, each accident, policy limit;  
 \$1,000,000 Bodily injury by Disease for each employee; policy  
 limit \$1,000,000.
  - b. Comprehensive General Liability Insurance  
 Policy limits are not less than:  
 Bodily Injury: \$5,000,000 per occurrence  
 Property Damage: \$5,000,000 per occurrence, \$5,000,000 general  
 aggregate.
  - c. Comprehensive - Automobile Liability Insurance  
 Policy limits are not less than:  
 Single Limit (CSL) of \$1,000,000  
 (Primary policy over all others, covering all owned, hired and non-  
 owned automotive equipment.)
  - d. Commercial Umbrella Liability  
 Provides excess of the General Liability, Employers Liability,  
 Automobile Liability and Watercraft Liability Limits.  
 Policy limits are not less than:  
 \$5,000,000 each occurrence  
 \$5,000,000 annual aggregate
  - e. Professional Liability  
 Each Claim: \$5,000,000  
 Aggregate: \$5,000,000
  - f. P&I and Hull including Jones Act  
 PI limit: 1,000,000

**6.0 PROJECT INTERRUPTION OR TERMINATION**

The Company or the Client shall be able to interrupt or terminate the Project at any time, including for reasons based on causes beyond the control of either the Company or Client (e.g., pursuant to the Force Majeure conditions discussed in Exhibit 3.) The Company will be paid by the Client for all services performed up to the project termination, including those costs associated with the return of Company personnel, agents and/or subcontractor and equipment even if after the date of termination.

**7.0 AUTHORIZATION TO PROCEED**

The Company and Client agree to the Terms of this agreement and its exhibits and attachments, and further agree that the Project can proceed, subject to any specific scheduling requirements communicated by either party to the other with sufficient advance notice.

**FOR AQUAETER, INC. (COMPANY)**

By: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**FOR \_\_\_\_\_ (CLIENT)**

By: \_\_\_\_\_

Printed Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## **EXHIBIT 1**

### **AquAeTer Inc. NON-DISCLOSURE AGREEMENT**

**AquAeTer Inc.** employees, agents, and subcontractors, in the course of providing consulting services/completing project work, may receive confidential and/or proprietary information from the Client. **AquAeTer** will inform its personnel, agents and subcontractors, that such Client information is not to be disclosed outside the Company or Client (and their representatives), unless such disclosure is necessary for **AquAeTer** to complete the consulting services being provided. Information already in the public domain, or that which is known and used by **AquAeTer** personnel or its agents/subcontractors, prior to the Client's project or that was provided to the Company by outside sources will not be considered confidential or proprietary.

The Client should mark any printed or electronically provided information subject to such protection as "Proprietary" (or by other similar descriptor) prior to forwarding such information to **AquAeTer**. Information, such as business plans or confidential processes, provided verbally by the Client to **AquAeTer**, and identified by the Client as confidential, also will be held as proprietary until such information is designated otherwise or is in the public domain. Further, the Client should inform **AquAeTer** if such information requires "Extra Handling/Storage Procedures." These procedures require that such information be securely stored (such as in locked cabinets) when not being actually used for the Client's project.

**EXHIBIT 2**

**AQUAETER, INC.  
BILLING SCHEDULE  
(Effective January 1, 2016)**

**CLASSIFICATION**

**LABOR BILLING RATES  
(\$/hr)**

Specific Individual Rates

(May be added as required by the Client)

General Rate Categories

Technical Advisor.....	155 - 275
Technical Director .....	125 - 275
Project Director.....	100 - 185
Senior Project Engineer/Scientist .....	75 - 155
Project Engineer/Scientist/Specialist .....	65 - 100
Engineer/Scientist/CAD.....	65 - 95
Project Administrator.....	55 - 95
Clerical.....	55 - 75

**REIMBURSABLE EXPENSES**

All reimbursable expenses (unless specifically excluded) including all travel related, vendor invoices, and subcontractor invoices will be marked up 10%.

**DIRECT EXPENSES**

Telephone	Cost (a)
Copying	\$0.10 per 8.5" x 11" B&W copy \$0.30 per 8.5" x 11" color copy
Fax	\$1.00 per page
Postage	Cost (a)
Report Supplies	Cost (a)

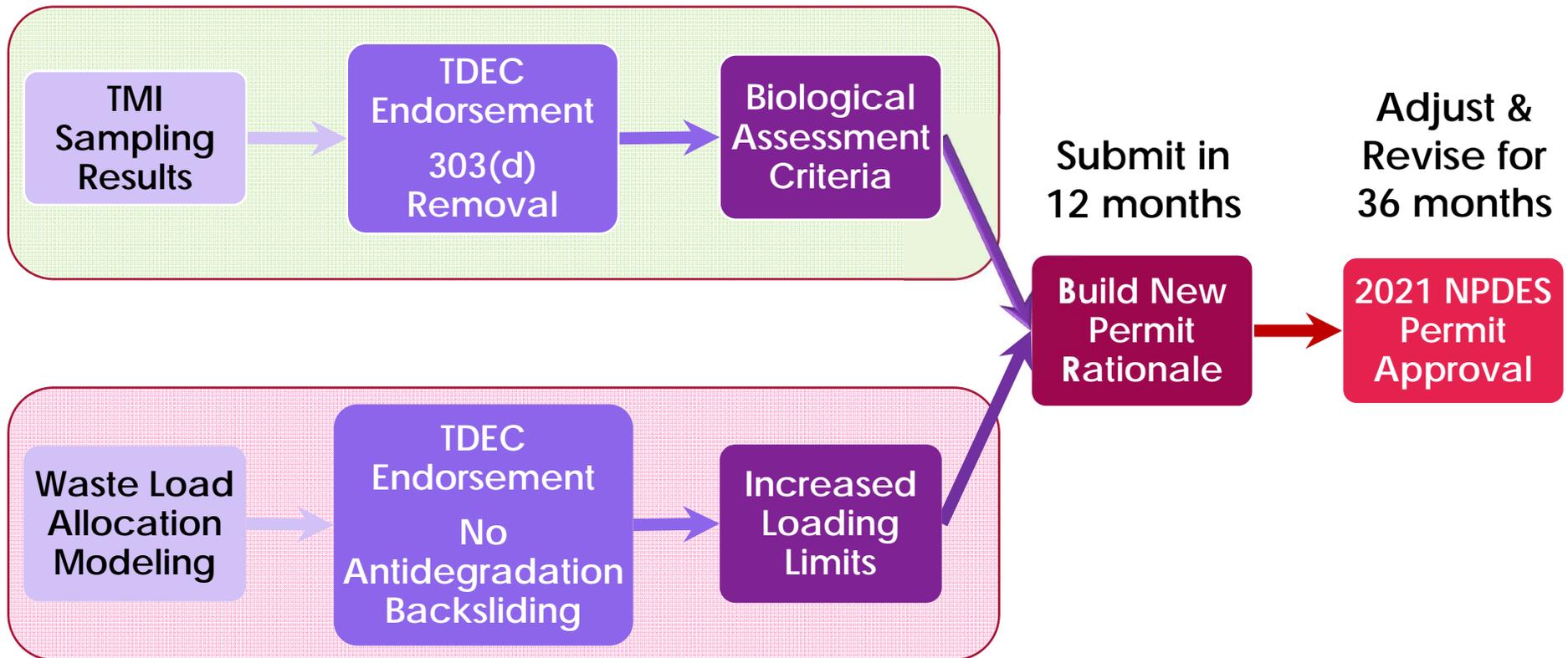
(a) Markup does not apply

### **EXHIBIT 3**

#### **FORCE MAJEURE**

Delays in project schedules, execution, performance and/or completion, beyond the control of **AquAeTer, Inc.** and/or the Client shall not provide a basis to make claims when such is the result of force majeure. Included in this category will be project interruptions, delays, and terminations due to accidents (e.g., explosions, fires, flooding), acts of God, governmental interventions/rulings, rebellion, riots, strikes, sabotage, and similar or dissimilar actions.

# 2021 NPDES PERMIT RATIONALE FLOWCHART





*... creating a better quality of life*

# MEMORANDUM

**DATE:** July 22, 2016  
**TO:** Water and Sewer Board  
**FROM:** Darren Gore  
**SUBJECT:** Septic Tank Effluent Pump (STEP) Design Guidelines for Murfreesboro Water and Sewer Department (MWSD) Service Area Affecting TM 126 Parcel 18.00 on Dilton-Mankin Rd.

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## Summary Statement

MWSD has considered operating and maintaining satellite facilities treating sanitary sewer for several years. Staff has worked with Site Engineering Consultants (SEC) along with City Planning and Engineering staff to develop some proposed STEP design criteria for developments beyond MWSD's sanitary sewer central collection system. The primary purpose of these design criteria are to incentivize developments to request annexation into the City limits of Murfreesboro and build to City standards.

## Background

A proposed site off of Dilton-Mankin Rd just outside the City limits of Murfreesboro brought the need for the City of Murfreesboro to consider becoming operators of STEP systems. The attached exhibit illustrates the site that was designed for a STEP system that was adjacent to the City limits. In other words the property is annexable under current State law. The site has been preliminarily designed to Rutherford County development standards and Consolidated Utility District (CUD) STEP drip disposal criteria for effluent disposal.

Bill Dunnill, the General Manager for CUD, called MWSD staff several weeks ago to inquire if this site was close enough to MWSD's gravity sanitary sewer system that it should be connected to the City's collection system. Mr. Dunnill even suggested that a future CUD abandoned water line adjacent to Manchester Pike (US41) would be available to MWSD for conversion to a sanitary sewer force main should MWSD consider a pumping station serve the property.

Staff has investigated three (3) scenarios, each having an unknown business case, so we would like to put the decision into the developer's control. The options are as follows:

- 1) Allow the 8" abandoned water main to act as a casing sleeve for a four (4) or six (6) inch sanitary sewer force main that would convey pumped sewage to the terminus point illustrated in the attached. The main challenge with this scenario is converting the permanent water easement in dedicated to CUD to allow a dedicated easement to the City of Murfreesboro for conveyance of a sewer force main.
- 2) The development be served by a decentralized STEP treatment system that is owned operated and maintained by the Murfreesboro Water and Sewer Department. The main challenge with this option is associated with MWSD not having general design guidelines associated with allowable lots, drip dispersal acreage, reserve drip field area, and hydraulic soil loading.

[Water and Sewer Department](#)

300 NW Broad Street \* P.O. Box 1477 \* Murfreesboro, TN 37133-1477 \* Office: 615 890 0862 \* Fax: 615 896 4259  
TTY 615 848 3214 \* [www.murfreesborotn.gov](http://www.murfreesborotn.gov)

- 3) Facilitate through cost-sharing an extension of gravity sanitary sewer along the alignment of the Department's 201 Wastewater Facilities Plan and coordinate with the installation of the approved pumping station on the Jones property to serve both developments. The main challenge with this option is acquiring easements on the property to the north of the subject property and the timing associated with the multi-family development on the Jones property and coordinating the installation of a pumping station serving both properties.

Based on a meeting conducted on July 21<sup>st</sup>, 2016 with the Department, the developer and Planning and Engineering staff at City Hall, the developer has stated their intent to pursue option 2, or install a decentralized STEP treatment system.

### **Recommendation**

As this project has moved rather quickly, it was always staff's desire to allow the developer to select the option that provides the best development solution for them. The primary role of MWSD is to incentivize the voluntary request by the property owner to be annexed into the City of Murfreesboro and subsequently have the development built to City standards. The following DRAFT design guidelines accomplishes that objective, and therefore staff recommends the Board adopting the STEP design guidelines developed in conjunction with Site Engineering Consultants, Inc. (SEC). See attached engineering report. In concert with the STEP system design criteria, staff has developed some pre-requisites that would need to be fulfilled prior to committing to serving a property with a decentralized STEP system.

### **Fiscal Impact**

There are no initial capital costs associated with allowing the referenced property to be developed using a STEP system. Staff anticipates creating a customer class for customers served through a STEP system and seeing that operation and maintenance costs are adequately covered. See design guidelines below referring to establishing a rate design commensurate with Consolidated Utility District's rate design.

### **Attachments**

- Dilton-Mankin property exhibit; sanitary sewer service scenarios
- Draft design guidelines for servicing City properties through a STEP system
- SEC Engineering Report recommendation for STEP drip irrigation fields

### DRAFT Design Guidelines for Servicing City Properties through a STEP system

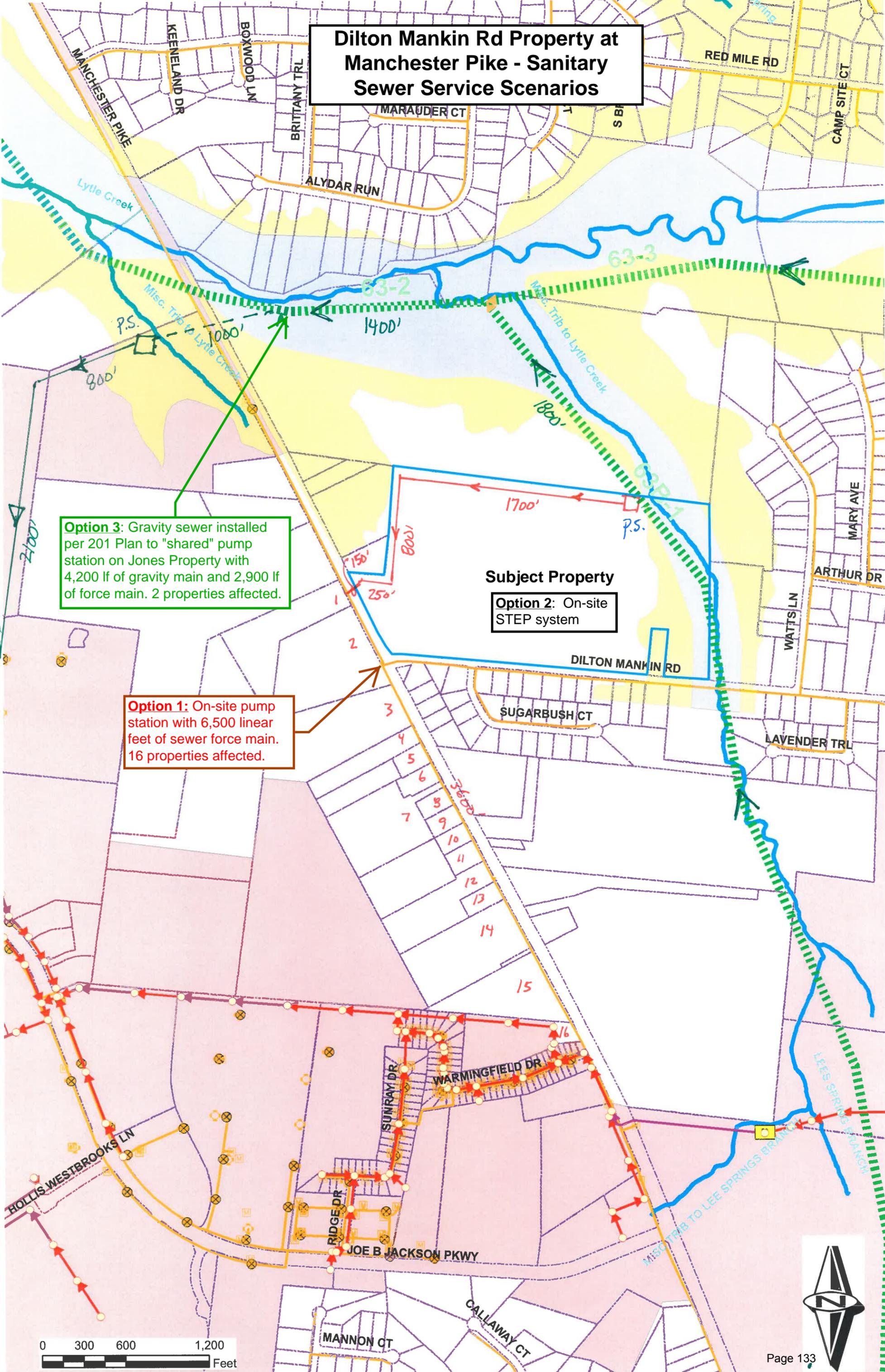
The preliminary conditions for consideration of MWSD to serve a proposed development with a Septic Tank Effluent Pump (STEP) system are:

- 1) The property must be initially deemed “annexable”, as defined by either (i) being contiguous to current Murfreesboro City Limits, or (ii) all owners of all properties between the proposed site and current Murfreesboro City Limits must also consent; and, the developer of the property must request annexation into the City limits of Murfreesboro.
- 2) Sanitary sewer must be deemed economically unfeasible to extend to the development per MURFREESBORO CITY CODE Chapter 29 SUBDIVISIONS, MAPS AND PLATS, Section 29-10, which states – Where a subdivision or the lots located therein for any reason cannot be economically connected with the City’s or other sewerage system, or where for any reason the Council of the City declines to extend its sewerage or service to a subdivision or any of the lots therein, the lots in said subdivision not connected or to be connected to the City’s or such other sewerage system must contain adequate area for installation of approved septic tank and disposal fields based on a percolation test and must be approved in writing by the county health officer.
- 3) Adequate soils must be available to support the development at a hydraulic loading rate of 0.20 gallons per day per square foot (gpd/sf) and maintain a reserve drip irrigation area of 50% of the approved application area. Per the example provided in SEC’s engineering report, this would require 5.17 acres of drip irrigation application area for a 100 lot development.
- 4) The Planning Dept. and Planning Commission would need to approve the development in accordance with all applicable zoning requirements and engineering design standards.

The City’s ordinance would need to be amended to accommodate two (2) specific items:

- 1) Collection of fees for treating sewerage through a STEP system. The proposed MWSD STEP rate structure would be recommended to align with CUD’s STEP rate structure which is a flat rate of \$28.00 per month plus \$2.00 per thousand gallons of all consumption; and,
- 2) Exclusion of single family units and single family unit equivalents from system development charges (a.k.a., connection fees) and special sanitary sewer assessment fees. Since these developments would not be “buying in” to the capacity of the central collection and treatment system, the aforementioned charges and fees should not be applied.

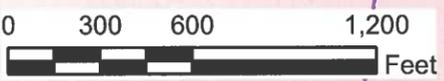
# Dilton Mankin Rd Property at Manchester Pike - Sanitary Sewer Service Scenarios



**Option 3:** Gravity sewer installed per 201 Plan to "shared" pump station on Jones Property with 4,200 lf of gravity main and 2,900 lf of force main. 2 properties affected.

**Subject Property**  
**Option 2:** On-site STEP system

**Option 1:** On-site pump station with 6,500 linear feet of sewer force main. 16 properties affected.



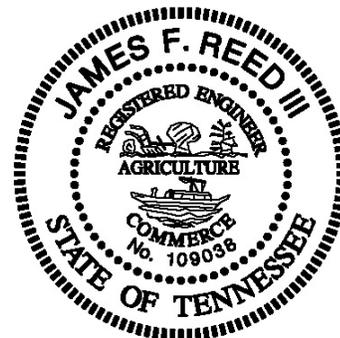


# STEP SYSTEMS

**Septic Tank Effluent Pump (STEP) Sanitary Sewer Collection,  
Recirculating Sand Filter Wastewater Treatment & Land Drip  
Dispersal System**

for

**Murfreesboro Water and Sewer Department  
Murfreesboro, TN**



## Section Index

- 1 General Information
- 2 Effluent Disposal Calculations

# 1 General Information

Sewage waste and grey water from (sinks, washing machine, etc) from residential houses drain into individual concrete 2-compartment tanks on each lot where the solids remain in the inlet side and the grey water effluent overflows into the outlet side of tank. When the wastewater effluent reaches a certain level in the outlet side of tank, an internal submersible pump will pump grey water to a common collection line typically along the road right of way with all the other tanks/lots in the system. The wastewater collection line. This line is typically 2-4" PVC will force under pressure the grey water from all the homes within a residential subdivision to a common wastewater treatment area that includes various stages of treatment.

**Stage one** starts with the recirculating sand filter (RSF) for the wastewater treatment. The RSF is split into two-sides (80% and 20%). Effluent / grey water is dosed five times through the RSF. The 20% side starts the **second stage** to disperse treatment effluent into the final dose (pump) tank. The effluent is then pumped from the final dose tank to **stage three** which is ultra violet (UV) disinfection in the UV building. Once disinfection has occurred, **stage four** begins by pumping the effluent into suitable land for underground drip dispersal for land application for the final treatment of the wastewater. The drip dispersal field has been tested by a certified soil scientist and verified by the Tennessee Department of Environment and Conservation for an approved underground drip dispersal system. The following pages will show the comparison of various loading rates and land application areas required by the controlling governmental agencies.

## 2 Effluent Disposal Calculations

The effluent will be treated by a recirculating sand filter, ultraviolet disinfection, and pumped to drip dispersal fields. In the RSF, the effluent receives the majority of its treatment. The effluent passes through the RSF five times before it is pumped through a disc filter and ultraviolet light, effectively destroying bacteria and viruses before releasing it in a subsurface drip irrigation system. At this point, the soil continues to provide treatment on an already cleaned effluent.

Below are four current criteria's for designing STEP systems in Tennessee within jurisdictions of Consolidated Utility District, Water Authority of Dickson County, Williamson County, Tennessee Department of Environment and Conservation and proposed Murfreesboro Water and Sewer Department. Below are examples using 100 lot subdivisions for each utility company as follows:

### 1. Consolidated Utility District (C.U.D.)



#### Daily Flow

Number of 3-BR Buildable Residential Lots	100 lots
Daily Flow for 3-BR	300 gpd/lot
Daily Flow	30000 gpd

#### Land Application Area

Loading Rate (0.15 gal/sf)	30000 gpd
Total Area Required	200000 S.F.
	or 4.59 acres

#### Number of Required Zones

Length per zone (@ 4' o.c.)	4550 L.F.
Number of Zones	11.0 Zones

#### Land Reserve Area

50% of Application Area	2.30 acres
Total Application and Reserve Area	6.89 acres

#### Sand Filter Size

5 gal/S.F./day	
30000 gpd	
Area Req'd	6000 S.F.
Use Filter No.	55' x 112.5'

## 2. Water Authority of Dickson County (W.A.D.C.)



### Daily Flow

Number of 3-BR Buildable Residential Lots	100 lots
Daily Flow for 3-BR	300 gpd/lot
Daily Flow	30000 gpd

### Land Application Area

Loading Rate (0.2 gal/sf)	30000 gpd
Total Area Required	150000 S.F.
	or 3.44 acres

### Number of Required Zones

Length per zone (@ 4' o.c.)	4700 L.F.
Number of Zones	8.0 Zones

### Land Reserve Area

50% of Application Area	1.72 acres
Total Application and Reserve Area	5.17 acres

### Sand Filter Size

5 gal/S.F./day	
30000 gpd	
Area Req'd	6000 S.F.
Use Filter No.	55' x 112.5'

### 3. Williamson County



#### Daily Flow

Number of 3-BR Buildable Residential Lots	100 lots
Daily Flow for 3-BR	300 gpd/lot
Daily Flow	30000 gpd

#### Land Application Area

Loading Rate (0.2 gal/sf)	30000 gpd
Total Area Required	150000 S.F.
	or 3.44 acres

#### Number of Required Zones

Length per zone (@ 4' o.c.)	4700 L.F.
Number of Zones	8.0 Zones

#### Land Reserve Area

100% of Application Area	3.44 acres
Total Application and Reserve Area	6.89 acres

#### Sand Filter Size

5 gal/S.F./day	
30000 gpd	
Area Req'd	6000 S.F.
Use Filter No.	55' x 112.5'

4. Tennessee Department of Environment and Conservation (T.D.E.C.)



**Daily Flow**

Number of 3-BR Buildable Residential Lots	100 lots
Daily Flow for 3-BR	300 gpd/lot
Daily Flow	30000 gpd

**Land Application Area**

Loading Rate (0.25 gal/sf)	30000 gpd
Total Area Required	120000 S.F.
	or 2.75 acres

**Number of Required Zones**

Length per zone (@ 4' o.c.)	4700 L.F.
Number of Zones	6.4 Zones

**Land Reserve Area**

0% of Application Area	0.00 acres
Total Application and Reserve Area	2.75 acres

**Sand Filter Size**

5 gal/S.F./day	
30000 gpd	
Area Req'd	6000 S.F.
Use Filter No.	55' x 112.5'

**5. SUGGESTED MURFREESBORO WATER AND SEWER DEPARTMENT  
(MWSD)**



**Daily Flow**

Number of 3-BR Buildable Residential Lots	100 lots
Daily Flow for 3-BR	300 gpd/lot
Daily Flow	30000 gpd

**Land Application Area**

Loading Rate (0.20 gal/sf)	30000 gpd
Total Area Required	150000 S.F.
	or 3.44 acres

**Number of Required Zones**

Length per zone (@ 4' o.c.)	4700 L.F.
Number of Zones	8.0 Zones

**Land Reserve Area**

50% of Application Area	1.72 acres
Total Application and Reserve Area	5.17 acres

**Sand Filter Size**

5 gal/S.F./day	
30000 gpd	
Area Req'd	6000 S.F.
Use Filter No.	55' x 112.5'

## SEWER PROVIDER COMPARISON TOTALS

PROVIDER	LOADING RATE	REQUIRED RESERVE AREA	EXAMPLE 100 LOT TOTAL AREA REQUIRED
1. C.U.D.	0.15 GPD/SF	50% OF APPLICATION AREA	6.89 ACRES
2. W.A.D.C	0.20 GPD/SF	50% OF APPLICATION AREA	5.17 ACRES
3. WILLIAMSON COUNTY	0.20 GPD/SF	100% OF APPLICATION AREA	6.89 ACRES
4. T.D.E.C.	0.25 GPD/SF	0% OF APPLICATION AREA	2.75 ACRES
5. SUGGESTED M.W.S.D.	<b>0.20 GPD/SF</b>	<b>50% OF APPLICATION AREA</b>	<b>5.17 ACRES</b>

The above loading rates for suitable soils range from 0.15-0.25 gpd/sf. Our suggestion would be to provide a slightly higher loading rate of **0.2 gpd/sf** and still be somewhat conservative with TDEC guidelines. In addition, the required reserve soils areas (duplicate soils) vary from 0%-100%. Our suggestion would be to provide a 50% reserve soils area.

**To compare CUD to suggested MWSD per above numbers as follows:**

CUD **14.3 lots** /acre of suitable soils

Suggested MWSD **19.3 lots** /acre of suitable soils

To summarize MWSD would have an average of 5 lots more than CUD per acre of suitable soils. This equates to approximately 25% more lots than allowed for CUD



# WATER AND SEWER ***DASHBOARD PERFORMANCE***

June 2016



**PRELIMINARY MWSD FY2016-2020 CIP**

NO.	PROJECT	2015-2016 2015 Issue	2016-2017 2016 Issue	2017-2018 2017 Issue	2018-2019 2018 Issue	2019-2020 2019 Issue	TOTAL
	Wastewater Treatment Plant Expansion Engineering (4C, 4D, SW FM & PS)	\$200,000	\$200,000	\$50,000			\$450,000
	Construction- Northeast Regional force main						\$0
	Construction- Northeast Regional pumping station						\$0
	Process expansion to 24 mgd, Phase 4D	\$14,500,000	\$13,000,000	\$2,000,000			\$29,500,000
	<b>TOTAL Capital Improvements funded from Debt Service</b>	<b>\$14,700,000</b>	<b>\$13,200,000</b>	<b>\$2,050,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$29,950,000</b>

NO.	PROJECT	2015-2016 2016 FY	2016-2017 2017 FY	2017-2018 2018 FY	2018-2019 2019 FY	2019-2020 2020 FY	TOTAL
	Sewer rehab- Account 335	\$1,250,000	\$1,250,000	\$1,250,000	\$1,250,000	\$1,250,000	\$6,250,000
	Meters, Water/Sewer Taps, Hydrants - 280, 290, 300, 310	\$435,000	\$435,000	\$435,000	\$435,000	\$435,000	\$2,175,000
	Water lines- Account 320	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$1,750,000
	Sewer Lines - Account 330	\$350,000	\$350,000	\$350,000	\$350,000	\$350,000	\$1,750,000
	Water Plant Membrane Replacement Sinking Fund	\$400,000	\$400,000	\$400,000	\$400,000	\$0	\$1,600,000
	Biolsolids Storage Sinking Fund	\$300,000	\$300,000	\$300,000	\$300,000	\$0	\$1,200,000
	Lift Station Replacement Sinking Fund	\$125,000	\$286,000	\$125,000	\$125,000	\$125,000	\$786,000
	NE Regional PS & FM Sinking Fund	\$0	\$500,000	\$500,000	\$500,000	\$500,000	\$2,000,000
	GAC Replacement	\$110,000	\$110,000	\$110,000	\$110,000	\$110,000	\$550,000
	Vehicle and Equipment Replacement	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$7,500,000
	<b>TOTAL Capital Improvements funded from Rates</b>	<b>\$4,820,000</b>	<b>\$5,481,000</b>	<b>\$5,320,000</b>	<b>\$5,320,000</b>	<b>\$4,620,000</b>	<b>\$25,561,000</b>

NO.	PROJECT	2015-2016 2016 FY	2016-2017 2017 FY	2017-2018 2018 FY	2018-2019 2019 FY	2019-2020 2020 FY	TOTAL
	<b>W&amp;S CAPITAL IMPROVEMENT PROJECTS</b>						
	Misc FY15 Working Reserve Commitments	\$2,100,000					\$2,100,000
	Customer Service Area Security Renovations	\$450,000					\$450,000
	Contingency Items (Generators, Gear Box, HVAC)	\$775,000					\$775,000
	NE Regional Engineering Design	\$500,000	\$500,000	\$500,000	\$200,000	\$200,000	\$1,900,000
	NE Regional P.S.				\$2,500,000	\$5,000,000	\$7,500,000
	NE Regional Force Main				\$2,500,000	\$5,000,000	\$7,500,000
	SCWWTP Phase 4D Engineering & Inspection	\$300,000	\$250,000				\$550,000
	<b>Lift Station Rehab/Replacement (#2, #13, #19 &amp; #20)</b>	<b>\$1,500,000</b>	<b>\$500,000</b>	\$500,000	\$500,000		\$3,500,000
	S. Church St. Sewer @ Joe B. Jackson Pkwy	\$250,000					\$250,000
	Water Resource Integration Plan (WRIP)	\$400,000					\$400,000
	WTP Membrane Replacement				\$2,000,000		\$2,000,000
	Biolsolids Storage Addition			\$1,500,000			\$1,500,000
	<b>Stones River Water Qual Sampling / NPDES Permitting</b>		<b>\$50,000</b>	<b>\$150,000</b>	<b>\$100,000</b>	<b>\$100,000</b>	\$550,000
	<b>Subtotal CAPITAL PROJECTS</b>	<b>\$6,275,000</b>	<b>\$1,400,000</b>	<b>\$2,650,000</b>	<b>\$7,800,000</b>	<b>\$10,300,000</b>	<b>\$28,975,000</b>
	<b>TRANSPORTATION (Water/Sewer Imp.)</b>						
	Bradyville Pike		\$500,000	\$500,000			\$1,000,000
	MT Blvd Widening- Greenland to Main	\$750,000	\$750,000	\$140,000			\$1,640,000
	Lytle St. Relocation (Ph1 & Ph2)	\$390,000	\$1,170,000				\$1,560,000
	SR 99 Widening- Old Fort to Cason Lane		\$500,000	\$500,000			\$1,000,000
	Cherry Lane Repurified Main Extension (14,600 LF)		\$825,000	\$1,000,000			\$1,825,000
	Maney Avenue Reconstruction - Phase 2		\$250,000	\$250,000			\$500,000
	Wilkinson Pike Reconstruction ( MCP to TL)		\$650,000				\$650,000
	<b>Subtotal TRANSPORTATION PROJECTS</b>	<b>\$1,140,000</b>	<b>\$4,645,000</b>	<b>\$2,390,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$8,175,000</b>
	<b>REHABILITATION</b>						
	Sewer Rehabilitation - Maintenance Contract	\$1,500,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$5,500,000
	<b>INFORMATION TECHNOLOGY PROJECTS</b>						
	CIS, IVR, MWM	\$50,000					\$50,000
	Advanced Metering Infrastructure (AMI)	\$4,150,000	\$2,850,000				\$7,000,000
	IT/Computer Systems Hardware Upgrades	\$200,000	\$50,000	\$50,000	\$50,000	\$50,000	\$400,000
	Financial Information Systems (FIS), HRIS						\$0
	Electronic Content Management (Scanning/Imaging)		\$150,000	\$150,000	\$150,000		\$450,000
	IT Design Services & Consulting	\$100,000	\$100,000	\$100,000	\$100,000		\$400,000
	Computerized Maintenance Management System (CMMS)			\$200,000	\$200,000		\$400,000
	<b>Subtotal INFORMATION TECHNOLOGY PROJECTS</b>	<b>\$4,500,000</b>	<b>\$3,150,000</b>	<b>\$500,000</b>	<b>\$500,000</b>	<b>\$50,000</b>	<b>\$8,700,000</b>
	<b>TOTAL Projects from Working Capital Reserves</b>	<b>\$13,415,000</b>	<b>\$10,195,000</b>	<b>\$6,540,000</b>	<b>\$9,300,000</b>	<b>\$11,350,000</b>	<b>\$51,350,000</b>

PROJECTED RESERVE FUND BALANCE REVENUE (TAPS)	\$8,500,000	\$6,000,000	\$4,500,000	\$4,500,000	\$4,500,000	
PROJECTED ENHANCED REVENUE FOR RESERVES	\$200,000	\$500,000	\$750,000	\$2,000,000	\$2,000,000	
SINKING FUND DEPOSITS TO RESERVES FROM RATES	\$825,000	\$1,486,000	\$1,325,000	\$1,325,000	\$625,000	
SECURED MIN. BALANCE FOR WORKING CAPITAL RESERVES	\$20,404,791	\$20,812,887	\$21,229,145	\$21,653,727	\$22,086,802	
PROJECTED WORKING CAPITAL RESERVE BALANCE	\$41,024,556	\$38,815,556	\$38,850,556	\$37,375,556	\$33,150,556	
<b>FUNDS ABOVE SECURED MINIMUM BALANCE</b>	<b>\$20,619,765</b>	<b>\$18,002,669</b>	<b>\$17,621,411</b>	<b>\$15,721,829</b>	<b>\$11,063,754</b>	

**Preliminary Draft 5-YR CAPITAL IMPROVEMENTS PLAN (CIP)  
STORMWATER UTILITY FUND, FY17-21**

NO.	PROJECT	Originator	2016-2017 2017 FY	2017-2018 2018 FY	2018-2019 2019 FY	2019-2020 2020 FY	2020-2021 2021 FY	TOTAL
			<i>Budget</i>	<i>Pro Forma</i>	<i>Pro Forma</i>	<i>Pro Forma</i>	<i>Pro Forma</i>	
	<b>Neighborhood Projects (NP)</b>							
NP-1	Memorial Blvd / Haynes Dr. Drainage Improvements	City Eng	\$75,000	\$150,000	\$125,000			\$350,000
NP-2	Mitchell-Nielson Drainage Project	City Eng	\$50,000	\$50,000				\$100,000
NP-3	Huntwood/Leaf Ave Neighborhood Drainage Imp.	City Eng	\$100,000	\$100,000				\$200,000
NP-4	Southern Meadows / Kimbro Woods Drainage Imp.	City Eng	\$200,000	\$400,000				\$600,000
NP-5	Liberty Dr. / Thatcher Trace Spring Box	City Eng		\$25,000	\$50,000	\$50,000		\$125,000
NP-6	Pennington Drive Drainage Repair/Upgrade (Added)	City Eng						\$0
NP-7	Gateway Pond Repair (Added)	Eng/MWSD						\$0
NP-8	Hardwood Drive Drainage Upgrade (Added)	City Eng	\$100,000	\$250,000				\$350,000
NP-9	Pacific Place/Riverrock Blvd Drainage Imp.	City Eng	\$0	\$150,000	\$200,000			\$350,000
	<b>Subtotal</b>		\$525,000	\$1,125,000	\$375,000	\$50,000	\$0	\$2,075,000
	<b>Water Quality Improvement (Compliance) Projects (WQ)</b>							
WQ-1	Town Creek Bioretention BMP's @ Cannonsburgh	MWSD	\$0	\$75,000				\$75,000
WQ-2	Molloy Lane Water Quality Pond	MWSD		\$100,000	\$100,000			\$200,000
WQ-3	Rosebank Springs Constructed Wetlands	City Eng	\$400,000	\$300,000				\$700,000
WQ-4	Lee's Branch Stream Restoration	City Eng		\$50,000	\$50,000	\$50,000	\$50,000	\$200,000
WQ-5	West Fork Stones River at Cason Trail; bank repair	MWSD						\$0
WQ-6	Bear Branch Water Quality Mitigation	City Eng	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000	\$250,000
WQ-7	Sinking Creek Headwater protection BMP	City Eng	\$100,000	\$100,000	\$150,000	\$150,000		\$500,000
WQ-8	Todd's Lake Regional Wetlands Improvements	City Eng						\$0
WQ-9	Hooper's Bottom Regional Water Quality Project	City Eng	\$100,000	\$150,000	\$150,000	\$150,000	\$150,000	\$700,000
WQ-10	Lytle Creek/Ridgley Road Bacteriological Reduction (Added)	MWSD			\$50,000			\$50,000
WQ-11	Memorial Blvd/VA Pond Trash Rack (Added)	MWSD			\$50,000			\$50,000
WQ-12	Spence Creek Restoration	Eng/MWSD	\$100,000	\$25,000	\$25,000	\$25,000	\$25,000	\$200,000
	<b>Subtotal</b>		\$750,000	\$850,000	\$625,000	\$425,000	\$275,000	\$2,925,000
	<b>Public Drainage/Streets Participation Projects (PD)</b>							
PD-1	Maney Avenue Phase 2	City Eng						\$0
PD-2	Town Creek Conveyance (Murfree Springs to Cannonsburgh)	City Eng	\$800,000					\$800,000
PD-3	Maple St. Alley Permeable Paver Project	City Eng						\$0
	<b>Subtotal</b>		\$800,000	\$0	\$0	\$0	\$0	\$800,000
	<b>Parks &amp; Rec and School Participation Projects (PP)</b>							
PP-1	Hobgood School Porous Pavers	City Eng						\$0
PP-2	McFadden LID Project	MWSD						\$0
PP-3	Parks and Rec Office/Ag Center Pervious Parking Lot	MWSD						\$0
PP-4	West Elementary School Porous Pavers/Outdoor Classroom	City Eng						\$0
PP-5	Hobgood School Pervious Pavers Phase 2	City Eng						\$0
PP-6	Black Fox School Pervious Pavers	City Eng						\$0
PP-7	Police HQ Sinking Creek Water Quality Project	City Eng						\$0
	<b>Subtotal</b>		\$0	\$0	\$0	\$0	\$0	\$0
	<b>Watershed Planning Projects / Development Participation (DP)</b>							
DP-1	Warrior Dr. Regional Stormwater BMP	MWSD						\$0
DP-2	Mercury Plaza Shopping Center Pervious Parking Conversion	City Eng						\$0
	<b>Subtotal</b>		\$0	\$0	\$0	\$0	\$0	\$0
	<b>Totals</b>		<b>\$ 2,075,000</b>	<b>\$ 1,975,000</b>	<b>\$ 1,000,000</b>	<b>\$ 475,000</b>	<b>\$ 275,000</b>	<b>\$ 5,800,000</b>

\$ 5,800,000

**EFFECTIVE UTILITY MANAGEMENT**  
*Financial Viability*  
**MWSD WORKING CAPITAL ACCOUNT SUMMARY**

**ESTIMATED Working Capital at 6/30/16**

Board Designated (System Dev, Assessments, etc) as of 6/30/15	\$	28,659,579
Undesignated Excess Funds as of 6/30/15		18,310,430
Estimated Reserve Revenue thru 6/30/16		10,291,644
Estimated Reserve Expenditures thru 6/30/16		(11,125,431)
		<b>46,136,222</b>

**COMMITTED Reserves at 6/28/16**

John Bouchard - Fournier Press Install 15-06	291,709	
MR Systems - Fournier Press Install	27,593	
GAC Effluent Filter Actuator Replacement	30,936	
John Bouchard River Pump #1 - 16-04	12,226	
John Bouchard River Pump #6 - 16-05	29,440	
South Church St. Sewer Extension	287,888	
Wilkinson Pike Utilities Design	24,850	
Eng Design for Raw Water Aux Pumps Generator	21,457	
Sewer Rehab Projects (Littlejohn)	463,817	
Lytle St Ph2 Utility Design Services	13,518	
Lytle St Ph1 Construction Inspection Services	26,615	
Engineering Services - Fournier Biosolids Press Repl	52,040	
Middle TN Blvd Utility Construction	1,075,299	
Lytle St. Utility Construction	87,734	
Westin Task Order #11 - AMI Implementation Support	78,440	
Pump Stations #3, #19, & #20 Replacement	112,191	
Water Resource Integration Plan (WRIP)	362,157	
Johnson Bailey Architect Fee (O&M, C/S)	22,172	
AMI Implementation	2,306,927	
E. & W. Fork Stones River Water Quality Sampling	105,441	
Pump Station #13 Replacement Design	19,220	
Additional Services Ph4D - SSR Amendment	37,373	
Engineering Services - SCWWTP Ph 4D	38,109	5,527,152
		<b>5,527,152</b>

**APPROVAL Requests at 7/26/16**

MT Blvd Work Change Directive	32,320	
Pump Station #13 Replacement	1,515,000	
Streaming Current Charge Analyzer	10,593	
Amendment to Stones River Sampling	98,920	
Biosolids Master Plan	84,740	1,741,573
		<b>1,741,573</b>

**BALANCE of Working Capital at 7/26/16 after COMMITMENTS** **\$ 38,867,497**

**DESIGNATED Projects Pending**

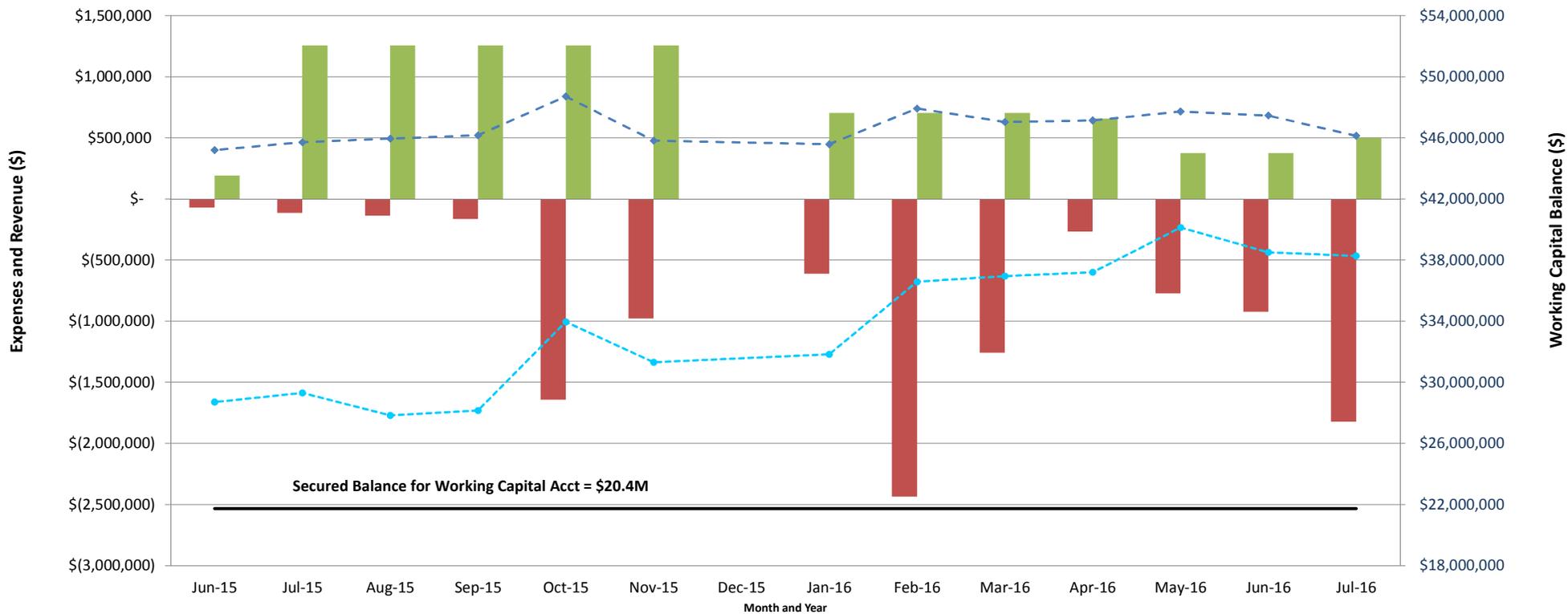
Aux Raw Water Pump Generator	600,000	600,000
		<b>600,000</b>

**ESTIMATED UNCOMMITTED Working Capital Reserves as of July 26, 2016** **\$ 38,267,497**

**SECURED FY16-17 Operating and Maintenance Expenses** **\$ 21,729,755**

**UNASSIGNED Working Capital Funds (Est. Uncommitted - Secured)** **\$ 16,537,742**

### MWSD Working Capital Reserves Dashboard

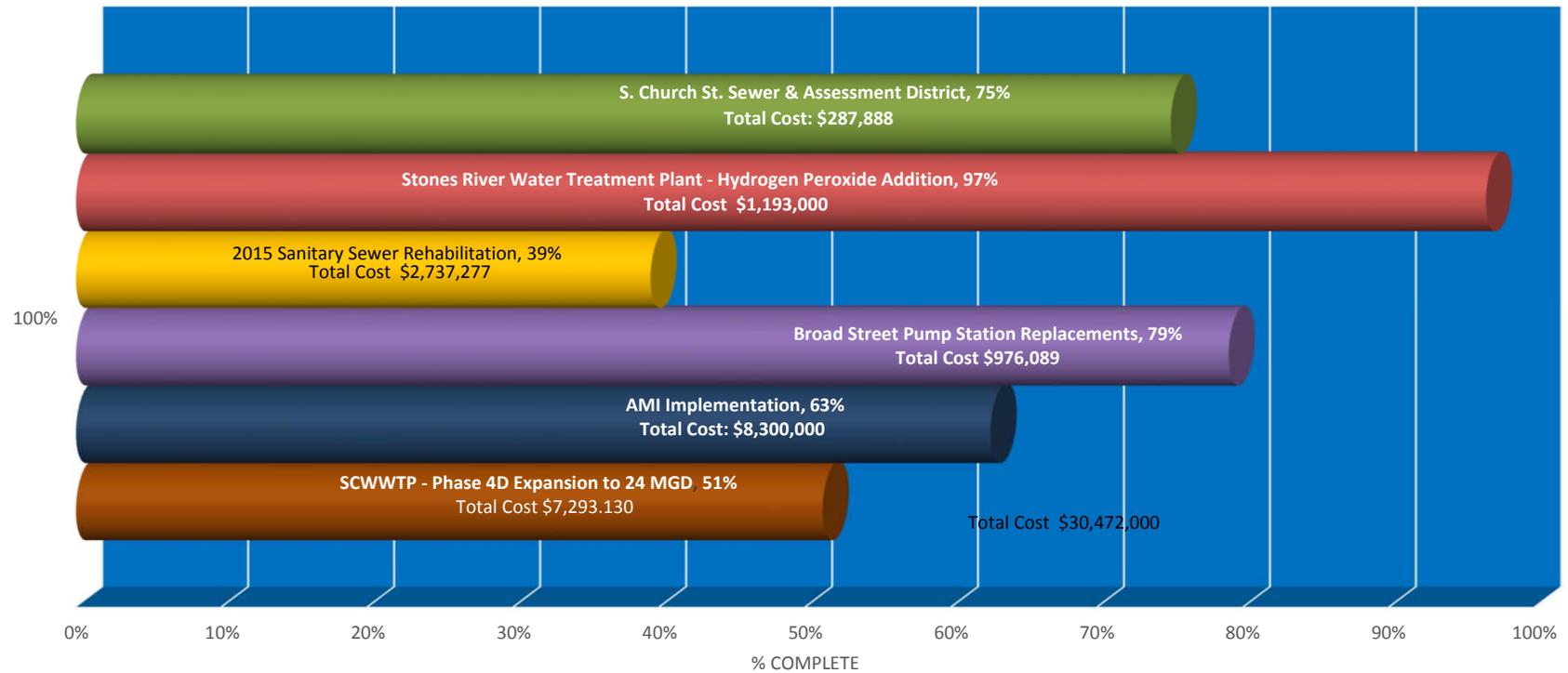


Secured Balance for Working Capital Acct = \$20.4M

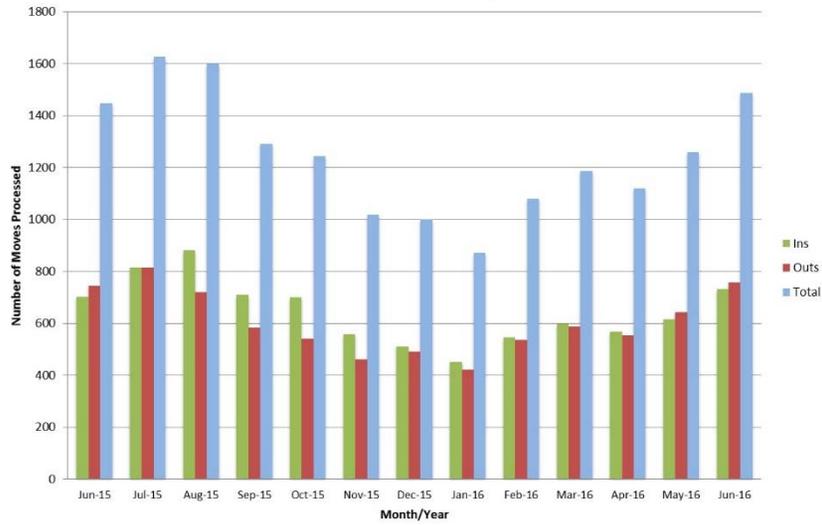
- Working Capital Expenses
- Estimated Working Capital Revenues
- ◆— Estimated Working Capital Balance
- - -◆- - - Estimated UNCOMMITTED Working Capital Balance
- Secured Working Capital Reserve

# DASHBOARD PERFORMANCE - JUNE 2016

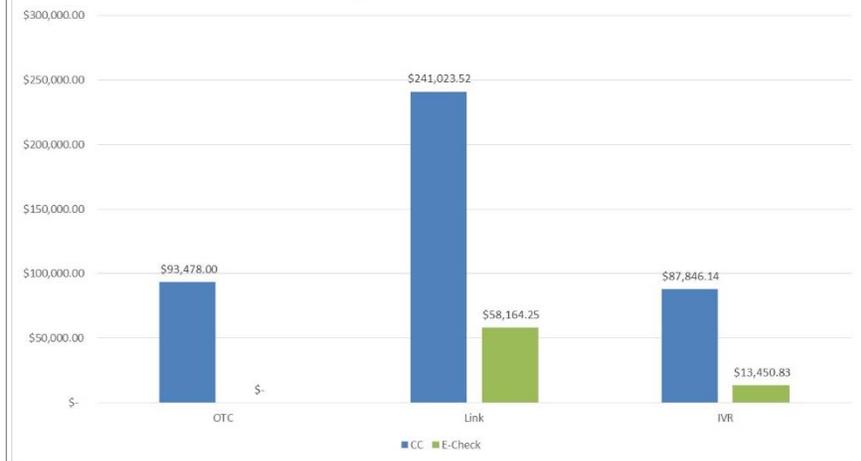
## CAPITAL PROJECTS



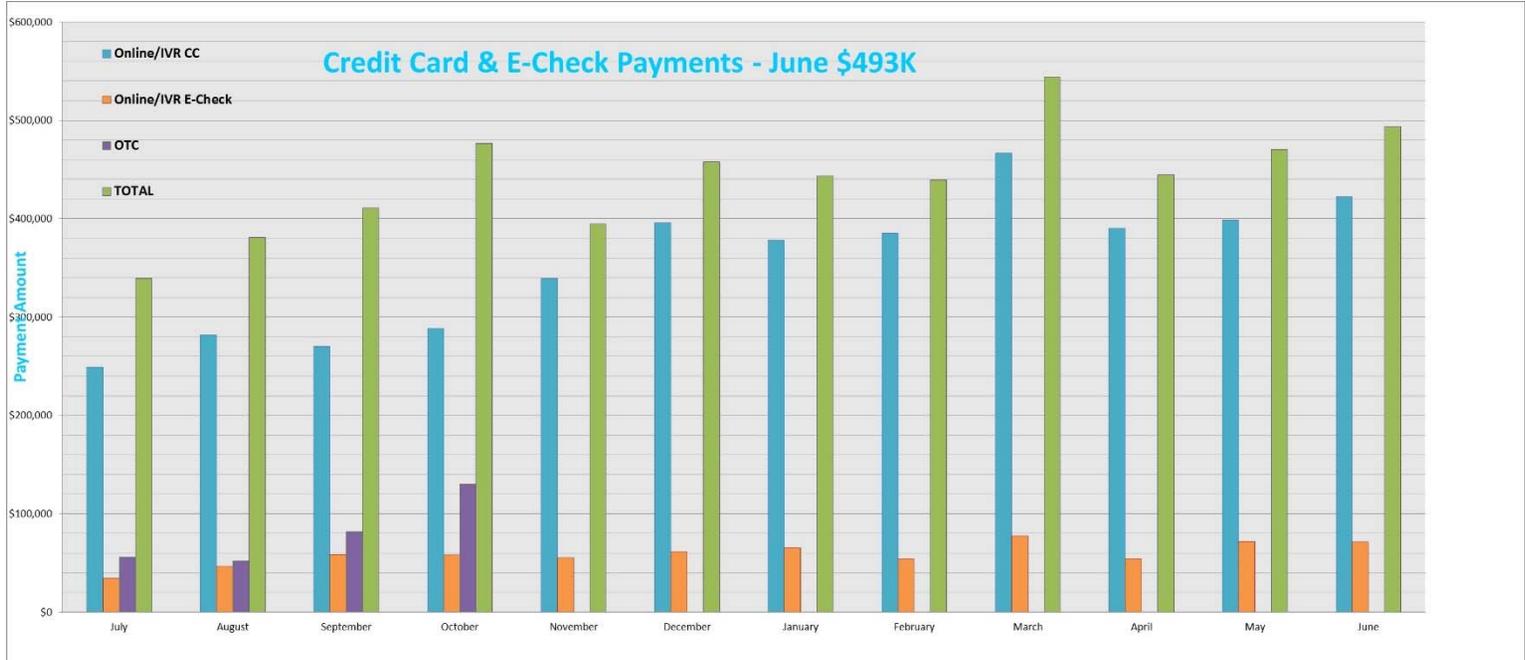
June Moves Processed = 1,488

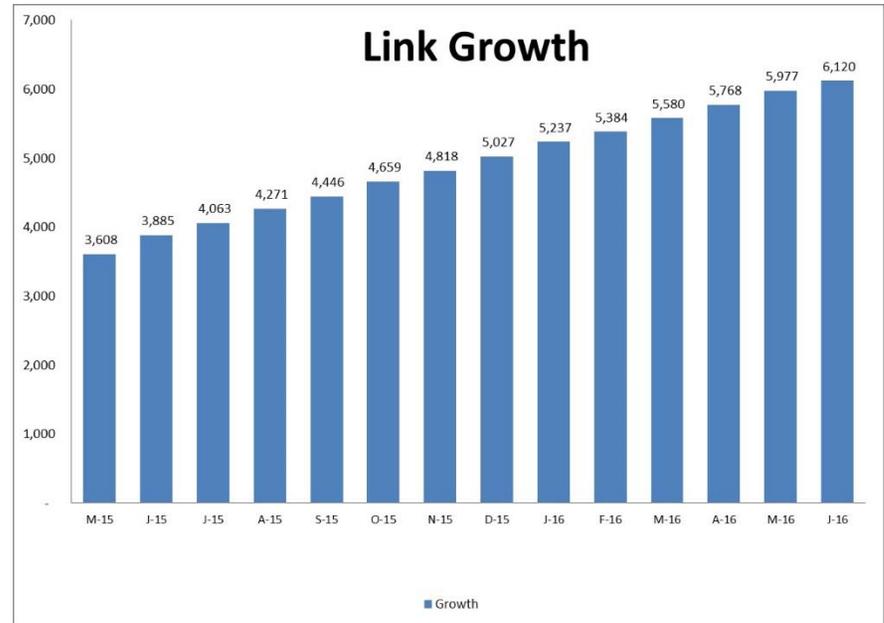
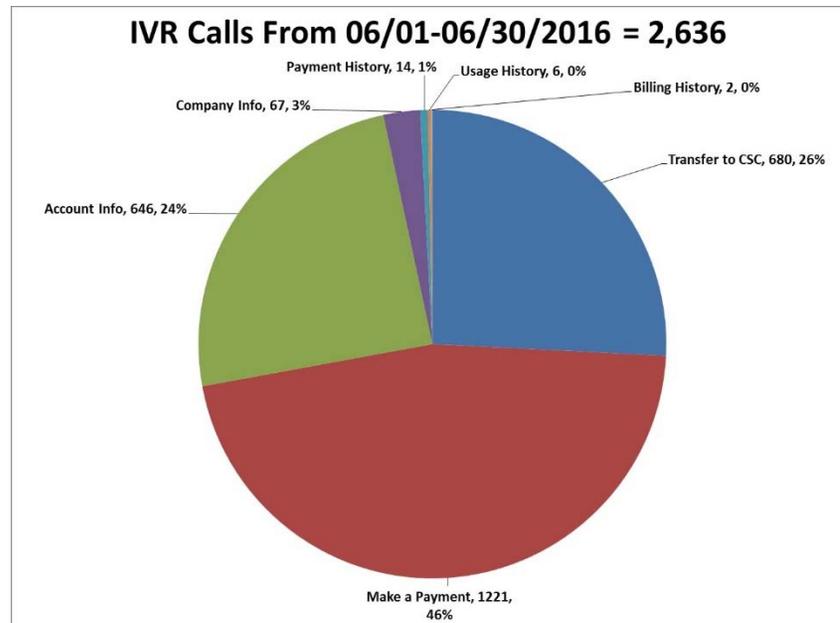
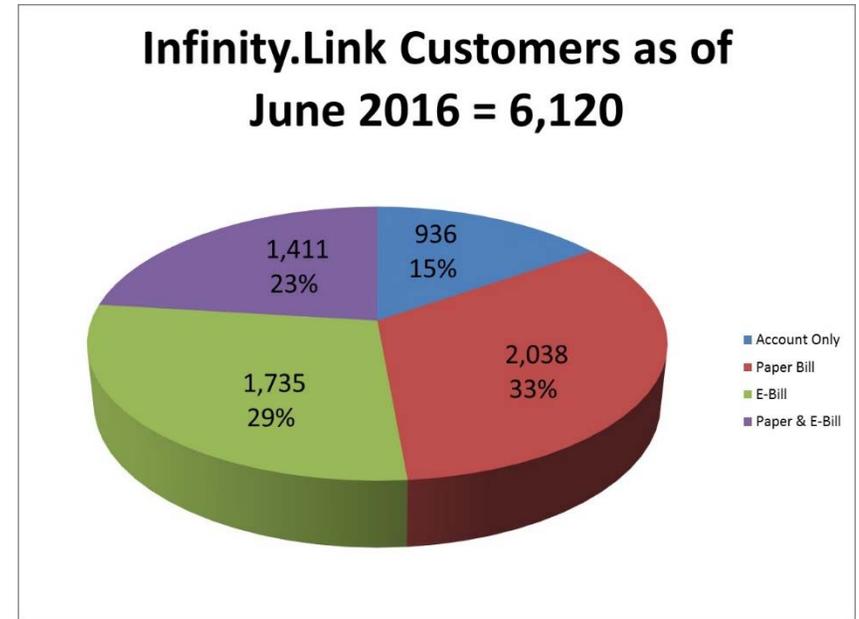
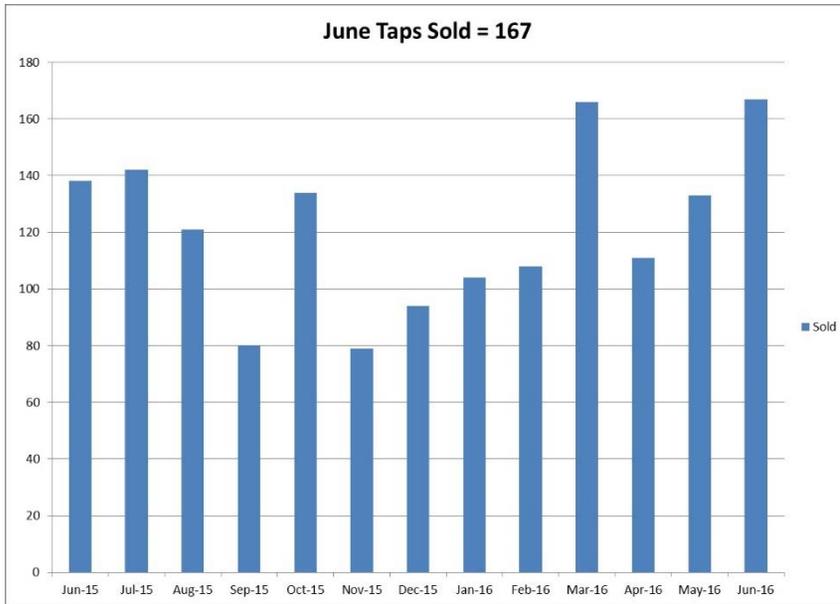


Electronic Payment Method June 2016



Credit Card & E-Check Payments - June \$493K





# State Report Coversheet

Month/Year Reported

June 2016

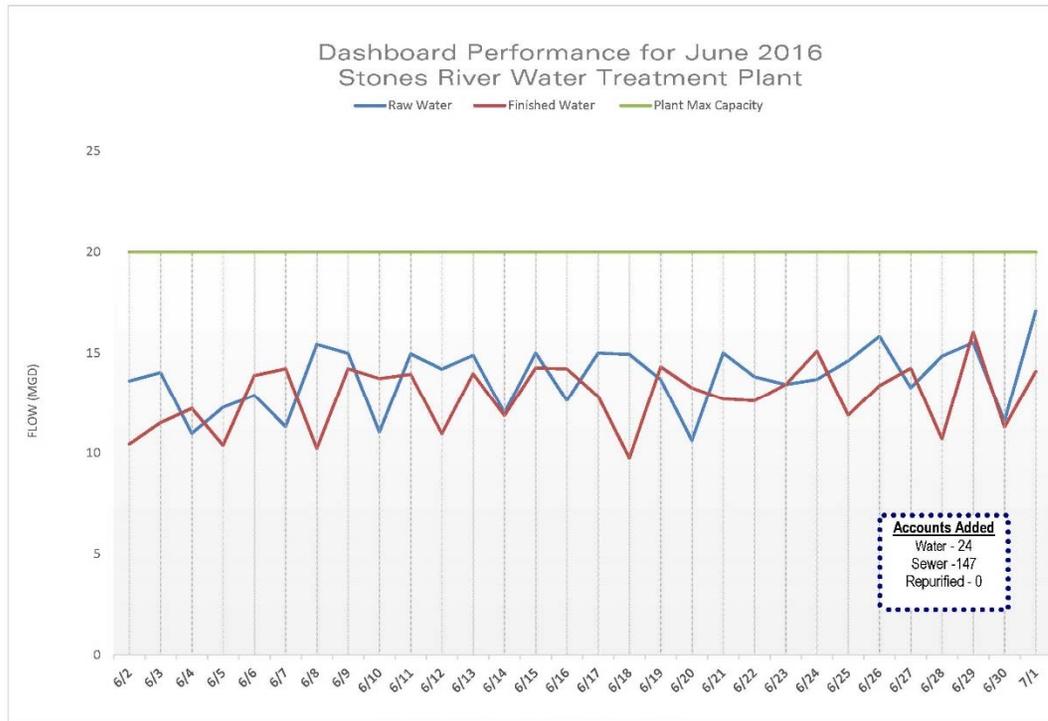
Name of Water Utility Murfreesboro Water & Sewer Department  
 Name of WTP Stones River Water Treatment Plant  
 County Rutherford  
 PWSID 0000491  
 Laboratory ID 00450

<b>Bacteria</b>	Total Number of Bacteria Samples for Month	100
<b>Disinfection</b>	Number of Samples	100
	Number of days plant operated	30
	Lowest Residual in Distribution System	1.00
	Lowest Residual Entering Distribution System	2.85
	Average Plant Effluent	3.3
<b>Turbidity</b>	Total Hours Planted Operated	718
	Number of Samples	180
	Maximum Turbidity	0.26
<b>Flow</b>	Average Raw Water Flow	13771
	Maximum Raw Water Flow	17075
<b>Pumpage Data</b>	Total Water Pumped (Lake)	136,031.000
	Average Water Pumped (Lake)	4,534.367
	Maximum Day (Lake)	10,620.000
	Minimum Day (Lake)	3,088.000
	Total Water Pumped (River)	277,105.946
	Average Water Pumped (River)	9,236.865
	Maximum Day (River)	15,434.429
<b>Water Statistics</b>	Minimum Day (River)	4,755.019
	Water Treated (Raw)	413,136.947
	Water Pumped (Finished)	386,608.525
	Water Transfer - to Murfreesboro (Smyrna, CUD)	0.000
	Water Metered (Sales, OM/Hydrant)	255,207.809
	Water Metered (Vacant Accounts, Fire Protection)	0.000
	Accounted For Water - (Flushing O&M/Eng, Fire, Street)	3,383.247
	Accounted For Water - (Flushing WTP)	791.618
	Process Water (Distribution,Tank,Water Plant)	9,919.960
	Water Transfer - to CUD	0.000
	Water Transfer - to Smyrna	0.000
Total Accounted For Water	269,302.634	
Non Revenue Water	117,305.891	
Water Loss - Percentage	30.3%	
Water Cost Per 1,000 gallons		

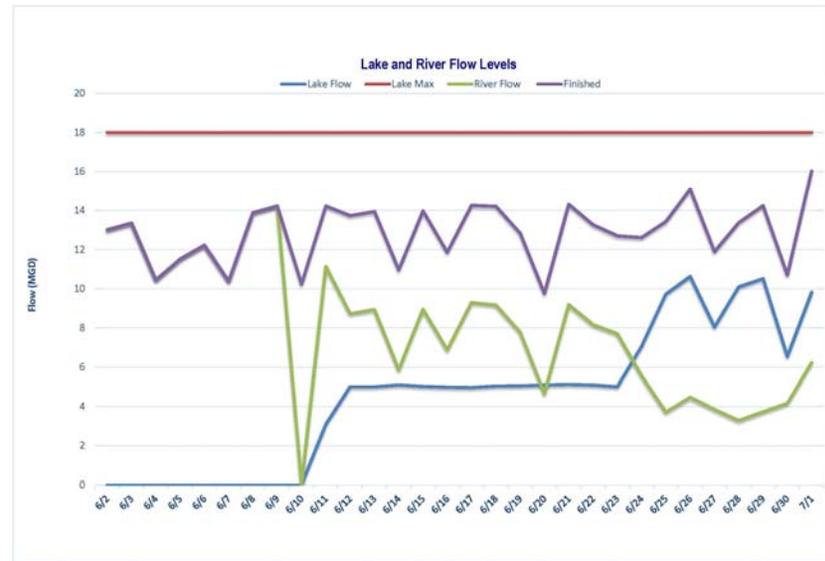
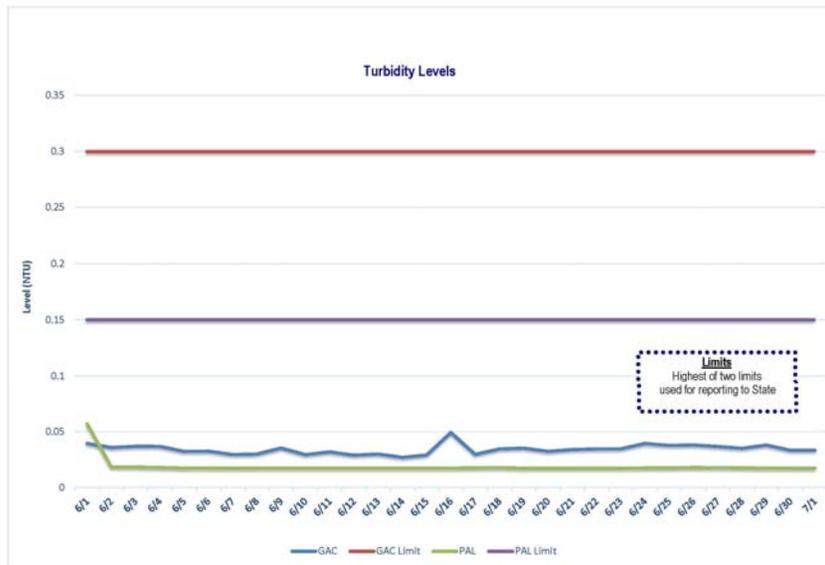
	0	0	
	255,153.574	54.235	
	0.000	0.000	
	1865.995	1500.552	16.7
	791618		
	568.8	0	9351.16

**Reports Needed:**

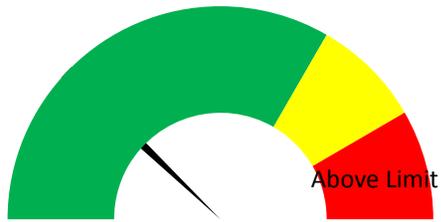
- MOR - Page 1 & 2 **DECEMBER Check YEAR!**
- Distribution
- Monthly Disinfectants Monitoring Report - Page 1 & 2
- Filter Performance Report
- Filter Turbidity Exceedance Report (Only if the filter turbidity exceeds standards)
- Monthly Microbiological Monitoring Report/Disinfectant Monitoring
- TOC & Enhanced Coagulation Report (Quarterly ADDED Data in March, June, September, December)
- Pumpage Data Report
- Bacteria Detail Report (**Check for POSITIVE Bacteria**)
- Flow to/from Smyrna to Smyrna, Dashboard Data to Pamela, Raw Flow to Debbie, PALL Turb to SS Indirect IT Folder, Dist Sheet to Randy
- Copy of Chemicals sheet to Debbie Crocker, Data to WaterLossMonthlyTotals (\\172.19.195.31\ShareA\Admin\Water Loss and Unaccounted for Water)
- Close out and lock Operator Log, convert to PDF, Add to SS Operator Log Folder
- High Service Dist. Monitor Logs to SS Folder
- PALL Data Logs to S3 and HS1 archives to S3
- BE-BH Correction on RAW Sheet/ **AUTOMATIC FLUSHING to KIM**



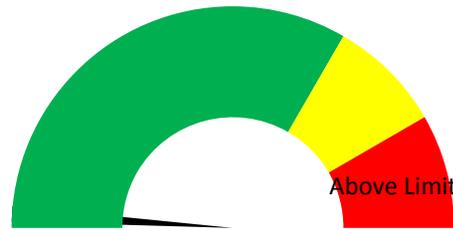
Totalized Finished Water Volume: 386.6 MG  
 Totalized Billed Water Volume: 269.3 MG  
 % Unaccounted for Water: 30.3%



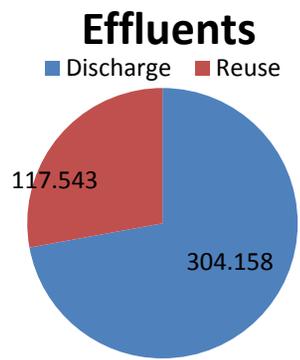
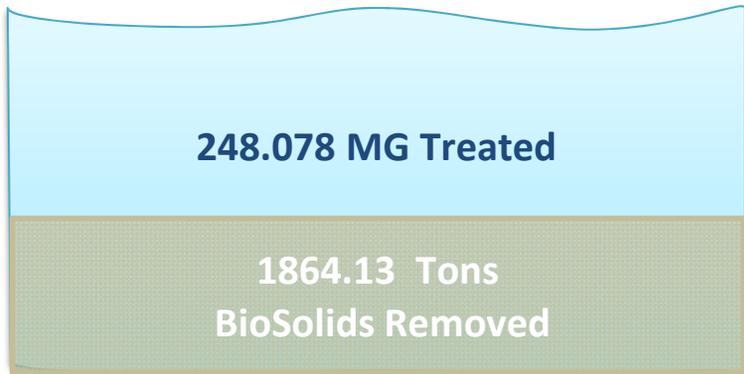
**Dashboard Report June 2016**  
**Sinking Creek Wastewater Treatment Plant**



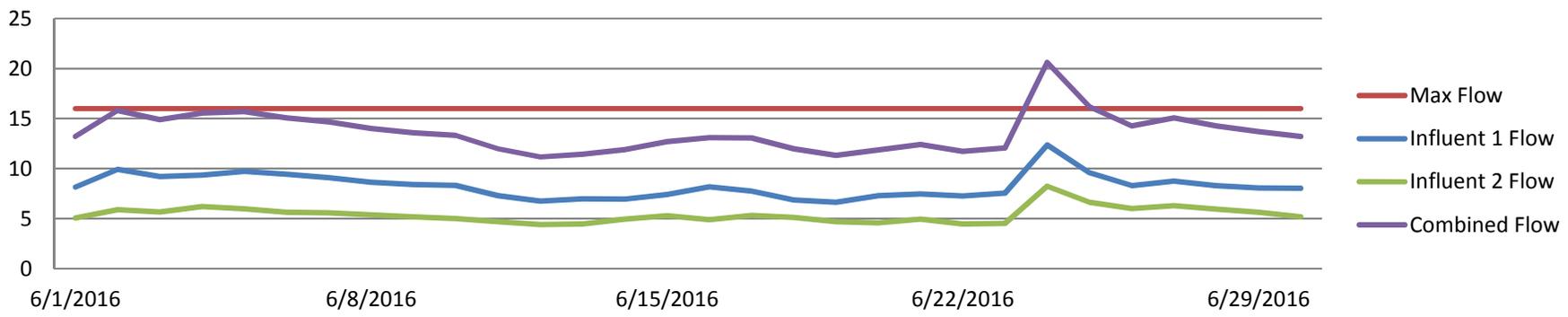
**98.4%**  
**Removal**  
**BOD**



**99.5%**  
**Removal**  
**NH3**

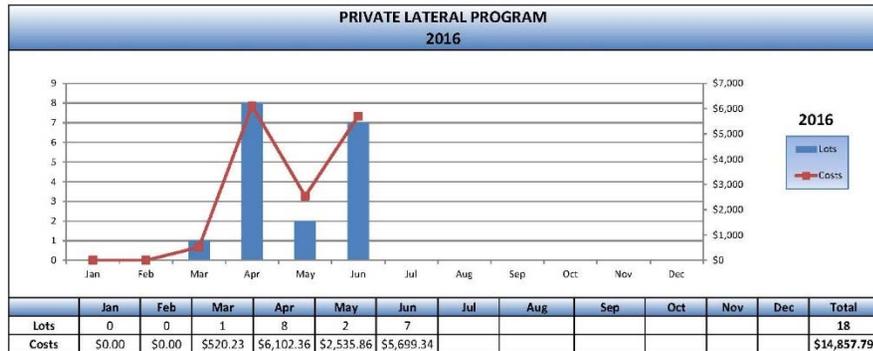
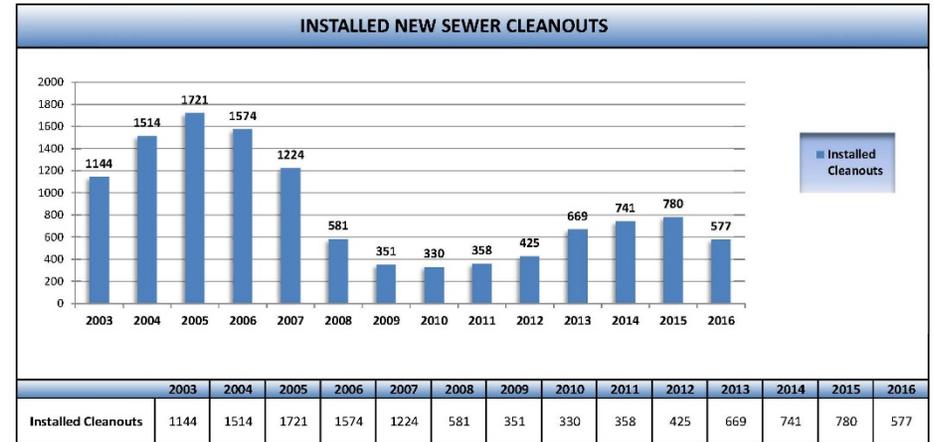
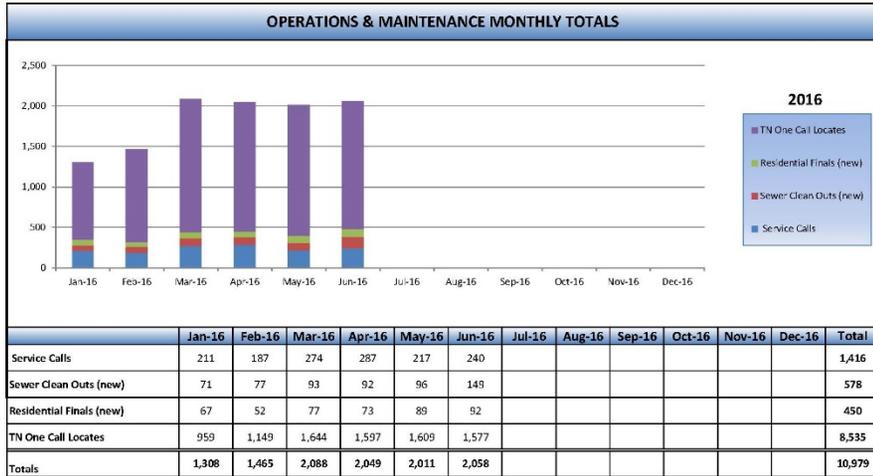


**Average Influent Flow**



# Operations and Maintenance Dashboard

## June 2016



### ASPHALT PURCHASES 2016

DATE	PRODUCT PURCHASED	HAWKINS	HOOVER	LOJAC	OTHER	PURCHASED FROM	QTY	AMT PAID	APPROVED BY:	NOTES
4/14/2016	Cold Mix			\$73.00		Lojac	40.22	\$2,789.26	Taylor	Single source
4/27/2016	Fine BM	\$52.04				Hawkins	43.89	\$2,284.04	Taylor	Single source
5/3/2016	Fine BM	\$50.93	N/A	\$52.25		Hawkins	89.85	\$4,576.06	Taylor	
5/4/2016	BM	N/A		\$52.25		Lojac	86.12	\$4,499.77	Taylor	Hawkins closed
5/11/2016	Binder	\$50.62	N/A	\$46.25		Lojac	99.55	\$4,145.05	Taylor	Not running state mix
5/11/2016	Topping	\$54.18	N/A	\$53.00		Lojac			Taylor	Quote good for 1 month
5/13/2016	BM Binder	N/A	\$50.79	N/A		Hoover	19.98	\$1,014.78	Taylor	Not running state mix
5/18/2016	Binder			\$46.25		Lojac			Taylor	Single source
6/6/2016	BM Binder	\$50.50	\$51.00	\$55.78		Hawkins	63.80	\$3,221.90	Taylor	Lojac low bid for May
6/9/2016	BM	\$50.50				Hawkins	305.44	\$15,424.72	Taylor	Hawkins
6/21/2016	Fine BM	\$50.50				Hawkins	15.88	\$801.94	Taylor	Low bid for June
6/22/2016	Fine BM	\$50.50				Hawkins	12.07	\$609.54	Taylor	Hawkins low bid for June
7/6/2016	Binder	\$50.80	\$51.43	\$54.18		Hawkins			Taylor	Hawkins - low bid for July
7/6/2016	Topping	\$58.60	\$59.03	\$62.19		Hawkins			Taylor	Hawkins - low bid for July



## MWSD Operations & Maintenance Dashboard Report July 2015 - June 2016

	<i>Jul</i>	<i>Aug</i>	<i>Sep</i>	<i>Oct</i>	<i>Nov</i>	<i>Dec</i>	<i>Jan</i>	<i>Feb</i>	<i>Mar</i>	<i>Apr</i>	<i>May</i>	<i>Jun</i>	<i>Total</i>
<b>Water Pipe (ft) - New Construction</b>													
6" C-900	0	0	0	480	0	0	0	0	0	0	0	10	<b>490</b>
8" C-900	581	0	838	0	0	0	0	827	1,880	180	0	342	<b>4,648</b>
6" Ductile Iron	9	0	33	8	0	0	0	17	23	0	0	8	<b>98</b>
8" Ductile Iron	0	0	0	0	0	0	0	0	11	15	11	0	<b>37</b>
1" Copper	567	0	19	0	290	0	43	0	0	450	1,053	142	<b>2,564</b>
2" Copper	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>Total</b>	<b>1,157</b>	<b>0</b>	<b>890</b>	<b>488</b>	<b>290</b>	<b>0</b>	<b>43</b>	<b>844</b>	<b>1,914</b>	<b>645</b>	<b>1,064</b>	<b>502</b>	<b>7,837</b>

<b>Sewer Pipe (ft) - New Construction</b>													
6" SDR-35	0	522	0	0	22	0	0	0	0	0	0	0	<b>544</b>
8" SDR-35	0	726	0	0	0	0	20	0	0	0	0	0	<b>746</b>
6" Ductile Iron	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
8" Ductile Iron	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>
<b>Total</b>	<b>0</b>	<b>1,248</b>	<b>0</b>	<b>0</b>	<b>22</b>	<b>0</b>	<b>20</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1,290</b>

<b>Paving (tons)</b>													
Asphalt	400.00	262.66	70.55	292.69	53.77	141.70	50.15	0.00	0.00	84.11	357.53	397.19	<b>2,110.35</b>
Stone	1,065.58	2,714.41	1,496.48	923.12	799.86	695.50	1,279.30	1,169.48	2,298.18	683.30	826.83	916.47	<b>14,868.51</b>

<b>New Stubs Water Pipe (ft)</b>													
1" Copper	488	780	657	700	0	600	0	0	0	0	0	0	<b>3,225</b>
2" Copper	0	0	0	0	0	0	0	0	0	0	0	0	<b>0</b>

<b>Stormwater Televised Lines &amp; Line Cleaning (ft)</b>													
Line Cleaning	3,000	5,078	4,914	13,000	0	0	5,000	2,000	3,000	0	6,190	0	<b>42,182</b>
Televised Lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	<b>0.00</b>

<b>Sewer Televised Lines &amp; Line Cleaning (ft)</b>													
Line Cleaning	71,618	47,702	33,982	109,094	43,160	48,671	53,022	84,492	20,181	65,060	49,985	56,406	<b>683,373</b>
Televised Lines	29,991.30	20,586.00	34,949.00	40,363.40	2,382.00	15,090.90	14,251.00	19,773.00	20,564.40	34,548.50	11,398.00	21,316.00	<b>265,213.50</b>
Televised Laterals	1,254.00	2,395.00	538.00	191.00	1,816.00	855.00	2,000.00	1,508.00	5,243.00	997.00	700.00	1,699.00	<b>19,196.00</b>
Televised Lines (Warranty)	0.00	0.00	486.00	1,186.00	15,908.90	16,186.60	5,841.50	3,784.00	10,856.00	0.00	0.00	0.00	<b>54,249.00</b>



## MWSD Operations & Maintenance Dashboard Report July 2015 - June 2016

	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total
--	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-------

Sewer Rehab													
Maintenance Projects	16	12	3	10	14	28	8	12	9	29	21	9	171
Lateral Replacement Pipe (ft)	67	20	35	40	49	104	29	107	84	194	200	64	993
Restoration	22	30	36	61	19	1	2	14	31	17	29	12	274

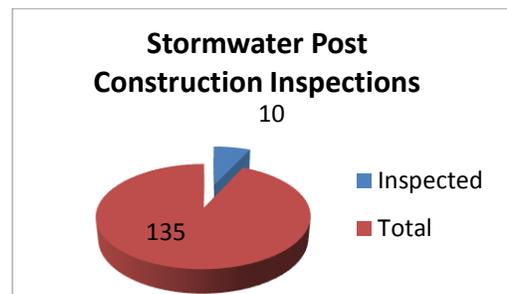
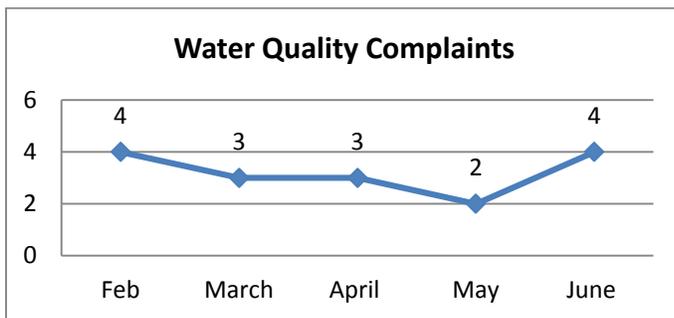
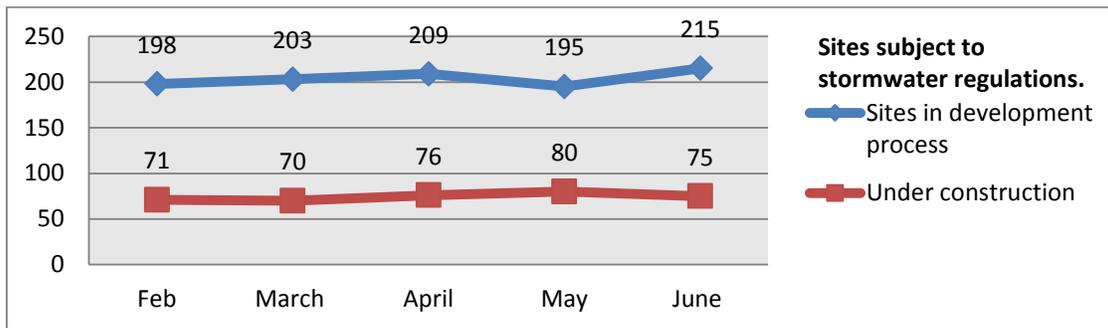
Private Lateral													
Services	4	2	3	3	0	0	0	0	1	8	2	7	30
4" C-900 (ft)	460	110	70	93	0	0	0	0	46	535	92	395	1,801
6" C-900 (ft)	46	54	27	25	0	0	0	0	5	30	26	9	222

Collection Maintenance													
New Sewer Cleanouts	54	77	81	91	45	59	71	77	93	92	96	149	985
GIS Located cleanouts	9	8	13	6	10	2	6	8	1	9	8	2	82

Distribution Maintenance													
Fire Hydrants - New	4	4	0	2	3	1	0	7	5	2	0	0	28
Fire Hydrants - Blow off	0	0	0	1	0	0	0	0	0	0	0	0	1
Main Water Line Damage	1	0	0	0	0	1	1	0	0	0	0	0	3
Main Water Line Leak	6	3	9	5	8	6	14	1	7	3	7	3	72
New Taps	27	1	5	0	4	2	0	0	4	4	6	7	60
New Stubs	21	15	21	17	0	15	0	0	0	0	0	0	89
Tap Replacements	3	0	16	1	0	1	16	9	2	1	0	0	49
Tap Replacements (New Const)										25	44	6	75
Meter Connections	18	11	3	3	19	8	6	5	11	13	3	17	117

Distribution & Collection													
Service Calls	239	271	271	214	217	219	211	187	274	278	217	240	2,838
TN One Call Locates	1,235	1,258	1,252	1,189	1,073	1,037	959	1,149	1,644	1,597	1,609	1,577	15,579
Water & Sewer Inspections	110	80	84	103	49	71	76	88	92	93	112	140	1,098
Water & Sewer Final Insp	71	57	77	69	80	68	67	52	77	73	89	92	872
<b>Total</b>	<b>1,655</b>	<b>1,666</b>	<b>1,684</b>	<b>1,575</b>	<b>1,419</b>	<b>1,395</b>	<b>1,313</b>	<b>1,476</b>	<b>2,087</b>	<b>2,041</b>	<b>2,027</b>	<b>2,049</b>	<b>20,387</b>

## Stormwater June 2016



### Monitoring and Sampling

**Stream Miles Assessed (VSA June 2016)**  
 May - 0 miles  
 June - 2 miles  
 Year to Date - 2.2 miles

**Samples Taken**  
 May - 8 (biological)  
 June - 8 (biological)  
 Year to Date - 27

**Outfall Screenings**  
 May - 0  
 June - 0  
 Year to Date - 2

### Stormwater Infrastructure

**Gravity Mains (ft)**  
 June - 3,748  
 Year to Date - 25,513

**Junction Boxes**  
 June - 38  
 Year to Date - 225

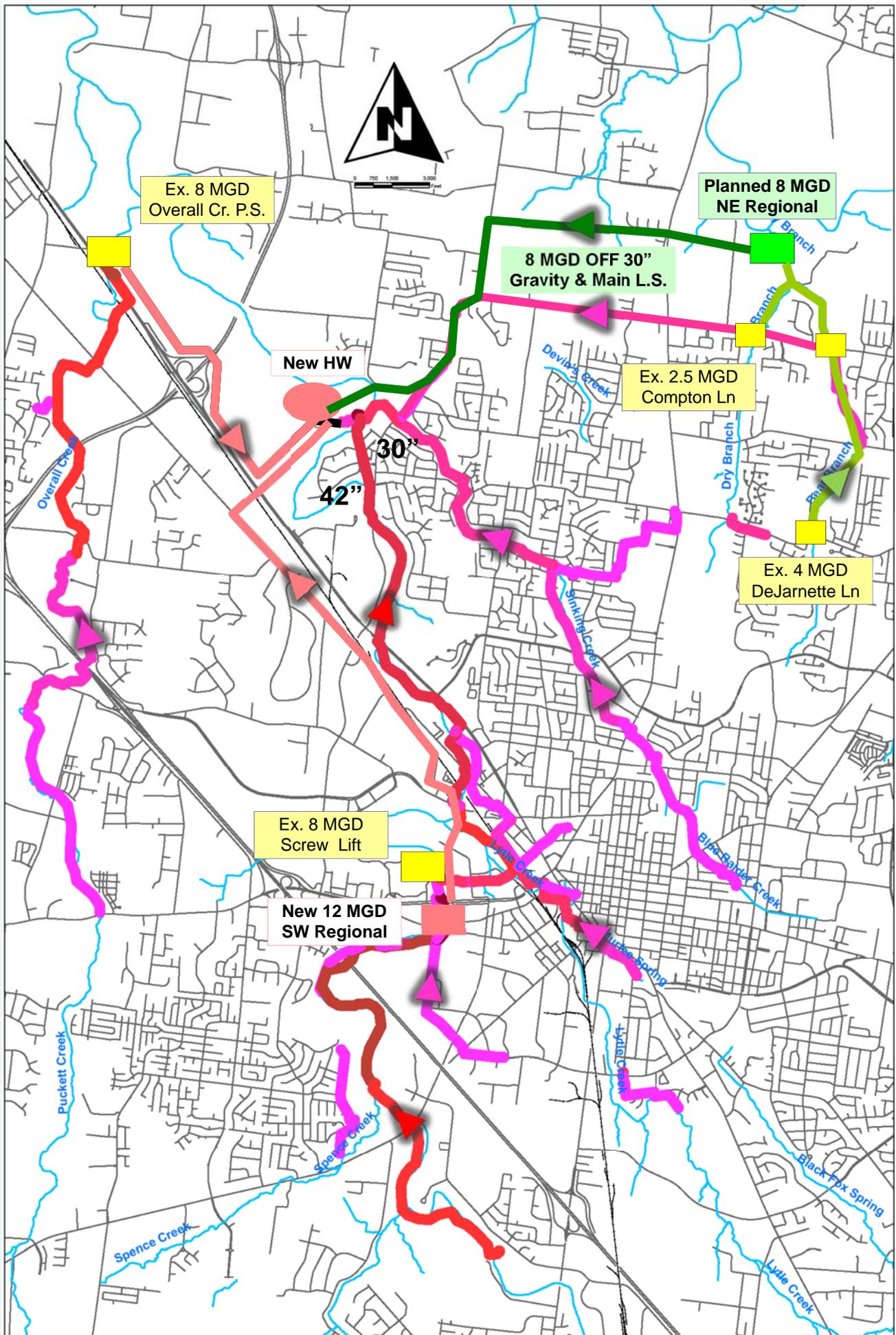
**Weirs/Headwalls/Basins**  
 June - 0/7/1  
 Year to Date - 10/62/10  
**Pavers/ P. Concrete**  
 Total to date: 30.2 acres

**Outfalls**  
 May - 1  
 June - 0  
 Year to Date - 6

### Stormwater Activities

**Outreach Events**  
 May - 1  
 June - 1  
 Year to Date - 5

**Ongoing Projects**  
 - West Fork Stones River bank stabilization  
 - Invasive aquatic plant treatment at Murfree Spring Wetlands  
 - Biological sampling to gage effectiveness of programs



Ex. 8 MGD  
Overall Cr. P.S.

Planned 8 MGD  
NE Regional

8 MGD OFF 30"  
Gravity & Main L.S.

New HW

Ex. 2.5 MGD  
Compton Ln

30"

42"

Ex. 4 MGD  
DeJarnette Ln

Ex. 8 MGD  
Screw Lift

New 12 MGD  
SW Regional

Puckett Creek

Spence Creek

Spence Creek

Devlin's Creek

Dry Branch

Sinking Creek

Lyle Creek

Lytle Creek

Black Fox Spring

Lytle Creek

